Department of the Environment

How Can Conformity Budgets Help Improve Air Quality?

Tad Aburn, Air Director, MDE
MARAMA Transportation and Air Quality Workshop
February 26, 2013

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Or ... How Can We Enlist the Help of Local and State Transportation Planners to Help Us Improve Air Quality?

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Topics

- Maryland's proposed "Long Range Environmental Targets for Transportation Planning" regulation – What is it?
- A little background on Maryland's air quality problems and how this effort fits in
- How the regulation works
  - Linked to, but not part of, Maryland's transportation conformity requirements
  - Really more about transparency and honesty than mandating controls

Maryland's Proposed Regulation

"Long Range Environmental Targets for Transportation Planning"

- A simple, but controversial proposal
- Places a small – new - burden on state and local transportation planners to help solve our air quality problems
- Builds from, but is separate from, the federal transportation conformity requirements
- Three simple pieces
  - Establishes long-range emission targets for NOx and CO2 – Much tougher than conformity budget for NOx – Brand new for CO2
  - Whenever new projects are being approved and funded in a transportation plan, the MPOs must show how future year emission projections (already done as part of conformity) compare to the new NOx and CO2 targets
  - If future emissions do not meet targets, the MPO must have (and write down) a "vision" or "plan" on how any gap between the future emissions and the targets can be reduced
  - That's it !!!
- Lot's of opposition – Anyone on my stakeholder call last Thursday?

Process to Date

- Introduced as a briefing to MD Air Quality Control Advisory Council (AQCAC) on May 14, 2012
  - Update for AQCAC September 2, 2012
  - Four formal stakeholder meetings
    - June 1, 2012
    - July 20, 2012
    - December 18 and 20, 2012 (calls)
    - February 21, 2013
- Multiple 1-on-1 meetings or briefings
  - Metropolitan Planning Organizations
  - Individual Counties
  - Washington area air quality and climate change committees
  - Environmental groups
  - Other states and federal agencies
- Next step:
  - Stakeholder meeting in April 2013

Our Ozone Problems in Maryland

- Maryland records the highest ozone in the East
- Transport is the #1 reason we have such high ozone
  - You have heard me talk about transport to the point of absurdity
- Not today … this is about the #1 thing Maryland can do – on it's own – to further reduce the local piece of our problem
  - Need a little help from VA and DC
- That #1 thing is to drive down local NOx emissions from mobile sources as far as we possibly can

One Slide on Transport

- We continue to push EPA and upwind states on the need to address transport
  - Maryland has commented negatively on some of the "Good Neighbor" SIPs proposed by folks in the room today - Sorry
- As discussed at OTC meetings, Maryland and several other states are considering additional legal action against EPA and other states to compel reductions to reduce transport
  - CAA Section 176A petition?
  - CAA Section 126 petition?
  - Legal challenges under Section 110A2D?
  - Continued challenges under CAA Section 107?
- Upwind states have been heard to comment
  - "You need to take care of your own emissions from mobile sources before you point at us"

Pushing Local Controls as Well

- Maryland continues to push the envelope on new local controls
  - Lessons learned from the $2.6 Billion Healthy Air Act
    - Moving forward with strengthening regulations
  - Tougher controls on DG sources, incinerators, cement kilns, and more
  - Multiple new area source control efforts (many through OTC Committees)
- Mobile sources reductions are priority #1
  - Our science (more later) tells us that, without a doubt, the #1 target for reducing local emissions is NOx from mobile sources

Reducing Mobile Source NOx

- Maryland is pushing as hard as we can to drive down local NOx emissions from mobile sources using every tool available to us
  - We are a CAL LEV 3 state
  - Our Governor has written individual letters and joint letters with other Governors pushing EPA and the President to move forward with Tier 3/Low Sulfur Fuel program
  - We run a highly effective ($7/year) centralized I & M program
- The one area of potential mobile source reductions we have only had limited success with is …
  - Reducing vehicle use … trying to change VMT growth trends
  - This is what our new regulation – that links to the federal conformity requirements – is trying to do

How Does This New Rule Work?

