

P L A N T I N G T H E S E E D S O F S U C C E S S .



**Trees and Air Quality Planning
Critical steps for
Inclusion of Tree Planting into the State
Implementation Plan (SIP)**

Center for Chesapeake Communities

Goal of Work

- Provide basis for decision to incorporate urban vegetation as a means to reduce ozone within the Balto / Wash area - SIPs



What is a SIP?

Multiple Choice:

A nice neat report



A large file of information



Filing cabinets full of documentation



All of the above

Air Quality Plan (“SIP”)

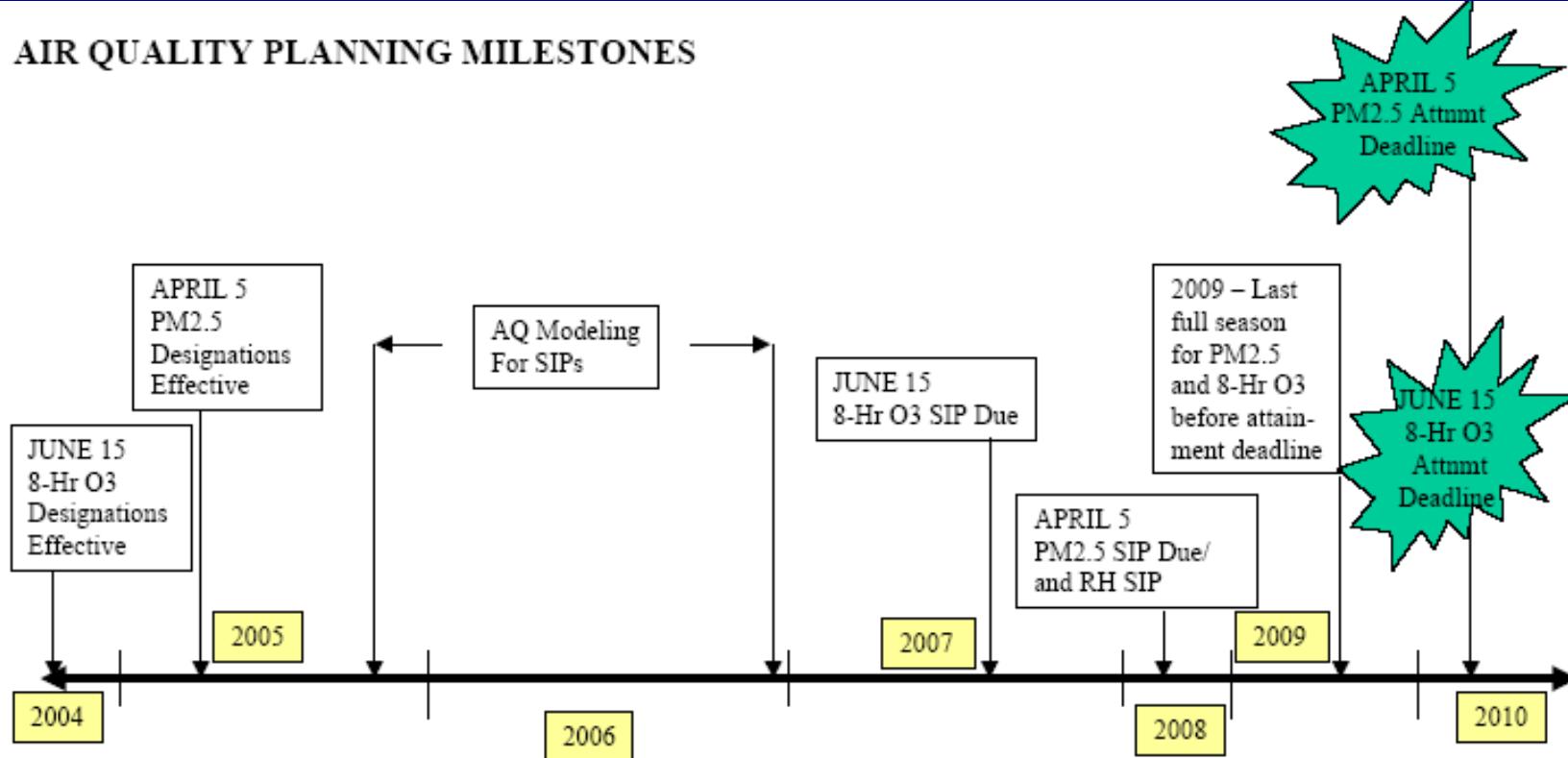
- A plan containing an emissions goal to improve air quality by a deadline established by the Clean Air Act
- The plan contains federal, state, and local measures to reduce air pollution

