2013 Update

Roadmap for Coordinated and Enhanced Green Building Services

City of Fort Collins
Environmental Services

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City of Fort Collins
Environmental Services Department
January 2014

ACKNOWLEDGEMENTS

The collaborative efforts of many individuals made the 2013 Update of the *2007 Roadmap for Coordinated and Enhanced Green Building Services* possible. The coordinators worked with City staff, advisors, and consultants to assemble and analyze the research found in this document. We are grateful for the expertise of all involved in the compilation of this update.

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EXECUTIVE SUMMARY

The City of Fort Collins aspires to become a center for advancing green building in the community and to transform the existing successful green building programs from a collection of independent services supported by various City departments to a coordinated, integrated program that addressed the entire built environment. In addition, the City has set aggressive greenhouse gas reduction goals and in its *2008 Climate Action Plan* includes green building strategies as a significant component of achieving these emissions reductions. The *2007 Roadmap for Coordinated and Enhanced Green Building Services* (*2007 Roadmap*) outlined a plan for accomplishing these goals. This update to the *2007 Roadmap*, highlights progress made on advancing the green building program and includes opportunities for future enhancements. The update involved the completion of four tasks:

- Summary of Progress on *2007 Roadmap* Recommendations
- Review of Peer City Green Building Programs
- Review of Potential Code Conflicts
- Identification of Emerging Opportunities for Program Enhancements

The results of Task 1, *Summary of Progress on the 2007 Roadmap Recommendations*, indicated that the City has made significant progress in enhancing the green building program with the adoption of the Building Code – Green Amendments, redesign of the Integrated Design Assistance Program (IDAP), and implementation of Low Impact Development stormwater requirements. This task also identified over 100 programs, plans, and initiatives that have a green building component. Three areas of improvement were identified for immediate focus: building internal capacity, creating web-based resources, and developing streamlined review and permitting processes.

The results of Task 2, *Review of Peer City Green Building Programs*, compared several components of green building programs in Fort Collins to seven comparable cities. Fort Collins was identified as a leader in many aspects of its green building programs, particularly for the Utilities' rebate and incentive programs. This task also identified five areas for potential enhancements including establishing an interdisciplinary green building team.

The results of Task 3, *Review of Potential Code Conflicts*, identified potential conflicts and barriers to green building between the building code green amendments and other local codes and standards. Four areas of code conflict that create potential impediments to green building were identified including infill development, stormwater design, and landscaping standards.

Upon completion of the three update tasks, staff completed a fourth task, *Identification of Emerging Opportunities for Program Enhancements*. This task identified several strategies for improving and enhancing the City's green building program in the immediate future. An important opportunity includes defining the scope of green building to recognize connections between the building, the site, and the neighborhood. A second critical opportunity for building a cohesive, comprehensive, and streamlined program is to build internal capacity, including creating an interdisciplinary team of experts, designing and institutionalizing interdisciplinary planning processes, and developing tools for tracking program effectiveness.

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Definitions

Alternative Transportation – A term that refers to modes of transportation that support energy efficiency, non-fossil fuel based fuels, or non-motorized travel. Examples include; electric vehicles; alternative fueled vehicles including compressed natural gas, liquefied propane gas, and hydrogen; bicycles, walking, and public transit.

Built Environment – Human-made structures that provide space for human activity. This includes: buildings; infrastructure for transportation, energy transmission and delivery, water and wastewater systems; and green space for parks, natural areas, and agriculture.

Commissioning – a quality assurance process for new construction to verify that all of the buildings systems operate as intended and meet applicable requirements. The process may also ensure that the building staff is prepared to operate and maintain the systems and equipment.

Daylighting – Illumination of indoor spaces by natural light. In buildings, this is often achieved through solar tubes, skylights, or windows.

Flush-out – or "Building Flush" is a process of forcing air through the buildings prior to occupancy to remove pollutants that may be harmful to human health.

Gentrification – Shift in urban community area toward wealthier residents and/or businesses typically as a result of investment by the local government, community activists, or business groups. While there are pros to this type of shift, such as economic development and increased property values, it is often linked to the displacement of low income residents.

PV or Photovoltaic – PV power generation utilizes solar panels with solar cells containing photovoltaic material to convert solar radiation into direct current electricity.

Sick Building Syndrome – A condition attributed to unhealthy or stressful factors in a building environment such as poor ventilation that can cause headaches, respiratory problems, or other illness.

Smart Growth – An urban planning theory/practice that concentrates growth to compact walkable centers to avoid urban sprawl. The theory/practice advocates for compact, multi-modal transit-oriented land use and mixed use development and mixed-income housing types.

Acronyms

CDNS	Community Development and Neighborhood Services
CSU	Colorado State University
EPA	Environmental Protection Agency
FortZED	Fort Collins Zero Energy District
GB	Green Building
GBP	Green Building Program
GHG	Greenhouse Gas
GMA	Growth Management Area
HVAC	Heating, Ventilation, and Air Conditioning
IBC	International Building Code
IDAP	Integrated Design Assistance Program (City of Fort Collins)
IECC	International Energy Conservation Code
IRC	International Residential Code
LCUASS	Larimer County Urban Area Street Standards
LEED	Leadership in Energy & Environmental Design
LID	Low Impact Development
LUC	Land Use Code
MUC	Municipal Code
NoCo	Northern Colorado
PDOD	Planned Development Overlay District
PFA	Poudre Fire Authority
PRPA	Platter River Power Authority
PV	Photovoltaics
REACH	Residential Energy Assistance through Community Help
REP	Residential Environmental Program
TOD	Transit Overlay District
URA	Urban Renewal Authority
USDA	United States Department of Agriculture
VOC	Volatile Organic Compounds
WRAP	Waste Reduction and Recycling Assistance Program

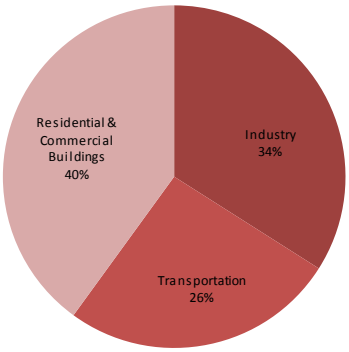
I. BACKGROUND

The Green Building Program Vision

Green Building is a broad term that most commonly refers to a set of principles and strategies that seek to reduce the impacts of the built environment on human health and the natural environment. Green building practices range from constructing energy and water efficient buildings, to incorporating on-site energy generation and stormwater treatment, to designing multi-modal connections between home, work, school, businesses, and services. Green building practices reduce carbon emissions and negative environmental impacts, use and distribute resources efficiently and equitably, and promote a healthy lifestyle.

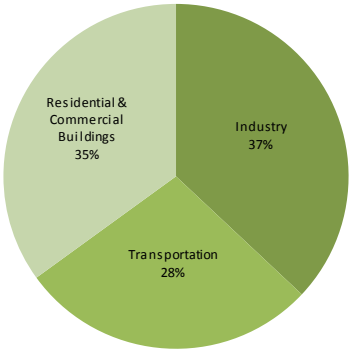
One of the key motivators for implementing a comprehensive green building program is to reduce carbon emissions generated primarily from fossil fuels consumed for electricity, heating, and cooking in buildings and in cars, trucks, airplanes, and trains for transportation. The portion of fossil fuel-based energy consumption and greenhouse gas emissions attributable to the built environment is significant both nationally and in Fort Collins. According to the U.S. Department of Energy's *Buildings Energy Data Book*, commercial and residential buildings are responsible for approximately 40% of the energy consumed in the United States. Over 25% of the energy consumed is from the transportation sector. According to the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, approximately 35% of greenhouse gas emissions generated nationally are from residential and commercial buildings. Approximately 28% of greenhouse gas emissions generated are from the transportation sector.

U.S. Energy Consumption by Sector



Source: U.S. Department of Energy

U.S. Greenhouse Gas Emissions by Sector



Source: U.S. EPA

An effective green building program that integrates and maximizes efficiencies throughout the entire built environment can have a significant impact approximately two thirds of current energy use and greenhouse gas emissions.

In addition to reducing carbon emissions, a green built environment also improves indoor and outdoor air quality, reduces waste streams, promotes equitable housing, revitalizes blighted areas, improves worker productivity, creates markets for green products and services, supports

transit systems, and improves overall quality of life. The City's Green building program seeks to create a built environment that promotes health, productivity, and sustainability.

Health: Green building principles can have a significant positive effect on the health of a community by reducing exposure to indoor and outdoor air pollutants, providing opportunities for exercise and reducing obesity rates, providing access to local healthy food, and improving overall quality of life. The U.S. Office of Energy Efficiency and Renewable Energy notes a significant reduction of "sick building syndrome" in green building occupants, with some studies showing 35% lower absenteeism in buildings with improved indoor air quality.[1]

Productivity: Green building principles can result in fewer lost work and school days and promote a more collaborative working and living environment. Positive economic impacts of green building can include billions of dollars in investment opportunities, higher occupancy rates and property values, and revitalization of blighted areas. Green building can create markets for green products and services, promote affordable housing, and support transit systems. In 2003, the California Energy Commission funded research to determine how the indoor environment affects office worker performance.[2] The results indicated that workers performed 10-25% better on mental function and memory recall tests when they had the best possible view of the outdoors versus those with no view. The study also found that students in classrooms with improved daylighting increased their test scores in math and reading compared to those with the least amount of daylighting. Green building principles and investments in energy efficiency can improve community self-reliance, create local jobs, extend the life of and reduce the cost/risks of critical infrastructure investments

Sustainability:, In Fort Collins, over 80% of energy consumed can be attributed to the built environment (buildings and transportations). More than 95% of that energy comes from fossil fuel based sources such as coal, oil, and natural gas. Therefore, energy use in the built environment is responsible for a majority of the greenhouse gas emissions generated in Fort Collins. Green building principles and practices can contribute towards significantly reducing these emissions. An effective green building program can have additional environmental, economic, and social co-benefits. Strategies that promote a green built environment are essential for meeting the City's energy efficiency and greenhouse gas reduction goals.

[1] "3.0 The Social Benefits of Sustainable Design," United States Department of Energy, accessed November 6, 2013, http://www1.eere.energy.gov/femp/pdfs/buscase_section3.pdf .
[2] "Windows and Offices: A Study of Office Worker Performance and the Indoor Environment," California Energy Commission, Sacramento, California, October 2003.

History

Roadmap for Coordinated and Enhanced Green Building Services (2007 Roadmap)

In 2007, the City initiated development of a comprehensive, cohesive green building program that would coordinate and advance existing built environment programs, services, and resources. Interdepartmental teams from the City and community stakeholders undertook an extensive review process including research about peer cities. The resulting plan recommended 28 tasks under four action areas, to be completed over a one to five year period. The *2007 Roadmap* is included in Appendix A.

Building Code - Green Amendments

Beginning in 2009, the Fort Collins Utilities Service Area led an interdisciplinary team in developing a green building framework. The team presented this framework to City Council in January 2010 and received positive feedback. After reviewing the 2008 National Green Building Standard and other national codes, staff recommended that the project focus on developing a strategic selection of code amendments to further "green" the existing building codes. This led to the creation of two technical review advisory committees and the development of "Green Amendments" to the Building Codes, adopted in March 2011 and effective January 1, 2012.

2013-2014 Budget for Outcomes (BFO) Item 82.3 – Green Building Future

The City Council approved a budget offer in 2012 to update the *2007 Roadmap* and to prioritize next steps for Fort Collins, especially in areas of above-code, market-driven approaches, and benchmark Fort Collins against national and international best practices. The offer recognized the need to focus on other elements of the green building program, in addition to code requirements, and to expand the program beyond the building into other aspects of the built environment. Updating the *2007 Roadmap* included three investigative tasks, identification of opportunities to enhance the green building program, and a presentation to Council in October 2013 to reaffirm the City's commitment to implement an expanded green building program. This report documents the results of the update results and Council feedback. Further implementation of program enhancements and next steps will begin in 2014.

Policy Alignment

Green building principles align with the City's goals of sustainability, reduced carbon emissions, energy efficiency and water conservation. The benefits realized from the principles and practices of green building are critical for achieving the goals and objectives of several City plans and policies.

2011 City Plan

City Plan is the comprehensive master plan that includes supporting principles and policies within seven key outcome areas. Principles ENV 5 and ENV 6, under the "Environmental Health" outcome, support green building principles by establishing policies to reduce net energy use from new construction as well as existing buildings and homes.

2011 Air Quality Plan

The Air Quality Plan identifies the green building program, and the Building and Land Use Code Amendments, as actions that support air quality improvement. The plan states that green building practices reduce emissions of sulfur dioxide, nitrogen dioxide and greenhouse gases.

2009 Energy Policy

The Energy Policy includes a goal to support the community's goal of reducing carbon emissions by 20% below 2005 levels by 2020 and 80% by 2050. In order to meet this goal, the policy encourages energy efficiency and conservation programs with an objective of saving at least 1.5% of annual electricity use through these programs. The Energy Policy is scheduled to be revised and presented to City Council in 2014 and may include revised energy efficiency and carbon reduction goals.

2009 Water Conservation Plan

This plan includes goals and recommendations for water conservation. The programs and measures included in the plan target residential and commercial customers for both indoor and outdoor water use. Water conservation is a critical proactive response when faced with supply variability and climate change. Water efficiency in buildings and landscapes is important to reduce demands on the City's potable water supply.

2008 Fort Collins Climate Action Plan

The City's Climate Action Plan includes green building as a strategy for meeting the 2020 carbon reduction goal and estimates a benefit of 4,000 tons of carbon dioxide equivalents (CO_2e) as a result of using building codes to update energy efficiency standards. The Environmental Services Department will be leading an effort to update this plan in 2014.

2004 Action Plan for Sustainability

The Action Plan for Sustainability identified policies, goals, and targets for advancing sustainability in City operations. The plan prioritized nine areas of importance for sustainable practices. Four of these areas incorporate green building principles: green buildings, healthy ecosystems, sustainable energy, and pollution and waste reduction. Initially, the plan required that all City buildings achieve LEED Silver certification, which was increased to LEED Gold certification in 2006. In 2009, the Action Plan was amended to include numerical targets for carbon, electricity and natural gas, fuel reduction, solid waste education, natural areas and parks, and water consumption. In the 2013 update to this plan entitled, *2013 Municipal Government Sustainability Management Plan*, additions included energy intensity goals, renewable energy goals, local food and sustainable purchasing goals.

City of Fort Collins Building Design Standards

The design standards outline the requirements for the design, remodeling, and construction of City buildings and facilities. The standards include requirements for LEED Gold certification,

waste minimization, and compliance with the Building Code – Green Amendments. An update to the design standards occurred in October 2013.

Fort Collins Stormwater Criteria Manual

The Stormwater Criteria Manual sets stormwater policies and provides drainage criteria for all new stormwater design and construction activities. The manual incorporates most of the Urban Drainage and Flood Control District (UDFCD) Manual with amendments that are unique to Fort Collins. In February of 2013, City Council adopted the Low Impact Development (LID) policy and criteria which are incorporated in Chapter 3 of the manual.

II. EVALUATION OF EXISTING GREEN BUILDING PROGRAM

The *2007 Roadmap* evaluated the City's existing green building program and developed a plan to coordinate and advance built environment programs, services, and resources. The plan recommended 28 actions in four areas:

- Mandate Minimum Performance and Remove Barriers
- Encourage Innovation
- Reward Success
- Build Internal City Capacity

A summary of the recommended actions from the *2007 Roadmap* is included in Table 1. The recommendations were categorized as short term (1 year); mid-term (within 3 years); and ongoing. The *2007 Roadmap* also identified 45 discreet programs and services provided by the City, both voluntary and regulatory, that were related to the built environment. A key theme throughout the *2007 Roadmap* was better coordination of the many City programs and services that contain green building components into one cohesive program.

The funding of the *Green Building Future* budget offer (BFO) for 2013-2014 presented staff with an opportunity to evaluate the existing green building program and update the *2007 Roadmap*. The completion of the *2007 Roadmap* occurred over five years ago and several key recommendations have not been fully realized yet. An update and revitalization of the vision for the City's green building program is appropriate at this time because the City is engaging in several concurrent and related planning efforts that should be integrated with the enhancement of the green building program. These include the City's Climate Action Plan, Energy Policy, Sustainability Management Plan, Road to Zero Waste, building code revisions, and major corridor planning. In addition, the green building program would benefit from expansion and enhancement to respond to new and emerging circumstances:

- Colorado Economic Indicators are on the rise, unemployment rates are steadily decreasing, and Fort Collins is experiencing a surge in new development.
- President Obama released a Climate Action Plan for the nation in June 2013 that includes several actions to accelerate green building.
- Current trends in land use, development patterns, and travel behavior are changing dramatically and support green building practices.
- The MAX Bus Rapid Transit system is coming online and green building practices can help to ensure its success.
- The Governor's Energy Office has created a mechanism for adding energy and related "green" features to multiple listing services (MLS) across Colorado.

During 2013, the Environmental Services Department, with assistance from Architectural Energy Corporation, initiated a review of the existing green building program, completed three review tasks, and identified emerging opportunities for enhancing the green building program in the near future.

Table 1: 2007 Recommendations for Reaching a Green Building Vision (from *2007 Roadmap for Coordinated and Enhanced Green Building Services*)

Action	Short-term (within 1 year)	Mid-term (within 3 years)	Ongoing
Mandate Minimum Performance and Remove Barriers	• Update commercial energy code requirements	• Research all City codes/standards to identify barriers and opportunities • Create green building code compliance application tools • Require green building as prerequisite for public financing	• Review and update residential and commercial energy code requirements on a regular basis
Encourage Innovation	• Create web-based coordinated access to City green building resources • Promote Integrated Design Assistance Program • Create targeted green building information for typical citizens • Sponsor external green events	• Research potential incentives for green building related to development review, permitting, and inspection • Provide benchmarking tools for existing buildings • Provide design target tools for new buildings • Identify needs and provide external training/education opportunities	• Establish a green building track for new projects
Reward Success	• Continue existing financial rebate programs • Evaluate prescriptive and/or performance building rebates for residential customers	• Develop water efficiency/conservation value structure	• Evaluate/implement technology-specific rebates for energy and water conservation • Provide public recognition for green building leaders/success stories
Build Internal City Capacity	• Create a Green Building Team to implement the roadmap • Build consensus among City leaders and management for a green building vision for Fort Collins • Raise awareness of LEED requirements for new City buildings	• Benchmark City buildings and improve existing building performance • Convert this project's matrix of green building programs and services to a useful tool for green building professionals	• Develop a process for continuous improvement of City green building services • Develop internal City education program related to green building • Promote/coordinate State and regional partnerships/efforts • Research and document the local economic benefits of green building

TASK 1 – SUMMARY OF PROGRESS ON 2007 ROADMAP RECOMMENDATIONS

An evaluation of progress that has been made to date on the 28 recommendations from the *2007 Roadmap* was completed. The project team reviewed programs and initiatives related to green building and conducted interviews with staff who lead these programs.

A graphic display of this evaluation is provided in Table 2. Green indicates that completion of the task occurred within the short or mid-term timeframe, or is ongoing with adequate support and resources. Yellow indicates that some progress has been made on the task but it is not meeting the timeframe goal or is lacking support and/or resources to continue making progress. Red indicates that there has been little-to-no progress made since the publication of the *2007 Roadmap*.

The most significant progress accomplished under the green building program since the *2007 Roadmap* has been adoption of the Building Code – Green Amendments. The code amendments include requirements for both commercial and residential new construction. The amendments address energy and water efficiency, building commissioning and flush-out, heating and ventilating design and testing, construction waste recycling, and sustainable materials. Other areas of significant progress include rebate and incentive programs developed by Utilities Services, and education and training conducted by several departments.

The review of the *2007 Roadmap* recommendations identified three areas of immediate focus for implementing a comprehensive green building program. These focus areas include establishing an internal green building program team to implement the program, developing cohesive web-based resources for green building tools and information, and forming streamlined processes for green building projects.

Table 2: Summary of Progress on 2007 Roadmap Recommendations

Recommendation	Duration	Rating	Status	Proposed Next Steps
Mandate Minimum Performance and Remove Barriers				
Update commercial energy code requirements	short		"Building Code Green Amendments" completed 2011, effective Jan. 1, 2012.	
Research all City codes / standards to identify barriers and opportunities	mid		A review of code conflicts identified by staff completed Sept. 2013. A code comparison matrix completed in 2010. Comprehensive, simultaneous comparison of LUC, MUC, LCUASS, etc. is still needed.	Continually review codes as new programs and initiatives are added. Compare current suite of programs to codes.
Create green building code compliance application tools	mid		Some tools have been created by Utilities.	Commit more resources needed in Building department and/or Utilities to develop tracking and compliance tools.
Require green building as prerequisite for public financing	mid		URA policies currently undergoing revision to include "Design to Earn EnergyStar".	Prioritize use of funds (which green practices should be funded). Commit resources to gather data and build support for stronger GB requirements to be included in policies.
Review and update residential and commercial energy code requirements on a regular basis	ongoing		Completed on a regular basis (3-year cycle). 2012 IRC, IBC, and IECC currently under review.	2013 update ongoing. Tentative Council adoption by Jan. 2014
Encourage Innovation				
Create web-based coordinated access to City green building resources	short		No "one-stop" web resource exists for the Green Building Program. Utilities created a great web portal that was active during GB code development but has since been taken down.	Commit resources and identify team responsible for updating and department responsible for creating, updating and maintenance of public site. Add internal component for staff to communicate, share ideas, draft documents, or initial project plans.
Promote Integrated Design Assistance Program	short		Program has been successfully implemented through Utilities. Currently undergoing a re-design to incorporate Architecture 2030 principles.	Continue to review effectiveness of program and update as necessary.
Create targeted green building information for typical citizens	short		Residential Environmental Program series has been successfully implemented for over 25 years. Opportunity exists for public education targeted for green building practices.	Commit resources to develop educational materials and outreach for citizens on deep energy retrofits and Net Zero energy use.
Sponsor external green building events	short		Events have been sponsored by some departments but efforts have not been focused or coordinated.	Designate an interdepartmental team to develop a more collaborative, strategic approach to supporting GB events that specifically highlight GB.
Research potential incentives for green building related to development review, permitting, and inspection	mid		Some research has been conducted by staff in multiple departments. PDOD program has been initiated.	Commit resources and identify an interdepartmental team to explore other planning mechanisms and incentives.
Provide benchmarking tools for existing buildings	mid		Operation Services uses Energy Star tool and commercial energy index.	Develop tools (or promote use of existing tools) for non-city buildings.
Provide design target tools for new buildings	mid		Operation Services has revised building standards to incorporate Architecture 2030 standards.	Encourage use tools such as EPA Target Finder.
Identify needs and provide external training/education opportunities	mid		Utilities and Building department identified and developed contractor training for HVAC and other GB codes.	Develop educational program for staff and community on green building principles.
Establish a green building track for new projects	ongoing		PDOD pilot project establishes an alternate process.	Develop streamlined GB permitting process or alternate compliance options. Support and enhance PDOD.

Table 2 (cont.'d): Summary of Progress on Roadmap Recommendations

Recommendation	Duration	Rating	Status	Proposed Next Steps
Reward Success				
Continue existing financial rebate programs	short		Several energy, water, and other rebate programs ongoing.	Review effectiveness of existing rebates and strategically evaluate additional incentives.
Evaluate prescriptive and/or performance building rebates for residential customers	short		Rebates and incentives available from Utilities. The Home Efficiency Program established in 2010 includes audits, rebates, and on-bill financing.	Streamline the process for easier participation.
Develop water efficiency /conservation value structure	mid		Tiered water rates, rebates, and outreach programs ongoing.	Consider adopting conservation rates.
Evaluate / implement technology specific rebates for energy and water conservation	ongoing		Rebates available for sprinklers, toilets, lighting, appliances, on-bill financing for solar, home improvements.	Continue to pursue other rebates and incentive programs.
Provide public recognition for green building leaders/success stories	ongoing		Climatewise and Urban Design Awards are two programs that recognize successes.	Review existing programs and continue to pursue other mechanisms and rating systems for recognizing GB.
Build Internal City Capacity				
Create a Green Building Team to implement the roadmap	short		Interdepartmental team of experts needed to implement program, review projects, develop guidance, modify code.	Create an interdiscplinary team to prioritize action items and establish focus area working groups and to address strategic challenges and program gaps.
Build consensus among City leaders and management for a green building vision for Fort Collins	short		Many new managers since roadmap was developed. Need to build understanding of and support for GB program.	Educate managers on connection City's GHG and Sustainability goals and hold managers responsible for department energy use.
Raise awareness of LEED requirements for new City buildings	short		Operation Services has revised building standards to incorporate Architecture 2030. Environmental Services Department provides LEED training for staff.	Operation Services could provide education and outreach to staff and contractors.
Benchmark City buildings and improve existing building performance.	mid		Benchmarking is done by Operation Services.	Commit additional resources to enhance tools and tracking and to conduct assessments.
Convert this project's matrix of green building programs and services to a useful tool for green building professionals	mid		Not completed. Information and resources scattered among several departments. No "one-stop" for tools, rebates, standards, codes, guidance.	Commit resources to develop tools and guidance in concert with website and other outreach programs. Identify team responsible for this task.
Develop a process for continuous improvement of City green building services	ongoing		Not developed yet.	Develop internal processes and build capacity to implement and improve program.
Develop internal City education program related to green building	ongoing		ClimateWise conducts education events on sustainability issues. City employees are eligible for Sustainability Scholarships for training and education. The City Sustainability Coordinator organizes educational opportunities on related subjects.	Develop integrated, interdepartmental training program or education series.
Promote / coordinate State and regional partnerships / efforts	ongoing		Utilities and CDNS work with PRPA, NoCO builders associations, etc.	Develop and strengthen relationships with neighboring communities.
Research and document the local economic benefits of green building.	ongoing		This was done for the green bldg. code amendments and some review is done during code updates.	Commit resources and designate staff responsible for this task.

= Task completed within timeframe or ongoing with adequate support and resources

= Some progress made but not meeting time-frame or lacks support or resources

= Little or no progress made since the *2007 Roadmap*

In addition to reviewing progress on the *2007 Roadmap* recommendations, the project team compiled a list of all City programs, services, and initiatives that have a green building component. This compilation is included in Appendix B. The spreadsheet lists the current programs and services offered by the City and denotes the component(s) of the built environment that the program or service addresses. This review identified over 100 programs and services provided by the City in more than ten departments that address one or more aspect of green building. Full implementation of a comprehensive green building program should include the creation of a green building program team with dedicated staff resources and leadership support to better realize and coordinate these programs and services. An important next step in the future of the green building program is to evaluate these City programs for overlaps and conflicts. Several of the most effective initiatives that support green building principles are listed below.

ClimateWise: a free, voluntary City program dedicated to helping local businesses be more sustainable by providing environmental assessments, technical assistance, and education. The program serves over 370 businesses and in 2012, participating business reduced greenhouse gas emissions by over 163,000 metric tons per year and saved $14 million.

Planned Development Overlay District (PDOD): is a pilot project that encourages infill development in locations that have permitting challenges, by allowing flexible permitting processes in exchange for more sustainable design.

Midtown Plan: an economic initiative to drive private investment along the midtown area, and to encourage connectivity to the new MAX transit system.

Integrated Design Assistance Program (IDAP): provides free consultation and technical support as well as financial incentives for energy-efficient design for new construction and major renovations in the commercial building sector.

Business Efficiency Program: a voluntary program offered through Utilities that provides education and tools for businesses to improve energy and water efficiency. Assistance includes an energy load management tool, facility assessments, and rebates for energy and water efficiency improvements, building tune-ups, and solar installation.

Home Efficiency Program: a voluntary program for homeowners that offers energy efficiency and sprinkler system audits, rebates, and on-bill financing for energy and water projects and solar installations.

Low Impact Development (LID): new code amendments that require LID evaluation for stormwater control on all new development and allow for reduced fees or incentives for additional LID design. These codes also require 25% pervious surfaces in paved areas, and 50% of paved area must drain to an LID device.

TASK 2 – REVIEW OF PEER CITY GREEN BUILDING PROGRAMS

The project to update the *2007 Roadmap* included a task to benchmark Fort Collins against other cities' best practices in green building programs and services. This task involved updating the Peer City Review from the *2007 Roadmap* to include a more current evaluation of green building

programs in comparable cities. The resulting report, completed by Architectural Energy Corporation (AEC), is included in Appendix C. The analysis compares components of green built environment initiatives in Fort Collins with the following seven cities that are considered to have strong sustainability values, innovative "green" programs, and similar characteristics to Fort Collins such as population or community values:

- Portland, Oregon
- Seattle, Washington
- Austin, Texas
- Boulder, Colorado
- Santa Monica, California
- Arlington, Virginia
- St. Petersburg, Florida

The peer review shows that Fort Collins continues to be one of the leaders in environmental sustainability initiatives and green programs. Table 3, from the AEC report, displays how Fort Collins compares to other cities in 18 categories of built environment elements. The report identified Fort Collins Utilities programs as being outstanding, exceeding four of the seven peer cities.

The report also identified five areas where Fort Collins may be able to apply strategies utilized by other cities to enhance its green building program such as:

- Create interdepartmental green building program team and City website that provides access to green building resources
- Develop green neighborhood programs
- Expand building energy rebate and incentive programs
- Consider "Feebates" as an alternative financial incentive
- Expand stormwater management incentive program

Table 3: Peer City Green Building Program Comparison

	Fort Collins, CO	Portland, OR	Seattle, WA	Austin, TX	Boulder, CO	Santa Monica, CA	Arlington, VA	St. Petersburg, FL
Interdepartmental Green Team		●	●	●				
Climate Action Plan	●	●	●	●	●	●	●	●
LEED Required for City Buildings	●	●	●	●	●	●	●	
Incentives for LEED			●				●	
Local Green Building Rating System				●			●	
Local Green Building Codes	●	●		●	●	●		●
Energy Codes	●	●	●	●	●	●	●	●
Incentives – Financial	●	●	●	●	●		●	●
Incentives – Non-Financial	●	●	●			●	●	●
Utility Programs	●	●	●	●				
Utility Rebates	●	●	●	●	●	●		●
Green Land Use Programs	●	●	●	●	●	●	●	●
Water Conservation Incentives	●	●	●	●	●	●		●
Water Conservation Programs	●	●	●	●		●		●
Waste Reduction & Recycling Programs	●	●	●	●	●	●	●	●
Education/Technical Assistance	●	●	●	●		●	●	●
Green Neighborhood Dev. Programs	●	●	●	●			●	
District Energy	●	●	●	●			●	

Indicates areas where Fort Collins is a leader among cities surveyed

Indicates areas where Fort Collins lags behind cities surveyed

TASK 3 - REVIEW OF POTENTIAL CODE CONFLICTS

An overview of potential code conflicts between the Building Code - Green Amendments and other City and County codes including Land Use Codes, Municipal Codes, and Larimer County Urban Area Street Standards was compiled by AEC. The review included a comparison of several chapters of code language and interviews with 12 staff in various departments who have worked with the implementation and interpretation of the code amendments since their adoption. A table illustrating the major issues between codes that affect green building is included in Appendix D. Highlights from this analysis include the following:

Infill development - parking requirements, street design standards, and current alternative compliance mechanisms in the development review process can discourage optimum infill development and can make it difficult to implement green building practices.

Stormwater management - parking, engineering, and street design standards prevent full implementation of Fort Collins Stormwater Criteria Manual.

Code implementation – can be difficult for multi-family new construction, additions, re-models, and abandoned buildings. Effective enforcement and verification of building commissioning and performance testing requires additional resources to fully implement.

Landscaping standards - some standards discourage xeriscaping, wastewater, and allow non-native plants and invasive species in landscapes. Requirements make it difficult to find space for other sustainable practices such as onsite energy generation, recycling, composting, and stormwater management.

III. EXPANDING THE EXISTING GREEN BUILDING PROGRAM

GREEN BUILDING PROGRAM SCOPE

The City's green building program has focused primarily on the building as an independent unit, as evidenced by the development of Building Code - Green Amendments that address energy efficiency and conservation at the building level, and rebates and financial incentives focused on specific equipment or building performance. The definition in the *2007 Roadmap* stated that green buildings demonstrate a reduced carbon footprint, energy efficiency, water conservation, waste minimization, resource-efficient materials, pollution prevention, improved indoor air quality, conservation of natural resources and improved environmental quality – both indoors and out. The *2007 Roadmap* also recognized that green building practices extend these concepts to the entire built environment for the life-cycle of new and existing buildings, their surrounding sites, and transit interconnections.

The City's partnership in FortZED, a net zero energy district, is an example of leveraging sustainability opportunities and principles at this expanded scale. The Midtown Plan and the Planned Development Overlay District (PDOD) pilot project are other examples where green building principles are applicable in a broader scope. City Plan, the Fort Collins Climate Action Plan, and the *2007 Roadmap* all recognize the importance of an integrated green building program that not only addresses the "sticks and bricks" of the building but leverages sustainable and regenerative opportunities from the site surrounding a building, as well as its connection to the neighborhood and community. The City's green building program can be more effective when the scope includes the building, the site, and the neighborhood (**Figure 1**).

Figure 1: Expanded Scope of the Green Building Program

Green Building Principles for the Building

At the building level, green building principles include energy and water efficient designs and retrofits, construction waste minimization and diversion, deconstruction, low impact structures, and use of sustainable or regenerative materials. Several encouraging ideas and practices coming to the forefront for buildings include net zero energy design, biomimicry, green and white roofs, vertical gardens, and regenerative and restorative building designs.

Green Building Principles for the Site

Green building principles that apply to the site include selecting a location with minimal impacts to its surroundings, utilizing the site's topography, and maximizing building orientation. Green site planning at the beginning of a project can allow for building orientation that takes advantage of solar and other natural features and can accommodate space for renewable energy, water retention and treatment, recycling and composting, and food production. Sustainable site planning can also encourage infill development, promote alternative transportation, and increase the use of existing infrastructure. The site component can be a place for community social engagement and urban agriculture. Local urban agriculture not only helps reduce the carbon footprint required in the current food production system, but can help alleviate the formation of "food deserts" in a community. Choosing xeric landscaping compatible with a semi-arid climate, reduces water and chemical use, and improves air quality.

Green Building Principles for the Neighborhood and Community

Green building principles at the neighborhood and community scale incorporate public space for leisure, food production, shared renewable energy, access to multi-modal transit, access to shopping, recreation, work, and other services as well as access to open spaces and natural areas. The neighborhood and community component can encourage mixed-use and affordable housing, emphasize equity and establish a sense of place, maintaining ethnic and/or historical character by avoiding "gentrification." Green building principles at the community scale can also include the implementation of car, bike and equipment sharing programs. Eco-districts, energy districts, and sustainable neighborhood programs are effectively implemented at the neighborhood scale.

ELEMENTS OF A COMPREHENSIVE GREEN BUILDING PROGRAM

In conjunction with the expanded and integrated scope, a comprehensive Green Building Program includes a wide range of strategies in addition to effective building codes. The City of Fort Collins incorporates green building principles into many of its current actions; however, to have a truly effective program that supports climate action and sustainability goals, the City would benefit from developing a comprehensive green building program that incorporates the elements described below and found in Figure 2.

Program Scope
The scope of the program should recognize the interconnectedness of the entire built environment and should include efficiencies within the building, opportunities on the site, and connections within and outside the neighborhood.

