

Response to Comments on the Vermont Statewide Bacteria TMDL

Draft TMDL Comment Period

A public comment period was established for the Draft Vermont Statewide Bacteria TMDL starting on May 31, 2011 and comments were received through June 24, 2011. In addition to newspaper notices, web postings and, direct notification of many water quality stakeholders across the state, informational meetings were also held. Three meetings occurred (Richmond, Thetford and South Londonderry) whereby the TMDL was presented and attendees were provided a chance to discuss aspects of the TMDL.

At the close of the comment period on June 24, 2011, comments from seven parties were received as listed below.

| Commenter | Submitted by | Identification |
|-------------------------------------------------|----------------|----------------|
| City of Burlington | Megan Moir | CoB |
| Town of Colchester | Bryan Osborne | ToC |
| Vermont Natural Resources Council | Kim Greenwood | VNRC |
| Conservation Law Foundation | Louis Porter | CLF |
| Windham Regional Commission | John Bennett | WRC |
| Stratton Area Citizens Committee | Darlene Palola | SACC |
| North Branch Fire District | John West | NBFD |
| Vermont Agency of Agriculture, Food and Markets | Laura DiPietro | VAAF&M |

Response to Comments

For the most part, the comments below were taken directly from those submitted by the parties above. Some comments have been extracted from the overall comment letter for greater clarity and brevity, but every effort was made to preserve the original meaning and context. Comments are grouped according to broad categories relevant to the TMDL.

TMDL Timing

1. **Comment:** Because the current water quality criteria on which the Draft TMDL may be revised shortly, issuance of the TMDL should be postponed until final water quality criteria for indicator bacteria are adopted by the State of Vermont. [CoB]

Response: At this time, VTDEC intends to develop the TMDL according to the current Vermont Water Quality Standards (VWQS). If at some point in the future the indicator bacteria WQS changes, the TMDL will be modified, as necessary, with public review, to reflect such a change. The current EPA recommendation for indicator bacteria

was included on an informational basis to reflect what the allocations might look like if the WQS is changed in accordance with EPA recommendations. See revised section 8.3.

2. Comment: Since the current water quality criteria on which the Draft TMDL is based are not scientifically supportable, the TMDL's implementation should be postponed until scientifically supportable water quality criteria for indicator bacteria are adopted by the State of Vermont. [ToC]

Response: See Response #1. The current VWQS are the duly adopted standards for which all TMDLs must be in accordance. The TMDL will continue to reflect the current WQS and will only change if and when the WQS change.

Water Quality Standards/Assessment/Listing

3. Comment: the City of Burlington urges VTDEC to ensure that the "right uses" are established for the impaired waters and, at a minimum, to consider adopting the full range of primary contact standards identified by EPA in its 1986 guidance when revising its water quality criteria for indicator bacteria. [CoB]

Response: At this time, the VWQS require that to be in full compliance, all waters must support the identified designated uses for each class. For Class B waters, these include: aquatic biota, wildlife and habitat; aesthetics, water supply; irrigation; swimming; boating and fishing.

4. Comment: Because there is discussion of both single sample standards and geometric mean standards within the Draft TMDL (particularly in discussing the proposed criteria) it is not clear how one would determine if a stream met full compliance with the VWQS and TMDL. This leaves much room for interpretation and enforcement, particularly within our context as a MS4 community. Would a stream have to show no violation of both the single sample (under all antecedent moisture conditions) standard as well as the geometric mean standard or just no exceedance of the geometric mean standard? What is the minimum number of single samples? And does the State intend to use a geometric mean calculated with 5 samples over an annual basis, or over a 30 day period as suggested by the EPA? Generally, what data would be required for to delist the stream? [CoB]

Response: At this time, VTDEC has not developed an assessment methodology to address any yet to be determined WQS changes regarding indicator bacteria. When and if the WQS change, an assessment method will be developed and be made available to the public in order to guide impairment determinations. States that already have water quality standards as protective of human health as EPA's 1986 bacteria criteria are directed by EPA to apply the single sample maximum in a manner consistent with their water quality standards, as Vermont has done in the development of this TMDL. For future consideration, Vermont realizes that EPA currently believes that, in making Clean Water Act 303(d) listing decisions, the geometric mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is usually a more reliable measure of long term water quality; EPA expects that single

sample maximum values would be used for making beach notification and closure decisions.

5. Comment: The TMDL process is designed to be implemented when other regulatory and enforcement mechanisms have failed to achieve water quality standards. A TMDL is to be established when technology-based effluent limitations required under the Clean Water Act, more stringent limitations required by federal state or local authorities and other requirements – such as Vermont’s Accepted Agricultural Practices and Best Management Practices – “are not stringent enough to implement any water quality standards (WQS) applicable to such waters,” (40 CFR 130.7 (1).

This is not the case for at least some, if not all, of the impaired waters listed in the proposed TMDL and its appendices. Here are two immediately apparent examples:

- 1) Even in their limited time in the field, the consultants hired to draft this proposal identified several instances where there was not a sufficient buffer between farm fields or livestock and waterways. Vermont’s Accepted Agricultural Practices stipulate that “vegetative buffer strips shall be maintained between annual cropland and adjoining surface waters,” (Vermont AAPs, section ii). The fact that the AAPs were not being enforced even in these sections of bacterially impaired waterway shows that more can be done under the existing regulatory structure.
- 2) The 1990 Combined Sewer Overflow Control Policy recognized that “untreated combined sewer overflows do not comply with the requirements of the Clean Water Act” (Vermont Combined Sewer Overflow Control Policy, June 1990, Section 1, Page 1). Such systems were to be dealt with in “shortest reasonable time for correction of the CSO” (Vermont CSO Control Policy, June 1990, Section IV, Page 3). The policy also included a proposed CSO project schedule. Construction was to be begun, if not completed, by 1994 in all the identified systems (Vermont CSO Control Policy, June 1990, Attachment III).

However, the proposed bacterial TMDL includes in Appendix 19, a list of waterways “impaired for E. coli due to the influence of wastewater treatment facilities (WWTFs) and combined sewer overflows,” (Vermont Proposed Bacteria TMDL, Appendix 19, Page 1). The state has control over these sources through permitting, an approach made clear in the CSO policy which said the problem would be addressed “during the permit application and reapplication process,” (Vermont CSO Control Policy, June 1990, Section IV, Page 2).

- 3) Several of the wastewater treatment facility spills reported to the state since 2007 have included discharges to bacterially impaired stretches of Vermont rivers, or to adjacent segments. These unpermitted discharges of untreated sewage, including in Fair Haven, in Rutland City, in St. Johnsbury and in

Montpelier, are rarely if ever the subject of enforcement actions. Such spills of untreated or undisinfected sewage contribute bacteria to some of these same stretches of streams and rivers included in this TMDL.

Fortunately, EPA has considered and anticipated such situations and given direction on an alternative approach to addressing impaired waters which should be pursued in Vermont before a bacteria TMDL is proposed.

(...)

This can be facilitated by listing such waters under category 4b of the state's 303(d) list instead of category 5.

(...)

Such an approach would allow the state to achieve the needed improvements through now under-utilized permitting and pollution control methods. [CLF]

Response: Neither the statute nor regulation obligate states to implement all possible actions to control the full suite of point or nonpoint sources before establishing a TMDL. This is particularly true where there are many varied sources within a watershed that cumulatively result in noncompliance with the WQS. In the case of pathogen impairments, VTDEC believes that TMDLs are the appropriate tool for establishing expectations on which future implementation actions can be based.

The optional use of listing waters in Category 4(b) has been utilized by VTDEC in the past (see Part B of the Priority Waters List) when EPA has reviewed and approved that such an action is consistent with their listing guidance. In the case of a 4(b) listing proposal, the USEPA has developed a specific methodology that ensures that all necessary actions are known and sufficient to restore the water to compliance with the WQS. For 4(b) listing, EPA's *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act July 29, 2005* guidance requires:

Specifically, this rationale should include: (1) a statement of the problem causing the impairment, (2) a description of the proposed implementation strategy and supporting pollution controls necessary to achieve water quality standards, including the identification of point and nonpoint source loadings that when implemented assure the attainment of all applicable water quality standards, (3) an estimate or projection of the time when water quality standards will be met, (4) a reasonable schedule for implementing the necessary pollution controls, (5) a description of, and schedule for, monitoring milestones for tracking and reporting progress to EPA on the implementation of the pollution controls, and (6) a commitment to revise as necessary the implementation strategy and corresponding pollution controls if progress towards meeting water quality standards is not being shown. EPA acknowledges that the level of rigor necessary to support the state's rationale will vary depending on the complexity of the water impairments and corresponding implementation strategies.

