

**Cooperative Memorandum of Agreement Between the Vermont Agency of Transportation (AOT) and the Agency of Natural Resources (ANR) Regarding Wetland Mitigation or Compensation of Transportation Projects in Vermont**

**Purpose:**

This Memorandum of Agreement outlines a process for facilitating the identification, location, design, acquisition, ownership, and long-term management of wetland mitigation/compensation sites for transportation projects along the National Highway System<sup>1</sup> and other major corridors in Vermont. The process makes wetland permitting more orderly, and thus more predictable. It standardizes, to the extent possible, the steps needed to obtain a state Conditional Use Determination (CUD) under the Vermont Wetland Rules, and what is needed to show that mitigation/compensation is appropriate under Sec. 8.5 of the Rules.

The steps described below are included as part of the Agency of Transportation's Project Development Process. They are implemented in accordance with state and federal statutes, regulations, and memoranda related to this topic (see Appendix 1), and are intended to be as coordinated as possible with the federal wetlands review process.

**Background:**

The State Wetlands Program assumes that there will be “no net loss of wetland area or functions”, while the federal program strives to have no net loss of wetland functions. Projects that consume wetland acreage and functions under the state and/or federal programs must compensate for the loss of those functions and acreage, either through the restoration, creation, enhancement (federal program only) and/or preservation (federal program only) of wetlands with comparable functions on or off-site.<sup>2</sup>

The process outlined in this agreement applies only to those projects where mitigation/compensation has been deemed necessary by the federal and state regulatory agencies including: the US Army Corps of Engineers (the Corps), the US Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service and ANR. In order for a project to qualify for mitigation/compensation, the highway project must first be designed to be the “least environmentally damaging practicable alternative” or “LEDPA”<sup>3</sup>, and avoid as many wetland impacts as possible. If complete avoidance is not possible, then design steps must be taken to minimize impacts to the wetland. Mitigation/compensation for unavoidable wetland impacts on or off-site occurs only in rare cases after this “sequence” of steps: first, impact avoidance and, secondly, impact minimization.

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<sup>1</sup> The National Highway System in Vermont includes I-89, 91 and 93, and VT 7, 78, 9, 103, 2, and 4.

<sup>2</sup> In cases involving wetlands under the federal program that function solely by treating water quality, there may be techniques such as the incorporation of design elements (stone-lined ditches, grassed slopes, etc) within the project area that will replace the wetlands former water quality function, and thus not require additional wetland acreage.

<sup>3</sup> The LEDPA is part of the federal wetland review process. For the purpose of this agreement, the LEDPA must also be approved by ANR under Section 8.5 of the Vermont Wetland Rules.

The process has been developed through the cooperative efforts of the federal agencies, the Agency of Transportation, and the Agency of Natural Resources. It is the outgrowth of a 1992 Memorandum of Understanding between AOT and ANR that outlines how the agencies will cooperate on issues of mutual concern (see Appendix 2), and complies with ANR's 1996 Conservation Procedure (see Appendix 3). It is based, in part, on a study, mandated by the Vermont Legislature in 1996, included in H. 794 Sec. 17a, and prepared for AOT and ANR in 1996 by Peterson Environmental Services.

**Definitions:**

This agreement uses the term “**mitigation/compensation**” to refer to: *the replacement of lost wetland functions and/or acreage*. The synonymous federal terms are “compensatory mitigation” or “mitigation” for the replacement of lost functions. The synonymous state term is “compensation.”

The term “**restoration**” in this agreement refers to the federal definition wherein “restoration” is: *a form of mitigation/compensation - restoring filled or severely degraded wetland to establish new wetland acreage to replace wetland lost to development.*<sup>4</sup>

The term “**enhancement**” in this agreement means: *management activities conducted in an existing wetland which increase one or more wetland functions*. An example might include creating additional waterfowl nesting habitat within a marsh.

**The Process:**

**Step 1. The Least Environmentally Damaging Practicable Alternative (LEDPA) has Been Determined and Wetland Functional Assessment Completed**

Mitigation/compensation of wetland impacts is only considered after AOT and ANR, in concurrence with the federal agencies, have determined which highway construction and other modal alternative(s) has the least environmental impacts, meets the project purpose and need, and is therefore the LEDPA. In order to determine the LEDPA, a basic functional assessment is completed for each wetland affected by an alternative. AOT then

conducts a full functional assessment of the wetland affected by the LEDPA using an evaluation procedure that fully combines state and federal criteria. AOT proposes what functions and acreage are needed for mitigation/compensation and obtains ANR and federal concurrence on this analysis.

