



ANNAPOLIS
Green, thriving neighborhoods

Community Action Plan

Mayor Josh Cohen

Department of Neighborhood & Environmental Programs

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www.SustainableAnnapolis.com

5/20/2010

Photo courtesy of Annapolis Conference & Visitors Bureau (www.visitAnnapolis.org)

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Introduction

Sustainability means meeting today's environmental, economic, and social (neighborhood) needs without compromising the next generation's ability to meet the same needs. Annapolis is a member of an international group called Local Governments for Sustainability (ICLEI, formerly known as International Cities for Local Environmental Initiatives), which has over 1000 member cities and counties worldwide that are striving to become more sustainable. Perhaps the most pressing and urgent sustainability issue is climate change. ICLEI has a program called Cities for Climate Protection (CCP) that has a 5-step milestone program:

- Conduct a greenhouse gas (GHG) emissions inventory
- Set a GHG emissions reduction target
- Create a Climate Action Plan
- Implement the action plan
- Monitor progress on implementing the action plan

We have already conducted the GHG emissions inventory and have proposed a set of reduction targets (25% reduction of 2006 levels by 2012 for the community, 50% reduction for government). Now it is time to develop our climate action plan, which is what this Sustainable Annapolis - Community Action Plan (CAP) document is working towards; it is combining the idea of both a Sustainability Plan and a Climate Action Plan. The CAP will lay out a plan for how we will meet our greenhouse gas reduction targets, and our environmental, economic, and neighborhood goals.



Public participation

Public participation, involvement, and commitment are key to becoming a more sustainable city. If we are to achieve the goals laid out in this report, both the public and city government will need to take action on the items listed. That is why we spent six months (September '08-February '09) collecting ideas and input from the public; ideas on how we can become a more sustainable city. Every idea submitted is included or incorporated in one of the action items in this report. We spoke before congregations, schools, civic associations, political parties, environmental groups, and other community groups, in an effort to educate people about the Sustainable Annapolis program and climate change, and to solicit ideas for this report. Peoples submitted ideas through the mail, dropped off input cards at the library, and sent emails to city staff. All the suggestions received were compiled into a draft report and reviewed by the Annapolis Environmental Commission. **To view the appendix of this report, which lists details about every suggestion submitted, please go to www.SustainableAnnapolis.com.**



Historic Preservation

"The greenest building is one that is already built."

Given Annapolis' historic nature, and the importance and pride it gives its residents, historic preservation is a key part not only of social (society/neighborhoods) sustainability, but it is also key to improving and sustaining our economy and environment. Historic preservation is the unique lens that Annapolis gets to view sustainability through, and it can aid in our assessment of what sustainability actions we should take. For example, many people may think they are being sustainable when they buy the newest and greenest consumer good out there, or when they build the greenest home possible. However, when you look at the total ecological footprint of a product and the total amount of resources that went into a green product, it's often more destructive to the environment to create something new than simply renovating or retrofitting an existing house or product. A good example is windows. Is it better to purchase new energy star windows or to simply weatherize your existing historic windows? Weatherization uses fewer resources, costs less money, preserves our historic character, and is a much more sustainable choice for Annapolis.

History of sustainability action

Mayor Josh Cohen, the city Council, and the city staff of Annapolis have already taken many actions towards making the city more sustainable. Here is a list of some of the actions taken:

- Main street program
- Historic preservation
- Created a Neighborhood & Environmental Programs department (combining building code enforcement with environmental regulation)
- Energy efficiency task force
- Environmental stewardship program
- Awarding a sea level rise study
- Green purchasing ordinance
- Green building ordinance
- Back Creek Nature Park stormwater experience
- Bicycle Task Force report
- Watershed Study
- EZ Energy program
- Greenscape
- Recycling program
- Mass Transit options
- Green IT initiatives
- Installed a few LEDs in traffic lights
- Stormwater Utility
- Yard Waste composting
- Cloud 9 clean air program
- Annapolis Conservancy Board
- Annapolis Environmental Commission

Future steps

The last step in ICLEI's milestone program is to monitor progress being made on implementing this action plan. To differentiate this action plan from other reports that often just sit on peoples walls and are forgotten, the city will be releasing a report card on an annual basis, assessing how the government and community are progressing on achieving our climate action targets and sustainability goals.

To help achieve the goals laid out in this sustainability plan, the city will pursue Memorandum of Understandings with independent entities within and outside the city (i.e. Naval Academy, St. Johns, Anne Arundel County, etc.).

Annapolis has already started to secure some grants to help fund some of the programs outlined below. One grant is from Maryland Department of the Environment and deals with lowering the total amount of impervious surfaces in the city, and another is from the Maryland Energy Administration and deals with energy efficiency improvements.

