PennDOT LTAP
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INFORMATION
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MUNICIPAL STORMWATER FACILITY INVENTORY AND MAINTENANCE TRACKING METHODS

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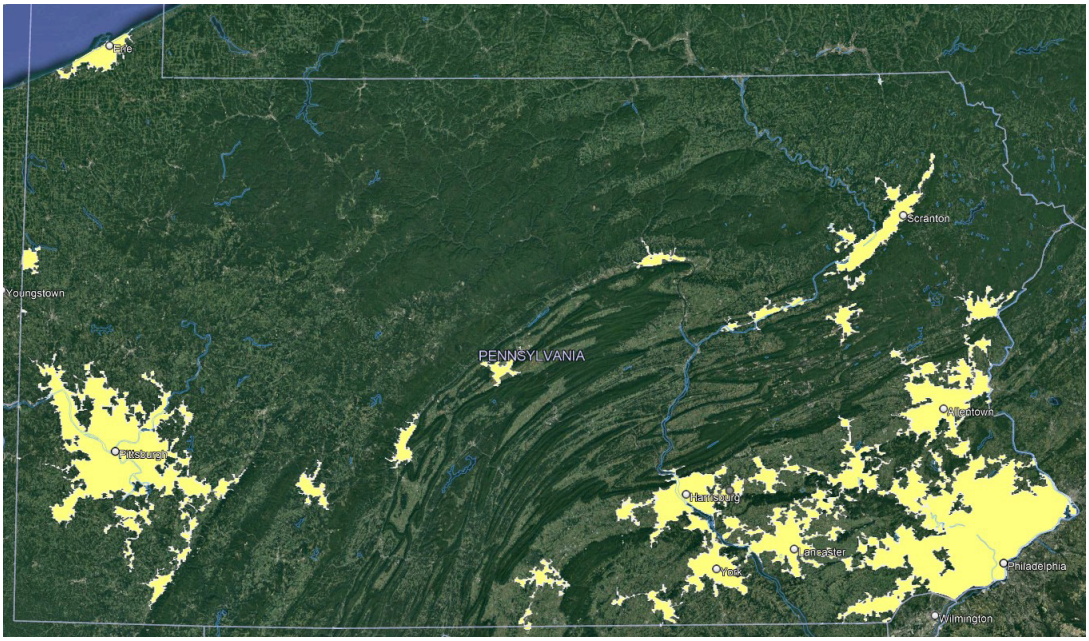
Over the last 40 years, federal, state, and municipal regulations have been enacted requiring the construction of "basins" and other stormwater control measures (SCM) to offset impacts to stormwater runoff as a result of construction. These regulations present municipalities with the need to implement a multi-pronged stormwater facility tracking and management program. To fully assess the program needs, a municipality must first assess which regulations apply in its jurisdiction.

Since 1978, municipalities across the state have adopted some level of stormwater management regulations in response to Pennsylvania's Stormwater Management Act, known as Act 167. These codes generally require the construction of a SCM by the developer to offset the impacts to stormwater runoff. But who that developer is variers from private homeowners, development firms, public utilities, and even the municipality.



Municipalities in Pennsylvania urbanized areas require NPDES MS4 permits. (Aerial imagery c/o Google Earth.)

More recently, the National Pollution Discharge Elimination System (NPDES) program instituted additional stormwater control requirements with the Construction Site NPDES permit (PA Code Chapter 102).

Additionally, the NPDES Municipal Separate Storm Sewer System (MS4) Permit requires that municipalities within urbanized areas (2010 Census) implement a stormwater management program to reduce the discharge of pollutants. Approximately 42% of Pennsylvania's municipalities are required to obtain MS4 Permit coverage. One of the requirements of the permit is to develop and maintain an inventory of SCMs.

Inventory – What is Needed?

Each municipality must determine its own specific stormwater needs and applicable regulatory requirements to determine the SCM data to collect. Answering key questions can aide in this effort.

- How will SCMs be identified? Developing a unique identifier that contains key information in the name can help give users immediate information about the SCM. Consider including:
  - An SCM-type abbreviation.
  - A relative location by municipal road number or quadrant of the jurisdiction.
  - A reference to the type of owner such as "R" for resident, "H" for HOA, "C" for commercial, "M" for municipal, and "O" for other.

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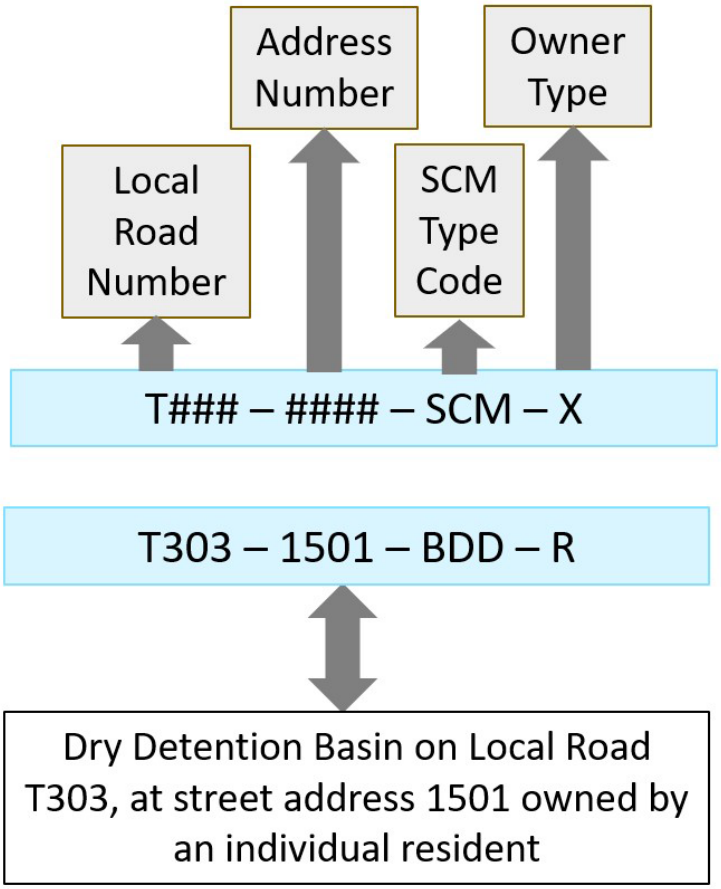
- What SCM information is needed?
  - Location (latitude and longitude)
  - SCM type
  - Owner
  - Year constructed
  - Watershed name and watershed impairments
  - Associated permit(s); For example, construction site NPDES or municipal grading permits.

