



ROUTE 7 CORRIDOR
IMPROVEMENTS

VDOT

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Stormwater Management



View of stormwater management facility from Rolling Holly Drive

VDOT is required by law to control and treat stormwater runoff from roadways. New, more stringent regulations took effect in July 2014 making it more difficult to design stormwater treatment facilities, especially in a constrained urban corridor such as Route 7.

There are two elements to treating stormwater runoff:

Water Quality is the reduction of pollutants from runoff. Phosphorus is the key pollutant of concern.

Water Quantity is the reduction of the volume and speed of water released to minimize flood damage and erosion of natural stream channels.

An **outfall** is a defined channel where stormwater runoff leaves the VDOT right-of-way. An outfall can be naturally occurring based on low points in topography or from an existing storm drain system.

Nutrient Credit Purchase: A max of 25% of the Water Quality treatment requirements can be purchased from the Nutrient Credit Bank for a project of this size.

1% Rule: Water Quantity requirements can be waived if the drainage area being treated at a particular outfall is less than 1% of the overall watershed.

The type, location, and size of each stormwater management facility are determined on a case-by-case basis. Each stormwater management facility is designed to meet federal and state regulations while taking into account the following:

- The size of the area draining into the facility
- The amount of impervious area that the facility needs to treat
- Existing topography and obstructions
- Underground utility impacts
- Wetlands, streams, parkland and historic property impacts
- Construction and future maintenance cost
- Using HOA land before considering private resident impact

The project design team has already maximized the nutrient credit purchase allowed for this project and applied the 1% rule wherever possible to reduce the size and impacts of the stormwater management facilities. The rest must be treated with stormwater management facilities (or best management practices (BMPs)).

Stormwater management design is an iterative process and each facility will continue to evolve as roadway design advances.

For more information on VDOT's approach to stormwater management design, visit virginiadot.org/programs/stormwater_management.asp



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Why can't you move the pond further down the road or across the street?

VDOT policy prohibits the relocation of existing outfalls. Directing runoff to different locations will have unintended environmental consequences to the existing ecology and hydrology of the downstream system. One stream may dry out while another stream channel floods or erodes away due to increased volume of water.

Will the stormwater management facility make the existing flooding issue worse in my neighborhood?

No, the environmental regulations dictate that the volume and speed of the discharge from each outfall must be equal or less than the pre-construction conditions. Calculations were performed to ensure that the discharge will not cause downstream erosion or additional flooding. One of the purposes of the stormwater management facility is to detain the runoff and to release the water slowly over a long period of time to prevent downstream flooding. However, existing flooding issues will not be resolved with this project. The stormwater management facilities for this project will only manage the runoff that will result from this roadway construction project.

Why can't you use an underground storage facility or some other type of stormwater facility instead?

The majority of the stormwater management facilities within project limits are wet ponds. The selection of the type of facility used is based on the size of the drainage area that drains into each facility, the efficiency of phosphorus removal, the use of curb and gutter, the overall resulting footprint of the facility, as well as construction and maintenance costs. Wet ponds satisfy all of these requirements with the lowest cost.

Underground storage facilities require more frequent maintenance and are expensive to construct. The overall lifetime cost of an underground storage facility is triple the cost of a wet pond. In addition, trees removed during the construction cannot be replaced directly on top of the facility as tree roots would cause damage to the underground storage units. Only grass could be planted on top of the facility to allow access for maintenance.

Will these wet ponds encourage mosquito breeding?

These wet ponds are designed to have a permanent pool with natural aquatic vegetation which will encourage the formation of habitats for natural predators of mosquitos such as frogs, fish and dragonflies. For further information please visit Fairfax County's Health Department website: www.fairfaxcounty.gov/hd.

Why is fencing necessary?

Fencing is required by VDOT policy to deter unauthorized access. All fencing will be chosen to match the characteristic of the neighborhood and landscaping will be planted to obscure the fencing as well as the facility from public view.

Will you replace the trees you cut down?

Trees will be placed around the fencing of the stormwater management facility, not inside the facility, to help blend into the surrounding neighborhood. Property owners will be compensated for impacts to landscaping on their property during the right-of-way negotiation phase of the project.