- Only a requirement for Maryland's two largest Metropolitan Planning Organizations (MPOs)
  - BRTB in Baltimore and
  - TPB in Washington DC
- Requires that a mandatory long-range planning report be submitted whenever a transportation conformity analysis is required
  - Report must
    - Show how transportation emissions compare to long-range planning targets established in the regulation, and
    - Discuss plans to reduce any gap between projected emissions and the target
    - That's it – Very simple

What is Transportation Conformity?

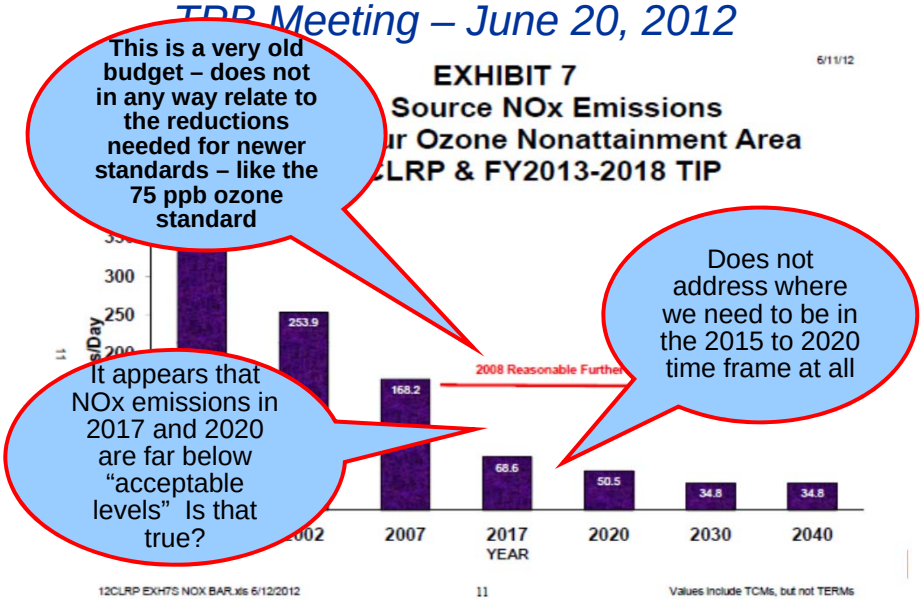
- The Basic Concept
  - When state and local governments add projects to their transportation plans (called Transportation Improvement Programs or “TIPs” or Constrained Long Range Plans or “CLRPs”) …
    - They must demonstrate that emissions stay below emission “budgets” set in the states clean air plan (or SIP/State Implementation Plan)
    - A formal demonstration (the conformity analysis) is submitted to show that the “new” transportation plan will keep emissions under the SIP “budget”
- Conformity failure places federal transportation dollars at risk
  - Federal funds provide a large portion of the money we use to fund transportation plans in Maryland and other states and have a tremendous influence on what and how many projects we can develop

Concerns With Current Conformity Process

- The current conformity process could be enhanced to provide policy makers with more complete information to insure that all critical environmental issues are considered as decisions on which new projects to add to transportation plans and fund are finalized
- Transportation decisions will often have both short-term and long-term consequences

