2008 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.

Though the list comes out every two (2) years, the watersheds in the state are split into five (5) different groups. TDEC measures pollution in the streams of one or two groups for each report, and returns to that group 5 years later to reassess. For the 2008 303(d) List TDEC reassessed watershed groups 4 and 5. Group 4 includes the north central part of the state (including all of Nashville and the majority of **Davidson County**), part of the Lower Tennessee Basin and the Hatchie watersheds in western Tennessee.

Impairment

242.74 miles impaired and polluted waters in the Cheatham Reservoir Watershed

Approximately 300 miles impaired and polluted waters in Davidson County

At least 70 streams in Davidson County are on the proposed 2008 303(d) list. This is an increase of approximately 40 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 60 stream miles were removed from the 303(d) List for Escherichia coli violations

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.

originally listed due to a point source location. This indicates an increased effort to address wastewater treatment plants and sewer lines, while nonpoint source causes continue to impact streams throughout the watershed.

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 (April 2007).

Bacteriological Advisories in Tennessee

Brown's Creek, Dry Creek, Gibson Creek, McCrory Creek, Richland Creek, Whites Creek, and the Cumberland River all have bacterial advisories due to Metro Nashville's collection system overflows and urban runoff.

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	45.3
Channelization	0	6.0
Hydromodification	7.9	0
CAFO	0	3.7
Pasture Grazing	18.1	3.6
MS4	42.2	132.2

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 of 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 were added to the 2008 Draft 303(d) List for nutrients, other anthropogenic substrate alterations, and siltation resulting from manure runoff, animal feeding operations, and upstream impoundments. Cathy Jo Branch is a Category 5.
- Eaton Creek
  7.9 miles of Eaton Creek was added this year for alterations in stream-side or littoral vegetation and loss of biological integrity due to siltation. These problems are a result of land development.

Actions Items

1. Eliminating nutrients and sediment
    a. Good construction management practice are available on TDEC’s web site
    b. As the TMDLs are formed for each stream reach, TDEC must provide permits to allocate the available assimilative capacity of the waters. Then each discharger can discharge only a set amount into the stream.
    c. Builders are allowed to get a permit under a general permit from the state. These permits require Storm Water Pollution Prevention Plans, but no monitoring requirements. The legislature should require monitoring and water testing for sites that are near 303(d) listed streams, those over a certain size, or other protective criteria.
    d. MS4 Permit requirements must be diligently enforcement and implemented. These requirements are designed to limit the amount of sediment or mud entering our streams.
2. Preventing Sewage overflows
    a. Collection systems have to record and report the nutrient levels in the effluent, but are not limited in their permits. The permits focus on sediments, toxins and pathogens. Sewage treatment plants (STPs) that are contributing to a condition of pollution are at risk for fines that could increase the cost of sewage services to the community without improving streams.
    b. State Revolving Fund money is available for sewage treatment plants that need to do repairs or increase capacity for existing flows. The money is given by the EPA to create low interest loans to repair failing infrastructure and keep our streams healthy.
3. Enforcement Actions

a. Stronger permit monitoring and fast, efficient and fair (to all affected parties) enforcement of permit violations. TDEC has recently launched an accelerated enforcement program that preapproves up to $15,000 in fines for permitted activities that are causing pollution. Unfortunately, TDEC monitors primarily in response to complaints, so community members have to call or write to their county and state officials to instigate inspections.

b. The legislature passed a Stop Work Order bill so that TDEC can immediately shut down mining operations that are non-compliant and causing water pollution.

c. TCWN developed legislation which was introduced in the 2008 Legislature. These bills will help reduce pollution loading in our streams.

    i. Green Design Bill: Provides incentives for developers to incorporate water quality practices in their designs and buildings.

    ii. Stop Work Orders Bill: Provides TDEC the authority to issue a stop work order when permit requirements are not being met for all water quality impact potentials