CHAPTER 11
TOTAL MAXIMUM DAILY LOADS

11.1 INTRODUCTION

The Clean Water Act requires that States develop (with EPA approval) a list of waterways that are impaired by pollutants and do not meet water quality standards. For those waterways identified on the impaired list, a Total Maximum Daily Load (TMDL) must be developed. A TMDL is essentially a "pollution diet" that identifies the maximum amount of a pollutant the waterway can receive and still meet water quality standards.

Various TMDLs have been developed for waterways throughout Virginia, including the Chesapeake Bay. The Chesapeake Bay TMDL was established to initiate the restoration of clean water in the Chesapeake Bay and its watershed and identifies the necessary reductions of nitrogen, phosphorus and sediment needed by the 6 watershed states and Washington, DC to restore the water quality in the Bay. In addition to the Chesapeake Bay TMDL, there are seven approved and one draft TMDLs for waterbodies in Henrico County. Additional information concerning these TMDLs can be found in section 11.4.

11.2 APPLICABILITY

In accordance with Sec. 10-37 of the Henrico County Code, the requirements of this chapter apply to all VSMP land-disturbing activities. For help determining the land disturbance activity type, please refer to Chapter 3 of this Manual.

11.3 REQUIREMENTS

To meet the TMDL requirements of the GCP, SWPPPs must be developed and maintained for projects discharging stormwater to:

1. surface waters identified as impaired in the 2012 § 305(b)/303(d) Water Quality Assessment Integrated Report;
2. surface waters for which a TMDL wasteload allocation has been established and approved prior to July 1, 2014 for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity) or (ii) nutrients (i.e., nitrogen or phosphorus); or
3. surface waters identified as exceptional in 9VAC25-260-60.A.3.c.

The surface waters described above are identified in Section 11.4.

The SWPPPs must minimize the pollutants of concerns and, when applicable, be consistent with the assumptions and requirements of the approved TMDL wasteload allocations. In addition, SWPPPs must include implementation of the following items:

a. The impaired water(s), approved TMDL(s), pollutant(s) of concern, and exceptional water(s), when applicable, shall be identified in the SWPPP;
b. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site;
c. Nutrients shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events;
d. SWPPP inspections shall be conducted by the operator at a frequency of;
    1. At least once every four business days, or at least once every five business days and no later than 48 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 48 hours between business days, the inspection shall be conducted on the next business day; and
    2. Representative inspections used by utility line installation, pipeline construction, or other similar linear construction activities shall inspect all outfalls discharging to surface waters (i) identified as impaired, (ii) for which a TMDL wasteload allocation has been established and approved prior to July 1, 2014, or (iii) identified as exceptional waters.

Since all areas of Henrico County are subject to the Chesapeake Bay TMDL, all VSMP land-disturbing activities in the County must comply with the requirements identified above.

To ensure these requirements are addressed prior to commencement of the VSMP land-disturbing activity, the following information, notes and/or statements have been included in either the County's standard Pollution Prevention Plan sheet required in Chapter 10 or the SWPPP template discussed in Chapter 13:

1. Listings of the impaired waters, approved TMDLs with wasteload allocations assigned to construction activities, and exceptional waters and associated pollutants of concerns are provided in the SWPPP template;
2. The standard Pollution Prevention Plan sheet includes the following note:

    Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site.
3. The standard Pollution Prevention Plan sheet includes the following note:

Nutrients shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events.

4. The operator must identify the inspection frequency and any applicable details that will be followed on the standard Pollution Prevention Plan sheet as well as in the SWPPP template.

Please note that upon issuance of the GCP, additional requirements may also be identified by DEQ. If additional requirements are identified, they must also be addressed in the SWPPP where appropriate.

11.4 IMPAIRED WATERS, APPLICABLE TMDLs, AND EXCEPTIONAL WATERS

Please note that the establishment of impaired waters and TMDLs development by DEQ is an on-going process. Therefore, the following listings may not reflect the current impairments and TMDLs. However, the waterbodies identified below are those subject to GCPs issued from July 1, 2014 through June 30, 2019.