CLIMATE ACTION

GOALS: 25% REDUCTION OF 2006 CO₂ LEVELS BY 2012 (50% FOR GOVERNMENT)

50% REDUCTION OF 2006 CO₂ LEVELS BY 2025 (75% FOR GOVERNMENT)

CARBON NEUTRALITY BY 2050

Background

As a city that is surrounded by 6 bodies of water—Weems Creek, Spa Creek, Back Creek, College Creek, Severn River, and the Chesapeake Bay—Annapolis residents have good reason to be worried about contributing to climate change and sea level rise. In September of 2003, when hurricane Isabel visited Annapolis, we saw the effects that flooding can have on our city. Later that year, the city joined an international organization called Local Governments for Sustainability (ICLEI), and started participating in their Cities for Climate Protection (CCP) program that laid out steps for cities to follow in order to inventory, reduce, and monitor their greenhouse gas emissions. In 2005, Mayor Ellen O. Moyer joined more than 850 US mayors and signed the US Mayors Climate Protection Agreement, which was followed by the city creating an energy efficiency task force, whose purpose was to deliver recommendations for improving energy efficiency of the government and the entire city. The task force's recommendations were released in 2006, and shortly thereafter a resolution was passed that committed the city to following the CCP milestone program. The Mayor's and City Council's commitment to passing this legislation laid the groundwork for the city's ongoing action to combat against climate change.

The City of Annapolis Energy Efficiency Task Force was established in October 2005 "to study the application and recommend the implementation of energy efficient standards for the city to reduce costs, reduce energy consumption, and to reduce our reliance upon foreign petroleum."

The committee met for six months and produced twelve recommendations, which were then adopted by the City Council as a guide for the city's energy policy. Chief among these recommendations was that the city commit to a 10% reduction in energy use of all publicly owned or leased facilities within 5 years and a 15% reduction by 2020. In order to forecast and measure progress towards future reductions, the city was required to establish an inventory of energy use and emissions for a baseline year. From March to May 2006, Frank Biba (Chief, Environmental Programs) and Eric Schmitt (Climate Intern) of the Department of Neighborhood and Environmental Programs conducted a municipal energy inventory. Their findings are summarized in a report entitled *The Energy Consumption and Greenhouse Gas Emissions of the Facilities and Operations of the city of Annapolis in Fiscal Year 2006*, available on the city's website. That inventory showed that the three main CO₂ contributors for city government are the vehicle fleet (28.6%),

Figure 1: Annapolis City Government CO₂ Emissions in 2006

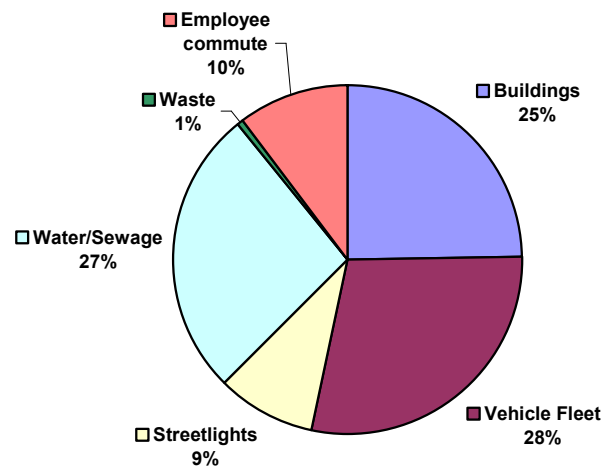
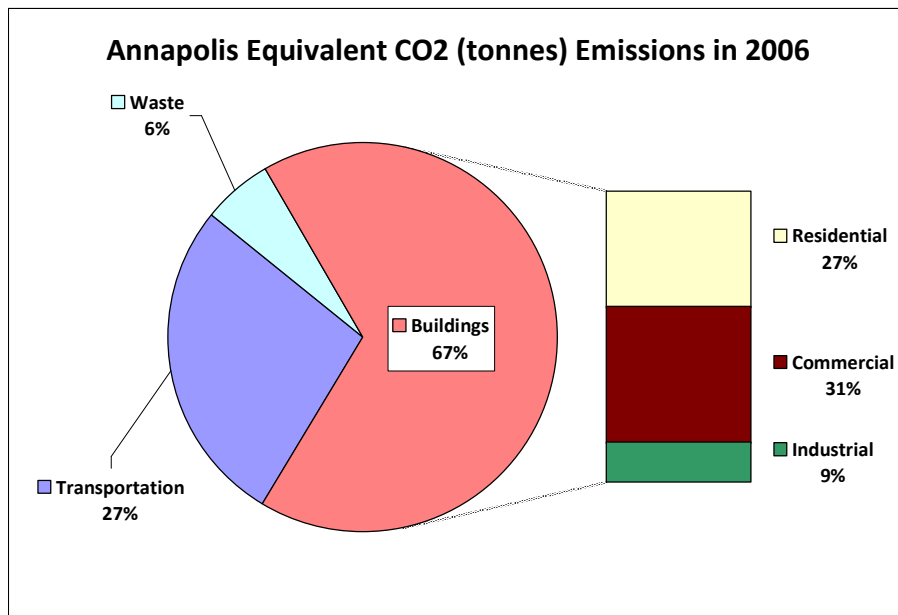


Table 1: Annapolis city Government Emissions in 2006

Sector	%	Equiv CO ₂ (tons)
Buildings	24.6	2,976
Vehicle Fleet	28.6	3,464
Streetlights	9.3	1,131
Water/Sewage	26.6	3,222
Waste	0.7	79
Employee commute	10.2	1,230
Total	100	12,102

water/sewage systems (26.6%), and city buildings (24.6%) (see table1, figure 1).