Additionally,

If the Agency determines that the controls are not, in fact, “requirements,” or that they will not result in attainment of applicable water quality standards within a reasonable time, then EPA may disapprove the state’s failure to include the segment at issue on the section 303(d) list (i.e., Category 5) and add the segment to the list. In subsequent list submissions, EPA may determine that a segment that has been placed into Category 4b must go back into Category 5, if the circumstances have changed such that the state can no longer support its original 4b demonstration.

Since for the most part, most of the bacteria sources are still unknown in the waters for which the TMDL applies, it’s been the experience of the VTDEC that successful listing on 4(b) in this instance would not be acceptable to the EPA. A simple listing of regulatory and non-regulatory programs is not sufficient for 4(b) listing where EPA requires a specific identification of all sources and the applicable required actions needed for each. Better compliance may very well be part of the overall remediation strategy but without knowing all sources VTDEC can’t document how 4(b) would/could be successful for meeting WQS.

In the absence of the 4(b) option, VTDEC plans to finalize allocations as proposed in the TMDL for all point and nonpoint sources, and then utilize its newly developed tactical basin planning process to better identify and remediate problematic bacteria sources through whatever regulatory and non-regulatory tools are available. For a further explanation of the tactical basin planning process, see Response #9 in this document.

6. Comment: The Vermont statewide draft TMDL for bacteria-impaired waters does not include water bodies currently impaired for bacteria including Jewett Brook, Mill River, Stevens Brook and Rugg Brook. These water bodies have been designated as low TMDL completion priorities by Vermont’s 303(d) list, despite the fact that their designated uses include recreation and they are tributaries of Lake Champlain. [CLF]

Response: For the four streams mentioned, VTDEC determined that it has no instream monitoring data to verify the impairment and therefore no TMDL percent reduction could be calculated. These E. coli listings are remnants from the 1990s when a much less stringent listing methodology was employed. These river segments are also identified as impaired for typical agricultural runoff pollutants such as nutrients and sediment. These stressors, however, are impairing the aquatic biota, for which the VTDEC has monitoring results showing non compliance with the WQS. In the past, in situations involving apparent impacts from agricultural activity, the E. coli stressor was often incorporated into the impairment without actual monitoring data. This practice no longer occurs since the establishment of the Assessment and Listing Methodology established in 2004. Unless new data provides documentation of impairment rather than attainment, these stream reaches will likely be delisting candidates for 2012 303(d) List.

7. Comment: The statewide draft TMDL for bacteria appears to have been drafted under the assumption that the WQS in Vermont will be changed sometime in the near future.

Table 8-2 of the draft TMDL not only lists the percent reduction necessary to meet the current WQS but also new proposed WQS (Section 8.3 Page 73). The appendices also compare the condition of the impaired waterways with both the current and the proposed standards.

(...)

Until the Vermont WQS for are, in fact, changed a TMDL for bacteria or any other pollutant must be written to meet the existing standards. [CLF]

Response: See Response #1.

8. Comment: It appears that the State of Vermont has based its determination of bacteria impairment in certain locations on the monitoring of others. It is the State's responsibility to establish monitoring protocols and to conduct consistent monitoring programs in each watershed. The State of Vermont has augmented its fixed station monitoring with data collected through volunteer monitoring programs, resulting in Clean Water Act §303(d) listings that have been created in a catch-as-catch-can fashion based on where data is available. As a result, it appears that this Draft TMDL does not uniformly cover the State of Vermont. [ToC]

Response: The VTDEC does not currently have the resources to initiate and maintain a fixed station monitoring program for every watershed across the state; however, it is currently able to provide water quality laboratory services to local watershed stakeholders interested in the quality of local waters. The data developed from these monitoring efforts receive appropriate QA/QC and are considered of high quality. In the process of 303(d) List development, VTDEC is obligated to use all "readily available data" in the assessment of the State's waters and the listing process. Since VTDEC is in possession of the results from the local monitoring efforts, pathogen listings are often the result of local stakeholder monitoring. As a result, TMDLs are developed only for waters that have documented impairments. Once bacteria impairments are identified or TMDLs established, VTDEC will take the next steps in identification and remediation of sources through its tactical basin planning process (See Response #9).

Source Identification

9. Comment: In order for a TMDL to result in a decrease in loading and restoration of an impaired waterway it must first identify the source of pollutants.

(...)

However, despite these requirements for a successful TMDL, the proposal and its appendices do little to identify specific sources of bacteria, with the exception of the permitted facilities identified in Appendix 19, about which little is proposed to be done

beyond the already underway – and much delayed – work outlined in the 1990 CSO policy.

A review of the proposed TMDL and its waterway-specific appendices reveal little information beyond the generic potential bacteria sources common to impaired waterways. There are some exceptions which, if broadened to all of the impaired waters, could be a first step to providing a map to enforcement if ANR were to pursue the “4b alternative” approach or if a bacteria TMDL were eventually necessary.

(...)

Unfortunately, with some notable exceptions, most of the TMDL merely makes general identification of potential sources of bacteria with little detail about their loading to particular waters.

(...)

Even in those portions in which likely sources of bacteria are identified more clearly, such as the appendices on the Middlebury River and the West River, the proposed TMDL does not provide specific load or wasteload allocations by source.

This runs contrary to TMDL requirements as outlined in the proposed TMDL itself, which states as one requirement of such a plan “significant sources of the pollutant in question must be identified in the watershed,” and “once the maximum pollutant loading is established, the needed reductions must be divided among the various sources. This is done for both point sources and nonpoint sources,” (Section 1.1, page 2); 40 C.F.R. 130.3(i) (defining “total maximum daily load” as the “sum of individual WLAs for point sources and LAs for nonpoint sources and natural background”). [CLF]

Response: In this statewide bacteria TMDL, VTDEC clearly sets water quality-based concentration WLA and LA targets for each discharge source by category in Table 5-1. In preparing the Vermont Statewide Bacteria TMDL report, VTDEC used and incorporated site-specific information, including information on site specific sources of bacteria wherever such specific information was available. (See 40 CFR §130.7(1)(i) indicating that “site-specific information should be used whenever possible”). VTDEC believes that this is consistent with the requirements of 40CFR § 130.2(h). While the TMDL does identify “potential” sources of pathogens (See sectionXX) this does not equate to uncertainty as to the sources allocated to in the TMDL.

Where there remains a gap in the identification of specific pathogen sources, VTDEC intends to continue working to identify problematic bacteria through the development and implementation of its tactical basin plans. Since the TMDL document did not specifically call out this process, a section will be added that describes how the tactical basin planning process will pick up where the TMDL development process left off in an effort to identify and remediate problematic bacteria sources. Language similar to that below will be added to the TMDL. Also, a Vermont case study that incorporated the

tactical basin planning approach will also be added to the TMDL document to better illustrate how this process will occur “on the ground”.

Vermont’s Tactical Basin Planning Process

To effectively translate watershed planning into on-the-ground actions, VTDEC has developed a coordinated statewide planning process and basin-specific planning approach designed to enhance the protection, maintenance, and restoration of surface waters. This approach is known as the Tactical Basin Planning Process.

VTDEC believes effective watershed management begins with effective planning, which must first have a solid, scientific foundation for decision-making. Science should be closely integrated into the underlying policies upon which plans are based, effectively driving the subsequent decision-making process. To accomplish this, sound scientific data, tools, and analytical techniques should be included in an iterative decision making process. The tactical planning process is predicated on a monitoring and assessment cycle that provides refreshed data and information to guide prioritized implementation efforts. The assessments will thus provide the foundation for geographically explicit strategies to promote the protection of waters that are in good or excellent condition, and management approaches for altered and/or impaired waters. Tactical plans, as appropriate, may reference stand-alone small-scale watershed-based plans that address specific impairments, such as waters affected by elevated levels of pathogenic bacteria.

Where problems affecting impaired waters are known and solutions are clear, the plan must contain specific remediation actions. For such waters, this would include a list of actions to be taken, who will take those actions, a timeline for completion of the actions, an estimate of the cost of the action and an indication of the most probable funding for the action. Where the problems are not fully known, or solutions are not clear, an adaptive management strategy will be adopted. Here, the plan must contain a strategy for reasonable actions that should improve the impaired waters, as well as a process to acquire the necessary information to further define the problem and develop new solutions as soon as reasonably possible. In this regard, ongoing monitoring and assessment programs will determine whether or not we are moving towards desired water quality improvement goal(s).

