



# 2007

## FINAL REPORT

### OF THE

## GREEN BUILDING

## TASK FORCE

PRESENTED TO

Martin O'Malley  
*Governor*

Anthony G. Brown  
*Lt. Governor*

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*President of the Senate*

Michael E. Busch,  
*Speaker of the House*

Senator Joan Carter Conway  
*Chair, Education, Health and  
Environmental Affairs Committee*

Delegate Maggie McIntosh  
*Chair, House Environmental Matters Committee*

*December, 2007*



Maryland Department of Housing  
and Community Development



*Maryland Department of Planning*

## **Final Report: Green Building Task Force**

The Green Building Task Force was created in 2006 by an act of the Maryland General Assembly (via House Bill 1211) and became effective on July 1, 2006. The Act provides membership guidelines and rules regarding the exercise of Task Force duties and establishes the Maryland Department of Planning (MDP) and the Maryland Department of Housing and Community Development (DHCD) as the staffing agencies of the Task Force. This document serves as the final report.

## **Dedication to Delegate Jane Lawton and Senator Gwendolyn Britt**

We are greatly saddened by the loss of Delegate Jane Lawton and Senator Gwendolyn Britt.

Delegate Jane Lawton chaired the Green Building Task Force with enthusiasm, fairness, and determination. We recognize that this is just one of many environmental initiatives that she championed during her tenure in the House of Delegates. We are grateful to have had her leadership.

Senator Gwendolyn Britt served on the Green Building Task Force and ensured the Task Force completed its mission after Delegate Lawton's passing. She provided leadership and a commitment to ensure the Task Force recommendations would best serve the interests of the State.

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## Executive Summary

In recent years it has become increasingly apparent that development has far reaching and long lasting implications on the health of our natural environment. Local and state governments across the United States and around the world have begun to research how to mitigate this impact in order to preserve essential natural resources. Many involved in this research have begun to turn to green building to reduce the impact from development.

Maryland, a long time leader in environmental protection, has begun turning green. In 2001, Executive Orders from Governor Parris Glendening were issued regarding water and energy efficiency, clean power, and green building. A Green Building Tax Credit of \$25 million was created by the General Assembly that same year to assist developers in building and rehabilitating buildings according to green building standards.

In 2006, the Green Building Task Force was created by an act of the Maryland General Assembly (via House Bill 1211) and became effective on July 1, 2006. The Act provides membership guidelines and rules regarding the exercise of Task Force duties and establishes the Maryland Department of Planning (MDP) and the Maryland Department of Housing and Community Development (DHCD) as the staffing agencies of the Task Force. The Task Force was charged with determining what makes low-impact development codes and green building programs effective based on regional and national examples, evaluating incentives and disincentives to implementing a green building program, and recommending best practices to improve communication regarding a green building program to communities, businesses, and developers.

The Task Force divided into three workgroups to address the topics covered in the enacting legislation. These workgroups were to focus on residential building, commercial building, and low-impact codes. Each workgroup met between three and five times and developed recommendations. These recommendations were reviewed, edited, and approved by the Task Force at large.

Four of the more important recommendations are:

- To carry out a public education campaign with emphasis on renovation of existing buildings.
- To reauthorize funding for the Green Building Tax Credit.
- To create a Maryland Residential and Commercial Energy Retrofit Tax Credit.
- To restore the Heritage Structure Rehabilitation Tax Credit program.

While all of the final recommendations will go to the Governor and General Assembly, the Task Force felt it would be beneficial to send some recommendations to other entities including the Smart Growth Subcabinet and the Green Building Council. The final recommendations begin on page 8 of this report.

## Section I: Introduction

Maryland is projected to grow by an additional 1 million people by 2030 for a total of 6.7 million people. This translates to a forecasted 550,000 additional households by 2030 in the State (Maryland State Data Center, December 2007). Many of these households will require new homes to accommodate them.

Our State, county, and municipal governments will play a significant role in determining where Maryland's new residents will live and how much of Maryland's natural resources will be impacted by these new homes and accompanying businesses.

One of the goals of smart growth is to save our most valuable natural resources as we grow. Green building is an important part of smart growth since it encourages building near existing transit infrastructure, supports reuse of existing structures, and limits environmental impacts from new development. Green building prevents sprawl, protects forests and wetlands, reduces air pollution, conserves energy and water, minimizes waste, and reduces stormwater runoff. Although green building alone cannot prevent all impacts from new development, it is an essential tool if Maryland is to sustain its natural resources, including its remaining forests, wetlands, streams, rivers, and estuaries.

In addition, residents, policymakers, and business owners are feeling the pinch of rising energy costs and many are concerned about climate change. Green building and renovation efforts can reduce energy consumption and greenhouse gas emissions from Maryland's current buildings.

In 2006, recognizing that Maryland needed to do more to support green building efforts, the General Assembly passed HB 1211 authorizing the creation of the Green Building Task Force. The group was charged with the following tasks:

- Evaluate and make recommendations regarding methods of facilitating public demand for environmentally sensitive communities and improving low-impact sustainable development including:
  - Studying low-impact development codes around the country and green building techniques to determine what makes a program effective.
  - Evaluating incentives and disincentives to implementing a green building program and recommending best practices to improve communication regarding a green building program to communities, businesses, and developers.
  - Identifying statewide potential for low-impact development projects and the potential for cost reduction for stormwater management, road building, and other infrastructure for communities in low-impact development zoning areas.

From August to December 2007, the Green Building Task Force, along with support staff and interested parties, gathered information, heard presentations from green building experts, and met in workgroups and together as a whole, to develop a series of policy and program recommendations for the Governor, General Assembly, Smart Growth Subcabinet, and Green Building Council. Task force members included local and State government agencies, builders and architects, and nonprofit organizations.

The Green Building Task Force met five times:

- August 13, 2007, DHCD, Crownsville, MD
- September 17, 2007, DHCD, Crownsville, MD
- October 22, 2007, Maryland Department of the Environment (MDE), Baltimore, MD
- November 15, 2007, The EnviroCenter, Jessup, MD

- December 10, 2007, The EnviroCenter, Jessup, MD

At each meeting, Task Force members:

- Identified barriers to green building in Maryland.
- Discussed possible incentives to overcome the barriers.
- Heard presentations from specialists in the fields of environmental design, stormwater management, and historic preservation.
- Examined Maryland, local, and other state green building practices and programs.
- Discussed policy and program recommendations for a stronger green building program in Maryland.

To develop its recommendations, members chose to participate in one of three workgroups: Residential Green Building, Commercial Green Building, and Low-Impact Codes. Each of the workgroups discussed relevant data, best practices, and current Maryland policy and programs. The workgroup membership included task force members as well as a variety of interested parties, including architects, builders, and representatives from statewide advocacy organizations. The Task Force decided at their August 13, 2007 meeting that interested parties should participate in all workgroup discussions to capture a greater number of policy and program recommendations.

#### **Task Force Membership:**

- **Delegate Jane E. Lawton**, *Task Force Chair, Maryland House of Delegates*
- **Senator Gwendolyn Britt**, *Maryland Senate*
- **Matt Power**, *Commercial Building Workgroup Chair, Maryland Department of Planning*
- **Lee Peschau**, *Residential Building Workgroup Chair, Maryland Department of Housing and Community Development*
- **Stanley Sersen**, *Low-Impact Codes Workgroup Chair, Green Building Institute*
- **David Costello**, *Maryland Office of Smart Growth*
- **Sean McGuire**, *Maryland Department of Natural Resources*
- **Steve Pattison**, *Maryland Department of the Environment*
- **Jenefer Russum**, *Maryland Energy Administration\**
- **Beth Wojton**, *Maryland Environmental Service*
- **Hamid Omidvar**, *Montgomery County Department of Public Works and Transportation*
- **Arthur “Lex” Birney**, *The Brick Companies*
- **Dana Bourland**, *Enterprise Community Partners*
- **Julia Craighill**, *Struever Brothers, Eccles & Rouse, Inc.*
- **Julie Gabrielli**, *Gabrielli Design*
- **Tom Liebel**, *American Institute of Architects*
- **Martin Mitchell**, *Mitchell and Best Homebuilders*

- **Mark Taylor**, *Lynch Development Partners*
- **Vicki Worden**, *Green Building Initiative*

\*Note: Ely Jacobsohn, Maryland Energy Administration (MEA) stepped in to represent MEA on the Task Force after Jenefer Russum moved on to a new job in September 2007.

