

PTAPP Online Municipal Tracking Tool Instructions

Project Name: Add a unique name that appropriately identifies the submission

Note: Check boxes are used where further refinement may eventually be used. If unknown it is fine to leave the check boxes unchecked.

Municipal Project: Check this box if the project is part of municipal efforts

MS4 area: Check this box if the project is in an MS4 designated area

Watershed Buffer: Check this box is within the 200 meter coastal zone or stream buffer zone

Impaired Water: Check this box if the site discharges to a known impaired water.

Offsite Mitigation: Check this box if the entered project is being used as offsite mitigation for another development.

Map No.: If available add tax map identifier

Property Owner: If a private development enter the owners name of record. If it is a submission on the behalf of the town/city enter "municipal".

Block No.: If available add block number identifier

Project Street Address: Enter in the street address of the property if known.

Lot No.: If available add parcel lot number identifier

Town: From the drop-down menu, select the name of the town/city where the development is taking place. Note: If the development crosses jurisdictional boundaries, enter the name of the town/city where the majority of the development exists.

Parcel ID: If available add parcel identification number

Development Type: From the drop-down menu, select the type of development best represented by the project: Residential, Commercial/Institutional, Industrial, Recreational. Definitions for each category are provided below.

- **Commercial/Institutional:** A commercial development refers to buildings or land intended to generate a profit, from capital gain, or rental income provided the property does not meet the definition of residential land uses. Institutional land uses include but are not limited to schools, hospitals or other large facilities that do not meet the definition of industrial, residential or recreational land uses.
- **Industrial:** Industrial development is the use of a property for industrial purposes (eg. Manufacturing). Normally "heavy" industrial uses are where activities have the potential of being areas of high potential pollutant loading.
- **Recreational:** A recreational development is a land use for purposes of recreation, example (eg. sports fields, playgrounds, public parks and green areas, public beaches, and camping sites). These uses general have a large area of open, permeable space and a lower percentage of impervious cover.

- Residential: A residential development is a land use in which housing predominates, as opposed to industrial and commercial areas. Housing may vary significantly between, and through, residential areas. These include single-family housing, multi-family residential, or mobile homes.
- Other: Includes other categories such as non-structural BMP actions for municipal-wide activities like street sweeping and catch basin cleaning.

Hydrologic Unit Code (HUC): Select the HUC 10 watershed where the project is located from the dropdown list.

Land Use Conversion Table Overview

This table is used to categorize existing (predevelopment) and future (post-development) predevelopment conditions. Information entered into the existing conditions table will provide a baseline for evaluating land use change trends. Note the baseline can lead to both positive (+) and negative (-) long term trends in land conversion. For example, converting land from agricultural land use to commercial development will likely result in an increase of impervious cover; however, retrofitting an existing parking lot with BMPs to treat stormwater runoff will result in a reduction of impervious cover.

Land Use Conversion Table Input Fields

Soils: Choose the hydrologic soil group associated with the development (HSG A,B,C,D). If there are multiple HSGs each subsection can be added independently according to the acreage of each soil type present at the site. Also hybrid categories of HSG A/B, B/C, and C/D have been added as well to facilitate more accurate categorizations.

Relative depictions of each HSG are provided below. Most HSG assessments can be downloaded from the National Resource Conservation Service's (NRCS) Web Soil Survey:

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

The table below summarizes some of the physical properties of the Hydrologic Soils groups:

Soils Group	Infiltration Rate(in/hr)	Relative Runoff Potential
A	>.30	Low
B	0.15-.30	Moderate
C	0.05-0.15	High
D	0-0.05	Very High

Existing Conditions:

Land Use Type: See directions and definitions of “Development Types” and select the appropriate classification from the drop-down menu. In general the more conservative land use should be chosen as a representative land use type. For instance if it is a mixed residential and commercial land use choose commercial as the primary description.

Acres: Enter the total area of the existing area in acres. Please number to the nearest hundredth place, or two decimal places (eg. 0.00).

Impervious Cover: Enter the total area of the existing impervious area in acres. Please number to the nearest hundredth place, or two decimal places (eg. 0.00).

