

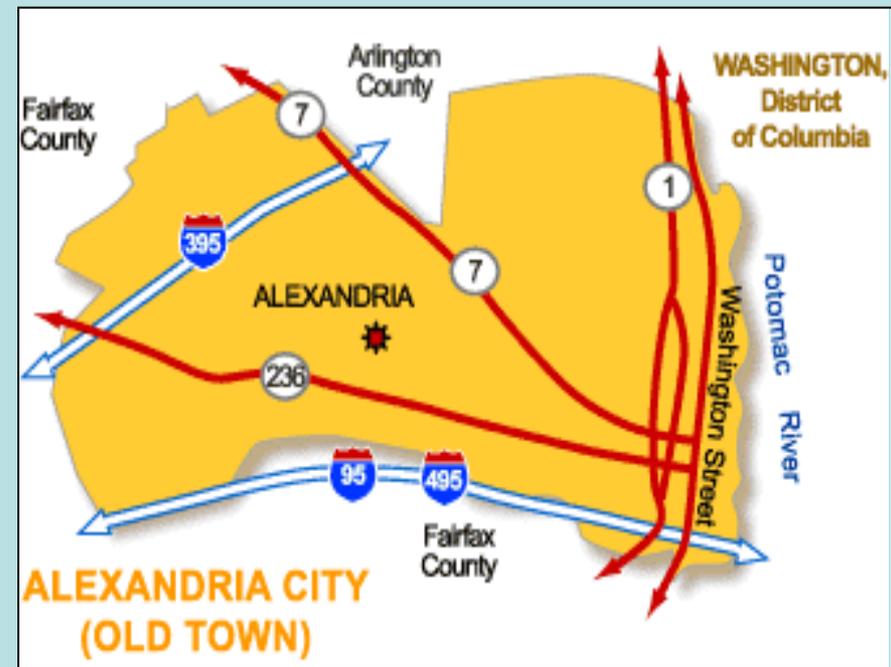


**DEPARTMENT OF ENERGY
ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANT
SITE VISIT**

**November 9, 2011
2900 Business Center Drive**

WELCOME TO ALEXANDRIA, VA

- Square miles: 15.75
- Total population: 139,966
- EECBG Award: \$1,372,800
- 100% of funds obligated
- 40% of funds expended



EECBG IMPLEMENTATION STRUCTURE

William Skrabak
Lalit Sharma
Malik Williams
Grant
Administrators

PROJECT MANAGERS

**Dennis
McKinney**
Green Workforce
Development

**Bob
Garbacz &
Erica Bannerman**
LED Traffic Lights
Replacement
& Streetlight Pilot
Project

Erica Bannerman
Energy
Conservation/Green
Building Phase II

**Shane
Cochran**
Green
Revolving
Loan & Energy
Retrofit
Program

Bill Eger
Facility LED Retrofit
City Hall Green Roof
Renewable Energy
System
Facility Energy Audits
Green Fleet

Implementation team meets monthly to discuss project specific milestones and compliance requirements

ENERGY EFFICIENCY & CONSERVATION STRATEGY (EECS)

- Consolidated appropriate goals and actions from Eco-City Action Plan to develop the EECS prior to receipt of grant funds.
- EECS four pillars:
 - **Energy** - to reduce per capita energy consumption and increase the penetration of renewable energy sources
 - **Green Buildings** - to require all new buildings to achieve LEED Gold standards by 2020 and LEED platinum standards by 2025
 - **Climate Change** - to achieve a 10% reduction of business-as-usual GHG emissions by 2012, a 20% reduction below 2005 levels by 2020, and an 80% reduction below 2005 levels by 2050
 - **Transportation** - to increase the use of existing public transportation modes and reduce the number of vehicle miles traveled



Eco-City Alexandria Summit

EECBG PROJECT OVERVIEW

GREEN WORKFORCE DEVELOPMENT

- Residents were trained for jobs available in energy efficiency/conservation, renewable energy, and weatherization fields.
- Additionally, 6 trainees received Building Performance Institute (BPI) certification to perform energy retrofit work.
- **Budget: \$102,000**



Solar Installation Training

GREEN WORKFORCE DEVELOPMENT

Company	Training Provided	Students (started)	Students (completed)	Students (drop-ped)	Still in Training	Hired
Astracor	Energy Auditor	9	5	3	0	4
Continuum Energy Solutions	Energy Auditor	7	7	0	0	1
Continuum Energy Solutions	Solar Installation	12	8	4	0	3
Green DMV	Weatherization Tech	4	4	0	0	3
HEV Plus	Weatherization Tech	11	8	3	0	2
Totals		43	32	10	0	13