A year later, in 2008, Straughan Environmental Services helped Annapolis complete a greenhouse gas emissions inventory for the entire Annapolis community. The results indicated that the largest CO₂ equivalent (CO₂e) emitters in the city are the buildings, specifically, the commercial and residential buildings (67% for all buildings). Transportation contributes 27% of the city-wide emissions, with waste contributing 6% (see Figure 2, Table 2).

Figure 2: Total CO₂ Emissions by Sector

Greenhouse Gas Emission Reduction Targets

The city has set a short-term emissions reduction target of 25% of 2006 levels for the community and 50% for the city government by 2012. The 25% reduction of 2006 levels is equivalent to the Kyoto protocol's 7% reduction of 1990 levels. This target was chosen because Annapolis signed the US Mayors Agreement on Climate Protection, which set a goal matching the Kyoto protocol's reduction target (7% reduction of 1990 levels by 2012). The mid-term target is 50% reduction for the community and 75% for the government of 2006 levels by 2025, and the long-term target is carbon neutrality by 2050. The inventory base year of 2006 was used for two reasons: 2006 was the year used for the city government inventory, and 2006 is the base year used by the Maryland Commission on Climate Change in their interim state Climate Action Plan.

Each of the action items in the Climate Action section were evaluated to determine how many metric tonnes of CO₂e they would reduce and how close they would come to achieving the reduction targets. Implementing the recommended reduction strategies highlighted in Tables 3 and 4 will allow the government and community to achieve the 2012 reduction goal.

Table 2: Annapolis Community Emissions in 2006

Sector	%	Equiv CO ₂ (tons)
Transportation	27.2	121,467
Waste	5.8	25,892
Residential	26.7	119,377
Commercial	31.2	139,442
Industrial	9	40,256
Total	100	492,109

Government reduction strategy

If followed, the recommended government reduction strategy can result in a 50% reduction of 2006 levels. This is largely dependent on the government's ability to purchase 25% of its energy from renewable sources, which by itself brings the government 56.58% towards its goal. The other focuses of the strategy are on energy efficiency upgrades to city buildings, lowering the impact of employees' commutes, and lowering the emissions resulting from the city's transportation fleet.

The city is already taking action to reduce its carbon footprint. In the city Dock area, the city is currently investigating installing geothermal energy at the market house and installing electric car stations at some of the city garages.

Community reduction strategy

The recommended reduction strategy for the community, highlighted in Table 4, will achieve the 2012 goal. This strategy focuses on citizens purchasing green electricity, increasing recycling rates, energy efficiency improvements, and making improvements on alternative forms of transportation in the city.

Table 3: **Strategy for achieving 2012 Government reduction target** (50% of 2006 levels)

Government GHG emission measures <i>Highlighted items are recommended for achieving reduction targets</i>	% towards 2012 reduction target	Annual Cost savings**	Payback (years)
Purchase 25% green electricity	56.58%	< BGE rate	
Install occupancy sensors	10.95%	\$168,305	0.2
Pumping stations and water works energy efficiency upgrades	10.86%	\$158,721	
Institute power management for buildings	9.90%	\$10,295	7.3
Install energy efficient lighting	9.39%	\$144,261	0.2
Implement 4-day work week	3.38%		
Telecommuting program	3.27%	\$50,310	2.1
Replace current street lights with efficient lighting (non-LED)	1.32%		
Reduce hours street lights are on each day	2.82%	\$42,335	Immediately
Replace current street lights with LEDS	2.51%	\$38,610	19.5
Install energy monitors	2.39%		
Install programmable thermostats and remote temperature monitoring for city	2.39%		
Energy efficient windows	2.39%		
Use geothermal heat pumps for heating and cooling	1.93%	\$29,601	16.2
Switch electric and oil heat to natural gas	1.72%	\$28,374	1
Investigate on-site energy generation (solar, wind, geothermal, etc) for public facilities	1.33%		
Overhaul government building HVAC systems and investigate combined heat & power	0.95%	\$14,531	0.4
Routine cleaning of city facility HVAC systems and vents	0.80%	\$11,039	
Preferential employee parking	0.61%		
No-idling policy for city vehicles	0.55%	\$11,372	0
Add alternative-fueled vehicles & mounted patrols	0.54%	\$34,000	
Fleet conversion to alternative fuels	0.51%	\$20,439	2.5
Employee bicycle program	0.38%	\$292	1.7
Improve vehicle maintenance program to include energy efficiency maintenance	0.36%		
Reflective roofing	0.31%	\$4,751	2.6
Use software & GPS to create efficient waste routes for pickup	0.29%		
Use solar heat for public swimming pools	0.24%	\$2,978	6
Energy efficient exit signs	0.21%	\$3,182	1.8
Utilize fuel-efficient, low carbon scooters	0.20%		
Low-maintenance landscaping	0.19%		
Employee parking opt-out program	0.17%	\$3,582	
Install solar water heaters	0.15%	\$1,815	33
Install vending misers on city vending machines	0.13%	\$3,580	0
Purchase/convert any city-owned vessels to alternative fuels	0.12%		
Reduce municipal fleet	0.11%	\$2,284	
Create employee carpooling incentives	0.09%		
Green roof survey of city-owned buildings	0.05%		
Irrigation control sensors	0.05%	\$4,932	0.1
Install waterless urinals, high efficiency toilets, and sinks with sensors	0.04%	\$1,029	20
Purchase energy efficient appliances for city buildings	0.35%		
Wireless Mobility Network	*		
Centralize vehicle maintenance	*		
Become EPA Energy Star partner	*		
Join Energy Star Portfolio Manager	*		
Require Energy Star standards for leased properties	*		
Performance contracting	*		
Designate energy efficiency manager in each department	*		
Solar powered wireless access points	*		
Incorporate sustainability education in employee orientation and provide incentives	*		
Subtotal for recommended action items	100.10%	\$627,237**	