Local Codes and Ordinances
In addition to building codes for new construction, an effective program should include building codes that address retrofits of existing buildings and land use and municipal codes that support green building principles. The codes for the built environment should include a renewed focus on existing infrastructure and buildings within the City of Fort Collins.

Incentives
Both financial and voluntary incentives are critical to move the community toward green building goals. Financial incentives include fees, rebates, tax programs, and financing options. Voluntary incentives include awards, certification programs, publicity, and promotion.

Permitting and Compliance
This element includes alternative permitting and development review processes for green building projects. It also includes alternative compliance mechanisms and streamlined compliance measurement and verification processes.

Planning
Strategic, long-term master planning processes that are informed through an integrated approach to sustainable development, green building, and Smart Growth initiatives should be developed and consistently implemented.

Education
Community education and social based marketing are critical components of a comprehensive green building program. Outreach, education, and training should include information on code implementation, standard operating practices, behavior change for sustainable lifestyles, and the green building program for City staff, stakeholders, and the general public.

Policy Alignment
A comprehensive green building program should be aligned with the objectives of existing plans and policies. Green building strategies can be a mechanism for implementing and achieving goals in plans related to economic, social, and environmental health of the community.

Partnerships
Northern Colorado is home to organizations and industry leaders such as the Built Environment Working Group, U.S. Green Building Council-Northern Colorado Branch, Institute for the Built Environment, Northern Colorado Renewable Energy Society, Sustainable Living Association, Rocky Mountain Institute, Colorado State University, and many progressive architects that can be valuable partners with the City in developing a comprehensive green building program. Several initiatives that are currently underway, such as the Energy, Water, and Local Food clusters, are related to green building and the program should continue to foster working relationships with community resources.

Innovation
Fort Collins is an incubator for developing technologies and innovative thinking. The City should foster the development of innovative ideas and concepts that support sustainable development through its green building program.

Figure 2: Elements of a Comprehensive Green Building Program

IV. EMERGING OPPORTUNITIES FOR PROGRAM ENHANCEMENTS

The City of Fort Collins has undertaken significant initiatives with regards to green building principles, many of which are highlighted in this update of the *2007 Roadmap*. The gamut of City programs and services with green building components affirms the City's status as a leader among some of the most progressive cities in the nation for sustainability values. One of the objectives of the *2007 Roadmap* was to seek ways to enhance the City's green building program and develop a process for continuous improvement. Based on research to date, interviews with key staff, and identified successes, the following opportunities for enhancement could further support this objective. Program enhancements would promote the vision of an integrated comprehensive green building program, make a significant contribution towards achieving the City's greenhouse gas goals, and help create a world-class environment.

1. BUILD INTERNAL CAPACITY

The *2007 Roadmap*, a review of peer cities' green building programs, and current research for this update all highlight "building internal capacity" as an essential component for a comprehensive green building program. Building internal capacity means to:

- Create an interdepartmental team of experts, supported by City leaders, to evaluate, prioritize, and implement program enhancements (i.e., Green Building Program Team).
- Establish green building priorities in staff work plans.
- Conduct internal training on green building principles for City planners, analysts, and designers including continued support of professionals with LEED credentials.
- Coordinate internal and external programs to reduce redundancy.
- Develop web-based resources for community and staff.

The Green Building Program Team should be comprised of a group of staff experts in building, energy efficiency, planning, economics and finance, environmental quality, social sustainability and transportation who are tasked to:

- develop code compliance guidance
- develop streamlined permits and/or alternative compliance options
- collect data and develop tools for tracking program effectiveness
- coordinate external stakeholder involvement for making code modifications or establishing major program elements
- select green building elements from other programs to incorporate in an enhanced Green Building Program that focus on the integration of building, site, and neighborhood components
- develop financial incentives, "Feebates," and rebates
- select and implement project and neighborhood rating system
- coordinate land, building, and municipal code changes
- review major projects and initiatives for compatibility with green building objectives

2. Advance Building retrofits and Support Smart Growth Strategies

In order to meet goals for greenhouse gas reductions, Fort Collins must take advantage of energy efficiencies that can be realized through retrofits and upgrades to the existing building stock. In addition, Fort Collins should strengthen Smart Growth strategies that support public transit and non-fossil fuel based transportation. Industry associations, federal agencies, and other cities have developed effective, proven programs and strategies that could be applied in Fort Collins to enhance the City's green building program. LEED for Neighborhood Development, Better Buildings Challenge, EPA's Smart Growth toolkit, Living Building Challenge, IBE's LENSES, EcoDistrict Target Cities, STARS Community Challenge, Transition Fort Collins, and Net Zero Homes are all examples of programs that could be implemented in Fort Collins.

3. Develop Code Guidance and Tools for Green Building

A code application guide for builders and developers as well as a plan review guide for staff should be developed to address issues, confusion, and "lessons learned" after the first two years of implementing the Building Code - Green Amendments. The City should create tools to assist in code compliance and verification, and to determine program effectiveness. Furthermore, the creation of an internal "umbrella" structure for all built environment programs that are designed for the community under the auspice of "Sustainable Fort Collins" would greatly benefit the effectiveness and reach of these programs. The City should develop a standard operating practices for internally reviewing and evaluating major City initiatives with respect to green building and sustainable growth practices. Development of processes for internal communication and sharing of initiatives, projects, and programs related to green building would benefit staff cohesion and interdepartmental planning. Web-based resources on green building strategies, codes, and technologies should be developed as a resource for the community and staff.

4. Expand Financial and Voluntary Incentives

The City of Fort Collins currently uses a variety of financial incentives related to green building including Tax Increment Financing to encourage development in blighted areas, rebates and zero interest loans for installation of efficient appliances, on-bill financing for solar installations, and commercial building design and performance incentives through the Integrated Design Assistance Program. Voluntary incentives as well as technical assistance and recognition such at those offered through the ClimateWise program for community organizations and businesses could be enhanced and made available for residents. Policies under the Urban Renewal Authority and other economic incentive packages offered by the City could include full life-cycle analysis and evaluation of "green" principles. Opportunities for additional incentive programs include:

- *Fee related incentives* - reduce fees where innovative designs or practices result in less City infrastructure or services.

- *Tax increment reimbursement* – provide rebates or refunds for the first few years of higher property tax due to higher value of "green" projects.

- *Fee-bates* - incentives and subsidies are paid to greener projects from fees assessed on less sustainable projects

- *Alternative compliance and permitting mechanisms* – support and enhance programs such as PDOD that encourage sustainable development on sites that are challenged to comply with codes.

- *Zero Energy fees or requirements* – fee-based system for residences over certain square feet that are not already zero energy.

- *Neighborhood and building rating systems* – programs such as LEED Neighborhood Development and EPA Indoor Air Plus have demonstrated an increase in home values.

5. Municipal and Land Use Code Revisions

The adoption of the Building Code – Green Amendments was a major accomplishment in advancing the City's green building program. Implementation is ongoing as staff conducts additional training for the building community, builders and contractors work to achieve compliance with the code, and inspectors conduct verifications and building commissioning. Additional resources could be used to develop performance measurement and verification tracking tools. Potential areas where Land Use or Municipal Codes could be developed or modified include:

- Review prescriptive requirements in the Land Use Code to allow for flexible and streamlined permitting pathways or alternative compliance methods that are conducive to sustainable infill development and green building.
- Revise code language to simplify intent of some requirements and to clarify conflicting or unclear definitions and intent.
- Modify street design, landscaping, and parking requirements to remove conflicts with stormwater management and other green building principles.

6. Evaluate Program Overlaps and Conflicts

The City has an extensive and impressive catalogue of programs and services that support green building principles. The proposed Green Building Program Team should perform an evaluation of programs and services with green building components to determine opportunities to leverage programs and reduce redundancies and conflicts. Consolidation of some programs may result in a more cohesive green building program.

V. CITY COUNCIL WORK SESSION FEEDBACK

The results of the update to the *2007 Roadmap* were presented to City Council at the Work Session on October 22, 2013.

Councilmembers present: Weitkunat, Horak, Troxell, Overbeck, Cunniff, Campana

Direction Sought and Questions to be Answered

1. Does the Council have comments on the update to the Roadmap?
2. Is this the appropriate direction for future implementation and enhancement of the Green Building Program?

Council Discussion

- It is important to stay on task with the Green Building Program as the *2007 Roadmap* was a valuable piece of work when it was originally written.
- Education is an important element of the program. The scope and education elements of this program are closely related to the Building Codes.
- Innovation is an important element that should be included in the program. We should take advantage of available partnerships with CSU, Energy and Water Clusters, RMI, and others.
- Use pilot projects and demonstrations to determine effectiveness of strategies and to inform future policy.
- External stakeholders and partnerships will be very important to the process and progress.
- Include staff from many departments on interdisciplinary Green Building Team. Avoid silos and departments working in a vacuum. Hold frequent staff meetings to ensure staff are working together. Council members look forward to the creation of the team.
- Incorporate strategies into the forthcoming Climate Action Plan – building emissions were included in the 2008 Climate Action Plan and will continue to be incorporated as a key aspect of reducing our energy consumption and greenhouse gas emissions.
- Consider using gradual increases and implementation methods in order to make green building strategies economically viable.
- Determine how to best tell our City's story to residents, as well as people internationally and nationally
- Determine how the programs will be evaluated and tracked. Utilize Green Building Team with a greenhouse gas emissions focus and determine cost/benefits of strategies.
- Determine what the output and results will be. How will success be measured? Use a science-based approach including consideration of human health and sensitivities to a variety of environmental contaminants
- Evaluate the triple bottom line of strategies to be implemented and include an analysis in future presentations.
- Emphasize the environmental and social side of impacts – recent analyses have focused on economic side but with improving economy we should shift the focus.
- Create initiatives that are data and results driven. Demonstrate actual results.

Councilmembers recognized the program takes resources and will consider future BFO offers for a comprehensive Green Building Program.

VI. NEXT STEPS

Reducing greenhouse gas emissions from the built environment is a key factor for achieving the energy efficiency and climate action goals established by the Fort Collins community. Upcoming revisions to the Climate Action Plan and Energy Policy will rely on strategies to reduce the carbon footprint of the built environment. An expansion of the current green building program that: supports and enhances the current code and incentives-based approach; increases efforts to improve the performance of new and existing buildings; encourages non-fossil fuel-based modes of transportation; and, incorporates sustainable planning principles at the neighborhood scale is imperative for realizing the full potential and effectiveness of the program.

The City intends to create and convene an interdepartmental Green Building Team in early 2014 to investigate further the six opportunities identified in "Emerging Opportunities for Program Enhancements." Enhancing the City's internal capacity is a high priority. The team will explore innovative program enhancements as well as engage in partnerships with experts and stakeholders in the community, with the goal of developing a proposal for the 2015/2016 budget process.

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APPENDICES

Appendix A

August 2007

City of Fort Collins' Roadmap for Coordinated and Enhanced Green Building Services

City of Fort Collins' Roadmap for Coordinated and Enhanced Green Building Services

August 28, 2007

Acknowledgements

This plan is the result of considerable time and effort expended by a variety of people who are committed to the community and the future of coordinated green building in Fort Collins. The project team worked diligently to gather and analyze the information presented in this document, and to establish an assertive yet realistic roadmap for the future. The members of the project team that guided and developed this plan included key City staff members with support from The Brendle Group, Inc.

Project Team

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- John Phelan, City of Fort Collins Utilities
- Brian Woodward, City of Fort Collins Natural Resources Department

Consultant Team

- Judy Dorsey, The Brendle Group, Inc.
- Julie Sieving, The Brendle Group, Inc.

In addition to those on the project team, thanks are extended to community members and City staff members who participated in the interview process that informed this plan. In particular, the project team appreciates the willingness of the staff from the City's Natural Resources Department to help pilot the interview process, making it more streamlined for those that followed.

Community Participants

- Lee Barker, LR Barker Builders
- Robert W. Beccard, Aqua Engineering
- George Brelig, RB+B
- Steve Byers, Energy Logic
- Carol Dollard, Colorado State University
- Arnold Drennan, Drennan Custom Contracting
- Brad Duckham, Merten Homes
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- Bill Franzen, Poudre School District
- Dan Fuhrman, Fuhrman Landscaping
- Charlotte Harms, Component Systems
- Jason Hawk, Waste Not
- Bruce Hendee, BHA Design
- Linda Hoffmann, Nolte: Beyond Engineering
- Greg Hurst, EDAW

- Greg Jones, Porter Industries
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- Cameron Gloss, Current Planning
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- Glen Schlueter, Utilities/Stormwater Development
- Gary Schroeder, Utilities Energy Services
- Doug Swartz, Utilities Energy Services
- Norm Weaver, Utilities Energy Services
- Carol Webb, Utilities

Executive Summary

All indications are positive: community stakeholders, City of Fort Collins staff, and survey results gathered from select cities around the United States suggest that Fort Collins has strong green building programs, even exceptional in some cases. This existing green building foundation is the basis for enhancements and improvements to make green building a cornerstone of construction and renovation in the community.

The City is striving to become a coordinated center for advancing green building in the Fort Collins community by increasing general awareness, raising the bar for what is required, helping engaged stakeholders deliver high performance green buildings, and rewarding high performers. The City also understands the importance of integrating green building programs with what is happening in neighboring communities for a seamless green built environment in northern Colorado.

This *Roadmap for Coordinated and Enhanced Green Building Services* will direct the City's existing successful green building programs from a collection of independent services supported by various City departments to a coordinated program. The roadmap is the result of City guidance, community stakeholder input and research into peer cities green building efforts. The roadmap defines a green building vision for the City and provides specific recommendations for improvements, resulting in a path towards a dynamic and coordinated green building plan.

The recommendations are specific actions that can be undertaken now and in the future to sustain green building in Fort Collins. These specific actions are categorized according to the following four general actions:

1. Mandate minimum performance and remove barriers
2. Encourage green building innovation
3. Reward green building success
4. Build internal City capacity to support green building

Table ES-1 summarizes the recommendations in these categories according to timeframe (short-term, mid-term, or ongoing). Table ES-2 presents ways the City can build internal capacity to support green building.

The roadmap also proposes creating a Green Building Team to implement the short- and medium-term recommendations. In addition to coordinating existing programs and services, the team's responsibilities will include building awareness and support for green building, both internally and externally.

Table ES-1. Recommendations for Reaching Green Building Vision

Action	Short-term (within 1 year)	Mid-term (within 3 years)	Ongoing
Mandate Minimum Performance and Remove Barriers	• Update commercial energy code requirements.	• Research all City codes/standards to identify barriers and opportunities. • Create green building code compliance application tools. • Require green building as prerequisite for public financing.	• Review and update residential and commercial energy code requirements on a regular basis.
Encourage Innovation	• Create web-based coordinated access to City green building resources. • Promote Integrated Design Assistance Program. • Create targeted green building information for typical citizens. • Sponsor external green building events.	• Research potential incentives for green building related to development review, permitting, and inspection. • Provide benchmarking tools for existing buildings. • Provide design target tools for new buildings. • Identify needs and provide external training/education opportunities.	• Establish a green building track for new projects.
Reward Success	• Continue existing financial rebate programs. • Evaluate prescriptive and/or performance building rebates for residential customers.	• Develop water efficiency/conservation value structure.	• Evaluate/implement technology-specific rebates for energy and water conservation. • Provide public recognition for green building leaders/success stories.
Build Internal City Capacity	• Create a Green Building Team to implement the roadmap. • Build consensus among City leaders and management for a green building vision for Fort Collins. • Raise awareness of LEED requirements for new City buildings.	• Benchmark City buildings and improve existing building performance. • Convert this project's matrix of green building programs and services to a useful tool for green building professionals.	• Develop a process for continuous improvement of City green building services. • Develop internal City education program related to green building. • Promote/coordinate State and regional partnerships/efforts. • Research and document the local economic benefits of green building.

Table of Contents

1.0 Background

The City of Fort Collins offers green building programs and services through several departments depending on the nature of the service. While the City has a number of good and successful service offerings, the City recognizes that in order to achieve greater success, a coordinated approach is necessary. To answer this need, the City of Fort Collins prepared this plan to coordinate and advance green building programs, services, and resources. The aim is a cohesive program that will streamline the City's green building efforts and make them seamless to community users.

Figure 1 illustrates how the City's green building services are related to a wide range of sectors, building types, topic areas, services and policy approaches that influence the built environment of Fort Collins.

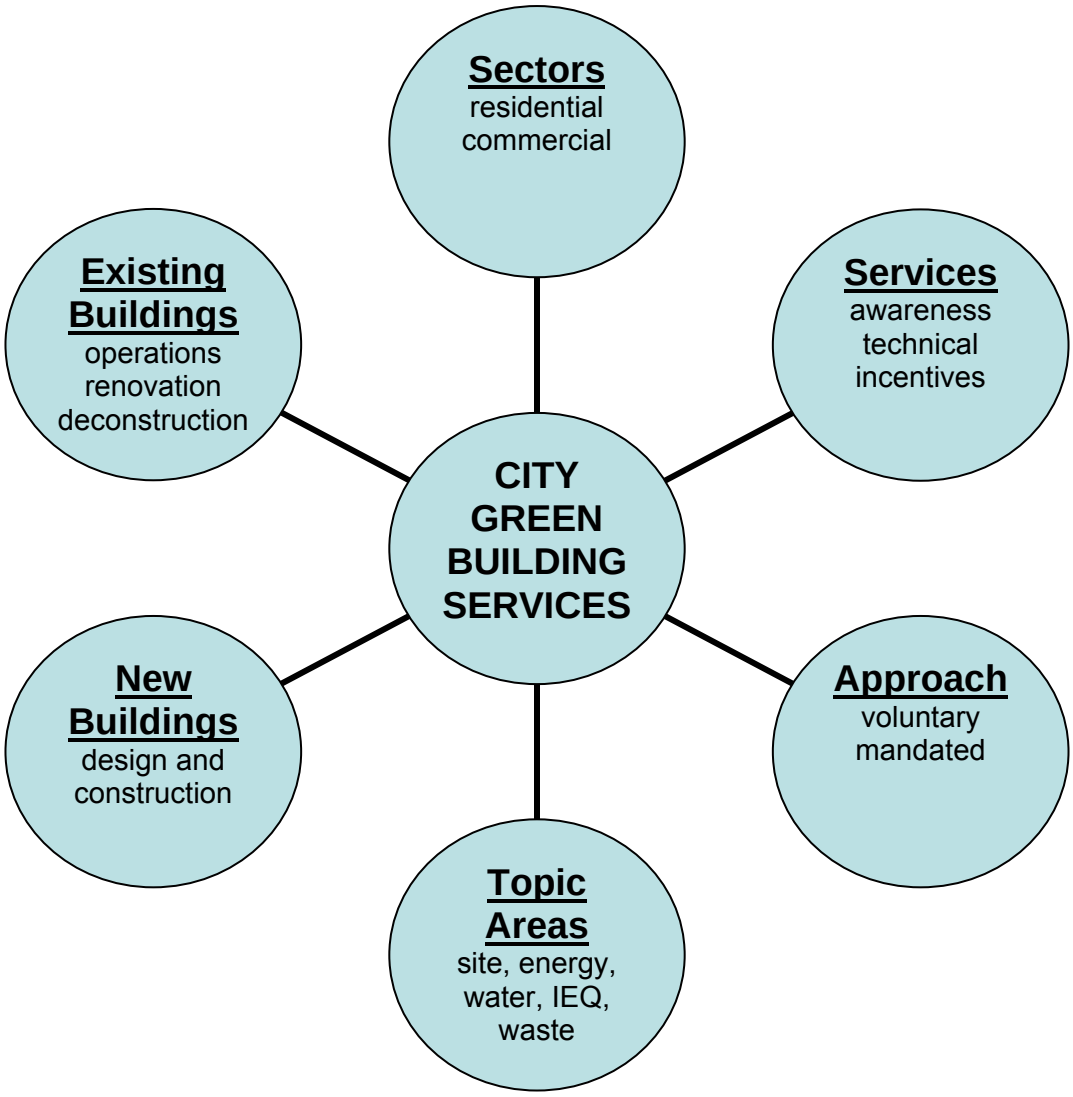


Figure 1: Green Building and the Built Environment

This plan is a roadmap for the future of the City's green building programs and services. The roadmap is the result of City guidance, community stakeholder input, and research into peer cities green building efforts (Figure 2). The City project team was comprised of representatives from the Utilities, Community Planning and Natural Resources Departments. The objectives of the Green Building Roadmap project were to:

- Optimize the effectiveness of existing programs and services;
- Provide a common City vision and definition related to green building;
- Explore new programs and services;
- Address both real and perceived barriers, and
- Actively promote participation in green building programs.

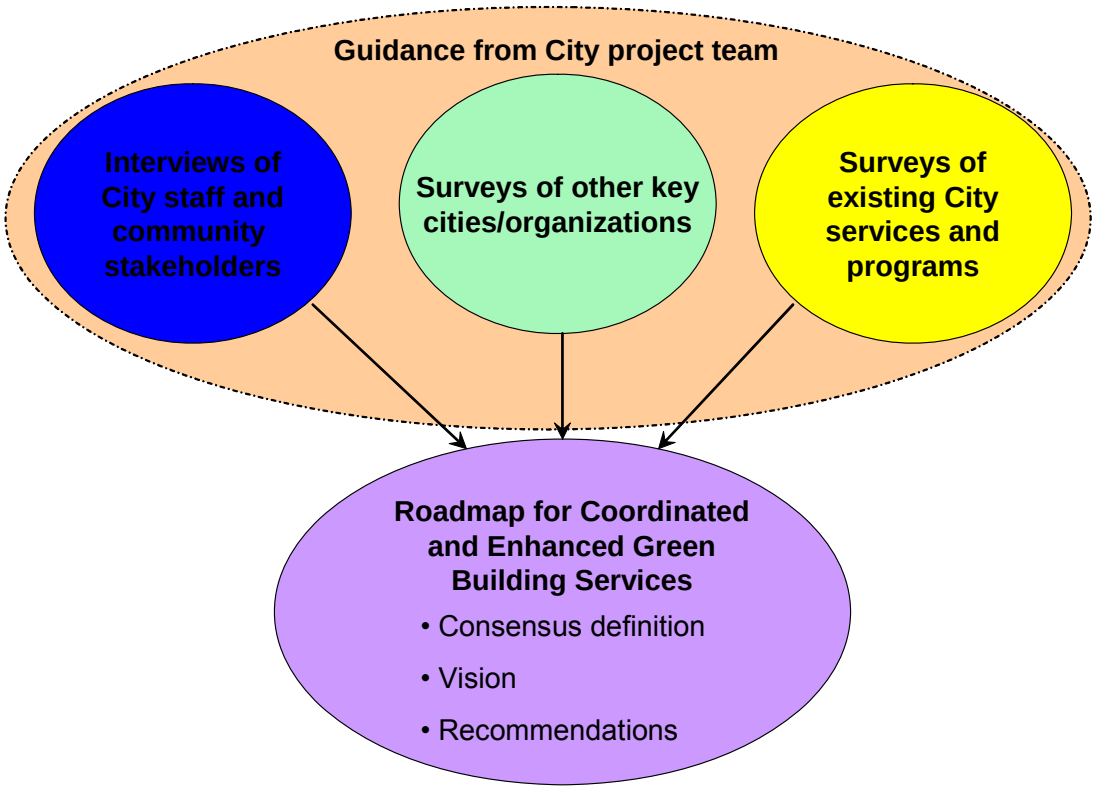


Figure 2: Green Building Roadmap Project Process

A simple analogy for the desired cohesive program is a structure with a foundation, bricks, and mortar. The foundation of the green building program is made up of the existing programs and services, existing strengths (both within the City and the community at large), and a consensus green building definition. The bricks are enhancements to the City's existing programs as well as the proposed new program recommendations presented in this plan. Finally, the mortar is made up of enhanced City capacity to provide the services required to support successful and green building in this community.

The remaining sections of this reportoffer more detail regarding the definitions of green building for the public at large and for the City and green building professionals in particular, the City's vision for its Green Building Roadmap, recommendations for achieving the vision, and the program coordination necessary to be successful.

In addition, supplementary information is included as appendices to (A) further detail the project scope and process, (B) describe existing City green building programs and services, (C) describe the interview process and the results thereof, (D) present interview notes, and (E) document the peer city survey results.

Finally, three key terms are often used throughout this document - *matrix*, *recommendations* and *roadmap*. Please note each term's respective description in the context of this report:

- *Matrix*: this term refers to the tool created for this project to document the City's existing green building programs and services (Appendix B), as well as the programs and services surveyed from other cities (Appendix E).
- *Recommendations*: this term refers specifically to the recommendations described in Sections 4 and 5.
- *Roadmap*: the roadmap is the overall intent described in this document and includes the definition of green building, the vision for the green building program and the recommendations for reaching the vision.

2.0 Definition of Green Building

A consensus definition of green building was one of the objectives of this project. A consensus definition serves as a platform for interdepartmental planning and coordination, as well as clear and consistent communication with the public.

On the basis of stakeholder input received during project interviews combined with direction from City staff, two distinct definitions of green building emerged. The first definition applies as a brief and simple definition for public outreach, while the second provides a detailed working definition useful to City staff and green building professionals:

Outreach: Green building: better buildings for people, prosperity, and the planet.

Detailed: Green buildings are designed, constructed, and operated to provide maximum benefit to people, prosperity and our planet. Green buildings demonstrate a reduced carbon footprint, energy efficiency, water conservation, waste minimization, resource-efficient materials, pollution prevention, and improved indoor air quality to conserve natural resources and improve environmental quality – both indoors and out. Green building practices extend these concepts to the entire built environment for the life cycle of new and existing buildings, their surrounding sites, and transit interconnections.

These two definitions serve to reach out to the community while offering more substance to those involved on a daily basis in green building in Fort Collins.

3.0 Vision for Green Building in Fort Collins

A vision for the future of green building in Fort Collins is a direct result of evaluating feedback from all of the interview participants. The feedback was used to develop an overall vision for the community as well as a vision for the City's role in supporting and enabling progress and success.

3.1 Community Vision for Green Building

The community vision for green building in Fort Collins is a dynamic and coordinated green building environment that builds upon existing programs and services. Looking ahead three years, the community vision for green building in Fort Collins may appear like this:

- Specific neighborhoods stand out as shining examples of urban renewal– green from the ground up– while others show how to redevelop existing buildings around green principles.
- The built environment experiences a dramatic reduction in greenhouse gas emissions, building owners enjoy lower utility bills, and occupants have improved health.
- The community is investing locally in distributed renewable energy installed on green buildings.
- The majority of building permit applicants are voluntarily adopting principles of green building.
- There are visibly more solar-powered homes and businesses, including low-income housing and a mix of leading edge, zero-energy homes and buildings.
- There is an increased awareness and action around higher density land-use patterns and smaller square footage for occupancy – quality over quantity.
- Consumers have a better understanding of the ecological impacts of their building choices.
- From K-12 through higher education, there is a system for teaching the principles of green building and there are career paths for professionals to work in this field.
- The community attracts and retains jobs in green building. Fort Collins is seen as a model city for green building attracting businesses and tourists.

3.2 City's Role in Supporting the Vision

The City aspires to become a coordinated center for advancing green building in the Fort Collins community by increasing general awareness, raising the bar for what is required, helping engaged stakeholders achieve better and greener buildings, and rewarding high performers.

As part of walking the talk, the City also seeks to have all of its buildings green, both new and existing. In addition, the City hopes to integrate its green building programs with

what is happening in neighboring communities for a seamless green built environment in northern Colorado.

4.0 Green Building Roadmap Recommendations

This section presents the recommendations of the roadmap to achieve the vision set out in Section 3. These recommendations were developed on the basis of the following:

- Feedback received during the interview process;
- Survey information gathered from other cities around the United States with similar green building goals and/or regional characteristics, and
- Guidance from the interdepartmental City project team.

For a comprehensive approach to address all City of Fort Collins citizens – regardless of their experience and knowledge related to green building – recommendations are organized according to the following categories that indicate level of performance relating to green building:

- Mandate minimum performance and remove barriers;
- Encourage innovation, and
- Reward success.

A fourth category of recommendations was identified and developed as part of this roadmap. This category addresses the internal capacities at the City needed to execute this roadmap. This internally-focused category, along with other internal considerations, is addressed in Section 5.

The roadmap recommendations are further organized by anticipated timeframes generally defined as follows:

- Short-term: recommendation achievable in less than 1 year;
- Mid-term: recommendation achievable within 3 years, and
- Ongoing: any recommendation that is anticipated to have a continuous timeline in order to ensure success.

It is important to note that all City green building programs and services need to accommodate a wide range of audiences. The audience for green building programs and services ranges from public citizens to professional service providers - any of which may fall into categories of those who are completely unaware of green building, those who are aware and interested in green building, and those who are already fully committed and practicing green building.

The Green Building Roadmap recommendations are summarized in Table 1, and described in more detail n Sections 4.1 through 4.3.

Table 1. Recommendations for Reaching Green Building Vision

Action	Short-term (within 1 year)	Mid-term (within 3 years)	Ongoing
Mandate Minimum Performance and Remove Barriers	• Update commercial energy code requirements.	• Research all City codes/standards to identify barriers and opportunities. • Create green building code compliance application tools. • Require green building as prerequisite for public financing.	• Review and update residential and commercial energy code requirements on a regular basis.
Encourage Innovation	• Create web-based coordinated access to City green building resources. • Promote Integrated Design Assistance Program. • Create targeted green building information for typical citizens. • Sponsor external green building events.	• Research potential incentives for green building related to development review, permitting, and inspection. • Provide benchmarking tools for existing buildings. • Provide design target tools for new buildings. • Identify needs and provide external training/education opportunities.	• Establish a green building track for new projects.
Reward Success	• Continue existing financial rebate programs. • Evaluate prescriptive and/or performance building rebates for residential customers.	• Develop water efficiency/conservation value structure.	• Evaluate/implement technology-specific rebates for energy and water conservation. • Provide public recognition for green building leaders/success stories.

4.1 Recommendations to Mandate Minimum Performance and Remove Barriers

Short-term

Update commercial energy code requirements. The commercial energy code references an antiquated version of ASHRAE Standard 90.1. The Neighborhood and Building Services Department is reviewing updated code requirements with a target of presenting plans to Council by the end of 2007. The most recent version of ASHRAE Standard 90.1 is 2004.

Mid-term

- Research all City codes and standards through the lens of green building – including energy codes, building codes, land codes, etc. – to identify barriers and determine opportunities. Appendix B lists twenty City programs that are regulatory in nature. This project identified the sections of the various codes and standards that influence some related aspect of green building. However, each section of code needs to be reviewed in detail to identify specific opportunities or barriers to the promotion of green building.
- Create code compliance application tools related to green building for external customer use. Many green building practices are variations on activities that happen in all development and construction projects. Specific green building compliance tools will support a smooth regulatory process for green projects.
- Require green building as a prerequisite for any projects that offer public financing. The City already has Leadership in Energy and Environmental Design (LEED) goals for new City buildings. This recommendation suggests new policies requiring green building targets for projects that receive direct or indirect public financing from the City.

Ongoing

- Review and update all residential and commercial energy codes on a regular basis, with an instituted commitment to aggressive review. City energy codes could be tied to the "latest version" of standards that are regularly updated by the sponsoring organizations (IRC, ASHRAE, etc.).

4.2 Recommendations to Encourage Innovation

Short-term

- Create web-based coordinate access to City green building resources through a web-based portal. The City offers over 30 programs and services related to green building (Appendix B). However, there is no coordinated access and navigation for citizens or green building professionals to identify, understand and participate in these services. This recommendation is the highest priority and first task for the Green Building Roadmap.
- Increase promotion of Fort Collins Utilities' Integrated Design Assistance Program (IDAP). The IDAP offers technical and financial assistance to

commercial projects that set high performance energy goals. The program has a whole building integrated design track and a prescriptive component based option. For the whole building track, there is funding for both design incentives and performance incentives. However, the program has supported a small fraction of the overall development that occurs in Fort Collins.

- Create targeted green building information for typical citizens. Awareness of the practices and benefits of green building is low amongst most Fort Collins citizens. The City can play an effective role in providing clear and informative green building outreach to citizens.
- Sponsor external events with a green building focus. The City can also provide leadership to build momentum in the community for green building with a coordinated plan for sponsorship of events such as the Sustainable Living Fair, Poudre School District Sustainable Schools Conference and the Environmental Program Series and support for organizations such as the Institute for the Built Environment and the Northern Colorado Branch of the US Green Building Council.

Mid-term

- Review potential green building incentives identified during the survey, both non-monetary and monetary, related to development review, permitting, and inspection. Incentives for green building related to the City's regulatory process need research and evaluation, followed by high level management discussions.
- Provide benchmarking tools (energy and water) for existing buildings. Benchmarking is a powerful tool directing and motivating building owners or tenants to improve the efficiency of their operations. However, simple and easy to use tools are needed to simplify the process.
- Provide design target tools (energy and water) for new buildings. For new buildings, energy and water design targets provide clear direction to design teams seeking to create high performance green buildings.
- Identify training/education needs and provide external training/education opportunities. Advancing green building will require skilled practitioners at both the professional and trade levels. The City has a history of providing training and education opportunities which can be expanded to recognize the ties to green building.

Ongoing

- Establish a green building track for new projects. Ultimately, the City should strive to have a green building track through the regulatory process for new projects that incorporates all of these recommendations.

4.3 Recommendations to Reward Success

Short-term

- Continue existing financial rebate programs (e.g., rebates available through Electric Efficiency Program, LightenUP, IDAP, etc.). Financial incentives both

encourage innovation and reward success. The Utility programs funded by Platte River Power Authority and Fort Collins Utilities should continue to reward leading edge energy efficiency solutions.

- Evaluate prescriptive and/or performance rebates for residential buildings. Utility incentive programs for residential customers have been focused primarily on end-use technologies. This recommendation targets potential incentives for residential buildings, in a similar fashion to how the IDAP and EEP function for commercial facilities.

Mid-term

- Develop a value structure for water efficiency and conservation. Water conservation does not yet have an agreed upon financial benefit. Development of a consensus value structure for water will the potential of incentives for water efficiency and conservation.

Ongoing

- Continue to evaluate and implement technology-specific rebates for energy and water conservation (e.g., rebates for ENERGY STAR equipment). Energy efficiency programs need to be evaluated on an on-going basis in relation to updates and changes to federal, state and local standards.
- Provide public recognition for green building leaders/success stories. The City is in a unique position to provide recognition to the wide range of participants in green building. Owners and developers, architectural and engineering designers, contractors, trades men and women, equipment suppliers and building tenants all play important roles in successful green building. The Green Building Team should consider existing avenues for recognition (case studies, Urban Design Awards, Climate Wise, etc.) as well as new models.

5.0 Green Building Roadmap Coordination

5.1 Building Internal Capacity

These internally-focused recommendations are intended to address the City's capacity needs to execute the roadmap, as well as coordination and advancement of the City's own green building performance. Employing the same timeline definitions as Section 4, Table 2 presents recommendations targeted at the City's internal capacity to provide green building services. As with the Section 4 recommendations, all of the following recommendations should take into account a wide range of staff knowledge and experience with green building.