- **Percent of Project Completed: 100%**
 - **Completion Date: July, 2011**

GREEN WORKFORCE DEVELOPMENT

Success Stories

EcoSafe: Established 2011

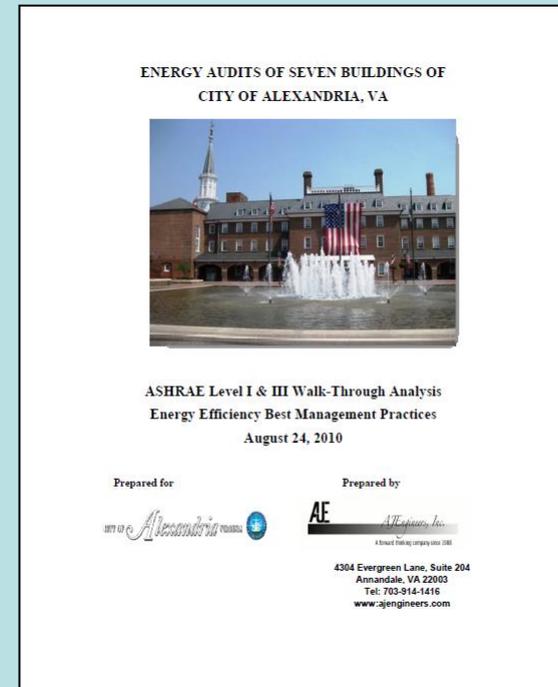
A Green Building Maintenance, Weatherization, Landscaping and Water Reclamation business developed by six students trained over a six-week period in economical and ecologically safe methods of maintaining property while using resources within the natural environment to beautify the landscape.

Job Placement for Ex-Offenders

Doyle, a father of small children, is an ARHA resident who was on the verge of eviction. He has a felony conviction from 1996 and tested poorly on an assessment of academic ability. Although his scores were low, he was given a chance to interview for the program. He was accepted, completed and was immediately hired after graduating.

FACILITY ENERGY AUDITS

- Complete energy audits of 7 City facilities
 - Firestation 205
 - City Hall
 - Courthouse
 - Chinquapin Recreation Center
 - Barrett Library
 - Torpedo Factory
 - Alexandria Health Department
- **Goals:**
 - Identify energy- and water-reduction opportunities in city facilities.
 - Provide analysis information for City's capital improvement project implementation.
- **Budget: \$89,530**



Final Facility Energy Audit Report

FACILITY ENERGY AUDITS

PROJECT MILESTONES

- **Completed Tasks**

- Completed audit process
- Received energy audit reports
- Integration in to City's Capital Improvement Program (CIP)

- **Remaining Tasks**

- Continual use of energy audit results in to Capital Improvement Program (CIP) planning process
- City outreach and education on facility energy reduction opportunities

- **Percent of Project Completed: 100%**

- **Completion Date: August, 2010**



Cooling Tower at City Courthouse –
Subsequently replaced due to results
of facility energy audit

CITY HALL GREEN ROOF

- Install vegetative green roof on Alexandria City Hall.
- Goals:
 - Reduce City Hall Energy Consumption
 - Reduce City Hall stormwater runoff
 - Provide aesthetically-pleasing roofing structure visible to public
 - Demonstrate green infrastructure to community
 - Community outreach and education
- **Budget: \$118,403 (\$4,555 leveraged City funds)**



Applying Flex Thermoplastic Polyolefin (TPO) Protective Roof Membrane

CITY HALL GREEN ROOF

PROJECT MILESTONES

- **Completed Tasks**

- Roof system structural enhancements
- Removal of old roofing medium
- Construction of roofing on West Courtyard roof

- **Remaining Tasks**

- Complete roofing installation
- Evaluate, measure, verify performance
- Community outreach and education



TPO Protective Membrane
Installed

- **Percent of Project Completed: 75%**

- **Projected Completion Date: December, 2011**

FACILITY LED RETROFITS

- Retrofit 1,704 3-ft and 4-ft T12 Fluorescent Lamps with LED lamps at City's Public Safety Center
- **Goals:**
 - Reduce energy consumption
 - Reduce lamp maintenance
 - Provide better lighting conditions for facility occupants
- **Budget: \$147,992**