Support staff included:

- Dan Baldwin (Low-Impact Codes Workgroup), Jason Dubow (Residential Building Workgroup), and Nery Morales, *Maryland Department of Planning*
- Scott Whipple, *Maryland Historical Trust*
- Kathryn Howell and Caroline Varney-Alvarado (Commercial Building Workgroup), *Maryland Department of Housing and Community Development*.

Each Task Force member, along with interested parties and support staff, facilitated brainstorming and discussions at Task Force and workgroup meetings by sharing their knowledge and expertise related to energy efficiency, stormwater management, code development and administration, the building industry, smart growth, and green building. In addition, support staff (thanks to assistance from Anthony Burrows and Sean McGuire at the Maryland Department of Natural Resources) created the Maryland Green Building Task Force website at <http://www.dnr.state.md.us/ed/mgbtf.html> to post research papers and background information relevant to green building, renovations, and energy efficiency. These were made available to provide additional ideas and insights for Task Force members, support staff, and interested parties.

### **Why Green Building?**

As both the financial and environmental costs of energy and resource consumption rise, households, businesses, and policy makers will need technologies and practices that can reduce energy bills, conserve natural resources, and limit additional greenhouse gas emissions. One such technology is green building, which reduces energy use and other environmental impacts by making optimal use of site location, building orientation, building size, and building materials.

The U.S Green Building Council estimates that current commercial and residential building impacts in the United States alone account for:

- 65% of electricity consumption
- 36% of energy use
- 30% of greenhouse gas emissions
- 30% of raw materials use
- 30% of waste output (136 million tons of construction and demolition debris annually)
- 12% of potable water consumption.

These statistics demonstrate the great potential for economic and environmental benefits from green building practices.

Although often associated with energy efficiency (and reducing greenhouse gas emissions), green building provides other environmental benefits as well:

- Smart growth development, which reduces resource land consumption, encourages reuse of existing buildings, and reduces dependence on automobiles.
- Water conservation.

- Pollution reduction by reducing air pollutants and by encouraging use of recycled materials and locally processed and manufactured materials.
- Forest conservation by encouraging use of certified forest products and alternatives to wood.
- Stormwater management, which helps to protect our creeks, streams, and estuaries, including the Chesapeake Bay and the Atlantic Coastal Bays.

Green building also provides healthier work and living spaces than conventional buildings. Most often cited are the green building benefits of increased worker productivity, higher student test scores, and improved indoor air quality.

### **Concurrent Efforts**

In 2007, the Governor and General Assembly initiated a number of significant energy and environmental initiatives that will influence how public and private buildings are renovated, built, operated, and maintained in Maryland. These include EmPOWER Maryland, the Green Building Council, and the Climate Change Commission. The Governor also reinvigorated the Smart Growth Subcabinet, which will have a significant impact on building development, use and operation in Maryland. The recommendations of the Green Building Task Force are meant to complement and inform these efforts.

EmPOWER Maryland includes a statewide goal of reducing per capita electricity consumption in Maryland 15% by the year 2015; a State agency goal of reducing energy consumption 5% in one year; and a variety of new programs administered by the Maryland Energy Administration, to help reach these goals (Maryland Energy Administration website, December 2007). The new programs include:

- Maryland Energy Efficient Affordable Housing Development Program
- Improving Energy Efficiency in Existing Homes – Pilot in Prince George’s and Montgomery Counties – see <http://www.marylandhomeperformance.org>
- Energy Efficient Lighting: Change a Light, Change the World
- Energy Efficient Lighting for Maryland Department of Human Resources, Office of Home Energy Participants
- Clean Energy Schools Program
- State Agency Energy Consumption Reduction Initiative

The 2007 Maryland General Assembly created the Green Building Council (different than the previous Maryland Green Buildings Council created by Executive Order in 2001 which last met in December 2002). After conducting an extensive review of current high-performance building technologies, the Green Building Council will recommend the most cost-effective technologies that should be required in the construction of State facilities. In addition, the Council will develop an implementation plan for a State high-performance building program.

The Governor created the Maryland Climate Change Commission by Executive Order in April 2007. The Commission completed its interim report in November 2007, which included recommendations not only for preparing for the likely consequences and impacts to Maryland from climate change, but also a variety of methods to reduce Maryland’s greenhouse gas contributions, including green building.

## Section II: Task Force Recommendations

The Commercial Building, Low-Impact Codes, and Residential Building Workgroups developed their own recommendations separately. In its last two meetings, the Task Force consolidated the recommendations, edited them, and added new recommendations. At the December 10, 2007 meeting, the Task Force voted to approve the recommendations.

### 1. Recommendations to the Governor

#### a. General Recommendations

- The State should lead by example in commercial (i.e., State-owned, State-leased, State-funded) green building development.
- Identify green building certification programs that the State could endorse with a “State Seal of Approval”.
  - Local governments should then follow the State’s lead when setting their own green building requirements. This will prevent varied requirements among local jurisdictions.
  - This might require the Smart Growth Subcabinet (or other consensus review process) to decide which standards the State should endorse.
- Carry out a new education/outreach program on green building.
- Promote the Builders for the Bay process.
- For any recommendation not assigned to a specific agency, the Smart Growth Subcabinet should be charged with oversight and with assigning tasks to Maryland departments and agencies to ensure implementation of the actions and recommendations listed in the Green Building Task Force report.

#### b. Changes to Existing State Policies

- State buildings (State-owned, State-leased, State-funded)
  - See “Recommendations to the Green Building Council” (last section of the recommendations).
- Reimbursement (to builders) for cost of obtaining Home Energy Rating System (HERS) rating.
  - Entire cost or just a portion of the cost. Average cost \$250-\$500 for production builder; \$500-\$1,000 for custom builder.
- Provide financial incentives for building and buying “State Seal of Approval” homes.

#### c. Changes to Relationship and Scope of State Agencies

- Enhance appropriate state agencies authority statewide to allow for green building practices.
- The State Licensing Boards that govern construction and rehabilitation should propose a program to include Green Building and Environmental Site Design techniques education in the initial licensing process and in any existing, or future, education requirements.
- Any State code that deals with construction practices should be reviewed by the responsible agency to adopt codes that promote and remove any impediments to Green Building Practices.

- All stakeholders should be identified and engaged in the code setting process.
- Maryland Department of Environment (MDE) Stormwater Requirements
  - Allow builders and developers the opportunity to pursue offsite treatment of stormwater, especially when environmental benefits will be appreciably greater than onsite treatment options. MDE should consider this as it develops its new regulation as mandated by the Stormwater Management Act of 2007.
- Maryland Department of Housing and Community Development (DHCD) Multifamily Housing Programs
  - For the DHCD loan application rating and ranking process, substantially encourage energy and sustainable scoring and practices.
- Maryland Energy Administration (MEA) Home Performance with Energy Star program. The program includes contractor training and certification, to enable contractors to diagnose and treat whole-house energy efficiency issues in existing homes.
  - Link the program to applicable DHCD loans to ensure eligible homebuyers can participate in the program.
- There should be a repository of information about Green Building codes, practices, and projects throughout the state, and of effective practices elsewhere in the country, as well as information about true costs and potential funding sources for projects.
  - The State needs to provide a one-stop area where information on building and site codes, energy efficiency opportunities, and other green building options are provided. Currently this information is hosted by multiple State agencies.
- Ensure public utilities provide consistent energy efficiency and demand programs.
  - There appear to be a number of new initiatives on the horizon or currently being promoted by public utilities (e.g., BG&E Smart Energy Savers program). The State should coordinate among Maryland utilities to ensure cohesive, consistent programs throughout the state.

d. Training for Building and Government Professionals

- Use DHCD's existing framework, the DHCD Catalyst Training Academy, to increase the amount of Green Building education to its curriculum. Trainings should focus on:
  - Building managers to encourage green maintenance practices and repairs.
  - Local jurisdictions to encourage the development of green building programs, expedited permitting, and ordinances within the local community.
    - The State should provide technical assistance and support to local code adopters, including information for local elected officials.