Table 2. Actions for Building City Green Building Capacity

Short-term (within 1 year)	Mid-term (within 3 years)	Ongoing
• Create a Green Building Team to implement the roadmap • Build consensus among City leaders and management for a green building vision for Fort Collins. • Raise awareness of LEED requirements for new City buildings.	• Benchmark City buildings and improve existing building performance. • Convert this project's matrix of green building programs and services to a useful tool for green building professionals.	• Develop a process for continuous improvement of City green building services. • Develop internal City education program related to green building. • Promote/coordinate State and regional partnerships/efforts. • Research and document the local economic benefits of green building.

Short-term

- Create an interdepartmental Green Building Team to implement the short and mid-term roadmap recommendations.
- Build consensus among City leaders and management for a green building vision for Fort Collins. The vision in Section 3 is suggested as a starting point for City leaders to create a high level consensus green building vision for the community.
- Raise awareness of Leadership in Environmental and Energy Design (LEED) requirements for new City buildings. The City has adopted LEED Gold as a target for new City buildings.

Mid-term

- Benchmark City buildings (energy and water) and improve existing building performance. Efforts are underway to improve the efficiency of existing buildings with technology and equipment upgrades, and to track the utility use and cost of City buildings.
- Convert this project's matrix of City green building programs and services to a useful tool for green building professionals. The green building matrix in Appendix B is a valuable map of available programs and services. The matrix could become part of the coordinated access and navigational tools developed under the encourage innovation recommendations.

Ongoing

- Develop a process for continuous improvement of City green building services.
- Develop internal City education program related to green building. As occupants in City buildings which will become more efficient and green, all City employees have a role to play in implementing and maintaining green practices.
- Promote/coordinate State and regional partnerships/efforts. There are many stakeholder organizations with a role to play for successful regional green building. The City needs to be an active and effective advocate for green building in Northern Colorado.

- Research and document the local economic benefits of green building. Green building has the potential to provide a range of local economic benefits, from job creation to reduced utility costs.

5.2 Internal Coordination and Organizational Structure

Creating and maintaining a leading green building program will require leadership from various City departments as well as grassroots adoption of new ideas by City staff.

The internal City organization related to green building will reflect the wide range of activities shown in the roadmap. Green building services will continue to be provided to citizens through a number of departments that affect the range of green building aspects and processes (such as Community Planning, Neighborhood and Building Services, Natural Resources and Utilities).

The dual objectives of the proposed organizational plan are:

- Expand and develop departmental offerings related to green building, and
- Make the information, programs, and services as seamless as possible from a citizen's perspective.

The roadmap recommends creating a Green Building Team to implement the short- and medium-term recommendations.. The team will ideally be comprised of a maximum of six persons from Community Planning, Neighborhood and Building Services, Natural Resources, Utilities, and the City Manager's Office. The team will likely meet on a monthly basis for 6 months to 1 year, after which meetings may be shifted to a quarterly basis. In addition to coordinating existing programs and services, the team's responsibilities will include building awareness and support for green building, both internally and externally.

5.3 External Coordination

External coordination is an important element to this roadmap's success. Optimizing relationships and coordination with regional jurisdictions and organizations was identified as a key recommendation. Possible jurisdictions include Larimer County and surrounding communities. Potential partner organizations include Colorado State's Institute for the Built Environment, the U.S. Green Building Colorado Chapter, Platte River Power Authority, the Northern Colorado Clean Energy Cluster and the Colorado Governor's Energy Office. The participants in the Green Building Team, in conjunction with their respective departments, would be responsible for the green building related coordination with these external or regional organizations.

5.4 Periodic Program Review

Two important aspects of any structure for continuous improvement are periodic reviews and accountability. A number of program review elements that inherently are periodic in nature are already in this roadmap of recommendations:

- Review and update all energy codes on a recurring basis, with an instituted commitment to aggressive review;

- Continue to evaluate and implement technology-specific rebates for energy and water conservation, and
- Convene a proposed Green Building Team to meet on a quarterly basis, at minimum.

Accountability and metrics are important to ensure the effectiveness of programs and services and to track overall progress. Metrics can be both qualitative and quantitative in nature. Potential metrics collected from interviews and surveys include the following:

- Number of LEED-registered buildings
- Community carbon footprint (tracked by the Energy Management Team as part of the Climate Task Force recommendations)
- Per capita energy use (tracked by Utilities Energy Services as part of the Electric Energy Supply Policy reporting)
- Number of net-zero buildings
- Number of green building permits (when available)
- Number of solar-powered homes and businesses
- Affordable housing green building projects
- Number of green building related jobs

6.0 Next Steps

The Green Building Roadmap project demonstrated the considerable enthusiasm, both from City staff and engaged community members, to move ahead toward integrated and high-performance green building goals. There is a documented interest in green building and sustainability, creating a tremendous opportunity to grow green building in Fort Collins.

The project team recognizes that it will be important not to lose momentum in the face of many issues facing City leadership and staff on a daily basis. The responsibilities of the project staff team in the months following the completion of this project include:

- Distribute the Green Building Roadmap report to those who participated in the interview process.
- Make the Green Building Roadmap available on the City's website.
- Present the Green Building Roadmap to attendees of the U.S. Green Building Council, Colorado Chapter annual conference in September.
- Present the Green Building Roadmap results and recommendations to City management and leaders to generate understanding and commitment regarding the roles and points of interface for working cohesively.
- Obtain feedback on recommendations and implement short-term recommendations in the coming year.

Appendix A- Project Scope and Process

Scope of Project

From the start, the project scope was purposefully open-ended and wide-ranging to allow for broad consideration. Project topics and sectors were as encompassing as possible to include all aspects where City programs and services to the external community are applicable. Green building topics included issues of site, energy, water, waste, indoor environmental quality, and building materials. Applicable sectors included all sectors served by the City: residential, commercial, industrial, institutional, non-profit, multi-family, etc.

The project considered over-arching program elements of:

- Policies
- Standards and regulations
- Outreach/education (new and existing buildings)
- Recognition (new and existing buildings)

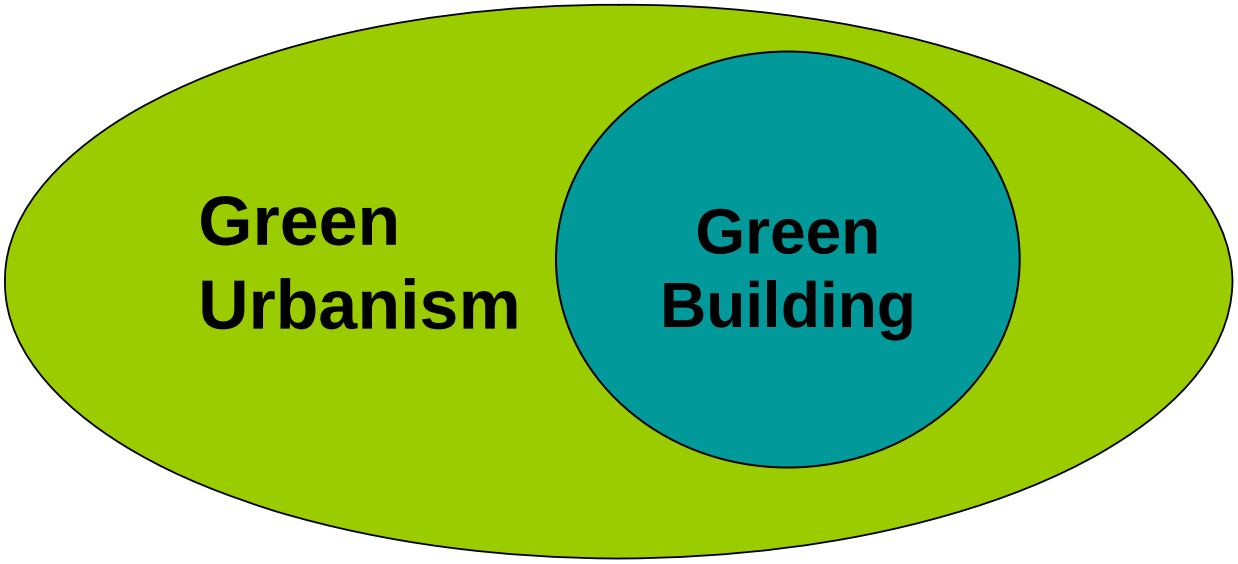
The project also considered program phases specific to typical new construction and existing building projects of:

- Pre-design
- Design
- Permitting
- Construction
- Inspection
- Commissioning, measurement, and evaluation
- Post-occupancy of new construction
- Major renovation/remodel
- Deconstruction

Related to project topics, one point of clarification for the project scope and the resulting plan should be noted. The project topic of *site* includes issues related to the landscape, location, orientation, and access to transportation of a green building. When considering issues of transportation in particular, the scope of this project and plan includes, for example, the bike racks of buildings (not the bikes), the bus stops (not the buses), etc.

Furthermore, many project participants expressed interest in larger issues of sustainability – issues that go well beyond the scope of green building programs and services. These issues are part of a larger movement toward the concept of green urbanism. Green building can be thought of as a component of this larger movement. The following diagram demonstrates this relationship between green urbanism and green building.

Figure A-1: Green Urbanism and Green Building

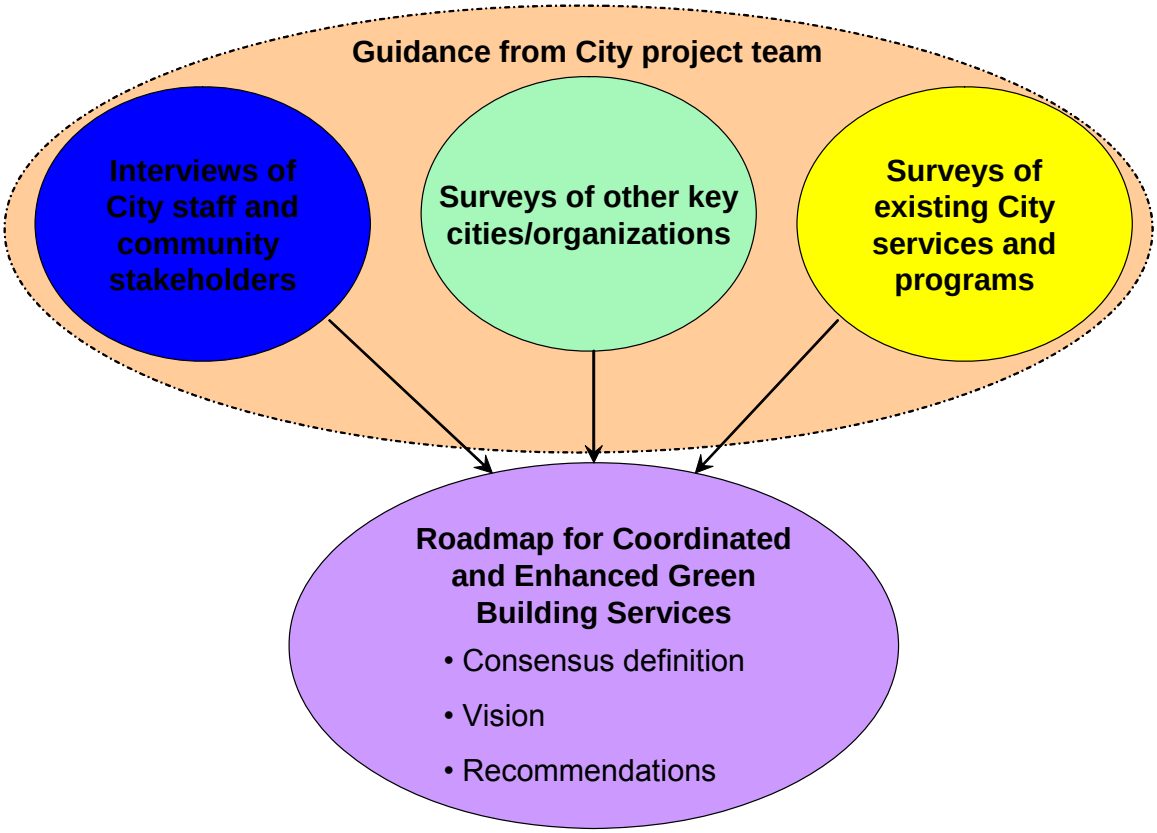


The scope of this particular project is focused on green building, while at the same time recognizing that green building is only one component of a larger movement toward a sustainable city.

Project Process

Figure A-2 summarizes the key process components that resulted in the *Roadmap for Coordinated and Enhanced Green Building Services*. In tandem with the project interviews (detailed in Appendices C and D), the project team surveyed both programs and services already existing in the City (detailed in Appendix B) as well as best practices from other strategic cities and organizations throughout the United States (detailed in Appendix E). The City's internal project team provided guidance to the project approach and roadmap development throughout the effort.

Figure A-2: Project Process Summary



Appendix B- Fort Collins Existing Green Building Programs and Services

As part of the survey efforts of this project, information was collected and organized on the City of Fort Collins' existing green building programs. This appendix first presents a summary of the over 30 existing City programs and services. Table B-1 then presents more details on the existing City programs and services.

Following Table B-1, each program or service is "mapped" to a matrix of green building topic areas (site, energy, water, indoor environmental quality, waste and building materials) and program elements or project phases (City policies, standards and regulations, recognition, pre-design, design, permitting, construction, inspection, commissioning, post-occupancy, major renovation and deconstruction). The matrix can therefore be used to quickly identify the applicability of a specific program to both topic area and project phase.

Existing Programs and Services Summary

The following summary list of existing programs and services is organized according to those that are voluntary (education/awareness, technical/financial assistance, etc.) and those that are regulatory (policies, ordinances, codes, standards).

Voluntary

- Builder's Guide to Energy Efficient Home Construction
- Climate Wise
- Clothes Washer Rebate Program
- Colorado New Home Choices
- Commercial technical assistance
- Cooling Rebate Program
- Deconstruction/construction debris (both voluntary and regulatory aspects)
- Education, training, workshops (Environmental Program Series, Business Environmental Program Series, etc.)
- Electric Efficiency Program
- Fort Collins Urban Design Awards
- Home energy ratings
- Home Performance with ENERGY STAR®
- Integrated Design Assistance Program
- Land use code – use of solar energy, downtown districts transit stops, preliminary review and engineering test cases
- LIGHTENUP
- Ozone reduction
- Photovoltaic net metering pilot
- Radon (both voluntary and regulatory aspects)
- REACH (Residential Energy Assistance through Community Help)
- Recycling (both voluntary and regulatory aspects)
- Sprinkler System Audit Program
- Transportation Overlay District (both voluntary and regulatory aspects)

- Urban Design Awards
- Water conservation programs
- ZILCH (Zero Interest Loans for Conservation Help)

Regulatory
- Building code
- City Plan
- Deconstruction/construction debris (both voluntary and regulatory aspects)
- Land use code – standards on solar access, landscape, irrigation standards, parking, lighting, buffers, pedestrian connectivity, proximity to neighborhood center, level of service (transportation)
- Municipal Code - water rates and water wasting codes
- Mason Transportation Corridor
- Radon (both voluntary and regulatory aspects)
- Recycling (both voluntary and regulatory aspects)
- Sediment and Erosion Control Inspections for Construction
- Storm Drainage Design Criteria and Construction Standards
- Structure Plan
- Transportation Overlay District (both voluntary and regulatory aspects)
- Zoning Plan

Detailed Programs and Services Descriptions

Pages B-3 to B-8 of Table B-1 below detail the descriptions of existing City of Fort Collins' programs and services. Page B-9 uses a matrix to match the existing programs (with numbers identified in B-3 to B-8) to the program elements, program phases, and green building topics described in Appendix A. To interpret the information of Table B-1, note the following abbreviations and their corresponding definitions:

Sector
- R = Residential: homes
- C = Commercial: all non-industrial private businesses
- Ind = Industrial: manufacturing private businesses
- Inst = Institutional: governments, K-12 schools, universities
- MF = Multifamily housing

Service
- SB = Skill building
- $= Incentives: direct monetary (rebates, funding, grants) or other incentives
- T = Technical: assessments, on-site observations/assistance, design assistance, permitting assistance, implementation support, inspection-related assistance
- A = Awareness
- Dev = Market/economic development: market development/evolution, jobs, infrastructure development

Regulatory code

- LV = Local voluntary program
- LR = Local requirement: required compliance; city and/or county
- EV = External voluntary program
- ER = External requirement: required compliance; regional, statewide, national (e.g., Chicago Climate Exchange)

Table B-1. Existing City Green Building Programs and Services

	Program Name and Contact Info	Description	Sector	Service	Reg. Code
1	Climate Wise *Kathy Collier* *Natural Resources* *970-221-6312* *kcollier@fcgov.com*	Business outreach program to reduce their greenhouse gases through waste reduction, energy efficiency, water conservation and transportation reduction.	C, I , Ins	SB, T, A, Dev, $	LV
2	Radon *Brian Woodruff* *Natural Resources* *970-221-6604* *bwoodruff@fcgov.com*	Promotes testing, system installation, regulatory, passive systems	R	A, $	LV, LR
3	Ozone Reduction *Lucinda Smith* *Natural Resources* *224-6085* *lsmith@fcgov.com*	Summertime Program for community member ozone reduction	R	A, $	LV
4	Regulatory Oversight Program *Susie Gordon* *Natural Resources* *970-221-6265* *sgordon@fcgov.com*	Ensure solid waste regulation compliance	R, MF, C	A, T, Dev	LV, LR
5	Solid Waste Reduction Support *Susie Gordon* *Natural Resources* *970-221-6265* *sgordon@fcgov.com*	General guidance, support regarding solid waste reduction	ALL	A, T	LV
6	Rivendell Recycling Drop Off *John Armstrong* *Natural Resources* *970-416-2230* *jarmstrong@fcgov.com*	Community recyclables drop off site	ALL	A, $	LV
7	ZILCH *Rene Evenson* *Utilities* *970-221-6394* *revenson@fcgov.com* *Lucinda Smith (air quality)* *Natural Resources* *970-224-6085* *lsmith@fcgov.com*	Zero interest loans to finance home-improvement projects that save energy, reduce water use or improve air quality With regards to air quality, low interest wood stove/fireplace replacement program	R	$	LV

	Program Name and Contact Info	Description	Sector	Service	Reg. Code
8	Deconstruction/ Construction Debris *John Armstrong* *Natural Resources* *970-416-2230* *jarmstrong@fcgov.com*	Targeted related program	ALL	SB,T, $, A, Dev	LV, LR
9	Integrated Design Assistance Program *Gary Schroeder* *Utilities* *970-221-6395* *gschroeder@fcgov.com*	Financial incentives and free technical assistance for buildings that perform higher than energy code. Options for whole building and prescriptive incentives.	C, Ind, Ins, MF	$, Dev, T	LV
10	LIGHTENUP Program *John Phelan* *Utilities* *970-416-2539* *jphelan@fcgov.com*	Rebates for replacing inefficient lighting with high efficiency technology	C, Ind, Ins, MF	$, T	LV
11	Electric Efficiency Program *John Phelan* *Utilities* *970-416-2539* *jphelan@fcgov.com*	Incentives for projects which save electric energy and/or peak demand through equipment upgrades	C, Ind, Ins, MF	$, T	LV
12	Cooling Rebate Program *John Phelan* *Utilities* *970-416-2539* *jphelan@fcgov.com*	Rebates for high efficiency packaged air conditioning equipment	C, Ind, Ins, MF	$	LV
13	Commercial Technical Assistance *John Phelan* *Utilities* *970-416-2539* *jphelan@fcgov.com*	Free energy assessments and technical assistance for commercial and industrial electric customers	C, Ind, Ins, MF	T	LV
14	Colorado New Home Choices *Doug Swartz* *Utilities* *970-221-6719* *dswartz@fcgov.com*	Print and web format introduction to “high-performing homes,” including information about new home choices related to energy efficiency, comfort, healthy indoor air and durability.	R	Dev, T, A	LV
15	Home Performance with ENERGY STAR® *Doug Swartz* *Utilities* *970-221-6719* *dswartz@fcgov.com*	One-stop diagnosis and repairs for comprehensive home improvements related to comfort, energy, healthy indoor air and moisture.	R	SB, Dev, T, A	LV

	Program Name and Contact Info	Description	Sector	Service	Reg. Code
16	Builder's Guide to Energy Efficient Home Construction *Doug Swartz* *Utilities* *970-221-6719* *dswartz@fcgov.com*	Print and web resource useful for those building a new home or adding to an existing home. It is filled with architectural details that help avoid common problems.	R	SB, Dev, T, A	LV
17	Home Energy Ratings *Doug Swartz* *Utilities* *970-221-6719* *dswartz@fcgov.com*	Subsidized home energy ratings, providing information about how a home uses energy and the best places to look for energy upgrades.	R	SB, Dev, T, A	LV
18	REACH *Rene Evenson* *Utilities* *970-221-6394* *revenson@fcgov.com*	Income based weatherization program based on whole-house approach	R	$	LV
19	Education, training, workshops *John Phelan* *Utilities* *970-416-2539* *jphelan@fcgov.com*	Environmental Program Series, Business Environmental Program Series, contractor training, green building workshops, xeriscape garden tours, composting, irrigation, landscaping, etc.	R, C, Ind, Ins, MF	SB, Dev, A	LV
20	PV Net Metering Pilot *Norm Weaver* *Utilities* *970-416-2312* *nweaver@fcgov.com*	Applications, interconnection, data acquisition for solar PV net metering pilot	R, C, Ind, Ins, MF	T	LV
21	Water conservation programs *Laurie D'Audney* *Utilities* *970-221-6877* *ldaudney@fcgov.com*	Programs, incentives and tips for using less water—indoors and outdoors	R, C, Ins, MF	T, A, $	LV
22	Land Use Code - Solar Orientation Standards *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	To encourage the use of both active and passive solar energy systems for heating air and water in homes and businesses	R,C,Ind,Ins,MF	Dev, $, T	LV, LR
23	Land Use Code - Landscape Standards *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	Require preparation of landscape plan and tree protection plans that ensure significant canopy shading to reduce glare and heat build-up, reduce erosion and stormwater runoff, and mitigate air pollution.	C,Ind,Ins,MF	Dev, $, T	LR

	Program Name and Contact Info	Description	Sector	Service	Reg. Code
24	Land Use Code - Parking Standards *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	To ensure that the parking and circulation aspects of all developments are well designed with regard to safety, efficiency and convenience of vehicles, bicycles, pedestrian and transit, both within the development and to and from surrounding areas.	C,Ind,Ins,MF	Dev, $, T	LR
25	Land Use Code - Lighting *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	To focus on the actual physical effects of lighting, as well as the effect that lighting may have on the surrounding neighborhood.	C,Ind,Ins,MF	Dev, $, T	LR
26	Land Use Code - Buffers *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	To ensure that when the property is developed consistent with its zoning designation, the way in which the proposed physical elements of the development plan are designed and arranged on the site will protect the natural habitats and features both on the site and in the vicinity of the site.	R,C,Ind,Ins,MF	Dev, $, T	LR
27	Land Use Code - Pedestrian Connectivity *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	To ensure that all development plans shall adequately provide vehicular, pedestrian and bicycle facilities. Both the residential and commercial buildings should be designed to promote an urban environment that is built to human scale in order to accommodate pedestrians as the first priority while also accommodating automobiles.	R,C,Ind,Ins,MF	Dev, $, T	LR
28	Land Use Code - Proximity to Neighborhood Center *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	Neighborhood centers shall be in close proximity to residential developments in order to meet the needs of everyday living in neighborhoods. Close proximity to such centers provides the opportunity for walking to services and conveniences.	R,C,Ind,Ins,MF	Dev, $, T	LR
29	Land Use Code - Preliminary Design Review *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	Preliminary Design Review is an in-depth opportunity for developers to work collaboratively with City departments to solve problems relating to complex developments.	R,C,Ind,Ins,MF	Dev, $, T	LV

	Program Name and Contact Info	Description	Sector	Service	Reg. Code
30	Land Use Code - Engineering Test Cases *Shelby Sommer* *Development Review Center* *970-416-2138* *ssommer@fcgov.com*	Provides a system to evaluate green building technologies such as porous pavement	R,C,Ind,Ins,MF	Dev, $, T	LV
31	City Plan *Clark Mapes* *Advance Planning* *970-221-6225* *cmapes@fcgov.com*	Encourages sustainable practices with mixed use activity centers, higher density closer to downtown, lower density further out, reduces car trips	R,C,Ind,Ins,MF	Dev, $, T	LR
32	Structure Plan *Clark Mapes* *Advance Planning* *970-221-6225* *cmapes@fcgov.com*	Follows direction from City Plan, acts as bridge between City Plan and Zoning; regulation of the Growth Management Area - areas outside of city boundary with potential to become part of city	R,C,Ind,Ins,MF	Dev, $, T	LR
33	Zoning Plan *Clark Mapes* *Advance Planning* *970-221-6225* *cmapes@fcgov.com*	Regulates uses within City following direction from City Plan and Structure Plan, forms basis for Land Use Code	R,C,Ind,Ins,MF	Dev, $, T	LR
34	Land Use Code - Transit Stops in Downtown Districts *David Averill* *Transportation Planning* *970-416-2643* *daverill@fcgov.com*	To encourage multi-modal transportation within the downtown area, reducing congestion, air pollution, etc.	R,C,Ind,Ins,MF	Dev, A	LV
35	LUCASS - Level of Service Standards *David Averill* *Transportation Planning* *970-416-2643* *daverill@fcgov.com*	Standards for transportation - streets, bicycles, pedestrians	R,C,Ind,Ins,MF	Dev, T	LR
36	Mason Transportation Corridor *Kathleen Bracke* *Transportation Planning* *970-224-6140* *kbracke@fcgov.com*	Use of Bus Rapid Transit to reduce number of vehicle trips within the City, reduce congestion in the downtown area, reduces air pollution	R,C,Ind,Ins,MF	Dev,$,A	LR
37	Transportation Overlay District *Anne Aspen* *Current Planning* *970-221-6206* *aaspen@fcgov.com*	Use of overlay district to encourage infill development, reduce vehicular trips, reduce development footprint for vehicles, increased density, use of brownfield sites, reduce air pollution	R,C,Ind,Ins,MF	Dev,$,T ,A	LV, LR

	Program Name and Contact Info	Description	Sector	Service	Reg. Code
38	Fort Collins Urban Design Award *Becca Henry* *Urban Designer* *970-221-6226* *bhenry@fcgov.com*	The City hosts an annual design program in which one category is "Green Design".	C, Ind, Inst, MF	A	LV
39	Storm Drainage Design Criteria and Construction Standards *Glen Schlueter* *Utilities-Stormwater* *970-224-6065* *gschlueter@fcgov.com*	Thirteen Master drainage basin master plans. Standards for design and construction of storm water facilities, construction erosion control, permanent erosion control, erosion buffer limits, and water quality treatment of storm runoff.	R,C,IND,INST, MF	A,DEV	LR
40	Sediment and Erosion Control Inspections for Construction *D.A. Black* *Utilities* *970-218-3011* *dblack@fcgov.com*	Construction site sediment and erosion control minimum measure of compliance with the City's CDPS Stormwater permit (compliance). Provides input on compliance with the site's State Stormwater Construction General permit (education)	All	T	LV, EV
41	Municipal Code - Water Rates *Bill Switzer* *Utilities* *970-221-6713* *bswitzer@fcgov.com*	Tiered residential water rates & seasonal commercial rates to encourage water conservation.	R,C, Ind,Inst,MF	$	LR
42	Sprinkler System Audit Program *Laurie D'Audney* *Utilities* *970-221-6877* *ldaudney@fcgov.com*	Assessment of sprinkler systems to identify problems, recommend appropriate watering schedule and educate users.	R,MF	T,A	LV
43	Municipal Code - Wasting Water code *Laurie D'Audney* *Utilities* *970-221-6877* *ldaudney@fcgov.com*	Wasting water is prohibited; complaints are investigated and ticketing is possible.	R,C,IND,INS,M F	$,T	LR
44	Land Use Code - Landscape & Irrigation Standards *Laurie D'Audney* *Utilities* *970-221-6877* *ldaudney@fcgov.com*	New development landscape and irrigation plans are reviewed for compliance with the Land Use Code's water conservation standards.	C,Ind,Inst,MF	Dev,T,$	LR
45	Clothes Washer Rebate Program *Tiana Jennings* *Utilities* *970-221-6253* *tjennings@fcgov.com*	Rebates for the purchase of high efficiency clothes washers. Includes residential & light commercial washers, not industrial models.	R,C,MF	$	LV

	GREEN BUILDING TOPIC AREAS					
GREEN BUILDING PROGRAM ELEMENTS	**Site**	**Energy**	**Water**	**Indoor Env. Quality**	**Waste**	**Building Materials**
City Policies	31,32,33,37	31,32,33,37	31,32,33,37	31,32,33,37		
City Standards and Regulations	4,8,22,23,24,25,26 27,28,29,35,39,40	22,23,24,25,22 27,28,29,35	22,23,24,25,26 27,28,29,35,39	2,22,23,24,25 26,27,28,29,35	4,8	8
Outreach/Education (new and existing buildings)	1,4,5,8,19, 36,37,39	1,14,19, 20,36,37	1,19,21, 36,37,39	1,2,14, 19,36,37	1,4,5, 6,8,19	1,3,5, 8,14,19
Recognition (new and existing buildings)	1,5,8,38	1,9	1	1	1,5,8	1,5,8
GREEN BUILDING PROJECT PHASE	**Site**	**Energy**	**Water**	**Indoor Env. Quality**	**Waste**	**Building Materials**
New Construction						
Pre-Design	1,4,5,8,9,22,23,24 25,26,27,28,29,30 31,32,33,34,35,36 37,39	1,9,14,16,22 24,25,27,28	1,23	1,14	1,4,5,6,8	1,5,8,14
Design	22,23,24,25,26,27 28,29,30,35,39	9,16,22 24,25,26,28	23,39	14, 16		14, 16
Permitting	4,22,23,24 25,26,35,39	22,24,25 27,28	23,39		4	
Construction	8,22,23,24,25,26 27,28,29,35,39,40	22,24,25 27,28	23,39	14,16	6,8	8
Inspection	4,22,23,24,25,26 27,28,29,35,39	22,23,24,25,26	23,39	14,16	4	
Commissioning, Measurement and Evaluation		9	23	14,16		
Existing Buildings						
Post-Occupancy of New Construction	1,4,5,15	1,7,10,11,12 13,15,17,18,20	1,18,21	1,2,7,15,17,18	1,4,5,6	1,3,5,15
Major Renovation/Remodel	15	10,11,12,13, 15,16,17		15,16		15,16
Deconstruction	5,8				5,8	5,8

Appendix C- Project Interview Process and Outcome

Facilitated interviews of both internal City staff and external community stakeholders were a key component of the overall project approach. The goals of these interviews were to collect information and perspectives (including observations of real and perceived barriers), to assist the development/coordination of future green building efforts and to gain buy-in for the City's roadmap.

Two rounds of interviews were completed. The first round purposefully used a small group format (typically less than 12 participants) for the initial exploration of interview topics, while the second round reconvened all participants in one large group to update on project progress and present the initial roadmap outcomes for feedback. The small groups consisted of six internal City staff groups and four community groups. The internal City interviews included staff members from Advance Planning, Development Review, Neighborhood/Building Services, Natural Resources, and Utilities. Invitations for the community groups were determined based on input from the interviewed City staff, internal project team input and direct requests for participation in the interviews. Overall, the response to these community invitations was very strong (additional interviews had to be added to accommodate the number of responses) and resulted in a very diverse mix of stakeholders involved in green building. In the end, the community groups included building professionals (architects and various engineering disciplines), builders and building trades, real estate and development industry representatives, and other important community stakeholders involved in green building (non-profits, Poudre School District, Colorado State University, and Larimer County).

Each of the small group interviews explored questions and feedback regarding the definition of green building, the existing strengths in both the City of Fort Collins as an organization and a community from which to advance future efforts, the participants' vision for the community and the municipal government's role in that vision and recommendations for achieving the vision (in short, medium and long term time frames). The large group format summarized the input from all small groups, presented the initial roadmap outcomes, and finally, solicited feedback on the presented information. This information is summarized as follows.

Green Building Definition

Participants suggested that the City's green building definition:

- **Use a two-tiered definition.** Make the first tier of the definition brief for use with the public, including the non-choir. Expand on defining green building in the second tier for use with internal City staff and green building professionals.
- **Emphasize the positive.** Recognizing that minimizing a negative does not eliminate the negative, define green building in a positive and restorative manner.
- **Explain why.** Address the motivations and benefits of green building.
- **Include existing buildings and infrastructure/transportation.** Clearly include existing buildings (not just new construction) and the infrastructure required to support green buildings, including transportation. (Note that this input related to infrastructure should again be considered according the scope defined

earlier for this project and as the fundamental facilities and systems serving Fort Collins – rather than the organizational infrastructure of the City government).

Existing Strengths

Common strengths of the City of Fort Collins both as a community and a municipal government serve as an important foundation for the future and are helpful in understanding the current situation in order to better inform future direction. In general, interviews indicated that good awareness and support for green building topics are in place both in the community (including a favorable media) and with City staff. Many green building champions on all levels exist, including local-level champions (City Council, City Mayor, City Manager, etc.), regional-level champions (Clean Energy Cluster, Denver Mayor, etc.), and state-level champions (State Governor, etc.).

In terms of particular community strengths, a general respect was noted for what the green building market and private sector has already achieved without the City having a specific green building plan in place. Additionally, many organizations in Fort Collins provide world-class leadership and demonstrations in green building, including Poudre School District, New Belgium Brewing, and Colorado State University. Furthermore, the Fort Collins community offers significant green building resources and expertise, including the Colorado State University's Institute for the Built Environment, the Rocky Mountain Sustainable Living Fair (event and organization), and a depth of green building professionals.

Many aspects of the City as a municipal organization were highlighted as existing strengths. The City Plan itself and its elements that promote green building were often referenced as an existing strength. The City, like the community, has significant resources and expertise in place. Frequently highlighted programs and services included the City's (residential and business) Environmental Series, Utilities energy services (including the Integrated Design Assistance Program), and Utilities wind program. Characteristics of City programs and services also were often referenced as strengths. In particular, the approach of City programs and services were noted as being built on a good working relationship with the private sector. City staff was found to be generally open, committed, and accessible. Finally, a common highlighted strength was the existing municipal electric and water utility infrastructure that allows the City direct involvement in policy (e.g., Electric Energy Supply Policy) and approach (e.g., stormwater treatment watershed approach).

Vision

Common themes used to describe the vision of future success, both for the City organization and the community, were as follows:

Community/Market

- Growth in green building jobs
- Regional leadership and influence
- Mainstream community support and involvement
- Market infrastructure in private sector
- National recognition

Internal City Capabilities

- Well-established pipeline of services for citizens
- Programs that are helpful to end users
- Green building as second nature to highly skilled operational staff
- Coordinated effort among departments

Recommendations

Interview recommendations for successfully achieving the community and City vision were critical in determining the recommendations presented in Section 4 of this roadmap document. All recommendations received during the interview process are documented in Appendix D.

Appendix D- Summary of External Stakeholder Interviews

Appendix D summarizes comments made by participants in the external community stakeholder interviews. There were four community interviews held with 37 people participating. The external stakeholder group interviews were seen as an essential element of the project process in order to be inclusive and to ensure that the final roadmap fits the community's expectations.