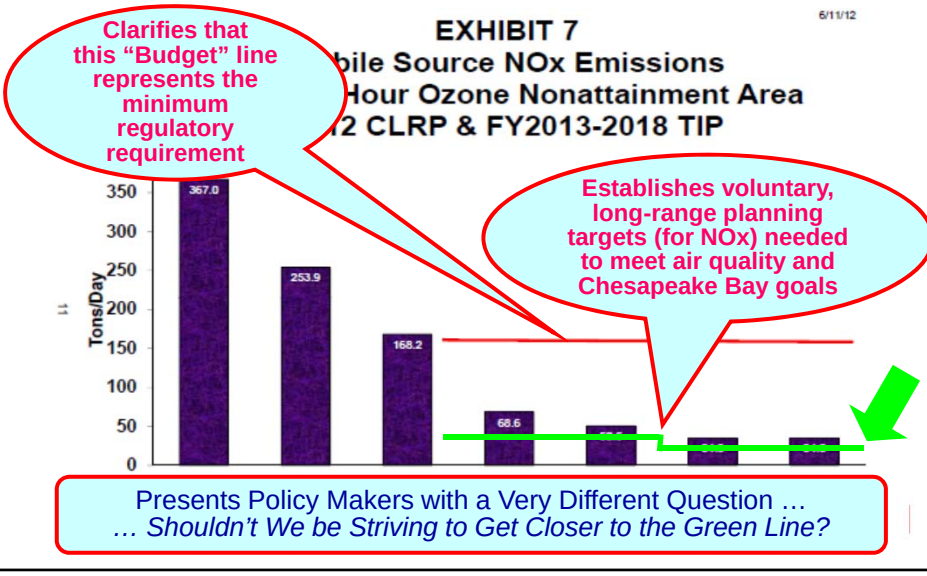
Current Conformity Summary

TPB Meeting – June 20, 2012



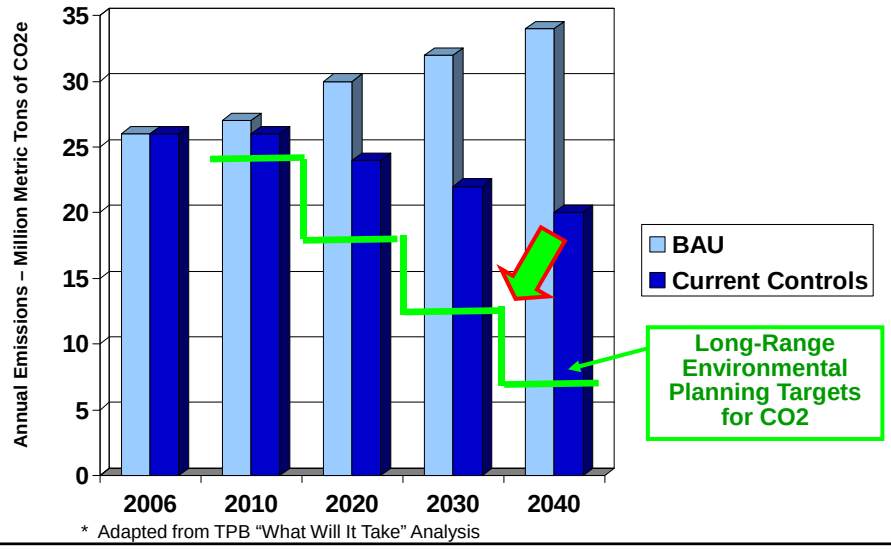
What the MDE Regulation Will Do

Adds Long-Range Planning Targets to the Process



Adding GHG Emissions to the Process

… CO2 is not considered in conformity process at all - Would now be looked at as part of the MDE proposed regulation



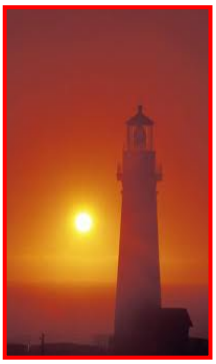
* Adapted from TPB "What Will It Take" Analysis

The Basic Requirements

- Again … requires that a mandatory long-range planning report be submitted whenever a conformity analysis is required
  - Report must
    - Show how transportation emissions compare to long-range planning targets established in the regulation, and
    - Discuss plans to reduce any gap between LRP Targets and projected emissions
- That's it – two steps – no more

How Are the Targets Set?

- NOx
  - Best available photochemical modeling to estimate mobile source NOx emissions reductions needed to meet the 75 ppb standard in 2015 and an even tougher standard (60 to 70 ppb range) after 2020
- CO2
  - We have proposed a “range” for the CO2 targets.
    - Based on a linear path between 2005/2006 CO2 emissions in each area and a 2050 target that equals an 80% to 90% reduction from the baseline
    - 90% by 2050 from Maryland’s 2008 Climate Action Plan
    - 80% from Washington GHG plan
    - Best CO2 data from each area used to calculate targets
- Still requesting comments on other folks ideas on how to set the targets