Each Tactical Basin Plan will include an Implementation Table that lays out specific objectives and then frames out geographically explicit actions to achieve the stated objectives. It is anticipated that the list of action items will first be expanded, based on input from agency staff and watershed partners, and later prioritized and refined based on the staff and financial resources available to implement specific actions. Action items will include both necessary data collection and assessment efforts, in addition to waterbody-specific implementation activities; action items should be able to be accomplished within the next two to five years. Action items will address known stressors in each basin and reflect the primary goals and objectives identified in the Vermont Surface Water Management Strategy as expressed in a geographically relevant manner.

Vermont's Tactical Basin Planning Process...

- Will compile existing physical, chemical, and biological monitoring and assessment data for the basin;
- Will evaluate collected data with a special emphasis of how physical, chemical and biological data may overlap (in the case of pathogens, data may also include Agricultural Environmental Management (AEM) surveys of farm operations and/or sanitary surveys);
- Will prioritize watershed top stressors (including strategies to address impaired waters);
- Will define future assessment and monitoring needs and timeline/schedule for the watershed (i.e. conducting “bracketed monitoring” above and below suspected sources of pathogens);
- Will identify priority sub-watersheds to focus restoration and protection actions in this cycle of basin planning (and target areas where resource concerns have not been addressed);
- Will determine how future DEC/ANR permitting and grant funding will be prioritized/targeted/alterd to reflect high priority actions in each Tactical Basin Plan;
- Will identify funding mechanisms to implement high priority actions in the watershed identified via the Tactical Planning Process;
- May invoke changes to state or federal permitting cycles within the basin.

Key Monitoring and Assessment Strategies to Address Pathogens

During the Tactical Basin Planning Process, the following monitoring and assessment strategies will be used by VTDEC to address pathogens in impaired waterbodies:

- Integrate existing stormwater mapping, water quality data, biomonitoring data, riparian corridor assessment (SGA-buffer gap analyses) and agricultural (NRCS) flow monitoring data in Agency GIS systems to enhance river corridor protection and basin planning capabilities. This strategy would engender the establishment of a map-based reporting program that could tailor outputs to assist the technical assistance, regulatory, and funding decisions of the ANR (e.g., within the Tactical Planning process) and other agencies.
- Increase pathogenic-bacteria monitoring at public swimming beaches at lakes and ponds by directing citizen groups supported through the LaRosa Partnership Program towards these areas.

- Identify public swimming beaches at lakes and ponds, especially where chronic exceedances of pathogens have been reported (either municipal swimming areas or state parks and other public lands). Work with communities, lake and pond associations, and others who are testing for indicators of pathogens and other health threats and implement reporting strategies.
- Consider development of an electronic reporting system that can enumerate *E. coli* levels at public swimming holes that are monitored. This monitoring/ reporting program is intended to be used as a reporting tool at swimming areas to post episodic increases in bacteria levels. Results from such a program could be used as public notification and information for decision-making for contact recreation activities. The use of VTDEC bacteria monitoring protocols will be imperative in this process.
- Continue to work with EPA to explore availability of federal funding mechanisms to support beach monitoring and reporting efforts.
- Develop water quality bacteria monitoring data to better guide the assessment of pathogenic stressor impacts and the alternatives analysis for BMPs and projects to protect and restore existing uses such as swimming and other forms of contact recreation.
- Through bracketed monitoring, investigate reaches or shoreline areas identified as chronic exceedances of pathogenic bacteria to determine the sources.
- Conduct sanitary surveys along reaches or shoreline areas where there's greater potential of septic system failure, due to depth to bedrock or where there's a greater concentration of antiquated systems.

Key Technical Assistance Strategies and Next Steps to Address Excessive Pathogens

During the Tactical Basin Planning Process, the following technical assistance strategies will be used by VTDEC to address pathogens in impaired waterbodies. As appropriate, WQD staff will also cooperate with AAFM and NRCD programs to target technical assistance to areas where monitoring and assessment data suggest it is most highly needed.

- The addition of new agricultural extension agents in 2011 will enhance technical assistance capabilities of the conservation districts with assistance from the Lake Champlain Basin Program and UVM Extension to provide assistance and treatment designs in agricultural areas.
- Stormwater mapping and Illicit Detection and Discharge Elimination (IDDE) efforts should be continued, but coordinated as appropriate within the tactical planning process to further target municipalities where infrastructure mapping has not yet been

carried out. Staff from this program work in collaboration with municipalities to design remediation steps that address the deficiencies identified.

- Continue to address episodic overflows at wastewater treatment facilities where upgrades, expansion, and additional improvements are needed (such as under-sized pump stations) Encourage farmer participation in Nutrient Management Planning beyond the regulations governing Large and Medium Farm Operations.
- Buffer Outreach projects and federal cost-share programs should target sensitive riparian areas characterized by a lack of riparian vegetation that would benefit from the re-establishment of a vegetated riparian buffer. Encourage riparian landowners (and incentives, if possible) to maximize the width of buffer zones adjacent to the tributaries and the river itself.
- Assist farmers with manure storage and application practices. Help direct federal cost-share and other funding sources towards manure storage and handling improvement projects. Manure spreading close to tributaries and the river itself should be discouraged, especially in areas where the ground slopes into the water.

10. Comment: Setting ambient WQ criterion. How is this accomplished and how to you adjust to statements like this that were made in the TMDL as most watersheds in VT have a large forestry component where wildlife congregate, "PAGE 15: Recent local studies indicate that under moderate rainfall, E. coli will be found in waters running off of completely undisturbed, forested watersheds at levels in excess of 77 E. coli /100ml, the current water quality criterion for Class B waters in Vermont (VTDEC)." [VAAF&M]

Response: Source identification for bacteria, especially from nonpoint sources, is particularly complex and easily complicated by many factors. Even with extensive and intensive monitoring programs, bacteria sources are difficult to pinpoint. Complicating factors include but are not limited to intermittent sources, precipitation driven loading, variable survivability of bacteria in water, mobile sources (wildlife), size of watershed, etc. It is the job of the assessment team to integrate all available data and conditions and develop recommendations as to likely sources. If wildlife is determined to be the primary cause of exceedances, the waterbody may be considered not impaired since the WQS allow for naturally occurring sources.

11. Comment: Microbial Source Tracking (MST). Though it seems like a logical next step, the results seem unlikely to pin point a problem, specifically in the ruminant area since cows and deer are grouped together. In an area like the Huntington where there are very few livestock farms and a vast landscape of ruminant wildlife I wonder how you tease out the source. Also, it doesn't seem like you get a relative concentration of the specific microbes in the sample so you cannot tell whether ruminants were high at the upstream site and then progressively became diluted unless it was the only type of

microbe found in all the samples along the tested stream segment. How does DEC anticipate using such data in the future? [VAAF&M]

Response: VTDEC considers Microbial Source Tracking another tool that is available to help pinpoint bacteria sources. However, at this point in time its application is somewhat limited by costs. We agree that the MST results in the Huntington River are not totally conclusive and are complicated by many factors. In the future, if MST appears to be a reasonable and useful approach it will be considered again in light of its limitations.

12. Comment: General categories of point sources of bacteria are described in Section 3.1. In Section 3.2 the following non-point sources of pollution are identified: stormwater runoff, malfunctioning onsite wastewater treatment systems, agricultural activities, pets, wildlife, and contact recreation. However, there is no methodology presented to characterize the relative significance of point and non-point sources to estimate the relative proportion of these sources. [ToC]

Response: Further identification of specific sources for each waterbody and their relative proportion contributing to the impairment is a goal in the development of forthcoming tactical basin plans. For further explanation, see Response #9.

13. Comment: The Draft TMDL document should also include reference to the survivability of *E. coli* in organic and mineral sediments, as has been documented in the literature as a contributing source of bacteria. [ToC]

Response: Language will be added noting *E. coli* survivability of *E. coli* in sediments. See Section 3.2.

14. Comment: All sources are combined to develop a concentration-based TMDL. This approach prevents the regulated community from effectively allocating resources to solve water quality problems. The State of Vermont needs to estimate the proportion of contribution of bacteria from point and nonpoint sources, as noted above. Particular emphasis should be placed on differentiating between natural and human-caused sources to allow solutions that are in the control of local municipalities and other stakeholders. **It should be clearly stated that the natural sources of bacteria (wildlife mammals and birds, and *E. coli* in organic and mineral sediments) are not the responsibility of local governments.** [ToC]

Response: See Responses # 12 and #9.

