

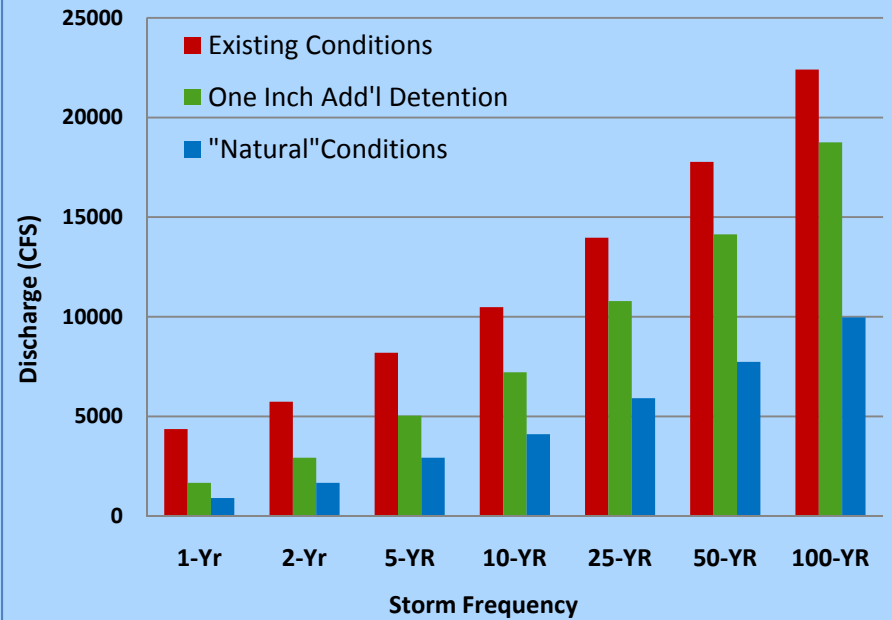


Map Prepared by: Center for Sustainable Communities
Temple University

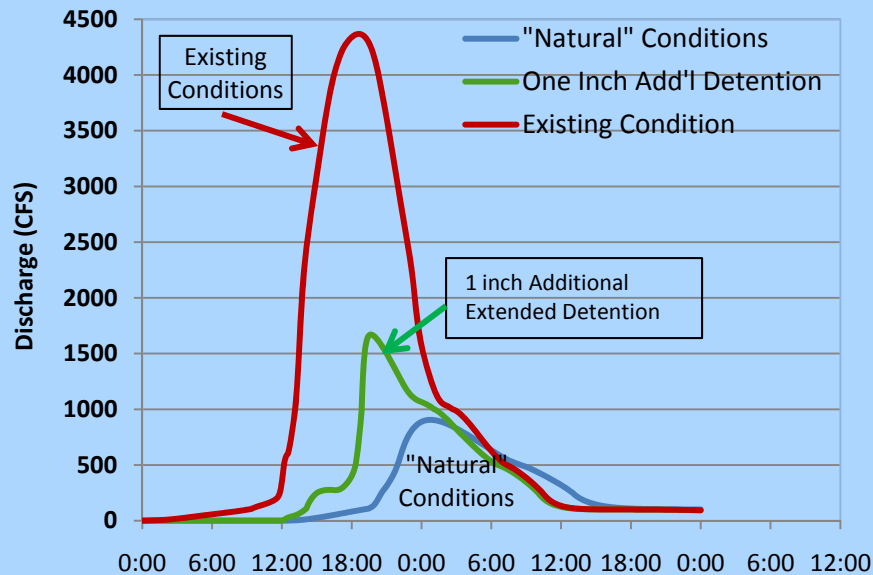
Storing Additional 1 inch of Runoff

- Location: Pennypack Creek at Rhawn Street
- Total Precipitation for 1-Yr Storm = 2.98 inches
- Effects shown are for BMP's and pervious paving distributed throughout the watershed.
- Natural conditions results assumes a Curve Number for Forest Cover of 62.