The Vermont Wetland Rules indicate that only in “rare cases” compensation may be possible to reduce adverse impacts on protected wetland functions so that there is no undue adverse impact and a CUD can be issued. Furthermore, the Vermont Wetland Rules create the presumption that some functions can be replaced while others cannot.

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<sup>4</sup> The state definition of “restoration” is one of the minimization steps of sequencing - minimizing wetland impacts on-site by restoring areas temporarily altered by a project” - for example replanting areas of a wetland disturbed by a temporary access road into a construction site.

The Agency of Natural Resources will consider any argument and evidence presented by AOT's wetland scientists which may overcome the presumption that a function cannot be replaced. If consensus between AOT and ANR cannot be reached on the question of mitigatable/compensable functions, an advisory opinion will be sought from the Water Resources Board.

## Step 2. Defining the Wetland Mitigation/Compensation Proposal

Resolving the following issues helps define the wetland mitigation/compensation proposal.

**A. Geographic Area** - The immediate project right-of-way should be first considered as the preferred location of compensation\mitigation efforts for functions such as water quality treatment; however, replacement of other functions, such as some wildlife habitats, may not be appropriate within close proximity to the project area. The Vermont Wetland Rules require that compensation be contiguous to the affected wetlands where practicable.

If mitigation/compensation is not practicable on-site, then off-site locations may be considered in the appropriate geographic area. This too is determined, in part, by what functions must be replicated. The immediate watershed, defined as the smallest watershed closest to the perennial stream, should be examined first. Then, if no suitable site can be found, the next larger watershed should be considered and then the next larger watershed until a suitable site is found.

While there are no exact procedures for locating a mitigation site, in general, water quality and stormwater treatment must be addressed close to the project area so that the resulting wetland or design element, such as stone-lined ditched or grassed slopes, has similar treatment or abatement functions on the receiving waters. Wetlands providing flood water storage should generally be replaced within the same watershed. Where all of the affected functions cannot be readily replaced in one wetland, the functions may be replaced in several locations, as long as the necessary wetland functions and acreage are mitigated.

**B. Amount of New Wetland Acreage Needed** - The acreage needed, as stated in the Corps and EPA's mitigation memorandum<sup>5</sup>, is to mitigate/compensate, at a

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<sup>5</sup> Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation under the U.S. Clean

minimum, on a 1:1 basis for the functions and values of the wetland that are affected by the project. This should, however, be viewed as guidance only, and may vary depending on the functions affected by the project and the type of mitigation/compensation being proposed. The Vermont Wetland Rules require no net loss of acreage or functions when compensating for impacts.

If the mitigation/compensation proposal involves wetland creation off-site, a mitigation/compensation area larger than a 1:1 ratio may be needed to ensure that the lost functions and values will be adequately mitigated/compensated. Species of wildlife may require interspersion of water, upland thicket and hummocks. Not knowing exactly how these areas will develop, it is prudent to include extra area to serve as back-up in the event that the type of wetland desired does not become established. This extra area must be included in the initial mitigation design area, and is defined by the site conditions and challenges presented by the specific wetland design.

As noted previously, there may also be cases under the federal program where the primary functional loss is water quality that may be mitigatable/compensable by on-site measures incorporated in the highway design rather than restoration or creation of wetlands on or off-site. Under the Vermont Wetland Rules, wetland acreage that performs a water quality function must still be created off-site to compensate for the loss of that acreage.

The state and federal agencies agree that the mitigation ratio should reflect actual experience from similar projects, and the best available science as to the likelihood that mitigation/compensation will in fact be successful over the long-term. It is also acknowledged that adequate wetland buffer acreage must be included in the new wetland site. The size of the buffer is contingent on the types of functions that are being replicated, the topographic and vegetative characteristics of the site, and the present and proposed surrounding land uses.

**C. Restoration of Former and/or Creation of New Wetlands** - The appropriate mix of restoration, creation, enhancement, and/or preservation of wetlands needed for the project's mitigation/compensation will follow the principle that restoration of a former wetland is preferred over creation of a new wetland from upland areas. Restoration of former wetlands, rather than creation of new wetlands, is viewed by

the state and federal agencies as more likely to succeed as a viable wetland replacement, and is thus less risky for the applicant.

Enhancement and preservation of wetland functions and values may be used only to satisfy federal requirements for mitigation/compensation. It is extremely difficult to assess whether a net gain in wetland functional capability has been created when the functions have been "enhanced" in an existing wetland.

Enhancement also does not replace lost wetland acreage resulting in a net loss in wetland area, and, as such, does not comply with the Vermont Wetland Rules. Full replacement of lost wetland acreage and function must accompany any wetland enhancement efforts under the state program.

