Smart Growth
and the
Bay TMDL

EPA’s Accounting for Growth Requirement

Jason Dubow, Manager, Water Resources Unit
Maryland Department of Planning
Conflict?

• Clean our waters, sustain aquatic resources

Versus?

• Revitalize urban cores
• Incorporate alternative transportation
• Prevent sprawl
EPA’s Accounting for Growth Requirement

• *WHY?*

  – Even with current development requirements, nutrient and sediment pollution is still increasing
Maryland’s Effort to Address the Accounting for Growth Requirement

- Work in progress
- State-level group working on a draft statewide program
  - Draft for stakeholders available later in 2011
- Local governments interested in tackling the EPA requirement
  - We’d like to hear from local governments
Maryland’s Response to the Chesapeake Bay TMDL

- **Watershed Implementation Plan (WIP)**
  - Phase I WIP = “reasonable assurance”
  - Phase II WIP = additional detail on efforts and commitments by local stakeholders
Maryland’s Response to the Chesapeake Bay TMDL

• *Watershed Implementation Plan (WIP)*
  – The great majority of the WIP focuses on reducing pollution from current sources

• *Maryland’s accounting for growth strategy is also part of the WIP (Section 3)*
  – addresses future pollution sources
Why the Bay TMDL?
Oyster Toadfish
Striped Bass
Blue Crab
Lawn Fertilizer
Wastewater Discharge
Stormwater Discharge
Septic Tanks
Maryland WIP Strategies
(BMP Opportunities)

• NPDES discharge permits
  – WWTP discharges (ENR upgrades)
  – MS4 stormwater permit (more retrofit requirements)

• Agricultural best management practices (BMPs)

• Air emission controls (power plants, cars)

• Less regulated sources
  – Septic tank retrofits in the Critical Area
  – Lawn fertilizer control programs (e.g., SB487)
EPA’s Accounting for Growth Requirement
Aren’t we already doing enough?

- MDE stormwater regulations
- MDE soil and sediment control specifications
- DNR forest conservation act
- MDE wetland mitigation
- Critical Area Program
- State and local land protection efforts
- Planning and zoning efforts
- MDP Smart Growth efforts
Forecasted Nitrogen Increases

Source: Maryland Phase I WIP, Section 3
EPA’s Two Options

• Allocate room for growth

• Offset all new impacts
Maryland’s Proposal

• Assumes current development requirements will continue as-is

• Room for smart growth under current WWTP caps
  – WWTP caps were established in 2004 as part of the Maryland Tributary Strategy

• Offset new urban stormwater and septic tank pollution
What are Offset Credits?

• Best management practices (BMPs) for reducing pollution

• “Offset credits” are additional BMPs above and beyond the BMPs needed to meet the Bay TMDL’s pollution reduction requirements
Universe of BMP Opportunities within local watershed

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To meet Bay TMDL within local watershed

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& to accommodate growth envisioned in local land use plan

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with alternative, smart growth local land use plan

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What Needs to be Offset?

- Loads that exceed WWTP caps
- Increases in urban stormwater runoff
- Increases in septic tanks
Ramifications?

• Redevelopment = zero offsets

• Infill = offsets for increased urban stormwater runoff

• Sprawl = offsets for increased urban stormwater runoff and increased septic tanks
Ramifications?

• Once WWTP caps are reached:
  – Redevelopment and infill will then need to offset wastewater loads that exceed those caps
  – How soon will the WWTP caps be reached?
Challenges and Concerns: Smart Growth Issues

1. Will we increase the costs of infill and redevelopment?
2. Will this slow down growth?
3. Will we lose agricultural land?
4. How deal with WWTP caps?
5. Can we add incentives for smart growth and disincentives for sprawl?
Shaping Maryland’s Accounting for Growth Program

• The following slides explore these questions and highlight possible options that could be included in Maryland’s program to address these concerns
Costs of Offset Credits

• Installation
• Finding the credits
• Market demand
• Administrative costs (development review)
• Development characteristics – location, size
Smart Growth = limits the costs of offset credits
New Development in Sewered vs. Non-Sewered Areas

457,000 Additional Households Forecasted in Maryland (2010-2035)
26% served by septic tanks
74% served by ENR WWTP

Lbs N/yr, per new HH on septic: 22.82
Lbs N/yr, per new HH on sewer: 2.51

Source: MDP, updated 2011 Growth Simulation Model run, edge-of-stream loads
Offset Credits: Cost Example

• 100 units on 25 acres within a sewered area
• Nitrogen pollution from new development using 2007 stormwater management regulations = estimate of 3.8 lbs per acre
• 95 lbs N generated urban stormwater
Offset Credits: Cost Example

• **Offset Costs?**

• Estimated costs of BMPs (from Phase I WIP)
  – Streamside forest buffer on public land
    • $120 per lb N removed
  – Wetland restoration on public land
    • $277 per lb N removed
Offset Credits: Cost Example

• 100 units on 25 acres within a sewered area

• Costs of offset credits – installation only
  – $11,000 total (or $110 per home) if use streamside forest buffer on public lands
  – $26,000 total (or $260 per home) if use wetland restoration on public lands
  – *Cost will be lower, per unit, with higher density*
Will this Slow Growth?