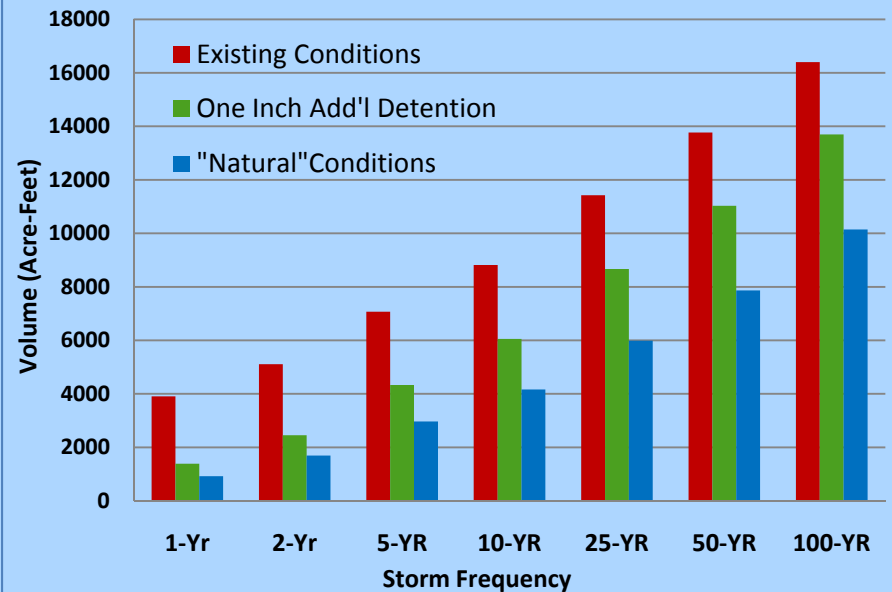
Peak Discharge at Rhawn Street Gage



Pennypack Creek at Rhawn St. - 1-Yr Storm Event



Runoff Volume at Rhawn Street Gage



Many existing detention facilities do not retain significant runoff from small events.

These events account for a large portion of annual runoff volume.