The Targets

- Baltimore
  - 2015
    - NOx = 31
    - CO2 = 11 to 12
  - 2020
    - NOx = 28
    - CO2 = 8 to 9
  - 2030
    - CO2 = 5 to 6
- Washington
  - 2015
    - NOx = 48
    - CO2 = 17 to 18
  - 2020
    - NOx = 43
    - CO2 = 12 to 13
  - 2030
    - CO2 = 8 to 9

UNITS

NOx in tons per day (tpd)

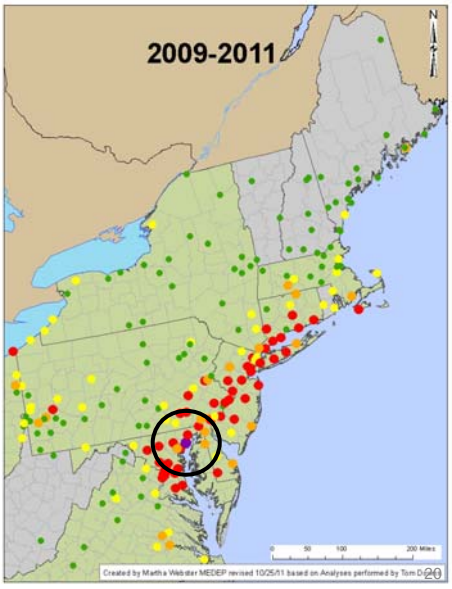
CO2 in Million metric tons per year (MMTPY)

New Regulation - Environmental Drivers

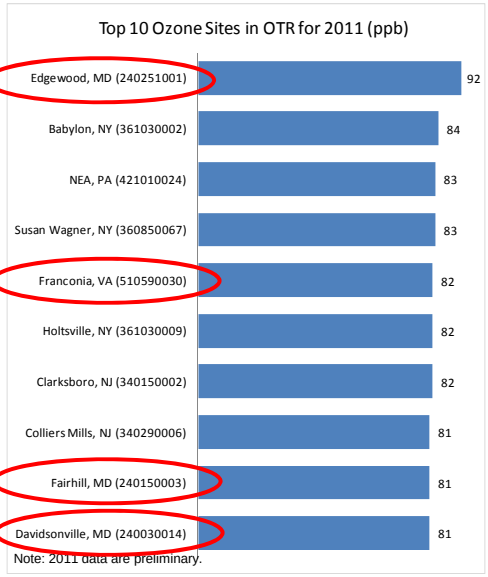
- Maryland and the Washington to Baltimore region have some of the toughest air quality problems in the East
  - Ozone
  - Fine particles
  - Other pollutants
- About 1/3 of the Chesapeake Bay's nitrogen problem comes from air pollution sources
- Maryland is the fourth most vulnerable state to sea level rise, one of the major consequences of global warming
- MDE believes that extra effort is warranted to help address all of these environmental problems

Baltimore – The Last Purple Dot

Preliminary 2011 Design Values in the OTR



Ozone - The Top (or Bottom) 10 List



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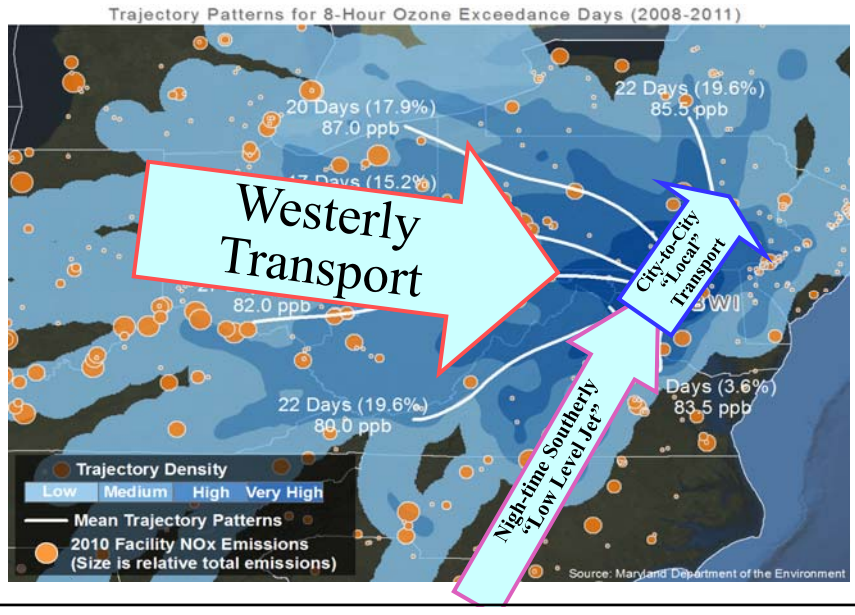
The Three Different Types of Transport



