

**Pennsylvania Phase 3 Watershed Implementation Plan (WIP)**  
**Kickoff and Listening Session**  
**June 5, 2017**

**Executive Summary**

Over 240 stakeholders came together on June 5, 2017 for the Kickoff and Listening Session for Pennsylvania's Watershed Implementation Plan Phase 3 (WIP 3). The goals for this Session included the following:

- Exploring how Pennsylvania's Phase 3 WIP will be developed this time, including how this phase is different, and how participants may be involved
- Ensuring that everyone who has needs, concerns and ideas gets to provide input about those needs, concerns and ideas
- Making that input the most useful for the steering committee and five workgroups that will be writing the Phase 3 WIP

Following opening remarks by the Secretaries of Environmental Protection, Agriculture, and Conservation and Natural Resources, and an introduction to the Phase 3 WIP planning process, participants initiated and led 32 different group discussions related to the WIP. These centered around ways of meeting the goals of the Phase 3 WIP for Pennsylvania by 2025.

The whole group then reconvened to reflect on the day's work. The Secretaries lauded the discussions and participants expressed their hopes that the ideas would find support from the Steering Committee and Working Groups who will receive the written products from today's discussions.

**Opening Remarks**

**Patrick McDonnell - Secretary PA Department of Environmental Protection**

Secretary McDonnell reminded the group of the TMDL obligations and observed that everyone - citizens, farmers, and municipalities - is held accountable for clean water, not just fulfilling EPA requirements. Clean water is essential for healthy businesses and healthy communities. Sec. McDonnell reminded everyone that we need to understand one another's concerns in order to create a plan that will work for all. He noted that Governor Wolf has focused on increasing resources for new technology to reinvigorate partnerships and state regulation requirements for better water quality.

Pennsylvania needs to continue to leverage partnerships to accomplish this task. Each group has a role to play to make sure that the Phase 3 plan that is developed over the next 18 months will achieve its intended goals. If Pennsylvania achieves local water quality improvements, the Bay will take care of itself.

He added that in addition to this Summit, they are soliciting written comments to get more input on what success means and ways of accomplishing that success. July 7th ends this open comment period.

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**Russell Redding – Secretary, PA Department of Agriculture**

Secretary Redding noted that the diverse attendance at this Summit is an example of how to meet challenges inhibiting active discussion on environmental issues. He noted that the right people are in the room at the right time. The goals for the Phase 3 WIP require reaching the required reductions by 2025 and staying there. Agriculture must bear 80 percent of the nitrogen reductions needed Baywide. There is economic value for everyone in agriculture in addition to coequal goals between agriculture and the rest of the state in clean water. For this to become a reality, we must come up with a meaningful plan that reflects the expectations of the citizens and community. There will be higher-need farms that are going to take extra attention, but with proper capital this can be done.

He also reminded the room that the improvements that will be called for in this plan cannot be borne by agriculture alone. It will take science, good technology, and a cross-sector approach with community partnerships to ensure that we have a plan that will achieve our goals and that can be implemented.

**Cindy Dunn – Secretary, PA Department of Conservation and Natural Resources**

Secretary Dunn began her talk by noting that Governor Wolf has requested an additional \$45 million for the Chesapeake Bay in his proposed budget last February for this state fiscal year. She observed that taking care of the water also means taking care of the land; for example, planting trees can contribute to watershed protection.

DCNR is working to connect people to the water, whether through fishing or wading in the Susquehanna. Neither can happen if the water is polluted. Unfortunately, on the hottest days the state sometimes needs to close beaches and parks because of high E Coli levels following rain events. She reminded participants that water is being used by everyone and to think about local assets that touch people's lives.

**Nicki Kasi, DEP – The WIP Planning Process**

Ms. Kasi began by noting that Pennsylvanians have a right to clean air and clean water. The WIP seeks reductions in nitrogen, phosphorous, and sediments with accompanying quotas. Although all sectors must contribute to improving water quality, agriculture will be responsible for more than 78% of nitrogen reductions, 76% of phosphorous, and 70% of sediment reductions that will be needed. The technical assistance/compliance infrastructure and cost share funding are not yet in place to deliver on these needed reductions.

The analysis of the monitoring data shows a decreasing pollutant load trend in many tributaries, but some show a leveling out or increasing trend. The EPA drafted an expectations document for all the states in the Chesapeake Bay watershed that required programmatic and numeric commitments. All of the states must engage local, regional, and federal partners and account for changing conditions attributed to climate change, the Conowingo dam infill, and growth. EPA

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also expects the states to develop and implement local planning goals below the state-major basin scales.

Pennsylvania received its own specific expectations to meet the 2025 goals. In addition to the Baywide expectations, Pennsylvania will need to show programmatic, policy, legislative and regulatory changes needed; the staff, partnerships and financial resources needed; and a plan for a dedicated and targeted annual state cost-share program.

She concluded by reviewing the schedule and the process to develop the Phase 3 WIP for Pennsylvania. The draft Phase 3 WIP will be due to EPA by December 2018. A Steering Committee will be supplemented by six working groups, with public comment being solicited. The products of the work that is done today will be given directly to the Steering Committee and the working groups for their consideration as well.

### Open Space

Three sessions and a lunch break followed the opening session. Participants were invited to introduce their own topic or participate in discussions led by others during each of those sessions, following this key general question:

What initiatives and collaborations in these sectors would help us achieve the goals of the Phase 3 WIP for Pennsylvania?

- Urban and Stormwater
- Wastewater
- Agriculture
- Forestry
- Funding
- Local Planning/Area Goals

Thirty-two topics were offered and led to high-energy discussions, as did a lunch break that was used by many to continue those discussions. The notes from these sessions may be found below in the Appendix.

### Closing Plenary

Following the open space discussions, participants reconvened in plenary and were invited to speak to what they learned and what they might do differently because of what they learned.

Key points included the following:

I am impressed by the commitment and love of local waters. I am also concerned that we may be diluting the ability to meet TMDL goals by focusing on all the local issues at once. We want to make sure that people can focus on local *and* big picture issues.

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I saw a lot of “horses in the room!” We need to make sure that people are going in the same direction. I liked the energy and discussion from everyone.

I am energized by the number of new faces as well as those I recognize from the previous phases of the WIP. It is good that they can “hand the baton off” to newer people. In order to keep new people engaged, we need to share the institutional knowledge of those with the Phase 1 & 2 WIP experience.

I liked the representation and was energized in my discussion on trophic cascades between mussels and eels. I also saw a great discussion about retaining forest lands, as I am concerned about the quality of forests on private and public lands.

I liked the depth and knowledge in the room, and level of understanding about the issues and the difficulty of finding effective solutions. I offer a question: what are we going to do differently so that phase 3 does not become 1 or 2? We cannot be doing the same thing and expect a different outcome.

**Conference WIP Closing Remarks**

**Russell Redding – Secretary, PA Department of Agriculture**

Secretary Redding offered congratulations on the work held during the day and the sizable turnout. He thanked the Institute for Environmental Negotiation for coordinating the day and offered gratitude to DEP as well for organizing the Summit. He admitted that he was skeptical whether open space would work, but proclaimed that this was the right way to proceed. He thanked everyone for being in the conversation and was impressed by everyone who wanted to be in on the Phase 3 WIP. He is reminded of Steven Covey and his “Law of the Farm”: plant first, then harvest. This was a day of planting, and the harvest will come later.

Sec. Russell stressed the importance of human capital and the collaboration that needed to happen at the state and federal level. He also noted the importance of funding, engagement of stakeholders, and the importance of getting communities on board. This requires acting responsibly, civilly, and making decisions not as a mandate, but as an engaged society. He noted that we need to change behavior before you change water quality.

**Cindy Dunn – Secretary, PA Department of Conservation and Natural Resources**

Secretary Dunn declared that it was a great day! She liked the energy in the room, and described the conversations as “real.” She heard a lot of serious engagement as well as pushback. She learned some things she had never heard before. She is convinced that even though an older generation is leaving a lot of problems, a new generation will succeed. Sec. Dunn was also gratified to hear about forests and land use cover, which involve conserving what we already have.

She is optimistic about funding becoming available, and heard a good level of talk around it. However, like Sec. Russell, it is human capital that makes her the most optimistic. Figuring out how to work together will be what is most important.

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**Patrick McDonnell – Secretary, PA Department of Environmental Protection**

Secretary McDonnell closed the meeting by urging everyone not to let the energy that he saw at the conference dissipate. He invited all to use that energy and passion to fly over the finish line. The challenge to the department agencies and the Steering Committee is the potential scenario where the information is “sucked into a bureaucratic process” of putting together the Phase 3 WIP. He invited participants to call them if you see them not being engaged and make sure everyone is working together.