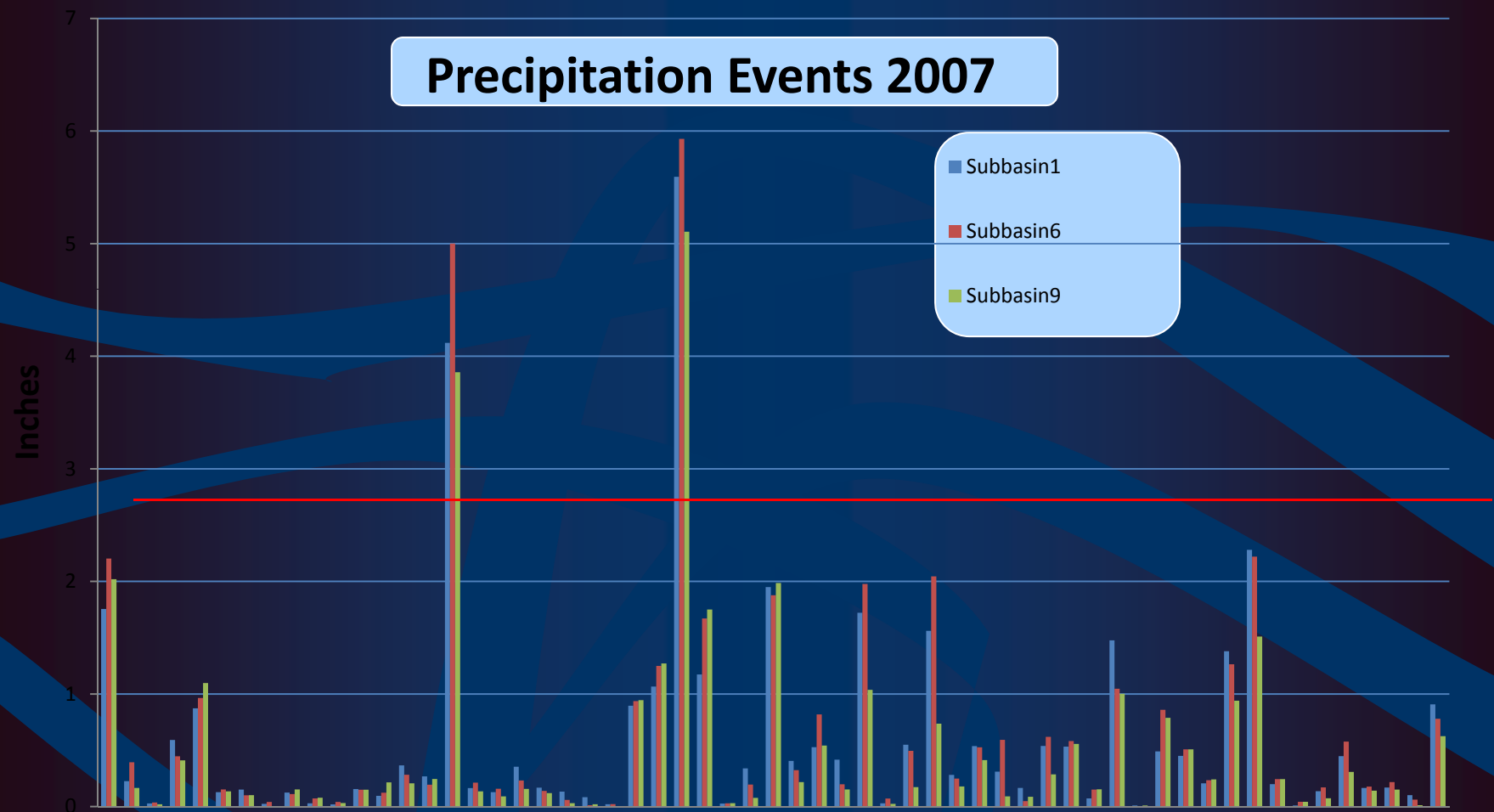
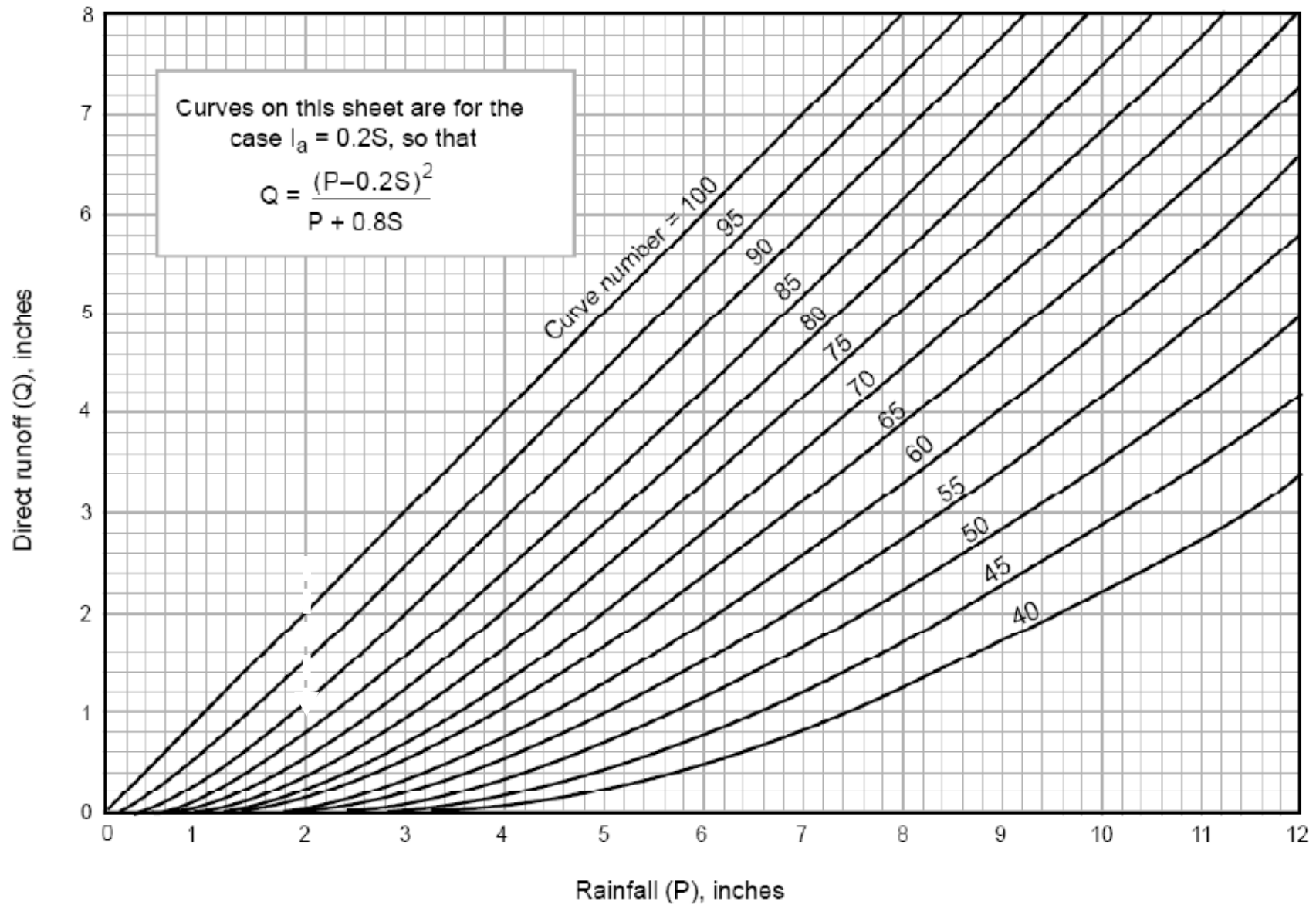