DC-MD-VA Air Quality Plan ("SIP") Scope

- Commits to meet the ozone standard by the year 2009
- Identifies control measures to be taken to reduce pollution created locally
- Identifies measures to reduce air pollution transported from our region into other states
- Sets a mobile emissions budget

Timeline

AIR QUALITY PLANNING MILESTONES



PM2.5 Dates:

- Nonattainment designation effective date: April 5, 2005
- SIP Due: April 5, 2008
- Attainment Date: April 5, 2010

Local commitments Feb 07

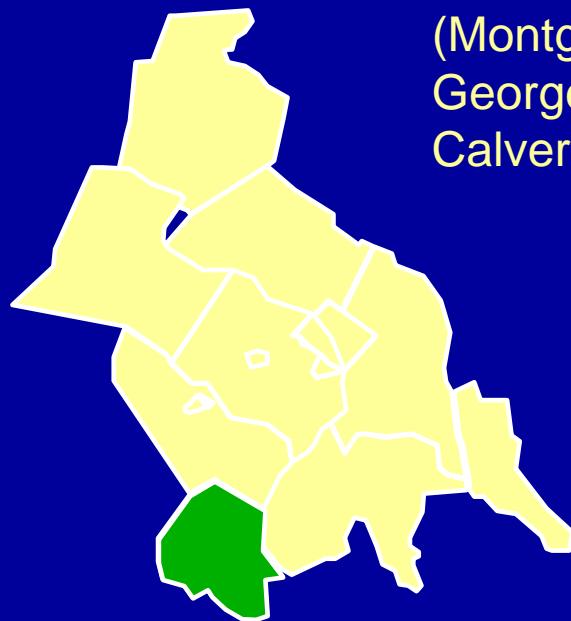
8Hour Ozone Dates:

- Nonattainment designation effective date: June 15, 2004
- SIP Due: June 15, 2007
- Attainment Date: June 15, 2010

Metropolitan Washington DC-MD-VA Region

8-Hour Ozone Moderate Nonattainment Area

Virginia (Fairfax,
Arlington, Loudoun,
Prince William
Counties, City of
Alexandria)