* Minimal or depends on actions taken

** Cost savings are estimates calculated from ICLEI's Climate and Air Pollution Planning Assistant (CAPPA) software

= recommended strategy for achieving 2012 25% (of 2006) carbon reduction target

Table 4: **Strategy for achieving 2012 Community reduction target** (25% of 2006 levels)

Community GHG emission measures Highlighted items are recommended for achieving reduction targets	% towards 2012 reduction target
Purchase electricity from renewable energy sources (30%)	40.94%
Energy cap on new construction	31.00%
Commercial recycling program	16.40%
Pay-as-you-throw waste program	14.31%
Implement methane flaring/capture at wastewater treatment facility	13.00%
Install anaerobic digester at wastewater treatment facility	10.00%
Recycling program promotion	5.90%
Reduce trash pickup to once a week to increase recycling	5.90%
Expand city Green Building program	5.29%
“Lights Out” program for appropriate properties	5.03%
Energy and water efficiency in the building codes	3.90%
Curb-side composting program	2.62%
Low cost home energy audits	1.76%
Environmental Stewardship Program for home-owners and businesses	1.73%
Mandatory public event recycling	1.36%
More recycling containers at public areas and facilities	1.36%
Energy efficiency trade-in/rebate programs	1.04%
Clean Air Cab program	1.01%
Investigate locations for community renewable energy production	0.90%
Study long-term mass transit options	0.85%
Create web page offering links to energy efficiency information	0.74%
Public education on energy efficiency	0.74%
Community-based climate/kilowatt challenge	0.74%
Re-launch Cloud 9 program	0.74%
Public education about climate change	0.74%
Update zoning to allow installation of renewable energy	0.69%
Green building check-list	0.66%
Environmental Stewardship Program	0.66%
Intra-inter harbor ferry systems	0.58%
Alternative transit-oriented development	0.50%
Promotion of yard waste composting program	0.50%
Low-income energy efficiency home improvements	0.40%
Public housing energy efficiency home improvements	0.40%
Energy efficient windows, lead-threat window mitigation	0.40%
Low-income homeowner rehabilitation program	0.40%
Assist with outreach to faith-based communities, utilize “Cool Congregations” GHG	0.33%
Support regional transportation system	0.29%
Launch no-idling campaign	0.23%
Shuttle to New Carrollton multi-modal station	0.14%
“Live where you work” incentive program	0.10%
Promote city’s clean commuting program	0.05%
Alternative transportation network program	0.05%
Bike rental ports, lockers, maps, rack programs, showers	0.04%
Map & improve bike/pedestrian trail system	0.04%
Implement the recommendations in the Annapolis Bicycle Transportation Committee	0.04%
Expand bike loaner program	0.04%
Sidewalk and crosswalk improvements	0.04%
Set standards for transit-friendly city roads	0.04%
Discourage habitual single occupancy vehicle usage	0.04%
Car-free days	0.04%
Green/reflective roof program	0.04%
Traffic calming for bike/pedestrian safety	0.03%
Continue to integrate bikes & transit	0.03%
Irrigation control sensors	0.03%
Electric vehicle infrastructure	0.03%
Investigate creating longer bus hours on weekends and holidays	0.02%
Expand the mass-transit system to have more/better coverage	0.02%
Transit signal priority	0.02%

Automated bus information kiosks	0.02%
Creation of a full transit hub within the city	0.02%
Zip/flex car programs at area transit hubs	0.02%
Safe Routes to School program/walk to school program	0.01%
Encourage de-construction over demolition of buildings	*
Bike registration system	*
Create a city biking webpage for citizens	*
Encourage parking at Naval Stadium	*
Tour-bus hook-up on West Street and other suitable locations	*
Traffic counting program	*
Promote EZ energy program	*
Push mower rebate program	*
Create a database for environmental events occurring in the area	*
Investigate Carbon footprint of the construction and heavy equipment	*
Better utilize/advertise city Dock recycling capabilities	*
Central drop-off for waste & recycling	*
Create “Anna Pass” carbon off-set program	*
Subtotal for recommended action items	100.06%

* Minimal or depends on actions taken

= Recommended strategy for achieving 2012 25% (of 2006) carbon reduction target

Methodology

ICLEI’s Climate and Air Pollution Planning Assistant (CAPPA) software was used to help calculate the potential carbon reduction and annual cost savings for each of the action items listed in tables 3 and 4. The assumptions used for each calculation can be found in the appendix to this report, available at www.SustainableAnnapolis.com. Any calculations and assumptions used will be fact-checked and updated as a part of the program’s annual reporting program.

