GOT STORMWATER?

Tredyffrin Stormwater Citizens Advisory Task Force

Update  January 7, 2020
Tonight’s Goals

• Inform
  • Stormwater issues
  • Task Force approach

• Listen
  • Expectations of the Task Force
  • Ideas for solutions (not problems)
  • Ways to contribute
Our roadmap for tonight

• What is the Task Force?
• Stormwater basics
• What is the Task Force doing?
• What can residents do?
Task Force Origins

- April 22, 2019 presentation to BOS by Valley Creek Restoration Partnership
- BOS authorized Stormwater Citizens Advisory Task Force in October 2019
  - Finite eighteen month life span
  - Objective research and analysis of problems and solutions
  - Make recommendations to BOS
  - Coordinate with staff efforts
- Let residents know their issues are being acted upon!
Who is on the Task Force?

• Members of local conservation organizations, the EAC and others
  • Experience with solutions
• Multiple disciplines
  • Engineering, horticulture, GIS, finance, stormwater
• Encompassing all neighborhoods
• Planning, engineering, and BOS liaisons
Our roadmap for tonight

- What is the Task Force?
- **Stormwater basics**
- What is the Task Force doing?
- What can residents do?
Stormwater: How did we get to this?
Tredyffrin’s Watersheds
A Historical Legacy

• Homes built on hills with little stormwater management
• Lower watershed impacted by two highways
• Cumulative impacts: infrastructure needs, weather, population growth
Impact of impervious surfaces:
Before vs. after development
(based on 45” annual rainfall)

Before: 8” runoff, 25” ET, 12” recharge

After: 42” runoff, 3” ET, no recharge
Average Rainfall Trend

Philadelphia International Airport

10-year rainfall averages
Two Year Storm
Definition:
3.24 inches in 24 hours

Precipitation
USGS Valley Creek Gage

A “Two Year” Storm
Every Year
Gage Height
USGS Valley Creek Gage

Greater Rainfall
Greater Intensity
Saturated Ground
= More Flooding

Flood Stage
Approx 7 Feet
Flow Rate
USGS Valley Creek Gage

Peak Flows Are 100 Times Base Flows
Who is Responsible for Stormwater Run Off?

Airdrie Preserve Stormwater Erosion
Who is Responsible for Stormwater Run Off?

EVERYONE!

Airdrie Preserve Stormwater Erosion
Who is Responsible for Stormwater Run Off?

EVERYONE!

- **Sources**
  - Residences: Roofs, driveways, lawns
  - Businesses: Roofs, parking lots
  - Governments: Roads, roofs

- **Management Facilities**
  - Residences: Swales, ditches, pipes, trenches
  - Businesses: Pipes, swales, basins, trenches
  - Governments: Inlets, culverts, bridges, ditches, owned and eased basins

- **Regulation, Inspection**
  - Construction permits: County Conservation District
  - Development ordinances: Township
  - O&M agreements: Township, property owner
Our roadmap for tonight

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Task Force Teams

1. Stormwater data collection and problem identification
2. Stormwater project identification
3. Stormwater financing options
4. Ordinance reviews
5. Tree canopy
6. Education and outreach
Stormwater data collection

• Survey resident stormwater problems
• Map results
• Overlay with township’s resident complaint data
• Assign data to sub-watersheds
• Analyze to determine priority areas
Resident Survey

https://www.Surveymonkey.com/r/TredyffrinStormwater

- Location data (map and assign to sub-watersheds)
- Scope of problem (neighborhood issue or property-specific)
- Type of damage (erosion, water damage, etc.)
- Dates and frequency of problem (best estimates)
- Immediate source of stormwater
- Steps taken and any results

Complete the survey ASAP
Tell your neighbors and friends

Suggestions? stormwatertaskforce@gmail.com
11. Have you reported this problem to the Township, County or State?

☐ No
☐ Yes

If Yes, please describe the contact and action taken

[Text area]

12. Please tell us anything else that is on your mind relating to stormwater management in Tredyffrin. For example, what is your greatest concern?

[Text area]

13. If you have photographs of the issue you are documenting and would like to submit ONE, please click "Choose File" and drop it in the pop-up box.

Choose File   No file chosen

* 14. Would you like to receive future communications from the Task Force?