- Provide green building training to builders, construction managers, and architects, and to local and State government staff throughout the state.
  - Industry could create the training materials and have the State approve and distribute them following the Governor's state housing conference model. Any practices promoted by the State should be consistent with good practices for historic preservation.
  - State agencies that focus on the effects of the built environment should have a dedicated sustainability coordinator position.
- Work with existing organizations and agencies to provide this training (e.g., DHCD Catalyst Program).
- Training on valuation of green building.
  - Life-cycle savings should be considered as part of the operating budget of buildings in order to increase the value of green building, to ensure that the extra capital cost of a green building is outweighed by the overall savings from energy efficiency.
- Influencing local government development review and local codes
  - Promote the Builders for the Bay process.
    - Remove barriers to local approvals of green buildings and green communities through the Builders for the Bay process. Consider expanding the program to remove barriers to smart growth efforts such as mixed-use development and barriers to renewable energy (e.g., solar roofs). Focus on fire department and fire access standards.
  - Provide a process to allow the State to ensure local government compliance with current energy codes. With advice from the DHCD code department, the Maryland Attorney General's Office should examine State energy code adoption and enforcement and work with the Treasurer's Office to tie enforcement to State funding. An example would be withholding State funding until compliance is ensured.
  - Fast-track programs for permits, timing, and approvals.
  - Discounts on permits for building more efficiently than code requirements as measured by REScheck or other code-approved software.
  - Provide density bonuses and lot-coverage expansions (e.g., reducing setbacks) within Priority Funding Areas.
  - Incentivize green building efforts by prioritizing or using a separate system for building permits for projects that meet certain green building standards.
  - Identify and engage all stakeholders in the code setting process.

e. Public Outreach

- Carry out a new education/outreach program on green building, with an emphasis on existing buildings, with the following components:
  - Renovation. Outreach should focus on renovation. Renovation to existing homes is our largest opportunity for sustaining our resources and limiting our development impacts—98 percent of our housing stock already exists, only 2 percent each year are new buildings added to the existing housing stock. Renovations can also mitigate the impact of utility rate increases.
    - Any practices promoted by the State should be consistent with good practices for historic preservation.
    - Focus on the most effective and sustainable techniques.
    - Air sealing and draft stopping would be the best place to start.
  - Energy Efficiency. Outreach should focus primarily on energy efficiency and cost savings. Tie to other green building themes when possible (e.g., site location, building orientation, building size, building materials) but keep it simple.
  - Behavior. Expand outreach on energy conservation behavior (e.g., use of fans instead of air conditioning, using shades and blinds to reduce energy needs, adjusting thermostat temperature to the season and to nighttime, purchasing compact fluorescent bulbs).
  - Financial assistance. Inform and promote the types of financial assistance available from the federal government, State, public utilities, local government, and others.
    - Leverage Energy Star and other similar programs.
  - Health. Outreach should focus on the health benefits of green building.
  - Benefits Measurement Label. Create and promote a simple “benefits measurement” label, similar to a Miles Per Gallon label, that could help consumers compare the energy efficiency or green building performance of one home versus another, this could include showing a “carbon footprint” amount or utility bill cost-savings.
    - The measurement would be characterized as under normal circumstances/normal use, since homeowner behavior can influence this.
    - The HERS index, annual energy consumption, and performance standards such as Energy Star Homes appear to be the best candidates so far for a “benefits measurement” for existing and new homes. REScheck could be a good candidate but it is for new homes only.

## 2. Recommendations to the General Assembly

### a. Changes to Existing Legislation

- Modify the Green Building Tax Credit - The Green Building Tax Credit was funded with \$25 million, anticipated to be used through 2011. However, due to the popularity of the incentive, the tax credits were exhausted in 2005.
  - Raise the standards for the use of the credit to promote innovative environmental solutions to include Leadership in Energy and Environmental Design (LEED) Gold or 4 Green Globes or other equivalency, and any additional items, State-specific. The additional items and equivalency will be determined by MEA in concert with the Smart Growth Subcabinet prior to the implementation of the Green Building Tax Credit.
  - Add additional funds to the Green Building Tax Credit.
  - Decrease the allowable percentage to 3% for core and 4% for shell.
  - Allow a pass-through for nonprofit organizations eligible for the Green Building Tax Credit in order to provide incentives for nonprofit groups to develop sustainable buildings.
  - Require all developers awarded tax credits to engage in outreach to provide tours, group discussions on best practices and promotion of the building as a “green” building.
  - Reclaiming old (but not historic) buildings may be a strategy for meeting the requisite number of points under the Green Building Tax Credit.
  - Recipients of Green Building Tax Credits must file a post-occupancy review and energy analysis report within 18 months to review the first 12 months of performance. The post-occupancy measurement should be tied to existing commissioning protocols. The report data will be used by the State to create a database of building performance in Maryland.
- Heritage Structure Rehabilitation Tax Credit Program
  - Encourage the rehabilitation of existing buildings by amending the Heritage Structure Rehabilitation Tax Credit Program for commercial historic buildings, restoring it to a full program with predictability for users by repealing the cap per jurisdiction, removing the aggregate cap on the program, and considering removing the per project cap (currently \$3 million).

### b. New Legislation

- Maryland Residential and Commercial Energy Retrofit Tax Credit
  - Consider a new tax credit program for renovation that focuses solely on energy efficiency. The program would be open to both homeowners and businesses. Eligibility requirements will be determined by MEA and will be coordinated with the EmPOWER Maryland initiative. The program would require a verifiable level of

energy savings. MEA will develop or adopt a protocol or standard for initial testing and follow-up verification.

- Additional incentives for homeowners.
  - Refrigerator Trade-In/Rebate Program
    - Offer rebate of \$75 to encourage homeowners and rental property owners to trade-in their old refrigerators for a new Energy Star refrigerator rebate.
  - Clothes Washer Rebate
    - Offer \$100 rebate for new Energy Star clothes washer. Almost all Energy Star washers are front loaders which are typically more expensive.
  - Air Sealing Financial Incentive
    - Offer \$0.50 per cubic feet per minute (cfm) air leakage reduction up to \$200 for existing homes. To achieve this, a pre- and post-blower door test would be required to verify leakage reduction. This is the best way to address energy consumption in most existing residential dwellings, which are leaky, and since most energy in homes goes to condition the air.
- The use of any iteration of the “Green Fund” to promote and incentivize green building.
- Promote mortgage lending practices that lead to lower energy consumption and sustainable practices. Promote the use of third party financing for energy reduction through energy usage and increase performance of commercial and residential buildings.
  - Consider buying down a ½ percentage point of mortgages, perhaps using funds from the Regional Greenhouse Gas Initiative (funds obtained through the auction of allowances).
  - State should set a goal for the percentage of mortgages that banks offer for energy efficiency and should enforce implementation of that goal.

### 3. Recommendations to the Smart Growth Subcabinet

#### a. Changes to Current Policies

- Increase incentives for development within Priority Funding Areas
  - Assess fees for development outside of Priority Funding Areas to be added to the Green Fund as a mechanism to fund additional tax credits.
- Smart Codes
  - The Smart Growth Subcabinet should oversee and coordinate review of state and local codes, and education and training for code officials and others.
    - All local laws, ordinances, and codes also should be reviewed. State agencies that must approve local plans or codes should include provisions for Green Building practices and make model ordinances available.
    - All stakeholders should be identified and engaged in the code setting process.
- Environmental site design and/or low impact development provisions should be added to comprehensive plans. Explore any green building implications in the new water resources element.
- Charge the Subcabinet with creating a Smart Growth Action Team on Green Building and Energy Conservation. The Action Team will ensure coordination of State agency efforts on energy efficiency, green energy, green building, and green communities. The Action Team also would include public and private sector partners on an as-needed and task-specific basis.
  - MEA would be the lead on energy efficiency efforts.
  - Examine ways for the state to remove barriers to the greening of existing buildings, including energy audits and renovations.
  - Measurement Issues:
    - Study ways to standardize how efficiency is measured for energy audits on commercial buildings.
    - Keep data on energy consumption to estimate decreases in greenhouse gas emissions.
  - Determine whether construction industry suppliers would help pay for programs that the government seeks.
  - Market analyses and data
    - Focus first on education of homebuyers, then conduct market analyses to determine effectiveness of the effort.
  - Identify geographic areas where green building efforts would have the greatest environmental benefit.

#### b. New Policies

- Full support of the Office of Smart Growth's Smart Sites project.
- Remove adequate public facility ordinances (APFOs).