Future Actions

This Community Action Plan focuses on mitigating the effects of climate change. However, climate change, and the resulting sea level rise, may be an unavoidable reality in the future. Hopefully the city’s efforts at mitigating our contribution to climate change will help to lesson the rise, but we still need to prepare for the worst by adapting to the expected consequences. To this end, the city has hired a contractor that will conduct a sea-level rise study, documenting the likely scenarios and possible solutions we can implement.

TRANSPORTATION

GOAL: EMISSIONS REDUCTION OF THE CITY GOVERNMENT TRANSPORTATION SECTOR

Strategy A: Lower employee reliance on fossil-fueled automobiles

Action items

- Employee parking opt-out program
- Create employee carpooling incentives
- Preferential employee parking
- Telecommuting program
- Employee bicycle program

Strategy B: Lower emissions from city fleet

Action Items

- Utilize fuel-efficient, low carbon scooters
- Improve vehicle maintenance program to include energy efficiency maintenance
- Fleet conversion to alternative fuels
- Use software & GPS to create efficient waste routes for pickup
- Wireless Mobility Network
- Add alternative-fueled vehicles & mounted patrols
- Low-maintenance landscaping



- No-idling policy for city vehicles
- Reduce municipal fleet

PUBLIC INPUT

- *Centralize vehicle maintenance*
- *Purchase/convert any city-owned vessels to alternative fuels*

GOAL: LOWER PUBLIC RELIANCE ON CARBON-BASED AUTOMOBILES**Strategy A: Improve & expand mass transit options***Action Items*

- Intra-inter harbor ferry systems
- Study long-term mass transit options
- Investigate creating longer bus hours on weekends and holidays
- Expand the mass-transit system to have more/better coverage
- Shuttle to New Carrollton multi-modal station
- Support regional transportation system
- Transit signal priority
- Automated bus information kiosks

PUBLIC INPUT

- *Creation of a full transit hub within the city*

Strategy B: Make Annapolis bike & pedestrian friendly*Action Items*

- Safe Routes (walk) to School program
- Bike rental ports, lockers, maps, racks, showers
- Map & improve bike/pedestrian trail system
- Bike registration system

PUBLIC INPUT

- *Implement the recommendations in the Annapolis Bicycle Transportation Committee Final Report*
- *Traffic calming for bike/pedestrian safety*
- *Create a city biking webpage for citizens*
- *Expand bike loaner program*
- *Sidewalk and crosswalk improvements*
- *Continue to integrate bikes & transit*

**Strategy C: Promote/increase use of alternative transportation methods***Action Items*

- Promote city's clean commuting program
- Alternative transit-oriented development
- Set standards for transit-friendly city roads
- Discourage habitual single occupancy vehicle usage
- Alternative transportation network program
- Zip/flex car programs at area transit hubs

PUBLIC INPUT

- *Encourage parking at Naval Stadium*
- *Car-free days*

GOAL: REDUCE TRANSPORTATION EMISSIONS FROM COMMUNITY**Strategy A: Reduce emissions from vehicle usage***Action Items*

- Tour-bus hook-up on West Street and other suitable locations
- Clean Air Cab program
- Traffic counting program

PUBLIC INPUT

- *Launch no-idling campaign*

ENERGY EFFICIENCY

GOAL: 50% REDUCTION OF ENERGY USE (2006 BASELINE) OF ALL PUBLIC OWNED OR LEASED FACILITIES BY 2012

Strategy A: Increase energy efficiency of city facilities

Action Items

- Pumping stations and waterworks energy efficiency upgrades
- Install energy efficient lighting
- Install occupancy sensors
- Install energy monitors
- Install waterless urinals, high efficiency toilets, and sinks with sensors
- Energy efficient exit signs
- Purchase energy efficient appliances
- Install programmable thermostats and remote temperature monitoring
- Install vending misers on city vending machines
- Energy efficient windows
- Overhaul government building HVAC systems and investigate combined heat & power
- Become EPA Energy Star partner
- Join Energy Star Portfolio Manager
- Require Energy Star standards for leased properties
- Performance contracting
- Designate energy efficiency manager in each department
- Institute building power management
- Green roof survey of city-owned buildings
- Routine cleaning of city facility HVAC systems and vents
- Switch electric and oil heat to natural gas
- Reflective roofing
- Irrigation control sensors
- Reduce hours street lights are on each day
- Replace current street lights with efficient lighting (non-LED)