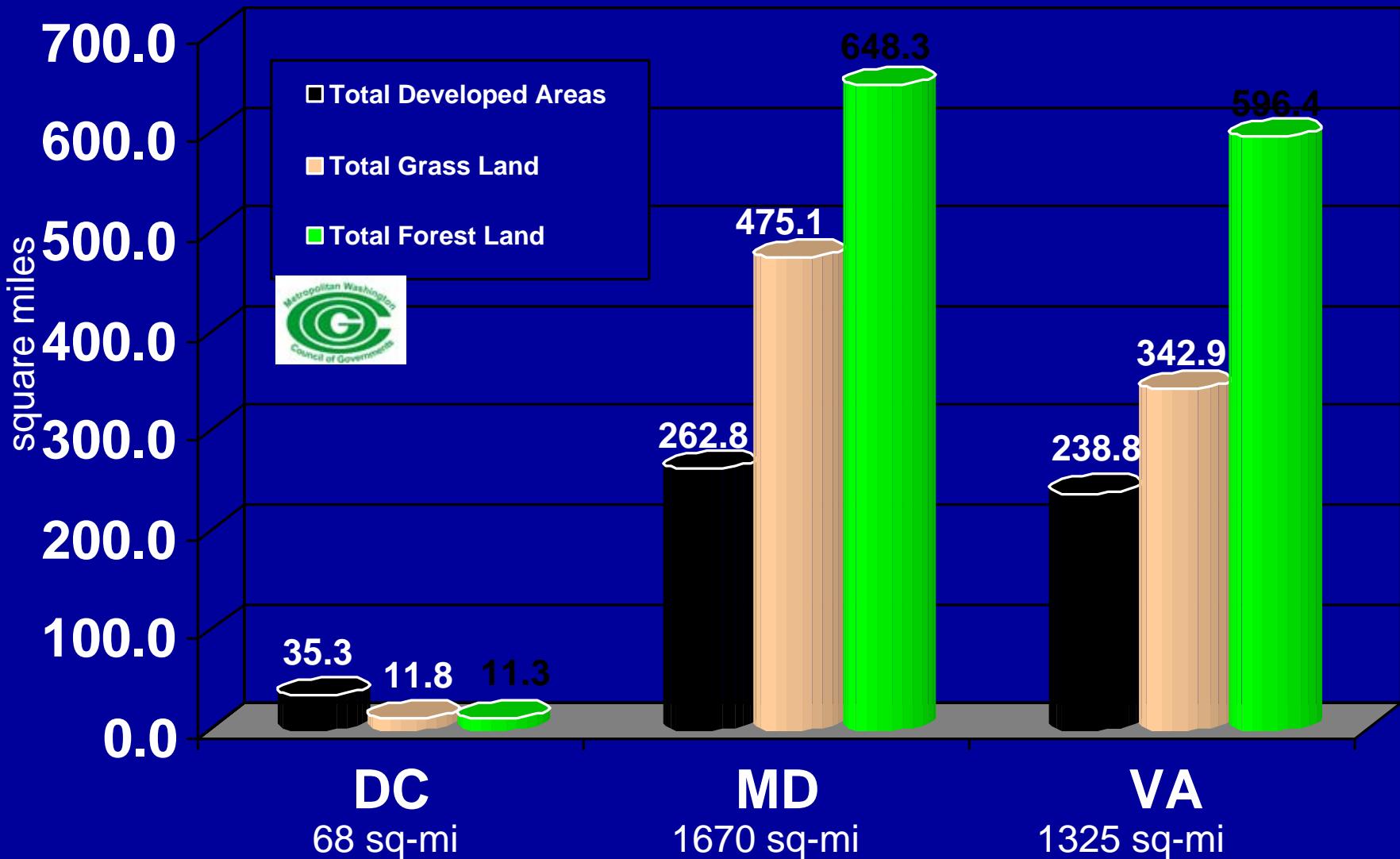


District of Columbia

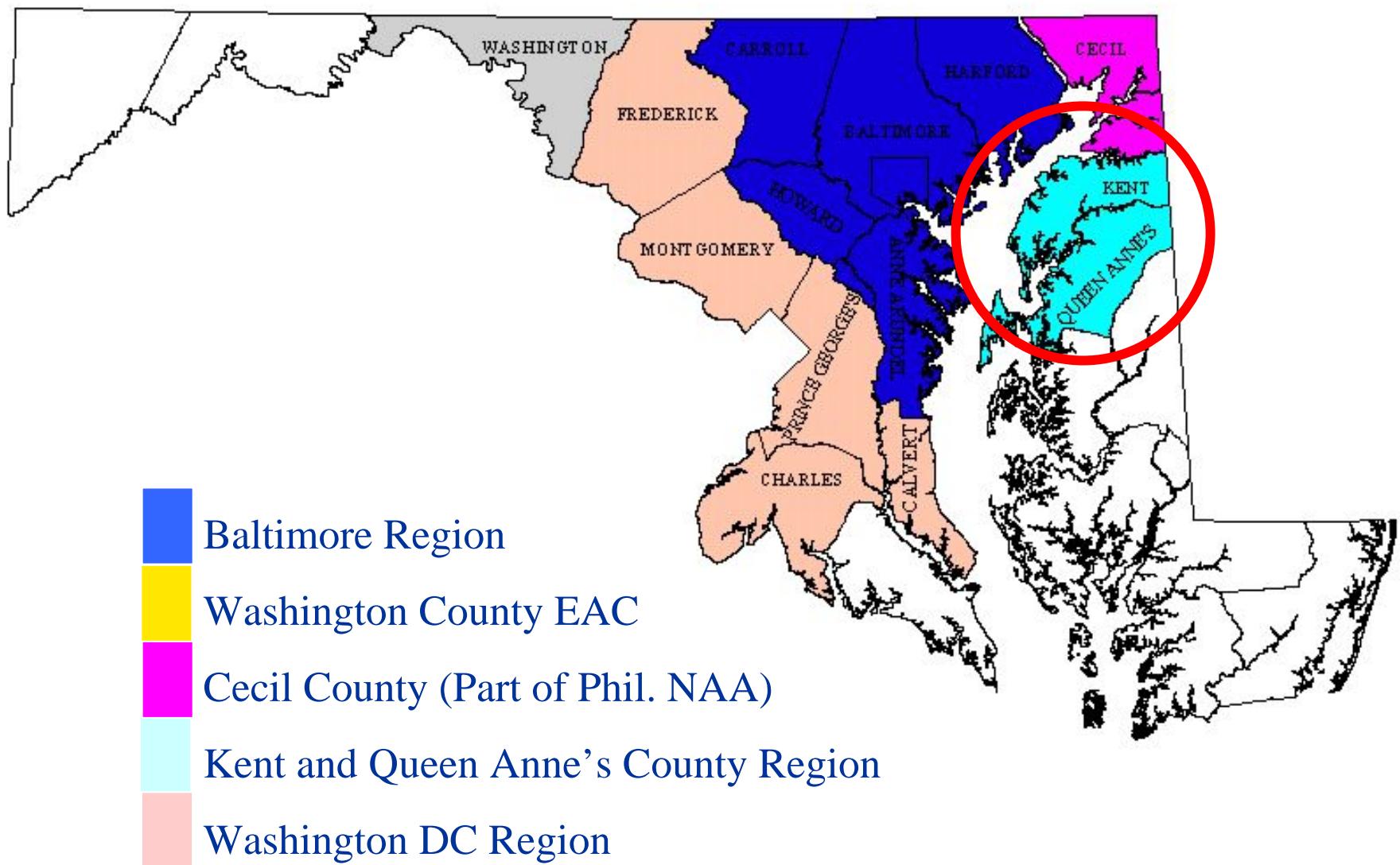
Suburban Maryland
(Montgomery, Prince
George's, Frederick, Charles,
Calvert Counties)