- If used properly, an APFO can help to ensure that growth takes place in areas that can support and sustain development. However, many APFOs are currently serving (inadvertently or not) to deflect growth away from PFAs, where schools and infrastructure are at maximum capacity. So while it will be necessary to increase school and infrastructure capacities within some PFAs, it remains important to set standards for existing APFOs to achieve smarter, more predictable and more sustainable growth patterns across the State.
    - Influence this with State funds or the removal of State funds.
  - Examine the use of existing right-of-ways to support Transit-Oriented Developments (TODs).
- c. Training for Building and Government Professionals
- Ensure that developers who are awarded contracts for projects within Priority Funding Areas have smart growth and sustainable development education or background.
  - Local building code officials should receive smart growth and sustainable development education and training.
- d. Public Outreach
- Carry out a new education/outreach program on green building.

#### 4. Recommendations to the Green Building Council

##### a. Directives for the Green Building Council

- State buildings (State-owned, State-leased, State-funded)
  - All State-owned or State-leased buildings should be built or renovated to LEED Silver or 2 Green Globes or equivalent with energy performance requirements to be determined by MEA in conformance with EmPOWER Maryland.
  - State building managers should employ green techniques to building and grounds maintenance.
  - Require all future State-funded public schools be built to LEED Silver or 2 Green Globes or equivalent with energy performance requirements to be determined by MEA in conformance with EmPOWER Maryland.
  - Full and accurate cost accounting should be employed to determine cost differentials in environmental design features for State-owned buildings by linking the capital expenditures to operation and maintenance costs.
    - Of the life cycle cost of a typical office building, two percent of the cost is construction and six percent is operation and maintenance. Of that two percent, case studies show that there is only a two percent “green premium” on average. That cost can be recovered through the energy savings associated with green building techniques and practices.
  - Recognize that a balance needs to be struck when working toward green building and energy efficiency standards when working with certain historic State owned structures.
  - Recognize that all State agencies must meet SB 267 (State Buildings Energy Efficiency and Conservation Act) which requires State agencies to save 5 percent of energy use by 2009 and 10 percent by 2010.

## Section III: Maryland's Green Building Efforts

Green building efforts are not new in Maryland. These have started and stopped over the last 15 years and have had various levels of impact. This section reviews Maryland's green building efforts to provide context for the Task Force's recommendations.

### Executive Orders

One of the first efforts was Governor William Donald Schaefer's Executive Order in 1993 to form a Governor's Subcabinet for Energy Management. One of the Subcabinet's duties was to promote and facilitate "the prudent and efficient use of energy and the practice of recycling among State agencies, private businesses, local governments, and the citizens of the State of Maryland." Although inactive since the fall of 1994, the Subcabinet helped spur interagency energy use policy coordination and research (Maryland State Archives, Defunct Independent Agencies website).

Green building efforts in Maryland began in earnest when Governor Parris Glendening issued three Executive Orders in 2001:

- **Water Conservation by State Agencies.** Set a 10% water use reduction goal for State agencies and required water conservation plans for State facilities.
- **Task Force on Energy Conservation and Efficiency.** Required the Task Force to set an energy reduction goal for Maryland and to develop a strategy to reach that goal.
- **Sustaining Maryland's Future with Clean Power, Green Buildings, and Energy Efficiency.** Created the Maryland Green Buildings Council to help "green" State facilities and practices. The Council was charged with creating a High Efficiency Green Buildings Program, evaluating progress towards meeting a Clean Energy Procurement Goal, developing a Greenhouse Gas Reduction action plan, and considering additional energy efficiency and sustainability issues, providing an annual report each year. The Council completed the "2001 Maryland Green Buildings Council Report," available at <http://www.dnr.state.md.us/ed/gbcr.pdf>. The report includes a description of the High Efficiency Green Buildings Program, which includes green design and construction criteria for all State owned and leased projects, including new buildings, renovations, and interior renovations.

### State Agency Programs

In addition to the Executive Orders, many State agencies have developed and implemented programs which provide technical and financial assistance, public outreach, and incentives to facilitate public demand for green building and renovation efforts in Maryland. Also, a few State agencies enforce laws that limit environmental impacts from buildings and development.

State agencies with programs most directly related to green building and renovation efforts include the Maryland Department of Planning (Office of Smart Growth, Maryland Historical Trust), Maryland Department of Natural Resources (DNR), DHCD, MDE, and MEA.

#### *Maryland Department of Planning—Maryland Office of Smart Growth*

Stronger smart growth efforts can facilitate green building by encouraging reuse of existing structures, building near existing transit infrastructure, and reducing the overall environmental impact from development. The Smart Growth Subcabinet was established by Governor Glendening in January 1998. The Subcabinet helps implement smart growth policy, recommending to the Governor changes in State law, regulations, and procedures needed to support the smart growth policy.

In June 2007, Governor O'Malley directed the Smart Growth Subcabinet to review the State's existing smart growth programs and policies and develop a comprehensive, inclusive, forward-leaning strategy to more effectively spur and manage growth and conservation in Maryland.

The Office of Smart Growth, which develops and implements smart growth policies in Maryland, is part of the Maryland Department of Planning.

#### ***Maryland Department of Planning—Maryland Historical Trust***

Sustainability is not attainable without preserving, adapting, and rehabilitating the existing building stock. While green new construction is desirable, new construction – green or otherwise – still consumes significant amounts of resources and energy. It is important to understand that extending the useful life of the existing building stock – taking into account its massive embodied investment in energy and materials – is green practice in and of itself. In this regard, Maryland Historical Trust (MHT), Maryland's State historic preservation office, has been promoting green building practices since its inception in 1961. MHT is part of the Maryland Department of Planning.

One of the Trust's most popular and effective programs designed to assist with the rehabilitation of historic properties is the Heritage Structure Rehabilitation Tax Credit Program (RTC), which provides Maryland income tax credits equal to 20% of the qualified capital costs expended in the rehabilitation of a "certified heritage structure." Users of the commercial RTC are diverse, ranging from small business owners undertaking projects such as the rehabilitation of 331 Dover Street in Easton (two projects with retail activity on the first floor and rental residential above) to large development corporations rehabilitating historic sites with multiple buildings such as the Forest Glen project in Montgomery County.

Outcome measures for the RTC demonstrate its effectiveness in stimulating private investment in historic preservation activities across the State, with fiscal year 2007 figures showing that over \$102 million in construction activity has been leveraged by the State tax credit for commercial properties. As noted in the Final Report of the Governor's Task Force on the Heritage Structure Rehabilitation Tax Credit Program, the RTC generates an average return to the State of approximately \$1.02 during the first year after a project's completion, and \$3.31 within five years after project completion for every dollar of tax credit earned. Most importantly, tax credit assisted projects continue to promote community revitalization through the rehabilitation of historic commercial and owner-occupied residential properties. These benefits, coupled with the material and energy savings resulting from the "recycling" of historic buildings suggests that the relevance of the RTC to Maryland's smart growth and green building efforts will continue to intensify.

#### ***Maryland Department of Natural Resources***

DNR created the Environmental Design Program to advance the application of economically sound and environmentally sensitive building and site-design techniques. The program provides businesses, local governments and interested citizens with information and on-site technical assistance necessary to identify, implement and evaluate actions to enhance and restore natural resources in and around developed areas.

In addition to staff assistance, the Environmental Design Program provides a website at <http://www.dnr.state.md.us/ed> with an overview of green building, case studies of local and State government efforts, a directory of architects and engineers, guidance for property owners, contact information for technical and financial assistance, and other resources. The program also created the Green Building Network. The network brings together interested citizens and professionals working in the field of environmental design. The lead role on the network has since been turned over to the Green Building Institute because of increasing

interest and staff limitations at DNR. More information can be found at:  
[www.greenbuildinginstitute.org/GBN.html](http://www.greenbuildinginstitute.org/GBN.html)

As part of its reorganization, DNR created the Office for a Sustainable Future in August 2007. The office works to gather information, analyze trends, develop sustainability plans, coordinate actions, and measure results under the BayStat and StateStat efforts. The Environmental Design program was moved under the new office.

### ***Maryland Department of Housing and Community Development***

The mission of the Department of Housing and Community Development (DHCD) is to “work with partners to finance housing opportunities and revitalize great places for Maryland citizens to live, work and prosper.” As an early proponent of smart growth, DHCD understands that sustainable development, including green building, is a key component in the creation and preservation of affordable/workforce housing that is available within vibrant, thriving, and healthy communities. DHCD carries out its mission by providing financing to multifamily rental housing projects, offering fixed-rate mortgages to first-time homebuyers along with other sustainable homeownership programs, and innovative and effective neighborhood revitalization programs that include technical assistance and training. Also, DHCD houses the State’s building codes administration. These activities are described briefly below. Additional information about DHCD is available at [www.dhcd.state.md.us](http://www.dhcd.state.md.us) or [www.mdhousing.org](http://www.mdhousing.org).