PUBLIC INPUT

- *Replace current street lights with LEDS*



GOAL: GREATER ENERGY AND WATER EFFICIENCY FOR ALL BUILDINGS AND STRUCTURES IN THE CITY

Strategy A: Residential, commercial, and industrial building energy efficiency

Action Items

- Low-income energy efficiency home improvements
- Public housing energy efficiency home improvements
- Promote EZ energy program
- Energy efficient windows, lead-threat window mitigation
- Create web page offering links to energy efficiency information
- Expand city Green Building program
- Green building check-list
- Public education on energy efficiency
- Energy efficiency trade-in/rebate programs
- Environmental Stewardship Program
- "Lights Out" program for appropriate properties
- Low-income homeowner rehabilitation program
- Green/reflective roof program



- Irrigation control sensors
- Energy cap on new construction

PUBLIC INPUT

- *Energy and water efficiency in the building codes*
- *Low cost home energy audits*
- *Community-based climate/kilowatt challenge*
- *Push mower rebate program*

RENEWABLE ENERGY

GOAL: REDUCE OUR DEPENDENCE ON CARBON-BASED FUELS

Strategy A: Increase city Government renewable energy capacity

Action Items

- Investigate on-site energy generation (solar, wind, geothermal, etc) for public facilities
- Install solar water heaters
- Solar powered wireless access points
- Purchase 20% green electricity
- Use geothermal heat pumps for heating and cooling
- Use solar heat for public swimming pools

Strategy B: Increase the amount of renewable energy produced/purchased in the city

Action Items

- Investigate locations for community renewable energy production
- Update zoning to allow installation of renewable energy
- Methane flaring/capture at wastewater treatment plant
- Program to urge citizens to purchase electricity from renewable energy sources

Strategy C: Build renewable energy infrastructure to replace existing carbon-based fuel infrastructure

Action Items

- Electric vehicle infrastructure

EDUCATION

GOAL: EDUCATE COMMUNITY ON CLIMATE CHANGE AND ITS EFFECTS



Strategy A: Increase the public involvement and commitment to fighting climate change

Action items

- Re-launch Cloud 9 program
- Environmental Stewardship Program for homeowners and businesses
- Assist with outreach to faith-based communities, utilize “Cool Congregations” GHG emissions tool
- Public education about climate change
- Create a database for environmental events occurring in the area

Strategy B: Educate public employees and government about climate change issues

Action items

- Incorporate sustainability education in employee orientation and provide incentives

PUBLIC INPUT

- *Investigate carbon footprint of construction and heavy equipment*

WASTE

GOAL: ZERO WASTE

Strategy A: Increase recycling rate

Action items

- Mandatory public event recycling
- Recycling program promotion

PUBLIC INPUT

- Commercial recycling program
- Better utilize/advertise city Dock recycling capabilities
- More recycling containers at public areas and facilities
- Reduce trash pickup to once a week to increase recycling
- Central drop-off for waste & recycling

Strategy B: Waste reduction

Action items

- Pay-as-you-throw waste program
- Encourage de-construction over demolition of buildings
- Promote yard waste composting program

PUBLIC INPUT

- Curb-side composting program



OTHER CARBON REDUCTION STRATEGIES

GOAL: COMPREHENSIVE REDUCTION OF GREENHOUSE GAS EMISSIONS IN THE CITY



Strategy A: Cross-cutting carbon reduction strategies

Action items

- Implement 4-day work week
- "Live where you work" incentive program
- Create "Anna Pass" carbon off-set program
- Install anaerobic digester at wastewater treatment facility

ENVIRONMENT

Environmental Sustainability

As outlined in the introduction, and in the city's Environmental Perspective document, Annapolis has already taken many steps towards becoming a more sustainable city; however, there are always more steps that can be taken to help us create a more thriving, green city.

Chesapeake Bay

Just as historic preservation is a key tenant of sustainability for Annapolis, the Chesapeake Bay is a key tenant of our environment. We are a town that is surrounded by six different bodies of water and is located directly on the Chesapeake Bay. What affects the Chesapeake Bay, impacts us directly. Likewise, what we do in our city can impact the Bay. That is why a large focus in this Environment section is on water quality. Improving the Bay will help to not only clean up our water and air, it will also help to improve our economy and neighborhoods through its restored resources, improved recreational opportunities, its attractiveness to tourists, and its ability to provide us with jobs and trade.



Urban Tree Canopy

Annapolis' urban tree coverage ranks high for similar sized cities, with 42% coverage. Trees are important for improving our quality of life and maintaining a healthy environment. They clean our air, filtering our water, and even help to lower our carbon footprint by sequestering carbon. Annapolis has set a goal to achieve 50% urban tree coverage by 2030.

WATER QUALITY

GOAL: CLEAN WATER AND HEALTHY WATERSHEDS THAT SUPPORT THE AQUATIC LIVING RESOURCES OF THE BAY, ALLOW FOR RECREATIONAL OPPORTUNITIES, AND PROTECTS HUMAN HEALTH.