Future Conditions:

Land Use Type: See directions and definitions of “Development Types” and select the appropriate classification from the drop-down menu. In general the more conservative land use should be chosen as a representative land use type. For instance if it is a mixed residential and commercial land use choose commercial as the primary description.

Acres: Enter the total area of the future proposed area in acres. Please number to the nearest hundredth place, or two decimal places (eg. 0.00).

Impervious Cover: Enter the total area of the future proposed impervious area in acres. Please number to the nearest hundredth place, or two decimal places (eg. 0.00).

To add additional conditions click the Actions button and choose relevant categories to add. Note that overall acreage between existing and future conditions must be equal.

Impervious Surface Management Table Overview

This table is used to track impervious surface management activities applied to the project area.

Impervious Surface Management Table Input Fields

Structural BMP

Select Type: From the drop down menu select the BMP type installed.

Dropdown options: See definitions below

1. **Bio-filtration** is a practice that provides temporary storage of runoff for filtering through an engineered soil media. The storage capacity is typically made of void spaces in the filter media and temporary ponding at the surface of the practice. Once the runoff has passed through the filter media it is collected by an under-drain pipe for discharge. The performance curve for this control practice assumes zero infiltration. If a filtration system has subsurface soils that are suitable for infiltration, then user should use the either performance curves for the infiltration trench or the infiltration basin depending on the predominance of storage volume made up by free standing storage or void space storage. Depending on the design of the filter media manufactured or packaged bio-filter systems such as tree box filters may be suitable for using the bio-filtration performance results. Design specifications for bio-filtration systems are provided in the most recent version of *the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection and Design*. (<http://des.nh.gov/organization/divisions/water/stormwater/manual.htm>).
2. **Enhanced Bio-filtration with Internal Storage Reservoir (ISR)** is a practice that provides temporary storage of runoff for filtering through an engineered soil media, augmented for enhanced phosphorus removal, followed by detention and denitrification in a subsurface internal storage reservoir (ISR) comprised of gravel. Runoff flows are routed through filter media and directed to the underlying ISR via an impermeable membrane for temporary storage. An elevated outlet control at the top of the ISR is designed to provide a retention time of at least 24 hours in the system to allow for sufficient time for denitrification and nitrogen reduction to

occur prior to discharge. The design storage capacity for using the cumulative performance curves is comprised of void spaces in the filter media, temporary ponding at the surface of the practice and the void spaces in the gravel ISR. The cumulative phosphorus load reduction curve for this control is intended to be used for systems in which the filter media has been augmented with materials designed and/or known to be effective at capturing phosphorus. If the filter media is not augmented to enhance phosphorus capture, then the phosphorus performance curve for the Bio-Filter should be used for estimating phosphorus load reductions. The University of New Hampshire Stormwater Center (UNHSC) developed the design of this control practice and a design template can be found at UNHSC's website (https://www.unh.edu/unhsc/sites/unh.edu.unhsc/files/UNHSC_Final%20Report_Jul-2015.pdf).

3. **Extended Dry Detention Pond** performance results should only be used for practices that have been designed in accordance with the design specifications for extended dry detention ponds provided in the most recent version of *the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection and Design*. (<http://des.nh.gov/organization/divisions/water/stormwater/manual.htm>).
4. **Gravel Wetland** performance results should be used for practices that have been designed in accordance or share similar features with the design specifications for subsurface gravel wetland systems provided in the report prepared by the University of New Hampshire Stormwater Center entitled *Design and Maintenance of Subsurface Gravel Wetland Systems* and dated February 4, 2015 (https://www.unh.edu/unhsc/sites/default/files/media/unhsc_pa_spec_-_feb-2014_-_rev_9-16.pdf).
5. **Infiltration/Surface Infiltration** represents a practice that provides temporary surface storage of runoff (e.g., ponding) for subsequent infiltration into the ground. Appropriate practices for use of the surface infiltration performance estimates include infiltration basins, infiltration swales (not conveyance swales), rain gardens and bio-retention systems that rely on infiltration and provide the majority of storage capacity through surface-ponding. If an infiltration system includes both surface storage through ponding and a lesser storage volume within the void spaces of a coarse filter media, then the physical storage volume capacity used to determine the long-term cumulative phosphorus removal efficiency from the infiltration basin performance curves would be equal to the sum of the surface storage volume and the void space storage volume. General design specifications for various surface infiltration systems are provided in the most recent version of *the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection and Design*. (<http://des.nh.gov/organization/divisions/water/stormwater/manual.htm>).
6. **Infiltration Trench** is a practice that provides temporary storage of runoff using the void spaces within the soil/sand/gravel mixture that is used to backfill the trench for subsequent infiltration into the surrounding sub-soils. Performance results for the infiltration trench can be used for all subsurface infiltration practices including systems that employ galleys, chambers and/or pipes that provide temporary storage. In addition, the results for this BMP type can be used for bio-retention and porous pavement systems that rely on infiltration when the majority of the temporary storage capacity is provided in the void spaces of the soil filter media and/or stone and sand layers. General design specifications for infiltration trench systems are provided in the most recent version of *the New Hampshire Stormwater Manual, Volume 2: Post-Construction*