DHCD’s Multifamily Housing Development Program annually funds the new construction or renovation of approximately 2,700 affordable rental housing units throughout the State. Through its selection process, DHCD promotes projects that demonstrate energy efficiency and sustainable building practices by providing significant incentives through its funding selection process. These incentives will be augmented in 2008 and will include a proposed base level of energy efficiency and sustainable features expected to be achieved by all projects receiving State funding.

DHCD’s Single Family Homeownership Programs provide mortgage funds to create statewide homeownership opportunities for income-qualified, first-time homebuyers and for persons with disabilities, and include programs to assist with homeownership preservation. Most single family mortgages are provided to households purchasing an existing home in an existing community. Financing for new construction is minimal and is limited to homes located in Priority Funding Areas (PFAs), as defined by the State.

DHCD’s Single Family Special Loans Programs provide financing for rehabilitation and weatherization home modifications that improve basic livability and increase energy conservation for low- and moderate-income households. These programs also meet other unique housing needs including financing for lead paint hazard reduction.

DHCD’s Division of Neighborhood Revitalization supports community revitalization activities that protect and improve neighborhood resources, maintain and enhance existing residential and commercial structures, and provide adequate public facilities and infrastructure. In addition, the Division houses approximately 12 technical and financial assistance programs that provide local nonprofit and municipal leaders with access to a range of community revitalization and development resources that help them leverage new public and private investment for a range of priority smart growth initiatives including:

- improving basic infrastructure;
- creating new small businesses and housing opportunities where infrastructure already exists;
- rejuvenating traditional business districts and cultural amenities;
- reusing historic sites for new community uses;
- upgrading parks and playgrounds;

- providing supportive social services; and
- building family assets.

The Division's Catalyst Training Academy provides training and education on new building codes, green building adaptability and related topics to local and State government agencies, builders and developers, community development corporations, architects, construction managers, homebuyers, and homeowners. Training sessions on green building techniques are currently being added to the Catalyst 2008 calendar.

DHCD's Maryland Codes Administration helps to ensure that buildings erected in Maryland meet applicable standards for health and safety. Maryland's building codes law is called the Maryland Building Performance Standards (MBPS). It requires each local jurisdiction in Maryland to use the same edition of the International Building Code (IBC) and the International Residential Code (IRC). The State has modified the IBC and the IRC to coincide with other Maryland laws.

The 2006 International Energy Conservation Code (2006 IECC) is now part of the MBPS and therefore applies throughout the State of Maryland. The option exists for local jurisdictions to amend the MBPS, but they can only make the energy code (i.e., the 2006 IECC) more stringent, not less stringent. Local jurisdictions enforce the codes – the State does not.

The IECC is developed and updated every three years by the International Code Council (ICC). Approximately six months later, Maryland adopts the most updated ICC codes, following State administrative procedures. The U.S. Department of Energy (DOE) provides software that supports the IECC and this simplifies its use. This software is called REScheck for residential property and COMcheck for commercial property and can be downloaded at the DOE web site at no cost.

A majority of the Maryland building code permit administrations (i.e., the local jurisdictions that issue building permits) require that a certificate printed from the software be provided with building plans and specifications. In addition to the use of REScheck to determine code compliance, the 2006 IECC indicates that local jurisdictions are allowed to accept Home Energy Rating System (HERS) ratings as proof of compliance. HERS raters are typically more knowledgeable and experienced with energy consumption modeling and building science than local code inspectors and the ratings can offer far more information about energy consumption than REScheck. Several jurisdictions have other compliance certificate requirements, but they must meet or exceed the IECC requirements.

Maryland, by adopting the 2006 IECC, is being proactive in conserving energy through building design. It is important to keep in mind, however, that the general building codes are designed to establish minimum requirements relating to public health, safety and general welfare. Designing buildings for sustainable or green construction is to design beyond this minimal code.

#### ***Maryland Department of the Environment***

A number of MDE regulations and programs (and a few DNR-administered programs), many implemented at the local level, help to reduce the environmental impact of new development, leading to greener building. These include protection and mitigation requirements for wetlands and forests, stormwater management regulations, critical area requirements, soil erosion controls, and wetland and riparian buffer requirements, among many other restrictions. The most recent change is MDE's development of new stormwater regulations to implement the Stormwater Management Act of 2007.

## ***Maryland Energy Administration***

MEA provides technical and financial assistance to local and State government, commercial builders, nonprofit organizations, and (to a lesser degree) homeowners for the use of renewable energy, energy efficiency and conservation retrofits, and green building efforts. To accomplish this, MEA administers a variety of programs.

The Green Building Tax Credit was created by the Maryland General Assembly in 2001 (HB8) and was administered by MEA. The tax credit allocated \$25 million to promote green building practices in Maryland. The tax credit is worth up to 8% of the total cost (hard and soft costs of construction) of the building. By the end of 2005, all of the funds allocated had been committed. Examples of projects that used the tax credit include:

[The Natty Boh Building](#), Rehabilitated mixed-use, Baltimore City

The National Bohemian (Natty Boh) Building was the first building to use the Maryland Green Building Tax Credit. The building is named according to its use in previous years as the brewery of National Beer. The ten-story, 200,000 square foot tower was rehabilitated to house a small storage facility, as well as residential, office, and retail space. The Natty Boh Building used \$1.2 million of the Green Building tax credit. Notably, this project also received State and federal Rehabilitation Tax Credits. In this respect, the project is a model of how historic preservation and green building practices can be complementary approaches to successful building rehabilitation.



[Century Engineering](#), New office space, Hunt Valley

Century Engineering used \$456,000 of the tax credit to construct its headquarters in Hunt Valley. The building is 58,000 square feet.



Other projects funded by the tax credit were [Eastern Village CoHousing](#) (Rehabilitated multi-unit residential in Silver Spring), [Village Crest Retail](#) (New retail and office space in Ellicott City), [Bowie Corporate Center](#) (New office space in Bowie), [Waverly Gardens](#) (Multi-unit senior housing in Woodstock), [Waterview Overlook](#), (New multi-unit residential in Baltimore City), [Tower Oaks](#) (New hotel, fitness center, offices, and multi-unit residential in Rockville), [Manekin](#) (New office space in Columbia), [Eldersburg Main Street](#) (New retail in Eldersburg), Icehouse Center (Rehabilitated office space in Baltimore City), [Village West](#) (New mixed-use in Baltimore City), [Annapolis Junction](#) (New office space in Annapolis), and [Captain's Galley](#) (New multi-unit residential in Crisfield).

Eligibility requirements fall into three categories: building type, building location, and the extent to which the building meets green building standards:

**Building Type.** Eligible buildings must be located in Maryland and be primarily non-residential with at least 20,000 square feet of interior space, and/or a residential multi-family building with at least 12 dwelling units, containing at least 20,000 square feet.

- **Building Location.** New construction must be located on a qualified brownfields site or located in a PFA and not on wetlands. In the case of rehabilitation, the structure must be located in a PFA or the rehabilitation cannot be an increase of more than 25% in the square footage of the original building size.
- **Green Building Standards.** For both new construction and rehabilitation, buildings must meet certain levels for energy efficiency, have a Leadership in Energy and Environmental Design (LEED) rating of Silver or better, and meet criteria for two of the following credits in the LEED

rating system: light pollution reduction, water use reduction (water efficiency), and construction waste management. Note that other rating systems, such as Green Globes, did not exist when the Green Building Tax Credit was first established.

MEA has administered the Community Energy Loan Program (CELP) since 1989. CELP provides local governments and nonprofit organizations in the State the opportunity to reduce their operating expenses by identifying and installing energy conservation improvements. CELP allows borrowers to use the cost savings generated by the improvements as the primary source of revenue for repaying the loans. Originally funded with \$3.2 million in seed money, CELP funds approximately \$1.5 million in new projects each fiscal year.

To date, CELP has achieved the following (Source: Ely Jacobsohn, MEA, December 2007):

- 56 loans (approximately \$14 million) to 31 non-profits and 25 local governments (including 20 public school systems).
- Total energy savings of 101,000 MMBTU (million BTUs).
- Total cost savings of \$3.7 million per year.
- Average loan \$254,669, average payback of 3.84 years, average interest rate of 2.5%.