Regarding wildlife bacteria sources, the VWQS clearly state that, “Waters in which one or more applicable water quality criteria are not met due to natural influences shall not be considered to be in noncompliance with respect to such criteria (VWQS §3-01(A)). As such, it would not be the responsibility of local governments to control such sources. Additional language will be added to the TMDL document to note this fact.

Allocations/ Reasonable Assurance

15. Comment: The proposed TMDL seeks to establish bacteria load allocations of zero, where discharges are illegal and unpermitted, and waste loads equal to the water quality standard criterion at the point of discharge where such discharges are permitted and legal. The proposed TMDL does not establish reasonable assurance, a decision justified by quoting EPA’s Protocol for Developing Pathogen TMDLs, which states that “where a point source is given a less stringent wasteload allocation based on an assumption that non-point source load reductions will occur, reasonable assurance must be provided for the TMDL to be approvable,” (EPA’s Protocol for Developing Pathogen TMDLs, January 2001, page B-7). According to the proposed TMDL “this TMDL does not include less stringent WLAs for point sources based on anticipation of LA reductions from non-point sources, and therefore, a reasonable assurance demonstration is not required,” (Section 5.7, Page 30).

If the proposed TMDL will hold unpermitted bacteria sources to zero load allocations, that should be made clear in the proposed TMDL and how that will be achieved should also be made clear and explicit. The proposed TMDL will also hold permitted sources to allocations equal at the point of discharge to the in-stream water quality standards and the fact that this will be incorporated into future permits should also be made explicit. [CLF]

Response: The primary function of the TMDL is to establish the loading capacity for the impaired waterbody, and specify the allocations necessary to comply with the appropriate WQS. How the allocations (including zero allocations for unpermitted discharges) will be achieved is beyond the scope of the TMDL; although, as explained in Response #9, VTDEC anticipates that the new tactical basin planning process will play an important role in achieving the load allocations. For permitted sources, VTDEC expects permits to be consistent with the wasteload allocations. The way in which permits require such consistency may vary depending on the type of permit (e.g. direct discharge vs. precipitation driven discharge).

16. Comment: The draft TMDL fails to provide any measure of reasonable assurance for attainment. In fact, the draft states that a reasonable assurance demonstration is “not required” (Section 5.7, page 30). VNRC believes that ANR sincerely strives for waters under its purview to meet the VWQS and that even if a reasonable assurance is not required, ANR still wishes this document to be more than just writing on a page. Yet the Agency states “successful reduction in non-point sources depends on the willingness and motivation of stakeholders to get involved...” (Section 5.7, page 30). [VNRC]

Response: The VTDEC will clarify language in the TMDL document that suggests that it has no role in cleaning up Vermont’s waters and will rely solely on the willingness and motivation of stakeholders. To clarify, the VTDEC does intend to provide technical and financial assistance and direction in the identification and remediation of nonpoint source pollution and has laid out the process it intends to use in its tactical basin plans. Please see Response #9 for further information on the tactical basin planning process and

how it relates to solving pathogen contamination. This information will be added to the document to clarify VTDEC position.

17. Comment: Vermont continues to develop more land and approximately 2,500 to 3,500 new in-ground wastewater systems are installed in Vermont every year. Recognizing for example, that some portion of new, and especially older systems fail each year, and assuming that failed wastewater systems are at least a predominant source of bacteria pollution into our waters, it is difficult to understand how a TMDL that does not account for future growth and cumulative impacts will compel or assure attainment with VWQS. The need for this margin extends beyond wastewater system failures to the unknown impact of other illicit and undetected bacteria discharges to the 22 impaired segments of streams.

The draft TMDL instead appears to ignore the contributions of illicit and unidentified discharges, relying on the arguably spotty data available from diligent yet transient volunteer organizations to form the foundation of the TMDL. The Agency has two options: include a robust margin of safety to offset the magnitude of illicit and undiscovered discharges or estimate the contributions of these sources and include them in load and wasteload allocations. [VNRC]

Response: The proposed bacteria TMDL establishes the loading capacity and assigns allocations among point and nonpoint sources that will ensure compliance with the VTWQS, whether or not the specific sources are currently known or if a particular onsite wastewater system is currently built or not. If all allocations given in the TMDL are met, the stream will be in compliance with the WQS.

Regarding onsite systems, allocations have been made for them in the TMDL. Properly functioning systems are included in the load allocation in Table 5-1 under discharges to groundwater. The allocation for failing/discharging systems is included in Table 5-1 as zero under discharges of untreated wastewater. The same allocations are true for future onsite systems; they must not be allowed to fail/discharge.

Situations causing the impairment are what need to be dealt with since those are the discharges or conditions not in conformance with the allocations. As discussed in Response #9, the VTDEC intends to leverage the development of its tactical basin plans to lead the effort to identify problematic discharges and remediate them. An additional margin of safety in the TMDL or an estimation of nonconforming discharges and creating an allocation for them does not bring us any closer to meeting the WQS.

18. Comment: Setting source LA's. "PAGE 27: If the source of the bacteria load is prohibited, then the WLA and LA are set to zero." If you set prohibited discharges like illicit discharges at 0 and they exist in the watershed, you will then be inappropriately allocating reductions to other sources beyond what is needed to meet the WQS. How do you account for known discharges when you don't give them a load allocation? Also you have stated that you do not need reasonable assurances because you are not shifting point

for non-point source reductions, but in essence that is what you've done here. Does this meet the EPA straight face test? [VAAF&M]

Response: The goal of the TMDL is to establish a loading capacity, and allocate loads in such a manner as to meet WQS if all allocations are met. Percent “reductions” in load are calculated where sufficient data exists in order to guide implementation. Prohibited discharges are allocated zero because they are not allowed by statute or regulation and are not allowed to exist. The TMDL does not reflect the current status of these waters but rather the future desired condition. Currently for impaired waters, it’s presumed that discharges remain that are undiscovered but need to be eliminated. Although, when all these discharges are discovered and eliminated (i.e. allocation of zero is met) the stream will be in compliance.

19. Comment: ...there is no Reasonable Assurance that the proposed TMDL will result in impaired waters achieving compliance with the Water Quality Standards. Reasonable Assurance may or may not be required of this TMDL by the Clean Water Act and EPA, but this document should clearly state its anticipated efficacy and the necessary timeframe involved to restore the impaired waters. [WRC]

Response: Please see Response #9.

Margin of Safety

20. Comment: In order to be approved by EPA a TMDL must include “a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality,” (Clean Water Act, 303 (d) (1) (C)). The proposed TMDL does not include a Margin of Safety.

“Setting an explicit margin of safety for concentration-based TMDLs was not considered necessary because there is a sufficient margin of safety implicit in the methodology used to establish the TMDL. For example, setting all sources less than or equal to the bacteria criteria is conservative because it does not account for mixing or dilution in the receiving water. In addition, the methodology assumes no losses of bacteria due to settling or die-off, which are known to take place in surface waters,” (Section 5.3).

This approach makes several assumptions, including that if the concentration for all identifiable sources is set equal to or less than the water quality criterion, then the water will attain standards (Section 5.2, Page 27). This approach is dependent on the elimination of illegal discharges, as made clear in the proposed TMDL, which states “discharges of wastewater to Class A waters and discharges of untreated wastewater to any surface water from sources such as illicit discharges to stormwater systems, sanitary sewer overflows, boats, and failed septic systems are prohibited and would receive bacteria load allocations of zero,” (Section 5.2, Page 27). Finally, as the proposed TMDL states, “this methodology implies a goal of meeting bacteria standards at the point of discharge for all sources,” (Section 5.2, Page 27).