Best Management Practices Selection and Design.

(<http://des.nh.gov/organization/divisions/water/stormwater/manual.htm>).

7. **Porous Pavement** (note: porous pavement areas should be treated as impervious surface for purposes of this tracking form) performance results represent systems with an impermeable under-liner and an under-drain. *If porous pavement systems do not have an impermeable under-liner so that filtered runoff can infiltrate into sub-soils, then the performance results for an infiltration trench may be used for these systems.* Design specifications for porous pavement systems are provided in the most recent version of *the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection and Design.* (<http://des.nh.gov/organization/divisions/water/stormwater/manual.htm>).
8. **Sand Filter** performance results should be used for practices that have been designed in accordance or share similar features with the design specifications for sand filter systems provided in the most recent version of *the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection and Design.* (<http://des.nh.gov/organization/divisions/water/stormwater/manual.htm>).
9. **Water Quality Grass Swale with Detention** performance results should only be used for practices that have been designed in accordance with the design specifications for a water quality swale with check dams to temporarily store the target storage volume capture provided in the most recent version of *the Massachusetts Stormwater Handbook, Volume 2/Chapter2* (<http://www.mass.gov/eea/docs/dep/water/laws/i-thru-z/v2c2.pdf>
10. **Wet ponds** are designed to maintain a permanent pool of water throughout the year. The pool, located below the outlet invert, allows for pollutant removal through settling and biological uptake or decomposition. The wet pond performance results should only be used for practices that have been designed in accordance with the design specifications for wet ponds provided in the most recent version of *the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection and Design.* (<http://des.nh.gov/organization/divisions/water/stormwater/manual.htm>).

Impervious Surface Managed: Enter the total area in acres of impervious surface treated by the BMP is.

Runoff Volume Storage at Design Capacity: The equations used for calculating the design storage capacity for estimating the cumulative pollutant reductions using the MS4 performance curves (2017 NH Small MS4 General Permit, Appendix F Attachment 3, Table 3-5:

<https://www3.epa.gov/region1/npdms/stormwater/nh/nhms4-renotice-sections-appendix-f.pdf>).

Legend:

- DSV = Design Storage Volume = physical storage capacity to hold water
- L = length
- W = width
- D = depth at design capacity before bypass
- n = porosity/void space of fill material
 - soil media (bio-retention soil mix, engineered soil mix, etc.) = 0.2

- peastone ($\frac{3}{8}$ " washed) = 0.3
- reservoir stone ($\frac{3}{4}$ " washed) = 0.4
- A = average surface area for calculating volume

Calculations by BMP type:

1. Infiltration Trench with no surface storage
 - a. DSV = void space volumes of gravel and sand layers
 - b. $DSV = (L \times W \times D_{stone} \times n_{stone}) + (L \times W \times D_{sand} \times n_{sand})$
2. Infiltration Trench with subsurface infiltration structures (e.g. galleys, chambers, pipes, etc.) and no surface storage
 - a. DSV = water storage volume of subsurface storage structures and void space volumes of backfill materials. This example is for subsurface galleys installed in a trench and backfilled with washed stone.
 - b. $DSV = (L \times W \times D)_{galley} + (L \times W \times D_{stone} \times n_{stone})$
3. Infiltration Trench for a tree filter with no underdrain
 - a. DSV = Ponding water storage volume and void space volumes of soil filter media and stone layers.
 - b. $DSV = (L \times W \times D_{ponding}) + (L \times W \times D_{soil} \times n_{soil}) + (L \times W \times D_{peastone} \times n_{peastone}) + (L \times W \times D_{stone} \times n_{stone})$
4. Infiltration Basin/Surface Infiltration for linear trapezoidal vegetated swale
 - a. DSV = Water volume of storage structure before bypass.
 - b. $DSV = (L \times ((W_{bottom} + W_{top@Dmax})/2) \times D)$
5. Infiltration Basin/Surface Infiltration for raingarden or bio-retention with no underdrains
 - a. DSV = Ponding water storage volume and void space volumes of soil filter media and stone layers, if applicable.
 - b. $DSV = (A_{pond} \times D_{pond}) + (A_{soil} \times D_{soil} \times n_{soil}) + (A_{stone} \times D_{stone} \times n_{stone})$
6. Bio-Filtration with an underdrain system
 - a. DSV = Ponding water storage volume and void space volume of soil filter media.
Example of a linear bio-filter. If designed with stone layers below the filter media the void space in those layers should be added to the total DSV.
 - b. $DSV = (L \times W \times D_{ponding}) + (L \times W \times D_{soil} \times n_{soil})$
7. Enhanced Bio-Filtration w/ Internal Storage Reservoir (ISR) and no infiltration
 - a. DSV = Ponding water storage volume and void space volume of soil filter media and gravel ISR.
 - b. $DSV = (A_{bed} \times D_{ponding}) + (A_{bed} \times D_{soil} \times n_{soil}) + (A_{ISR} \times D_{gravel} \times n_{gravel})$
8. Gravel Wetland basin sizing
 - a. DSV = pretreatment volume + ponding volume
 - b. $DSV = (A_{pretreatment} \times D_{pretreatment}) + (A_{wetland} \times D_{ponding}) + (A_{ISR} \times D_{gravel} \times n_{gravel})$
9. Porous Pavement with subsurface infiltration
 - a. DSV = void space volumes of stone and sand layers
 - b. $DSV = (L \times W \times D_{stone} \times n_{stone}) + (L \times W \times D_{sand} \times n_{sand})$
10. Porous Pavement w/ impermeable liner w/ underdrain
 - a. Depth of Filter Course = D_{FC} (pollutant reductions based on D_{FC})
11. Sand Filter w/ underdrain

- a. DSV = pretreatment volume + ponding volume + void space volume of sand and washed stone layers
 - b. $DSV = (A_{\text{pretreatment}} \times D_{\text{pretreatment}}) + (A_{\text{bed}} \times D_{\text{ponding}}) + (A_{\text{bed}} \times D_{\text{sand}} \times n_{\text{sand}}) + (A_{\text{bed}} \times D_{\text{stone}} \times n_{\text{stone}})$
12. Wet Pond
- a. DSV = Permanent pool volume prior to high flow bypass
 - b. $DSV = A_{\text{pond}} \times D_{\text{pond}}$ (does not include pretreatment volume)
13. Extended Dry Detention Basin
- a. DSV = Ponding volume prior to high flow bypass
 - b. $DSV = A_{\text{pond}} \times D_{\text{pond}}$ (does not include pretreatment volume)
14. Dry Water Quality Swale / Grass Swale
- a. DSV = Volume of swale at full design depth
 - b. $DSV = L_{\text{swale}} \times \text{average } W_{\text{swale}} \times D_{\text{ponding swale}}$

Design Storm Depth (inches): The depth of direct runoff treated by the BMP assuming 100% runoff from the watershed's impervious cover. This runoff depth multiplied by the impervious area gives the volume of water to be stored in the BMP void spaces (including ponding), called the Design Storage Volume (DSV). The design storm depth is calculated by dividing the DSV by the area of impervious cover of the watershed.