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**Topic 1A: The Role of Citizen Science in Meeting Our Goals**

*Leader name:* Andy Yench, PSU

*Key Outcomes:*

- Consistent, quality, verifiable data: essential
- Outreach is as important as the data collection in the citizen science process
- Increase collaboration between NGOs, legislators on all scales, make organizations more amenable to collecting, sharing and using citizen-collected data
- Public engagement in backyard watersheds is necessary for change in watersheds.
- This is an issue with both urban and rural potential

*Next steps:*

- Where is the money?
- Where to expand existing citizen science/outreach efforts?
- Increase collaboration by and with organizations with interests in citizen science
- Develop cost effective training, outreach and data collection methods

*People and groups to work on this:*

- NGO's, PSU Extension, organizations with waterway interests, students, Chesapeake Bay Program workgroup meetings

*Additional Notes*

- What is citizen science?
  - Data collected by citizens, shared with agencies and others who can take action
- Platform needs to be conducted correctly
- Education on how to do this
- Also community outreach
- Expand capacity
  - Engage communities in their own backyard with their own outreach, education and data collection efforts
- Need a mechanism for data collection quality control
- Master watershed stewards, nature abounds, colleges, fly-fishing/water recreation organizations.
- To spearhead this initiative? Stroud Center Wiki watershed, save our streams, Dickinson College Alliance for Aquatic Resource Management (ALLARM)
- Whose responsibility is it to train the citizens scientists/educators?
- Current DEP situation = citizen-collected data can petition further action by DEP
  - Previously there were more DEP funds for citizen science
- Prioritize impaired watersheds?
- Scale: County-based master watershed steward program, watershed scale, statewide program with local bases, "all-scales." Can we share data cross-state as watersheds span cross-state boundaries?

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- Role of citizen science beyond stream quality monitoring: The power of neighbor-to-neighbor outreach, first engage on the issue, then engage on doing the monitoring/science
  - Some connection to the cause happens during water monitoring and raining
- This issue is as salient to urban settings as rural
- Professional Dairy Managers of Pennsylvania is developing tests for entry and exit points of water flow through farms to verify that BMP's are affecting water quality. Dairy farmers need facts that the conservation practices are working. \$20,000 for testing equipment?
- Provide meaningful data not only for regulatory agencies but for landowners and other kinds of decision-makers
- Can we simplify data collection to lower costs but still provide effective, high quality results?
- Incorporate to local governments/legislation organizations currently unfamiliar with using it (MS4 outreach)
- Contradictory messages from current storm water education entities
  - Some of the groups (government or NGO) educating on stormwater occasionally get their facts wrong, or some of these groups are more open to the involvement of citizens in their data collection efforts than others.

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**Topic 1B: Pennsylvania in Balance**

*Leader name:* Matt Royer, PSU

*Key Outcomes:*

- Ensure PA in Balance stakeholder ideas are incorporated into the Phase 3 WIP
- Ensure Technical Assistance (TA) and Financial Assistance (FA) provision is a high priority outcome of the Phase 3 WIP
- Have localities (i.e. Counties) develop customized strategies to best leverage resources (multiple technical resources) to meet their highest priorities in agriculture
- Agricultural recognition to drive more conservation.

*Next steps:*

- Bring relevant ideas from PA in Balance to the table as the Phase 3 WIP is developed
- Touch back to PA in Balance attendees as WIP develops

*People and groups to work on this:*

- Use PA in Balance attendees as larger “work group” to shape the Phase 3 WIP development

*Additional Notes:*

- Maintain positive attitude, agriculture as a solution, not a problem
- Will take time to develop
- “culture” among all farmers
- Involve local agricultural leaders for buy-in
- Involve agricultural leaders
- Strategize marketing/education to highlight agricultural leaders
  - Representation of different scales/types
- What a healthy farm looks like (logical, economic)
- Better definition of our goals/outcomes (cut through model maze)
- Bring PA in Balance ideas to local leaders (ex: county Facebook pages)
- Address high animal agricultural numbers and manure/nutrient imbalances
  - Market drivers here
- Increase Technical Assistance capacity; there is a huge need and a need for financial capacity to build marketing around this
- Agricultural certification and recognition to drive conservation and help tell stewardship story
- Build market drivers around certification
- Evaluate barriers to entry
  - Ex: Maryland’s certainty program
- Farm Stewardship Certification Program in Maryland is simpler and has more receptivity

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**Topic 1C: Human Capital**

Leader Name: Claire Maulhardt, Capital Region Water

Key Outcomes:

- New workgroup “human capital”
- A PR campaign for program – structure it to build a collective voice
- Define structure & budget

Next steps:

- Meeting with DEP to explain the need for this working group.
- Kick-off meeting with new work group.
- Looking for connections with other kick-off topics i.e. “local targets”

People and groups to work on this:

- All sectors

Additional Notes:

- Targeted structure to build “human capital” in the most effective physical location - In places where we will get most reduction
- How do you fit the regulation “clean water” into the structure?
- Separate group? Who aligns regulators and regulated?
  - Pulling from existing groups
- What is an effective, efficient structure to implementation?
  - From fed – state – local
  - Bottom up leadership, not top down
  - A structure outside the traditional regulator-regulated
- Inputs in photo below:
  - Public
  - State
  - NGOs
  - Private
  - Local



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**Topic 2A: Funding/Financing**

*Leader name:* Robert Boos, PENNVEST

*Key outcomes:*

- New dedicated funding source
- Condition existing funding towards water quality improvement
- Biggest bang for buck/targeting spending

*Next steps:*

- Develop income generating markets
- Engage legislative process
- Focus on local facts

*People and groups to work on this:*

- All of us

*Additional Notes:*

- Toilet Paper tax
- Condition incentive programs on WIP compliance i.e. leverage existing programs
- Milk Board millage dedicated to WIP compliance
- State and federal infrastructure lack of participation in local storm water management fees
- Legislation to authorize local government to fund storm water without forming an authority
- Funding for Conservation Districts for technical assistance
- Water quality solutions that pay for themselves
  - i.e. develop markets
- Condition existing state funding/resources on achieving water quality objectives (i.e. agriculture preservation program)
- Eliminate agriculture from exemptions of water use fees but provide credits for BMP improvements
  - Could also apply to other exemptions
- Designate a portion of Growing Greener 3 to WIP compliance
- Condition funding on meeting performance objectives
- Incentivize cross sector objectives (i.e. watershed approach)
- Funding that “Stacks Benefits”
- Targeted investment of funding for multiple benefits.
- Efficiency of public/private partnerships

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**Topic 2B: Dedicated Funding**

*Leader name:* Marel King, Chesapeake Bay Commission

*Key outcomes:*

- Revenue
  - Statewide
  - Multiple Sources
- Distribution
  - Practices and tech. asst.
  - Non-point sources
  - Match required
  - Targeted for cost-eff.

*Next steps:*

- Numbers
- Need
- Potential revenue

*Additional Notes:*

- Revenue
  - Multiple sources
    - At scale to generate needed amount
  - Milk Marketing Board Assessment on price of milk
  - User fees
    - Local revenue
    - Water withdrawal
  - Household fees
    - Flush fee
  - [Flexibility
    - Leveraged federal funding]
  - Consumer fee
    - Toilet paper tax?
    - Food?
  - [Locals need legal authority to enact stormwater fee]
  - Redirect existing appropriations
  - Statewide
  - Supplement funding with compliance
    - Clean and green
    - Farmland Preservation
  - Revolving Fund
  - Marketing
    - Highlight local benefits
    - Get messages out early

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- Distribution
  - Financial Assistance (practices) and Technical Assistance (people)
  - In balance
  - Non-point sources
  - [MS4s need technical assistance
    - Can generate own revenue for implementation]
    - can/should?
  - Flexible
  - Match requirement
  - Money goes back to where it is generated
    - Sector
    - Geography
  - Targeted to biggest bang for the buck
    - Geographically
    - By sector
  - Seek immediate results to show that public money is working
  - Targets may differ by region
  - Loans v. grants
    - both

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**Topic 2C: Continuity in nutrient/sediment reduction estimates across organizations. What models do we use? What data?**

*Leader Name:* Jeff Overstreet, Berks County Conservation District

*Key outcomes:*

- Training (webinars, PACD, EPA)
- Collecting data
- Consistent framework (Bay Fast)
- How can we convene a training with Devereux Consulting?
- Continuity across BMP definitions

*Next Steps:*

- Training
  - PA DEP has provided several CAST webinars hosted by Olivia Devereux since the Phase 3 WIP kickoff event. These have been very helpful, however providing the webinars in the use of BayFast would be even more helpful.
  - Need to determine how nutrient reductions are being measured; what information is available on BMP effectiveness?
- There are assumptions re: BMP efficacy that are required in grant applications. What is the justification or basis for effectiveness?
- How are the different states calculating nutrient reductions? Are we using the same or different approaches?

