URBAN STORMWATER MANAGEMENT IN VERMONT

I. Problem Statement

There are approximately twenty-five streams in Vermont that are "impaired" primarily due to urban stormwater runoff. These impaired waters are currently not meeting water quality standards as a result of existing development, not as a result of proposed new projects. The water quality impairments are caused primarily by stormwater discharges which are not receiving adequate treatment, such as projects that pre-date DEC's stormwater permitting program and previously permitted stormwater discharges that are not in compliance with their original permits. DEC believes that these waters are impaired, not water quality limited. This means that when base-level treatment requirements, known as BMPs (Best Management Practices) are in place and working correctly the water quality impairments should be eliminated.

There is currently a backlog of approximately 1,000 expired stormwater permits and significant numbers of existing stormwater treatment systems which are not providing necessary treatment due to inadequate construction and maintenance. There is also a potential permitting logjam for new projects in impaired watersheds as a result of recent Water Resources Board decisions in the Hannaford/Lowe's permit appeal.

Awaiting the development of watershed TMDLs (Total Maximum Daily Loads) for these receiving waters is not a viable solution to these problems, due to the time, expense and technical uncertainty involved in developing a fully implementable TMDL. It can take several years to develop a TMDL for a single impaired watershed. The completion of the TMDL development process for the twenty-five stormwater-impaired waters is currently projected to require at least 10 years or more.

II. Vision Statement

DEC is presenting this plan of action that is designed to immediately begin corrective measures within impaired watersheds. This will involve a phased strategy which is cost-effective, can be implemented efficiently, will simultaneously eliminate water quality impairments, reduce the expired permit backlog and address the permitting of new development.

III. Proposal and Rationale

DEC will begin immediately to implement a three-part solution to the problem of impaired waters, implemented through the issuance of watershed-specific general permits, referred to as Watershed Improvement Permits (WIP). A WIP will be individually crafted for each impaired watershed. Three groups of stormwater discharges would be asked to apply for coverage under the applicable Watershed Improvement Permit, including:

1) stormwater discharges to the impaired water that have already been issued a stormwater discharge permit or temporary pollution permit (regardless of whether such permit is currently valid or expired);

2) stormwater discharges that have been designated by DEC as "selected stormwater discharges" to the receiving impaired water; and

3) proposed discharges of stormwater to the impaired water from new development.

A brief description of the Watershed Improvement Permit process for each of these three groups, along with the rationale for their inclusion in this plan, is set forth below:

1. Existing Permittees

Under DEC's plan, all previously permitted stormwater dischargers would be included under the WIP. This includes all discharges that have previously been issued either a stormwater discharge permit or a temporary pollution permit, regardless of whether such permit is currently valid or expired. To obtain coverage under the WIP, these existing discharges would need to provide to DEC a written certification signed by a professional engineer licensed in Vermont, that the existing stormwater management system was built and is currently operating in compliance with the previously issued permit. If such certification cannot be made, the WIP will specify a reasonable timeframe for taking corrective action to construct and/or bring the previously permitted stormwater management system into compliance with the previously issued permit. Once this corrective action is taken, an engineer's certification would be provided to DEC. The WIP will also specify that an engineer will need to periodically recertify that the stormwater management system is properly operating and maintained. Finally, the Watershed Improvement Permit will clearly state that DEC will periodically conduct scientific monitoring in the impaired water to determine if water quality is improving, and if it is not improving to the satisfaction of DEC, additional and more stringent stormwater management measures may be required either through the modification of the WIP, the issuance of a new WIP, and/or through the issuance of individual stormwater discharge permits.

It is DEC's belief that this approach toward existing permittees is fair and reasonable. First, this approach merely requires that a permittee demonstrate they are doing what they originally agreed to do. Second, for those permittees whose permits expired, or for those permittees who did apply for renewed permits, this approach eliminates the time-intensive process of notifying expired permittees or reissuing individual permits. Therefore, this approach helps in eliminating the backlog of expired stormwater permits. Finally, from a technical standpoint, DEC believes that it will only be necessary to require updated and current treatment standards for some previously permitted stormwater discharges in an impaired watershed to improve water quality and meet water quality standards. In general, once a stormwater treatment design is approved and implemented, proper ongoing maintenance should be the principal focus, not periodic re-design and re-construction. It is inevitable that treatment standards will change over time as the science of stormwater management evolves, but it's neither practicable, nor cost-effective to continually retrofit large numbers of these landscape-based treatment systems (e.g. detention ponds, swales, etc.). If DEC determines after future monitoring that certain of these systems are causing significant impacts to the receiving watershed, then DEC will address retrofitting these individual systems on a case-by-case basis either through a WIP or an individual stormwater permit.