Interview Questions and Feedback:

Regarding Current Programs and Services:

- **What does "green building" mean to you?** (roundtable response)
  - Liked the "strawman"
  - A better building, from materials to environmental impacts to energy efficiency to water management, all the components – trying to build a better building
  - Realization that there's a bottom line cost factor – a balance of what the owner can afford and not scare them away from that process because we make it too restrictive
  - Focus on the benefits for people living there: greater durability, improved IAQ, comfort, and energy efficiency and resource conservation
  - High performance buildings, education is critical part – kids growing up in great schools will come to expect that kind of thing. Interested developers, clean energy cluster, nationally leading school district, building Fort Collins as the go-to place like Portland or Austin should be a goal. Must also be malleable because constantly changing. What is today will be beyond tomorrow. Kinard is beyond Bacon…the more we can spread the good word, the more likely they'll understand. Existing buildings should be included too, not just new construction.
  - All our kids go to Zach, Kinard, FRHS – so thank you PSD
  - Productivity of the workers and with the right design team green buildings don't have to cost more. Integrated design is key/important. People, Planet, Profit is a key paradigm – that's what Seven Generations is about. Need to look at all 3 of those. Working on first LEED-EB in Fort Collins, to be certified in next 3 months (on a 2-year old building). CSU so lucky to have them as a resource – IBE are great leaders.
  - a) health of building and health of getting to the buildings – healthier community; b) greening of AIA HQ and meeting 2030 challenge of zero carbon – early systems integration and coordination; c) rehab of existing buildings
  - responsible stewards of our individual role in the building, everyone taking their working through the process and think about what you do now and how it affects the future.
  - progressive construction – defined as basically meeting our needs without sacrificing nature or the future. We've conquered the need for shelter, the

desire for comfort, so now need to conquer what's next – what's best for nature and the future
- designing and constructing in an integrated and environmentally sensitive fashion
- inside, outside, everything
- construction buildings that last, are energy efficient, and comfortable
- irrigation systems that conserve water but are still aesthetically pleasing and use alternative water sources (non-potable)
- conserving resources (water, energy, etc.)
- projects that are sustainable for the environment and people
- creativity and resourcefulness
- designing and installing landscapes that last, conserve water, use less fertilizer and pesticides
- building constructed from sustainable material, healthy, energy efficient and durable
- technique and practice combined with materials to end up at that place
- sustainable, healthy, energy efficient, plus locally sourced projects
- verification, documentation, auditing, or assessment, actual performs as designed
- zero energy as a goal
- civil infrastructure, water quality, broader issue of site development
- building that gives back more than it takes
- measurement or variable to account for waste- use less resources to build
- take an existing and do what you can with price factored in to make green
- 3 characteristics- energy efficiency, resource conservation, and indoor quality
- Affordable to the consumer
- Net energy producer building, meets certain standards that are easy to talk about, consistent with city goals
- Universal, building where people live and work in an environment where people can continue to live for future generations
- Teaching young people green building and respect for environment so they understand the lifestyle to be lived from here on out
- Minimizing waste in green building, healthy local materials, education about
- Building in an environmentally sensitive and sustainable manner
- Irrigation/water use- building needs to work with elements in the landscape to enhance green-ness of building
- Quality of life- cleaner, healthier environment, in economics, and in renewable energies that enhance our national defense/security
- Greener materials, less waste
- Sustainable approach- more energy efficient, less waste, continual process
- Not building a building

- **Review "strawman" green building definition** (save word-smithing offline, consensus definition will result from final city plan)
    - Q: is green building only or a subset of more general sustainability?

- Julie's explanation about noun versus verb and bike rack vs. bike, etc. but welcome feedback/comments
- Different labels get confusing – define and separate what it includes and how fits into broader sustainability – where does high performance fit in? Which is a subset of which?
- Jammie Sabin – his focus is on energy efficiency, but general public term is Energy Star, high performing homes, LEED, but think "Green" is the comprehensive all-inclusive idea, all else is a subset.
- Lifecycle
- Where is sustainability in all of this? Carbon footprint?
- Who is this title being presented to? If general public, keep it simple. If for people working in this, can have more detailed title.
- Two-tiered definition: quick, more extended
- Sustainability is the broader umbrella. Green building is a program within that.
- On green building, 'building' can be confusing because people think of structure versus construction – again noun vs. verb
- Something that's beyond our current capabilities but not our vision is deconstruct-ability, cradle to cradle concept, set our eyes towards it. Replace demolition with deconstruction.
- Change green building to green communities (green urbanism)
- Address buying local
- Energy efficiency and conservation
- Occupants
- Length- too long, make into 2 paragraphs
- Social equity
- Comfort (ex: Fossil Ridge HS is a better learning environment
- From a home selling perspective: affordable- not just for the elite
- Economic standpoint, many eco-friendly building materials are becoming economically viable in the market (concrete siding, energy efficient furnaces, etc.)
- Codes are getting better- less than 10% leakage in furnaces
- Energy star- ½ of heat lost is through cracks, not insulation
- Initial, up-front cost that intimidates people but long term is going way down and in some cases there is a payback in a few years
- Interest specific- not detailed, adequate
- GB is designing, constructing, and dismantling human formed environments
- Get away from minimizing damage to more positive language about benefits
- Missing the "why"- choir here so needs to be in definition to justify to other
- Notion of precautionary principle- act on problems before all the data is in
- Wake up people- be more severe
- Why seems to be changing since the election and in the press
- Timing is right
- Energy cluster- being leaders, pride in community, one justification that makes sense. Opportunity to lead, fulfill CEC vision as a national player

- Narrowness of surrounding landscape- more infrastructure side, transportation (for example, porous pavement, natural system storm drainage) needed in definition
- Definition strives to be complete, but implies that everything must be done to be green- allow for participation in stages or do at least parts of
- Both new and existing and how to apply
- Process way of thinking will promote it to those who see it as an event
- Seems focused on new construction rather than the built environment
- Bring existing stuff into the definition
- Existing landscape and water usage
- Every building is an existing building- including the ones to be built
- Retrofitted and renovated should be added

- **Feedback about existing city green building programs summary list**
(handed out and explained) How does it hit you? Longer than expected? Shorter?
  - Longer than realized, recognized only ½ of what's on here and I thought I was pretty savvy.
  - How many are redundant? How many clash? How effective are they?
  - No redundancies, but yes need to look at how they interact?
  - Effectiveness, some is measured…on utilities side
  - What is LIGHTENUP? Re-branding of lighting part of EEP.
  - Dark Sky (like Tucson, Albuquerque)
  - Wind Power isn't on here, why?
  - Feel that voluntary programs are more effective than regulatory
  - Would like to see City step up on energy code side (will be 2004 by end of year. Commercial is now catching up to residential) Already adopted as baseline in design assistance program
  - Natural resource programs?? Where are they on this list? We get a lot of PR in FC on open space and natural areas
  - Same comment re: long range planning – if they don't set a policy now, in 20 years will be too late
  - Other towns give incentives on densities
  - City's own policy on City buildings being LEED certified should be highlighted
  - How do I find out about these programs? One idea is a collective web-site for external folks.
  - Radon for example- information and education made it known about
  - REACH- income based weatherization services
  - Longer than known about
  - Departments involved- 3 but also planning
  - Structure plan- relationship of things to each other in city
  - Land use plan voluntary- just stuff listed
  - List but no idea of impact, the metrics, the cost and results
  - Had to search for this info- how can we get this info out to people easier?
  - Residential only right now, not much for commercial right now
  - Auditing of sprinkler systems done in Loveland
  - Carrots on the electric side but not the water side

- **Review of Current Green Building Topic Areas Matrix** (handout of grid drafted for internal, existing City programs- about 40, to be used to see gaps, get arms around the information, evaluate/benchmarking, inform the plan and communicate to the public):
    - Structure is a good idea. Will help with informing people in a uniform approach.
    - Imagine as a clickable web thing.
    - Who is the public- who does each program target
    - Public will look at personally so need to be able to tell what they can qualify for, etc.
    - Bring together in a comprehensive vision or policy?
    - Important to have a policy in place (example- wind)
    - Over-riding city goal is important

- **What are the existing green building strengths to build on?** (current city and other areas of strength in the region, very respectful of what market has already done, and can serve as a foundation for the plan):
    - Poudre school district
    - CSU, IBE
    - Expertise in the community, design professionals
    - Clean Energy Cluster
    - Interesting that Vestas is coming to Windsor – awareness that businesses want to relocate here, big deal entertaining those types of employers; but they're not in Fort Collins
    - The City's design assistance program is a very big strength – a free resource to stir up the conversation for the owner/design team to hear
    - Champions at certain times. We have an aware and politically astute mayor and city manager who are behind these concepts and are willing to put actions behind words, which is huge.
    - Success of PSD is linked to FCU and PRPA even WAPA. They've been behind success of PSD for many years.
    - Personnel within FCU will answer any and all questions (even stupid ones) to projects
    - Blending with area communities in the region – that's healthy sustainability
    - A sympathetic media – will publish green things in a heart beat.
    - Governor Ritter was just here – we have an advocate at the Governor's office, as well Mayor Hickenlooper
    - Judy Dorsey – taught us all a lot …
    - Environmental Series is a great outreach program that the City has
    - Like the fact that City staff come to "Green Drinks" and mingle with the lowly peasants – staff is accessible.
    - City adopts green on departmental level, but there's no department. A strength that all the departments are doing this on their own – hope that's continued and encouraged.
    - FC is fairly progressive with GB
    - A lot of LEED companies in area

- Potential, lot of like-minded people, big opportunity
- Many people quite open to GB
- Enjoyment for visitors- new developments, looks nice because things have to
- Land use code and city plan- density requirements
- Gary Schraeder- integrated design plan program
- Communication- open houses, demonstrations, advertising, good ways to communicate already there
- City is a leader- most advanced in radon, recognized, city and council involved
- Environment/scenery is so nice you can see the result of what GB is trying to achieve
- Low utilities, so adding a tax would be affordable
- Utilities- education programs are impressive, integrated design program
- Chamber of Commerce is promoting, awards, etc.
- Expertise in Northern Colorado is great
- Community awareness
- CSU is a resource
- Rare relationship between public and private- city is open to working with private, sharing ideas
- PSD
- City as a leader, inspiring, helping others
- Voluntary, grassroots versus dictated
- New Belgium Brewery
- Expertise on city staff
- Wind program, renewable energy program
- Stakeholder resource
- Looking outside and learning from others- not reinventing the wheel
- Very interested and active people who want to participate
- City has been helpful to Green Builders
- City ownership of utility, which funds stuff
- Buy-in by utilities who see advantage and help fund- no choice due to costs as power plants are expensive
- Building department is fairly progressive and willing to listen
- Environmental community- paid for first wind stuff
- PSD
- Neenan Co- very proactive- recycling
- New Belgium Brewery
- CSU
- City Environmental series is a great educational tool
- Utilities- wind program
- Community awareness
- Sustainable living fairs
- Weather patterns are ideal for solar
- Private waste haulers- many compete and advance technology
- Private groups taking the lead compared to city
- City and PRPA light and power incentive programs
- Publishers on board and providers of information

Vision:

- **What is your vision for the City's coordinated green building programs in 3 years?** (take a nap, you wake up in 3 years, what do you see, think big, you define what success is).
    - Embracing a SMS at the City-external level
    - Redevelopment of North Side be an example of how to do urban renewal green from the ground up
    - City acts as a coordinated center for education and learning; push champions in each area to a more sustainable approach using incentives; mandates to cover the minimum bar;
    - What does success look like on the EB side? Education on how to understand systems approach; follow-up on energy management – working knowledge, steps, also winners, recognition, honoring that in a community sense and showing that any building out there is capable
    - Way to get to a better life is through competition – easy to accept change when you see someone doing well and want to emulate that
    - Vision that the City moves away from the City's vision and start to incorporate what's going on in this community – Wellington, Timnath, Larimer County – so we don't have hodgepodge approach where good thinking goes into this but will others fell left out of the process? Need strong liaison – currently resistance to cross border dialogue.
    - Reduce carbon footprint; reduce per capita energy; increase physical health of community – the free market is doing that most effectively right now – so echo put out incentives and let market figure out how to get it done.
    - Larimer County link through natural resources, long range planning, connecting region so not separate enclaves
    - Education in PSD continue to be leader for fostering the ethic through students
    - Why doesn't CSU-IBE start their own department to develop strategies for degrees and better incorporating community professionals
    - An asset with downtown, urban fabric, river, Penny Flats – stretch vision of lofts, density, urbanization downtown – a mini-community multi-story building?
    - A) Net suppliers of RECs credits, invest in our own economy; B) economic development buy it locally here; C) greywater use will be allowed; D)transportation services improve for more LEED credits; e) solar tax rebates equivalent to Xcel here in Fort Collins; f) rethink the 5' setbacks for more options on proper siting; g) electric car dealership; h) coal plant is either natural gas powered or not operating
    - RTA between counties -- lots of driving with no choices right now;
    - Vote for Sue for Mayor; ½ of building permits are green; City has adopted standard across the board for their own buildings; preferential treatment for buildings pursuing green
    - Outcomes are the focus, the community, not the program
    - Seen as a model city- role model, tourism, businesses come here

- A low level of Green Building mandated, a high level is encourage and rewarded
- FC is still a vibrant city (tax base, economically viable, and everyone has not moved to Centerra)
- City employees- raises, keeping healthy, good staff, not demoralized
- Community has grown, thrived, attracted new business, but resources used is the same- growth is paid for by conservation
- Publics transportation to Denver, in general
- Wind and solar
- Everyone cares and involves and makes the most of what you have, sense of community,
- open space, gardens
- decreased consumption of resources
- understanding by community with an impetus to change
- remove the barriers to enable us to save more resources
- end users are taken into consideration (if their costs are increased too much they won't do)
- engineers design green stuff that is the same quality as non-green and FC uses
- sustainable and self-sufficient
- broad level of involvement- from caulking to cutting edge technology involving many
- FC is the easiest place in America to pursue GB, also a place where it is validated
- 250 solar powered homes and 50 business due to city rebates for solar
- Opportunities for infill utilized and using core of the city
- Measured reduction in energy use and carbon footprint
- City leading by example
- Healthier citizens who are proud of the GB program
- Is a place to come to school and learn GB, we provide the leaders in the industry
- Is affordable to live here
- City has finished its 3rd affordable housing solar powered HUD building, LEED certified, ZEH
- Magnet community for GB
- State just recognized grassroots effort that challenges state water laws that restrict re-use of water, recycling, etc.
- Business environment conducive to electronic business being conducted
- FC influences other local towns to go GB
- Attracted 1000 high quality GB industry jobs
- New city program will pay for itself in 2 years and show a net gain after that
- Tie in the agricultural base to the vision/success
- Increased urban density
- Reasonable square footage for occupancy
- Standard of what a green building is
- More and better mass transit
- Community understanding of the ecological footprint of their building choices

- City recognized as a leader in GB technology
- Recycling plan within the for builders
- Less goes to landfill using economic drivers
- City serious about recycling and accountability
- City leads by examples
- Encouraged by incentives, not mandates
- Progress is reported based on GB standards
- Green community connected to natural landscape, such as a river
- Alternative energy is really working
- LEED gold standard in city, including existing buildings
- Fully funded

- **What is the city's role in this vision?**
  - codifying and not making it more expensive to, for everything that costs more thrown in something that reduces costs
  - standards that conflict with planning- planning and engineering departments must connect
  - Don't forget PFA's- need to involve
  - Raising the minimum floor (big box builders building the same way as 50 years ago)
  - Enforce the codes
  - Role of city is guidelines, incentives and really looking at community and who the community is and what they will go for
  - What should the city be doing with private sector, not the city doing things that the private sector can be doing
  - Innovation comes from the private sector, which raise all boats
  - City should be exemplary (example irrigation)
  - Strong central leadership
  - Making GB a choice because it is in the interest of budget (ex.: PSD)
  - City fast-track GB projects
  - City embedded in many from previous questions
  - City driving in same direction and possibly state
  - City taking down advice- walking the walk
  - Entire community knows and understand and wants to take part
  - City has an incentive program for renewable energy in both residential and community
  - Incentive but also 3rd party financing, removing of regulatory obstacles

Enhancements/Opportunities:

- **What are the enhancements/opportunities to create coordinated green building programs and organizational structure? Also any specific new program ideas?**
  - Need an individual whose job is to critique the effectiveness of every City program in the overall view. For example, residential energy rating program is cheaper than prescriptive view.

- City to help provide benchmarks for energy use on different building types so we have bars to shoot for/above.
- Energy is one thing – how set benchmarks for other aspects of 'green'. Ideas – how much is local;
- Bring national tools (like LEED) to regional/local levels
- Keep the benchmarks simple (Carbon, energy, water, etc.)
- Secondary uses of water and conducive rate structures (e.g., Portland)
- Water incentives – FCU is proactive on energy side, but not water (e.g., tap fee rebates would bring quicker adoption…)
- Landscaping water should be a priority to target
- City pass law that all new buildings (not just their own) have to be LEED certified
- City should lead and incentive-ize – push innovation and competition
- Profitability is higher in Loveland than FC on like subdivisions because more regulations and rules here; an additional cost to everything here; e.g., approved framing lists here vendors cost more $0.75/ft more; some local builders copy what Aspen does because of success and want to compete – so again, competition and incentives is the best approach
- What is our community doing compared to other communities? That comparison should include – so does it look better?
- LEED whetted appetite of consumer demand; got a huge ball rolling; always been voluntary; keep it that way.
- Can't make a profit in your own backyard – can City be an advocate for local successful builders that meet measurable outcomes – like a chamber of commerce type of statement. Help people define the shades of green and who can help deliver that.
- Expedited process for GB
- Define GB
- Avoid retribution
- Get a break for GB on certain rights, uses, etc.
- Incentives- rebates for smart controllers, sprinklers, design review, improve the web showing this
- Educate to create compelling want (interest) and then break down barriers/availability to people actually doing or using (example: light bulb program)
- Discount on wastewater bill for creating less waste
- On-site renewable energy for residences- break for having
- Education- Discovery Science Center as an outreach for that
- Gravel pave (like allies, etc)
- Cul de sacs- big environments using a lot of resources
- Encourage regional natural building materials
- Continue to encourage alternative transportation
- Increase land use requirements as well, not just building codes (HOA's requiring grass, wide roads, fire and engineering codes, amount of resources, density and pavement)
- Require licensing for landscape contractors

- Using more secondary water supply (effluent water, relaxing city stance of having a private utility in a public right of way)
- Broad city goal with a council behind
- Change disparate structure of bureaucracy to make it work to get the information out there and actually implement the policies and programs
- Coordinate the expertise on the city staff
- City reaches out to other entities
- Make Mason Street Corridor a showcase for green
- Fort Collins supports Salazar in his efforts to make the state green
- Separate or sub-department for green services to bring together the programs in once place
- One stop ship for services
- Coherent program that knits together and drives Green Building
- Make solar a part of it, use federal tax incentives, make solar feasible
- Certain % from utilities mandated renewable
- Pilot program by city to invest into unproven GB technology
- Across the board use of new technologies
- Reach the masses in efficiency
- Centralized, coordinated department that is upper level and pays for itself, has strong support
- Funnel state money into FC
- Incentives to landlords to implement energy efficiency in rentals, and in commercial
- Overwhelmed with info- start small with easily digestible information
- Education is key, bring it to practical level in community so people can do it and apply themselves
- Operating as a clearinghouse for info- accurate and up-to date source
- City support of non-profits to work across the board to see if the issue can be advanced in the region (ex: Portland)
- GB homes tour
- Need to pay for it to get to the next level- see the vision, sell the vision, which is not voluntary or cheap
- CSU building innovations and FC needs to work with them
- Things have been easy so far, have to do the hard parts
- Pay for it out of the utility budget
- City “seed” money with a plan to attract more jobs is marketable, make it a business deal because it needs the business community
- Not mandated onto people, not regulated as it hurts affordability
- Confusion in building community- adding another layer is not helpful, find ways to utilize them better, not mandated, qualifying
- Programs out there to look at for tax funding- REIT
- Tax on luxury homes
- Green points program or other funding programs out there- look at them (carbon tax for example)
- Avoid another label
- All landscape designers have to be certified or licensed

- All sprinkler systems operating at correct capacity
- Biofuels for city vehicles
- City shares its lesson learned (successes and challenged)
- Benchmark/scorecard for buildings to give consumer information with which to make choices (a number associated with how "green" a building is)
- Commercial water conservation incentives
- Move goal posts after success
- Recalibrate and renew water conservation goals
- Incentives in land use code- bonuses for public space, green building, etc.
- Figure out how to make people not haul yard waste to the landfill (Hageman is useful, make drop off sites available)
- Educational piece so people know not to take stuff to landfill (sign there)
- Make it so waste haulers do not want large quantities of stuff to haul as currently
- No buildings with windows that don't open
- Plumbing code- have it address sprinkler heads
- Embrace new technologies like waterless urinals
- Indoor environmental quality should addressed- retrofitted or new construction and incentives to encourage
- CFC's
- Cleaning products- educate public and code writers
- Residential orientation of houses- change to take advantage of sun
- Land use codes to encourage GB, renewable, etc.
- Simplify city codes- make easier to do GB
- City culture should be GB
- Education in schools on environment
- Communication between city departments
- Outreach to student, Hispanic, and other detached communities (either not interested or aware, on the front lines, market to students who could be interested)
- Benchmarking/scoring

Steps to Achieve the Vision:

- **What immediate steps can be taken to achieve vision?** (immediate/realistic steps or advice/tips for plan development between now and end of year).
    - Bring collaborative resources together and share immediately
    - Use advocates to make a proclamation that gets signed and goes to City to raise the bar; becomes a good talking point, leverage point.
    - Green ombudsmen to help vet issues that people are having with the actual benefits of some programs. Meet the spirit rather than the letter of the rules
    - Education: events – 2-3 day program like FRHS last year, expound on that again; maybe a LEED track or conference.
    - USGBC Colorado Chapter fall event will be here in FC with 250 attendees. Trying to team with the Sustainable Living Fair.
    - PRPA and fixing 80/20 – City Council needs to address this with PRPA

- Get solar tax credit in place
- Ability to have a clearinghouse of City programs: what they are; benefits; contact info; etc; quick click and find
- Strategies of incentives for people at urban renewal authority are working on with College corridor to build green
- A web-site as a green touchstone and link to City programs, same web address of all programs as touchstone.
- Label this thing – very easy 1-2-3
- Coordination at the City too
- Make a plan
- 1 thing in each category to recommend for code change (drop a barrier or raise a standard)
- Adjusting utility fees- reduce wastewater charge for savings
- Credits for conservation
- Investigating the expedite process
- Get their video out more
- City apply for reward and recognition programs
- LEED
- Establish an office for GB
- Advertise stuff (such as design assistance program)
- Fast-tracking GB (commercial or residential)
- Form new department
- Don't recreate the wheel with this plan
- Do what you can now even if it is not perfect
- Work with what you have, not another new program
- Grassroots
- Baseline, measurable, move off of that
- Look at where budgets are, where to get the money, how to fund
- City assistance to other community organizations that are already involved in this
- Provide meetings space
- Educate the city council
- Term GB is not that great- limited. Should be "The Greening of Fort Collins" or something
- Need the soldiers- make sure the city staff has bought into it
- Bring various departments together
- Market existing stuff to 90% that don't do this stuff already (in utilities flyer for example)
- Learn to reach out to the non-choir who are interested but not educated enough to do it
- Coordinate but don't centralize. Some people are motivated by being green, others by economic. Allow for broader opportunities to buy in.
- Carbon neutral events- such as July 4th
- The audiences- determine what they are and how to reach them
- Bold vision statement, high and ambitious goals
- Uniform message, then get it out of there

- Branding, new city logo
- Public relations, good facts, what is in it for me
- Commercial water conservation incentives
- Educational campaign to help public understand what is out there and their ecological footprint
- Environmental series on landscape water conservation- good but get out to the “non-choir”, the churches, rotaries, other clubs, etc.
- Flyer write-up on water pressure issue
- Recognition of those doing good
- Zero waste and climate neutral events promoted
- 200 bicycle bike library
- Benchmarking/scoring
- Lay ground rules for performance glazing on commercial buildings

Appendix E- Survey of Peer City's Green Building Programs

In order to determine where Fort Collins stands in terms of green building programs and services, this project surveyed the City's existing green building programs and services (Appendix B).

In addition, it was important to look outside this community to learn what other peer cities with similar goals and regional characteristics are doing in comparison to Fort Collins. Not only did the survey of other cities show, in a relative sense, how Fort Collins compares in terms of green building programs, it provided ideas for enhancements to City efforts that aligned well with feedback received in the interviews.

Section 1 of this appendix summarizes the results of the peer city survey and presents some specific ideas gathered from the survey of other cities.

Section 2 details the information gathered for each of the eight cities surveyed for this effort, including program descriptions. Each individual table in Section 2 presents an extended listing of other cities existing programs and services.

1.0 Peer City Survey Summary

1.1 Results

The results of the survey demonstrates that Fort Collins has a wide range of green building programs and services that are comparable to those of the peer cities.:

- The City of Fort Collins has 39 existing green building programs or services with strong breadth of coverage relative to the other surveyed cities.
- Of the few gaps identified, the City was already investigating and/or implementing new services in the gap areas.
- Surveys provided good ideas for enhancements to existing services.
- Possible enhancements align well with interview recommendations.

1.2 Specific Green Building Ideas from Peer Cities

Specific example programs and activities from the surveyed cities that align with the four categories (mandating minimum performance and removing barriers, encouraging innovation, rewarding success and building internal capacity) are illustrated below:

Green Building Mandates

- Require green building where public financial incentives are involved.
- Require green building techniques for certain size homes/retrofits.
- Enact ordinance on construction waste recycling.
- Set required landscaping targets.
- Require Zero energy capable homes. by 2015

Encouraging Green Building

- Provide on-site assessments (residential and natural gas)
- Provide online tools
- Offer detailed guides
- Offer workbooks
- Support a permit services web-site

Rewarding Success

- Support demonstration projects
- Offer reduced fees and fast tracking
- Support energy efficient mortgages
- Offer competitive grants
- Implement zoning changes for LEED buildings
- Offer grey water conservation tax credit
- Offer rebates – solar electric

Coordination

- Develop a green building program web-site
- Serve as information gateway
- Serve as green building clearinghouse
- Develop non-profit resource center

2.0 External Survey

The objective in conducting a survey of green building programs and progress in other cities was to offer perspective on how Fort Collins is doing with its existing efforts and to mine for enhancement ideas that could strengthen overall green building practices and coordination in this community. Each individual table in Sections 2.1 – 2.8 presents an extended listing of other cities existing programs and services.

Comparison cities were selected on the basis of industry recognition as high performers in green building, regional similarities, or similarities in relative population. Table E-1 below lists the cities considered in the survey. The number of LEED registered buildings and LEED buildings per 100,000 people were included as a qualitative measure of the level of green building activity in a community. Table E-1 also highlights those cities (green) that have their own municipal electric utility.

Table E-1: Comparison Cities

Municipality	Population	LEED Registered Buildings	LEED Registered Buildings per 100,000 people
Austin, TX	656,562	32	4.9
Eugene, OR	137,893	8	5.8
Sacramento, CA	407,018	21	5.2
Seattle, WA	563,374	77	13.7
Boulder, CO	94,673	20	21.1
Santa Monica, CA	84,084	16	19.0
Scottsdale, AZ	202,705	9	4.4
Portland, OR	529,121	67	12.7
Fort Collins, CO	**118,652**	**12**	**10.1**

The following sections offer selected details about the cities chosen for comparison and summarize existing green building programs and strengths. In addition, tables are provided for each city that give an overview of the research conducted. To interpret these tables, please refer to the following terms:

Sector

- R = Residential: homes
- C = Commercial: all non-industrial private businesses
- Ind = Industrial: manufacturing private businesses
- Inst = Institutional: governments, K-12 schools, universities
- MF = Multifamily housing

Service

- SB = Skill building
- $= Incentives: direct monetary (rebates, funding, grants) or other incentives
- T = Technical – assessments, on-site observations/assistance, design assistance, permitting assistance, implementation support, inspection-related assistance
- A = Awareness
- Dev = Market/economic development: market development/evolution, jobs, infrastructure development

Regulatory code

- LV = Local voluntary program
- LR = Local requirement – required compliance; city and/or county
- EV = External voluntary program
- ER = External requirement – required compliance; regional, statewide, national (e.g., Chicago Climate Exchange)

2.1 Austin, Texas

Basic statistical information about Austin is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 656,562
- College town: University of Texas at Austin
- Utility structure: Municipal
- Number of municipal customers: 360,000
- Load served: 2600 megaWatts (MW)
- Interesting green building programs: Zero energy capable homes by 2015, on-site assessments, on-line tools, workbooks, solar-electric rebates

Program Name and Contact Info	Description	Sector	Service	Regulatory code
Home and Business Energy Analysis, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Tools%20and%20Tips/Residential/Online%20Energy%20Audit/index.htm	Online tool for home energy analysis, helps residential users identify energy use and compare to other homes	R, C	A	LV
Load Profiler, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Tools%20and%20Tips/Commercial/loadProfiler.htm, Murray Jones, (512) 505-3640.	Web-based energy management tool that allows awareness of load on various time scales. Available for key accounts.	C, Ins, Ind	A	LV
On-site Commercial Energy Audit, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Tools%20and%20Tips/Commercial/onsiteEnergyAudit.htm, (512)482-5346	Free, on-site, walk-through energy audit, includes identification of rebate opportunities and written report	C, Ins, Ind	T, A	LV
Green by Design Workshop, Green Building Program, http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Resources/GreenByDesign/index.htm,	Austinites preparing to build, buy or remodel a home can learn how to improve energy and water efficiency, increase comfort and reduce maintenance. The Green Building Program's 1-day Green by Design Workshop is held four times per year.	R	A	LV
Commercial Purchasing Advisor, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Tools%20and%20Tips/Commercial/Energy%20Advisor/CEA_home_frame.html	A detailed guide on quick fixes and long term energy saving opportunities for various commercial and institutional sectors	C, Ins	A	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory code
CFL and ENERGY STAR Light Fixture Coupons, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Tools%20and%20Tips/Residential/Energy%20Efficient%20Appliances/products.htm	$2 off CFL or $10 off light fixture (> $20) discount coupons offered to Austin Energy residential customers at partnering stores. Limit 2.	R	$	LV
Search tool for energy efficient multi-family complexes in Austin, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Tools%20and%20Tips/Residential/Energy%20Efficient%20Apartments/multi_family.cfm	An online search tool for locating energy efficient multifamily complexes in the Austin Energy service area.	MF	A,Dev	LV
Participating Companies for Rebates & Incentives: residential, commercial, solar installers, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Tools%20and%20Tips/index.htm	To qualify for rebates or incentives, work must be carried out by participating company listed here.	All	Dev, A	LR
Solar Water Heater Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Solar%20Rebates/Solar%20Water%20Heater/index.htm	Rebates of $450-$650, 30% tax credit of $750-$1,000 for all-electric customers switching to solar hot water	R,C,Ind,Ins	$	LV
Energy Star Loan Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Loans/Residential/Home%20Performance%20with%20Energy%20Star/index.htm	ENERGY STAR partner in providing low-interest loans for retrofits involving certain ENERGY STAR products	R,MF	$	LV,EV
Duct sealing, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Duct%20Diagnostic%20and%20Sealing/index.htm, (512) 974-7827	$50 per air conditioner, blower diagnostic of home system	R,MF	$,T	LV
Solar Loan Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Loans/Residential/Solar/index.htm, (512)-482-5390	Low-cost loans to purchase and install solar electric power systems, up to $20,000, up to ten year term at market rates	R	$	LV
Commercial Energy Management Services Rebates and Incentives, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Commercial/Commercial%20Energy/index.htm, conservation@austinenergy.com	Rebates and incentives covering a variety of equipment including AC, chillers, custom, ERV, lighting, motors, PV, solar thermal, VFD, windows. Rebates and incentives offered by a number of	C,Ind	$	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory code
	programs, to be covered later.			
Home Performance with ENERGY STAR Rebate Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Residential/Home%20Performance%20with%20Energy%20Star/index.htm	For homes 10 years and older, and with an on-site professional energy analysis. Program will rebate up to 20% or $1,400 for certain air conditioners, duct repair, additional attic insulation, solar screens, caulking and weather stripping, attic radiant barriers	R	$	LV
Air Conditioner Rebates, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Residential/Air%20Conditioner/index.htm	For homes older than 10 years, rebates available for HVAC equipment. Includes central systems, packaged, window, solar water heaters, heat pump water heaters (all-electric homes), heat recovery water heaters (all-electric homes)	R	$	LV
Solar Rebate Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Solar%20Rebates/index.htm	$4.50 per watt for home and business customers	R,C	$	LV
Small Business Rebates & Incentives, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Commercial/Commercial%20Energy/smallBusiness.htm	Rebates for a variety of measures for small businesses and non-profits (lighting, free thermostats, free energy misers)	C	$	LV
Energy Miser Products Mean Savings, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Energy%20Miser/index.htm, (512) 482-5455	Free equipment and installation of VendingMiser, CoolerMiser, and SnackMiser	C	$	LV
Power Partner - Free Thermostat Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Power%20Partner/index.htm, (877) 549-2774	Free programmable thermostat with installation, equipment and warranty in return for permission to cycle AC during peak periods	C	$	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory code
Thermal Energy Storage Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Commercial/Commercial%20Energy/thermalEnergyStorage.htm	TES rebates at $300/kW up to 100kW, $150/kW for 100-500kW, $50/kW for 501kW and higher	C	$	LV
Load Cooperative Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Commercial/Commercial%20Energy/loadCooperative.htm	Cash incentive for curtailing unnecessary load during certain peak demand periods. $5/kW paid monthly at $1.25/kW plus $0.15/kWh for energy reduced	C,Ind,Ins	$	LV
Building Tune-up Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Commercial/Commercial%20Energy/buildingTuneup.htm	Implementation of the Continuous Commissioning program through Texas A&M	C, Ind	$,T	LV
Multi-Family Energy Efficiency Program	Four or more residential units with AC qualify for rebates on a variety of energy efficiency measures	MF	$	LV
Green Choice Green Power Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Choice/index.htm	#1 Green power purchasing program in the US, fully-subscribed at present	All	Dev	LV
Sustainable Building Sourcebook, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Sourcebook/index.htm	Information provided on 50+ green building topics via the web.	All	A,SB	LV
Green Building Case Studies, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Resources/Case%20Studies/index.htm	Case studies provided for green building in R, MF, C, and Ins.	All	A,SB	LV
Manage It Green Consulting Services, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Programs/mig.htm	Consulting services for other utilities and gov. agencies around Austin's experience with resource management programs.			
Residential Green Building Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Programs/residential.htm, (512) 482-5300	Rates new or remodeled homes using guidelines on a scale of 1 to 5 stars, includes EE, testing, water efficiency, materials effciency, health and safety, and community.	R	A,T,Dev	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory code
Commercial Green Building Program, Austin Energy, http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Programs/commercial.htm, Maureen Scanlon, Commercial Program Coordinator (512) 482-5300	Assists owners and designers with green building and operational practices	C	A,T,Dev, SB	LV
Multi-Family Green Building Program, Austin Energy, , Katie Jensen, Multi-Family Program Coordinator (512) 482-5300	The Multi-Family Green Building Program helps building professionals design and build comfortable condominium and apartment homes that are energy, water, and resource efficient.	MF	A,T,Dev, SB	LV
Rainbarrel Rebate Program, Water Conservation, http://www.ci.austin.tx.us/watercon/rbsales.htm	Discounted purchase of rainbarrels for use in capturing rain water for irrigation	R	$	LV
Free toilet program, Water Conservation, http://www.ci.austin.tx.us/watercon/freetoilet-suspend.htm	Currently unavailable due to supplier problem.			
Water IQ, Water Conservation, http://www.wateriq.org/	Awareness program provided by regional water providers	All	A	LV
Toilet rebate program, water conservation, http://www.ci.austin.tx.us/watercon/sftoilet.htm	Toilet rebates	R,C,MF	$	LV
Clothes washer rebate program, water conservation, http://www.ci.austin.tx.us/watercon/sfwasher.htm	Clothes washer rebates	R,C,MF	$	LV
Rainwater Harvesting Rebates, Water Conservation, http://www.ci.austin.tx.us/watercon/rwrebates.htm,	For rainwater harvesting systems larger than 300 gallons	R,C,MF	$	LV
Irrigation System Evaluations and Rebates, Water Conservation, http://www.ci.austin.tx.us/watercon/irrigation.htm	If you are a City of Austin water customer (or a customer of an eligible MUD), have an underground sprinkler system and use more than 25,000 gallons per month in the summer, then you qualify for an irrigation audit. A City water auditor will check your system and determine an efficient watering schedule.	R	T	LV
WaterWise Landscape Rebates, Water Conservation, http://www.ci.austin.tx.us/watercon/landscape.htm	Qualifying customers can receive rebates for landscape plans that have no more than 50% turf.	R	$,T	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory code
Commercial Process Evaluations, Water Conservation, http://www.ci.austin.tx.us/watercon/systemaudits.htm	As a free service to Austin Water Utility commercial customers, Water Conservation auditors are available to evaluate all aspects of your water consumption to determine how your company uses water. Auditors will suggest opportunities for reducing water consumption and discuss your eligibility for special commercial rebates. Up to $40k in rebates available	C,Ind,Ins	T,$	LV
WaterWise Restaurant Program, Water Conservation, http://www.ci.austin.tx.us/watercon/restaurants.htm	About 60 restaurants participated in water conservation reviews and implemented measures. Now listed on website.	C	T,Dev	LV
S.M.A.R.T. Housing, http://www.ci.austin.tx.us/ahfc/smart.htm	Stimulates reasonably priced housing and encourages it to be transit oriented.	R	Dev	LV
SMART Growth Initiative, http://www.ci.austin.tx.us/smartgrowth/	Promotes development in Desired Development Zone through development fee reductions and utility reimbursements. Zone is based on desirable siting relative to watersheds, topography, transit options, etc.	All	Dev,$	LR
Commercial Design Standards, http://www.ci.austin.tx.us/vision/community.htm	Standards under development as of 2004 to compliment Austin Code with a document that is easier to use and understand.	C	A	LR
Free Waste Assessment, http://www.ci.austin.tx.us/sws/wrap_assessment.htm	Free waste assessments	C	T	LV
Green Builder Standards, http://www.ci.austin.tx.us/tnd/	Standards required for building professionals to meet in residential construction	R	SB,Dev	LR
Zero Energy Home Task Force, http://www.ci.austin.tx.us/news/2006/ae_zero_energy_homes.htm	Austin studying requirement for all homes to be zero-energy capable by 2015	R	Dev	

2.2 Eugene, Oregon

Basic statistical information about Eugene is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 137,893
- College town: University of Oregon
- Utility structure: Municipal
- Number of municipal customers: 84,137
- Load served: 627 MW
- Interesting green building programs: Permit services website, demonstration projects

Program Name and Contact Info	Description	Sector	Service	Regulatory code
Building Permit Services Keli Osborn, Permit Review Manager, Building and Permit Services Division keli.m.osborn@ci.eugene.or.us (541) 682-5288	Provides website with green building information, including appropriate technology, green building design, site inventory & assessment, energy efficiency, multiplicity of function, reduce/reuse/recycle, al methods and materials, adjustment review, variance			
Growth Management Study, February 1998; regional transportation master plan (TransPlan), December 2001 Planning Division Allen Lowe Senior Planner 99 W. 10th Avenue Eugene, Oregon 97401 (541) 682-5113	With adoption, TransPlan identifies dozens of potential "centers" in Eugene and Springfield. If properly planned and developed, these centers will mature into quality neighborhoods that enjoy higher densities, mixed uses, more transportation options, convenient shopping and services, and amenities. When combined with improved transit, centers will reduce reliance on automobile travel, need for costly street improvements, slow sprawl onto nearby agricultural and forest lands, and provide a greater variety of housing types inside the Urban Growth Boundary.			
BROWN PAGES	A handy reference for information about garbage and recycling can be found in the new **BROWN PAGES** in the front of your *Qwest Dex White & Yellow Pages Directory*. The **BROWN PAGES** Recycling and Garbage Guide provides information on how to prepare your recycled materials, curbside yard debris collection, composting, and so much more.			
Anne Donahue Green Schools Coordinator (541)682-5542	The City has designated an Oregon Green School Coordinator to work directly with public and private schools in Eugene.			
Green Building Demonstration Projects Keli Osborn Permit Review Manager (541) 682-5288	2005 issued a request for proposals for a green building demonstration project. The objective was to find a partner who would design, develop and construct a project to showcase opportunities for green building methods and materials. Among the benefits the City would offer were low- and no-cost consultation on processes, procedures and requirements; expedited building permit review; and promotion and public education.			