*People and groups to work on this:*

- Chesapeake Bay office?
- EPA?

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**Topic 3A: Acid Mine Drainage: Abandoned Mine Lands**

*Leader Name:* John Dawes, Foundation for PA Watersheds

*Key outcomes:*

- Re-elevation of Acid Mine Drainage/Abandoned Mine Lands in WIP 3 similar to WIP 1
- Find better ways to document/report sediment and nutrient reductions on Acid Mine Drainage/Abandoned Mine Lands projects
- Funding for Acid Mine Drainage/Abandoned Mine Lands has diminished; we need to explore all avenues of funding, especially dedicated funding
- Monitor projects funded through the Pilot Funding in the General Budget, \$30m in 2016 (project list already developed by Bureau of Abandoned Mine Reclamation) \$25m for 2017 (secured) and \$25m in 2018 budget

*Next Steps:*

- Monitor funding sources – advocate for increased funding
- Work on reauthorization of Abandoned Mine Lands fund
- Look for opportunities to increase industry participation
  - Incentives for restoration

*People and groups to work on this:*

- Foundation for Pennsylvania Watersheds, PENNFUTURE, Western and Eastern Pennsylvania Coalitions for Acid Mine Reclamation (WPCAMR/EPCAMR), DEP, Susquehanna River Basin Commission (SRBC), Watershed Groups, Trout Unlimited, MSRKA (Middle Susquehanna Riverkeeper Association?)

*Additional Notes:*

- Original WIP addressed Acid Mine Drainage (#1)
- Needs to be re-elevated in WIP 3
- Abandoned Mine Lands fund and Reclaim Act (HR1731 S728) and philanthropy
- Jeddo mine tunnel
- AMD/AML has very quick and profound effect on reclamation
- Use of manure on mined lands
- Update AMD/AML database
  - Reclaim act could help with this
- Prioritize streams/watersheds
- Need to restore AMD funding
- Economic opportunity if AMD cleaned up
- Pump storage operations
- Penn State could possibly assist – biosolids
- Reforestation of AML - Carbon credits?
- How do we make sure sediment reductions of AMD/AML projects are accounted for?
- Potential use of Conowingo sediment dredging pilot project initiated by Maryland

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**Topic 3B: Forest Fragmentation and Stormwater**

*Leader name:* Carol Parenzan, Middle Susquehanna Riverkeeper

*Key outcomes:*

- Oil and Gas representation - need voice; incentives to bring them to the table
- Dedicated funding for forest protection, buffers, urban trees
- Public education and conservation costs
- Develop clear objectives, buy-in so we can secure funding
- Collect data and case study to support outcomes
  - To help prioritize projects and investment
  - Basin scale and sub-watershed/local → Statewide data wiki watershed

*Next steps:*

- Bring together data and people to define outcomes to focus investment strategies - “collaboration”
- Stakeholder - parallel to buffer group for intact forests

*People and groups to work on this:*

- Ryan - Alliance for Chesapeake Bay to LEAD collaboration
  - include Susquehanna River Basin Commission (data etc.)
- Broad representation – industry, developers, forest associations, habitat experts, Trout Unlimited

*Additional notes:*

- Stakeholders - Oil and Gas should be included as developers/homebuilders
- Message sustainable ethic/role of industry
- Require narrower pipeline pathways
  - Regulation, incentivize - what are these?
- Education - impacts of water quality from fragmentation
- Sara N./DCNR - trees back in the urban environment
- Comprehensive plans - include trees/forest in PH2 and 3 to garner ecosystem services (smart growth)
- Use data to help prioritize
  - Remotely sensed
  - GIS/map
- DCNR programs can be leveraged
  - Tree Vitalize; Penn State service education study on co-benefits
  - MS4 assistance through public space, partner with PennDOT - pervious pavement
- Rethink rural stormwater management
  - BMPs being required in Oil and Gas are less effective/inappropriate in rural (solution should be trees)
- Retaining forest, triple bottom line benefits valued

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- NRCS - influence & regulatory control? We can build but can't track loss.
- Chesapeake Forests - Management
- DCNR Forests - retaining forests
- Chesapeake Conservancy - data, mapping; connect to buffer analysis
- Co-planning, helping with land owners
- Endless Mountains - connect to agriculture
- DEP - TMDLs - need intact riparian buffers
- Riparian buffers - especially in ag lands
- Natural Resources Conservation Service state forest
- Abandoned Mine Reclamation - connectivity benefits to water quality
- Middle Susquehanna distributions from oil and gas increasing fragmentation

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**Topic 3C: Build on Ag Enforcement → promote greater stewardship**

*Leader name:* Kelly O'Neill, Chesapeake Bay Foundation

*Key outcomes:*

- Messaging - use inspections to promote greater stewardship
  - Explain benefits of higher levels than baseline et al. to promote stewardship
- Cohesive messaging - encourage bankers et al. to promote stewardship
  - Bankers, municipalities, seed dealers, co-ops
  - on success from stewardship (farmer benefits)
- Collaborative planning process - be sure farmers understand
- Incentives for conservation - recognition, clean and green tax breaks
- Whole farm approach
- Find ways to move beyond farms merely having required plans, and to move towards a deeper “culture of stewardship,” in order to increase the likelihood that plans are fully implemented, and to enhance soil and stream health, and farm viability

*Next Steps:*

- User-friendly tools - calendar for manure management
- Greater coordination - so inspections lead to collaborative, realistic plans
- See Vermont Program - consistency, clear goals

*Additional Notes*

- Communication - success on farms
- Everyone working with farms - bankers, co-ops, seed dealers, municipalities
  - Consistent message on need for implemented plans
  - Higher level
  - Need leverage in different sectors
- State recognition program
- Many uncoordinated programs
- Model - Vermont Department of Agriculture - Partnership
  - Required Agriculture practices
  - consistency
- Find ways farmers can benefit
  - Incentives for nutrient management
- Manure Management Plans:
  - Use calendar or more user-friendly format/tools
- Incentives tied to meeting compliance - farmland preservation, Clean and Green
- Make sure plans understood and realistic
  - Collaborative planning process
- Partnership - for farms needing plans
  - Whole-farm approach
  - Empowered local leadership

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- Education - processes for enforcement
- Quality vs. quantity of interactions
- Getting word out - consistent message
- Staff limitations
- Role of districts - education

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**Topic 4A: Asset management to prioritize Green Stormwater Infrastructure**

*Leader name:* Liz Deordorff, American Rivers

*Key outcomes:*

- Educate green BMPs is water (clean)
- Scale: community: infrastructure system; (Publicly Owned Treatment Works) etc.
- Education/Sharing - inter government (local ↔ state ↔ regional ↔ federal)
- Utilities role in regulatory process
- Ordinance requirements locally
  - Development, redevelopment and retrofitting
  - Oversight to ensure municipalities developed ordinances
  - Education sharing of ordinances - good models

*Next steps*

- Summit with leadership participation, informed by on-the-ground
- Reach out to non-traditional partners; associations, e.g., Pennsylvania State Association of Township Supervisors
- Pollutant Reduction Plans - include Green Stormwater Infrastructure – prioritize in public land management & utility/system management (required Operations & Maintenance)
- SRF/PennVest (Private/public-partners - incentives)

*People and groups to work on this*

- Everybody

*Additional notes*

- What is green infrastructure
  - Rain gardens
- Credits require assurance on Operations & Maintenance of BMPs
- Monitoring & workload
- DCNR: parks/waterways/trees are low-hanging fruit for BMPs
  - More interagency coordination
  - State funding contingent on BMPs
  - Connect with regulatory elements
- Parks, roads: planting trees
- Viewing stormwater BMPs as asset management infrastructure
  - Everyone – community, managers
- Land owners don't understand their BMPs
- Applicants need section on considerations for green infrastructure
- Learning as green infrastructure is put in place (case studies)
- Sharing information on economic benefits

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**Topic 4B: Roadside Drainage Management**