Washington Metro Area: Selected Land Cover/Land Use Category Summary

(Landsat 7 ETM+ Data)



Maryland's 8-Hour Ozone NAA's



Control Measures in SIP

Mandatory Measures (Regulations)

Voluntary Measures:

- ⇒ Reformulated paints and solvents
- ⇒ Gas can replacement programs
- ⇒ AFV purchases, wind energy purchase, green roofs, tree canopy expansion

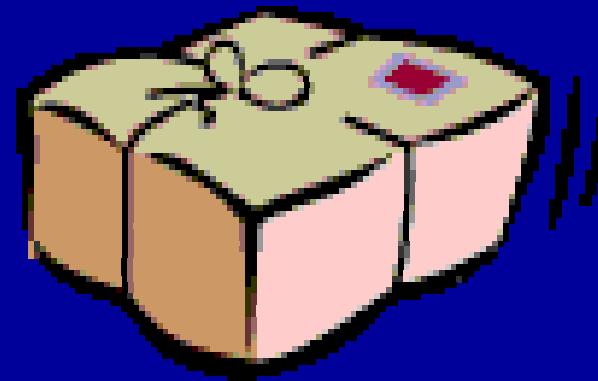
Voluntary Bundle

Reductions Credited

- Low-VOC Consumer Products
- Wind Power Purchase
- Gas Can Replacement
- Use of Low-VOC Paint
- Reduce Locomotive Idling

Included, But No Credit Taken

- Alternative Fueled Vehicle Purchase
- Remote Sensing Device
- Diesel Retrofits (School and Transit Buses)
- Tree Canopy



Maryland is using an Innovative SIP Bundle

- A very flexible part of the SIP that:
 - Bundles together several programs that generate air quality benefits
 - Directionally correct
 - Difficult to quantify
 - Voluntary
 - Establishes conservative emission reductions targets (Approx. 1.5 tons)
 - Includes additional data collection and analysis to support a mid-course review and a “true-up”
- Builds off EPA voluntary measures guidance
- Strongly Encourages local government participation

Increased Tree Canopy Effects

- Very reactive in ozone chemistry
- Modifies heat island effect of major cities by lowering temperature
- Affects surface winds and boundary layer heights
- Changes dry deposition rates
- Cooling 1-2 degrees could reduce ozone 2-4 ppb



Modeling Tree Canopy Effects

Modeling work completed:

- a tree canopy baseline (where are we starting from?)
- list of canopy expanding programs
- expected tree canopy projections/improvements
- Meteorological Modeling changes from increased tree canopy as compared to baseline



