

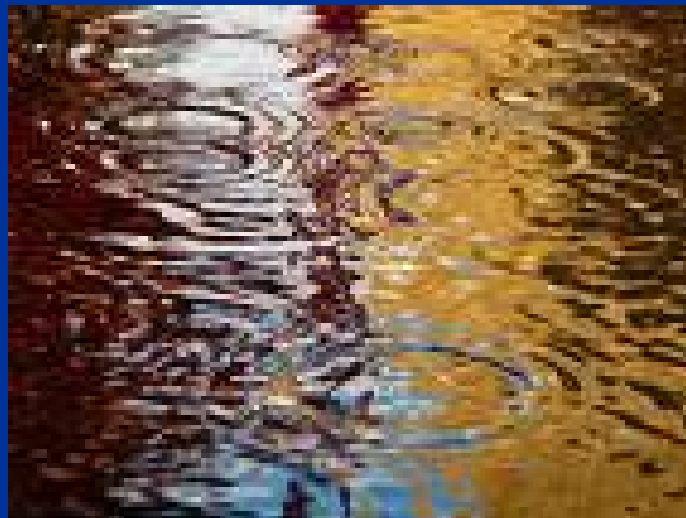


# Radnor Township

Factors affecting storm water issues.

# Climate Changes and Changing Weather Patterns

- Intensity of rains over the last 7 to 10 years.
- Larger number of smaller storms delivering greater amounts of precipitation in a short period of time.



# Aging Infrastructure



- Many of the systems in the ground today were put in place many years ago.
- At time of installation existing systems seemed to be adequate to handle the runoff received.
- Existing systems are beginning to fail due to the stress on the systems from added impervious coverage from the building and growth taking place in Radnor and surrounding areas.

# Roadway Runoff

- State and local highways contribute a tremendous amount of water to our systems during rain events.



# Flood Plains

- In the past building was permitted in flood plain areas.
- Streams were even rerouted to accommodate sub-division.
- In some areas streams were even covered with culverts and buried limiting their capacity to flow freely during storms.



# Streams

- Streams once able to handle normal rains are struggling with capacity issues from the water runoff directed to them.
- Impaired streams and water quality issues are on the rise due to storm water run off.



# Timing

- Storm water management practices did not come into play until the late 70's and in many it areas it was too late.

\*\*\*The Commonwealth enacted the Storm Water Management Act in 1978. The Department of Environmental Resources issued storm water watershed planning guidelines in May, 1985 to guide the development and implementation of the program. The objective of the program is to prevent or mitigate the adverse impacts related to the conveyance of excessive rates and volume of storm water runoff.

# Future



- All scenarios discussed have played a role in the current storm water issues being experienced in our community.
- The time has come to move forward with a plan to get a handle on the issues we are facing and put a that plan in place to create sustainable solutions.



# Topography of Radnor

## Four main streams cross Radnor Township

Total length - 44.4 miles

- Darby/Little Darby - 15.2 miles
- Ithan - 12.6 miles
- Gulph - 9.2 miles
- Meadowbrook - 7.4 miles

Elevation (min / max)

- 200 ft - Bryn Mawr Ave @ Blue Route
- 500 ft - Valley Forge @ Sugartown

# Runoff issues specific to Radnor Township

## Manmade influences

- Home construction
- Business development
- Impervious cover
- Stream obstructions

## Natural factors

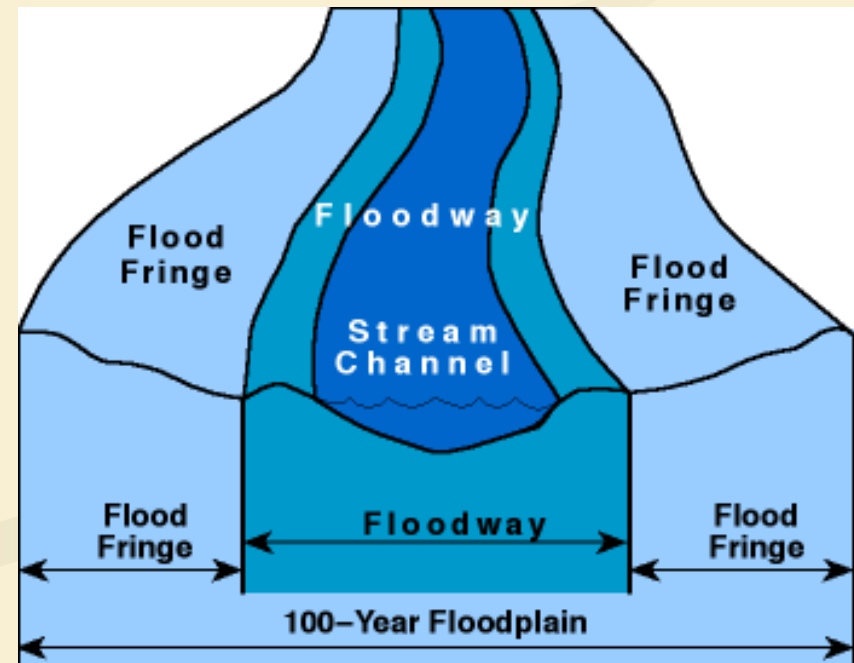
- Changing rainfall patterns
- Global warming
- Stream obstructions

All of the factors above contribute to stream bank erosion, siltation and degradation of all our streams



# Flood Plain Areas

- What is a floodplain?
- What is a 2 year storm event?
- What is a 100 year storm event?
- Who's lives in a flood plain?
- 500 + properties
- 20 homes (per FEMA)



# SWM Ordinance History

## Original Ordinance

- developed late '70's
- Only concerned with peak rate control
- Three paragraphs long

## Current Ordinance

- Developed watershed wide by Delaware Co
- Involved 31 Municipalities in three Counties
- Finalized in 2005
- Concerned with peak rate, ground water recharge, and stream bank erosion
- 57 pages long plus another 50 pages of appendices

# Storm Water Management

- Construction of storm water management systems may be required on individual lots or open space areas
- Rain gardens / rain barrels
- National Pollution Discharge Elimination System (NPDES)