This implicit Margin of Safety based on “conservative” assumptions ignores several factors, including the lack of knowledge about the origin and nature of bacteria loads and the relationship between bacteria loads and the impaired waters, information which should be included in this proposed TMDL. Many, if not most, of the bacteria load in these waters is from illegal sources and sources without an easily identifiable discharge point. The goal of a TMDL is to meet an in-stream water quality standards for all sources. The proposed TMDL, without a Margin of Safety, makes the unproven assumption - based on inadequate information about sources and loads – the meeting those in-stream criterion at the few identifiable points of discharge will result in meeting water quality standards. The draft TMDL itself identifies wildlife and other sources of bacteria pollution without identifiable discharge points as a major contributor to failure to attain standards. [CLF]

Response: The USEPA guidelines for reviewing TMDLs to ensure compliance with the CWA defines the purpose and goal of a “margin of safety”:

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified. (USEPA: Guidelines for Reviewing TMDLs Under Existing Regulations (1992))

In the instance of the Bacteria TMDL, there is no lack of knowledge concerning the relationship between WLAs and LAs and the WQS for which to account. For example, no modeling was used to inject results analysis uncertainty nor was interpretation of a narrative WQS used to relate loading to compliance. The Bacteria TMDL simply sets allocations of all sources equal to the concentration allowable in the WQS. If all sources' allocations are either set equal to the WQS or set to zero for unpermitted sources, the waterbody will attain WQS. The TMDL also indicates the likelihood of dilution and instream die off contributing to assurance of compliance. The outlying factor that could offset this fact is the contribution of bacteria from wildlife, however, the VWQS don't consider the contribution from “natural sources” to be a violation.

The goal of the TMDL is to establish the loading capacity and set the allocation scenario necessary to comply with the WQS. The TMDL is not a reflection of the current state of knowledge concerning all sources in the watershed but rather it sets the expectations for implementation. For many of these watersheds, much more pollutant source identification is necessary to get a better handle on what remediation actions need to occur. The basis for these next steps is the development of the tactical basin plans (See Response #9). This fact does not conflict with the reality that if the TMDL allocations are met, the WQS will be met.

21. Comment: Margin of Safety. "PAGE 29: For example, setting all sources less than or equal to the bacteria criteria is conservative because it does not account for mixing or dilution in the receiving water." Is DEC setting the individual sources at 77 ug/100mL and then assuming that the mixing dilutes all sources enough so that the waterbody as a whole will not exceed the 77 ug/100mL limit? How do you do this for NPS? [VAAF&M]

Response: See Response #20.

Implementation Planning

22. Comment: ...there is no implementation plan providing required action steps necessary to achieve the proposed reductions in bacteria load. There are references to past and ongoing efforts to identify and address the sources of the impairment and suggestions for additional actions going forward, but there is not adequate specificity to determine whether benchmarks are set, let alone attained. [WRC]

Response: See Response #9 for an explanation of the tactical basin planning process. In many instances, the sources of bacterial contamination to the waters are still unknown. It is through the tactical basin plan development process that individual watershed specificity regarding monitoring, source identification, funding, remediation, benchmarks and ultimate attainment will be identified.

23. Comment: ...there is no source of funding for people and organizations to carry out the suggested next steps. Many of the next steps that helped identify the impairments were conducted by volunteer non-governmental organizations with limited funding and staff. In order for them and for local officials to implement the suggested recommendations there must be funding for it to happen. [WRC]

Response: See Response #22.

24. Comment: The proposed bacteria TMDL does not adequately specify how reductions in pollutant loading will be achieved.

(...)

Despite these specific requirements, however, the proposed TMDL establishes the overall percentage reduction in bacteria loading necessary to achieve water quality standards in each water, but does little or nothing to establish how this will be done by specific sources that discharge to those waters.

This lack of specificity leads to a TMDL which has an overreliance on voluntary and community actions and largely ignores the state's obligation to put in place permits

which reduce bacteria loading to impaired waterways and enforce against unpermitted dischargers. According to the draft, the proposed TMDL will “provide tools to help communities, watershed groups, and other stakeholders to implement the TMDL in a phased approach that will ultimately result in attainment of water quality standards” (Section 1.2 page 3). This is typical of a proposed TMDL which states that “successful reduction in non-point sources depends on the willingness and motivation of stakeholders to get involved and the availability of federal, state, and local funds,” and does not acknowledge the state’s responsibility for clean water (Section 5.7 page 30). [CLF]

Response: See Responses #16 and #9.

25. Comment: Although the proposed TMDL includes general statements of where each of the CSO systems are in their schedule to comply with the two-decade-old state CSO Policy, it does not specify that NPDES permits will establish appropriate limits, except for the not very helpful note that “it is anticipated that these segments will remain on the 303(d) (Vermont’s Part A) list of impaired waters until water quality standards are met” (Appendix 19, Page 2). It might be amended to say that these segments will remain on the 303 (d) list until the state issues and enforces adequate permits.

The proposal for dealing with other types of sources is even less clear. The amount of information in the TMDL about likely sources of bacteria pollution to Flower Brook which is included in Appendix 1 is unusually complete compared with the most of the other impaired waters. According to the TMDL Flower Brook has been the site of “documented sewer problems over the past 15 years” including an investigation into a direct discharge of sewage in 1999, and more recent analysis has shown areas where “storm drainage and raw sewage may be combined in the same system” and a 2011 state analysis which “confirmed the presence of bacteria of human origin in downstream reaches near Pawlet,” (Appendix 1, Page 6). It is not just septic problems which are identified as a threat to this brook. The TMDL appendix identifies “manure spreading adjacent to Flower Brook likely result in fecal bacteria contributions,” (Appendix 1, Page 7).

But the Flower Brook portion of the TMDL remains vague about how those identified problems will be solved, except to note that “Vermont environmental enforcement officers and local health officials to identify and replace failing systems.”

And the details about likely sources of bacteria in the Flower Brook appendix is one of a few exceptions in a proposed TMDL which more typically calls for “continuing monitoring, investigating potentially failing septic systems, implementing agricultural best management practices, as needed, and conducting stream buffer restoration activities,” (Appendix 13, Huntington River, Page 16). The Flower Brook example of identifying specific likely sources and outlining a specific and regulatory approach should be expanded and used as a template for similar approaches in dealing with potential sources in all waterways. [CLF]

Response: As stated in the TMDL in section 8.4, the nine waters identified as impaired due to CSOs are not currently addressed by this TMDL and they continue to be managed according to the VTDEC CSO Policy.

Regarding the other 22 waters that are addressed by the Bacteria TMDL, VTDEC has incorporated source-specific information into the TMDL report where such information is available, in order to guide future TMDL implementation. It is not within the scope of the TMDL to provide a detailed analyses of sources for each water. As described in Response #9, VTDEC intends to use its newly established tactical basin planning process as the primary means to further identify and eliminate problematic pathogen sources. The Flower Brook analysis is provided as an example of a more detailed approach.

26. Comment: AAPs, BMPs and VWQS. The distinction between AAPs and BMPs is somewhat blurred throughout the recommendation section of the various appendices. This can lead to confusion and blame, where in some cases may not be warranted. It seems more prudent to include the process outlined in the VWQS into this TMDL where monitoring is able to prove that AAPs are not working, hence BMPs are required. Otherwise you run the risk of setting an unattainable standard for farms while CSO's are given a load allocation of 0 and wildlife is not fully considered. [VAAF&M]

Response: Language will be added to Section 6.5 of the TMDL document to clarify the process as outlined in the WQS. Regarding CSO's, please refer to response # 25.

27. Comment: It is curious that when the proposed TMDL itself notes that an implementation plan is needed to understand the TMDL the proposal was issued for public comment without an implementation plan. The proposed TMDL states that “the Vermont Bacteria TMDL allocations quantify the reductions in bacteria required to achieve water quality standards, but do not provide information on how the reductions might be achieved. To translate reductions specified in the TMDL into reductions in a watershed, an implementation plan is needed,” (Section 6, Page 31). It also notes that “although not required by EPA for TMDL approval, implementation plans are **typically** provided in TMDL reports to describe the restoration process,” (Section 6, Page 31). These seem like enough reasons on their own to delaying further public review – and the request for EPA approval – until an implementation plan can be evaluated. This is particularly true in light of the fact that the proposed TMDL does not seem to include many specific and immediate actions to halt ongoing pollution problems, actions which will presumably be incorporated into the implementation plan. [CLF]

Response: Please refer to Response #9 with regards to implementation planning.

28. Comment: The draft TMDL places the entire burden of achieving compliance with the Vermont Water Quality Standards (VWQS) on an unidentified and compulsory volunteer force who will be encouraged to continue current efforts with no additional (mandatory) requirements. The draft TMDL suggests efforts that may be undertaken but

provides no requirements to actually clean up the impaired waters – nor does it plan to initiate any actions on its own. [VNRC]

Response: See Response #9 and #16.

29. Comment: Among revisions to both the TMDL and implementation plans should be the inclusion of a monitoring plan, milestones for measuring progress, plans for revising the TMDL if progress towards attainment is not met and –importantly - the specific date by which water quality standards will be met. Relying solely on the good will of Vermonters will, unfortunately, not result in expeditious clean up of bacteria impaired waters as is required, expected and deserved. [VNRC]

Response: See Response #9.