LED Lamp Installation at Public Safety Center

FACILITY LED RETROFITS

PROJECT MILESTONES

- **Completed Tasks**

- Purchased and received 1,704 3-ft and 4-ft lamps
- Commenced installation 10/21/2011
- Leveraged City staff labor

- **Remaining Tasks**

- Complete installation by March 2012
- Evaluate, measure, and verify energy and GHG reductions (IPMVP)



LED Lamp Installation at Public Safety Center

- **Percent of Project Completed: 15%**

- **Projected Completion Date: March, 2012**

LED STREETLIGHT PILOT PROJECT

- The City partnered with Dominion VA Power to retrofit approximately 34 streetlights along E. Braddock, N. West, and Madison streets with LED technology.
- The pilot project will help the City and Dominion VA Power better understand operational and performance factors such as equipment life cycle costs, lighting performance, and energy usage.
- Grant funds were used to purchase LED lamps only.
- **Budget: \$44,380**

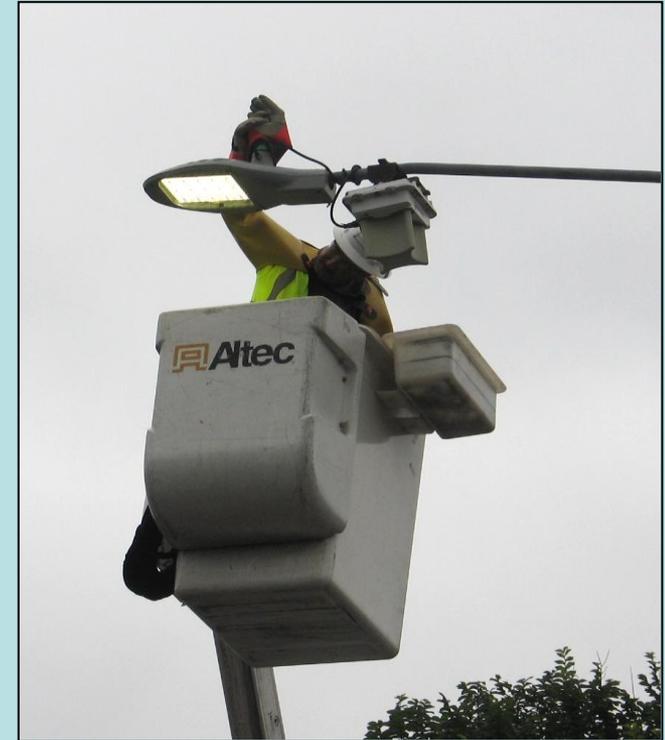


Installed LED Streetlights

LED STREETLIGHT PILOT PROJECT

PROJECT MILESTONES

- **Completed Tasks**
 - Presentation to civic association
 - Developed web page
 - Removed 34 mercury vapor lamps
 - Installed 34 LED lamps
- **Percent of Project Completed: 100%**
- **Completion Date: July, 2011**



LED Cobra head Installation

LED Traffic Lamp Replacement

- Replacement of incandescent traffic signal lamps with LED lamps
- 1,900 LED inserts purchased
- **Budget:\$97,270**



LED Traffic Light Installation

LED Traffic Lamp Replacement PROJECT MILESTONES

• Completed Tasks

- All LED lamps have been purchased and delivered.
- The incandescent lamps at 45 intersections have been replaced with LED lamps.

• Remaining Tasks

- Replace the incandescent lamps with LED lamps at 15 more intersections.



LED Traffic Light Installation

- **Percent of LED Lamps Purchased: 100%**
- **Percent of Installation Completed: 75%**
- **Projected Completion Date: June, 2012**

GREEN REVOLVING LOAN FUND & ENERGY RETROFIT PROGRAM

- Project funding provided to two residential energy efficiency programs: \$108,000 allocated to the Revolving Loan Fund and \$100,000 to Rebuilding Together Alexandria (RTA) to complete energy efficiency upgrades at a low-income, minority housing cooperative.
- **Budget: \$208,000**



RTA Volunteer Installs Weather-stripping at a Client's Home.