Program Name and Contact Info	Description	Sector	Service	Regulatory code
Revisit details under Planning department				
Revisit details under PW Engineering				
Search Eugene Water & Electric Board web-link	*http://www.eweb.org/*			

2.3 Sacramento, California

Basic statistical information about Sacramento is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 407,018
- Utility Structure: Municipal
- Number of municipal customers: 578,041
- Load served: 3,299 MW
- Interesting green building programs: Residential and small business on-line energy audits

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Home energy analysis, http://www.smud.org/energysmart/online.html	Web-based tool for home energy analysis, externally developed (same as Austin's)	R	A	LV
Online bill analysis, http://www.smud.org/energysmart/bill.html	Login to personalized account to compare bill to past bills, determine influences such as weather or a new appliance that may affect your bill, compare to similar homes	R	A	LV
Online energy audit for small businesses	Login to use tool to compare to other businesses, determine where energy is used and identify potential measures and savings (probably based on same external tool as above)	C	A	LV
Aeroseal duct sealing rebate, http://www.smud.org/residential/saving/rebate.html	$300 rebate for Aeroseal duct sealing on existing HVAC systems	R	$	LV
CFL discounts at local retailers, http://www.smud.org/residential/saving/rebate.html	R	$	LV	
Ceiling fan with CFL lights rebate, http://www.smud.org/residential/saving/rebate.html	$20 rebate for ceiling fans with CFL	R	$	LV
Central Air Conditioning rebate, http://www.smud.org/residential/saving/rebate.html	Financing or cash rebate for qualifying central air conditioning units	R	$	LV
Clothes washer rebate, http://www.smud.org/residential/saving/rebate.html	Qualifying units eligible for $100/$175 rebates	R	$	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Cool roof rebate, http://www.smud.org/residential/saving/rebate.html	$0.20/sqft for qualifying areas	R	$	LV
Dishwasher rebate, http://www.smud.org/residential/saving/rebate.html	$30/$50 on qualifying units	R	$	LV
Heat pump rebate, http://www.smud.org/residential/saving/rebate.html	$400/$500 on qualifying heat pumps	R	$	LV
Pools and spas rebate, http://www.smud.org/residential/saving/rebate.html	$175 rebate on qualifying pumps and controllers	R	$	LV
Refrigerator rebate, http://www.smud.org/residential/saving/rebate.html	$50 on qualifying units	R	$	LV
Room air conditioner rebate, http://www.smud.org/residential/saving/rebate.html	$50 on qualifying units	R	$	LV
Solar hot water heater rebate, http://www.smud.org/residential/saving/rebate.html	$1500 with participating contractors	R	$	LV
Whole house fan rebate, http://www.smud.org/residential/saving/rebate.html	$100	R	$	LV
Financing program for energy efficiency measures, http://www.smud.org/residential/saving/faqs_pdfs/finance_factsheet.pdf	financing offered for qualifying central AC, windows, attic/wall insulation, heat pumps, solar hot water heating, and insulated siding	R	$	LV
Peak Corps, http://www.smud.org/residential/saving/peak.html	Voluntary program for demand management by cycling central air conditioners, participants receive a monthly discount as well as 3 levels of additional incentive based on the amount of cycling they agree to	R	$	LV
Free shade trees, http://www.smud.org/residential/saving/trees/index.html	For E,W,S aspects that heat up, customers may be eligible to receive free shade trees	R	$	LV
SMUD Advantage Homes, http://www.smud.org/residential/saving/advantage/index.html	A labeling program for new homes with energy advantages of standard construction	R	Dev	LV
Zero Energy Homes, http://www.smud.org/residential/saving/zeroenergyhomes.html	Partnership of SMUD and local homebuilders to offer highly progressive homes	R	Dev	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Customer Advanced Technologies, http://www.smud.org/education/cat/index.html	Provides funding for customers to use leading edge technologies in return for a two-year monitoring agreement. Example technologies include LEDs, Coolerado, Ice Bear, ICF, SIP, etc.	R,C,Ind	Dev,$,T	LV
Lighting Incentives, http://www.smud.org/commercial/saving/service/lightincent.html	$0.05/kWh for 10% better than Title 24 State Energy Code or existing baseline if already better than Title 24. $0.05/kWh for controls.	C	$	LV
HVAC incentives, http://www.smud.org/commercial/saving/service/hvacincent.html	Equipment >20tons that exceeds Title 24 at $0.14/kWh, VFD or energy management $0.14/kWh.	C	$	LV
Process, control systems, and refrigeration systems	$0.08-$0.14/kWh up to the lesser of 30% of project cost or $35,000/account	C,Ind,Ins	$	LV
Motor incentives, http://www.smud.org/commercial/saving/service/motorsincent.html	$0.08/kWh above 200HP, Distributor rebate program for motors below 200HP	C,Ind,Ins	$	LV
Financing program for energy efficiency measures, http://www.smud.org/commercial/saving/loans.html	Currently, eligible equipment includes: lighting, heating and air-conditioning systems (provided they meet SMUD's minimum efficiency standards), refrigeration systems, and process equipment.	C,Ind,Ins,MF	$	LV
Energy Services: Contractors, http://www.smud.org/commercial/saving/service/contractors.html	SMUD provides a list of contractors that have participated in their programs in the previous 12 months	All	Dev,A	LV
Savings by Design, http://www.smud.org/commercial/saving/bydesign.html	Design assistance, resources, owner incentives, design team incentives, by whole building or systems approach. Up to $150k in incentives available.	C,Ind,Ins	Dev,$,T	LV
Onsite energy audit, http://www.smud.org/commercial/saving/onsite_audit.html	SMUD will do an onsite study and provide a written report with recommendations.	C,Ind,Ins	Dev,T	LV
Greenergy, http://www.smud.org/green/index.html	Green power program offering, SMUD owns 39MW wind farm	All	Dev	LV
Solar power for your home, http://www.smud.org/green/solar/index.html	$2.50/watt incentive for PV	R	$	LV
SMUD Community Solar, http://www.smud.org/green/solar/community.html	$0.01/kWh premium supports PV arrays for non-profits in the SMUD service area	All	Dev	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Energy Education Seminars, https://usage.smud.org/yourAccount/ETCstudent/classlist.asp	1-2 seminars weekly on topics from carbon and corporate responsibility to Manual J Load calcs, advanced lighting	All	SB,A	LV
Exhibits available on self-guided tours on weekdays, http://www.smud.org/education/exhibits.html	Exhibits on light technologies, energy efficient house, power sources, new technologies	All	A	LV

2.4 Seattle, Washington

Basic statistical information about Seattle is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 563,374
- Utility Structure: Municipal
- Number of municipal customers: 375,869
- Generation capacity: 1,920 MW
- Interesting green building programs: Green building required where public financial incentives are involved; landscape targets required; detailed guides for green building

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
CITY Green Building Program (206) 615-1171	The cities consolidated green building program and information clearinghouse which provides education, assistance, and incentives. On Call experts devoted to each bldg sector.	ALL	ALL	LV
Urban Green Phone: (206) 356-7977 terra@urbangreenresource.org	a public/private non profit partnership as a one stop shop for information on all green building issues and project types. Information, Education, Demonstration Center, and Project Support	ALL	ALL	LV
Density Bonus Initiative	Changes in the new regulations were made to provide greater heights and/or greater floor area for commercial and residential buildings. To gain greater height or density, projects must achieve a LEED Silver rating or higher, as well as contribute to affordable housing and other public amenities. The zoning changes also offer greater transferable development rights for historic structures.	R,C,MF		LR
Smart Businesses Program Contact Seattle City Light at 206.684.3800	The $mart Business Program is designed to provide financial incentives to your small business for replacing existing inefficient lighting with approved energy efficient lighting equipment. Rebates range from $25 to $65 per fixture for replacement of existing lamps or fixtures with new efficient ones.	C	$	LV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
Multi-Family Common Area Lighting Leo Castillo at 206.684.4281 or leo.castillo@seattle.gov	The Multifamily Common Area Lighting (MFCAL) Rebate Program now provides simple rebates for replacing inefficient lighting in common areas with energy-efficient models. Building owners may choose to use their own licensed installer or Seattle City Light's participating contractors.	MF	$	LV
Multi-Family Weatherization 206.684.3800	offers the same great financial incentives for upgraded windows, lighting and insulation	MF	$	LV
Lighting Design Lab 206.325.9711	The Lab provides technical assistance, training and education to commercial customers and lighting designers seeking information on high quality, energy efficient lighting technologies.	ALL	T,SB	LV
Built Smart http://www.seattle.gov/light/conserve/resident/cv5_bs.htm	provides multifamily architects, builders and owners all the technical specifications and information they need to qualify for BUILT SMART incentives.	ALL	T,SB,$	LV
Home Resource Profile http://www.seattle.gov/conserve/homeprofile/	The Home Resource Profile is a detailed, customized report that shows you how your household uses energy, water and solid waste. It is available to any Seattle City Light or Seattle Public Utilities residential customer. Whether you live in a house, condominium or apartment, this free service will give you useful information about your utility bills and how to save money. homeowners take online survey.	R	T,A,SB	LV
Neighborhood Power Project http://www.seattle.gov/light/conserve/neighborhood/power/	a strategy to effectively deliver multi-agency conservation and resource management services to targeted neighborhoods in the City of Seattle.	C	ALL	LV,LR
Energy Smart Services through Seattle City Light(public electric utility) 206.684.3254 http://www.seattle.gov/light/Conserve/Business/cv4_ess.asp	A clearing house of information, contacts, conservation services, rebates, incentives, etc for medium to large businesses offers financial incentives and technical assistance for both existing facilities and new construction projects	C,Ind	T,$	LV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
SeaGreen Affordable Housing Guide http://www.seattle.gov/housing/SeaGreen/default.htm	SeaGreen Affordable Housing Guide was developed to promote energy conservation, operational savings and sustainable building practices in affordable multifamily housing projects. The strategies included in SeaGreen work to reduce operating costs, promote healthy environments and protect and conserve resources in City funded affordable housing projects. Venturing beyond current practice, these strategies protect and enhance Seattle's affordable housing stock and the community as a whole.	MF	T,A,SB	LV
Green Factor Steve Moddemeyer (206) 386-1981	developers must meet a new landscaping requirement for Seattle's commercial areas. Known as the Seattle Green Factor, the program requires new development in neighborhood business districts to meet a landscaping target through use of a menu of landscaping strategies. It is designed to improve the extent and quality of landscapes, while allowing flexibility for developers and designers to meet the requirement. Workshops.	ALL		LR
Green Roofs Plan http://www.seattle.gov/dpd/GreenBuilding/OurProgram/Resources/TechnicalBriefs/DPDS_009485.asp	Seattle currently has an impervious surface reduction credit that lists green roofs and roof gardens as acceptable strategies	ALL	$,T	LV
Green Home Remodel Guides http://www.seattle.gov/dpd/GreenBuilding/SingleFamilyResidential/Resources/RemodelingGuides/default.asp	City Publications on remodeling: general overview, bath and laundry, painting, landscape, roofing, hiring professionals, salvage &reuse	ALL	SB,T,A	LV
Irrigation System Upgrade Rebates Jenna Smith at jenna.smith@seattle.gov or (206) 684-5955.	rebates for water saving upgrades/installations of irrigation systems	ALL	$	LV
Low Cost Rain Barrels	purchase discounted rain barrels for rain water harvestings	ALL	$	LV
Way To Go! http://www.cityofseattle.net/waytogo/	Program that encourages alternative transportation	ALL	$,A,SB	LV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
Resource Venture-non profit partnership, publicly funded by utilities and city. http://www.resourceventure.org/rv/index.php	entity for Seattle businesses that provides technical expertise, financial assistance, and education/awareness regarding all environmental issues	C,Ind	ALL	LV
King County Green Bldg Grants http://www.seattle.gov/dpd/stellent/groups/pan/@pan/@sustainableblding/documents/web_informational/dpdp_018427.pdf	All Bldg Projects in County: LEED Silver or above, 75% recycling/reuse rate for construction waste and demolition, reduction in bldg and landscape water use, comply with various stormwater and soil conservation ordinances.	ALL	$	EV
Overall City of Seattle Green Bldg Website http://www.seattle.gov/dpd/GreenBuilding/	A web site for all green building issues and resources for the Seattle resident all sectors and all services with links to external utility rebates, internal publications and websites, outside non profits, etc.	ALL	ALL	

2.5 Boulder, Colorado

Basic statistical information about Boulder is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 94,673
- College town: University of Colorado
- Utility structure: Non-municipal (Xcel gas and electric)
- Interesting green building programs: On-site energy assessments

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Residential Energy Audit Program REAP Center for ReSource Conservation CRC @ 303-441-3278 ext. 24	Low Cost Energy Audits to City Residents	R	T	LV
Green Points Building Program 303-441-1880	Help homeowners find green building products, encourage green building and remodeling, promote recycling of construction waste and reduce solid waste, promote better indoor air quality, occasional work shops,	R		LR
Energy Codes 303.441.1800	Adopted the 2000 IECC standards for residential and commercial building efficiency	R, C		LR

2.6 Santa Monica, California

Basic statistical information about Santa Monica is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 84,084
- Utility structure: Non-municipal
- Interesting green building programs: On-line tools; detailed guides

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Expedited Permitting & Plan Checks	Provides Priority to buildings registering for LEED certification, shaving weeks off of approval process	ALL	$	LV
The Design Advisor	An online tool that allows those involved with the built environment on all phases(new construction, renovation, etc.) to find out suggested, recommended, and required measures/programs	C,Ind,Ins	A,I,T	LV,LR
Residential Green Building Guide	A publication designed to assist new construction or remodeling for residential dwellings. http://smgreen.org/mainpages/green-building-guide-web.pdf	R	A	LV
AltCar Expo	An expo on Alternative Cars and Transportation http://www.altcarexpo.com/	ALL	A	LV
Green Building Grants	Grants for LEED™ (LEED-NC™) certified buildings will range from $20,000 to $35,000 depending on the level of certification. Innovative Technology Grants will cover 50% of project costs up to $5000 for new construction or renovation projects that involve cutting edge energy efficiency or urban runoff mitigation technologies. http://smgreen.org/mainpages/Details%20-%20LEED%20Grants.pdf http://smgreen.org/mainpages/Details%20-%20Innovative%20Grants.pdf	ALL	$	LV

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Green Building Resource Center	The Green Building Resource Center is operated by Global Green, USA with the support of the City of Santa Monica. The Center is open to the public Wednesday, Friday, and Sunday from 10 AM - 3 PM and Thursday evenings from 3 PM - 8 PM. The Center has numerous samples of environmentally preferable building materials, informational resources such as books and magazines, referral lists of green architects and consultants, and knowledgeable staff to answer visitors' questions. Regular monthly seminars will also be hosted at the Center. (310) 452-7677	ALL	SB,T,A	LV
Energy Code	One major component of the compliance process is the Santa Monica Energy Code Compliance Application (SMECCA). This application enables builders to document compliance with the Santa Monica energy ordinances, and to identify the required practices and documentation for the Santa Monica Green Building Program Requirements. SMECCA can be downloaded free of charge from this web site. http://smgreen.org/mainpages/complianceReport.htm	ALL		LR
Santa Monica Green Building Codes & Requirements	A website detailing all city guidelines for building that are green practices http://smgreen.org/requirements/projectrequirements.html	ALL		LR
Construction & Material Waste Recycling Ordinance	This Ordinance established requirements for educing solid waste from construction related activities http://smgreen.org/whatsnew/waste.ordinance.html	ALL		LR

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
City Green Building Ordinance	This City Ordinance establishes prescriptive energy-saving measures for small residential projects, and energy performance targets beyond Title 24 for all commercial and larger residential projects. http://smgreen.org/whatsnew/green-building-ordinance/green-building-Ord-1-5-2002.pdf	C,MF,R		LR
Green Building Design & Construction Guidelines	The Guidelines were developed for, and specifically apply to, the following building types: Institutional and Commercial Offices, Light Industrial, Commercial Retail, Multi-Family, Hotels/Motels http://smgreen.org/introduction/introduction.html	C, Ind, Ins, MF		LV,LR
Green Building Program Website	A website detailing green building info both with regards to the city and general info. http://smgreen.org	ALL	A	LV

2.7 Scottsdale, Arizona

Basic statistical information about Scottsdale is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 202,705
- Utility structure: Non-municipal

Interesting green building programs: Green building program website; grey water conservation tax credit

Program Name and Contact Info	Description	Sector	Service	Regulatory Code
Green Bldg Program & Website, 480.312.4202 http://www.ci.scottsdale.az.us/greenbuilding/	rates projects in following impact areas-site use, energy, IAQ, Materials, SW, Water. A point system is used to qualify projects into the program. Once project is accepted builder/customer receives priority plan review, job site signs, directory of participating designers/builders, Green Bldg certifications through inspections, homeowner's manual, etc. The Green Building Program encourages a whole-systems approach through design and building techniques to minimize environmental impact and reduce the energy consumption of buildings while contributing to the health of its occupants. Links to external utility incentives and conservation programs as well as external non profit programs, case studies, projects in the city	R,C,MF	$,T,A,M,SB	LV
Grey Water Conservation Tax Credit through the state	tax credit for residences which install Grey Water system	R	$	EV
Green Home Buyer's Guide http://www.ci.scottsdale.az.us/greenbuilding/Manuals/GreenHomeBuyersGuide.pdf	guide for buying a green home	R	A	LV

Green Building Remodeling Workbook http://www.ci.scottsdale.az.us/greenbuilding/Manuals/GBRemodelingWorkbook.pdf	guide for green remodeling/renovations	R,C	A	LV
Landscape revitalization workbook http://www.ci.scottsdale.az.us/greenbuilding/Manuals/LandscapeWkbk.pdf	guide for xeriscaping	ALL	A	LV
Green Bldg Lecture Series http://www.ci.scottsdale.az.us/greenbuilding/Lectures/default.asp	series of free open to the public lectures on various green building topics	ALL	A,SB	LV

2.8 Portland, Oregon

Basic statistical information about Portland is provided in the list below. More specific program information is summarized in the table following the list.

- Population: 529,121
- Utility structure: Non-municipal
- Interesting green building programs: Green building required where public financial incentives are involved; on-site assessments; solar electric incentives

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
G/Rated Mike O' Brien 503.823.5494. Alisa Kane 503.823.7082	G/Rated is Portland's gateway to green building innovation, offering initial consultation and resources specific to YOUR green building project. Under the direction of Commissioner-in-charge Dan Saltzman, G/Rated is accelerating the adoption of cost effective green building practices as the standard of development in Portland.	R,C	T,A,SB	LV
Portland Development Commission: Green Building Policy	The PDC Green Building Program requires developers receiving financial assistance from the commission -and direct commission funded projects to integrate green building practices into construction projects and meet established LEED standards.	ALL	$	LR
City of Portland:Green Building Policy Update	A commitment to city owned LEED certified facilities, facilitated permitting and technical assistance to qualified public and private projects, the construction and maintenance of public facilities will incorporate green best practices.	ALL	T,$	LV,LR
Living Smart Homes	The Living Smart house plan program is a pilot program intended to be an incentive to easily build well designed houses on narrow lots in the City of Portland. Living Smart House Plans have been reviewed for building code compliance. The Living Smart house plans will be issued along with the residential building permit once all fees and charges are paid. All BDS-related fees comprising the review and inspection of these houses will be reduced by 50%. Living Smart house plans will be submitted through the fast track process regardless of whether the buyer is a resident or a build	R	T,$	LV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
Integrated Design	The first step in an Integrated Design process is for a developer or owner to commit to high performance and energy efficiency and to ensure that these commitments are recognized by each team member, beginning with the earliest stages of the design process. Early definition of building performance objectives, perhaps in a project vision statement, should be followed with these objectives incorporated into programming efforts, integrated into all project narrative documents, and into performance requirements for particular systems and components.	R,C	T,A	LV
Residential Rainwater Harvesting Code Guide	Guide on the process and approach by which Portland residents can design and install a code-compliant rainwater harvesting system	R	T	LV
Facility Permit Program 503-823-0652	The Facility Permit Program (FPP) is designed to serve customers with 'on-going' Interior Tenant Improvements where facility maintenance, upgrade and renovations are frequent. FPP is available to owners of buildings, building management companies, and their tenants for work within the facility.	R,C	$,A	LV
Energy Efficient Mortgages	Energy Efficient Mortgages (EEM) provide the borrower with increased buying power when purchasing a home that is energy efficient, or that can be made efficient through the installation of energy-saving improvements.	R	$	EV
Multi Family Weatherization Program 503-823-0530	The City of Portland provides personal assistance to rental property owners in obtaining energy evaluations and taking advantage of cash incentives and tax credits available for making energy-efficient improvements	R	T,$,A	LV
Earth Advantage: Home Performance Power Program 888-327-8433	Participating lenders offer the "Home Performance Power" mortgages for homes built under the Earth Advantage program, which promotes the construction of resource-efficient housing. Home Performance Power mortgages have low or no down payment requirements and require borrowers to contribute only 3% for closing costs, which may come from a	R	$	EV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
	variety of sources. Eligible borrowers can also add the dollar value of projected energy savings to their income, thus qualifying for a larger mortgage.			
home energy audit Natural Gas – NW Natural 503-220-2361	Your home must be heated by natural gas. Call to schedule a free home energy audit to receive a customized report that lists weatherization options. Incentives available include cash rebates of up to 25% of the job cost (up to $350) and/or loans as low as 6.5% APR and $200 cash payment toward the purchase of a 90%-plus energy-efficient gas furnace. The cash rebate and loan are available on the cost-effective portions of the weatherization measures installed.	R	$,T	EV
Energy Audit -Oil, Kerosene, Propane, or Wood – State Home Oil Weatherization Program (SHOW) 800-452-8660	Your home must be heated by oil, kerosene, propane, or wood. Call to schedule a free home energy audit to receive a customized report that lists weatherization options. Incentives available include cash rebate of up to 25% of the job cost (up to $400) and/or loans as low as 6.5% APR. The cash rebate and loan are available on the energy-efficiency measures recommended in the audit. SHOW is offering cash incentives on replacement windows, replacement oil furnaces, and above-ground oil tanks when installed with a new furnace.	R	$,T	EV
Energy Trust Of Oregon: Home Energy Savings Program 1-866-ENTRUST (368-7878) various programs listed below and not numbered	The Home Energy Savings program serves people who live in single-family homes, apartment complexes and manufactured homes. The program offers financial incentives for energy-saving home improvements for residential customers of Portland General Electric, Pacific Power and NW Natural. Also available are referrals to contractors who can offer special financing, and assistance with Oregon state tax credit applications. Programs appear below.	R,C	$,T	EV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
Efficient New Homes program	The Efficient New Homes program works with new homebuilders, contractors, product manufacturers and retailers to promote energy-efficient building practices and products, and to educate consumers about the advantages of an ENERGY STAR qualified new home. The program offers financial incentives to builders and performance testing contractors of energy-efficient new homes. Consumers who buy a home built through the Energy Trust of Oregon's Efficient New Homes program may be eligible for Residential Tax Credits from the Oregon Department of Energy for the appliances, heating and cooling equipment and other items in their new home.	R,C	$,T	EV
Efficient Home Products program	The Efficient Home Products program promotes energy-efficient home products and offers financial incentives for ENERGY STAR qualified dishwashers, clothes washers and compact fluorescent light bulbs (CFLs). Financial incentives are offered on a seasonal basis for each product. The program works with product manufacturers and national, regional and local retailers of qualified products to promote consumer awareness, and adoption of, energy-efficient products.	R,C	$,T	EV
Solar Electric program	The Solar Electric program offers financial incentives, service and support for homeowners installing solar electric (photovoltaic) systems, and when combined with federal and state tax credits, can lower the total cost of a system by about 50%. Once installed, a typical photovoltaic (PV) system can save 10% to 15% on your electric bill. Homeowners may also be eligible for a Residential Energy Tax Credit of $3.00/Watt (up to $1,500 maximum) through the Oregon Department of Energy.	R,C	$,T	EV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
Solar Water Heating program	The Solar Water Heating program offers incentives for solar water heating installations, which, when combined with state tax credits, can lower the cost of a solar water heating system by up to 50%. Typically, a homeowner relying on electricity to heat water could save up to $150 in the first year of operation by installing a solar water heating system. Savings are higher for larger families and will increase over time. Customers of Pacific Power, Portland General Electric, and NW Natural are eligible for this program – including new and existing construction.	R,C	$,T	EV
Green Investment Fund	The Green Investment Fund (GIF) is a competitive grant program that supports innovative green building projects in Portland. In the current round of funding, a total of $425,000 is available and the maximum grant amount for any project is $225,000. Industrial, residential, commercial, and mixed-use public and private organizations may apply.	ALL	$	LV
Oregon DOE: Sustainable Building Tax Credit 1-800-221-8035	LEED-certified Silver, Gold and Platinum buildings are eligible for a Sustainable Building Tax Credit. A pre-certification application is required and will be reviewed by staff and approved with a specific tax amount, based on the LEED rating sought. Eligibility is determined after the LEED Certification (at Silver or higher) is received. Credit will be calculated on the gross square footage (gsf) of all conditioned spaces.	C	$	EV
Oregon DOE: Business Energy Tax Credit (BETC) 1-800-221-8035	The Business Energy Tax Credit Program offers projects that incorporate energy conservation, efficient equipment and renewable energy systems a 35% five-year tax credit. Projects $20,000 and less may be taken in one year. Office buildings, stores, apartment buildings and other businesses may be eligible. A Pass-through Option is also available for project owners who choose to transfer their tax credit eligibility to a business partner with a tax liability in exchange	C	$	EV

Program Name And Contact Info	Description	Sector	Service	Regulatory Code
	for a cash payment. The Department of Energy sets the pass-through rate annually. The Department of Energy can help project owners find pass-through partners, although no guarantees are made that a partner will be provided.			
Oregon DOE: Small Scale Energy Loan Program (SELP) 1-800-221-8035	Low-interest, fixed-rate, long-term loans for any qualified project owner who invests in energy conservation, renewable energy and alternative fuels. Individuals, businesses, schools, special districts, tribes and local, state or federal government agencies are eligible.	ALL	$	EV

Appendix B

City Programs with a Green Building Component

APPENDIX B

City Programs with a Green Building Component																						
Name of Action - Program - Initiative	In 2007 Roadmap	New Since 2007	Under (re)Development		Carbon Footprint	Energy Efficiency	Water Conservation	Waste Minimization	Waste Diversion	Pollution Prevention	Indoor Air Quality	Green Materials	Alternative Transportation		Regulatory	Voluntary	Incentive / Rebate ($)	Other Incentive	Training / Education	Research	Benchmark	**Description**
CARBON FOOTPRINT																						
ClimateWise	x		x		x	x	x	x	x		x	x	x			x		x	x		x	Sustainability program for businesses. They earn levels of recognition.
ClimateWise member		x			x	x	x	x	x				x			x		x	x		x	City participates in the ClimateWise program as a partner. The City has earned platinum status since 2010. In 2012, the City participated in the ClimateWise Social Superstars program to address social responsibility.
GHG Goals		x	x		x	x	x	x	x	x			x		x	x	x				x	Resolution adopted by Council May 2008 to Reduce GHGs from 2005 baseline by 3% by end of 2012; 20% by 2020; 80% by 2050. New GHG goals are currently under review.
Residential Environmental Program Series	x				x	x	x	x	x	x	x	x	x			x		x	x			Community education programs related to sustainable concepts such as solar, water, GHGs, and composting. Events sponsored by Utilities and Environmental Services.
Transfort Fuel Conversion		x	x		x								x			x						Conversion of fleet from diesel to Compressed Natural Gas(CNG) and some biodiesel.
Climate Adaptation		x	x		x	x		x	x				x			x					x	Developing City's response to and adaptations for climate change.
FortZED		x	x		x	x		x	x							x				x	x	Existing location, using an existing energy distribution system, and built on strong public-private partnerships to position itself at the forefront of our nation's new energy economy.
Innovation Fund		x			x	x	x	x	x		x		x			x	x					Employee program for City facility improvement projects. Criteria for selection includes Triple Bottom Line.
Energy Policy		x			x	x		x	x										x		x	Adopted Jan. 2009, includes 2050 vision for carbon neutral electricity supplies.
Climate Action Plan		x			x	x		x	x				x		x	x	x	x	x	x	x	Adopted Dec. 2008. Climate Status Reports published annually.
ENERGY EFFICIENCY																						
Business Efficiency Program		x			x	x	x									x	x					New program (since 2007) that replaces several programs from 2007 Roadmap. Technical assistance, assessments, rebates, building tune-ups for
Integrated Design Assistance Program (IDAP)	x				x	x										x	x	x	x			Supports project owners, developers, design professionals and builders to create high-performance buildings.
LIGHTENUP	x					x																New fixture and retrofit project to de-lamp T8 and T12 linear fluorescent fixtures.
PV Net Metering Pilot replaced by Solar Rebates and Net Metering	x	x			x	x										x	x					Rebates and credit for generated electricity from PV.
REACH (Residential Energy Assistance through Community Help)	x				x	x										x						Income-based weatherization program based on whole house approach.
Biz-Ed Program Series	x				x	x	x	x	x			x	x						x			Free educational programs for businesses put on by Utilities on "green" issues.