30. Comment: In the Draft TMDL, implementation options for reducing wildlife contributions to bacterial loads are limited to controlling water fowl, such as Canada geese at beaches. While this may be important in some specific locations, it is certainly not sufficient to address the majority of wildlife impacts to Vermont’s streams and rivers. This section should either be expanded to include a broader range of practical BMPs, or should specifically note the dearth of options available for managing wildlife contributions to bacterial loads in many settings. [ToC]

Response: It is not the policy of the VTDEC to control the presence of or contributions of wildlife to microbial loading to waterbodies other than perhaps waterfowl at designated swimming areas. Therefore, VTDEC will not propose any further strategies to manage wildlife for control of E. coli in the TMDL document.

Regulatory Considerations - Permitting/CSO/Stormwater/MS4/Onsite Wastewater

31. Comment: Although Englesby does not have a CSO, we are a CSO community and wish to point out that it appears that there may be inconsistencies between the Draft TMDL and our understanding of state policy related to CSOs. Vermont’s CSO policy encouraged complete elimination of CSOs (e.g., sewer separation). Communities that pursued separation were required to capture and provide full treatment for a minimum design flow generated by a 24-hour, 2.5-inch rainfall event. Using this definition for “elimination” it is easy to anticipate that larger rainfall events (e.g., storms exceeding 2.5-inches in 24 hours, either in intensity or duration) would result in a CSO discharge and that any CSO discharge would likely violate a single sample maximum standard for *E. coli*. The State should therefore recognize that CSO receiving waters will need to remain on the 303(d) list of impaired waters indefinitely. [CoB]

Response: Please refer to response #25. As VTDEC currently understands EPA position regarding our CSO Policy and 303(d) listing requirements, unless CSO

discharges are physically eliminated without the possibility of any future discharge, these waters will remain listed on the 303(d) list.

32. Comment: Table 5.1 (page 28) lists wasteload and load allocations for the TMDL. Bacteria monitoring is not often – if ever - required for specific permit programs (e.g. NPDES stormwater). These load allocations, along with a lack of identification of bacteria sources, a monitoring plan, milestones for measuring progress and plans for revising the TMDL if progress towards attainment is not met fails to demonstrate whether a reduction will occur or how and when ANR will know if or when that reduction occurs. In essence, this table appears to provide a false sense that monitoring is occurring that sources are being monitored to assure compliance with allocations or any other measure that will assure attainment. [VNRC]

Response: The establishment of permit requirements regarding monitoring is outside the scope of this TMDL report. However, during the TMDL implementation phase to follow, monitoring requirements may be considered as permit conditions in order to comply with the TMDL. Methods to identify sources and measure remediation effectiveness will be conducted on a case by case basis through the development of the tactical basin plans (See Response #9).

33. Comment: Generic text in the “Best Management Practices for Septic Systems” section does not address the issue of locating and justifying the designation of specific areas with malfunctioning onsite wastewater treatment systems. This should be the responsibility of the State of Vermont, not of the local municipalities. [ToC]

Response: The State of Vermont adopted “universal jurisdiction” meaning all new and replacement wastewater systems require a Wastewater System and Potable Water Supply Permit from the Agency of Natural Resources unless the Agency delegated such authority to the municipality. Universal jurisdiction further established that there shall be only one set of technical standards adopted by the Agency and no municipality shall adopt thru planning and zoning rules requirements that conflict with these standards. Only the Towns of Colchester and Charlotte are delegated such authority. Wastewater systems that are permitted or considered exempt that experience malfunctioning need to comply with the Wastewater System and Potable Water Supply Rules unless site conditions prevent such compliance. The Rules then allow under the variance section alternative wastewater system designs provided the Agency concludes that such design will “result in equal or better environmental and human health than the previous system”, the system will function without continuing to meet the definition of a failed system, and there will not be a flow increase.

34. Comment: Local municipalities have limited jurisdiction to regulate agriculture, as per Vermont’s right-to farm statute (Vermont Statutes Annotated, Title 12, Chapter 195, § 5751-5754). Local control is generally limited to backyard farming practices in areas not zoned for agriculture. This section of the Draft TMDL should be revised to clarify

which responsibilities for agriculture lay with the state and which with municipalities.
[ToC]

Response: Regulation of agriculture and agricultural practices falls within the purview of the Vermont Agency of Agriculture, Food and Markets (AAF&M). AAF&M has promulgated rules known as Accepted Agricultural Practices (AAP) that concern all farms in Vermont regardless of size, type and location. The AAPs, considered as the base level of management for all farms throughout Vermont, are intended to minimize water pollution from agricultural activities. AAPs also dictate that construction of farm structures needs to comply with locally established building set backs. AAF&M has also promulgated rules and instituted individual permits affecting Large Farm Operations (LFO) and general permits affecting Medium Farm Operations (MFO). An LFO is an operation with 700 or more mature dairy animals and an MFO is an operation with 200 – 699 mature dairy animals (there are differing threshold values for other types and ages of livestock). In addition to set back requirements and backyard farming in areas not zoned for agriculture, municipalities have some [limited] authority over agriculture regarding nuisances and public health situations. Language will be added to Section 6.5 to clarify this regulatory authority.

Appendix 7 – Direct Smaller Drainages to Inner Mallets Bay

Note: In addition to the below comments, the Town of Colchester also provided comments in an annotated version of the appendix. VTDEC appreciates these clarifying comments and incorporated the majority of them in the revised Appendix 7.

35. Comment: As noted in the Draft TMDL, the following sections are required for a TMDL:
- _ Source assessment
 - _ Linkage between targets and sources
 - _ Load allocation

The first three areas are discussed generally on a statewide basis, but are not adequately addressed on a watershed-specific basis to support the establishment of the Draft TMDL. Neither Vermont’s extensive network of rivers, streams and lakes, nor potential sources of bacterial contamination were assessed comprehensively as part of this effort; rather, the State relied on existing datasets augmented with data collected by watershed groups based in their “service areas” as opposed to waters where bacterial impairments might be anticipated to exist. The linkages are generally speculative and allocation is not provided.
[ToC]

Response: The data available have been deemed sufficient to identify the waterbodies as impaired. The TMDL sets the desired condition of contributing sources (allocations) in the future necessary to attain the WQS. The VTDEC approach to further assess sources and develop the linkage between sources and targets will be addressed as a second phase

during implementation planning. Further monitoring and assessment are likely necessary to better determine significant contributing sources. That future source identification and implementation planning is the role of the tactical basin planning process. Please refer to Response #9 for further details.

36. Comment: (Why is a TMDL Needed?) The question should be “Why is a TMDL needed at this time?” It does not appear to be the time to establish a TMDL as the State Water Resources Panel is likely to change the water quality standard in the near future, resulting in a moving, rather than a fixed, target. This comment applies to all watersheds named in the Draft TMDL. Furthermore, the following specific reasons pertain to the Direct Smaller Drainages to Inner Mallets Bay watersheds:

1. There is a lack of sufficient data to represent long-term conditions (only one year of data, at one sampling point per stream for 18 miles of streams & tributaries, is not adequate to provide a scientific basis for a TMDL).
2. Dry weather and wet weather conditions were not analyzed separately. Different management approaches are necessary for each. Therefore, water quality monitoring that differentiates between wet and dry weather conditions is needed.
3. Land use and potential causes of water quality impairment have not been adequately analyzed to provide connection between apparent sources and target water quality criteria. [ToC]

Response: Regarding the timing of TMDL development, please refer to Responses #1 and #2. For data sufficiency, please refer to Response #35. For further monitoring and source identification, please refer to Response #9 for details.

37. Comment: The extensive use of secondary sources to substantiate the impact of onsite wastewater treatment systems on water quality is not valid, since the data that was developed for the secondary sources was not necessarily collected under the same quality assurance scrutiny (or for the same intended use) as the cited water quality data (Table 1 on pages 11 & 12 of Appendix 7). The term “close” in the above quotation is not defined. If onsite wastewater systems meet the required fifty foot separation distance to surface waters (Vermont DEC, 2007, State of Vermont Environmental Protection Rule, Chapter 1, §1-807), they should not be considered a problem relating to bacteria due to their proximity to surface waters. No documentation has been provided in the Draft TMDL to demonstrate that systems in these watersheds are less than 50 feet from surface waters. It is recommended that the State of Vermont analyze the consideration of soil and site suitability for onsite wastewater treatment systems and actual permitting records to provide a rationale for developing allocation to onsite wastewater systems for the Draft TMDL. [ToC]

Response: The information in Appendix 7 regarding onsite wastewater treatment systems is provided as guidance to direct future investigations into pathogen sources. If particular onsite systems are indeed of sufficient distance from the stream, situated in

suitable soils and functioning properly, then they should be of low priority for further investigation. The TMDL load allocation of zero loading still holds and represents the proper and intended functioning of onsite systems.