Strategy A: Reduce nutrients resulting from residential actions

Action items

- Encourage citizens to measure their nitrogen footprint
- Pet waste education

Strategy B: Reduce contaminants entering the Bay

Action items

- Road salt reduction or replacement
- Install turf reinforcement technology at the Naval stadium parking lot

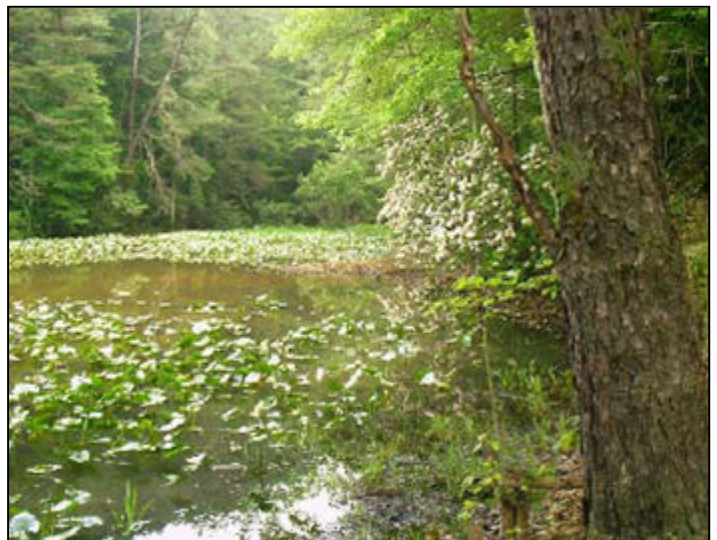
PUBLIC INPUT

- Proper management of oil, sand, and salt storage
- Establish Illicit Discharge Detection & Elimination outfall tracking program
- Good housekeeping at city facilities
- Campaign to educate people about littering
- Ban coal-tar sealant use in city

Strategy C: Reduce amount of stormwater runoff entering the bay---promote infiltration

Action items

- Rain garden maintenance education, funding, and bond extension



- Green right-of-way program
- Green wall/façade and art program
- Study pervious pavement for roads, sidewalks, & parking lots

PUBLIC INPUT

- *Promote reduction of pesticide & herbicide usage & utilize integrated pest management*

Strategy D: Repair & retrofit failing stormwater outfalls*Action items*

- Study opportunities for day-lighting streams or installing regenerative stormwater systems in city

PUBLIC INPUT

- *Stormwater utility update*
- *Business-city partnership for stormwater management*

NATURAL RESOURCES

GOAL: PRESERVE, PROTECT, AND RESTORE THE HABITATS AND NATURAL AREAS OF ANNAPOLIS

Strategy A: Improve health of watersheds*Action Items*

- Native landscaping
- Annapolis Watershed Study
- Living shoreline program

PUBLIC INPUT

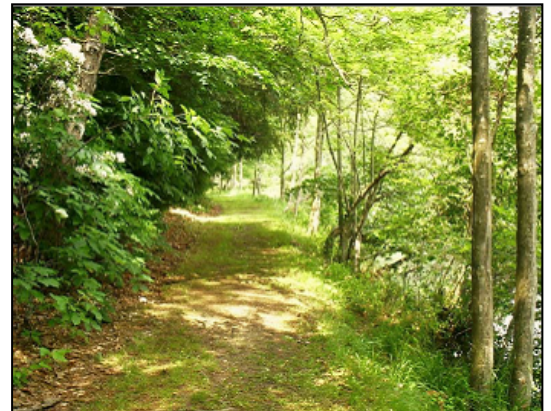
- *Prioritize a creek or watershed for restoration efforts*

Strategy B: Increase tree canopy from 42% to 50% by 2030*Action Items*

- No net-loss for tree canopy
- Partnerships with local businesses
- Neighborhood by neighborhood approach
- Continue offering tree giveaways
- Pursue applicable grants
- Conduct community outreach
- 10-year remote sensing progress reports
- Urban Tree Canopy implementation plan
- Create separate multi-year bonds for trees

PUBLIC INPUT

- *Improved street-scaping and more vegetated medians*



LAND USE

GOAL: DEVELOP, PROMOTE, AND ACHIEVE SOUND LAND USE PRACTICES THAT PROTECT AND RESTORE THE WATERSHED RESOURCES, WATER QUALITY, AND OTHER NATURAL RESOURCES OF ANNAPOLIS

Strategy A: Implement transportation practices that move away from more road construction and expansion and lesson the negative environmental impacts of existing roads*Action Items*

- Transportation demand management

PUBLIC INPUT

- *Set standards for environmentally-friendly city roads*

Strategy B: Open space preservation and connectivity*Action Items*

- Link city greenways with county greenways
- Conservation easement maintenance

Strategy C: Public access to our natural resources*Action Items**PUBLIC INPUT*

- *Create small green spaces/pocket parks throughout the city*

Strategy D: Redevelopment and revitalization rather than building on undeveloped land*Action Items**PUBLIC INPUT*

- *Investigate acquiring the old state police barracks for public use*
- *Transform the Market House into an open-air market for local produce & food products*

AIR**GOAL: IMPROVE AIR QUALITY AND REDUCE CODE RED DAYS****Strategy A: Reduce contributing factors and emissions***Action Items*