GREEN REVOLVING LOAN FUND & ENERGY RETROFIT PROGRAM

PROJECT MILESTONES - RLF

• **Completed Tasks**

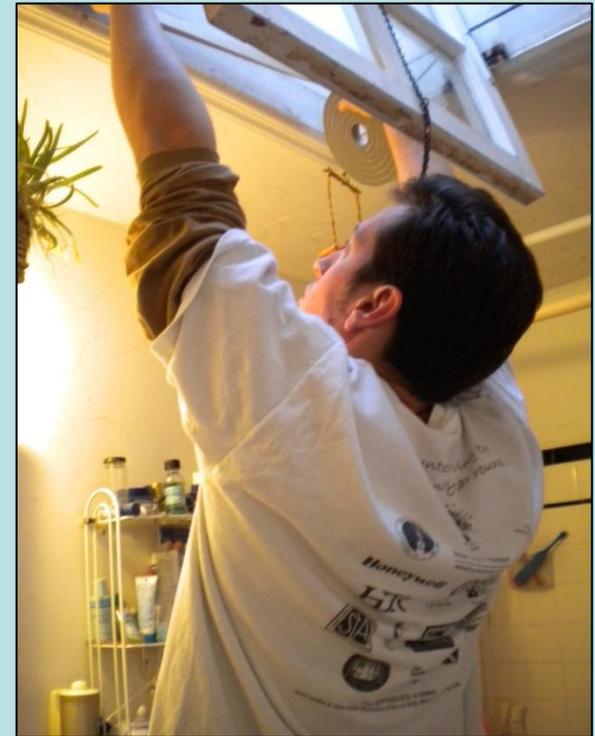
- Executed grant agreement with RTA and cooperation agreement with Arlandria/Chirilagua Housing Corporation to undertake energy efficiency improvements and community education at this 284 unit housing cooperative.
- Two outreach sessions held by RTA within community to solicit applications for participation. Volunteer partner agency identified and first full work day occurred on November 5, 2011.

• **Remaining Tasks**

- Complete installation of EE improvements at ACHC.
- One community outreach event for regarding energy conservation.
- Ongoing monitoring of energy use at ACHC.

• **Percent of Project Completed: 20%**

• **Projected Completion Date: December, 2011**



Installing Weather-stripping for a Lower-Income City Resident

GREEN REVOLVING LOAN FUND & ENERGY RETROFIT PROGRAM PROJECT MILESTONES - RLF

- **Completed Tasks**

- Executed funding agreement with Northern Virginia Regional Commission to serve as administrator of RLF.

- **Remaining Tasks**

- Complete RLF or alternative loan program design and begin marketing through partner agency.



Replacement of inefficient heating and cooling systems is expected to be a key source of loan activity.

- **Percent of Project Completed: 5%**

- **Projected Completion Date: November, 2012**

GREEN FLEET

- Expand City's green fleet program by increasing number of City-operated hybrid-electric vehicles
- Goals:
 - Reduce City fuel usage and GHG emissions
 - Demonstrate hybrid-electric vehicles in Alexandria community
 - Community outreach and education
- **Budget: \$77,931 (\$285,541 leveraged City funds)**



Hybrid Ford Fusions

GREEN FLEET PROJECT MILESTONES

- **Completed Tasks**

- Purchased 11 hybrid-electric Ford Fusion sedans and 2 hybrid-electric Ford Escape SUVs
- Placed into pool car and City operations

- **Remaining Tasks**

- Evaluate vehicle fuel and GHG reductions
- Community outreach and education

- **Percent of Project Completed: 100%**

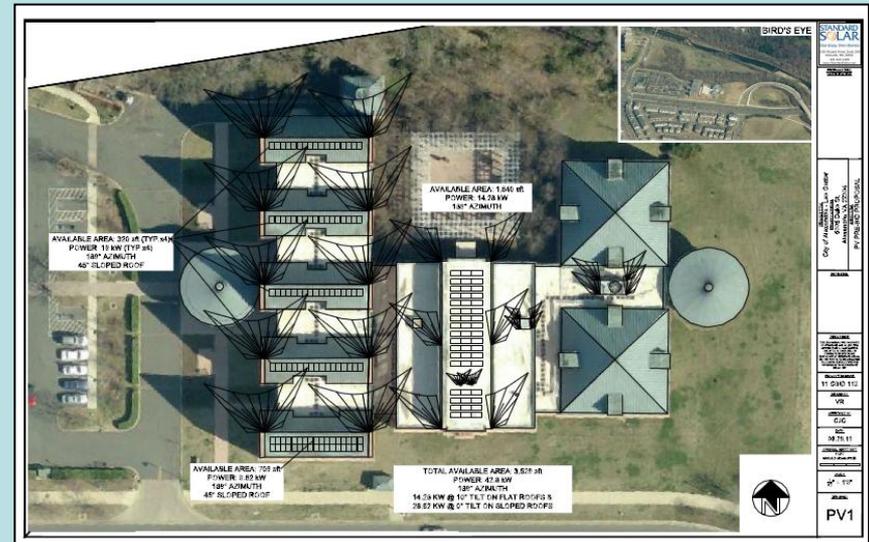
- **Completion Date: October, 2011**



Hybrid Ford Fusions

Renewable Energy System

- Design and install 40 kW solar photovoltaic system
- Locations under consideration:
 - Beatley Library –OR–
 - Lee Center
- Goals:
 - Facility energy reductions
 - City GHG reductions
 - Renewable energy demonstration
 - Community outreach and education
- **Budget: \$280,000**