2. Selected Stormwater Discharges

Within each impaired watershed there are several entities that, by virtue of their size, location and lack of adequate treatment, have an inordinate detrimental impact on the receiving water. Some of these may have previous stormwater discharge permits or temporary pollution permits, others may pre-date the permitting program. Regardless of their previous permit status, as selected contributors to impaired

waters, and as a result of being dischargers to surface waters, they legally require current permits. DEC will identify all "selected stormwater discharges" to an impaired water covered by a Watershed Improvement Permit using a formula devised by DEC's Stormwater Management Program. This formula will take into account certain factors, including the areal extent of impervious surfaces, efficacy of any existing stormwater treatment, and degree of connectivity to the receiving water. DEC believes that it is necessary to selectively require optimized stormwater treatment for these stormwater discharges in order to improve impaired waters. Requiring optimized treatment for these selected discharges is very efficient with regard to benefits versus costs, particularly when considered on a watershed basis. The top tier of these discharges within a watershed will be required to engineer treatment solutions designed to achieve the water quality, recharge, and channel protection requirements of the Vermont Stormwater Management Manual.

3. New Development

At the same time that improvements to existing stormwater management systems are ongoing, the WIP will minimize water quality impairment from new stormwater discharges by requiring stormwater treatment solutions to meet the requirements of the Vermont Stormwater Management Manual.

IV. Long-Term Monitoring and Amendment of the Watershed Improvement Permit

After substantial implementation of the stormwater management requirements specified in the WIP, scientific monitoring of the impaired water will be performed by DEC. If necessary, additional "selected discharges" to an impaired water will be identified and will be required to upgrade treatment to further reduce stormwater loadings to the receiving water. Additional and more stringent management of stormwater discharges will be obtained through the modification of the WIP, the issuance of a new WIP and/or through the issuance of individual stormwater discharge permits. Sequential iterations of this process will occur until scientific monitoring indicates an elimination of the impairment.

V. Summary

DEC believes that this plan represents the best practical solution to improving impaired waters, is a fair and balanced response and avoids having considerable amounts of money being spent in a less-than-optimum manner. It will improve stormwater-impaired waters, ensure the attainment of water quality standards, systematically eliminate the expired permit backlog, and allow new development to move forward through the permitting process. It is administratively efficient, cost effective, and is a phased, proportionate approach, which can be implemented immediately. Watershed Improvement Permits can be implemented in a timely manner, relative to the classic TMDL approach, and can easily incorporate iterative cycles to ensure elimination of water quality impairments. The TMDL process can proceed simultaneously and finalized TMDLs can be incorporated into a revised or new WIP as required.

LIST OF URBAN - IMPAIRED WATERS & WATERSHEDS

Waterbody ID	Basin	County	Waterbody Name	Problem	Pollutant
VT03-06	3	Rutland	MOON BROOK, MOUTH TO 2.3 MILES UPSTREAM	LAND DEVELOPMENT; EROSION; URBAN RUNOFF; NO MONITORING DATA ON POLLUTANTS	UNDEFINED - TYPICAL (SEDIMENT, NUTRIENTS, PATHOGENS, TOXICS)
VT05-07	5	Franklin	STEVENS BROOK, FROM I-89 DOWNSTREAM FOR APPROX 1.5 MILES	LAND DEVELOPMENT, EROSION/SEDIMENTATION, URBAN RUNOFF, MORPHOLOGICAL INSTABILITY	SEDIMENT, ORGANIC ENRICHMENT, TOXICS (METALS & ORGANICS)
VT05-09	5	Chittenden	INDIAN BROOK FROM LAKE UPSTRM FOR 9.8 MILES TO BUTLERS CRN (RT 15)	LAND DEVELOPMENT, EROSION, URBAN RUNOFF; NO MONITORING DATA ON POLLUTANTS	UNDEFINED-TYPICAL (SED'T, NUTRIENT, TOXICS, METAL, PATHOGEN)
VT05-09	5	Chittenden	DIRECT SMALLER DRAINAGES TO INNER MALLETTS BAY	URBAN RUNOFF, FAILED/FAILING SEPTIC SYSTEMS; INCLUDES SMITH HOLLOW BROOK & CROOKED CREEK	PATHOGENS
VT05-10	5	Chittenden	ENGLESBY BROOK	URBAN STORMWTR RUNOFF, BLANCHARD BEACH CLOSURE	PATHOGENS, UNDEFINED-TYPICAL (METALS, NUTRIENT, TOX, SED'MT)
VT05-11	5	Chittenden	MCCABES BROOK, UPSTREAM FROM MOUTH FOR 3.5 MILES	AGRICULTURAL RUNOFF, URBAN RUNOFF	UNDEFINED-TYPICAL (SED, NUTRIENTS, ORG ENRICH'MT, PATHOGENS)
VT05-11	5	Chittenden	BARTLETT BROOK	LAND DEVELOPMENT, EROSION, URBAN RUNOFF; NO MONITORING DATA ON POLLUTANTS	UNDEFINED - TYPICAL (SEDIMENT, NUTRIENTS, TOXICS, METALS)
VT05-11	5	Chittenden	MUNROE BROOK	URBAN RUNOFF, EROSION, LAND DEVELOPMENT	UNDEFINED-TYPICAL (SED, NUTRIENT, METAL, PATH); UNKNWN TOX'Y
VT05-11	5	Chittenden	POTASH BROOK, FROM MOUTH TO 5 MILES UPSTREAM	URBAN RUNOFF, LAND DEVELOPMENT, EROSION; FREQUENT BEACH CLOSURES (RED ROCKS)	SED'MT, PATHOGENS; UNDEFINED-TYPICAL (METALS, NUTRIENTS, TOX
VT08-02	8	Chittenden	ALLEN BROOK, FROM 1 MILE ABOVE MOUTH UPSTREAM 5.5 MILES	LAND DEVELOPMENT; EROSION; URBAN RUNOFF	PATHOGENS, UNDEF-TYPICAL (SED, TOXICS, NUTRIENTS, METALS)
VT08-02	8	Chittenden	MUDDY BROOK (LOWEST 7 MILES)	LAND DEVELOPMENT; EROSION; URBAN RUNOFF	TOXICS, ORGANIC ENRICHMENT, TEMPERATURE
VT08-02	8	Chittenden	SUNDERLAND BROOK (6.5 MILES)	LAND DEVELOPMENT; EROSION; URBAN RUNOFF	TOXICS; UNDEFINED (SEDIMENT, NUTRIENTS, PATHOGENS, METALS)
VT08-02	8	Chittenden	CENTENNIAL BROOK (2 MILES)	LAND DEVELOPMENT; EROSION; URBAN RUNOFF; NO MONITORING DATA ON POLLUTANTS	UNDEFINED - TYPICAL (SEDMT, NUTRIENTS, TOXICS, METALS, PATH)
VT08-02	8	Chittenden	MOREHOUSE BROOK	URBAN RUNOFF, EROSION;	UNDEFINED - TYPICAL