*Leader Name:* Jamie Shallenberger, Susquehanna River Basin Commission

*Key Outcomes:*

- Policy and regulatory contradictions need to be overcome
- Expand on existing processes - Turnpike Commission & PennDOT & DCNR Forest Management
- Educational literacy about these issues
- How to give credit for road management practices

*Next Steps:*

- Get special invitation to policy/regulatory discussions
- Create workgroup (?) to leverage participation in education literacy efforts underway

*People and groups to work on this*

- Agriculture work group
- PA DEP
- DCNR
- MS4 Interests

*Additional Notes*

- Municipal road management/MS4
- Residential road design
- Role of trees and forest
- Whose responsibility?
- Interference with other utility elements (underground)
- Road/stream intersection & interactions; culverts; maintenance
- PennDOT - large, interstate network; fixed-distance Right-of-Way; inherited design
- Disconnect between design & maintenance
- Need for education & accountability over maintenance
- Dirt & gravel maintenance program not getting credit for Bay pollution reduction
- Regulatory contradictions
- No flexibility for modifications
- Training/education for road maintenance BMP, emergency first responders
- Multiple standards
  - Lead by example
- In-place filtering/treatment
- Next steps
  - Regulatory and policy review
  - Account for projects in terms of pollutant reduction
- Who to involve?
  - Agriculture work group

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- “Whole Farm” concept
  - Road “owners”, managers
  - Regulatory policy/practitioners
    - PennDOT
    - PA DEP
    - United States Army Corps of Engineers
    - EPA
- Technology
- Training/education
  - Professional development
  - Continuing education
  - Outreach events
  - Local Technical Assistance Program
    - PennDOT program - could it be turned to others
- County planning directors “One Water”

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**Topic 4C: Riparian Forest Buffer Innovations**

*Leader name:* Teddi Stark, PA DCNR Bureau of Forestry

*Key outcomes:*

- Enhance incentive programs for urban development
- Create outreach materials for landowners/messaging package/success stories and technical information materials (Technical Service Providers), resources
- Grow partnerships and collaboration
- Public perception
- Build incentive structures

*Next steps:*

- Multi-functional Riparian Forest Buffer alliance (Form a group like No-Till Alliance for owners and implementers of Multi-Functional Riparian Forest Buffers)
- Buffer maintenance (establishment) collaborative or program - Form a pay-for-service group available to do buffer maintenance for landowners or others who install buffers. Perhaps also consider a DIY buffer maintenance trailer. Look for grant funding for this!
  - “Master buffer stewards” - develop program like Master Gardeners/Maters Water Stewards for buffers- look at Clearwater Conservancy model buffer steward program.
- Establish a demonstration network- develop a network of people with different types of buffers than can be used as demonstration sites for new landowners interested in installing a buffer.

*People and groups to work on this*

- RFB advisory committee, DCNR, Stroud Water Research Center, Farm Service Agency, NRCS, Alliance for the Chesapeake Bay, Conservation Districts, Chesapeake Bay Foundation, Trout Unlimited, other NGOs, Private sector, Penn State Extension, Game commission

*Additional Notes*

- Diversify funding for non-agriculture lands
- Abandoned Mine Land reforestation
- Selling buffers with varied eco-services (cultural, pollinator, economical, etc.)
  - \$ Numbers for each service (what is the added ecological value?)
- Highlight successes (photo documents)
  - Create demonstration areas
  - Consistent maintenance resource materials to landowners/Technical Service Providers and sustaining current Riparian Forest Buffers
- Enhance stewardship culture
  - Make buffers and stewardship valuable to landowners
- Prioritization amongst local partnerships
  - Coordinate program delivery

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- MS4 municipalities and agricultural nutrient trading through buffers
- Assess potential for natural regeneration
- Develop continuous buffer incentives amongst neighbors
  - Potential to collaborate with municipalities
- Find early adopters and partner with local organizations
- Competitive buffers
  - Reshape public perception of unmaintained landscapes
- Examine residential zoning landscapes codes to support RFBs
- Use “words that work” for landowner outreach and communication.
- Clear messaging to land owners, setting up expectations - design Riparian Forest Buffer to landowners needs/ability
- Need for more design training for Technical Service Providers
- All buffers are multi-functional! Find the function most important to each land owner.
- Collaborative workshops/outreach events
- Buffers cannot live in isolation!
  - Precision agriculture/holistic approach
- Enhance urban development incentives for buffers

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**Topic 5A: Crop Nitrogen Use Efficiency**

*Leader name:* Bill Angstadt, Angstadt Consulting

*Key Outcomes:*

- Develop Nitrogen Use Efficiency Message - maintain curriculum
- Identify “educator” Network
- Educate/Dialogue *OFTEN*
- Recognize agricultural diversity

*Next Steps*

- PSU, DEP, PA 4R Alliance 4R Baseline Inventory

*People and groups to work on this:*

- Ag bit, PSU Extension, The Nature Conservancy, Stroud Water Research Center, Conservation Districts, NRCS, Pennsylvania Department of Agriculture, State Conservation Commission, DEP

*Additional Notes*

- N: P ratio
- Manure
- Partners

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**Topic 5B: Ag Waste Remediation Technology**

*Leader name:* David Foster, INTAG

*Key Outcomes:*

- “sector crossing regulations”
- Scale (and community based)- there are two very different scales- small producers and aggregators but also very large production companies.
- Technology critical BUT changes, need credible support
- Additional profit

*Next Steps*

- Identify and eliminate regulatory obstacles
- Incentivize private sector
- Tech clearing house, reduce x-sector

*People and groups to work on this:*

- Intag, Energy works
- Tetra Tech (Pittsburgh)
- Bion tech.
- Reg., Bid process, “compost”
- “lesson learned” folks and creatives

*Additional Notes*

- tech change
- 75%
- Scale: buy 500K wt.
- Digesters
  - Carbon → energy
    - Combined Heat & Power (cogeneration) anaerobic
  - Gasify → Poultry wastes. Nitrogen volatilized, Phosphorous in solids
    - N<sub>2</sub>, P into feed transportable
  - 3.5m pellets
  - Community → Scranton
- Sedimentation
  - Key issue any liquid waste stream processing, sedimentation is a problem during treatment
- P transport out solids N → liquids
- Cost, labor, support (experience) (at this point cost of treatment exceeds cost of land application)
- Manure partners/kiss
- Solids septic, swine, dairy,

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- Buffer uptake - can our buffers absorb this vs. be harvested and remove waste nutrients for cash
- Intag, Energy works
- Tetra Tech (Pittsburgh)
- Bion tech.

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**Topic 5C: Incorporating Environmental Education into the PA WIP 3**

*Leader name:* Emily Thorpe, Chesapeake Bay Foundation

*Key Outcomes:*

- Incorporating education into WIP
- Build community awareness
  - Capacity -building for environmental education partners
- Strengthens support for WIP to 2025 & beyond
- Schoolyard/college campus BMPs and projects
- Environmental literacy requirement

*Next Steps*

- Education community as stakeholders
- Grant funding source → implementation
- Evaluate how to build into WIP

*People and groups to work on this:*

- Future Farmers of America, Chesapeake Bay Foundation, local colleges; Penn State Extension, DCNR, DEP, Fish and Boat Commission

*Additional Notes*

- K-12, public education → strengthen support of WIP for beyond 2025
- Prioritizing the replication of effective education projects and programs
- Using WIP as a teaching tool
- Service/stewardship projects (BMPs) for schools and teachers → schoolyard projects
- College level also developing skills
- Civic action → giving people tools to tackle problems in individual capacity
- Strengthen environmental literacy requirement in state
- Penn State Extension
  - Master gardener can offer storm water education
  - Watershed stewards

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**Topic 6A: Stakeholder Involvement throughout WIP 3 Process and Beyond**

*Leader name:* Renee Reber, Chesapeake Bay Foundation

*Key Outcomes;*

- Workgroups need to be informed by stakeholders/committed partners
- Workgroups should reach out to committed partners from the beginning of the process
- Diversity of stakeholders and partners must be included in the WIP3 process, including partners not sitting at the table
- New fresh ideas combined with institutional knowledge is a benefit from including a diversity of stakeholders
- Continued engagement/discussion after WIP 3 finalized
  - The stakeholders felt strongly that they want to be included from the beginning of the WIP3 process to beyond its completion, through the implementation

*Next Steps (Ways to include more stakeholders in the process):*

- Organize regional meetings throughout watershed to help inform workgroups
- Engage new voices
- Have workgroups look at who needs to be included

*People and groups to work on this*

- (See bullet point below on who is missing)
- Agencies, Local government associations, boots on the ground/people implementing BMPs, farmers, NGOs