- *Develop policies to enact on code red days*
- *Promote fueling and mowing at 'off' time of day*
- *Implement emissions reduction strategies in the Climate Action section*
- *Implement the urban tree canopy measures in the Natural Resources section*

PUBLIC INPUT

- *Close parts of downtown to car traffic on weekends*



ECONOMY

Economic Sustainability

Becoming a more sustainable city will not only help our environment, but will help to create a more thriving economy. Buying local, promoting local businesses, and helping to create a local green collar sector has obvious benefits to the economy, but also helps the environment by causing people to travel less (keeping money in the community) and purchase goods that have a lower carbon footprint due to the shorter distances they are shipped. Creating a local green job sector will help put money in people's pockets, but also prepare Annapolis for handling the current and expected growth of the national green industries and businesses.

A large focus of this section is on buying local. Buying local helps to maintain a thriving main street, keeps money in our community, lowers our greenhouse gas emissions, and creates jobs for our neighbors.

The second focus is on creating local, green jobs. Providing job training opportunities for the growing green industry will be important if Annapolis wants to stay ahead.



LOCAL ECONOMIC DEVELOPMENT

GOAL: A LOCALIZED ECONOMY THAT PROMOTES LOCAL PURCHASING OF NECESSITIES

Strategy A: Create a local food supply rather than long-distance foods that need to be shipped



Action Items

- Promote farmers markets and local foods, community supported agriculture, and use of food stamps at these venues
- Zoning update for urban agriculture/community gardens
- Local food distribution program/facility
- Rooftop garden program
- Help shops cut out the middle-man
- Encourage small grocery stores to setup shop in communities needing a grocery store
- Encourage service-based businesses on Main street rather than just tourist-based

PUBLIC INPUT

- *Community garden program*
- *Longer farmers' market hours and more markets*
- *Promote local food supply*

- *Create a commercial port in Annapolis for appropriate local and regional goods*

Strategy B: Build local supply and demand for new green products and services, building our green economy

Action Items

- Renewable energy fair

PUBLIC INPUT

- *Encourage use of local biodegradable and recyclable goods by local businesses and residents*

GREEN JOBS

GOAL: THRIVING GREEN BUSINESS SECTOR THAT PROVIDES LOCAL EMPLOYMENT AND TRAINING FOR RESIDENTS

Strategy A: Increase number of green businesses in Annapolis

Action Items

- Promote and attract green businesses and green industrial parks

Strategy B: Ensure residents have opportunities to be employed in the green business sector or to start their own green business

Action Items

- Training needs assessment
- Green job/skill training program for youth and adults
- Green collar job fair

PUBLIC INPUT

- *Train students and residents to perform low-cost energy audits*

Strategy C: Educate tourists about sustainability

Action items

- Sustainable tourism project
- Promote growth of eco-tourism in the city

PUBLIC INPUT

- *Downtown Sustainable Annapolis kiosk*



NEIGHBORHOODS

Sustainable Neighborhoods

Sustainability is a term that has a capacity to be broadly interpreted, which allows it to be tailored based on someone's, or a neighborhood's, individual needs. Some neighborhoods may want to focus on improving their safety, others may want to focus on educating their children about sustainability, while other still may want to work on improving public health. Becoming more sustainable will strengthen and improve our neighborhoods.



CHILDREN, HEALTH, & SAFETY

GOAL: IMPROVE PUBLIC HEALTH

Strategy A: Target environmental health hazards

Action items

- Program to replace/rehabilitate lead-threat windows

PUBLIC INPUT

- *Lessen noise pollution*
- *Reduce mosquito breeding*

Strategy B: Greater access to healthy foods

Action items

- Community wellness
- Heart-smart program for local restaurants
- Zoning update to allow for sale of local produce in neighborhood stores
- Food drop-off program for local shelters

PUBLIC INPUT

- *Community Gardens*



GOAL: IMPROVE PUBLIC SAFETY

Strategy A: Crime prevention

Action items

- Utilize environmental design to lessen crime
- Create a "Sky Glow" program to increase night-time visibility in key areas while being dark skies compliant

PUBLIC INPUT

- *Paper shredding events*

EDUCATION, ARTS, & COMMUNITY

GOAL: EDUCATE PUBLIC ON IMPORTANCE OF THE ENVIRONMENT AND SUSTAINABILITY

Strategy A: Greater public participation in environmental and sustainability events/programs

Action items

- Citizen sustainability awards
- Sustainable Annapolis promotion

Strategy B: Sustainable communities

Action items

- Technical support for communities going green/sustainable

PUBLIC INPUT

- *Promote behavior changes in the public*

Strategy C: Educate residents about sustainability

Action items

- Sustainable Annapolis cable show

PUBLIC INPUT

- *Heritage Community wildlife area for education*

Strategy D: Educate youth about sustainability

Action items

- Sustainability in the school curriculum
- Sustainability community service program
- Partnership with youth groups
- Re-launch Cloud 9 program

Strategy E: Help the public experience our environment

Action items

- No child left inside program
- Increase public water access by reclaiming dead-end street right-of-ways to water