For the most up-to-date information concerning impaired waterbodies and TMDLs, please visit the Virginia Department of Environmental Quality's TMDL website: http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs.aspx

IMPAIRED WATERS

The following waterbodies within Henrico County have been identified as impaired in the 2012 § 305(b)/303(d) Water Quality assessment Integrated Report.

Table 11.1 – Impaired Waters

Waterbody	Location / Length	Cause
Almond Creek	From its headwaters to the James River	Escherichia coli / PCB in Water Column
Almond Creek, UT XYA	From its headwaters to mouth at Almond Creek	Escherichia coli
Almond Creek, UT XVP	From it headwaters to mouth at Almond Creek	pH / Zinc / Copper
Almond Creek, UT XVO	From its headwaters to mouth at Almond Creek	pH

Waterbody	Location / Length	Cause
Chickahominy River	From the Route 360 bridge downstream to the Route 156 bridge.	Mercury in Fish Tissue / Escherichia coli
Chickahominy River	From the confluence with the unnamed tributary at rivermile 76 to the Route 360 bridge.	Escherichia coli
Chickahominy River	From its headwaters to the confluence with the unnamed tributary XDD.	Benthic-Macroinvertebrate Bioassessments
Chickahominy River	From its headwaters to the confluence with the unnamed tributary at approximately rivermile 76	pH
Coles Run, UT	The unnamed tributary XYI from its headwaters to its mouth.	Dissolved Oxygen / pH
Cornelius Creek	Headwaters to tidal limit near James River.	Escherichia coli
Crewes Channel	From its headwaters to the tidal limit.	Escherichia coli / Dissolved Oxygen / pH
Deep Run	From the dam at river mile 1.47 to the confluence with Tuckahoe Creek.	Dissolved Oxygen
Deep Run	From its headwaters to the confluence with Tuckahoe Creek	Escherichia coli
Upper Fourmile Creek /Fourmile Creek	Fourmile Creek and tribs upstream of rivermile 5.57 and watershed below rivermile 5.57.	Escherichia coli
Gillies Creek	Headwaters to mainstream	Escherichia coli / PCB in Water Column / pH
James River	From river mile 108.76 to downstream extent of JMSTFu.	Aquatic Plants (Macrophytes) / Dissolved Oxygen / Escherichia coli / Chlorophyll-a / PCB in Fish Tissue / Estuarine Bioassessments
Unsegmented estuaries in G01	Actual size unkown.	Aquatic Plants (Macrophytes) / Dissolved Oxygen

Waterbody	Location / Length	Cause
James River – Old Channel (aka Farrar Gut)	The old channel of the James River JMSTFu	Aquatic Plants (Macrophytes) / Dissolved Oxygen
UT to James River	Shirley Plantation Cove	Aquatic Plants (Macrophytes) / Dissolved Oxygen
Unsegmented estuaries in G02	Unsegmented portion of G02E within PWS JMSTFu	Aquatic Plants (Macrophytes) / Dissolved Oxygen
James River	From the confluence with Tuckahoe Creek to the William's Island Dam.	PCB in Fish Tissue
James River	From 5 miles above American Tobacco's raw intake to downstream extent of JMSTFu.	PCB in the Water Column
North Run	From its headwaters to Hungary Creek.	Benthic-Macroinvertebrate Bioassessments / pH
North Run	From its headwaters to its mouth at Upham Brook.	Escherichia coli
Roundabout Creek	From the tributary at river mile 2.04 to the James River.	Dissolved Oxygen / pH
XAB – Salles Creek, UT	Headwaters to the mouth at Salles Creek	Dissolved Oxygen / pH / Escherichia coli
Salles Creek	Headwaters to mouth at james River	Escherichia coli
Stony Run	Headwaters to extent of backwater of pond	Benthic-Macroinvertebrate Bioassessments
Stony Run, UT (XYT)	Headwaters to mouth at Stony Run	Benthic-Macroinvertebrate Bioassessments
Stony Run	Headwaters to mouth at Gillies Creek	Escherichia coli
Turkey Island Creek	From its headwaters to the tidal limit	Dissolved Oxygen
Upham Brook	Flippen Creek downstream to UT above Wilkinson Road	Dissolved Oxygen / Escherichia coli
Upham Brook, UT (XXP)	Headwaters to mouth at Upham Brook	Dissolved Oxygen / Escherichia coli