*Questions to Discuss:*

- **Who is missing from the process?**
- **How can committed partners be engaged?**
- **What other ways could stakeholders be involved?**
- **How are engaged stakeholders coordinating efforts?**
- **What difference can stakeholders make?**
- **Who are “committed partners”?**

*Questions and their Answers:*

- **What is a committed partner?**
  - People who implement WIP 3 / communications plan
    - Local government
    - Conservation districts
    - Volunteers
  - Someone with a financial stake is definitely a committed partner, but a committed partner isn't necessarily someone with a financial stake
  - Leadership by example - someone who has made the commitment - paid for by self or by others

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- Local governments
- Farmers
- Stormwater
- Groups implanting BMPs
- **What is the role of committed partner?**
  - Not just financial stake
  - Financial stake plus others working on the process
- **Who is missing from the WIP3 process?**
  - Councils of Government, Pennsylvania State Association of Township Supervisors Boroughs Association, Pennsylvania Municipal Authorities Association, County Commissioners Association of Pennsylvania
    - Use their magazines and conferences as best way to bridge this gap
  - AG communities organizations – Pennsylvania Association for Sustainable Agriculture, plain sector
  - Local watershed groups
  - Outdoor recreation groups/sportsman club
  - Engage stakeholders and message to a meaningful, local way
  - Faith communities
  - Water suppliers and source water protection
  - Local colleges - sustainability/water quality institutes
  - Chamber of commerce
  - Local governments
  - Groups working on environmental justice
- **How should stakeholders and committed partners be engaged in the WIP3 process?**
  - What is needed for stakeholders?
  - A forum - opportunity to give input to workgroups
    - Regional discussion groups
      - Include existing local plans
    - Targeted discussions - plain sector, equine, specific interest groups, etc.
    - How do workgroups reach out to targeted discussion groups
    - Larger meetings with targeted discussions
  - At beginning workgroups need to know that stakeholders want to be included
    - PA in Balance/June 5 listening day is a good place to start with interested parties
    - Need diversity among workgroups

*Additional Notes:*

In the communication plan, there is mention that workgroups will reach out to committed partners as they put together the different sections of WIP3. Committed partners have yet to be clearly defined by the Department. Because the Steering Committee and Workgroups have limited participants, I wanted to get input on who the stakeholders view are committed partners and how they should be engaged. This discussion/ brainstorm

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session was meant to provide feedback to the Department on how to be more inclusive of stakeholders in the WIP3 process

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**Topic 6B: Local Goal Setting**

*Leader name:* Bill Chain, Chesapeake Bay Foundation

*Recommended Workgroup(s):* All

*Key Outcomes:*

- Local education/improve understanding of watershed protection/health
  - We think that WIP and Model education is the first step in developing local goal setting
- Designate local reduction targets - watershed vs. county?
  - Probably counties (political boundaries are best)
  - Local organizations need a method to track progress and to celebrate success
- Prioritization of resources (i.e. impaired waters high loading)
  - Perhaps a phase-in approach if funding is limited?

*Next Steps:*

- Utilize science/current models to assign targets and prioritize efforts
- Identify strategies for engagement – identify co-benefits
- Define “local”
- Share local victories and success stories

*People and groups to work on this:*

- Watershed organizations, Conservation Districts, localities, state agencies, Chesapeake Bay Foundation, Municipalities, Local Non-Governmental Organizations, Resource Conservation and Development

*Additional notes:*

- Supporting local effort
  - Do this with a team dedicated and able to visit locals to help get things started (perhaps like the DCNR circuit rider model?)
  - Resource equity /identify area specific resource concerns on a highly-localized scale
  - Funding targeted to areas with cross sector collaboration
  - Watershed boundaries match current political
  - Identify priorities
    - Drinking water, agriculture industry, to connect communities with clean water
  - Education of local residents, officials, localities, groups
  - How do we track local victories?
  - Designate local targets and goals
  - Answer the “why should I care?” question for multiple audiences
  - Use science/current goal models to set goals locally.

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**Topic 6C: Overcoming Regulatory Barriers**

*Leader name:* Lara Fowler, PSU

*Key questions:*

- What are critical regulatory barriers, and how can they be overcome?

*Key outcomes:*

- Need to overcome siloes, integrate incentives, opportunities
- Need to truly identify barriers and opportunities
- More basic training and education needed at all levels
- Staffing for training, education enforcement is needed
- Need to address regulations and/or disincentives that prevent collaboration, implementation of BMPs, and knowledge sharing

*Next Steps:*

- Convene targeted Open Learning Initiative sessions especially with states - local entities
- Engage local zoning and planning boards.

*People and groups to work on this*

- State agencies, CPDA (Council of Producers & Distributors of Agrotechnology?), DEP, Department of Community and Economic Development (DCED), PennDOT, County planning/Commission Association, Non-Governmental Organizations, PSATS (Pennsylvania State Association of Township Supervisors Boroughs Association?), Borough Community foundations

*Notes from Session:*

- Is there a way to ensure that incentives work in the marketplace?
  
- Can compliance be monetized?
  - Phosphorus source discharge for MS4 doesn't match reality
  - Property scale for people who perform can help lead to solutions
  - Specific time for approvals would be helpful
  - Is there a way to help incentivize good deeds (MS4, agriculture, other)?
  - Easy program for agriculture and farmers to access funding
  - Septic systems are also a critical issue
  
- Quick and timely review needed, as well as funding/staffing to help
  - Outcomes
    - Staffing (DEP, DCNR)
    - Training - public municipalities, officials
    - Running meetings to better facilitate outcomes?
  - Partnerships and collaboration to accomplish goals, share credit
    - "we have a lot of horses, we need them pulling in the same direction"

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- Compliance is critical
- How do we address regulations that get in the way of implementation?
  - Regulations that prevent collaboration/implementation, knowledge sharing
  - Regulations that may prevent innovative practices
    - Ex. WIP anaerobic digesters (Public Utility Commission - restrict return on investment; need way to get everyone talking about a solution that may meet both water quality and energy needs)
  - Work needed to cross silos, meet multiple needs
  - Need required regulatory plans to dovetail with required plans and farmland preservation money
  - Local ordinances and zoning recognize requirements
- York DEP: will ask for flexibility in key areas
- There is a need to enhance local ability to address problems, concerns
- Required impact - incentivize conservation
- Helpful for agencies to write policy guidance
- Community - can apply penalties to local projects (additional revenue source?)
- DEP to prioritize project reviews
- People and groups
  - Municipalities
    - Boroughs, cities, town, counties-county planning association
    - Local zoning considerations
  - State
    - PA Department of Community and Economic Development, DEP, PennDOT, state planning boards
  - Federal
    - United States Department of Agriculture, Federal Emergency Management Agency, Housing and Urban Development, Environmental Protection Agency
  - Community and private sector, NGOs
- Regulation barriers
  - Hard to do watershed based implementation
  - Local ordinances can be a barrier
  - Some note that education and regulation requirements “news to me”
  - Lacking holistic approaches overall laying land
  - Section 404 of the Clean Water Act & Corp jurisdiction; DEP state regulations under Ch. 105 for streams, wetlands; lack of regulation for National Park Service if not MS4
  - Lack of emphasis on protecting clean water
  - On consistent enforcement/advice - different interpretations
  - Lack of overarching guidelines
    - Some things should have consistent standards (well protection/septic)
  - New audience/new Phosphorous buyers, students, people
  - Potential liability of collaborative project
    - Who is responsible construction operations and information systems management

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- Requirements that prevent BMP
  - No stream exclusion
  - No harvest in buffer
  - Breaking down walls
  - All clean water
  - Watersheds vs. individual approach
- Lack of Capacity
  - Small municipalities can't afford staff to work on these issues
  - State also lacks staff, funding
- Marketplace for trading
  - In concept only, not in practice - need to improve for PA?
- Lots of municipalities
  - Whose jurisdiction is this?
  - Bureaucracy
  - Blame for failure to meet needs, but layer upon layer of issues/jurisdictions
  - Lack of understanding by citizens
- Opportunities?
  - Programs to be improved?
    - Road construction
    - Active disturbance
    - Post construction -generic
  - Move specific to watersheds and regions
    - Example: state forests vs Walmart standards for post. construction. for oil and gas development
  - Trading
  - Redevelopment
    - Brownfields, minefield
    - Reduce liability, partnerships, and engagement
- County-Wide WIP joint opportunities elsewhere/credit MS4, National Pollutant Discharge Elimination System
  - Poll reduction liability insurance
  - Money, existing funding conditioned on BMP implementation
    - Clean and green -meet requirements
  - Education/grants - Penn State
  - Dirt and gravel roads, training program
  - Unified training
    - Municipalities, Providers
- Training on regulation compliance
- Combined office
  - Online service
  - Pre-approval conference. (NJ, WA)
  - Comprehensive approach
  - Local level (MS4) master gardener approach

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- Get to each municipality to change ordinances
- Council of government used some but haphazard
  - Municipal authority
  - Planning commission
  - Other municipal agreements
- Local municipal agreements
  - Pine Creek (near Pittsburgh)
  - Source water protection, not much
- FEMA integration
- Redefine flood, storm water
- groundwater/surface water + drinking water well standards

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**Topic 7A: Conservation Technical Assistance**

*Leader names:* Karl Brown, State Conservation Commission  
Jill Whitcomb, PA DEP

*Key Outcomes:*

- Build on current success
  - Training
  - Partnerships
  - Allocating resources to need/demand/other
  - Better defined roles (public/private) of tech advisors
  - Communication strategies between tech service providers
  - Recognize the difference in duties and responsibilities.