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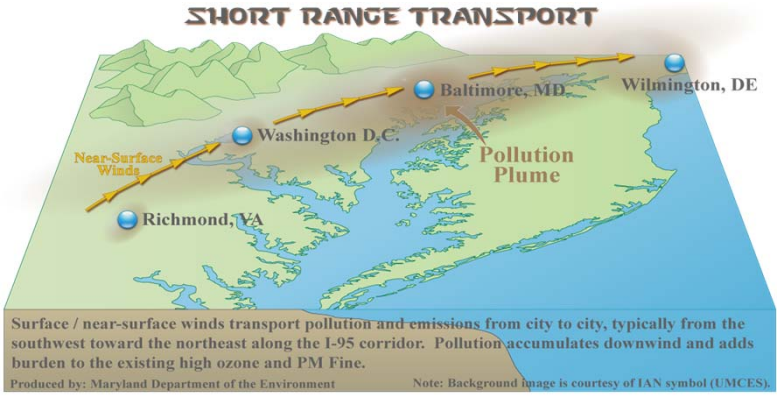
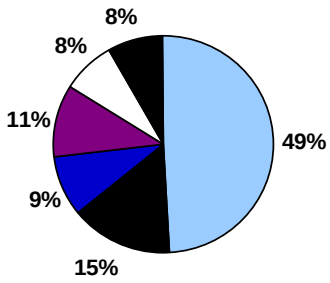
City-to-City “Local” Transport



- Surface winds are typically from the southwest to the northeast.
- The morning pollution in Washington stays at ground level and floats downwind to become part of the afternoon pollution in Baltimore.
  - Pollution from Central/Northern VA ⇨ DC ⇨ Baltimore ⇨ Philly ⇨ NJ ⇨ NY …
- Emissions from mobile sources dominate this kind of transport

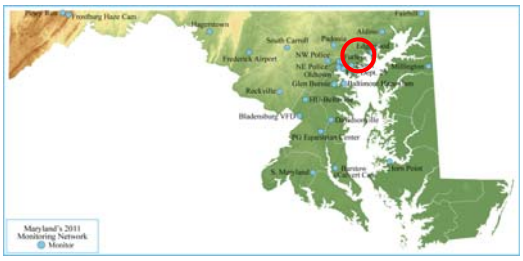
Regional NOx Emissions 2007

- Mobile sources are now the dominant category for NOx emissions in the northeast
- Continues through 2020 projections



Washington's Impact on Baltimore

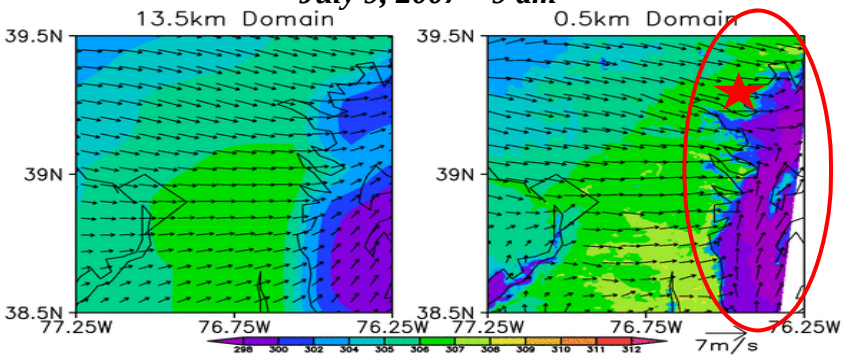
- Baltimore has a very difficult monitor in Edgewood, Maryland
  - Very close to the Chesapeake Bay
  - Last remaining problem monitor in the East for the 85 ppb ozone standard – for now
- Recent research shows that – for ground level ozone - local transport from the Washington, DC area may significantly impact this monitor
- Research conducted by U of M and MDE to better understand how Chesapeake Bay breezes affect local air quality