City Programs with a Green Building Component																						
Name of Action - Program - Initiative	In 2007 Roadmap	New Since 2007	Under (re)Development		Carbon Footprint	Energy Efficiency	Water Conservation	Waste Minimization	Waste Diversion	Pollution Prevention	Indoor Air Quality	Green Materials	Alternative Transportation		Regulatory	Voluntary	Incentive / Rebate ($)	Other Incentive	Training / Education	Research	Benchmark	**Description**
Advanced Meter Fort Collins		x	x		x					x												Utilities is upgrading mechanical electric and water meters in homes, schools and businesses with electronic devices for two-way digital communication.
Home Energy Report Program		x			x	x										x					x	Provides energy use reports to homeowners that compares to similar homes. Began with pilot in late 2009.
Home Efficiency Program		x			x	x	x				x					x	x	x	x			Energy and water efficiency audits providing home specific improvement recommendations, energy advisor services, rebates, on-bill financing. 23 improvement rebates available with quality assurance, training, and verification.
21st Century Utilities Initiative		x			x	x	x	x	x	x	x	x	x			x			x			Developed in 2007 to meet multiple industry challenges and become a sustainable utility. "Inspiring community leadership by reducing environmental impact while benefiting customers, the economy, and society." The initiative encompasses many programs in the Utilities Service AREa including the Code of Ethics, TBLAM tool, CVA (Culture Values Assessment), Peer Recognition Awards, One Planet, Knowledge Transfer Program, and more.
Global Reporting Initiative - Sustainability Report		x				x	x	x	x							x		x	x	x	x	Utilities produces an annual Sustainability Report for the Global Reporting Initiative. Fort Collins Utilities is the first municipal utility in the US to be granted registration with this organization.
Green Energy Program		x			x	x				x						x		x				Provides Utilities customers the option to purchase clean, renewable energy. This program is Green-e Energy certified.
Renewable Energy Purchases		x			x	x				x					x	x		x				Utilities purchases renewable energy (2% solar and other bundles). State requires 10% generation with renewables by 2020 with interim goals 1%-2010, 3%-2015, and 6%-2019.
Energy Education Labs					x	x										x			x			Students participate in hands-on energy labs that reinforce the science standards of the grade level.
Key Accounts						x	x		x										x			Staff from Utilities provides conservation and sustainability info to large industrial and commercial customers.
Appliance and Refridgerator rebates	x				x	x	x									x	x					rebates for Energy Star dish/clothes washers, rebate for refrig and free pickup and recycling
Retail lighting markdown	x				x	x	x	x								x	x					retail discounts for CFLs and LEDs
Energy Benchmarking of City Buildings (EnergyStar)		x			x	x	x									x			x	x	x	EnergyStar used to track energy and water for City buildings. The information is benchmarked using a common building energy use index.
Fort Collins Solar Power Purchase Program (FCSP3)		x	x		x	x				x												Pilot program that encourages the installation of new local solar systems on behalf of all Utilities customers.
NoCo EnergyStar Homes		x			x	x	x				x					x			x			Collaborative program with regional partners promoting EnergyStar version
WATER CONSERVATION																						
Municipal Code - Wasting Water Code	x						x								x							Wasting water is prohibited, complaints are investigated and ticketing is possible.

City Programs with a Green Building Component																						
Name of Action - Program - Initiative	In 2007 Roadmap	New Since 2007	Under (re)Development		Carbon Footprint	Energy Efficiency	Water Conservation	Waste Minimization	Waste Diversion	Pollution Prevention	Indoor Air Quality	Green Materials	Alternative Transportation		Regulatory	Voluntary	Incentive / Rebate ($)	Other Incentive	Training / Education	Research	Benchmark	**Description**
Municipal Code - Water Rates	x						x								x							Tiered residential water rates & seasonal commercial rates to encourage water conservation
Water Treatment Facility			x		x	x	x	x	x	x						x			x			Silver partner in the Environmental Leadership Program. The facility utilizes a photovoltaic generation system on site. Currently implementing an Environmental Management System for pollution prevention.
Sediment and Erosion Control Inspections for Construction	x																					Inspections conducted to ensure compliance with the City's MS4 permit
LUC- Landscape and Irrigation Standards	x						x								x							Landscape and irrigation plans reviewed for compliance with the LUC's water conservation standards.
Soil Amendment Ordinance (Sec. 12-132)							x		x	x					x							Requires builders to amend soil on new properties including a requirement of compost use in lawns.
Restrictive Covenants Ordinance							x	x	x						x							Nullifies any private property covenant which prohibits xeriscape landscaping, solar collectors, clothes lines, compost bins, or mandating turf grass landscaping.
WaterSHED/Dr. Water WISE							x									x			x			Provides scientific, hands-on water conservation activities to local schools.
Evapotranspiration Measurements		x					x															Parks measures evapotranspiration to conserve water.
Xeriscaping Outreach, Demonstration Gardens							x	x	x			x										Education and demonstration programs on landscaping techniques to conserve water.
Water Conservation Plan		x					x														x	Goal for the conservation program of reducing water use to 140 gallons per capita per day by 2020.
Water Supply and Demand Management Policy			x				x								x							Provides a foundational framework for water supply and demand management decisions concerning the City's water supply system.
Commercial & Residential Restroom Rebates		x					x									x	x	x				Rebate for toilet and urinal replacement to WaterSense.
Commercial & Residential Sprinkler Equipment Rebate		x					x									x	x	x				Rebate for sensors, nozzles, etc. for landscaping.
Water Conservation "Water Catcher" Awards		x					x									x		x				Awards-based program that recognizes community members for water conservation efforts.
Sprinkler System Audit Program	x						x									x		x	x			Free sprinkler system audits to conserve save water.
Water Conservation Rebate		x					x									x	x					Rebate for business customers that install water conservation projects that reduce water use by 20%.
Toilet Rebate							x		x							x	x					Rebate for buying new, water-efficient toilets and replacing old.
STORMWATER MANAGEMENT																						
Stormwater Master Plan		x					x			x											x	Updated in 2012, the plan determined drainage improvement project throughout the City.
Storm drainage design criteria and construction standards	x	x					x			x					x							Now the "Stormwater Criteria Manual," adopted in 2011, which sets the stormwater policies and provides drainage criteria for all new stormwater design and construction activities.

City Programs with a Green Building Component																						
Name of Action - Program - Initiative	In 2007 Roadmap	New Since 2007	Under (re)Development		Carbon Footprint	Energy Efficiency	Water Conservation	Waste Minimization	Waste Diversion	Pollution Prevention	Indoor Air Quality	Green Materials	Alternative Transportation		Regulatory	Voluntary	Incentive / Rebate ($)	Other Incentive	Training / Education	Research	Benchmark	**Description**
Low Impact Development (LID) Principles		X								X					X							Requires LID on all new development. Allows reduced fees (incentives) for additional LID. Requires 25% pervious surface in paved areas and 50% of developed area must drain to LID device.
WASTE MIN. and DIVERSION																						
Deconstruction/Construction Debris	x	x			x	x		x	x	x					x						.	Effort to divert the maximum amount of building materials from the waste stream and reduce the demand for new materials. Updating the Construction Waste Recycling Resources form requesting documentation of the final destination and tonnage of waste and recycling from the
Solid Waste Regulatory Oversight	x							x	x													solid waste ordinances, trash and recycling enclosures, pay as you throw
Rivendell Recycling Drop Off Facility	x				x			x	x							x						Full-service recycling drop-off facility managed by the City.
Composting		x	x		x	x	x	x	x	x		x				x			x	x		Compost is a valuable soil amendment that helps retain water and nutrients. Programs include: The Gardens on Spring Creek Backyard Composting Bin Demonstration; Fort Collins Online Compost Worm Exchange; and other educational resources.
Residential and Commercial Yard Waste Collection			x		x	x	x	x	x	x		x				x			x	x		The City helps promote several privately operated drop-off locations for yard waste and leaves. Ongoing research concerning alternative waste diversion efforts.
Commercial Food Waste Collection		x	x		x	x	x	x	x	x		x				x			x	x		The City helps promote several privately operated food waste collection service providers. Ongoing research concerning alternative waste diversion efforts.
Integrated Recycling Facility		x	x		x	x		x	x	x						x			x	x		Proposed new City facility to accept materials for diversion from landfill.
City Food Composting Project		x	x		x			x	x	x		x				x		x		x		"Earth Tubs" for demonstration project for the City's organic waste and several ClimateWise restaurant partners.
E-waste Ban		x			x			x	x	x					x				x			Ordinance banning electronic waste from the landfill. The City promotes more responsible e-waste recycling practices.
Cardboard Recycling Ban		x			x			x	x						x							City ordinance banning cardboard from the landfill.
Pay-As-You-Throw Ordinance		x						x	x						x							Variable-rate pricing program where residents are charged for the collection of municipal solid waste based on the amount they throw away.
Waste Reduction and Recycling Assistance Program (WRAP)		x			x			x	x								x		x			Outreach and incentives for commercial and multi-family recycling.
Road to Zero Waste			x		x			x	x	x		x				x		x	x	x	x	Adoption of new Zero Waste goals to replace 1999 goal.
Recycle THIS!		x	x		x			x	x	x		x				x		x	x			Internal City recycling campaign for source reduction, improved recycling and diversion.
GREEN DESIGN AND IMPLEMENTATION																						
Fort Collins Urban Design Awards	x				x	x	x	x	x	x	x	x	x			x		x	x	x		Award program to promote awareness of urban design.
Building Code - Green Amendments	x	x	x			x	x	x	x						x						x	"Green Building Code Amendments" effective Jan 2012 for residential and commercial construction.

City Programs with a Green Building Component																						
Name of Action - Program - Initiative	In 2007 Roadmap	New Since 2007	Under (re)Development		Carbon Footprint	Energy Efficiency	Water Conservation	Waste Minimization	Waste Diversion	Pollution Prevention	Indoor Air Quality	Green Materials	Alternative Transportation		Regulatory	Voluntary	Incentive / Rebate ($)	Other Incentive	Training / Education	Research	Benchmark	**Description**
Green Building Code Contractor Training		x				x	x	x	x						x				x			Contractor training conducted in 2012 by Utilities and Building to implement building envelope requirements in code.
Building Design and Construction Standards		x	x		x	x	x	x	x		x	x			x							Building standards written by Operations Services for City facilities. Includes requirements for LEED Gold certification.
Certified Staff		x			x	x	x	x	x	x	x	x	x			x			x			Professional Staff Certified in LEED and other Green Building Accredidations.
TRANSPORTATION																						
Transportation Overlay District	x		x		x								x		x							Specifies requirements within the Mason Street corridor to encourage multi-modal community. Minimum parking approved by Council 9/3/2013
Land Use Codes - Transit Stops in Downtown District	x				x								x		x							To encourage multi-modal transportation within the downtown area, reducing congestion, air pollution, etc.
Larimer County Urban Area Street Standards (LCUASS) - Level of Service Standards	x				x								x		x							Standards for transportation - street, bicycles, pedestrians.
Mason Corridor	x				x								x					x			x	5 mile bus rapid transit corridor. Now includes "MAX" and Midtown Plan.
Harmony Road Enhanced Travel Corridor			x		x							x	x							x		Modifying major transit corridor to accommodate increased growth.
Lincoln Corridor			x		x								x							x		Modifying Lincoln Street Corridor to accommodate increased industrial traffic and some adjacent neighborhood projects. Now includes Woodward.
Northern Front Range Transit Vision Study			x										x							x		Explores feasibility of a combined transit authority for Fort Collins, Loveland, Berthoud.
Green Streets Demonstration Project			x		x		x			x		x	x							x		Demonstration project to test prioritizing bike/pedestrian traffic, stormwater, Low Impact Development, and renovation of existing streets.
Bicycle Plan		x	x		x	x				x			x					x			x	Beginning in October 2013, the current plan will be updated. Proposes bicycle network, wayfinding strategies, bike facilities, guidelines, policies, and programmatic recommendations.
Transportation Master Plan		x			x					x		x	x		x	x			x	x	x	The plan provides goals, principles, and policies that will be used to shape the transportation system today and into the future.
Transfort Strategic Operating Plan		x			x	x				x			x						x	x	x	Collaborative partnership to provide a coordinated effort in updating the 2002 Transfort Strategic Operating Plan and the 2004 COLT Transit Plan, as well as providing detailed analysis of the opportunities public transportation offers PSD high schools.
Paved Trails Master Plan			x		x					x			x								x	Separate bike trail plan produced by the Parks Department in collaboration with FC Bikes. The plan is being updated currently.
Bike Friendly Community - Platinum Status		x			x					x			x			x			x		x	Certification program that encourages community quality of life, sustainability and transportation networks utilizing benchmarks. Fort Collins has reached Platinum, the 4th of 5 levels,.
Safe Routes to School		x			x					x			x			x			x			Encourages walking and biking to school. The program teaches safety and healthy lifestyle.
Walking School Bus			x		x					x			x			x			x			Organizes parents to walk kids to school. The program teaches safety and healthy lifestyles for the whole family.

City Programs with a Green Building Component																						
Name of Action - Program - Initiative	In 2007 Roadmap	New Since 2007	Under (re)Development		Carbon Footprint	Energy Efficiency	Water Conservation	Waste Minimization	Waste Diversion	Pollution Prevention	Indoor Air Quality	Green Materials	Alternative Transportation		Regulatory	Voluntary	Incentive / Rebate ($)	Other Incentive	Training / Education	Research	Benchmark	**Description**
Pedal it Forward Challenge		x			x					x			x			x		x				City staff challenge to promote bicycle transportation among City
Transfort - Student Ride					x	x				x			x			x		x				Kids under 16 ride Transfort for free and CSU students pay for the program as a part of their fees each semester.
PLANNING																						
Land Use Code - Solar Orientation Standards	x				x							x			x							Requires neighboring buildings to be able to access solar lighting.
Land Use Code - Landscape Standards	x				x							x			x							Requires preparation of landscape and tree protection plans for shading to reduce glare and heat build up.
Land Use Code - Parking Standards	x														x							Parking lot minimum and maximum parking requirements.
Land Use Code - Lighting	x					x				x					x							Requirements for site lighting.
Land Use Code - Buffers	x									x					x							Requirements for buffering between incompatible uses and activities.
Land Use Code - Pedestrian Connectivity	x				x								x		x							Landscape plans must include information about enhancing the pedestrian environment.
Land Use Code - Proximity to Neighborhood Center	x				x	x				x			x		x							Neighborhood centers shall be in close proximity to residential developments in order to meet the needs of everyday living in
Land Use Code - Preliminary Design Review	x														x							An in-depth opportunity for developers to work collaboratively with City departments to solve problems relating to complex developments.
Land Use Code - Engineering Test Cases	x									x					x							Provides a system to evaluate green building technologies such as porous pavement.
City Plan	x	x			x	x	x	x	x	x	x		x		x	x	x	x	x	x	x	Comprehensive plan for the City illustrating a vision for the next 25 years and beyond. "Innovate, Sustain, Connect."
Structure Plan	x																				x	Bridge between City and Zoning plans, regulation of GMA.
Planned Development Overlay District (PDOD)			x		x	x	x	x	x	x	x		x			x	x	x		x		Voluntary pilot program for infill or redevelopment. Development review tool to implement sustainability.
ECONOMIC																						
Midtown Plan			x		x	x	x	x					x				x	x			x	Economic initiatives to drive private investment along the area and encourage connectivity to MAX stations and travel.
Woodward			x			x	x	x	x	x			x				x	x				Relates to Lincoln Corridor Plan. Woodward is providing natural land and bike paths at their new, 101-acre Technology Center.
Foothills Mall			x			x	x	x	x	x		x	x				x	x				Revitalization and restoration of Foothills Mall. It includes a Youth Activity Center and underpass to the Mason Street Corridor. Project may include "green development" for neighboring development.
Urban Renewal Authority Policies and Procedures			x			x		x	x	x		x					x			x		Economic incentives for infill and redevelopment in blight areas. Policies being updated in 2013.
Economic Health Strategic Plan		x											x		x	x	x	x	x	x	x	Plan lists strategies for supporting economic health in Fort Collins. Continue to support and enhance Fort Collins' bike culture and cycling industry. Seek economic opportunities related to City policies and programs, particularly as they relate to sustainability.
NATURAL RESOURCES																						

City Programs with a Green Building Component																						
Name of Action - Program - Initiative	In 2007 Roadmap	New Since 2007	Under (re)Development		Carbon Footprint	Energy Efficiency	Water Conservation	Waste Minimization	Waste Diversion	Pollution Prevention	Indoor Air Quality	Green Materials	Alternative Transportation		Regulatory	Voluntary	Incentive / Rebate ($)	Other Incentive	Training / Education	Research	Benchmark	**Description**
Energy By Design (Natural Areas)		x			x	x	x			x												Collaborative effort to recommend strategies to minimize impacts from potential oil and gas development on natural areas (Jan. 2013).
Poudre River Downtown Project		x	x		x		x			x		x	x		x	x			x	x		Extensive project will improve in-river and bankside recreation, habitat connectivity through restoration and rehabilitation, bank protection, stormwater/floodplain management, water quality, public safety and access, and transportation in and adjacent to the Poudre River.
AIR QUALITY																						
Radon - Code	x										x				x				x			Sellers must provide information to buyers, radon resistant construction required on all new homes since 2006.
Radon Awareness	x										x					x	x		x			Radon awareness and action including test kits and education.
Air Quality Zero Interest Loan Program					x						x					x	x					Low cost, no interest loans for radon mitigation, mold removal, and woodstove replacement.
Ozone Reduction Programs	x				x					x	x								x			Outreach and education on ozone, vehicle idling, lawn mower rebate, etc.
Lawn Mower Rebate Program									x							x	x		x			Recycling and rebate program to replace existing gas-powered mowers with a "clean" mower or sustainable lawn care service.
Healthy Sustainable Homes		x									x					x			x			Voluntary home assessment program to mitigate indoor air pollution.

Appendix C

Green Building Peer City Survey

Final Report

for the

Green Building Peer City Survey
Fort Collins, Colorado

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PREPARED ON:
October 1, 2013

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Preface

Architectural Energy Corporation (AEC) — an energy engineering and sustainable design consulting firm headquartered in Boulder, Colorado — prepared this document for the City of Fort Collins. The AEC authors of this report are Rebecca Rice and Allison Buckman.

Acknowledgements

The assistance of contributors at the City of Fort Collins is most gratefully acknowledged.

Executive Summary

The City of Fort Collins continues to be a leader in energy efficiency and green building programs among cities in the United States. For this analysis, seven peer cities were surveyed and compared to Fort Collins through a process of collecting data on municipal green building programs and incentives. Peer cities were chosen based on industry recognition as high performers in green building. Factors for selecting the chosen cities included industry awards, number of green building programs, geographical and population similarities to Fort Collins, and transparency of programs, as indicated below:

- **Portland, Oregon** – ahead of most cities in green neighborhood development and hosted the 'EcoDistrict Institute' conference last year of which Portland is a member; considering progressive feebate programs and carbon tax.
- **Seattle, Washington** – ranked number four on Siemens 'Greenest Cities' Index behind San Francisco, Vancouver and New York City; the Living Building Challenge and Seattle 2030 programs developed here.
- **Austin, Texas** – municipal utility Austin Energy runs a large number of green building and energy efficiency programs; Director of Sustainability, Lucia Athens, was an architect of Seattle 2030 project prior to coming to Austin.
- **Boulder, Colorado** – faces many of the same regional challenges as Fort Collins; adopted tax on carbon; in discussions for developing a municipal utility.
- **Santa Monica, California** – incentives for going beyond the already stringent Title 24 energy requirements; Green Cities California member; compared to the greenest cities in CA, population is most similar to Fort Collins (90,812).
- **Arlington, Virginia** – large number of LEED certified buildings; deliberately pushing limits of state laws to green their county; early adopter of district energy systems for sustainability.
- **St. Petersburg, Florida** – similar population to Fort Collins (246,541); named first 'Green City' in Florida by the Florida Green Building Coalition; mayor has issued city accords and executive orders supporting higher building and energy performance standards.

Of the cities surveyed, all except St. Petersburg require LEED certification for public buildings. Three cities require a LEED silver minimum and three, including Fort Collins, require LEED Gold. Fort Collins lags behind other cities in incentivizing or requiring LEED (or other benchmarking systems) for non-municipal commercial, residential, and industrial projects. Seattle and Arlington incentivize builders to achieve LEED certification and Boulder is currently considering incentives, or LEED requirements, for commercial buildings.

Austin, Arlington, Portland, and Seattle currently own and operate district energy systems. Green Neighborhood Development programs are a focus for most cities surveyed with Austin and Portland leading in this area as two of the ten cities in the world creating eco districts in their cities.

Interviews with key City staff have pointed to problems with an outdated and cumbersome green building website. Implementation of green building programs could be improved by updating and improving ease of use of the website. In addition, an interdepartmental green team could further assist with implementation of green building programs.

The following table shows a snapshot of the different incentives and programs offered by the cities investigated. A dot in each category indicates that at least one program exists in that category. Additional information is provided in Appendix A to present a clear picture of the number and rigor of programs in each city. Please note that many of the peer cities surveyed are among the greenest cities in America. Fort Collins is a leader among cities nationwide, but lags behind the most elite cities in some areas. Highlights from the table include:

- All cities surveyed have adopted or developed a Climate Action Plan (CAP) for meeting energy emissions goals. The CAP goals are difficult to compare, as the metrics used for each city's plan are different. Highlights of this comparison are outlined here:
    - Fort Collins adopted Colorado's statewide goals of reducing ghg emissions 20% below 2005 levels by 2020 and 80% below 2005 levels by 2050, which lags behind Seattle's goal of carbon neutrality by 2050 and St. Petersburg's goal of reducing 34% below 2009 levels by 2025.
    - Portland targets building energy use reduction specifically with a goal of reducing energy use of all building built before 2010 by 25%.
    - The Carbon Disclosure Project has named Austin the U.S. City with the most aggressive Climate Action Plan with a goal of 700 Megawatts of energy efficiency savings by 2020 and carbon neutrality for municipal functions by 2020.
    - Boulder's goal of meeting Kyoto Protocol standards by 2012 was not met.
- Programs offered by Fort Collins Utilities continue to be among the most robust of all cities surveyed.
- Green Land Use programs are those that specifically address green building as a part of community integration and urban development. Fort Collins is well on their way to becoming a leader in this category with the development of pilot programs such as the Planned Development Overlay District (PDOD) and the Green Streets Initiative. These programs are still in their infancy and other cities surveyed are farther along.
- Green Neighborhood Development and District Energy are other areas where Fort Collins is on the right track with existing programs (Fort Zed, Green Streets, and PDOD). These programs are similar to those already successful in other cities and will put Fort Collins among the leaders once fully implemented.
- Two cities (Austin and Arlington) have their own green building rating system, but this is not necessarily an indicator of successful green building programs.

The following sections will give an overview and recommendations for areas that can be improved.

Table 1: City Comparison Table

	Fort Collins, CO	Portland, OR	Seattle, WA	Austin, TX	Boulder, CO	Santa Monica, CA	Arlington, VA	St. Petersburg, FL
Interdepartmental Green Team		●	●	●				
Climate Action Plan	●	●	●	●	●	●	●	●
LEED Required for City Buildings	●	●	●	●	●	●	●	
Incentives for LEED			●				●	
Local Green Building Rating System				●			●	
Local Green Building Codes	●	●		●	●	●		●
Energy Codes	●	●	●	●	●	●	●	●
Incentives – Financial	●	●	●	●	●		●	●
Incentives – Non-Financial	●	●	●			●	●	●
Utility Programs	●	●	●	●				
Utility Rebates	●	●	●	●	●	●		●
Green Land Use Programs	●	●	●	●	●	●	●	●
Water Conservation Incentives	●	●	●	●	●	●		●
Water Conservation Programs	●	●	●	●		●		●
Waste Reduction & Recycling Programs	●	●	●	●	●	●	●	●
Education/Technical Assistance	●	●	●	●		●	●	●
Green Neighborhood Dev. Programs	●	●	●	●			●	
District Energy	●	●	●	●			●	

Indicates areas where Fort Collins is a leader among cities surveyed

Indicates areas where Fort Collins lags behind cities surveyed

1. Interdepartmental Green Team and City Website Access to Green Building Resources

Green building programs are only successful if people are actually able to use them. Interviews with key City of Fort Collins staff have pointed to problems with implementation of current green building programs and codes and an outdated and cumbersome green building website. Concurrently, creating an Interdepartmental Green Building Team in Fort Collins would lead to greater coordination and reduce redundancy of current programs.

The figure below is a screenshot of the Fort Collins green building homepage and states, 'a Green Building Program currently is under development and will roll out in 2010.' Given that it is 2013 it is unclear if a program even exists, and if it does, where to go for current information.

Figure 1-1: Fort Collin's Green Building Website

http://www.fcgov.com/greenbuilding/

Recommendations

- Create an Interdepartmental Green Building Team similar to Seattle, Portland, and Austin. Portland's Green Building Advisory Team is comprised of staff from several departments all working towards incorporation of green building policy into capital improvements and internal training across all departments. Seattle's interdepartmental green building team has been working to make green building standard practice in Seattle for the last ten years. Seattle has also created an Interdepartmental District Energy team to focus on policy reforms and expanding development of district energy systems.
- Update and improve ease of use of the website including adding a comprehensive list of all green building programs and links where one might find details about these programs. Santa Monica and Portland's green building websites provide visible links to code requirements, incentives, and guidelines.

2. Green Neighborhood Development Programs

"The development community will play an increasingly key role in slowing climate change. Shrinking household size, marathon commutes, and cultural preferences are boosting the demand for compact, walkable neighborhoods" (Michael Davidson, manager of the Campaign for Sensible Growth). Creating complete neighborhoods in urban areas is a growing trend, not just in the United States, but worldwide. Neighborhood development should avoid greenfields, use land efficiently by shrinking building footprints, use infill sites, provide walkable and bike-friendly streets, encourage mixed-use and community spaces and connect neighborhoods through public transit. Fort Collins is heading in the right direction with its 'Green Streets Initiative' which strives to create complete streets; however, there are many more indicators of green neighborhood development which should be addressed. Ten cities worldwide have eco district projects underway, including Portland and Austin, two of the cities surveyed for this project. Eco districts are defined as neighborhoods or districts that develop a comprehensive management strategy for energy, water, waste, recycling, green infrastructure, and mobility, according to the 2012 EcoDistricts Institute.

Recommendations

- Implement programs to encourage livability and complete neighborhoods. Examples are providing grants to neighborhood associations meeting prescriptive requirements, or providing funds for planting community gardens, native plants, adding trees to neighborhoods, providing environmental education, and neighborhood art.
- Incentivize green neighborhood development projects through relaxed permitting/zoning providing funding as in Seattle's City LEED Incentive Program, or feebates for neighborhoods not achieving LEED.
- Collaborate with City departments to develop a 'Green Neighborhood Toolkit' for builders, developers, HOAs, etc.
- Create 'neighborhood plans' for key neighborhoods in Fort Collins to include information about land use planning and energy analysis summaries similar to Portland's 'Neighborhood-Scale Development Analysis.'
- Continue expanding the Green Building Code contractor training to include strategies for green neighborhood development.
- Utilize ecodistrict concepts to shape plans for neighborhood development and management in key downtown neighborhoods such as Austin's Seaholm Development District and Portland's five eco-district neighborhoods.
- Consider joining the EcoDistrict Target Cities Program.
- Continue to expand district energy systems such as Fort Zed.
- Continue to conduct feasibility studies into areas which may provide opportunities for district energy.
- Continue to explore Net Zero Ready Homes and LEED for Neighborhood Development.

3. Building Energy Programs

Fort Collins Utilities provides electricity, water, wastewater, stormwater, and financing services to about 66,200 residential and business customers at rates significantly below Colorado's averages while maintaining a strong portfolio of energy efficiency programs. The Integrated Design Assistance program housed in the Utilities Department encourages high-performance buildings that exceed code requirements and is headed in the right direction by redesigning the program to align with performance based requirements based on Architecture 2030.

Recommendations

- Evaluate opportunities for more incentives and energy code requirements based on total building energy performance rather than prescriptive requirements, such as Architecture 2030 requirements.
- Consider programs to promote the most sustainable building designs through expedited permitting, reduced permitting fees, or zoning incentives similar to Seattle's Priority Green programs and Arlington's Green Density Building Initiative.
- Develop a plan for eliminating redundancy in current programming, such as duplicate facility assessments being offered by ClimateWise and Utilities. Investigate whether ClimateWise could also offer a 'menu' of one-off assessments as an alternative to full participation in the program.
- Require energy audits and disclosure from commercial, residential, and multi-family buildings if they receive direct electric service from Fort Collins Utilities, similar to Austin's City Code Chapter 6-7: Energy Conservation.
- Disclose the results of the energy benchmarking of city-owned buildings making them publicly available.
- Require commercial buildings to complete and disclose an ENERGY STAR rating using EPA's ENERGY STAR portfolio manager, or other benchmarking system developed by the City, similar to Austin's Energy Conservation Audit and Disclosure and Seattle's Energy Benchmarking and Reporting Ordinance.
- Develop contests (or add to ClimateWise challenges) similar to Portland's Kilowatt Crackdown or Arlington's Green Games, whereby Fort Collins building owners track energy performance to see who can save the most energy and reduce operating costs.
- Incentivize certifications for commercial and multifamily buildings similar to Arlington's Green Building Fund program and Seattle's City LEED Incentive program.
- Continually review and update the Green Building Code amendments.

4. Feebates

Feebates encourage responsible environmental stewardship by mandating a fee for engaging in practices which harm the environment and have been successfully implemented by the automobile and energy industries for years. The feebate concept is essentially a self-financing system of fees imposed on users to shift the cost of externalities. More simply put, people engaging in unwanted behaviors receive a surcharge, and those engaging in desired behaviors are granted a rebate. The dollars collected by the fees pay for the rebates, or in some cases additional research to promote the desired behaviors. There are several examples of feebates imposed in municipal green building programs in the cities surveyed.

- Boulder Brought It program imposes a disposable bag tax fee and gives credits to residents providing their own bags.
- Arlington's Green Building Fund charges a fee for certain projects not meeting LEED certification. The fees go into a fund used to provide education and outreach to developers on green building issues.
- Portland's Green Building Feebates Program charges fees for conventional construction. The fees are waived if the project achieves LEED Silver and rebates are given to projects achieving LEED Gold or Platinum, or Living Building Challenge.

Recommendations

- Consider feebates as an alternative to other financial incentives when developing incentive programs. The concept of feebates could be applied to almost any of the green building topics investigated. Studies have been done and best practice guidelines have been written to help in designing and implementing successful feebate programs. In the City of Fort Collins, feebates could be imposed on commercial buildings not achieving LEED certification, residents/developers adding impervious surfaces to project sites, projects that do not reduce stormwater runoff, buildings just meeting the energy and water use codes, etc.

5. Stormwater Management Incentive Programs

The Green Streets Initiative pilot project in Fort Collins is a step in the right direction, but could be further enhanced through the use of incentives and/or code requirements for reducing stormwater. Arlington's StormwaterWise program provides rebates to home and business owners for small-scale projects and larger rebates for conservation landscapes, rain gardens, or removal of pavement. Seattle also provides stormwater rebates in the form of credits against drainage fees to those that reduce stormwater flow. Portland issues 100% refunds on stormwater management charges if stormwater is managed onsite and Santa Monica issues stormwater parcel fees assessed through property taxes. Seattle's Green Factor program is the most stringent stormwater management program among the cities surveyed, as code requires some projects to achieve a minimum score established by zoning.

Recommendations

- Create incentive programs for reducing stormwater runoff (installing rain gardens, cisterns, green roofs, removing pavement) or treatment of stormwater onsite, similar to Arlington's StormwaterWise.
- Assess opportunities for a feebate program collecting a fee for projects adding impervious surfaces to the site and giving rebates to projects reducing runoff.
- Provide stormwater retrofit rebates to existing buildings/homes that treat existing areas with low impact development measures.
- Consider adopting a Green Stormwater Infrastructure policy that incorporates low impact development practices and facilitate implementation of this policy.
- Develop stormwater management workshops and education programs about effects of stormwater and incorporate into current training programs such as BizEd, ClimateWise, Adult and Youth Education Program, and Residential Environmental Program Series.
- Incorporate additional requirements for stormwater management into the land use code. Specifically, consider revising areas of municipal and land use codes which require impervious concrete or asphalt for all paved surfaces, requirements for draining streets to curb and gutter, raised parkway strips, code minimums for parking and size of lots, and current street widths.
- Consider incentives for neighborhood development projects that establish natural filtration drainage systems, such as Portland's Community Watershed Stewardship Program (CWSP) which provides grants for community gardens and replacing pavement with native plants.

Appendix A: Survey of Peer City's Green Building Programs

Included in this appendix is information and data on successful incentive programs and approaches used in other communities to encourage sustainable building and planning including tax incentives, rebates, market-based approaches. Also included is information and data on other green building programs in similar cities to be used for benchmarking.

A.1 Fort Collins, Colorado

POPULATION: 148,612
GREEN BUILDING ROADMAP: City of Fort Collins Roadmap for Coordinated and Enhanced Green Building Services
CLIMATE ACTION PLAN (CAP): Reduce 20% by 2020 and 80% below 2005 levels by 2050
INTERDEPARTMENTAL GREEN BUILDING TEAM: Green Building Program Team *not an interdepartmental team
INTERESTING GREEN BUILDING PROGRAMS: Green streets initiative pilot program; City Plan that encourages mixed use activity centers, higher density close to downtown, and alternative transportation reducing car trips.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: http://www.fcgov.com/greenbuilding/

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**City of Fort Collins City Council Resolution 2006-096**	Local Regulatory	To promote green building standards	New city-owned buildings 5,000 sf or more must be designed and constructed to achieve LEED Gold certification and existing buildings should use LEED as a guide for sustainable operations and maintenance.
LEED Incentives	**N/A**			
Local Green Building Rating System	**N/A**			
Green Building Codes	**2009 International Codes Package (I Codes) with Fort Collins Local Amendments**	Local Regulatory	To integrate green building practices into mainstream construction	Accepted the 2009 I Codes package and drafted and accepted Fort Collins (green) Amendments to these codes.
Energy Codes	**Energy Benchmarking of City buildings**	Local Regulatory	Measure and reduce energy use	Program uses Utility Manager tracking tool and Energy Use Index.
Incentives - Financial *(Loans, Grants, Rebates)*	**(ZILCH) Zero Interest Loans for Conservation Help**	Loan	Remove barriers to water efficiency upgrades	No interest loans for residential water conservation projects.
	Air Quality Loans	Loan	Remove barriers to air quality upgrades	Low interest stove/fireplace replacement.
	LIGHTENUP	Rebate	Remove barriers to energy efficiency upgrades	Rebates for replacing inefficient lighting with high efficiency technology.
Incentives - Non-Financial *(Recognition, Rewards, Priority permitting/ zoning)*	**PDOD pilot project**	Incentive	Flexible zoning tool to encourage infill development	Flexible application of development standards for complex projects.
	Urban Design Awards	Education	Recognize green building innovation and success	The City hosts an annual design program in which one category is "Green Design."
Utility Programs (Municipal Utility - Fort Collins Utilities)	**Home Efficiency Program**	Rebate/Education	Help reduce community's water and energy use	Low-cost energy and water audits, advisor services, approved contractor lists and rebates.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Utility Programs (Municipal Utility - Fort Collins Utilities) (cont.)	**Home Performance with ENERGY STAR**	Education/ Assessments	Help reduce community's carbon emissions	One-stop diagnosis and repairs for comprehensive home improvements related to comfort, energy, healthy indoor air, and moisture.
	Business Efficiency Program	Rebate/Education	Help reduce community's carbon emissions	Provides businesses with education, facility energy and water assessments, solar rebates, integrated design assistance, and retro-commissioning incentives.
	Integrated Design Assistance Program	Rebate/Education	To encourage high performance buildings that exceed building code requirements	Financial incentives and free technical assistance for buildings that perform higher than energy code. Options for whole building and prescriptive incentives.
Green Land Use Programs	**Land Use Codes**	Local Regulatory		Land Use Codes incorporate green land use best practices.
Water Conservation Incentives	**Water Efficiency Home Audits and Rebates**	Rebate	To encourage water conservation	Rebates for installing high efficiency clothes washers, low flow toilets and showerheads, sprinkler sensors and nozzles, and any equipment that reduces water use by 25%.
	Sprinkler System Audit	Rebate		Free sprinkler system audit and rebates.
	Clothes Washer Rebate Program	Rebate		Rebates for the purchase of high efficiency clothes washers (residential and light commercial only).
Water Conservation Programs	**Water rates**	Local Regulatory	To encourage water conservation	Municipal Code contains tiered residential water rates and seasonal commercial rates to encourage water conservation.
	Municipal Code - Water Wasting	Local Regulatory		Code language prohibits wasting of water. Complaints are investigated and ticketing is possible.
Waste Reduction & Recycling Programs	**Pay as You Throw**	Local Voluntary	To encourage solid waste reduction	Cost to residential customers for trash hauling.
	Zero Waste Fort Collins	Local Regulatory	To encourage solid waste reduction	Program is in early stages of assessing whether 90% diversion goal is achievable in Fort Collins.
	Refrigerator/Freezer Recycling	Rebates	To encourage recycling	$35 rebate per piece of equipment recycled.
Education/Technical Assistance	**Adult and Youth Education Programs**	Education	To educate city residents about the benefits of green building and how to incorporate green building strategies	Engages children and adults with energy and water education in schools and the community.
	Residential Environmental Program Series	Education		Provides free green building workshops, contractor training, xeriscaping garden tours, composting, irrigation, and landscaping training to local residents.
	BizEd program series	Education	Recognize green building innovation and success	Sustainability program for businesses that recognizes success in green building. Currently 300 members.
	ClimateWise	Education/Technical Assistance	Recognize green building innovation and success	Business outreach program that encourages waste reduction, energy efficiency, water conservation, and transportation reduction.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Education/Technical Assistance (cont.)	**Builder's Guide to Energy Efficient Home Construction**	Education		Print and web resource useful for those building a new home or adding to an existing home.
	Green building Code Contractor Training	Education	Recognize green building innovation and success	Contractor training provided by Utilities and Building departments to implement building envelope requirements in code.
	Radon Program	Training/ Assessments		Promotes testing, system installation, regulatory, and passive systems.
Statewide Programs	**North Colorado ENERGY STAR Homes Program**	Education	To transform new home market in Northern Colorado to high performance construction	Includes builder partners and tools.
Green Neighborhood Development Programs	**Transportation Overlay District**	Education	Encourages infill development	TOD seeks to encourage infill development, reduce vehicular trips, reduce development footprint for vehicles, increased density, use of brownfield sites, reduce air pollution.
	Green Streets Initiative	Local Voluntary	To create complete streets that incorporate many aspects of sustainability into their development	Pilot program to test a section of local street for aspects of green street design (integrate stormwater management, calm traffic, bicycling/ walking, beautiful/ appropriate landscape).
District Energy	**FortZED**	Local Voluntary	To create a net zero energy district	City and other partners working to transform downtown and CSU main campus into a net zero energy district.

