

2010 DRAFT 303(d) List Analysis for Davidson County

The 303(d) list is prepared every two years by the Tennessee Department of Environment and Conservation and every similar office in each state in the nation. The report is required by the EPA and it lists all of Tennessee’s waters that are too polluted or full of sediment for public uses. Each stream has designated uses for humans like fishing, swimming, boating and others for biodiversity and trout populations. Designated uses are assigned to waters, and the water is listed as impaired if it is unsafe or impossible to use the water as intended. Designated uses are generally a reflection of historical or “existing” uses. The people of the state own the water in trust and have a right to clean water and streams and lakes. This is codified in Tennessee law.

Some streams are considered to be “Outstanding Water Resources of the State” and TDEC can’t permit pollution discharges into those waters. Other streams get different levels of protection, and the resulting inputs from permitted or non-point sources degrade the water quality. When the water quality is too poor for people to use it as intended, it is placed on the 303(d) list for greater protection. On the list, the waters that are assessed are listed in a category that says how clean they are based on the designated use criteria.

Table 1. 303(d) List Attainment Categories

Category 1	Waterbody or waterbody segment meets all designated uses.
Category 2	Waterbody or waterbody segment meets some designated uses, but data are not available in order to determine whether all uses are being met.
Category 3	Insufficient data exists to determine whether any uses are being met.
Category 4A	One or more uses are not being met. However, TMDLs have been completed and approved for all listed pollutants.
Category 4B	One or more uses are not being met. However, a TMDL is not needed because compliance with water quality standards will be achieved in the short-term by a more traditional approach, such as permitting or enforcement.
Category 4C	One or more uses are not being met. However, the impairment is not being caused by a pollutant.
Category 5	One or more uses are not being met. A TMDL is needed for the listed pollutants.

Impairment

243.1 miles impaired and polluted waters in the Cheatham Reservoir Watershed

Approximately 325 miles impaired and polluted waters in Davidson County

At least 74 streams in Davidson County are on the proposed 2010 303(d) list. This is an increase of approximately 25 stream miles in two years. Most of the designations are Category 5, which means too polluted or disturbed for at least one public to use as intended. About 15 stream miles from two different creeks were removed from the 303(d) List for Escherichia coli and nutrient violations originally listed due to a MS4s and pasture grazing.

Some pollution can make people sick and kill animals and plants. The Tennessee Department of Environment and Conservation posts advisories for bacteria and fish that can’t be eaten due to the pollution in the water. These are listed in the 303(d) list as well as on the web site.

Bacteriological Advisories in Tennessee

Brown's Creek, Dry Creek, Richland Creek, and Whites Creek all have bacterial advisories due to Metro Nashville's collection system overflows and urban runoff. McCrory Creek and Gibson Creek no longer have bacteriological advisories.

Davidson County

As the chart below indicates, the greatest pollution in Davidson County is caused by sewage collection failures, Municipal Storm Sewer System (MS4) area pollution, channelization and other hydrologic modifications, and various farming activities. There may be multiple sources of pollution in the stream. In these combined cause groups, the data given does not allow separation to identify which use is the predominant cause of the pollution and which have a smaller contribution. The TN Department of Environment and Conservation (TDEC) attributes sediment as the state's number one source of pollution to our rivers, streams, and lakes. Sediment carried in water increases flooding, impacts water supplies and navigation, degrades aquatic habitat and transports chemicals. Channelization, hydromodification, pasture grazing and grading for development all promote transport of sediment into streams.

Table 2. Contributing Causes of Pollution by River Miles Affected

	Listed as only cause	Listed as partial cause
Collection System Failure	5.6	28.73
Channelization	0	6.0
Hydromodification	0	3.7
CAFO	0	1.1
Pasture Grazing	18.1	3.6
MS4	70.67	126.53

Definitions:

MS4

Tennessee's Municipal Storm Sewer System (MS4)

Phase II Permit is given by the state, to small municipalities, to control pollution going into our waters. In particular, it is designed to control pollution that flows into our streams from development, such as sediment or mud.

Hydrologic Modification

Hydrologic modification, or hydromodification, occurs when development projects dredge,

channelize or otherwise alter the contours of the stream or stream bank, alter the velocity of the flow which can cause shoreline erosion, disturb or fill wetlands or put in dams. For example, modifying hydrology without paying attention to protecting soil and water resources, a variety of problems can result. The main nonpoint source pollution problem from hydromodification projects is sediment and turbidity. Others include excessive nutrients (mainly nitrogen and phosphorus), chemicals, oils and lubricants, and organic debris. Other negative impacts relate to the general disruption of natural drainage, lower stream flows or flooding, and elevated water temperatures suitable for bacteria and bad for fish. The presence and severity of these problems depend on site characteristics, weather conditions during the operations, and the actual practices employed.

Channelization

The subset "channelization" is the actual alteration of the stream substrate.

CAFO

Confined Animal Feeding Operations are feed lots or buildings that hold a legislatively defined number of animals like pigs, chickens, or cows. CAFOs are often considered "non-discharging" because they apply their manure on the land or keep it in lagoons. However, rain does wash manure from the fields or lagoons that overflow which can cause significant pollution from nutrients and bacteria.

Examples of listings for Davidson County

- Cathy Jo Branch: 1.1 stream miles of Cathy Jo Branch are on the 2010 Draft 303(d) List for nutrients, other anthropogenic substrate alterations, and siltation resulting from manure runoff, animal feeding

A TMDL is the total maximum daily load, or the amount of a particular pollutant, that can be added to the stream before the water quality degrades. A TMDL is developed if the only way to improve the water quality it is fit for the designated uses is to set limit for a pollutant, and then limit each source to a percentage of the pollution. In some cases this is a decrease of 5% of the pollution from a source and sometimes a 95% reduction is necessary.

operations, and upstream impoundments because of its downstream proximity to the Nashville Zoo. Cathy Jo Branch is a Category 5.

- Eaton Creek: 7.9 miles of Eaton Creek are on the 2010 Draft 303(d) for alterations in stream-side or littoral vegetation and loss of biological integrity due to siltation. These problems are a result of land development.