38. Comment: This TMDL requirement is not apparent in Appendix 7. The Draft TMDL includes speculation relative to wildlife, onsite wastewater treatment systems, pets and agriculture, and contact recreation as sources, but no linkage is clearly established for these watersheds. It should be the responsibility of the State of Vermont to provide documentation to support the TMDL, which would require more detailed characterization of potential sources, wet weather and dry weather water quality monitoring, and analysis under wet weather and dry weather conditions. [ToC]

Response: The TMDL was developed using all readily available data. VTDEC acknowledges that further definition of sources and appropriate control measures is necessary as a next step. VTDEC plans to utilize the development of its tactical basin plans to develop the necessary next steps for monitoring, source assessment and remediation. Please refer to Response #9 for further information regarding this process. VTDEC understands that a Microbial Source Tracking study is underway in the Town of Colchester and would be interested in the results of that study.

39. Comment: The allocation is a uniform reduction in E. coli concentrations. For the existing water quality standard, a 97% reduction in single sample concentration is required. For the proposed water quality criteria, a 90% reduction of single sample concentration and a 53% reduction of geometric means are proposed. Considering the diverse proportion of source contribution in these watersheds (based on the proportion of land use noted in the first paragraph of the review of Section 2 above), **these are very likely to be unattainable objectives.**

It is critical to better characterize the sources of E. coli before developing water quality objectives and allocations, in order to ensure that the objectives are attainable. For example, if a more detailed characterization and analysis of a particular watershed estimates that the relative proportion of indicator bacteria are as follows: wildlife 60%; agriculture 5%; stormwater 25%; and onsite wastewater treatment systems 10%, it would be impossible for a municipality to achieve even a 53% reduction, since at least 65% of the sources are out of the control of the municipal government.

Based on comments above, there is insufficient data to develop a justifiable allocation at this time. If the Draft TMDL goes forward in spite of these deficiencies, then the allocation should specifically exclude municipal responsibility for the portion of E. coli concentrations due to natural sources (wildlife mammals and birds, and E. coli in organic and mineral sediments). [ToC]

Response: VTDEC does believe that in many cases the proposed allocations will be difficult to ultimately attain. However, it is the ultimate and required goal of every TMDL to develop allocations necessary to implement the WQS. Understanding this,

VTDEC expects that through the tactical basin planning process, an adaptive management approach will be utilized for identifying sources, prioritizing them and working toward implementation solutions.

Regarding municipal responsibilities toward bacteria inputs from unregulated wildlife sources, please refer to response #14.

40. Comment: The recommended next steps are laudable, but without reliable baseline data, land use and hydrologic analyses, reasonable linkages between sources and targets, and resulting allocations, there is no way to prioritize which steps will have the greatest water quality benefit.

Also relevant is the fact that existing monitoring programs are unlikely to be able to detect changes required to document response to treatment. Before finalizing the Draft TMDL, the State of Vermont should conduct additional (wet and dry weather) water quality monitoring at multiple locations in these two watersheds to establish baseline bacteria data that are statistically adequate to be able to track whether future implementation efforts can and will have the desired impact on water quality. [ToC]

Response: Please refer to Response #9.

Appendix 8 – Englesby Brook

41. Comment: While we understand that VTDEC is seeking comments specifically on the Draft Bacteria TMDL and not on the Water Management Classification & Typing system currently employed by Vermont, it is difficult to ignore the implications of the deficiencies of a system (lack of sufficient breadth of Class designations and/or management objectives) which directly impact the context of this and other TMDLs. To that point: **City of Burlington requests that the State provide data documenting the observance of uses that are being assigned to Englesby Brook (swimming) as a Class B water.** We believe that a water body should not be placed in a category of use (i.e. Class B) simply by default because no other category exists that accurately captures the current intended uses of that water body. [CoB]

Response: The swimming use is a designated use as defined by the VTWQS and therefore the Bacteria TMDL is required to develop allocations sufficient to enable Englesby Brook to comply. Vermont statute does not envision a method to undesignate it. Formal removal of designated uses would require a Use Attainability Analysis (See Response #43). To date, no analysis has been conducted documenting the observance of uses, either designated or existing, and therefore no data exists to provide.

42. Comment: **Moreover, we request information from the VTDEC showing adherence the following recommendation in the Vermont Surface Water**

Assessment Methods (VTDEC, 2004) when continuing to pursue management of Englesby as a Class B water: “In designating a Water Management Type, the Vermont Water Resources Board must take into account attainable uses and the level of water quality already existing.” (pg. 7) We do not agree that the Class B designation took into account the “level of water quality already existing.” Nor do we believe that the Class B designation and associated management objectives for Englesby took into account the uses that are actually occurring or intended to occur in Englesby. [CoB]

Response: To date, no specific Water Management Type analysis or designation has occurred for Englesby Brook. The WMT designation process was intended to take into account the biological, chemical, and physical assessments (SGA) in understanding existing conditions and reasonably attainable uses. Whether or not specific uses are currently supported is irrelevant to their current classification. A brook may be classified as Class B and not meet VT Water Quality Standards, which should not be the basis for lowering its classification, but rather, provide the basis for identifying the necessary tools to provide the appropriate for remediation and protection so that reasonably attainable uses can be achieved.

43. Comment: **VTDEC must consider revising the Designated Uses for Water Classification System to reflect the actual, desired uses and management objectives of some of Vermont’s more urbanized streams.** This absolutely does not mean “giving up” on these urban streams – it means tailoring our implementation approach within the context of larger water quality goals, such as restoring and protecting recreation opportunities on Lake Champlain. [CoB]

Response: Designated means any value or use, whether presently occurring or not, that is specified in the management objectives for each class of water as set forth in 3-02(A), 3-03(A), and 3-04(A) of the VT Water Quality Standards. To remove designated uses would require a Use Attainability Analysis. A Use Attainability Analysis (UAA) is a structured scientific assessment of the factors affecting the attainment of uses specified in Section 101(a)(2) of the Clean Water Act (the so called "fishable/swimmable" uses). The factors to be considered in such an analysis include the physical, chemical, biological, and economic use removal criteria described in EPA's water quality standards regulation (40 CFR 131.10(g)(1)-(6)).

Under 40 CFR 131.10(g) states may remove a designated use which is not an existing use, as defined in § 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because:

- Naturally occurring pollutant concentrations prevent the attainment of the use; or
- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or

- Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- 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; or
- 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; or
- Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

44. Comment: Municipalities throughout Chittenden County have made a substantial commitment of technical and financial resources to the development and planned implementation of TMDLs for a number of the small urban drainages, including Englesby Brook, that have been determined to be stormwater impaired. Throughout this process, it was made clear that stormwater was being used as a surrogate for the suite of pollutants typically associated with urban runoff including: sediment, nutrients, dissolved oxygen, temperature and bacteria. [CoB]

Response: While it is true that the Stormwater TMDLs used a hydrologic surrogate for a suite of pollutants, bacteria was never intended to be included within that suite. The impairment addressed by the Stormwater TMDLs is an impairment of the aquatic life and habitat designated use and the largest stressors were determined to be sediment and hydrology that affected the biological communities' habitat and the organisms directly. Bacteria were not considered to be among the pollutants having a significant impact on the biological communities. The Bacteria TMDLs were designed to address the swimming and other primary contact recreation uses separate from the aquatic life and habitat use. The intent of the use of the hydrologic surrogate as it relates to the biological impairment is clearly described in the Stormwater TMDLs section "Pollutant of Concern" and is affirmed in EPA's approval documentation relating to the same section.