A.2 Portland, Oregon

POPULATION: 603,106
GREEN BUILDING ROADMAP: The Portland Plan - Inclusive, citywide effort to guide physical, economic, social, cultural, and environmental development of Portland over the next 30 years.
CLIMATE ACTION PLAN (CAP): Climate Action Plan 2030 seeks to reduce total energy use of buildings built before 2010 by 25%. Achieve net zero ghg emissions in all new buildings and homes. 10% total energy used in Multnomah County from onsite renewables and/or clean district energy.
INTERDEPARTMENTAL GREEN BUILDING TEAM: Green Building Advisory Team (GBAT) - Each bureau responsible for incorporation of green building policy into capital improvements, purchasing practices, and training staff. Staff from each bureau will be available when requested to advise city project teams on policy implementation. Includes Bureaus of Water, Management and Finance, Environmental Services, Transportation, Planning and Sustainability, Housing, and the Portland Development Commission.
INTERESTING GREEN BUILDING PROGRAMS: Green Building Feebates program which charges a fee for buildings that merely meet state energy codes and rebates for LEED and other performance requirements to incentivize going beyond the codes. Many programs incentivizing green neighborhood development such as grants for Nature in Neighborhoods and Community Watershed.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: http://www.portlandoregon.gov/bps/41481

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**City of Portland Green Building Policy**	Local Regulatory	To promote green building standards	New city-owned buildings must pursue LEED Gold certification and meet performance levels for recycling construction waste, water savings, energy savings, eco roof/ENERGY STAR roof, building commissioning, and onsite renewables. Existing buildings and interior improvements to city-owned/leased buildings must pursue LEED Silver certification. Any roof replacement must be eco roof/ENERGY STAR-rated. City projects must follow sustainable site development and infrastructure best management practices, practice waste management strategies, and use LEED Existing Building Operations and Maintenance to guide operation and maintenance practices. *Note - this resolution currently undergoing review.
LEED Incentives	**N/A**			
Local Green Building Rating System	**N/A**			
Green Building Codes	**Green Amendments to the Oregon Structural Specialty Codes (OSSC)**	Local Regulatory	To promote green building standards	In 2010, accepted green building code amendments to the OSSC.
	Bureau of Development Services (BDS) Green Building Local Code Amendment	Local Regulatory		BDS is working with a Technical Advisory Group to develop building code amendment that will incorporate green building technology.
Energy Codes	**City Resolution**	Local Regulatory	Encourage local businesses to spend less on imported fuels and redirect funds into local economy	Established goal to reduce oil and natural gas use in Portland by 50% in 25 years by taking actions recommended by the Peak Oil Task Force.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Energy Codes (cont.)	**Carbon Tax**	Local Regulatory		Portland is currently considering city tax on carbon pollution. The tax would be a combined utility and gas tax equal to 3% of utility revenues and 4.5¢ on each gallon of gas. The revenue from this tax is anticipated to be $27 million per year and would be used for improving city sidewalks, reducing air pollution, and expanding efficiency programs.
Incentives - Financial ***(Loans, Grants, Rebates)***	**Portland Energy Efficiency Home Pilot Program (PEEHP)**	Grant	Support energy efficient home construction	Technical guidance and funding for infill housing developers. Participating builders required to build a minimum of two new homes to exceed the energy efficiency standards of the 2008 Oregon Residential Energy Code.
	Green Building Feebates	Feebate	Reward high-performance buildings and provide technical assistance	Developers merely meeting Oregon's state building code assessed a fee by the City of up to $3.46/sf. Fee waived for buildings achieving LEED Silver. Those achieving LEED Gold, LEED Platinum, or Living Building Challenge, receive rebates of $1.73-$17.30/sf depending on level of certification. Buildings must achieve specific LEED credits, emphasizing energy efficiency and water use reduction.
	Portland Development Commission Storefront Improvement Program	Grants/Technical Assistance	Remove barriers to installing home energy efficiency measures	Cash grants and technical assistance to business/property owners in eligible neighborhoods. Recipients can use the support for a variety of improvements, from repainting and signage to purchase of new windows and awnings. Up to $20,000 per building for exterior improvements.
	Clean Energy Works Oregon Program	Loan	Remove barriers to installing home energy efficiency measures	Program piloted in Portland and in 2010 got $20M funding from DOE to expand across Oregon. Provides financial assistance for home energy efficiency upgrades.
	City of Portland Environmental Services % for Green	Financing	Manage stormwater, enhance livability	Funding provided for construction of green street facilities in the City of Portland that manage stormwater, enhance livability, and provide other environmental benefits.
	City of Portland Environmental Services Treebate	Rebate	Incentivize tree planting at Portland residences	Seasonal program available annually from the early fall through April 30th, coinciding with the best time of the year to plant.
	City of Portland Environmental Services Clean River Rewards	Discount	Help protect rivers, streams, groundwater from damaging effects of stormwater runoff	If stormwater is managed on property, up to a 100% discount on on-site stormwater management charges.
Incentives - Non-Financial ***(Recognition, Rewards, Priority permitting/zoning)***	**Bureau of Development Services (BDS) Electronic Solar Permitting Standards**	Expedited Permitting	Incentivize solar energy installations	Electronic permitting process for residential solar energy installations and cap on permit fees.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Utility Programs (Non-municipal Utility)	**Portland General Electric (PGE) Heat Pump Rebate**	Rebate	Reduce financial barriers to installing energy efficient equipment	$200 rebate for an energy-efficient heat pump installed to PGE's standards by a PGE-approved contractor (residential customers).
	Earth Advantage (PGE)	Certification	Accelerate creation of resource-efficient buildings	Certification programs for high performance residential and commercial projects.
Green Land Use Programs	**Citywide Tree Policy and Regulatory Improvement Project**	Local Regulatory	Enhance urban forest through development/re-development	Provides effective regulatory framework for trees in Portland and 33% tree canopy goal.
	Native and Banned Plant List	Education/Technical Assistance		Portland's list of recommended native plantings and noxious plants which are banned from City landscape plans.
Water Conservation Incentives	**Portland Water Bureau Rebates**	Rebate	To promote water use reduction	Portland Water Bureau customers can apply for rebates and free water savings kits for water efficient toilets, urinals, and outdoor irrigation equipment.
Water Conservation Programs	**Rainwater Harvesting Guide**	Education/Technical Assistance	To promote water use reduction	A code guide providing responses to frequently asked questions about applications of the water use code.
Waste Reduction & Recycling Programs	**Portland Bureau of Planning and Sustainability (BPS) Construction and Demolition Debris**	Local Regulatory		All building projects must meet requirements to maximize reuse and recycling of debris generated by construction and demolition activities and complete and return Construction and Demolition Debris Management Form within one week of permit application for all building projects valued at $50,000 or more.
Education/Technical Assistance	**Green Building 411**	Education/Technical Assistance		Free technical assistance and information about green building resources, local programs, and incentives.
	Kilowatt Crackdown Competition	Education/Technical Assistance		Technical support and data review to track performance with ENERGY STAR. Provides building owners and tenants assistance in benchmarking energy use, analyzing opportunities for savings, and identifying action items to improve building performance.
	City of Portland Office of Sustainable Development Tenant Improvement Guide	Education/Technical Assistance	Help create more sustainable workplaces	City publication that provides ideas and strategies for building owners to help save energy, improve comfort, minimize waste, and reduce carbon footprint.
Statewide Programs	**Oregon DOE Business Tax Credit**	Tax Credit	Incentivize businesses to install renewable energy systems	Tax credits up to 50% of project cost.
	State of Oregon Tax Credits	Tax Credit		Tax credits apply to: Residential (HVAC, water heaters, wood/pellet stoves, solar/wind systems, fuel cells). Business (commercial, agricultural and industrial sectors, renewable energy grants, transportation) Homebuilders (who construct an Oregon High Performance Home eligible for up to $12,000)

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Statewide Programs (cont.)	**Energy Trust of Oregon**	Tax Credit	Incentivize energy efficient equipment installations	Provides services and incentives to customers (residential, commercial, industrial) of Portland General Electric, Pacific Power, NW Natural, and Cascade Natural Gas. Home Performance with ENERGY STAR assessment and cash incentives for weatherization, water heating, and heating/cooling.
	Oregon Interfaith Power and Light	Education/Technical Assistance	Encourages faith community to strive for accountability in collective energy decisions	Assists congregations with being 'green'.
Green Neighborhood Development Programs	**Neighborhood-Scale Development Analysis Documents**	Education/Technical Assistance		About 1/3 of neighborhoods have 'neighborhood plans.' These documents are generally about land use planning issues and are referred to the Bureau of Planning and Sustainability. Energy analysis summaries for key sites in Portland (North Pearl District, Rose Quarter District, South Waterfront District).
Green Neighborhood Development Incentives	**Metro Nature in Neighborhoods Grants**	Grant	Create changes in the community that also may improve a neighborhood's image	Neighborhood associations (or other non-profit entities) in North and Northwest Portland are eligible for grants if they do one of the following: •increase employment and economic opportunities •rehabilitate and upgrade residential housing •preserve wildlife, marine and recreational areas •improve public safety •enhance neighborhood appearance •improve viability of commercial areas •provide programs and training benefitting youth and elderly •create long-term improvements for neighborhood livability.
	Nature in Neighborhoods Capital Grants	Grant	Involve community, foster diverse partnerships, innovate leading to jobs, economic development, livable neighborhoods, and clean air	Projects must either purchase land or make improvements to public property that result in a capital asset with a life of at least 20 years and a total value of at least $50,000.
	Community Watershed Stewardship Program (CWSP)	Grant	Improve the health of Portland's watershed	$10,000 for community gardens, replacing pavement with native plants, environmental education and art programs, adding trees to neighborhood, schools, church, etc. Mini-grants available to community groups and some private landowners throughout the year.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
District Energy	**Portland Metro Region**	Local Voluntary		Beaverton Round Central Plant, Brewery Blocks district cooling system and district steam at PSU and OHSU. Portland is currently working to make funds for district energy expansion available and establish at least one new district heating/cooling system.

A.3 Seattle, Washington

POPULATION: 634,535
GREEN BUILDING ROADMAP: Toward a Sustainable Seattle is a 20 year vision and roadmap guiding city decisions and incorporating environmental stewardship, community, economic opportunity, and social equity.
CLIMATE ACTION PLAN (CAP): Seattle Climate Action Plan goal to achieve carbon neutrality by 2050, reduce building energy emissions by 39% by 2030, reduce ghg emissions 58% by 2030 and includes strategies identifying how to reduce greenhouse gases in the transportation, building energy, and waste sectors.
INTERDEPARTMENTAL GREEN TEAM: City Green Building is the city's consolidated green building program working to make green building standard practice.
INTERESTING GREEN BUILDING PROGRAMS: Provides incentives to projects committing to LEED; created a District Energy Interdepartmental Team in the Office of Sustainability.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: http://www.seattle.gov/dpd/greenbuilding/

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**Seattle Sustainable Buildings and Sites Policy**	LEED certification requirements for city funded projects	To promote green building standards	City funded projects and major renovations over 5,000 of occupied sf must achieve LEED Gold certification. Additional energy efficiency, water, waste, and bicycle parking requirements. Projects under 5,000 sf, or not eligible for LEED, must complete the Capital Green checklist.
LEED Incentives	**City LEED Incentive Program**	LEED certification assistance	To incentivize meeting LEED requirements	Provides upfront soft-cost assistance to projects committing to LEED which could be used for additional design and consulting fees and for LEED certification costs.
Local Green Building Rating System	**N/A**			
Green Building Codes	**N/A**			
Energy Codes	**Seattle Building Code**	Local Regulatory		Buildings shall be designed and constructed in accordance with the Washington State Energy Code with Seattle Amendments.
	Seattle Energy Benchmarking & Reporting Ordinance	Local Regulatory	Understand energy use and lower energy costs	Non-residential and multifamily buildings greater than 20,000 sf must track annual energy performance data through EPA's Portfolio Manger and report to the city.
Incentives - Financial ***(Loans, Grants, Rebates)***	**Seattle Energy Upgrade Program**	Rebate/Financing	Help overcome barrier preventing building owners from investing in energy efficiency	Rebates up to $3400 for homeowners and $0.25 per kWh of energy saved for small business owners. Both are offered access to low-interest financing for energy upgrade projects.
	Community Power Works Loan Program	Loan		Offers loans and rebates for eligible energy efficiency improvements to homes and businesses.
	Built Green Incentives	Grant	Incentivize green building	Funding for residential remodel projects to assist with innovative green projects.
Incentives - Non-Financial ***(Recognition, Rewards, Priority Permitting/ Zoning)***	**Priority Green Expedited/Priority Green Facilitated**	Expedited/Relaxed/ Permitting	Incentivize green building	Priority Green Expedited: shortens review times for residential and commercial projects that meet green building standards. Priority Green Facilitated: priority review and processing for master use permits meeting green building standards. Innovation Advisory Committee Living Building & Seattle Deep Green Pilot: departures from land use codes.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Incentives - Non-Financial ***(Recognition, Rewards, Priority Permitting/ Zoning) (cont.)***	**The Density Bonus Incentive**	Relaxed Zoning Requirements	To reduce barriers to green building	Downtown zoning legislation updating rules to provide greater heights and/or floor areas for LEED Silver or higher ratings who contribute to affordable housing and other public amenities.
	Living Building Challenge Pilot	Code Departures	To remove barriers to green building design	Allows departures from the Seattle Land Use Code through design review for buildings attempting to meet the Living Building Challenge or Seattle Deep Green.
Utility Programs (Municipal Utility - Seattle City Light)	**Seattle City Light Energy Smart Services**	Rebates/Technical Assistance	Meet future electric needs cost-effectively	Includes Energy Smart Services Program Manual which is a document providing energy conservation specifications, sample forms, and instructions. Rebates include residential rebates for efficient lighting, windows, insulation, free bulbs, showerheads, faucet aerators and commercial rebates for retrofits and energy efficient equipment purchases.
	Seattle City Light Multi-Family Weatherization and Lighting Rebates	Rebate		Rebates for windows, insulation, and lighting for 5+ unit properties.
	Seattle City Light Smart Business Program	Rebate		Financial incentives for small businesses for replacing existing inefficient lighting with approved energy efficient lighting equipment.
	Seattle City Light Energy Smart Services	Rebate/Technical Assistance		Incentives and technical assistance for existing facilities that improve their operations and for new construction projects that exceed the Seattle Energy Code.
	Seattle City Light Built Smart	Rebate/Technical Assistance		Rebates for projects that exceed state building code's highest energy efficiency levels.
	Resource Venture	Education/Technical Assistance		Seattle Public Utilities provides free education and resources for waste prevention, recycling, spill management, water conservation, green building, designing to LEED standards, etc.
Green Land Use Programs	**Green Seattle Partnership**	Education/Technical Assistance	To preserve trees and parklands	Partnership between the City and the Cascade Land Conservancy and volunteers actively working together to restore and maintain Seattle's forested parklands.
	Seattle's Urban Forest Management Plan	Education/Technical Assistance	To preserve trees and parklands	A long term vision for increasing tree canopy cover.
	Seattle Green Factor	Local Regulatory	To preserve trees and parklands	Score-based code requiring projects to meet the Seattle Green Factor. Must reach a minimum score established by zoning and choose from a "menu" of landscape credits for various features including green roofs, rain gardens, vegetated walls, and trees and shrubs. Bonus credits available for planting along the sidewalk, using native plants, or creating a food garden.
	Stormwater Rebates	Rebate	To reduce stormwater flow	Provides credits against drainage fees to those that reduce stormwater flow.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Water Conservation Incentives	**Green Stormwater Infrastructure**	Education/Technical Assistance	To reduce stormwater flow	Learn about how to comply with the new stormwater codes using Green Stormwater Infrastructure.
	Green Roofs Plan	Local Voluntary		Seattle currently has an impervious surface reduction credit that lists green roofs and roof gardens as acceptable strategies.
Water Conservation Programs	**Toilet Rebates**	Rebate	To incentivize water use reduction	$30 rebate for installation of WaterSense High-Efficiency Toilets or free toilets for low-income projects.
	Automatic Irrigation Systems	Rebate/Education		Financial incentives and education/assistance and online tools for Seattle area landscapes.
Waste Reduction & Recycling	**Restore Our Waters**	Education/Technical Assistance	To promote water use reduction	Commitment to take actions and promote partnerships that protect and improve creeks, lakes, the Duwamish River, and Puget Sound.
	Rainwater Harvesting	Education		Education provided on website as well as link to order discounted rain barrel through Seattle Conservation Corps. At $75 each (retail is $100).
	Zero Waste Strategy Program	Local Regulatory	To reduce solid waste	Includes disposable shopping bag fee, organics service to remove food waste from landfill, reduce phone books from waste stream, incentives for recycling construction, demolition, and carpet waste.
	Friends of Recycling and Composting (FORC)	Rebate		$100 credit for providing a compost food and yard waste cart.
Education/Technical Assistance	**Built Green**	Education	To provide homeowners with comfortable, durable, environmentally friendly homes that are cost-effective to own and operate	Residential green building program/ rating system.
	Built Smart	Rebate/Education		Provides multifamily architects, builders, and owners the technical specifications and information they need to qualify for Built Smart incentives.
	Home Resource Profile	Education		Homeowners receive a detailed, customized report showing how household uses energy, water, and solid waste through online survey.
	SeaGreen Affordable Housing Guide and Green Unit Turn	Education	Protect and enhance Seattle's affordable housing stock and the community as a whole	Promotes energy conservation, operational savings, and sustainable building practices in affordable multifamily housing. Strategies include: work to reduce operating costs, promote healthy environments, and protect and conserve resources in city funded affordable housing projects.
Statewide Programs	**N/A**			

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Green Neighborhood Development Programs	**Seattle 2030 District**	Local Voluntary	Create a high performance building district in downtown Seattle	Using the performance goals of the Architecture 2030 Challenge for Planning, the district seeks to develop strategies to reduce environmental impacts of facility construction and operations. These strategies will provide tools for owners, managers, and tenants to meet the goals of the district.
	Seattle City Light Neighborhood Power Project	Local Voluntary	To strengthen partnerships with other city departments and neighborhoods and deliver resource conservation services more efficiently	Free installation of energy saving products like compact fluorescent light bulbs, water-saving showerheads, and aerators.
District Energy	**District Energy Interdepartmental Team**	Education/Technical Assistance		Focuses on policy reforms, further planning studies, and implementing a new system in First Hill.
	Seattle Steam District Energy System	Local Voluntary		Offers a centralized service providing thermal energy to downtown buildings.

A.4 Austin, Texas

POPULATION: 842,592
GREEN BUILDING ROADMAP: Austin Energy Green Building Annual Report
CLIMATE ACTION PLAN (CAP): Austin Climate Protection Plan has a goal of 700 megawatts of energy efficiency savings by 2020, meeting 30% of all energy needs through renewables by 2020, a CO2 cap and reductions for existing utility emissions.
INTERDEPARTMENTAL GREEN TEAM: City Climate Action Team
INTERESTING GREEN BUILDING PROGRAMS: Texas Department of Transportation has design standards for welcoming homeless bats and the city tracks Congress Avenue Bridge bats' annual insect consumption in their diverted waste totals. Green Alleys program encourages graffiti as artwork in some sections of town.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: https://my.austinenergy.com/wps/portal/aegb/

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**City Council Resolution**	Local Regulatory	To promote green building standards	All future public buildings that include work in all 5 LEED categories and have construction costs over $2 million must be LEED Silver. Renovations/interiors over $300,000 requiring work in energy and atmosphere, materials and resources, and indoor environmental quality must be LEED Silver.
LEED Incentives	**N/A**			
Local Green Building Rating System	**Austin Energy Green Building Rating System (AEGB)**	Local Voluntary		City-operated green building rating system that predates LEED.
Green Building Codes	**SMART Housing Program**	Local Regulatory	To build green, affordable housing	All housing receiving City of Austin incentives required to achieve a green building rating (LEED or AEGB).
	Austin City Code	Local Regulatory		Chapter 25-8: Environment: incorporates sustainability best practices into city code.
	Commercial Design Standards and Mixed Use Ordinance (Subchapter E of the Land Development Code)	Local Regulatory		Complement Austin code with a document that is easier to use and understand.
Energy Codes	**Energy Conservation Audit and Disclosure (ECAD) Ordinance**	Local Regulatory		All non-industrial commercial (including municipal buildings) must complete energy rating using either EPA's ENERGY STAR Portfolio Manager or Austin Energy Business Energy Analysis Rating Tool.
	Austin Energy Code	Local Regulatory		The IECC (International Energy Conservation Code) 2009 was adopted by City Ordinance, with local amendments.
	Building Energy Code	Local Regulatory	To reduce energy used in single-family homes	In 2011, called for the drafting of new building codes consistent with reducing energy use in single-family homes by 65% and all other public and private buildings by 75% by 2015.
	Austin City Code	Local Regulatory		Requires energy audits and disclosure for multifamily projects if they received direct electric service from Austin Electric utility.
Incentives - Financial *(Loans, Grants, Rebates)*	**See Utility Programs**			
Incentives - Non-Financial *(Recognition, Rewards, Priority permitting/ zoning)*	**N/A**			
Utility Programs (Municipal Utility - Austin Energy)	**Commercial/Multifamily PV Incentive Program**	Rebate	To incentivize use of renewables	Payment over a 10-year period for each kilowatt-hour of electricity produced by solar photovoltaic (PV) systems.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Utility Programs (Municipal Utility - Austin Energy) (cont.)	**Residential Solar PV Rebate Program**	Rebate	To incentivize use of renewables	Rebate of $1.50 per watt.
	Solar Water Heating Rebate	Rebate		Rebates from $1,500 to $2,000. A 30% tax credit of $750 to $1,000.
	Power Saver Program	Rebate		Project must exceed IECC efficiency levels, including City of Austin amendments, to be eligible for incentive payments.
	Commercial Rebates	Rebate	To incentivize installation of energy efficient equipment	Rebates in the following categories: air condition, building envelope, lighting, motors, uninterruptible power supply, variable frequency drives. Project must comply with the City of Austin's EACD Ordinance. Up to $200,000 per customer site.
	Home Performance with ENERGY STAR	Rebate	To incentivize installation of energy efficient equipment	Austin Energy customers with homes over 10 years old are eligible. Rebates cover up to $2000, or 28% for energy efficiency improvements such as air conditioners, heat pumps, attic insulation, duct sealing, Low-E glass, CFLs, etc.
	Multi-Family Energy Efficiency Rebate Program	Rebate	To incentivize installation of energy efficient equipment	Owners, developers, and property managers can see rebates up to $200,000.
	Power Partner Thermostats	Rebate		$85 rebate per internet connected thermostat.
	Power Saver Program - Load Co-op	Rebate		Cash incentive for curtailing unnecessary load during peak demand periods for up to 3 hour intervals from June through September.
Green Land Use Programs	**Austin City Code Chapter**	Local Regulatory		*Chapter 25-8 of the Austin City Code* is Environment, incorporates sustainability best practices into city code.
Water Conservation Incentives	**ICI Audit Rebate Pilot Program**	Rebate	To incentivize water use reduction	Austin Water offers a rebate that pays customers up to $5,000 for an independent water audit of their industrial, commercial, or institutional facility. To qualify, customers must commit to fixing any leaks and making any recommended equipment or system setting adjustments.
	WaterWise Landscape Rebate Program	Rebate		Provides $25 for every 100 sf turf grass converted to WaterWise landscape. (Min. 500 sf)
	Clothes Washer Rebates	Rebate	To incentivize water use reduction	$50 toward the purchase of a new qualifying washing machine.
	WashWise Commercial/MultiFamily Rebate Program	Rebate		Up to $250 per washer.
	Rainwater Harvesting system	Rebate	To incentivize water use reduction	Rebate of 50% of the cost of installation of a rainwater harvesting system at a lifetime maximum of $5000 through reduced rates in a water utility bill.
	Commercial Process Water Evaluation and Rebate	Rebate/Audit		As a free service to Austin Water Utility commercial customers, water conservation auditors are available to evaluate all aspects of water consumption and suggest opportunities for water use reduction. Rebates up to $100,000 available.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Water Conservation Incentives (cont.)	**Multifamily Pressure Regulating Valve Rebate**	Rebate	To incentivize water use reduction	Up to $100 per unit with a maximum of $500 per property.
Water Conservation Programs	**Commercial Facility Assessments**	Local Regulatory	**To promote water use reduction**	Beginning January 1, 2013, commercial, multi-family, and City municipal facilities equal to or greater than 1.0 acre in size are required to obtain an evaluation of any permanently installed irrigation system.
	Waterwise Hotel Partnership	Recognition		WaterWise Hotel Partners perform a free water audit and then get free publicity and recognition from Austin Water.
Waste Reduction & Recycling Programs	**Austin Resource Recovery**	Local Regulatory	Create a market for construction waste diversion services	Plan to institutionalize construction waste diversion throughout the city. Austin's Commercial Building rating system includes basic requirements for construction waste diversion.
Education/Technical Assistance	**Sustainable Building Sourcebook**	Education/Technical Assistance	**Educate building professionals and the public about the benefits of green buildings for people, the environment, and the economy**	Reference manual compiling info on building materials/techniques.
	Green by Design Building Workshop	Education/Technical Assistance		Full day residential green building workshop aimed at homeowners and green building novices.
	Green Boots	Education/Technical Assistance		Multi-session education program for single family residential trade contractors.
	Cool House Tour	Education/Technical Assistance		Sustainable Home Tours
	3C Business Challenge: Commit, Calculate, Conserve	Education		Provides information about ways to reduce a business's water use and show commitment to saving water. Water Conservation staff reviews applications and recommends steps to improve water efficiency.
	Austin Green Business Leaders	Education		Provides tools and resources that can help companies save money, expand market share, protect the environment, and support our local community.
Statewide Programs	**Texas Climate Vision**	Technical Assistance		Energy code compliance calculator.
	Water IQ	Education	To promote water conservation	Awareness program provided by regional water providers.
Green Neighborhood Development Programs	**Seaholm Development District**	Local Voluntary		Eco district concepts will shape plans for how the neighborhood will be completed and managed.
District Energy	**Downtown District Cooling System Plants (2)**	Local Voluntary		Austin Energy installs and maintains the piping and heat exchangers that deliver the chilled water from a district cooling plant to buildings within a few blocks of the plant.
	Mueller Development Area	Local Voluntary		District cooling and heating center is on land newly redeveloped from Austin's decommissioned Robert Mueller Municipal Airport. System provides steam heating, chilled water cooling, and onsite electric production to Seton's Dell Children's Medical Center and nearby buildings.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
District Energy (cont.)	**Domain District Cooling System**	Local Voluntary		Provides continuous cooling services to The Domain's tenants, serving a mix of retail, office, and residential customers.

A.5 Boulder, Colorado

POPULATION: 101,808
GREEN BUILDING ROADMAP: N/A
CLIMATE ACTION PLAN (CAP): Boulder's Climate Action Plan's goal to meet Kyoto Protocol target by 2012 was not met.
INTERDEPARTMENTAL GREEN BUILDING TEAM: N/A
INTERESTING GREEN BUILDING PROGRAMS: Voters passed nation's first Climate Action Plan Tax. City works with various agencies to provide free energy, water, and waste audits to residents.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: https://bouldercolorado.gov/environment

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**City of Boulder LEED Requirements**	Local Regulatory	To promote green building standards	Requires all municipally funded new construction and major addition projects to achieve LEED Silver certification. Also considering requiring certification of commercial projects, or developing a LEED-based incentive program.
LEED Incentives	**N/A**			
Local Green Building Rating System	**N/A**			
Green Building Codes	**Boulder Green Points Building Program**	Local Regulatory	To promote green building standards	Residential: New construction must be 30%-75% more efficient than 2006 IECC levels depending on building type and sf. Major renovations must achieve a score of 70-100 (15%-50% increased IECC efficiency) depending on sf. Residential permit applicants for new construction or renovations must also obtain an energy audit and meet Green Points Requirements. Commercial: Commercial energy efficiency requirements for new construction increased by 30 percent. Energy modeling required for all buildings over 20,000 sq. ft.
	Build Smart (Boulder County)	Local Regulatory	To reduce energy consumption and achieve CAP goals	Houses larger than 8,000 sf must be zero energy.
Energy Codes	**2009 International Codes Package (I Codes)**	Local Regulatory	To reduce energy consumption and achieve city's CAP goals	Accepted the 2009 I Codes package.
	Climate Action Plan Tax	Local Regulatory		City residents and business are taxed based on amount of electricity they consume. Tax Rates: Residential: $.0049/kWh, Commercial $.0009/kWh, Industrial $.0003/kWh.
	Smart Regs	Local Regulatory		Three ordinances that together update the city's housing code, rental licensing code, and provides baseline energy efficiency requirements for existing rental housing.
Incentives - Financial *(Loans, Grants, Rebates)*	**Energy Smart**	Rebate	To incentivize energy efficiency home upgrades	Rebates for energy efficiency improvements for homes ($250) and commercial ($495,000).
	Energy Loans	Loan		Energy Loans can be used for a wide range of energy efficiency and renewable energy upgrades including insulation, air sealing, heating, cooling, water heating, windows, and solar PV.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Incentives - Financial ***(Loans, Grants, Rebates) (cont.)***	**Ramp up Renewables**	Rebate	To incentivize renewable energy installations	Residents and Businesses that have installed photo voltaic or solar thermal may be eligible for rebates from the city's Renewable Energy Fund.
Incentives - Non-Financial ***(Recognition, Rewards, Priority permitting/ zoning)***	**N/A**			
Utility Programs	**Xcel Energy Free Home Energy Audits**	Technical Assistance	To help the City meet CAP goals	Free home energy audits.
	Electric Vehicle Charging Station Program (pilot)	Rebate		Credit on bill for allowing Xcel Energy to interrupt vehicle charging throughout the year.
	Energy Efficiency Financing for Residences	Loan		Low cost energy efficiency financing to residents.
	Residential Pool Pumps	Rebate		Xcel Energy's residential electric customers with in-ground pools receive an instant $100 rebate on the purchase and installation of an energy-efficient, variable speed pool pump, which includes a free, professional calibration worth an additional $100.
	Refrigerator Recycling	Rebate		$50 rebate for recycling old refrigerators.
Green Land Use Programs	**Forestry and Horticulture**	Education/Technical Assistance	To preserve diverse tree cover for future generations	Programs for pruning, tree planting, removal of dead/diseased trees, integrated pest management, flower bed programs, tree watering, mulching, and inventories.
	Integrated Pest Management (IPM) Program		To minimize possible impacts of pest management on human health	Comprehensive IPM policy followed by the City to mitigate long-term prevention or suppression of pest problems (including weeds) on city lands.
Water Conservation Incentives	**City of Boulder Water Conservation Program**	Rebates/Education/ Technical Assistance	To reduce water use	Toilet free-bates, discounted drip kit and timers, free xeriscape seminars and discounts, forest to faucet bus tour.
	CRC Slow the Flow	Rebate		Water Audits for residential customers. Commercial irrigation audits are eligible for rebate when done by certified irrigation auditor.
	Rebates for SMART controllers	Rebate		Eligible controllers must be Smart Water Application Technology (SWAT) approved and must be on the SWAT approval list.
Waste Reductions & Recycling Programs	**Green Points Program**	Local Regulatory	To reduce solid waste	Requires recycling of construction waste.
	2013 Zero Waste Master Plan	Local Regulatory		City collects trash tax to fund programs to encourage/incentivize businesses to reduce waste.
	Boulder Brought It	Local Regulatory		10¢ disposable bag fee tax and money back from participating grocers, coffee shops for bringing bags and mugs.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Education/Technical Assistance	**Local Environmental Action Division (LEAD)**	Education/Technical Assistance	Provides leadership to achieve Boulder's goals of sustainability and environmental quality	Develops city policy, offers educational programs, and partners with citizens, businesses, and other organizations to protect Boulder's environment.
	Boulder County Partners for a Clean Environment (PACE)	Technical Assistance	To help local businesses improve energy efficiency, zero waste management, and water conservation	Performs indoor water audits for commercial and industrial. Possible rebates exist for high water use reductions.
	10 for Change	Education/Technical Assistance		Boulder businesses committed to reducing their energy use and waste by at least 10%. Currently 110 businesses participating.
Statewide Programs	**N/A**			
Green Neighborhood Development	**N/A**			
District Energy	**N/A**			