An Example – City to City Transport

- **The MDE "Long Range Environmental Targets for Transportation Planning" regulation is designed to ratchet down on mobile source NOx emissions from the Washington and Baltimore areas**
  - **It's all about Edgewood**
- **Driven by recent research on the Bay breeze and it's impact local air quality**
  - **Started with U of M WRF (meteorological) modeling around the Bay region**
  - **Used a courser and a finer grid - Finer grid showed very interesting results**

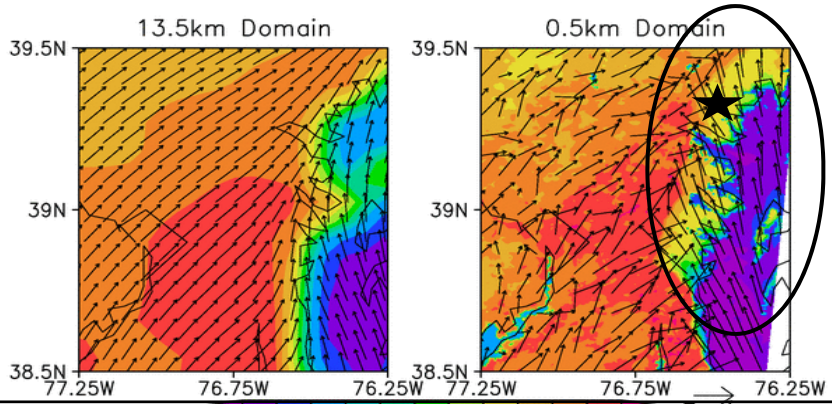
July 9, 2007 – 9 am



Bending Back to the West

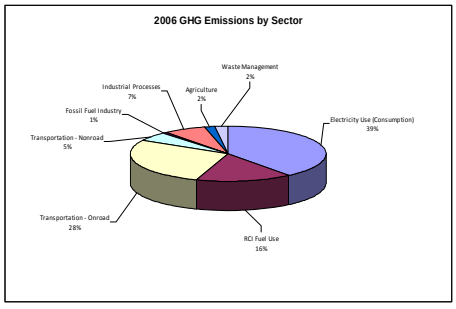
- Dominant DC/Baltimore local source of NOx is vehicles
- Washington area mobile NOx emissions **more than double** Baltimore's
- The Washington (and Baltimore) mobile source NOx emissions seem to be the reason that Edgewood is always several ppb higher

July 9, 2007 – 2 pm



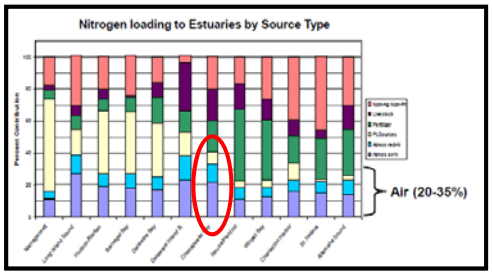
Transportation and GHG Emissions

- Maryland is the 4th most vulnerable state to sea-level rise – one of the consequences of global warming
- Transportation is responsible for about 1/3 of the GHG emissions in MD and the Washington/Baltimore region
- Other major sectors (like power plants) have addressed GHG growth through a hard cap



Mobile Source Emissions and the Bay

- About one third of the Bay's nitrogen problem comes from air pollution sources
  - About ½ of that comes from mobile sources
- 2007 NOx emissions in Maryland – Top two categories
  - Onroad Vehicles (gasoline and diesel)
    - 1148 tons per year
  - Power Plants
    - 516 tons per year
    - Pre-HAA