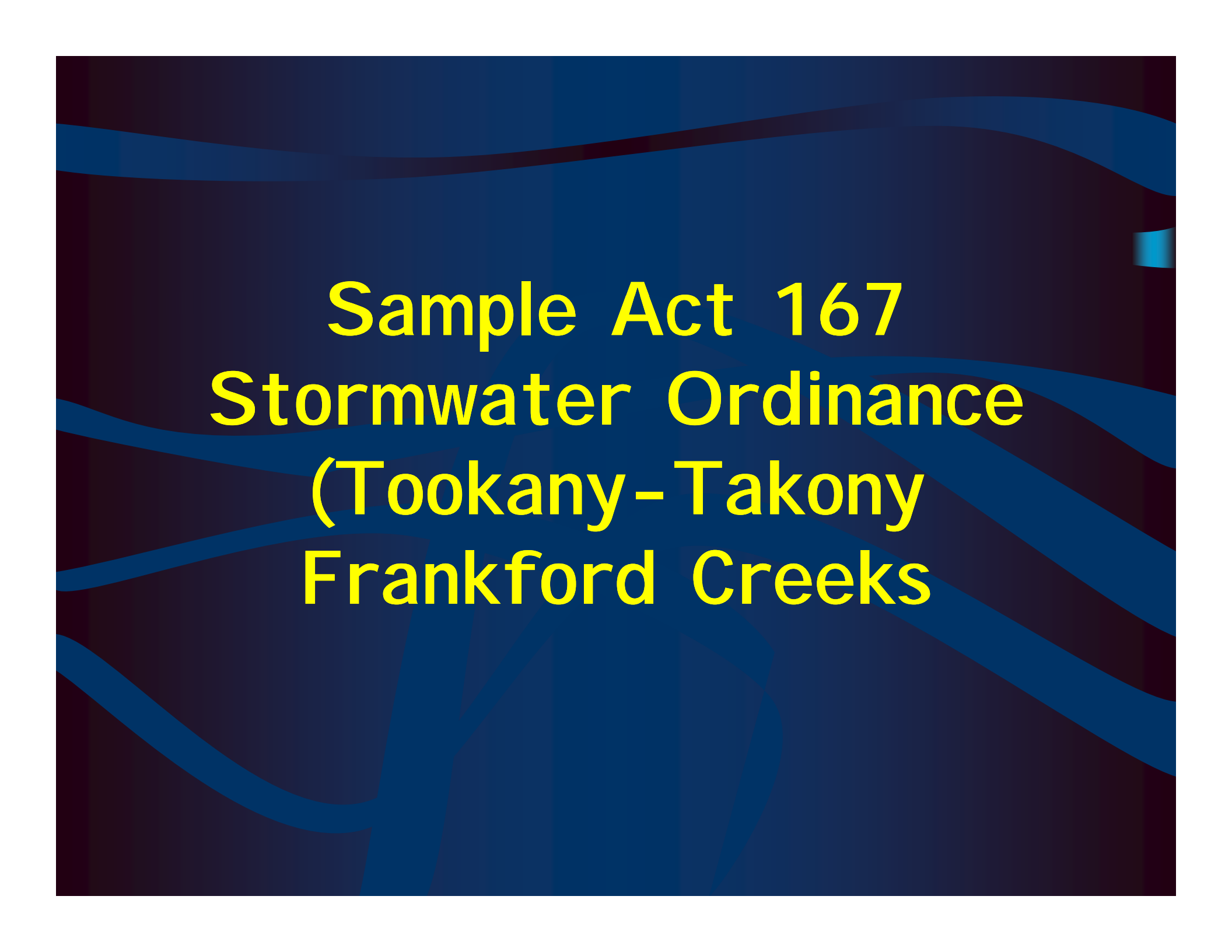