A.6 Santa Monica, California

POPULATION: 91,812
GREEN BUILDING ROADMAP: Sustainable City Plan
CLIMATE ACTION PLAN (CAP): 15X15 Plan includes 15 measures to reduce community greenhouse gas emissions 15% below 1990 levels by 2015.
INTERDEPARTMENTAL GREEN BUILDING TEAM: N/A
INTERESTING GREEN BUILDING PROGRAMS: The City calculates its citywide Ecological Footprint and is working towards a downward trend.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: http://www.smgov.net/departments/ose/categories/buildgreen.aspx

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**Santa Monica Green Building Program**	Local Regulatory	To promote green building standards	All new city-funded buildings eligible for LEED certification which are 10,000 sf or larger must seek LEED certification. Of these, 20% should attain LEED Silver, 10% Gold, and 2% Platinum certification, with the remainder attaining Certified. 50% of new buildings smaller than 10,000 sf shall obtain at least LEED Certified, or its equivalent.
LEED Incentives	**N/A**			
Local Green Building Rating System	**Santa Monica Green Business Certification**	Local Voluntary		Green certification for businesses.
Green Building Codes	**March 2012 adopted amendments to the Cal Green Building Standards Code**	Local Regulatory	To reduce energy use of Santa Monica buildings and homes	Includes energy efficiency, construction and demolition waste diversion goals, and solar ready requirements.
	Green Building Standards Code	Local Regulatory		Includes requirement that all new buildings be designed to use 15% less energy than required by CA Energy Code, pipe insulation required when replacing a water heater, 20% plumbing water use reduction, all new construction must be "solar-ready."
Energy Codes	**Santa Monica Municipal Code**	Local Regulatory	To reduce energy use of Santa Monica buildings	All new construction and substantial remodels must exceed Title 24 by 10%, use solar as primary heating for pools, insulate hot water pipes, use the Green Materials list for 50% of building square footage or 100% of building fixtures, submit landscape and irrigation plans for approval to the city of Santa Monica, divert 65% of construction and demolition waste from the landfill, and capture and treat rainwater.
Incentives - Financial ***(Loans, Grants, Rebates)***	**N/A**			
Incentives - Non-Financial ***(Recognition, Rewards, Priority permitting/ zoning)***	**Priority Permitting for CA Title 24**	Incentive	To reduce barriers to green building	Developers who exceed the minimum standards of CA's Energy Code (Title 24) are eligible. Expedited plan review, 50% reduction in the energy plan check fee, free consultation and design assistance, special recognition from the County of Santa Barbara, use of Innovative Building Program logo for marketing.
	Priority Permitting for LEED	Incentive	To reduce barriers to green building	All new buildings and major renovations registered for LEED certification are eligible.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Incentives - Non-Financial (Recognition, Rewards, Priority permitting/ zoning) (cont.)	**Solar Santa Monica**	Incentive	To incentivize renewable energy installations	Permit fees waived for solar energy systems.
Utility Programs (Non-Municipal Utility)	**Energy Upgrade California**	Rebate	Remove barriers to installing new energy efficient equipment	Provides financial incentives to lenders to reduce interest rates on residential energy retrofit loans.
	Southern California Edison Electricity	Rebate	To remove barriers to energy efficient home upgrades	Residential: Rebates vary for qualifying equipment such as retiring old refrigerator/freezers, ENERGY STAR lighting, PV, solar thermal, whole house fan, evaporative water coolers, water heaters, clothes washers and more.
	Southern California Gas Company	Rebate		Residential customers can apply. Includes rebates for water heaters, tankless water heaters, clothes washers, dishwashers, low-flow showerheads, attic or wall insulation, furnaces, and gravity wall furnaces.
Green Land Use Programs	**Cash for Grass**	Rebate	To reduce water used for irrigation	Rebate of $1.50/sf of grass converted to climate-appropriate plants and/or mulch.
	Stormwater Parcel Fees	Local Regulatory	To encourage reduction of stormwater runoff	The city has two stormwater parcel fees that are paid annually by all property owners. These fees are assessed through property taxes and generate approximately $3.9 million a year.
Water Conservation Incentives	**SoCal Water$mart Regional Water Rebates**	Rebate	To reduce water use	Rebates for residential and commercial customers who install high efficiency clothes washers, toilets, and/or weather-based irrigation controllers.
	Sprinkler Rebates	Rebate		Up to $3000 for existing drip irrigation installations for buildings/homes.
Waste Reduction & Recycling Programs	**Construction and Demolition Waste Program**	Local Regulatory	To reduce the environmental impact of the construction process	Projects are required to divert 70% of construction and demolition waste from the landfill, per local code.
Education/Technical Assistance	**Green Building Design and Construction Guidelines**	Education/Technical Assistance	To reduce life-cycle environmental impacts	Publication highlighting required and recommended green building practices.
	Residential Green Building Guide	Education/Technical Assistance	To reduce life-cycle environmental impacts associated with the construction and operation of residential projects	Publication designed to assist new construction or remodeling for residential dwellings.
	Green Affordable Housing Checklist	Education/Technical Assistance	Encourages developers to incorporate green practices wherever possible	Green building practices checklist for affordable housing.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Statewide Programs	**California Center for Sustainable Energy**	Education	To reduce energy use in CA	Working with the Governor's Office to coordinate a statewide education and outreach program.
Green Neighborhood Development Programs	**N/A**			
District Energy	**N/A**			

A.7 Arlington, Virginia

POPULATION: 221,045
GREEN BUILDING ROADMAP: N/A
CLIMATE ACTION PLAN (CAP): Arlington's Community Energy Plan sets target reduction of ghg emissions to 3.0 metric tons of CO_2 equivalent per resident per year by 2050.
INTERDEPARTMENTAL GREEN BUILDING TEAM: N/A
INTERESTING GREEN BUILDING PROGRAMS: Green Density Building Incentives for LEED certified projects and incentives for developers achieving LEED certification. Developers that don't achieve LEED are required to pay a fee into the Green Building fund for use in providing developers with green building education and outreach.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: http://freshaireva.us/2012/04/green-building-2/

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**Arlington's Policy for Integrated Facility Sustainability**	Local Regulatory	To promote green building standards	Arlington will fund, design, and construct projects to achieve LEED Silver. Applies to all county owned and leased buildings.
LEED Incentives	**Green Building Fund**	Feebate	To incentivize developers to achieve LEED certification	Developers with special exceptions to the Zoning Ordinance that do not achieve LEED certification required to contribute $.045/sf to the fund. Fund is used to provided education and outreach to developers on green building issues. If achieve LEED in the future, fee is refunded.
Local Green Building Rating System	**Green Home Choice**	Local Voluntary	To promote green building standards	Provides point-based scoring system, guidance manual, and County-sponsored plan review and inspections toward certifications.
Green Building Codes	**2009 International Codes Package (I Codes)**	Local Regulatory		*State law does not allow local governments to adopt building codes. Arlington County pushing green building through planning and zoning process.
Energy Codes	**2009 International Energy Conservation Code (IECC)**	Local Regulatory		*State law does not allow local governments to adopt building codes, therefore, IECC is mandatory statewide.
Incentives - Financial ***(Loans, Grants, Rebates)***	**Lighting Rebate Program**	Rebate	To incentivize energy efficient upgrades	Offered to commercial customers for certain lighting installations and retrofits.
Incentives - Non-Financial ***(Recognition, Rewards, Priority permitting/ zoning)***	**Green Density Building Incentive**	Incentive	To incentivize LEED certified projects	Density and Height bonuses for LEED certified projects: LEED Certified projects eligible for bonus of 0.05 floor area ratio (FAR) for offices (0.10 FAR for residential). LEED Silver can be eligible for up to 0.15 FAR (residential 0.20 FAR). LEED Gold can be considered for 0.35 FAR (Offices) (residential 0.40 FAR). LEED Platinum: offices 0.45 FAR (residential 0.50 FAR).
Utility Programs	**N/A**			
Green Land Use Programs	**StormwaterWise and Green Home Choice Funds**	Incentive	To promote design that is energy and resource efficient, sustainable, and provide a healthy living environment	Funds available for certain Green Home Choice projects incorporating cisterns (maximum rebate of $500 based on 50% of installation costs) or green roofs (maximum rebate of $1500 or $3000 if applicant signs maintenance agreement with the county).

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Green Land Use Programs (cont.)	**StormwaterWise Landscapes Program**	Incentive	To reduce stormwater runoff	County residents and business owners can get funding to install small-scale practices to reduce stormwater run-off from their property.
	StormwaterWise Rebates	Rebate		Up to $500 for conservation landscapes, up to $1500 for pavement removal and replacement with pervious, up to $1500 for pavement removal (soil must be amended and planted with native plants), up to $1500 for rain gardens.
	Complete Streets	Local Voluntary		Focuses on multimodal projects integrated with adjacent community uses. Program projects include intersection or interchange improvements, new street links, major corridor reconstruction, and neighborhood street improvements.
	Walk Arlington/Bike Arlington	Incentive	To encourage alternative transportation	Makes physical enhancement to bike and sidewalk/street infrastructure.
Water Conservation Incentives	**N/A**			
Water Conservation Programs	**N/A**			
Waste Reduction & Recycling Programs	**Waste-to-Energy**	Local Voluntary	Help move County towards waste reduction	Waste is converted to electricity that supplies power to 23,000 homes.
Education/Technical Assistance	**Green It Arlington!**	Education/Technical Assistance		Workshops, native seed packets, tours of water pollution plants, energy scavenger hunts, etc.
	Arlington Green Games	Education/Technical Assistance		Year-long competition for residents and businesses to reduce costs while reducing emissions incorporating trainings, best practices, and technical assistance.
	Building Arlington	Education/Technical Assistance		Zoning and Planning website with step-by-step direction through common projects, easily searchable resources, answers to common questions, and a glossary of terms to aid in project completion.
	Arlington Initiative to Rethink Energy (AIRE)	Education/Technical Assistance	To help community make smart decisions about energy	Workshops, website with information about rethinking energy. Has a green building link.
Statewide Programs	**Local Energy Alliance Program (LEAP)**	Rebate		Rebates for LED light bulbs. Up to $500 for upgrading HVAC in Arlington (residential). Website has tips for energy efficiency, provides energy audits for home owners and commercial buildings. Helps homeowners achieve Home Performance with ENERGY STAR ratings.

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Statewide Programs (cont.)	**EarthCraft House Virginia**	Education/Technical Assistance	To advance sustainable, affordable, resource and energy efficient construction through education and technical support	Website with education/technical assistance.
Green Neighborhood Development	**Neighborhood Conservation**	Funding		Provides funding for a variety of capital improvement projects including installation of sidewalks, curbs, gutters, streetlights, park improvements, neighborhood art, and beautification.
District Energy	**2011 Task Force Recommendations**	Local Voluntary		Establish district energy systems in high-density areas such as Crystal City, Pentagon City, Rosslyn, Courthouse, Columbia Pike, and Ballston/Virginia Square. Beginning in 2015 these areas should migrate to district energy for heating, cooling, and hot water services.

Note: All programs are run by Arlington County as Virginia law does not allow any new municipalities within a county that has a population density greater than 1,000 persons per square mile.

A.8 St. Petersburg, Florida

POPULATION: 246,541
GREEN BUILDING ROADMAP: Green St. Petersburg
CLIMATE ACTION PLAN (CAP): **Florida State CAP only.* Goals are to meet 20% of electricity needs from renewable sources by 2020, join a regional cap and trade system, reduce ghg 34% by 2025.
INTERDEPARTMENTAL GREEN BUILDING TEAM: N/A
INTERESTING GREEN BUILDING PROGRAMS: First City designated a "Green City" by the Florida Green Building Coalition. Inverted rate structure for water and turf restrictions and partial permit fee refunds in city code.
CITY WEBSITE ACCESS TO GREEN BUILDING RESOURCES: http://www.stpete.org/green/green_building/index.asp

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
LEED Requirements	**Green Building Requirements, per Mayor's Executive Order**	Local Regulatory	To promote green building standards	Mandates all new city owned and occupied buildings meet LEED standards; reconstruction on all existing government buildings exceeding 10,000 sf must meet LEED Existing Building standards; all major government facilities exceeding 20,000 sf must adopt energy conservation measures. All City-sponsored events must take place in EPA certified "Green Lodging" facilities. Leasing agreements for office space must comply with ENERGY STAR. City is required to develop a prototype solar project for City-owned office buildings.
LEED Incentives	**N/A**			
Local Green Building Rating System	**N/A**			
Green Building Codes	**Lighting Retrofit Requirements, per Mayor's Executive Order**	Local Regulatory		All City facilities must convert all incandescent lights to CFLs and all T-12 ballast fluorescent lights to T-8.
	Mayors' Green City Action Accord	Local Regulatory		Encourage Florida cities to meet the goals and requirements of the "Florida Green City Local Government Standard," a rating system developed by the Florida Green Building Coalition, Inc.
Energy Codes	**Energy Audits**	Local Regulatory		All city facilities required to perform an energy audit.
Incentives - Financial *(Loans, Grants, Rebates)*	**City of St. Petersburg Energy Efficiency Program**	Grant	Promote energy efficiency	Provides grants for assistance amounts of $1 to $3,000, and non-interest bearing, forgiven, or amortized loans for assistance amounts between $3,001 and $15,000 per household, to be used toward home energy audits and energy conservation improvements such as: air conditioning tune-ups, duct repair, insulation, weather stripping, and window filming (Limited to residents in the Bartlett Park neighborhood).
	Permit Rebates for LEED projects	Rebate	To incentivize green building by reducing permit fees	Partial permit fee refund of $1000 ($2500 if on vacant land over one acre and follow LEED standards. $300 for residential).
	St. Augustine Turf Reduction	Rebate		Commercial and residential permit applications eligible for partial refund of permit fees if plan does not include St. Augustine turf ($150 residential, $300 commercial and multifamily).

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Incentives - Non-Financial ***(Recognition, Rewards, Priority permitting/ zoning)***	**N/A**			
Utility Programs (Progress Energy)	**Commercial Sector Rebates for Energy Efficiency Technology**	Rebate		Amount of rebates vary by technology type. Maximum incentives: HVAC: $75,000 Energy recovery/insulation: $15,000
	Home Energy Check Audit and Rebate Program	Rebate		For single and multifamily residential. Amount of rebates vary by technology type. Maximum incentives: Duct Test: $150 Duct Repair: $100 per unit Cool Roof: $150 Wall Insulation: $300 Replacement Windows: $250 Window Films/Screens: $100
	Sunsense Commercial PV Incentive Program	Rebate		Minimum system size: 2 kW and rebates up to $130,000 per participant.
	Sunsense Residential Solar Water Heat Incentive Program	Rebate		$550 credit on electric bill for installation of SWH system; additional $30-$60 credits for participating in load control and pool pump programs.
	EnergyWise	Incentive		Demand Side Management program allowing Progress Energy to temporarily reduce electrical consumption during high power demand. Savings of up to $145 annually.
Green Land Use Programs	**Vision 2020**	Local Regulatory		City overhauled land development policies to promote higher density, mixed-use, more urban development patterns, and facilitate transit supportive development.
	Streetscaping/Tree Program	Local Regulatory		Local ordinance protects trees and plants new trees along city rights-of-way and interstates.
	Mulch and Soil Builder Programs	Local Voluntary		Instead of sending yard waste to the landfill, it is collected at five brush sites located throughout the city and recycled into useful products.
Water Conservation Incentives	**Ultra Low-Flow Toilet Rebate Program**	Rebate	To promote water use reduction	Up to $100 for replacing high-flow toilets.
	Water Restrictions	Rebate		Gives Incentives for conservation/less use. Watering restricted to twice weekly.
	Inverted Rate Structure and Informative Billing	Local Regulatory	To promote water use reduction	As customer uses more water, rates get higher. Utility bills graph consumption and compare to previous year.
	Restaurant Spray Valve Replacement Program	Incentive		Food service providers can receive a free water efficient pre-rinse spray valve.
Water Conservation Programs	**St. Petersburg's Water Reclamation System**	Local Voluntary	To promote water use reduction	Provides more than 37 million gallons per day to over 10,600 customers primarily for lawn irrigation.
Waste Reduction & Recycling Programs	**Pinellas County Resource Recovery Plant**	Local Voluntary		Waste to energy plant providing electricity for approximately 45,000 homes (or 85% of all garbage collected in St. Petersburg).

PROGRAM TYPE	PROGRAM	REQUIREMENTS/ INCENTIVE	INTENT	DESCRIPTION
Waste Reduction & Recycling Programs (cont.)	**City-run Recycling Drop Off Sites**	Local Voluntary		City website provides map identifying 22 city-run and 130 private recycling facilities.
Education/Technical Assistance	**Energy Efficiency Program**	Education/Technical Assistance	Encourage energy efficiency upgrades	Website lists steps residents can take towards increasing energy efficiency at home or work.
Statewide Programs	**State of Florida My Florida Green Building Website**	Education/Technical Assistance		Website provides conservation tips, rating system information, rebates, incentives, and other resources.
	Brownfield Redevelopment Bonus	Tax Incentive	Encourage redevelopment and job creation within designated brownfield areas	Tax refund of up to 20% of average annual wage of new jobs created up to maximum of $2,500 per new job created. Brownfield map provided on city website.
	Energy Standards for Public Buildings	State Regulatory	Encourage energy efficiency upgrades	Departments may only enter into new leasing agreements for office space if the building meets new ENERGY STAR standards.
Green Neighborhood Development Programs	**N/A**			
District Energy	**N/A**			

Appendix D

Code Conflict Assessment Table

APPENDIX D

Fort Collins Code Conflict Table

Topic	Code	Code Citation	Purpose of Code	Summary of Code and/or Code Conflict	AEC Recommendations
Streetscape Plan	LCUASS*	Appendix C, City of Fort Collins Streetscape Design Standards and Guidelines; Section 4 Parkway Landscaping; and Section 6 Collector and Local Streets	To set forth a coordinated approach to the design and management of streets as visually appealing public spaces that contribute to Fort Collins' distinct identity.	Parkway landscaping (*arterial street parkways*): mowed, efficiently irrigated turf-type grass required in parkways (cool season or warm season allowed). Acceptable alternatives are mulched planting beds. *(collector and local street parkways)* : turf-type grasses and mulched planting beds. 50% of the area must be covered in live plant material in 3 years.	Turf-type grass required in parkways is highly water-intensive. 50% requirement for live plant material may conflict with projects pursuing xeriscaping. Consider revising this requirement and incorporating xeriscape principles. Mulched planting beds are a better alternative, especially if native, non-invasive plants are required.
	LCUASS	Appendix C, City of Fort Collins Streetscape Design Standards and Guidelines; 5.2 Arterial Streetscape Design	To reflect Fort Collins' western regional character.	Planting compositions in medians must include varied plants, repeated groups, mulches and borders and cover at least 75% of median in 5 years. Trees to be planted with open intervals in between groupings. Difficult to fit all requirements in space. Can be a maintenance problem. Wastes water.	Consider revising planting composition requirements to reduce required irrigation. Sprinkler system audits and financial incentives for reducing irrigation water use could also be considered.
	Municipal Code	Chapter 24-42		Parkway maintenance: Owner of property adjacent to the parkway shall maintain it according to LCUASS and incorporate xeriscape principles wherever appropriate.	Consider incentives for incorporating xeriscape principles in parkway landscaping.
	LCUASS	Appendix C, City of Fort Collins Streetscape Design Standards and Guidelines; Exhibit A: List of Recommended Plants		List of recommended plants provided and those with Colorado native status as determined by USDA Plants Database are highlighted. More than half of the recommended plants are not Colorado native. Two recommended groundcovers (Euonymus and Fleece flower) are considered invasive	Consider revising this list to recommend more non-invasive, Colorado native, or adaptive plant species. This list could also be expanded to include "banned" plant species, as in Portland's Native and Banned plant list.
Streetscape Plan (cont.)	Municipal Code	Chapter 24, III. Streets		No mention of street widths in this section of Municipal Code. Narrower streets may be more sustainable but city depts., PFA, developer, and neighbors have to be involved and on board. One past project has created opposition to this concept.	When considering narrower streets, consider and include all stakeholders in the discussions/decisions.
	LUC	3.6.2 Streets, Streetscapes, Alleys and Easements		Refers to LCUASS for street widths so no conflict in terms of required widths.	
	LCUASS	Chapter 7: Street Design and Technical Criteria		Table 7-1 lists widths for various street classifications. Stormwater Criteria Manual encourages less impervious surface, more infiltration. LCUASS require road widths that inhibit these practices	Revisit current roadway width standards as outlined in Table 7-1 to determine if these may be reduced in certain cases.
Code Application to Multi-family Projects	2009 IECC	Residential: Chapter 4 Commercial: Chapter 5		Energy Codes as they relate to Residential and Commercial projects. There may be places where definitions or code applications are not consistent	Continue to clearly define all project types so that the application of codes to different projects is less ambiguous. This could be an area where a 'code application' guide could be beneficial to address how the codes apply to single family, multi-family, and commercial.

Fort Collins Code Conflict Table					
Topic	**Code**	**Code Citation**	**Purpose of Code**	**Summary of Code and/or Code Conflict**	**AEC Recommendations**
	2009 IBC	3604.1 Building Commissioning		Verify that selected building systems have been designed and function in accordance with construction documents and code minimums. Building commissioning and performance testing difficult to do on some buildings and difficult to verify.	See Performance Testing recommendations below.
Code Application to Multi-family Projects (cont.)	2009 IRC	N1102.4.2.1 Performance Testing		Blower Door test shall be done at a pressure of fifty pascals and maximum whole building air leakage rate shall not exceed three air changes per hour (ACH) in buildings with electric heat and four ACH in buildings without electric heat. Blower testing not possible on all types of buildings.	Multi-family residential projects may not fit the mold for blower door tests as outlined in the code. Consider reworking the application of this standard for multi-family. For example, rather than looking at the building envelope tightness, one could look at just the tightness of each particular unit with respect to everything else. This 'compartmentalization spec' would be similar to what is required in LEED for Homes Mid-Rise. Or consider a formula where the number of exterior walls are factored into the leakage rate
Code Application to Other Project Types *(additions, remodels, abandoned buildings)*	2009 IRC/IBC	Sections 202 Definitions		Amends definitions of dwelling, commissioning, townhouse, low VOC materials. There is ambiguity about how to apply code to additions, remodels, and abandoned buildings. Conflicting definitions in code. Difficult to verify.	Continue to clearly define all project types (addition, remodel) and building types (condo, townhome) so that the application of codes to different projects is less ambiguous. This could be an area where a 'code application' guide could be beneficial to address how the codes apply to these different types of projects. Multiple definitions (for example, 'abandoned') should be reconciled and made consistent across all codes
Landscape Plan	LUC	3.2.1 (D) Tree planting Standards	To ensure significant canopy shading to reduce glare and heat island effect; contribute to visual quality of development.	The language says 'All developments shall establish …trees …in all landscape areas that are located within 50 feet of any building or structure in order to establish at least a partial urban tree canopy.' Tree requirements can prevent use of space for other sustainable practices such as room for recycling and composting, bioretention, etc.	Consider adding bird-safe requirements: Placement of trees or tall shrubs should be located directly adjacent to glazing (within 3 feet) to slow birds down on approach, or placed far enough away to avoid reflecting canopies in the glazing. Other cities with bird-safe requirements in their codes include San Francisco, Toronto, Chicago, and the states of Michigan and Minnesota.
Landscape Plan (cont.)	LUC	3.2.1 Landscaping and Tree Protection; (E.) Landscape Standards (3) Water Conservation (a) Xeriscape landscaping principles	Promote water conservation.	Lists (7) Principles for Xeriscape in each of the two codes, however these differ in language and stringency between the two.	Reconcile these 7 principles to include same language in both documents. Most stringent/descriptive language should prevail. For example LUC (3) low-water using plants doesn't map directly to a principle in the Municipal code and language should be aligned. LUC (6) Mulch recommends adding mulch to planting beds to a

Fort Collins Code Conflict Table					
Topic	**Code**	**Code Citation**	**Purpose of Code**	**Summary of Code and/or Code Conflict**	**AEC Recommendations**
	Municipal Code	Article VII. Resource Conservation; Division 1 Generally; Section 12-120. Definitions			minimum depth of three inches, the municipal code language does not mention minimum depth recommendations.
Infill Development	LUC	3.7 Compact Urban Growth Standards	To encourage development in infill areas.	Infill definition is 1/6th of boundary contiguous to existing, improved infrastructure. Degree of contiguity is not affected by publicly owned open space or waterway between the proposed development and existing urban development. 3.7.2 provides waiver/exceptions to meeting contiguity requirements in order to promote infilling of an area with existing urban development. Effectiveness of these standards may be offset by prescriptive requirements in 4.0. Doesn't encourage infill development to the fullest.	Consider alternative compliance approaches or other flexibility for infill sites similar to the waiver/exception provisions of 3.7.2.
	LCUASS	Figure 19-6		Figure 19-6 shows minimum setback distances from street curb to nearest parking space. Minimum off-street parking setback is 50 feet for collector and arterial roads. Setbacks difficult to meet in infill areas. Alternative compliance or modified code for infill areas would help.	This could be an area where a 'code application' guide could be beneficial. This guide could further explain how to address parking in infill lots.
Stormwater Management	LCUASS	Chapter 7 - Street Design and Technical Criteria, Drainage Systems, Sidewalk Culvert Chases		Criteria for street layouts, classifications, and purposes; minimum design criteria that must be met. Vertical Curb and Gutter required per Table 7-1. Many of the requirements are in conflict with Stormwater Criteria Manual and discourage use of pervious surfaces and bioretention.	See also 'Street Widths' and 'Parking Lots.' Allowing streets to drain into swales would help infiltration. If this is deemed feasible, consider how runoff from salted roads would be treated.
	Urban Storm Drainage Criteria Manual, adopted with Fort Collins Amendments	Chapter 1 Stormwater Management and Planning 4.0 Four Step Process to Minimize Adverse Impacts of Urbanization	Requires comprehensive planning and management to reverse adverse effects on	Four Step Process for receiving water protection includes: (1) reducing runoff volumes; (2) treating the water quality capture volume (WQCV); (3) stabilizing drainage ways; (4) implementing long-term source controls.	Consider financial incentives for meeting requirements of the four step process. For example, rebates for reducing or treating runoff, or implementing long-term source controls.
Parking	LUC	LUC 3.2.2 Access, Circulation, and Parking	Ensure parking and circulation aspects of all developments are well designed with regard to safety, efficiency and conveniences for cars, bikes, pedestrians and transit.	Requirements specify all open off-street parking and vehicular use areas shall be surfaced with asphalt, concrete, or other material. Minimum parking requirements for residential and maximum for commercial. Allows for shared parking in some circumstances. Complaints and concerns often drive parking. Banks will not loan money with insufficient parking.	Consider areas where there might be an opportunity for shared parking/shuttle services (church parking lots after hours or during the week, park and ride lots, etc.).

Fort Collins Code Conflict Table					
Topic	**Code**	**Code Citation**	**Purpose of Code**	**Summary of Code and/or Code Conflict**	**AEC Recommendations**
Parking (cont.)	LUC	3.2.1 (E.) 4 &5) Parking Lot Landscaping		Parking lot perimeter: 1 tree per 25 lineal ft. (public street) and 1 per 40 ft. (parking setback area) and screening required. Parking lot interior: 6% area with <100 spaces and 10% area with > 100 spaces shall be landscaped. (f.) Detailed specifications concerning parking lot surfacing material and parking lot drainage detention are available from city engineer.	Increasing number of trees around the perimeter and percent required in the interior could go a long way in reducing heat island effect. Figure 1 does not show much shading of the asphalt.
	LUC	3.2.2 Access, Circulation and Parking	Ensure parking and circulation aspects of all developments are well designed with regard to safety, efficiency, and conveniences for cars, bikes, pedestrians and transit.	(c.) Pavement. All open off-street parking and vehicular use areas shall be surfaced with asphalt, concrete, or other material in conformance with city specifications. Code discourages expanded use of pervious surfaces, but some projects are being allowed.	Asphalt and concrete do not permit water infiltration. Continue to consider pervious materials where possible to increase water filtration.
	LCUASS	Chapter 19 Parking		Standards for minimum off-street parking setback distances (Figure 19-6) and required parking area dimensions (Figure 19-7). Council adopted interim parking stds. Within the TOD for one year while parking issues are reviewed. Parking vs. transit or other mobility is an issue in	
Light Pollution Control - Site Lighting	LUC	3.2.4 Site Lighting	To protect natural areas from light intrusion, enhance neighborhood continuity and connectivity, and foster non-vehicular access.	References IES Lighting Handbook for minimum footcandles for site lighting . References an Alternative Compliance where alternative lighting plans may be submitted. Code is outdated and not focused on energy efficiency. Code should be updated to align with energy eff. and night sky pollution issues.	Consider revising code language to align better with energy savings and night sky pollution requirements by updating code to reference the 9th or 10th edition of the IES Lighting Handbook.
	Fort Collins Amendments to IRC	Section R326 - Outdoor Environmental Quality		All exterior lighting fixtures (new construction) shall have the "Fixture Seal of Approval" from the International Dark-Sky Association or meet equivalent criteria. Requirements are unclear. May interfere with security lighting.	Update Guidelines to reference the 9th or 10th edition of the IES Lighting Handbook.
Light Pollution Control - Street Lighting	LCUASS	Chapter 15 - Street Lighting	To illuminate roadways for traveler (vehicle and pedestrian safety).	15.2.2 Guidelines References the IES Lighting Handbook, 5th Edition. The current edition is the 10th Edition. These lighting standards are outdated. 15.9.1 refers to City of Fort Collins Light and Power Utility's pamphlet "Electric Construction Policies, Practices and Procedures."	15.2.2 Guidelines References the IES Lighting Handbook, 5th Edition. The current Edition is the 10th Edition. These lighting standards are outdated. Update Guidelines to reference the 9th or 10th edition of the IES Lighting Handbook.
Waste Reduction	Fort Collins Amendments	(IBC) Chapter 36 Section 3602 Resource Efficiency (IRC) Section R324 Resource Efficiency		Construction Waste Management (CWM) plan is required for new buildings, to include recycling of concrete, wood, metals, and cardboard. Some issues with compliance. Difficult to verify. No requirements currently for existing buildings or deconstruction.	Continue to push for verification of recycled construction and demolition waste and incorporating stronger language into the codes. Collecting hauler receipts is a good way to verify this.

Fort Collins Code Conflict Table					
Topic	**Code**	**Code Citation**	**Purpose of Code**	**Summary of Code and/or Code Conflict**	**AEC Recommendations**
Waste Reduction (cont.)	LUC	3.2.5 Trash and Recycling Enclosures	Ensure areas for trash and recycling are compatible with land use.	Recycling required 'to the extent reasonably feasible' for all new commercial/multifamily. References "Trash and Recycling Enclosures - Design Considerations." Other standards and requirements (i.e. parking and other offsets) limit the space available for recycling and composting.	The LUC language encourages recycling 'to the extent feasible.' The requirement in Chapter 12 does not support this, as only cardboard must be recycled per this code. Other materials, besides recyclable cardboard, could be added to the required recyclables.
	Municipal Code	Chapter 12 Health and Environment	To protect the public by regulating the accumulation and disposal of solid waste.	Required recycling is for cardboard only. Electronic equipment is prohibited from trash containers.	Consider incentives for increased recycling, zero waste initiatives, etc.
Wetlands	Volume 3 - Urban Storm Drainage Criteria Manual, adopted with Fort Collins Amendments			Best Management Practices for providing a water quality capture volume with slow release. Constructed wetlands are allowed. Public can be concerned with wetlands creation and retention ponds due to potential West Nile Virus implications	Continue developing constructed wetlands as feasible for stormwater management. Urban Drainage and Flood Control District provides technical resources on stormwater best management practices for mosquitos and West Nile Virus (http://www.udfcd.org/downloads/down_sw_bmp.htm)
Potable Water Use	Fort Collins Amendments to IRC	Section P2903.2 Maximum flow rates and Consumption for plumbing fixtures and fixture settings		Lav - 1.5 gpm Showerhead - 2.0 gpm Sink faucet - 1.8 gpm WC - 1.28 gpf and EPA WatersSense labeled	
Potable Water Use (cont.)	Fort Collins Amendments to IRC	Section 604.4 Maximum Fixture and Fitting Flow Rates for Reduced Water Consumption		Lav (private)- 1.5 gpm Lav (public metering) - 0.25 gallons per metering cycle Lav (public non-metering) 0.5gpm Showerhead - 2.0 gpm Sink faucet - 1.8 gpm WC - 1.28 gpf Urinal - 0.5 gpf and EPA WatersSense labeled	Consider additional incentives to promote water use reduction such as commercial facility assessments (similar to those performed for ClimateWise partners), toilet free-bates, high efficiency showerhead free-bates, free water audits for commercial customers, similar to those currently offered for residential customers.
	Municipal Code	Chapter 26, Article III: Water	To define the water utility of the City, set forth the responsibilities of users and the utility; promote public health, safety, and welfare.	Sec 26-118: Tiered residential water rates and seasonal commercial rates to encourage water conservation. Division 6: Water Conservation: Wasting water is prohibited. Complaints are investigated and ticketing is possible. Water rates can encourage some restaurants to continue use of disposable dishes.	
Volatile Organic Compounds (VOCs)	Fort Collins Amendments to IBC	3603.1.2		Residential buildings exempt from indoor air flush-out. Flush out can be difficult in some buildings. Owners are anxious to occupy building. Not enough commissioning agents with experience.	Consider requiring flush-outs on residential buildings, as currently required for commercial buildings, to ensure good indoor air quality for building residents. Building time into the construction schedule for the flush from the beginning of the project should help with current timing issues.

Fort Collins Code Conflict Table					
Topic	**Code**	**Code Citation**	**Purpose of Code**	**Summary of Code and/or Code Conflict**	**AEC Recommendations**
	Fort Collins Amendments to IRC	R325.1		Requires construction materials and site applied finishes meet VOC emissions limits of CA Department of Public Health, GREENGUARD, and Green Seal Standards. Documentation required at inspection. Can be difficult to find materials and to verify their use.	Costs and availability of these products are becoming more mainstream as LEED requirements continue to transform the market. Requirements align with indoor air quality best practices and should remain in place.
Energy Efficiency	Fort Collins Amendments to IECC	101.4.3.1		Energy Assessment Required prior to any alterations. Could consider Arch. 2030 or EnergyStar or net zero requirements.	Consider incentives/requirements for meeting Architecture 2030 standards, ENERGY STAR, or other City-developed energy benchmarking requirements.
Energy Efficiency (cont.)	Fort Collins Amendments to IRC	N1103.3, M1401.3, Heating and Cooling System Design and M1309, Heating and Cooling System Testing		Submittal requirements have become very large and audits can delay review of project submittals. Contractors do not understand what inspectors are looking for.	Consider ways to streamline building energy audit process, reducing paperwork, and making standards more clear and attainable.
	LUC	3.4.7 Historic and Cultural Resources	Ensure proposed development and new construction do not adversely affect the integrity of the historic property and respects the historic character of the site and surrounding	Original details contributing to the historical significance of the structure/neighborhood shall be conserved to the extent possible. Refers to Chapter 14 of Municipal code for definition of historic designation. Historic defined as 50 years but is this really historic. Difficulty complying with window and other energy efficiency requirements.	This could be an area where a 'code application' guide could be beneficial. This guide could further explain how to specifically address energy efficiency in historic properties.

Code Abbreviation Key

*LCUASS - Larimer County Urban Area Street Standards ***LUC - Land Use Code

IECC - International Energy Conservation Code IBC - International Building Code IRC - International Residential Code