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Mr. Clear,

The State of Vermont's Draft 2010 303(d) List of Waters proposes to include Moon Brook on Subpart ID as a water proposed for Part A de-listing and moved to Part D because it has a completed and EPA-approved TMDL. This action is inappropriate. The stormwater related TMDL should not have been issued.

The State considers Moon Brook impaired because biological assessments of the stream show that some indicator species (both fish and insects) that are associated with healthy water ecosystems are missing or in smaller than optimal populations in most portions of the brook. Due to the impairment, Moon Brook was put on the Section 303(d) list of impaired waters that is submitted to USEPA.

Over several editions of the 303(d) list the State has, evidently arbitrarily, attributed the dearth of "indicator species" (by speculation) to pathogens, sediment, nutrients, toxics and metal leachate from the closed landfill. However the State has not sampled or tested for these pollutants and therefore has no numeric values to compare to a healthy stream. The sampling that was done by the City as part of the post closure monitoring of the landfill resulted in the landfill leachate being removed as a cause of impairment. We are concerned with the careless manner in which the designation was arrived at.

Currently, the Vermont Agency of Natural Resources' position is that the impairment is caused by stormwater. VTANR maintains that excessive runoff from impervious (developed) areas is degrading the ecosystem in the brook to the point where the targeted fish and insects cannot thrive. There is not sufficient evidence to draw this conclusion. This assumption seems to have been made because the brook is impaired and it flows through an urban area.

Based upon our investigation into this issue, we conclude that the underlying cause of the impairment to Moon Brook is not stormwater. There are two causes that are well documented, while there is little, if any, documentation of the role of stormwater beyond theoretical presumptions and text book references.

1. Elevated Summer Temperatures
2. Inappropriate Substrate (in the lower reaches)

1. There is solid evidence of temperature impairment due to the presence of on-stream ponds. Years of in-stream study have shown that the indicator species cannot survive in Moon Brook due to elevated summer

temperatures. The temperature increases are caused primarily by the two on-stream ponds (Combination and Piedmont). In fact, the State's own Commissioner of the Department of Fish and Wildlife after consultation with his staff wrote in a letter dated December 12, 2005, that; "*Elevated summer water temperature downstream of Combination Pond is almost certainly the factor that causes impairment of Moon Brook resulting in the listing as an impaired water.*"

If not for the State's bias against urban areas, we believe that this problem would be the primary focus as it was with the Mettawee River, which is proposed to be de-listed due to successful temperature remediation efforts.

2. Once the temperature problem is solved, we agree with the Fish and Wildlife Commissioner that the indicator species will return to the upper reaches of Moon Brook. However they will not thrive in the lower reaches of the brook because, regardless of water quality, the natural habitat is unsuited to their needs. This fact has been documented both through research and field investigation. These arguments and the data to back them up were submitted to, and rejected by, VTANR.

We believe that the above arguments are compelling in supporting our position as to the cause of the impairment in Moon Brook.

The State's position, that stormwater is the cause of impairment appears to be theoretical and the "correction" proposed through the TMDL based on computer modeling which in turn is based on faulty data. There is no mention of an adjustment for the runoff collected in the combined sewer system. The TMDL calculations are deficient without that adjustment.

Other evidence in the TMDL seems to support, rather than refute the temperature argument:

- The impairment is noted as extending from the confluence with Otter Creek upstream to mile point 2.3 (the discharge of Combination Pond). This is consistent with the evidence that implicates temperature rise in the pond as a primary cause of impairment. Stormwater as the pollutant is a surrogate for sediment. The fact that the impairment begins where in-stream sediment is minimal or non-existent, immediately downstream of a huge and very effective sediment trap (Combination Pond) contradicts the stormwater argument.
- The graph in on page 14 of the TMDL shows the flow characteristics for Moon Brook and the attainment stream (Tenney Brook) as being virtually indistinguishable. Considering them as flow-duration curves, it appears that the goal is to have flow conditions that occur once a year in Moon Brook occur instead every 370 days or so. (Again keep in mind that this is without the necessary adjustment for the combined sewer area.)

The State of Vermont acknowledges that the cost in financial and other resources required to implement the TMDLs is staggering. It also acknowledges that those expenditures, in this case may not resolve the problem. If there is any reasonable doubt about the effectiveness of the program for any particular watershed, prudence and fairness require that the Use Attainability Analysis (UAA) be conducted *before* implementation begins, not "*If sufficient progress toward the water quality standards is not achieved after any particular implementation stage...*" as advocated by the State.

We agree with USEPA when they write: "*We do not believe that setting unattainable uses advances actions to improve water quality.*"

Considering the inhibitions and costs of the regulatory consequences now associated with a stormwater impaired designation, it is critically important that caution is used when making that determination. Even before the current economic downturn, there were projects in Rutland that were considered but subsequently abandoned in the face of the stormwater impairment classification. While continued economic growth and opportunities are important, another issue that concerns us is the fact that by using inappropriate criteria on the lower reaches, the State is making it impossible to get Moon Brook off the impaired list since the natural stream conditions will never produce the required data.

- There are a number of accepted options for moving forward. The most appropriate of those is to acknowledge the failure of Moon Brook to meet the State Water Quality Standards is due to a non-pollutant alteration, resulting in artificially elevated water temperatures, and list under Part F failure due to flow modification (associated with the two aforementioned on-stream ponds). This will allow the City and State to continue working collaboratively together and concentrate our collective resources to formally mitigate for temperature, which is mutually understood to be where the first efforts should be expended. While it is also understood that this may result in the watershed being de-listed from 303(d), if the efforts to mitigate for temperature prove ineffective (an unlikely scenario), then the State can exercise its authority and place it back on the 303(d) list as stormwater impaired.

Other options, in no particular order are:

- In regards to the temperature impairment: Remove the “designated use of Aquatic Life Support (ALS) as allowed under Title 40, Chapter I, Part 131, Section 131.10 (g) (40CFR131.10) allows a State to remove a designated use which is not an existing use if the State can demonstrate that attaining the designated use is not feasible because: “(4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use.”
- In regards to the inappropriate substrate: Remove the “designated use of Aquatic Life Support (ALS) as allowed under the same section of 40CFR131.10:(5) physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses.”
- Move Moon Brook from the 303(d) listing to Subpart IO as a water that was inaccurately placed on the Impaired Waters List working towards getting it properly classified as temperature impaired. This will also require readdressing the inappropriate TMDL.
- Implement a Use Attainability Analysis (UAA) and proceed as appropriate based upon the results of that analysis.



**Christopher C. Louras, Mayor
City of Rutland**