SCM Name	Abbreviation
Basin - Dry Detention	BDD
Basin - Dry Extended Detention	BED
Basin - Managed Release (ultra extended)	BUD
Basin - Infiltration Detention	BID
Basin - Other	BOT
Basin - Naturalized Detention	BND
Basin - Wet Detention	BWD
Bioretention	BRE
Bioretention w/Underdrain	BRU
Forest Preservation	FPR
Infiltration Berm	IBE
Landscape Restoration Meadow	LRM
Level Spreader Outfall	LSO
Manufactured Treatment Devices	MTD
Media Filter Drain	MFD
Non-Basin SCM, Other	NBO
Pervious Pavement, Asphalt	PPA
Pervious Pavement, Concrete	PPC
Pervious Pavement, Pavers	PPP
Reforestation/Tree Plantings	RTP
Riparian Buffer Enhancement	RBE
Soil Amendment Restoration	SAR
Stormwater Wetland	SWE
Stream Restoration	SRE
Stream Stabilization	SST
Subsurface Detention/Infiltration System	SDS
Subsurface Infiltration Trench	SIT
Vegetated Filter Strip	VFS
Vegetated Swale	VSW
Vegetated Swale w/ Check Dams	VSC

SCM types and example abbreviations for inventory naming use.



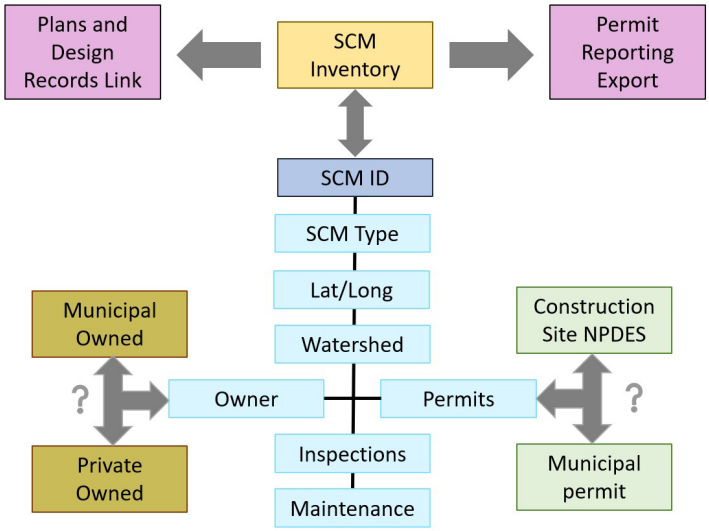
Municipalities can develop a standardized alpha-numeric Identification number for SCMs that provide key location, owner, and type information right in the name. Here is one example.

- What permits require SCM data reporting? For example, the NPDES MS4 Permit.
  - What data is reported?
- What SCM inspections are required?
  - How often and who is responsible for them?
- What SCM maintenance is required?
  - How often and who is responsible for it?

Each of these and other useful bits of information become individual fields in the inventory.

Next, one must determine *where* the inventory data is kept. There are numerous electronic methods available to track the SCMs within the municipality. A low-cost and effective choice is a spreadsheet program such as Microsoft Excel, Apple Numbers, or Google Sheets. Spreadsheets allow easy customization while offering simple sorting and filtering functions. Software databases, such as Microsoft Access, are more complex but offer more sophisticated data management features.

A GIS database is typically a more costly solution, but it offers the convenience of a map component with the associated SCM data. Often, the initial SCM inventory is developed in spreadsheet program and later transferred into GIS software as resources become available. Consider available funding, software knowledge, and ease of inventory maintenance when choosing the data management option best for your municipality.



A robust SCM Inventory contains various fields supports tracking, permit reporting, physical SCM data, inspections, and maintenance activities.

A key part of SCM lifecycle activities are regular inspections and maintenance visits. The inventory data fields may be able to automatically generate notice when these activities are due. For non-municipal-owned SCMs, this can be used to track when documentation is due from the private owners. For municipal-owned SCMs, this can used as a tool to notify staff of the required activities.

Outside of the inventory, a central storage location is needed for SCM plan drawings (often called Post Construction Stormwater Management Plans), permits, and design documentation. With more and more permit submission formats transitioning to electronic format, this central storage location can be an electronic storage system. All plans, permits, and documentation can be converted into a PDF file. A logical file-naming convention should be established to keep materials organized. Creating links from the SCM spreadsheet or database to the supporting document can be considered to help automate data inquire efforts.

A final crucial step is to establish who is responsible for updating the inventory and what procedures will be used to do so. Establish protocols for all incoming development plans to be provided to the identified staff member for inventory entry.