Figure 2: Solution of the NRCS runoff equation





**Sample Act 167
Stormwater Ordinance
(Tookany-Takony
Frankford Creeks**

Model Act 167

Stormwater

Management

Ordinance

(Tookany/Tacony - Frankford)

Standards and Criteria

Ordinance Provisions:

Article:

I.

II.

III.

IV.

V.

VI.

VII.

VIII.

IX.

Description:

General Provisions

Definitions

SW Mgmt Site Plan Reqs.

Stormwater Management

Inspections

Fees And Expenses

Maintenance Responsibilities

Prohibitions

Enforcement & Penalties

ARTICLE II - Definitions:

Existing Conditions - The dominant land cover during the 5-year period immediately preceding a proposed Regulated Activity. If the initial condition of the site is undeveloped land, the land use shall be considered as "meadow" unless the natural land cover is proven to generate a lower curve number or Rational "c" value, such as forested lands.

Predevelopment - Undeveloped/Natural Condition.

ARTICLE II - Definitions:

Directly Connected Impervious Area (DCIA) – An impervious or impermeable surface which is directly connected to a stormwater drainage or conveyance system, leading to direct runoff, decreased infiltration, decreased filtration, and decreased time of concentration.

Disconnected Impervious Area (DIA) – An impervious or impermeable surface which is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area which allows for infiltration, filtration, and increased time of concentration.

ARTICLE II - Definitions:

Reconstruction - Demolition of, and subsequent rebuilding of impervious surface.

Redevelopment - Any development that requires demolition or removal of existing structures or impervious surfaces at a site and replacement with new impervious surfaces. Maintenance activities such as top-layer grinding and re-paving are not considered to be redevelopment. Interior remodeling projects and tenant improvements are also not considered to be redevelopment.

Repaving - Replacement of the impervious surface which does not involve reconstruction of an existing paved (impervious) surface.

Replacement Paving - Reconstruction of and full replacement of an existing paved (impervious) surface

ARTICLE I Section 105 - Applicability:

All Regulated Activities and all activities that may affect stormwater runoff, including Land Development and Earth Disturbance Activity, are subject to regulation by this Ordinance.

Regulated Activities - Any Earth Disturbances Activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff.

Regulated Earth Disturbance Activity - Defined under NPDES Phase II regulations as earth disturbance activity of one (1) acre or more with a point source discharge to surface waters or the Municipality's storm sewer system or five (5) acres or more regardless with or without a point source discharge. This includes earth disturbance on any portion of, part, or during any stage of a larger common plan of development. Activity involving earth disturbance subject to regulation under 25 PA Code 92, 25 PA Code 102, or the Clean Streams Law.

ARTICLE I Section 105 – Applicability:

In addition, all applicable development in Philadelphia County must comply with:

The latest version of “Stormwater Management Guidance Manual” (currently Version 2.0), prepared by the Philadelphia Water Department Office of Watersheds. This manual is available online at:

<http://www.phillyriverinfo.org/PWDDDevelopmentReview/RequirementsLibrary.aspx?>

TABLE 105.1 - ORDINANCE APPLICABILITY FOR THE PHILADELPHIA COUNTY PORTION OF THE WATERSHED

Ordinance Article or Section	Type of Project	Earth Disturbance Associated with Development		
		0-15,000 sq. ft.	15,000 sq. ft.-1 acre	> 1 acre
<u>Article III</u> Drainage Plan Requirements	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes	Yes
<u>Section 403</u> Groundwater Recharge Requirements	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes	Yes
<u>Section 404</u> Water Quality Requirements	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes	Yes
<u>Section 405</u> Channel Protection / Streambank Erosion Requirements	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Exempt	Yes (Alternate Criteria)
<u>Section 406</u> Flood Control / Rate Control and Management Districts Requirements	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes (Alternate Criteria)	Yes (Alternate Criteria)

Yes (Alternate Criteria) – Redevelopment disturbing more than one acre which reduces the DCIA from predevelopment conditions by at least 20% is exempt from the Channel Protection Requirements of this Ordinance, and redevelopment greater than or equal to 15,000 square feet which reduces the DCIA from predevelopment conditions by at least 20% are exempt from the Flood Control Requirements of this Ordinance (See Section 106, Philadelphia County Portion of the Watershed, for further details).