MEA also administers the State Agency Loan Program (SALP) which provides zero-interest loans to State agencies for energy conservation projects. The program requires that projects be cost effective since the savings generated by the improvements are the source of funds to repay loans. The loans can be used for technical assistance studies, design, construction, and fees for special services. The program was capitalized between fiscal 1991 and 1996 with \$3 million in Energy Overcharge Restitution Trust funds. The funds are also used to supplement Energy Performance Contracts (EPCs). EPCs are agreements between the State and a contractor in which the contractor installs energy saving technologies in State facilities. The State repays the contractor with the savings achieved by using the energy saving technologies.

SALP has achieved the following as of August 2007 (Source: Ely Jacobsohn, MEA, December 2007):

- 61 zero-interest loans, totaling \$16.5 million, to State agencies since 1991 (on average, three loans each fiscal year).
- Estimated avoided energy costs of \$2.76 million each year.
- In fiscal year 2007, SALP has funded projects that are expected to reduce State agency energy consumption by 5.4 billion BTUs and should avoid \$103,998 in energy costs each year.
- The fiscal year 2007 SALP energy reductions are equivalent to eliminating 1,120 tons of carbon dioxide, 16,000 tons of sulfur dioxide, and 5,600 tons of nitrogen oxides from Maryland power plants each year.

MEA has administered the Solar Energy Grant Program since 2005. This program provides funding for a portion of the cost to install certain qualifying solar energy systems:

- Solar water heating property: 20% of system costs, \$2,000 maximum.
- Residential photovoltaic property: 20% of system costs, \$3,000 maximum.
- Nonresidential photovoltaic property: 20% of system costs, \$5,000 maximum.

## **Section IV: Other Green Building Efforts and Initiatives**

This section provides a sampling of green building policies and programs implemented by county and other local governments in Maryland as well as activities taking place in other states. In addition to providing ideas for green building efforts, this section demonstrates that green building and sustainable development activities are increasing not only in Maryland, but also around the country.

### **Local Green Building Initiatives**

Some notable local government green building initiatives in Maryland include efforts by Anne Arundel, Baltimore, Montgomery, and Howard Counties, Baltimore City, and the City of Gaithersburg.

#### ***Anne Arundel County***

In 2002, the Anne Arundel County Commission passed Resolution 27-02. This resolution seeks LEED Certification by using green building techniques and practices in the implementation of County capital improvement projects. These projects aim to maximize energy efficiency and resource conservation techniques in county-owned buildings and encourage the private sector to voluntarily use environmentally sensitive design in new development.

#### ***Baltimore County***

The Baltimore County Council passed a Green Building Tax Credit bill in 2006. Bill 85-06 defers 100% of county property taxes on commercial buildings that receive and can document a LEED Silver rating. The credit is good for ten years and \$5 million has been set aside for the credit. No buildings have applied for the tax credit yet but the county has been contacted by several interested parties.

#### ***Montgomery County***

Montgomery County passed a law in 2006 requiring certain non-residential and multi-family residential buildings to meet green building standards. Bill 17-06 states that new buildings and renovations/rehabilitations with at least 10,000 square feet of gross floor area need to achieve particular LEED ratings as follows:

- A building that receives public funding for at least 30% of the cost of its construction or modification must be built to LEED Silver standards.
- Private buildings must be built to LEED Certification standards.
- The law allows the county to employ or verify equivalent standards to LEED.

#### ***Howard County***

In 2007, Howard County Executive Ken Ulman instituted a Green Building Initiative. The goal of the initiative is to make the county a model green community through implementation of sustainable development and energy efficiency practices. The effort addresses both private and public sector growth and rehabilitation.

In July 2007, the County Council passed Bill No. 47-2007. The bill establishes green building standards for public and private buildings in Howard County and will take effect in July 2008. The bill stipulates that new publicly funded buildings (30% or more county funding) larger than 10,000 square feet must attain a LEED Silver rating and new private buildings larger than 50,000 square feet must attain a LEED Certified rating.

The County Council also adopted initiatives focused on the private sector as well. The Council passed Bill No. 48-2007 to create a Green Neighborhood Allocation and Resolution No. 90-

2007 to adopt a Housing Unit Allocation Chart for fiscal year 2008 that contains 100 Green Neighborhood Allocations. Resolution No. 116-2007, adopted in October 2007, creates a Green Neighborhood Checklist that provides a list of options to create a Green Neighborhood Site and Home.

The County, aware of the impact of the Maryland Green Building Tax Credit, wanted to incentivize green building locally through financial means as well. Bill 49-2007, passed in July 2007 and effective in July 2008, establishes tax credits for green building. For new construction, a five-year tax credit establishes discounts of 25%, 50%, and 75% for new LEED Silver, Gold, and Platinum buildings respectively. For any existing building that meets LEED Silver, Gold, or Platinum there is a three-year tax credit for 10%, 25%, and 50% respectively. Buildings can receive the three-year tax credit after the completion of the five-year credit if the building is re-commissioned and receives a LEED-Existing Building certification.

### ***Baltimore City***

The Baltimore City Council created a task force on “Sustainable Buildings Guidelines and Standards for Public and Private Construction and Rehabilitation Projects”. Their final report was published in April 2006. The report, which includes short-term goals and long-term recommendations, focuses on green building and sustainable communities. Short-term goals for the public sector included creating an Office of Sustainability within the Baltimore City Department of Planning, ensuring that new City projects were built to the LEED Silver Rating, use of green building practices (where practicable) for Minor City Projects, and use of green building practices in 5% Net Present Value City Funded Projects. Short-term goals for the private sector included developer incentives and ensuring that the market establishes Green Zones. The final short-term goal was to develop a Green and Healthy Housing Program by stabilizing the housing stock. Long-term recommendations included:

- identifying sustainable sites;
- studying and planning for water conservation, use, and management;
- addressing green transportation issues and energy conservation;
- ensuring clean air;
- ensuring a certain level of material resource conservation; and
- creating Sustainable Development Communities.

In August 2007, Baltimore City passed Ordinance 07-0602 requiring all commercial buildings greater than 10,000 square feet to be certified at the LEED Silver level by July 2009 (i.e., the beginning of fiscal year 2010)

<http://legistar.baltimorecitycouncil.com/detailreport/?key=3289> .

The City also passed Ordinance 07-0582, which transformed the Commission on Resource Conservation and Recycling into the Commission on Resource Sustainability;

<http://legistar.baltimorecitycouncil.com/detailreport/?key=3257> and Ordinance 06-0506, establishing the Baltimore City Office of Sustainability;

<http://legistar.baltimorecitycouncil.com/detailreport/?key=3096>. A director has been named.

### ***City of Gaithersburg***

The City of Gaithersburg’s Green Building Initiative promotes green building education and training, incorporates green building in municipal projects, and promotes green building in private development projects.

Gaithersburg created a Green Building Incentive Program to ensure that any recommendations made through their initiative would be supported by the private sector. If a project obtains

LEED certification there is a discount on building permit fees according to the level of certification. For buildings that met LEED Platinum Certification there is a 50% reduction in the building permit fee. For LEED Gold, a 40% reduction; LEED Silver, a 30% reduction; and LEED Certified, a 20% reduction.

## Green Building Initiatives in Other States

### California

In response to Executive Order D-16-00, the California Sustainable Building Task Force prepared a report, *Building Better Buildings: A Blueprint for Sustainable State Facilities*<sup>1</sup>, which recommends strategies to incorporate sustainable building practices into the development of State facilities, including leased property.

In 2003, the task force issued a progress report, *Building Better Buildings: An Update on State Sustainable Building Initiatives*<sup>2</sup>, on the state's sustainable building efforts and listed the following accomplishments:

- Built the first LEED Gold state-owned office building in the country, the Education Headquarters Building, which saves taxpayers \$500,000 a year in energy costs.
- Provided funding and technical assistance to support the work of the Collaborative for High Performance Schools, which led to the construction of 13 high performance schools.
- Incorporated sustainable building performance standards in over \$2 billion of state construction and renovation contracts.
- Finalized the most comprehensive economic analysis of green building developed to date, *The Costs and Financial Benefits of Green Building*<sup>3</sup>, which demonstrates that sustainable building is cost-effective.

California originally used their own green building standards, referred to as Tier 1 and Tier 2 Energy Efficiency. Tier 1 contained mandatory requirements, and Tier 2 contained additional but voluntary standards. Vaguely worded and overly prescriptive specifications made implementation of these standards difficult and prevented participation from some interested parties. After three years of struggling to create an effective program with homegrown standards, California decided to use LEED.