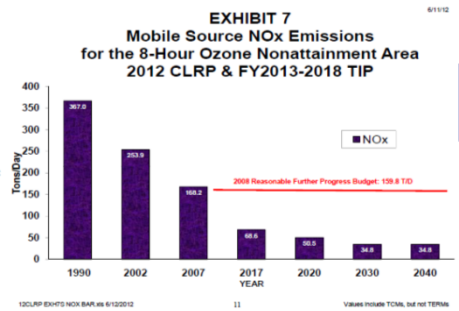
A Sampling of Comments Received

- MDE has worked with a large number of interested stakeholders
  - Metropolitan Planning Organizations
  - Individual Counties
  - Washington area air quality and climate change committees
  - Baltimore area committees
  - Environmental groups
  - Smart growth groups
  - Clean coal interests
  - Other states and federal agencies
- Some of the more interesting comments include …

The Current Conformity Process

… Broken or not Broken?

- Not broken .. But also not really as honest as it should be
  - Do the elected officials and the general public have any clue that the "budgets" being used are so outdated and inconsistent with current standards?
- MDE believes there is a real need to be more transparent and honest about what the real long term environmental targets need to be



This is a 2008 Budget for the 85 ppb standard that was replaced over 5 years ago

A Lack of Transparency?

- The regulation could be interpreted to imply that the MPO's are not providing their elected & unelected members with the information they should have and would want to have?
- Ditto from previous slide
- What do you think?
- Will the regulation result in the elected officials asking hard questions?
  - We hope so

EPA and FHWA

- The regulation is inconsistent with EPA and FHWA requirements?
  - Not true
  - The regulation …
    - Is linked to …
      - but separate from …
    - Is not inconsistent with …
    - Is an improvement upon (at least from an air quality perspective) …
  - The EPA and FHWA requirements and guidance
- MDE continues to work with both EPA and FHWA

The MD regulation tries to regulate VA

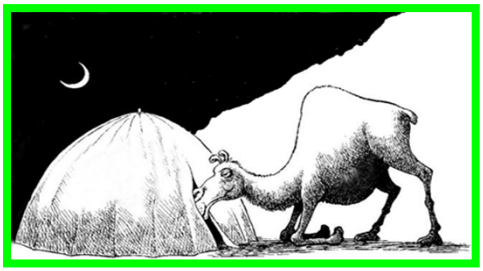
… also tries to regulate DC

- Of course we are … only kidding
- The regulation is driven by the need to make sure that the transportation decisions – that involve Maryland Counties – and impact the air that the citizens of Maryland breathe – are considering the long term environmental needs of the State and the region
- Unfortunately, the air generally floats from the southwest to the northeast
  - From the Washington area to the Baltimore area

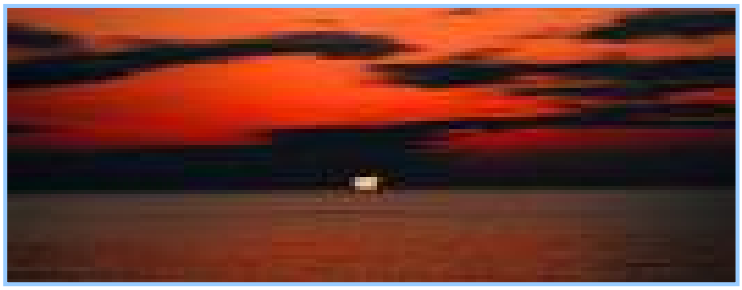
Adding Greenhouse Gases/CO2 …

… to the federal transportation conformity process

- Why not?
  - Would work better with a CO2 “glide path” instead of a budget
  - But again, why not?
- Some of the comments on the MD regulation
  - The camels nose under the tent, opening Pandora’s box, a slippery slope, letting the Genie out of the bottle



Next Steps

- MDE and Attorney General’s Office continue to analyze issues and draft changes to the proposed regulation
- Working to schedule the next stakeholder meeting in April 2013
- Happy to meet with stakeholders individually
- Planning to bring the draft rule back to AQCAC ASAP
- Still pushing for formal adoption in the middle of 2013

Questions?