☐ Yes
☐ No
Township Coordination

- Data to be integrated:
  - Resident complaints for August 2018 and June 2019 storms
- Regular reviews with Township staff and Planning and Board liaisons
Task Force Teams

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2. **Stormwater project identification**
3. Stormwater financing options
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Township Maintenance and Capital Priorities

• Projects of concern to residents and Township
• Infrastructure: new, ongoing repairs and maintenance
  • Rebuild or re-line culverts
  • Fix bridges
  • Maintain inlet structures, pipes and drainage channels
• Regulatory requirements
  • MS4 pollution reduction plans
Stormwater project identification

- Map opportunities from survey
- Overlay and match:
  - Areas with greatest needs
  - Available land (including ROWs)
  - Technical requirements
  - Site inspection notes

Robbins Lane infiltration trench in Township ROW
Match available sites, type of “SCM”

- Recharge bed crates
  Hillside Road – Twp ROW

- Rain garden, recharge bed
  Upper Providence Twp Bldg

- Green roof
  Hillside Elementary School
Stormwater Infrastructure Repairs

- Rebuild or reline culverts
- Fix bridges over streams damaged by storms
- Maintain inlet structures, pipes, drainage channels
“MS4” Requirements: how can we leverage?

• DEP: sediment is the leading pollutant to streams
• New MS4 permit requires 10% reduction in sediment by 2023
• Projects tailored more to sediment reduction
• How can we add onto these projects to reduce volume in priority areas?
Task Force Teams

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• Stormwater project identification
• Stormwater financing
• Ordinance reviews
• Tree canopy
• Education and outreach
Stormwater Financing Team Goal: *Summarize Options to pay for…*

1. Projects (for safety, property and the watershed)
2. Operation and maintenance (O&M)
3. Stormwater infrastructure
4. DEP regulatory requirements (MS4)
Compare Other Municipalities

Stormwater revenue sources:
- Bond issues
- Tax revenues
- Grants
- Stormwater fees (structure used, process to determine)

How spent:
- Safety, regulatory, and property capital expenditures, O&M
- Selection criteria
- Major projects accomplished
Stormwater Fees as a Funding Component

- Consistent revenue base for multiyear improvement projects and plans
- Operational in Radnor (2013), Lancaster City (2014), West Chester (2016), Philadelphia (2011), Allentown (2018), Chester City (2017), and more widely across central PA
- Being studied widely
- Fees based on square feet of impervious surfaces; most have tiered structure
- Research of this tool is ongoing
Task Force Teams

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**Ordinance Review Team Goals**

What changes to ordinances could improve stormwater management?

- Impervious cover/bulk/parking
- Steep slope protection
- Floodplain regulations
- Stormwater management requirements
- Construction oversight
- Stream buffer requirements
- Woodland protection provisions
- Planting requirements
- Wetland areas protections
Initial Focus on Woodland Protection

• Expand applicability
  • Zoning
  • Small subdivisions
Improve Woodland Protection

- Increase woodland preservation percentage
- Simplify and expand tree replacement
- Evaluate minimum planting requirements
- Consider off-site planting allowance?
Tredyffrin’s Stormwater Ordinance

- Considered one of the more stringent in Southeast PA
- Will be reviewed for improvements ("lessons learned")
- Integrate new Chesco model stormwater ordinance provisions
When does the Stormwater Ordinance Apply?

• New impervious surfaces over 500 sq. ft.
• Redevelopment of existing properties
• Regraded areas
Volume control for new development
For new runoff from proposed vs. preexisting conditions

- Recharge on site incremental runoff from the development (from a 2-year storm)
- Redeveloped properties required to control some of the preexisting runoff

Redeveloped property required onsite stormwater management
Task Force Teams

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5. **Tree canopy**
6. Education and outreach
Tree Loss is a Regional Issue

Philadelphia 10 year net tree loss: 1,000 football fields
Tree Canopy Team Goals

• Evaluate Tredyffrin’s tree canopy and opportunities
• Draft an initial Tree Canopy Plan
• Conduct educational programs
Tree Canopy Plan Components

• Overall opportunity assessment
• Available planting sites
• Stream corridors and floodplain areas to be acquired
• Mature tree stands to be acquired or eased
• Recommendations for future actions
• Coordinated with Comprehensive Plan
Task Force Teams

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• Education and outreach
Education Group Tasks

- Plan education and outreach
- Coordinate with other municipalities
- Explore alternative platforms for communication

→ Your input needed!
Initial education & outreach focus

• What can residents do on their property to manage stormwater?

• How can landscapers manage property to improve environment and stormwater control?

FOR EXAMPLE...
Wet Spots?

Instead of this....

Go for this!
Our roadmap for tonight

• What is the Task Force?
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• What is the Task Force doing?
• What can residents do?
What Can Residents Do

1. Let all your friends and neighbors know about the Stormwater Task Force
3. Send in ideas and suggestions (solutions, offers of help)
4. Participate in educational programs and meetings
5. Stay tuned to the STF webpage on tredyffrin.org
Task Force Next Steps

- Complete first phase of research
  - Mid-March survey data cut off
- Draw initial conclusions
  - All Task Force teams
- Present results at next Resident Forum
  - Target Mid-April
- Develop plan for following quarter
Discussion

• Expectations of the Task Force?
• Questions or clarification?
• Ideas for additional task force research and analysis?
• Offers of assistance
  • Topic area, expertise, experience
  • Complete Comment Card