			(1.5 MILES)	NO MONITORING DATA ON POLLUTANTS	(SEDIMENT, NUTRIENTS, PATHOGENS, TOXICS)
VT08-12	8	Lamoille	WEST BRANCH, LITTLE RIVER (5.8 MILES)	INCREASED PEAK STORMWATER FLOWS & RUNOFF FROM URBANIZING AREA; LOSS RIPARIAN VEGETATION; MORPHOLOGICAL INSTABILITY	PHYSICAL HABITAT CHANGES
VT08-20	8	Washington	SLIDE BROOK (0.7 MILES)	EROSION FROM UPSTREAM AREAS IN W/SHED & PARKING LOT; LAND DEVELOPMENT	SEDIMENT
VT08-20	8	Washington	RICE BROOK	EROSION FROM UPSTRM AREAS IN WATERSHED & PARKING LOT; LAND DEVELOPMENT	SEDIMENT
VT08-20	8	Washington	CHASE BROOK, FROM MOUTH UPSTREAM FOR 0.5 MILE	RUNOFF FROM PARKING AREAS	SEDIMENT
VT08-20	8	Washington	CLAY BROOK, INFERNO ROAD AREA (0.1 MILES)	SOIL EROSION CONSTRUCTION ACTIVITIES & GRAVEL PARKING LOT; INCREASED PEAK STORMWATER FLOWS	SEDIMENT, IRON
VT10-06	10	Windsor	EAST BRANCH, ROARING BROOK (0.5 MILE)	LAND DEVELOPMENT, EROSION, ROAD RUNOFF	SEDIMENT, IRON
VT10-06	10	Windsor	ROARING BROOK (LOWEST 1.5 MILES)	LAND DEVELOPMENT; EROSION; ROAD RUNOFF	SEDIMENT
VT11-15	11	Windham	STYLES BROOK (2 MILES)	LAND DEVELOPMENT, HYDROLOGIC MODIFICATION	SEDIMENT
VT11-15	11	Windham	TRIB #1, NO. BRANCH, BALL MTN BROOK, ABOVE GOLF COURSE POND	URBAN RUNOFF, LAND DEVELOPMENT IN STEEP AREA, EROSION	SEDIMENT
VT12-05	12	Windham	NO. BRANCH DEERFIELD RIVER, 0.4 MILE ABOVE SNOW LAKE TO TANNEY BRK RD	LAND DEVELOPMENT & CONSTRUCTION RELATED EROSION	SEDIMENT
VT13-14	13	Windham	WHETSTONE BROOK - BRATTLEBORO	ENCROACHING URBANIZATION; RIPARIAN DEVELOPMENT; POTENTIALLY FAULTY SEWER LINE/SEPTIC SYSTEM	PATHOGENS