Beatley Library Solar Photovoltaic Preliminary Design

Renewable Energy System

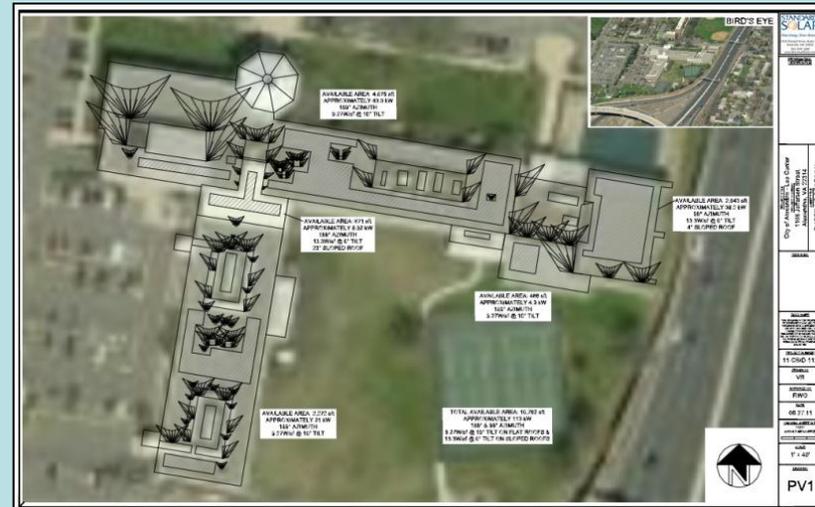
PROJECT MILESTONES

• Completed Tasks

- Three (3) site visits to each facility for engineering evaluation.
- Feasibility analysis, preliminary system design, shading analysis.

• Remaining Tasks

- Complete facility selection and design
- Permitting, system installation, and commissioning
- Evaluation, measurement, and verify energy and GHG reductions (IPMVP)
- Outreach and education



Lee Center Solar Photovoltaic System
Preliminary Design

• **Percent of Project Completed: 25%**

• **Projected Completion Date: April, 2012**

ENERGY CONSERVATION PROGRAM

Green Building Phase II

- Program goal is to reduce energy and water consumption in government and privately-owned buildings and homes. Program elements are:
 - **Virtual Green Building Resource Center (<http://www.alexandriava.gov/gbrc>)**
 - Provide practical solutions to help homeowners, renters and businesses design, build and maintain their spaces in an eco-friendly manner.
 - **Green Building Workshop Series**
 - Offer 11 free workshops and *Top 10* handouts for residents and business interested in learning about green building techniques and how to reduce their environmental footprint.
 - **Energy Assessment Pilot Project**
 - Objective is to identify common energy conservations measures applicable to conventional building types in the City.
 - Provide 12 free energy assessments.
 - **Green Building & Energy Conservation Incentives**
 - Develop a research paper on the monetary and non-monetary incentives for development and non-development projects to promote green building and energy efficiency in the City.
 - **Internal Staff Training**
 - Provide four training sessions for City staff on various green building rating systems and energy conservation techniques.

• **Budget: \$207,294**

ENERGY CONSERVATION PROGRAM PROJECT MILESTONES

Completed Tasks

- Virtual Green Building Resource Center
- 6 workshops and *Top 10* handouts
- 2 internal training
- 12 energy assessments
- Incentive research paper



Green Building Workshop at City Hall

Green Building Resource Center

Remaining Tasks

- 5 workshops and *Top 10* handouts
- 2 internal training
- Complete 6 energy assessments reports

Percent of Project Completed: 71%

Projected Completion Date: June, 2012



A high-angle photograph of a green roof. The roof is covered with a variety of succulent plants in different shades of green, some with small white flowers. The plants are arranged in a grid pattern, separated by dark, possibly black, plastic or fabric dividers. The overall appearance is dense and vibrant.

*THANKS FOR YOUR
ATTENTION*

QUESTIONS?

<http://www.alexandriava.gov/gbrc>