45. Comment: DEC needs to make clear how the overlap between the two TMDLs for Englesby Brook, and other double-listed stormwater and bacteria impaired waters, will be addressed in the context of MS4 communities. [CoB]

Response: The proposed MS4 permit addresses the responsibilities of permittees regarding compliance with approved TMDLs, including this proposed Bacteria TMDL and the previously established Stormwater TMDLs. Section IV.C addresses discharges

to impaired waters and the necessary compliance actions. For compliance with the proposed Bacteria TMDL, Section IV.C.1.a states:

a) For any discharge from the small MS4 to impaired waters with an approved TMDL, the permittee shall comply with Subpart IV.C of this permit. The permittee shall control discharges consistent with the assumptions and requirements of any wasteload allocation (WLA) applicable to the permittee in the TMDL. The permittee shall describe in the SWMP all measures that are being used to address this requirement. The Secretary may notify the permittee of the need to comply with additional requirements that are consistent with the assumptions and requirements of any applicable WLA or that an individual permit application is necessary in accordance with Subpart VI.R.

and since a categorical WLA has been proposed in the Bacteria TMDL, Section IV.C.1.c states:

c) If the applicable TMDL specifies a wasteload allocation or other requirements either individually or categorically for the small MS4 discharge, the permittee shall describe in its annual reports all control measures which have been or are planned to be implemented to control discharges consistent with the assumptions and requirements of the TMDL WLA. The permittee shall include in the annual reports and the SWMP the rationale supporting the permittee's determination that such controls are adequate to meet the applicable TMDL requirements.

Separate from the Bacteria TMDL, compliance with the Stormwater TMDLs is also given in detail in Section IV.C.1.d and e.

46. Comment: Will VTDEC require a detailed implementation plan designed to achieve the reductions in the Draft TMDL as part of the MS4 permit? Or will implementation of the Stormwater TMDL be considered as implementation for the Bacteria TMDL? Will continued implementation of Best Management Practices (scoop the poop) related to bacteria reductions constitute compliance with the TMDL? [CoB]

Response: See Response #45.

47. Comment: A brief fact-check: While portions of the City in the vicinity of Englesby Brook are served by the combined sewer system, there are no combined sewer overflow (CSO) outfall points discharging to Englesby Brook. DEC must correct statements in Appendix 8 which state or imply that there is a CSO point to Englesby. [CoB]

Response: Thank you for the clarification. Changes will be made to Appendix 8 to reflect this fact.

48. Comment: Because the allocations have been calculated using data that does not appear to have been collected in accordance with accepted methods, it is not clear that the allocations are technically valid and it is not clear if they are realistically attainable. [CoB]

Response: The proposed TMDL allocations reflect the future condition in which Englesby Brook, and all other waterbodies covered under this TMDL, would be able to attain and maintain compliance with the VTWQS. The wasteload allocations and load allocations are expressed in terms of concentration-based targets, and have been set equal to VT water quality standards. In contrast, site-specific percent reductions in bacteria counts have been calculated for informational purposes only.

Regarding relative attainability, see response #39.

49. Comment: VTDEC must make clear the data collection and analysis methods that it proposes to utilize in the future when determining compliance with the VWQS and the TMDL, particularly if it intends to include a single sample concentration as part of the criteria. How many single sample violations constitute a violation of the VWQS? Does antecedent moisture become a determining factor? [CoB]

Response: Please refer to Response #4.

Appendix 15 – West River

50. Comment: Locations of additional monitoring sites are not adequate. It is very important to monitor Londonderry for the reasons you outlined. But South Londonderry has several places that are also potential polluters and should be monitored. There should also be a provision for extending monitoring along the tributaries if more data is needed to pinpoint a source of bacteria. Lastly, how will you accomplish monitoring from May to October in 2011? [SACC]

Response: The location of monitoring sites will be considered by VTDEC during the tactical basin planning phase of the basin plan in conjunction with relevant local watershed groups. Availability of funding and resources, of course, are always a consideration when developing monitoring plans and often limit the implementation of the most ideal monitoring scheme.

51. Comment: Whose job is it to survey septic systems? Whose job is it to enforce mitigation? When enforcement proceedings are required, whose job is it? Obviously, it is the State's job to ensure that VWQS are met. You cannot expect elected town officials to demand that their neighbors update their septic systems. Town officials can help prioritize and plan for mitigation according to a well thought out TMDL from ANR. [SACC]

Response: There are several avenues for surveying a wastewater system. The preferred option is for the local health officer to conduct a sanitary survey to determine if there is a failure of the system. The health officer may then forward the information to

the Regional Office who will then contact the landowner with the steps necessary to obtain a permit and abate the health hazard. Health officers retained their ability to write health orders to eliminate a health hazard even though it is the State's responsibility to review and approve the new wastewater system. A second option is to contact the Regional Office who then may contact the landowner or request an investigation by an Environmental Enforcement Officer. Direct discharges to the waters of the State should be directed to the Environmental Enforcement Officer. The State will take the lead on any enforcement action required to abate the health hazard.

52. Comment: Agricultural lands need to meet the minimum riparian buffer as required by law or by the approved BMPs. Specific remediation should be spelled out and WCNRC has the expertise to assist the Agriculture Department. [SACC]

Response: It's true that all partners need to be tapped for their expertise when developing remediation plans. This is a core function of the dialogue during the development of the tactical basin plan. Specific recommendations regarding agricultural pollution prevention measures will be developed as part of the tactical basin planning process. Please refer to Response #9 for further details.

53. Comment: Storm drains should be monitored along with recommended monitoring above. [SACC]

Response: Agreed. Storm drain investigation and monitoring has been cited in Appendix 15 in the "Recommended Next Steps" section. Technical assistance is available from the Water Quality Division's Illicit Discharge Detection and Elimination Project.

54. Comment: Land Conservation is a huge undertaking. Local support is a must if land **is going to be taken away for development. Conservation Commissions and other** environmental organizations are likely leaders for such projects, but money and public support will have to be found. Corridor protections would also protect and maintain water quality for the future. [SACC]

Response: VTDEC understands the nexus between land uses and the protection of water quality. It is precisely because of the intricacies involved that VTDEC proposes to develop opportunities where appropriate in the public forum associated with the development of its tactical basin plans. Please refer to Response #9 for more information regarding their development.

Comment: First, the known septic system failures in South Londonderry should be dealt with. Next, a plan for implementation of the TMDL should be devised to include the recommended next steps with specifications as to the responsible party, the timeline

required, funding source(s), how progress will be measured, effects of cumulative impacts, and assurance that the TMDL can be met. **The TMDL must not be an excuse to lower VWQS for E. coli.** [SACC]

Response: See Response #9 for an articulation as to how VTDEC intends to take the next steps in the remediation of bacteria impaired waters throughout the state. Regarding the potential for changes to the VTWQS, this TMDL, as with all TMDLs, must be developed in accordance with the currently adopted WQS. TMDLs respond to the current WQS, they don't create them. Mention of a potential change to the WQS in the TMDL only reflects recent discussions at the Water Resources Panel. Any proposed changes to the VTWQS will occur under a separate public process through the Panel.

Appendix 16 – North Branch, Deerfield River

55. Comment: While we agree there are problems in the Deerfield River your report makes it clear that the Fire District's aging infrastructure is most likely the cause and your red line on the map in figure 3 has all believing the facility itself is the main culprit. The data provided to you show high levels of ecoli at WQ3, well above the facility and lower levels at WQ4 located below the facility. Your red line starts right in-between the two stations not above as data we provide to the state indicate. [NBFD]

Response: VTDEC acknowledges that the impairment does in fact begin in the vicinity of WQ3 well above the NBFD facility. Figures 1 - 3 in Appendix 16 will be edited to reflect this fact. VTDEC has not identified any particular source as the primary cause of E. coli impairment at this time and believes further investigation is necessary. Regarding the Fire District's potential for contributing to the contamination, see Response #56 below.

56. Comment: Personnel of the district have prepared, by mandate of the wastewater management division, a spill response and prevention plan which requires yearly inspection of all river crossings in the district. By the way these river crossings you refer to are ductile iron incased in concrete. To date no infiltration or exfiltration have been noted. Our operation permit also requires yearly inspection of the collection system serving the district. [NBFD]

Response: VTDEC recognizes and appreciates the North Branch Fire District's adherence to its permit conditions as a means to prevent unpermitted discharges to the North Branch. At this time, VTDEC has no reason to believe that the Fire District is a contributing source to the impairment; however, due to the proximity of infrastructure to the stream, its failure could become a major contributing source. Continued adherence to permit conditions will ensure adequate protections into the future. Edits will be made to Appendix 16 to reflect this.

57. Comment: Why would levels of e.coli be high in the summer months when homes and condos are empty and be lower in the winter when the homes are loaded and sewer lines are running at highest levels if the lines are leaking as you state? [NBFD]

Response: One explanation for the lower levels of E. coli concentrations in the winter is the significantly lowered survivability of the bacteria in cold water conditions. No matter what the sources, either point or nonpoint and all things being equal, ambient E. coli concentrations instream will likely be lower in winter.

DRAFT