In December of 2004, Governor Arnold Schwarzenegger signed Executive Order S-20-04, which required green building certification for new state buildings and state buildings undergoing significant renovation. One of the most successful green state buildings in California is the Capital Area East End Complex in Sacramento, which was the largest state building project in California history. As a result of incorporating green building design techniques, it saves approximately \$400,000 a year in energy costs.

### New York

Legislation passed in 2000, Part II of Chapter 63 of the Laws of 2000, established a Green Building Tax Credit against business and personal income taxes. The program provides tax credits to owners and tenants of large commercial and residential buildings and tenant spaces which meet certain "green" standards focused on energy efficiency, indoor air quality, and other environmental impacts.

To date, seven buildings have been issued Credit Component Certificates. Two examples of buildings that used the tax credit are:

**1400 5th Avenue, New York City**, 1400 5th Avenue, LLC and Full Spectrum Building and Development. Condominium. Tax credit of \$1.7 million. The project



promoted the co-location of retail and housing in Harlem. The development covers 225,000 square feet, including 30,000 square feet of retail space. For more information, go to [www.1400on5th.com](http://www.1400on5th.com).

**959 8th Avenue, New York City**, Hearst Communications, Inc. Office Building. Tax credit of \$5 million. The project is a major addition to the existing Hearst building. The pre-existing six-story Hearst Magazine Building was built in 1928 and landmarked in 1988. The renovation required approval by the City's Landmarks Preservation Committee. For more information, go to [www.hearstcorp.com/tower/](http://www.hearstcorp.com/tower/).



Other projects receiving the State's tax credit included 625 Broadway in Albany, 20 River Terrace in Battery Park City, Octagon Park at 888 Main Street on Roosevelt Island, One Bryant Park, and the Goldman Sachs Building in Battery City Park.

Eligible buildings (not on freshwater or tidal wetlands requiring a state or federal permit) include hotels and office buildings having at least 20,000 square feet of interior space, residential multi-family buildings (at least 12 units) having at least 20,000 square feet of interior space, residential multi-family buildings (at least 2 units) with at least 20,000 square feet of interior space (provided at least 10,000 square feet is under construction or rehabilitation in any single phase), or any combination of those mentioned above.

There are six different credit components for which the taxpayer might be allowed a credit. Each credit component has its own requirements, a formula for calculating the amount of the credit, and a cap. A taxpayer might be allowed one or more of these components, with certain restrictions. The components are listed below:

- Whole Building credit component (owner or tenant)
- Base Building credit component (owner)
- Tenant Space credit component (owner or tenant)
- Fuel Cell credit component
- Photovoltaic Module credit component
- Green Refrigerant credit component

The statute also lists specific eligibility requirements, covering the categories listed below:

- Energy use:
  - New construction. No more than 65% of energy use allowed under the New York State Energy Conservation and Construction Code.
  - Rehabilitation. No more than 75% of energy use allowed under The New York State Energy Conservation and Construction Code.
  - Other standards set by the New York Department of Environmental Conservation in effect at the time placed in service.
- Compliance with existing regulations
- Indoor air quality
- Mechanical plant commissioning

- Recycling
- Plumbing fixtures
- Notices to tenants of tax credit opportunity and tenant guidelines for energy efficiency, air quality, and recycling
- Building materials, finishes, and furnishings

An eligibility certificate from an architect or professional engineer licensed to practice in New York State is required each year and must certify that the building and/or tenant space remains green and that any fuel cells, photovoltaic modules, and air conditioning equipment for which a credit is being claimed also remain qualified.

## Section V: Cost and Energy Reduction Analysis, Barriers to Building Green

HB 1211 requested the Task Force to identify the “statewide potential for low-impact development projects and the potential for cost reduction for stormwater management, road building, and other infrastructure for communities in low-impact development zoning areas.”

At the Task Force’s September 17, 2007 meeting, MDE emphasized that there is a potential for low-impact development on every building site and that the main impediments are local building codes and zoning requirements, e.g., setbacks.

To explore the potential for cost reduction from green building, Task Force staff obtained a summary of recent studies and data regarding green building costs from Green Building Council staff.

Despite the results of the cost and energy reduction analyses, the Task Force also noted that barriers remain to building green. This section describes some of the barriers identified by Task Force members.

### Summary of Recent Green Building Cost Studies and Data

Overall, recent studies and data regarding green building costs from Green Building Council staff demonstrate that upfront costs for green building are decreasing. In 2002, staff for the Maryland Green Building Council learned from green design planners and implementers in Seattle, Washington and Portland, Oregon that green building cost between 3 and 5 percent more than conventional buildings. They felt that most of the higher cost was due to a learning curve in working with green building technologies and techniques. In 2003, as noted in the California case study, the report *The Costs and Financial Benefits of Green Building*<sup>4</sup> was completed. This study, which analyzed 33 government-owned facilities across the country, demonstrated that “the average premium for these green buildings is slightly less than 2%.” The study also concluded a ten-fold return on investment by government. In July 2007, the report *Cost of Green Revisited*<sup>5</sup> by Davis Langdon concluded that “there is no significant difference in average cost for green buildings as compared to non-green buildings.”

Even if upfront costs were not decreasing, green building can help to reduce long-term costs of operations and maintenance.

### Barriers to Building Green

While recent studies show decreased green building costs over time, there are barriers to building green. Although these can be overcome, green building programs will not be effective without recognizing these barriers. Some barriers include the following:

- **Residential.** Most homeowners are not willing to bear greater upfront costs to purchase a green home. For residential builders, even if there is a net savings to the resident, there is an additional cost to the builder (although green premiums appear to be decreasing) which can present a barrier.
- **Commercial.** Many commercial developers do not retain the building and construction; therefore, they do not benefit from decreased energy and water costs.
- **Government.** Government budgets are divided between capital and operating funds. As a result, decreased operating expenses (as a result of green building practices) do not result in increased money available for capital funds. Government codes and regulations can present a barrier to innovative green building efforts.

In all cases, additional barriers include:

- **Outreach and Training.** There is a significant need for outreach, education, and training in every sector regarding green building, including local and State government, builders and developers, architects, construction managers, homebuyers, and homeowners.
- **Lack of Financial Incentives.** Although green premiums appear to be decreasing, there is still a need to provide financial incentives to allay upfront costs and to address the learning curve associated with using and implementing new technologies and techniques.

## Section VI: Key Findings of the Three Workgroups

The following section describes the main themes discussed by each workgroup.

### Commercial Building Workgroup

The Commercial Building Workgroup discussed the primary barriers, incentives, and requirements for commercial green building in Maryland. The group included members representing local government, commercial developers, green building advocacy groups, and state agencies. They met three times in the fall:

- September 12, 2007 at the Maryland Department of Planning, Baltimore City
- October 10, 2007 at the National Bohemian Building, Baltimore City
- November 5, 2007 at the Maryland Department of Planning, Baltimore City

The group agreed to focus on three primary goals:

- Development of realistic, tangible recommendations that can engender change in Maryland.
- Identification of ways to increase the promotion and outreach of green building techniques and benefits.
- Identification of ways to simplify the green building process.

The workgroup recommended several areas for action by the task force. Broadly, the areas were: 1) outreach and education for building managers; 2) simplification of codes and regulations; 3) incentives; 4) measurement methods; 5) the Maryland Green Building Tax Credit; 6) State leadership-by-example in its own buildings; 7) reduction of barriers to green building.

#### *Outreach and Education*

The workgroup identified building managers as an audience for outreach and education. The workgroup believed that one barrier to sustainable features and updates to existing commercial buildings is a lack of awareness of green techniques by building managers. Many managers have established ways of doing maintenance work. The workgroup suggested that getting information about these techniques and energy savings, and simplifying the message, would be effective.

#### *Code Simplification*

Although there was disagreement on how best to simplify existing building codes, the workgroup agreed that if the State added additional bureaucratic layers and codes to the green building process, many developers who were not convinced about the benefits to environmental design would be reluctant to participate in the program.

#### *Incentives*

Another barrier identified by the workgroup was the lack of sufficient incentives to build green. Because many developers sell the buildings they develop, they do not benefit from the energy efficiency measures installed in the building. While Maryland has one of the few state-level green building tax credits, the funding has not been renewed and all tax credits have been allocated. The group discussed additional incentives that could be developed by the State of Maryland, including additional Green Building Tax Credits, a gap financing program, and expedited permitting at the local level.