Design Storm Depth (also known as Physical Storage Capacity: Depth of runoff from Impervious Cover) = $DSV / (3630 \times IC)$ were:

DSV is in cubic feet

IC is in acres

3630 is the cubic feet of runoff per inch of rain on one acre of IC (cf/acre-inch)

Such that the result is depth in inches of rain from the drainage area that the system can physically store.

Infiltration Rate (in/hr): Select the most appropriate infiltration rate of the native soils. These numbers have been added in order to determine which of the treatment curves to use in future accounting steps.

Add Row: For multiple BMPs select the add row button and input additional information

Total Impervious Cover: Enter the total impervious cover in acres treated by the BMP

Effective Impervious Cover: Verify that the total Effective Impervious Cover (EIC) is correct = the new Impervious area, in acres minus the impervious area, in acres treated by the BMP

Impervious Surface Management Table - Non-Structural BMPs

Select Type:

1. BMP Operation and Maintenance: This area is a chance to report any additional BMP O&M

2. Catch Basin Cleaning: Documentation the catch basin cleaning schedule with the goal of not exceeding 50% full. Log number of Catch Basins cleaned and report number and sediment volume estimates if available.

- 3. Fertilizer control program:** This is a chance to report any new or reoccurring fertilizer management efforts.
- 4. IDDE Efforts:** This is a chance to report any new or reoccurring illicit discharge detection and elimination efforts.
- 5. Leaf collection composting program:** Documentation of metrics developed to track volume or mass/quantities of leaf litter removed if applicable.
- 6. Municipal Regulations:** This is a chance to report any new or reoccurring regulatory updates.
- 7. New Septic O&M Programs:** This is a chance to report any new or reoccurring point of use septic management programs.
- 8. Pet waste pickup program:** This is a chance to report any new or reoccurring pet waste management efforts.
- 9. Street Sweeping:** Street sweeping is required within the MS4 at least 1 x per year, more if the watershed area drains to impaired waters. Report the number of lane miles swept and estimate the volume or mass of material removed.
- 10. Other:** This is a chance to report on any other nutrient control efforts currently not categorized.

Amount: Add the unit of measurement appropriate for tracking this effort if available.

Description: Add a detailed description of the effort.

Add Row: For multiple BMPs select the add row button and input additional information

Wastewater Management Table

Wastewater Management Option:

Existing Conditions: Choose the existing condition wastewater treatment option from the dropdown menu provided. See below for a full description of wastewater management options.

Existing estimated waste water discharge (GPD): Enter the existing condition waste water discharge (if any) in gallons per day. Gallons per day (GPD)" means the standard measure of water or wastewater flow in a 24-hour period.

Future Conditions: Choose the existing condition wastewater treatment option from the dropdown menu provided. See below for a full description of wastewater management options.

New estimated waste water discharge (GPD): Enter the new or proposed condition waste water discharge (if any) in gallons per day. Gallons per day (GPD)" means the standard measure of water or wastewater flow in a 24-hour period.

Add Row: For multiple waste water management BMPs select the add row button and input additional information

Totals: Verify that the automatically calculated totals are correct.

Drop-down Menu Descriptions:

Innovative Septic System: An Alternate Septic System is a system that is approved by NHDES subsurface Bureau for a particular site with Site Conditions that would prohibit a traditional type system.

Multi-use/Community Septic System: A septic system is considered a large capacity septic system (LCSS) if it receives *solely sanitary waste* either from *multiple dwellings* or from a *non-residential establishment* and the system has the capacity to *serve 20 or more persons per day*.

Point of Use Septic System: A sewage or wastewater disposal system is required for any structure from which wastewater will be discharged and to which a water supply is or will be connected.

Sewered: In this case, sewered refers to a sanitary sewer system specifically designed for transporting sewage from houses and commercial buildings through pipes to an approved treatment facility prior to discharge.

Undeveloped: In this case there is no existing wastewater management facilities.

Not Applicable: Select this if wastewater management is not applicable in the project area (for instance street sweeping activities).

Totals will be automatically generated.

Selection box: Check this box to certify

Submit: Press the save button to submit the form for later confirmation and acceptance.