• EPA guideline:
  – Require purchase of “offset credit” before development can proceed

• Alternative:
  – Fees-in-lieu

    • Might require planning to set-aside a large amount of “offset credits” for this purpose
      – “aggregated programmatic credit”
Will this Slow Growth?

• EPA guideline: “Offset Baseline” concept
  – Site-level achievement of Bay TMDL requirements to generate an “offset credit”
  – Ensures growth impacts don’t preclude our ability to meet the Bay TMDL

• Alternative:
  – Track “offset demand” against “offset generation capacity”
Will this Slow Growth?

- The EPA guidance focuses on a market-based approach, but a programmatic approach can help avoid slowing growth
  - Fees-in-lieu
  - Aggregated programmatic credit
  - Tracking offset generation capacity
  - Monitoring offset credits
Will We Lose Agricultural Land?

• Currently, less regulations to comply with if develop in non-sewered areas than in sewered areas
  – No WWTP caps

• Agricultural land often has higher nitrogen loads than development
  – Farms versus development issue
Will We Lose Agricultural Land?

• Each pollution source has its own target load (under the Maryland WIP) to achieve

• Need to make “sprawl development” accountable for:
  – Increases in septic tank loads
  – Increases in urban stormwater loads
Will We Lose Agricultural Land?

• Fundamental Maryland approach:
  – Offset post-development loads and not the “net difference” between before/after loads
  – This provides local government the ability to use land use decisions to support the Bay TMDL

• We don’t want “retirement” of agricultural land to become a way to obtain “offset credits”
How Deal with WWTP caps?

- Purchase “offset credits” to exceed WWTP caps
- MDE and MDA nutrient trading policies
  - Policy and government infrastructure is already in place to purchase “offset credits” to exceed WWTP caps
  - MDA online nutrient trading registry
    - Go to MDNUTRIENTtrading.org for more information
How Deal with WWTP caps?

• Cost to exceed WWTP caps
  – At ENR, each new household contributes as little as 1.2 lbs N/yr
  – To accommodate 1 household past the WWTP cap (using a previous example):
    • $143 per household (streamside forest buffer on public land)
How Deal with WWTP caps?

• *Could be lowered during the Phase II WIP process*
  – If WIP strategies considered too difficult or costly to achieve for nonpoint sources
  • State Bay Cabinet deliberations
  • Local Phase II WIP team deliberations
Incentives for Smart Growth? Disincentives for Sprawl?

- Per Capita Loading Area (PCLA) concept
  - Smart growth areas = low PCLA
  - Sprawl areas = high PCLA
New Development in Sewered vs. Non-Sewered Areas

457,000 Additional Households Forecasted in Maryland (2010-2035)
- 26% served by septic tanks
- 74% served by ENR WWTP

Source: MDP, updated 2011 Growth Simulation Model run, edge-of-stream loads
Incentives for Smart Growth? Disincentives for Sprawl?

• EPA guidance: net improvement offsets
  – More than 1:1 offset
  – Require these in high PCLAs
  – Apply “extra” BMPs towards achieving Bay TMDL target loads
Incentives for Smart Growth? Disincentives for Sprawl?

• Can we reduce the offset requirement in low PCLAs below a 1:1 ratio?
  – If achieve a certain FAR?

• Reserve less expensive BMPs as “offset credits” for low PCLAs?
Limiting New Pollution

• PCLA concept supports smart growth but also will limit the amount of pollution from new development
  – Channel higher percentage of growth into low PCLAs

• Importance of limiting new pollution
  – Offset generation capacity is limited
  – BMP opportunities will get more expensive as they get more scarce
# Limiting Watershed Impacts

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<th>Scenario B</th>
<th>Scenario C</th>
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<tr>
<td><strong>Scenario A</strong></td>
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<tr>
<td>10,000 houses built on 10,000 acres produce: 10,000 acres x 1 house x 18,700 ft³/yr of runoff = 187 million ft³/yr of stormwater runoff</td>
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<td>Site: 20% impervious cover</td>
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<td>Watershed: 20% impervious cover</td>
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| **Scenario B** |
| 10,000 houses built on 2,500 acres produce: 2,500 acres x 4 houses x 6,200 ft³/yr of runoff = 62 million ft³/yr of stormwater runoff |
| Site: 38% impervious cover |
| Watershed: 9.5% impervious cover |

| **Scenario C** |
| 10,000 houses built on 1,250 acres produce: 1,250 acres x 8 houses x 4,950 ft³/yr of runoff = 49.5 million ft³/yr of stormwater runoff |
| Site: 65% impervious cover |
| Watershed: 8.1% impervious cover |

Source: EPA. *Protecting Water Resources with Higher-Density Development*
Supports local and State Green Infrastructure efforts
Challenges and Concerns: Other Issues

• Offset credits likely will need to be purchased within the same watershed
• Fitting this into the development review process
• Permanence of offset credits
  – HOA payments?
  – Use of easements for permanent BMPs?
Next Steps

• Work in progress, 2-year process
  – PCLA classification

• State-level group working on a draft statewide program
  – Draft for stakeholders available later in 2011

• Local governments interested in tackling the EPA requirement
  – We’d like to hear from local governments
Questions?

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MD Department of Planning