WOE Findings

- Study correlating ozone formation and temperature showed 1-2 degree reduction in temperature could result in a 2-4 ppb reduction in ozone
- Significant increase in tree cover needed in urban core – on the order of 40% (note Urban tree goals)
- Low-VOC emitting trees like maples, hawthorns and some species of pines preferred
- Importance will grow as climate change increases temperature
- Present MD programs aimed at no net loss

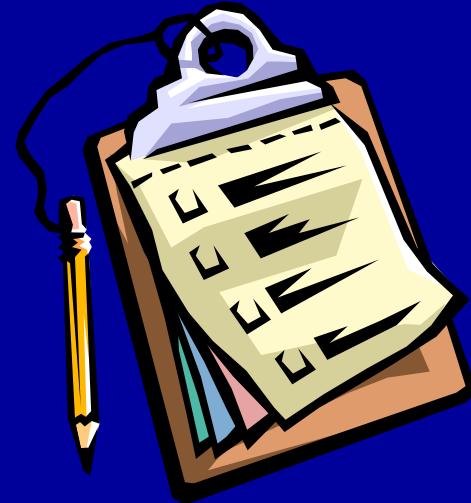
Voluntary SIP Measures

- Not enforceable
 - Encourage not require people and local organizations to plant trees
 - Create need for a collaborative database of canopy expansion activities
- Provide regional support, priority and visibility to programs for canopy expansion
- Creates opportunities for new measures, funding and collaboration

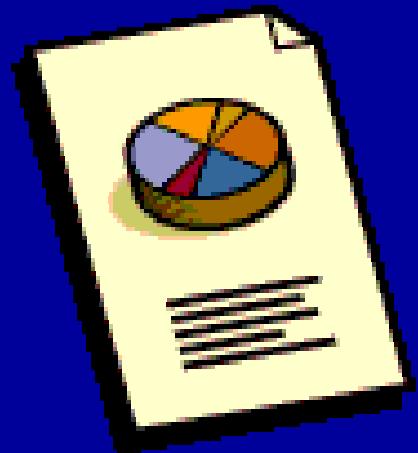
Commitment Requirements



Signed Letter



**Program Details
Estimate of Benefits**



**Program
Effectiveness
Report**

Agree to monitor program and provide annual reports on program participation/effectiveness

Good News

- Maryland is committed and has included Trees in the air quality planning draft for the Baltimore air management area
- WASHCOG-MWAQC has included Trees in the DC Metro Air Quality Plan
- Other states are interested

WE CAN MAKE A DIFFERENCE



WHAT WILL EACH
JURISDICTION
COMMITMENT TO
DO ?

Measures/ Tools

What government can do

Conserve priority forests

Restore forest remnants

Reforest public land

Reforest private land

Maintain existing forest canopy

Prevent forest loss during development

Landscaping (including street trees)

during land use changes



Future actions
ID needed Legislative - Administrative changes
Program funding opportunities

- Tree Goals & ordinances
- Tree requirements
- Mitigation opportunities
- Sites, Permitting



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TreeBaltimore

City of Baltimore
Recreation & Parks



Tree Baltimore

- **Mission** To enhance the quality of life for Baltimore's citizens by:
 - Providing shade,
 - Enhancing the landscape, and
 - Cleaning our air and water
- Goal double Canopy in 30 years

The Value of Baltimore's PRESENT Urban Forest*

- Stores 1.2 billion lbs. of carbon
 - Removes 23.8 million lbs. of Carbon annually
 - Removes 700 metric tons of air pollution
-
- Average American produces about 40000 lbs of CO₂ emissions pre year

* Baltimore's Urban Forest

David J. Nowak, USDA Forest Service

The Value of Urban Forest

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

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Measures

*What citizen Group
Partners can Do*



- Planting
- Citizen Training
- Member Education
- Inventories
- Maintenance/Stewardship
- Identify Funding

In summary ...

- Champion tree canopy inclusion in SIP
- Educate the decision makers and the public
- Establish long-term canopy goals for local area
- Fund programs for canopy expansion, maintenance and care
- Support volunteer tree planting organizations

A close-up photograph of a cluster of light blue plumbago flowers. The flowers have a star-like shape with five petals each, arranged in a dense, rounded cluster. They are set against a background of dark green, serrated leaves. The lighting is soft, highlighting the delicate texture of the petals.

Questions?

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Thanks!

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