*Next Steps:*

- Leaders in state local private level communication meetings/strategies
- Workgroup of “boots on the ground”
  - Workgroup consisting of those that actually do the planning/technical assistance (consultants, district technicians, etc.) as opposed to only state agency representatives
- Define regions, needs, strengths/weaknesses

*People and groups to work on this*

- Conservation Districts, NRCS, state agencies (DEP, SCC, Pennsylvania Department of Agriculture), Private consultants

*Additional Notes:*

- Trust between partners
- Local needs are different
  - What technician is the best for each area/county/watershed
- Regional approach (like upper Susquehanna Coalition)
- Conservation is site specific (ground up instead of top-down)
- Better explanation/messaging with BMPs in place
- Statewide approach (level the playing field)
- Assistance is driven by demand (compliance)
- Tying message of economic and environmental goals
  - Education of farm advisors
- Time constraints to train individuals
- Evaluate roles of public and private sector
- Market access and incentivizing producers
- Streamlining funding process/procedure
- Balance level of technical and financial assistance
- Training and certification → time and experience

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**Topic 7B: How to Interest the Public in Urban Stormwater Pollution**

*Leader name:* Lee Murphy, DEP

*Key Outcomes:*

- Benefit the mandate
- Resources for the municipalities
- Education by stakeholders
- Document storm water problems (pictures...)
- Kids educate parents
- Pollution and flooding
- Kids create cartoon character
- Prioritize local impairments rather than Bay

*Next Steps*

- Provide education materials for teachers
  - Funding outdoor education
  - Connect with co health department or local water authorities
  - WIP clearly prioritize local impact, not bay.
  - Show how money is spent
  - Put GIS App in newsletters
  - AG BMP, Contest public relations for industry
  - Find incentives
    - Do local watersheds
      - cheap rain barrels

*People and groups to work on this:*

- Master watersheds program
- mini-grant program
- TV commercials

*Additional Notes*

- Need a catch phrase – We All Live in a Watershed
  - Tax dollars being spent
  - Enforce MS4 → Other than fines
  - Consider municipal affordability
  - Really do outreach
  - Municipal and environmental groups need to find each other
  - Develop partnerships with companies that use environmental cleanup in their marketing
  - Support environmental policy board
  - Support environmental groups
- Ecosystem Benefit (\$)
- Change MS4

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- Address pollutants local impairment source
- Start small and local
  - Don't talk Bay - talk local cleanup
    - Make local impairment more visible
    - Use canoe groups/Trout Unlimited, local watershed groups
    - Stormwater is an asset (convince public)
  - Stream sojourns with education specialists
    - Message: watershed is everywhere, all involved
    - Health organizations - inform about pollution hazards to drinking water

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**Topic 7C: Enforcing Compliance with Existing Regulations**

*Leader name:* Gary Peacock, York County Conservation District

*Key Outcomes:*

- Set priorities
- Voluntary compliance
- focus resources
- county level enforcement
- Cooperation with local, state, and fed levels
- Messaging examples, e.g. voluntary vs. enforcement
- regulatory/environment equality

*Next Steps*

- Funding
- Resources
- Citizen awareness and advocacy
- Enforcement publicity

*People and groups to work on this*

- LGOs (local governing organizations) – Not enough inclusion of the key role and responsibility local municipal governments have in solving this, since they are on point for making all local land use decisions.
- Citizens
- Farm organizations
- State agencies
- Legislators – Encourage legislators to clarify or expand the need for them (LGOs) to be vested financially as well as physically, since they already are statutorily.
- Federal agencies

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**Topic 8A: Integrated Planning: Prioritization**

*Leader names:* Ruth Hocker, City of Lancaster

Harry Campbell, Chesapeake Bay Foundation

*Key Outcomes:*

- Federal agency involvement (DLA-Susquehanna)
  - Legal restrictions on funding/partnership and technical assistance and communication
- Roadside ditches/ hydrological. analysis for load reductions in prioritized watersheds and integration with multiple sectors
- Support structure for local implementation - how can assisting organizations coordinate and collaborate efforts?
- Turnpike and PennDOT collaborate with municipalities...legal challenges
- Expand Phase 3 legislation to make them easy/more efficient
- Flexibility at regulatory agencies to address regionally that will lead to local implementation. Regulatory support, permitting incentives for municipal/local cooperation
- Regional permitting improvements
- Investment in cultivating training and local leadership
  - Local champion
- Financial incentives for local implementers
  - Leverage local planning for funding of priority watersheds
- Local LV regulations for multi-sectors
- Support/encourage local grass root efforts
- Integration of ecosystem services (land banking etc.)

*Next steps*

- Regulatory flexibility for both county level and watershed level (multi-scale)
- Communication across boundaries
- Stakeholder identification and engagement at ALL scales
  - Also grass root group engagement
- Evaluation of water quality improvement
- (Phase 3) Cooperative compliance across sectors
  - Offsetting
- Integrate local water quality monitoring to guide model development (Citizen science may augment)

*People and groups to work on this:*

- DEP, PennDOT, Turnpike, NRCS, EPA, Conservation Districts
- Grassroots organizations
- Municipal leadership (local and county)
- Planners
- Councils of Government, Continuum of Care

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*Additional Notes:*

These reflect the items identified by the folks who were around the easel but in and of themselves don't necessarily reflect the goal of the "integrated planning" subject. That goal could be summarized as something like: Can the Phase 3 WIP be integrated into the myriad of "local" plans so as to "stack benefits", target resources, and support collaborative, comprehensive, and cost-effective implementation.

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**Topic 8B: Improving Soil Health to Meet Water Quality Goals**

*Leader names:* Lisa Blazure, Clinton County Conservation District

Abbe Hamilton, Huntingdon County Conservation District

*Key outcomes:*

- Improve infiltration rates and reduce runoff
- Build soil organic matter and organic nitrogen pool (reduce fertilizer inputs and improve farmer profitability)
- Soil health is more economical than other promoted conservation practices, is more of a win/win for farmers and environment
- To achieve these:
  - increase cover crop access
  - Partner with municipalities (MS4) to get their funds to the fields where they will realize a greater benefit
  - Ensure Bay model is recognizing accurate cover crop acres
- Make “soil health” a more tangible and responsible concept for both farmers and regulators

*Next Steps:*

- Develop further incentive based farm policies and eliminate disincentives in those policies
- Improve outreach efforts to bring in reluctant adoptees (early adopters already on board)
- Establish a method for documenting soil health improvements and sharing that message and data with farmers (NJ)
- Improve channel for MS4 money to get to farm improvements
- Update the ACT 38 program [and Manure Management Plan] to account for the organic Nitrogen pool and better accommodate the contributions of cover crops
- New PSU research to establish fertilizer recommendations for crops grown in healthy soils (as they likely require less fertilizer)
- Verify the scientific rigor of the Haney and other soil health tests to determine if they may be used interchangeable with traditional soil tests for various programs (such as Act 38).