N/A – Not Applicable, development project is not subject to requirements of indicated Regulations section. Voluntary controls are encouraged.

Exempt – Development project is not subject to requirements of indicated Regulations section.

** – If the proposed development results in stormwater discharge that exceeds stormwater system capacity, increases the FEMA regulated water surface elevation, causes a combined sewer overflow, or degrades receiving waters, the design specifications presented in these Regulations may be applied to proposed development activities as warranted to protect public health, safety, or property.

Section 106. Exemptions

Note: Philadelphia County and Montgomery County will follow different Exemption Criteria.

Montgomery County Portion of the Watershed:

- Disconnected Regulated Activities <250 sq. ft. exempt from peak rate control and drainage plan preparation
- Disconnected Regulated Activities => 250 sq. ft. and < 1,000 sq. ft. exempt from the peak rate control
- Agricultural plowing and tilling exempt from rate control and drainage plan preparation.
- Forest management and timber operations exempt from rate control and Drainage plan preparation

Section 106. Exemptions

Note: Philadelphia County and Montgomery County will follow different Exemption Criteria.

Philadelphia County Portion of the Watershed:

- Development, including new development and redevelopment, with Earth Disturbance < fifteen thousand (15,000) square feet is exempt from certain requirements as outlined in Table 105.1. However, applicants must still meet Erosion and Sediment (E&S) Control requirements and coastal water quality requirements from other programs if applicable as described in Table 105.1.
- Redevelopment that results in an area of Earth Disturbance greater than or equal to fifteen thousand (15,000) sq. ft., but less than one (1) acre, is exempt from the Channel Protection/Streambank Erosion (Section 405) Requirements of this Ordinance.

Section 106. Exemptions

Note: Philadelphia County and Montgomery County will follow different Exemption Criteria.

- Redevelopment that results in an area of Earth Disturbance greater than or equal to one (1) acre and reduces the predevelopment DCI A (Directly Connected Impervious Areas) on the site by at least 20% is exempt from the Channel Protection/Streambank Erosion and Flood Control/Peak Rate Control Requirements of this Ordinance.

Article: III. Stormwater Management Site Plan Requirements

- Typical plan requirements

- **Statement** - "I, (Design Engineer), on this date (date of signature), hereby certify that the drainage (stormwater management site) plan meets all requirements of the Department of Environmental Protection's (DEP's) regulations and this Ordinance."

Article IV.

Stormwater Management

Section 401 - General Requirements

Section 402 - Permit Requirements for Other Government Entities

Section 403 - Ground Water Recharge

Section 404 - Water Quality Requirements

Section 405. Stream Bank Erosion Requirements
(Channel Protection)

Section 406 - Stormwater Peak Rate Control and Management Districts

Section 407 - Calculation Methodologies

Section 408 - Other

Article V. Inspections

Section 501. Inspections

A. The Municipality or his Municipal designee shall inspect all phases of the installation of the Best Management Practices (BMPs) and/or stormwater management facilities as deemed appropriate by the Municipality.

ARTICLE VI - FEES AND EXPENSES

Section 601. Municipality Stormwater Management (SWM) Site Plan Review and Inspection Fee

Section 602. Expenses Covered by Fees

- Administrative costs.
- The review of the drainage plan (stormwater management site plan) by the Municipality.
- The site inspections.
- The inspection of SWM facilities and drainage improvements during construction.
- The final inspection
- Any additional work required to enforce any permit provisions



ARTICLE VII - MAINTENANCE RESPONSIBILITIES

ARTICLE VIII - PROHIBITIONS

Section 801. Prohibited Discharges

- Discharges from fire fighting activities	- Flows from riparian habitats and wetlands
- Potable water sources including water line flushing	- Uncontaminated water from foundations or from footing drains
- Irrigation drainage	- Lawn watering
- Air conditioning condensate	- Dechlorinated swimming pool discharges
- Springs	- Uncontaminated groundwater
- Water from crawl space pumps	- Water from individual residential car washing
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used	- Routine external building wash down (which does not use detergents or other compounds)

ARTICLE IX - ENFORCEMENT AND PENALTIES

Municipal Ordinance Adoption & Implementation Procedure:

- Have engineer and solicitor review ordinance
- Reply to PWD with Questions
- Adopt Ordinance
- Implement

Timeline / Schedule

(Paul DeBarry, NTM)