Waterbody	Location / Length	Cause
Upham Brook, UT	Headwaters to mouth at Upham Brook.	Dissolved Oxygen / Escherichia coli
Upham Brook	From its headwaters to the mouth at the Chickahominy River, excluding Upham Brook from Flippen Creek to the UT above Wilkinson Road.	Escherichia coli
Upham Brook Tributaries	Upham Brook Watershed	Escherichia coli
Western Run	From its headwaters to the confluence with Turkey Island Creek.	Dissolved Oxygen / Escherichia coli
White Oak Swamp	From White Oak Swamp Creek to its mouth at the Chickahominy River.	Escherichia coli

APPLICABLE TMDLs (Prior to July 1, 2014)

The following waterbodies are subject to a TMDL in which a wasteload allocation (WLA) has been established and approved prior to July 1, 2014 for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity) or (ii) nutrients (i.e., nitrogen or phosphorus).

Table 11.2 – Applicable TMDLs

Waterbody	Pollutant(s) of Concern
Chesapeake Bay and its tributaries	Phosphorus Nitrogen Sediment
Chickahominy River (from the headwaters to a point 7.06 miles downstream)	Sediment (Benthic)

The Chickahominy River Benthic TMDL has WLAs for both the MS-4 and for construction sites and is currently addressed by the Chesapeake Bay TMDL, which also has a WLA for sediment. Therefore, there are no additional sediment removal requirements that need to be addressed during plan submittal or construction.

EXCEPTIONAL WATERS

The following waterbodies within Henrico County have been identified as exceptional in 9VAC25-260-60.A.3.c.

Table 11.3 – Exceptional Waters

Waterbody	Impairment	Pollutant of Concern
NONE	NA	NA

OTHER TMDLs

Currently there are six approved bacteria TMDLs located in Henrico County. However, since no WLAs have been assigned to construction activities, they are not applicable to the GCP. Therefore, there are no additional bacteria removal requirements that need to be addressed during plan submittal or construction.

Table 11.4 - Other Approved TMDLs as of July 12, 2014

Stream	Impairment	Implementation Plan	WLA Assigned to MS4	WLA Assigned to Construction Sites	EPA Approval	SWCB Approval
White Oak Swamp	E. coli	No	Yes	No	9/20/2004	7/31/2008
Fourmile Creek	E. coli	No	Yes	No	9/20/2004	7/31/2008
Tuckahoe Creek	E. coli	No	Yes	No	9/20/2004	7/31/2008
Upham Brook	E. coli	No	No load was allocated to MS4 but future growth given WLA	No	7/24/2008	4/28/2009
Chickahominy River and Tributaries	E. coli	Yes (not yet approved)	Yes	No	9/19/2012	3/25/2013
James River and Tributaries	E. coli	Yes (not yet approved)	Yes and future growth given WLA	No	11/4/2010	6/29/2012

There is also one draft TMDL located within Henrico County. However, it is not approved, and is not applicable to the GCP.

Table 11.5 - Draft TMDLs as of July 1, 2014

Stream	Impairment	WLA Assigned to MS4	WLA Assigned to Construction Sites
Turkey Island Creek and James River	E. coli	Yes and future growth given WLA	No

11.5 COMPLIANCE INSPECTIONS

The operator is responsible for conducting the inspections described in Chapter 18 of this manual. The Administrator will conduct inspections in accordance with Sec. 10-54 of the Henrico County Code to monitor compliance with the TMDL requirements of an ECP. The inspections will be conducted at least once every three months. The inspection results, including non-compliance items and the actions necessary to correct these deficiencies, will be documented and delivered to the operator, delegated authority, and/or qualified personnel.

Various levels of enforcement actions, as outlined in Chapter 20, are available to the County for non-compliance with the TMDL portion of the ECP. These actions include, but are not limited to, Notices to Comply and Stop Work Orders.