*People and groups to work on this:*

- Farm insurance and regulatory policy developers
- custom applicators
- farmer educators

*Additional Notes:*

- Soil health improvements are a win-win as they benefit the farmers and the environmental
- What does soil health look like in practice? – improved soil structure and water infiltration
  - Organic matter improvements through cover crops and no till
- The Bay Model is not reporting all cover cropped acres/factoring in all possible ways PA is contributing to soil health

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- Treating soil health = getting at the cause of runoff rather than the symptoms i.e. grassed waterways, which simply clean up after soil damage has already occurred
- More economical to promote and/or credit soil health > major infrastructural BMPs
  - There is a need to distribute this message with reliable, credible info/data
- How to increase adoption of soil health doctrine/practice, how to make dedicated managers
  - Farmer to farmer testimonials = next step
  - Make the benefits to farmers more obvious and quantifiable
- A reality: farmers can be led to be loyal to soil health practices for myriad reasons
- Cover crops and soil health improvements are low cost BMPs. Are a greater bang for the buck, lower risk investment than, say, a manure storage...but good soil health is easily reversible
- Engage custom applicator companies to invest in soil health promoting technology (i.e. interseeder or manure injector) that smaller operations can't afford on their own. People to work with: custom applicators
- We already have reached the easily adopters but the additional farmers need to be won over in a different way
- Currently cover crop incentives are for "trying-it-out", not a permanent subsidy.
  - There is some amount of "drop-outs" in this system
- Next step: model PA's system for funding/promos after NJ?
- MS4 has room to integrate soil health practices for credit regarding: cover crops better
- Who verifies/accounts for cover crops and other soil health practices? DEP? Extension? Funding agencies?
- There are no current penalties for losing topsoil ...nominally everyone's got to keep it under "t" as in RUSLE2 (Revised Universal Soil Loss Equation, Version 2). How to better encourage and adopt a "zero loss" policy? Is "T" enough?
- Can we make our regulated plans (E&S, Manure Management Plan, Act 38) more amenable to soil health? Can we credit its benefits more effectively, can we further incentivize/accommodate soil health practices in these plans? Cheaper crop insurance rates?
- Remove barriers for soil health practices, convert to incentives, accommodate less common but environmentally responsible practices better.
- How to better get field day, farmer to farmer info, and education to the more reluctant attendees and adopters?
- "License to farm" - right now, we just have pesticide applicator licenses. Are other additional mandates warranted?
- Opt-in certifications i.e. organics program... can we develop "Environmentally responsible" farm certifications?
- Farmers, unlike other industries, have no leverage on the price of their products
- Community "adoption" of conservation practices. Local stores/markets of farm products collaborating to promote sustainable practices

*Next Steps:*

- Allocate funds where needed? MS4 money → rural acres where the money is spent more effectively as per the Bay Model.

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**Topic 8C: Individual Responsibility**

*Leader name:* Bill Fink, Clemens Food Group / Country View Family Farms

*Key outcomes:*

- Environmental education
- Public push
  - About individual responses & youth focused
    - “Why should you care?”
- Targeted Communication

*Next Steps:*

- Build Environmental education this into WIP
- Basic citizen
- Education needs to be data driven
- Increase funding to environmental education that would connect you to environment, so individuals can better understand the issues as individual’s age.

*People and groups to work on this:*

- Local involvement - Need local liaisons to connect activities (IE: Watershed Coordinators)
  - Connect with those already doing

*Additional Notes*

- Connection in backyard
- Education
  - “Why should I care?”
  - Method of communication
    - Door to door?
- School environmental education
  - Young age
  - Communication
    - Success stories
  - Connect people to
    - Water, Common Resources, community health
  - Use Photos instead of words
  - Involve the Local Government

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**Topic 9A: Biggest Bang for the Buck: State-wide Decision Making**

*Leader name:* Shannon Gority, Capital Region Water

*Key Outcomes*

- “Take our limited pool of funds, and use it for projects that most effectively improve water quality”
- Focused resources (money and human capital) on state-determined priority project
- Targeted for cost efficiency – i.e. \$ per pound removed
- Not scattershot approach of “everyone do something”
  - “can turn off every Publicly Owned Treatment Works and not make an improvement in the Bay”
- Inter-state and intra-state project prioritization
  - Funding shared proportionally to impact
  - Sub-watershed-in PA
  - Cross sector
  - Consider collaboration with upstream and downstream systems
- Integrate DEP Sectors
  - Waste Water, Stormwater, Ag
    - All clean water
  - Allocation of human resources
- Desire for more tools to provide agriculture with decision making data and framework. Nutrient loads when reality is not easily engineered (“Bay fast”)
  - Consistency → observation that funding providers and regulators do not sue a standard model and calculation
- Flexible funding for local priorities in headwater areas
- Use the local expertise
- Grant payout based on actual performance vs. impairment
  - Demonstration
    - Take time and money beyond resources
  - Presumption
    - Very difficult for Non-Point Sources
- Rural Municipal government - zoning (mission stakeholder), no power to dictate existing development
  - This stakeholder is “missing”
- The Agricultural Community/and engagement process is missing individual stakeholders
- “PA in the Balance”
  - No federal authority for regulation of Agriculture except for setting of TMDL (Load and wasteload)

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**Topic 9B: Incentivize Low Impact Development in Private Development**

*Leader name:* Zach Steckler, Borough of Hanover

*Key Outcomes:*

- Cost share with private
  - Funding source – stormwater & community development
- Ordinance revisions - review for efficiency
- Public/officials education
  - Local champion – stakeholders group with local businesses & officials

*Next steps:*

- Example on public facilities – install BMPs and Low Impact Development practices on local facilities, parks, etc.
- Education – public meetings and newsletters
- Ordinance update

*People and groups to work on this*

- WIP committees
- Public groups
- County Conservation District

*Additional Notes*

- Zoning/Subdivision and Land Development Ordinance – Low Impact Development included by right
- Density bonus, allow for greater density and coverage
- Stricter ordinance – coverage
- Elected official education
- Land use patterns – analyze and allow for in planning documents
- Public involvement – advocacy and outreach groups
- Cost sharing for green infrastructure
- Free elimination/credit
- Lead by example
- Public education/enthusiasm
  - Ground water/flood mitigation
- Example material for public
- State level cooperation
- Habitat benefits local level

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**Topic 9C: Efficient Delivery of Technical Assistance (TA) to Local Government**

*Leader name:* Mary Gattis, Alliance for the Chesapeake Bay

*Key Outcomes*

- Technical Assistance needs are significant, clear guidance needed
- Less technical/more assistance
- One stop shop/call center would be helpful
- Municipal engineer shouldn't be the only TA
- Local government must be at the table

*Next Steps:*

- Research other models for delivery (Local Technical Assistance Program/PennDOT)
- Meeting with stormwater work group
- Project case studies on successful regions

*People and groups to work on this*

- Stormwater workgroup
- Department of Community and Economic Development, DCNR
- Municipal associations

*Additional Notes*

- Current Service providers: Engineers, Conservation Districts, Penn State Extension Watershed Steward staff, NGOs
- Needs not met:
  - Specialization
  - Education, guidance
  - Consistency template for Pollutant Reduction Plan
  - Specific project guidance
  - Definitions
  - BMP efficiencies
- Problem/challenges:
  - Moving target
  - Minimal guidance being given by DEP
  - Varies greatly from one firm to another
  - Information not available in a timely manner
  - Lack of awareness about services
- Approaches:
  - Call center
  - NGOs
  - Peer-to-peer network
  - Resource list with each permit application
- Program should be:

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- Simple (user friendly)
- Accessible
- Fair and affordable
- Fast
- Multi-disciplinary
- Areas of TA needed:
  - Engineering
  - Planning
  - Financing
  - Legal services
  - Implementation assistance (MS4, Operations and Maintenance of BMPs, Illicit Discharge Detection and Elimination, etc.)

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**Topic 10A: Retaining High-value forests in strategic locations**

*Leader Name:* Mark Hockley, PA Bureau of Forestry

*Key outcomes:*

- Incentives for municipalities to retain forestland
  - Financial (tax incentives, payment for ecosystem services rendered)
  - Improving clean and green program (special designation for forest land retention)
- Forest conservation as MS4 BMP
- Promoting ecosystem values of forests for multi-uses
- Incentive for forest restoration and conservation (from DCNR, Pennsylvania Game Commission, Education, Technical Assistance, Outreach)
  - Recommended that Public access not be required
- Non-monetary incentives
- Zoning updates
- Quantify and monetize retained forest and find way of returning value to land owner
  - CO<sub>2</sub> sequestration, ecosystem services values (markets for ecosystem services), etc.
- Could be structured like federal wetlands, no net loss policy
- Extra incentive for permanent easement

*Next Steps*

- Forest Conservation accepted as BMP by DEP, develop methodology to identify and quantify key forests
- Amend key policies (clean and green/ordinances, etc.)
- Education of ecosystem resiliency (species change, etc.)
- Create a fund that could provide a payment to municipalities analogous to Payment in Lieu of Taxes (PILT). This would apply specifically to lands permanently conserved through conservation easements.