Conversely, many workgroup members were concerned that too many incentives for basic green features contributed to the idea that environmental design has a significantly higher cost than conventional building. The group looked into ways to balance the need to create

incentives for builders who are innovative, while not rewarding those who integrate features that are not outside the ordinary.

### ***Measurement Methods***

The workgroup discussed two broad methods of measurement of sustainability: reductions in energy consumption and LEED or Green Globe standards. The membership believed it was important to identify how the State would identify green improvements for funding and other state-level goals.

### ***Modification of the Green Building Tax Credit***

Because all of the Maryland Green Building Tax Credits have been allocated, the workgroup determined there should be more money added to the program. In addition, they suggested the following changes:

- Increase the standards for recipients to ensure the credit goes only to those developers who are truly innovative and take on greater risk.
- Decrease the percentage of construction costs eligible for the tax credit because the current incentive is more than is needed.
- Create a pass-through so that nonprofits can benefit from the incentive.

### ***State Leadership***

While the workgroup acknowledged that the Green Building Council, led by the Department of General Services, will take the lead on State green building (high performance buildings), they recognized the State's large holdings of properties across the State. As such, they suggested that Maryland might lead by example in green construction and maintenance of state buildings, as well as creating requirements in agency-level funding mechanisms requiring or encouraging green construction by grant or loan recipients.

### **Low Impact Development Codes Workgroup**

During its first meeting, the Low Impact Development Codes Workgroup discussed the workgroup's focus. The term Low Impact Development (LID) was coined in Prince George's County in 1990 and has come to refer to development practices that attempt to re-create pre-construction hydrologic conditions through appropriate stormwater management practices. The workgroup thought that simply discussing LID would limit the scope of recommendations that the workgroup would ultimately render. Instead they decided to discuss all codes that could incorporate green building techniques, practices, or materials. The workgroup met three times:

- September 13, 2007 – The EnviroCenter, Jessup, MD
- October 11, 2007 – The Maryland Environmental Service, Millersville, MD
- November 6, 2007 – The EnviroCenter, Jessup, MD

The workgroup discussed many issues over the course of the three meetings and made recommendations to the task force for review. The recommendations were categorized as those related to smart growth, those meant to direct the Green Building Council, and general recommendations that the workgroup wanted the task force to categorize.

### ***Smart Growth***

Smart growth is a principle that centralizes high-quality development around existing urban cores in order to minimize the effect of development on rural resource lands. The workgroup decided that while the main focus of smart growth is on site selection, there is a correlation between smart growth and green building; namely, the attempt at reducing the environmental impact of growth. In a climate of conservation and protection of resources (mainly water and

energy), the creation of living spaces designed to reduce energy consumption and reduce nutrient loads from runoff on developed land are in increasing demand. The use of green building techniques in conjunction with smart growth principles could result in development and redevelopment that conserves resources to such an extent that a demand is created within the marketplace.

### ***Green Building Council***

The Green Building Task Force was created to recommend methods for increasing the amount of green building in Maryland by identifying barriers and offering solutions. Another entity, the Green Building Council, was enacted through legislation by the 2007 General Assembly. The council is charged with reporting to the Governor on an annual basis about the ability for new State buildings to be built according to a green building standard. Since the Task Force sunsets at the end of 2007 and the council first met in November 2007, the workgroup decided that recommendations based on their findings would help the Council find a place to begin their efforts.

### **Residential Building Workgroup**

The Residential Building Workgroup discussed some of the primary barriers, incentives, and needs for residential green building in Maryland. The group included members representing the State legislature, residential builders, a green building advocacy group, and State agencies. They met five times in the fall at DHCD in Crownsville, Maryland:

- September 6, 2007
- September 26, 2007
- October 19, 2007
- November 5, 2007
- December 4, 2007

The workgroup reviewed Maryland's current efforts to encourage the greening of residential buildings, including multifamily housing. Over the course of the workgroup's five meetings, the following topics were discussed: 1) facilitating homebuyer demand for "green" homes; 2) renovation; 3) coordinating State efforts; 4) providing builder and developer incentives; 5) addressing local development codes; 6) providing homebuyer incentives.

### ***Facilitating Homebuyer Demand***

The workgroup noted that to facilitate homebuyer demand for green homes the State needed a clear, simple definition of "green building" to provide to the general public. Measurements and scores, such as the Home Energy Rating System (HERS) and REScheck, were discussed as a means to communicate how "green" a home was compared to other homes.

The workgroup also discussed development of a "State Seal of Approval" which could help the public recognize "green" homes. This approach would require a concurrent education and outreach campaign. Instead of a new certification process, the "State Seal of Approval" would identify existing standards and rating systems that, if met, would receive the State seal.

Another approach discussed to facilitate homebuyer demand was including an option for homebuyers to identify energy ratings on the Multiple Listing Service when searching for homes.

### ***Renovation***

The workgroup agreed that the largest opportunity for reducing the environmental impact from homes was to focus primarily on renovation of existing housing stock.

### ***Coordinating State Efforts***

The workgroup noted that the State needed to begin coordinating its efforts that related to green building and energy efficiency. The workgroup expressed concern that there was no single organization that was coordinating efforts or to which a resident could go to get information on efforts and incentives available through all State agencies. The workgroup proposed identifying the Smart Growth Subcabinet as the group to ensure coordination and successful implementation.

### ***Builder and Developer Incentives***

The workgroup provided a number of possible builder and developer incentives to encourage more residential green building efforts. Examples of these incentives included creating disincentives for poorly developed adequate public facilities ordinances (APFO), the State helping to cover the cost of a HERS rating, and the State allowing offsite stormwater management projects as a means to fulfill onsite regulatory requirements.

### ***Addressing Local Development Codes***

The workgroup noted that local codes can sometimes hinder the development of green building. Examples include encouraging higher amounts of impervious surface or preventing the use of innovative stormwater management practices. The workgroup agreed that the Builders for the Bay process was an effective tool for encouraging local governments to improve development codes.

### ***Homebuyer Incentives***

The workgroup identified the need to provide incentives for homebuyers to add green renovations or purchase green homes. The workgroup discussed the need for a tax credit or rebate for renovations or energy efficient upgrades. The workgroup also discussed the need for lower interest loans for homebuyers who purchase green homes.

## Section VII: Conclusion

With each new home, office and storefront built using conventional building practices there are less natural resources, more construction waste added to local landfills, less available energy, more stormwater runoff, and less available lands for protection and preservation.

Green building theory and practices have been around for some time and are beginning to receive more attention from the public. As the public learns more about what green building is, how it is done, what they can do to “green” their own homes, and what to look for when buying a home there will be an increase in demand for green services, properties, and professionals.

Other states and local governments around the country have developed green building programs and policies that create incentives to encourage changes to the way we build. Marylanders take pride in being on the forefront of natural resource protection and restoration. Our efforts to restore the Chesapeake Bay are well known and have proven Maryland’s dedication to its natural resources. It should come as no surprise that we have a desire to help lead the way toward sustainable development.

The Maryland General Assembly took a big step forward for Maryland by creating the Green Building Task Force through enacted legislation. They have also created a Green Building Council to examine ways in which Maryland State Government can lead by example. In addition to the names that the General Assembly mandated, the Task Force invited other interested parties to attend the meetings. This provided a diversity of insight which ensured that the interests of the public, private, and non-profit sectors were represented.

Many dedicated individuals have completed important work in Maryland to ensure that our future is built upon a sustainable, smart growth foundation. The Green Building Task Force’s recommendations provide a blueprint for how Maryland State Government can increase the acceptance and implementation of green building practices.

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<sup>1</sup> *California's Sustainable Building Task Force. 2001. Building Better Buildings: A Blueprint for Sustainable State Facilities. Prepared by the Sustainable Building Task Force and the State and Consumer Services Agency. Governor's Executive Order D-16-00. December 2001.*

<sup>2</sup> *California's Sustainable Building Task Force. 2003. Building Better Buildings: An Update on State Sustainable Building Initiatives. Prepared by the Sustainable Building Task Force and the State and Consumer Services Agency. October 2003.*

<sup>3</sup> *Kats, Greg. 2003. The Costs and Financial Benefits of Green Buildings. A Report to California's Sustainable Building Task Force. October 2003.*

<sup>4</sup> *See note 3 above*

<sup>5</sup> *Langdon, Davis. 2007. Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in Light of Increased Market Adoption. July 2007.*



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