*People and groups to work on this.*

- DEP, PA Department of Agriculture, DCNR, municipalities, counties, soil conservation District, land trusts, universities, Pennsylvania Game Commission, Bay Program workgroups, woodland owner groups, PennDOT, Turnpike Commission

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**Topic 10B: Agriculture messaging: How to get farmers to enthusiastically implement BMPs**

*Leader name:* Caitlyn Johnstone, Alliance for the Chesapeake Bay

*Key outcomes:*

- Establish network of demonstration farms
- Consistent messaging
- Widespread farmer participation in best management practices
- Create, support, maintain, and utilize public-private partnerships
- Marketing to farmer values: 80/20 rule.
- Community & federal recognition of good farmer practices

*Next steps:*

- Convene (or use existing) group/entity to develop consistent messaging
- Recruit current BMP farmers to be leaders, lights, and/or spokespeople, messaging to their community

*People and groups to work on this:*

- Future Farmers of America, agricultural programs in schools (education departments), churches, elders/community leaders, Chesapeake Bay program workgroups and Goal Implementation Teams, Penn State extension, conservation districts local farm bureau, economists, scientists (Soil, animal, etc.)

*Additional Notes:*

**METHODS:**

- Funding should come from the private sector; economics drive change
- Give 'quality incentives' to producers
  - Roadblock: The payer of incentive varies by farm and production type
- Messaging needs to come from the community, and be farmer to farmer
- Get community leaders convinced and involved
  - E.G. Plain Sect communities like reforestation, and are then open to further conversation
- Consistent and well-rounded messaging that covers all bases
  - Economic
  - Farm/produce/livestock health
  - Community and neighbor relations
- Start from the top down
  - Landowners establish BMP retention for those leasing land, rather than working with individual lessees
- Help farmers identify low-yield, costly areas (such as sickly borders of fields) for use in conservation programs like CRP to help them maximize profit (and conserve environment in the process)

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- Use social media to present the positives of agriculture
- Farm resiliency, “my farm will outlast others.”
  - Use the story of farm history, leaving a legacy, passing it down through the generations, and the internal strength of the farmer manifested in the land to instill pride and a desire to employ previously untried methods (environmental best practices) to improve the farm
- Explain personal benefit to the farmers
- Provide evidence that it is working
  - Infiltration, livestock health, crop production, and quality must all be tested before and after BMP implementation to prove effectiveness
  - Local neighbors (not the same Rockstar farmer at every event) giving testimonials
- Different approach for different types of farms
  - Small vs. large
  - Livestock vs. produce, etc.

**ROADBLOCKS:**

- Fear and money
- Farmers have historically been treated like a problem to be addressed; BMPs and the regulatory requirements that come with them are seen as a burden
  - Strategy: Focus on benefit to farmers
    - Healthy cows = less money on antibiotics
    - Cover crops mean better soil and lead to better quality and production
    - Good for water quality
      - On farm and also in local stream
- Acronym usage, and “talking down” to farmers
  - Strategy: Use farming terms, and understandable messaging
    - Detrimental terminology includes: “Gully erosion is bad, contour landscape is good for the environment”
    - Beneficial terminology includes: “Entire tows get washed out [if you use a term like ‘gully erosion’, explain what it means]; planting in the opposite direction allows water to feed instead of destroying crops”
- BMP implementation costs money to the farmer
- Cultural differences (e.g. plain sect community engagement)
- Disconnect from the Bay
- Disconnect from personal benefit
- Missing economic drivers
  - Strategy: Public wants organic, non-GMO... What about “environmentally friendly” crops grown on more sustainable farms?
  - Strategy: BMPs as a source of extra income. Charging sportsmen for admission: improved streams become angler destinations, and forest buffer areas become hunter destinations, as well as help shade streams
- 80/20 rule

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- Public unwilling to pay money for green-branded products and food

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**Topic 10C: Role of State (Federal Agencies)**

*Leader name:* David Lamereaux, KBA Engineering

*Key outcomes:*

- Parse out drains
- Cooperation with federal/state
- Impoundments?
  - Some owned by PennDOT that host municipality knows little or nothing about. They don't appear to be maintained.
- Bureau of abandoned Mine Reclamation projects
- Spills?
  - if there is a spill that could reach an MS4 outfall or drain, is there a mechanism to notify the municipality? Who is notified?
- PennDOT does map and check some outfalls
- PennDOT and Turnpike does have an MS4 guy
- Do state agencies have flexibility that municipalities don't have?

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**Topic 11B: Local Water Quality Monitoring**

*Leader name:* Gary Peacock, York County Conservation District

*Key outcomes:*

- Continuous real-time water quality monitoring watershed level (locally)
- Baseline and trend analyses
- Focus limited resources on sediment problems/BMPs (i.e. Total Suspended Solids)

*Next Steps:*

- Identify funding and protocols
- Standards and uniformity
- County level partnership and MS4s

*People and groups to work on this*

- County commissioners
- Conservation districts
- SRBC
- USGS
- Citizen Volunteers
- Master Watershed stewards

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**Topic 11C: Eels, Mussels, and water quality**

*Leader names:* David Foster, INTAG

Carol Parenzan, Middle Susquehanna Riverkeeper

*Key Outcomes:*

- Very few people know about this
  - Bill Lellis (USGS Northern Appalachian Research Station, National Salmon Hatchery in Wellsboro, PA) has been working on this for years
- In model with wildlife passages
  - Eel ladders (best examples are on the James River in VA)
- Need credits for mussel restoration
  - At this point, no Nutrient Credits are allowed for this
- Filtration and direct Nitrogen
- Eels facilitate Phosphorus export to Atlantic Basin because they swim out there to die
- Sediment removal
  - This solution addresses the TMDL sediment load
  - In the undammed Delaware River, mussels filter the river 4 to 6 times per day
    - They are distributed as juveniles by elvers (baby eels) migrating upstream
    - This protects them from predation as juveniles and the key native mussel species depend on this for reproduction
    - These Unionidae mussels live about 100 years and are now disappearing from the Susquehanna basin because they are missing the eels in their reproductive chain

*Next Steps:*

- Delaware fishery with Penn Vest
  - There used to be an eel fishery (ca. 1900) in Harrisburg which removed 1 million pounds of eel annually
    - Bill Lellis (info above) estimated there were 11 million pounds of eel in the Susquehanna basin in the past
    - All eels not removed in the fishery leave the basin to spawn and die in the Sargasso Sea, mid. Atlantic
- Education Campaign
- Money to raise – Exelon, children’s book, etc.
  - It is estimated that the eel ladders could be placed on dams in the lower Susquehanna and restore eel passage for a total of about \$12 million (Michael Helfrich, former Lower Susquehanna River Keeper
    - Eels can climb steep slopes, and don’t need much water to move, so these are less expensive than fish ladders

*People and groups to work on this*

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- Chesapeake Bay Program, Bucknell, Susquehanna Heartland Coalition for Environmental Studies, PA Fish and Boat Commission, Department Agriculture, Exelon, DCNR, Pennsylvania Utility Commission, DEP w/ EPA

*Additional Notes:*

- Eels live less than 25 years
  - Exporters of Nitrogen and Phosphorous to Atlantic
- Elvers → babies return to Susquehanna river
- Mussel - ride them upstream
  - Live up to 100 years, Unionidae mussels need eels to reproduce
  - Drop off elvers and then just filter water
- Delaware river - no dams, 3 million/mile
- 4 - 6x filter
- Susquehanna river used to be 11 million lbs.
- 1 million pounds export of Nitrogen and Phosphorus
- 12 million dollars total cost
- Mussels
  - Plant to tributaries and credit → doing what sewage plants do
  - York haven, Sudbury dam passages - Dr. Aadland
  - Trap and transport
  - ladders better
    - Bell Lellis
      - (USGS Northern Appalachian Research Station, National Salmon Hatchery in Wellsboro, PA)
  - “image” perception
  - Mussels
    - Food product
    - Shell products—especially mother of pearl—for cultured pearls
  - Hatchery
  - Clean water column
    - Grasses, plants come back, Use Nitrogen, Phosphorus, Potassium - return high
      - Leave as ducks
        - Sean Reese, Bucknell University
  - TMDL equivalent
- Mussels and eels
  - PA Unique
  - Local and “immediate” results
  - economic benefit for drinking water
  - “proven”
  - Restorative
  - Extreme weather & runoff absorption
  - Legacy logging sediment

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- High potential for volunteer participation