Preservation, which, under the federal program, involves unique cases when existing wetlands are preserved in order to compensate for certain lost functions is also impossible under the Vermont Wetland Rules. It too results in a net loss in wetland acreage.

**D. Wetland Compensation/Mitigation Site Design and Issuance of Project Permits** - A “Design Submittal” as outlined in Appendix 4, *Submittals to the COE and ANR for Wetland Mitigation Sites*, generally describes the type of information needed for the Corps’ review and for ANR to evaluate a mitigation/compensation proposal and issue a CUD. The Vermont Wetland Rules state under Sec. 8.5c (2) that, “the compensation measures will be fully implemented prior to or concurrently with the proposed conditional use”.

ANR must have detailed information regarding the manner in which erosion will be controlled at the new wetland construction site. Both the Corps and ANR share the goal of receiving enough information to assure that the mitigation/compensation proposal has a reasonable likelihood of success. Final construction authorization is provided under the CUD only after final design of the mitigation/compensation site has been completed and submitted to ANR.

Sections I through IV of the *EPA Region 1 Wetland Program General Guidelines for Wetland Restoration and Creation Plans (March 1997)*, (see Appendix 5) describes one method for how the project summary, and details of existing, proposed, and actual site conditions might be prepared. The EPA *Guidelines* also recommend that, from the time of plan approval by the Corps and concurrence by EPA, to issuance of a letter verifying construction completion, brief quarterly progress reports, if appropriate, should be submitted to the Corps and EPA. The progress reports, if deemed necessary by the Corps, should describe activities underway or completed to date, activities remaining to be performed, an explanation of any delays experienced, and other pertinent information. Submittal of such progress reports to ANR might also be a condition of a CUD.

### Step 3. Consultation

It is critical that certain state agencies, regional and local planners, government officials, and non-governmental organizations be consulted during the mitigation/compensation site selection, planning, and design processes. Regional and local planners and public officials may help determine if the new site makes sense in terms of regional and local land use planning efforts. Regional and local land use and transportation plans must be consulted.

State agencies, including the Agriculture Department and the Division for Historic Preservation, may have resource concerns associated with a new mitigation/compensation site. Other state agencies, such as the Departments of Forests, Parks and Recreation and Fish and Wildlife or the Housing and Conservation Board, federal land stewards such as the US Forest Service, Fish and Wildlife Service or Corps, or non-governmental and local organizations such as the Vermont, regional, or local land trusts or conservation commissions may be partners in land acquisitions and/or site monitoring efforts.

### Step 4. Site Acquisition

The AOT is responsible for acquiring the mitigation/compensation site. The Vermont Wetland Rules state under Sec. 8.5c:

(7) the replacement wetland will be permanently preserved by a conservation easement or deed restriction conveyed to a suitable party or by other appropriate means.

Use of public land for wetland restoration, creation and/or enhancement sites may be possible, but the location of the site is dependent first on the best options for replacing the lost functions and acreage, and this may not necessarily be on publicly owned land in the area. Use of public land, if deemed appropriate by the federal regulatory agencies and ANR, is subject to the concurrence of the affected land stewardship agency or department and must also be consistent with any land management plans for the parcels in question.

Mitigation/compensation sites, presently not on state land, but to be owned and managed by ANR, must be reviewed and approved by ANR's Land Acquisition Review Committee (LARC). ANR will look more favorably on properties that are adjacent to existing ANR properties and meet ANR's land acquisition priorities.

AOT may choose to obtain permanent conservation easements on the site. If easements are not a possibility, the Agency will acquire fee ownership through standard AOT processes. AOT will make all reasonable efforts possible to avoid condemnation for the

acquisition of wetland mitigation/compensation sites.

**Step 5. The Mitigation/Compensation Site Management Plan**

The ANR and Corps permitting processes require that AOT provide the resources for the development and execution of the long-term site management and monitoring plan. The Vermont Wetland Rules state under Sec. 8.5c:

- (4) The compensation measures shall be monitored and managed for a period necessary to insure full replacement of the protected functions in question and any additional period that may be required by subsequent remedial measures but in no event for less than five years; and
- (5) shall be designed to be self sustaining following the period for which monitoring or management is required; and
- (6) adequate financial surety is provided to carry out the proposed compensation including and remedial measures.

Although AOT is ultimately responsible for the creation and execution of the management and monitoring plans, AOT may have agreements with other agencies, non-governmental organizations or consultants to undertake the work. AOT management is least preferred, but must be considered if agreements with other organizations cannot be reached.

At the federal level, the Corps oversees AOT's site monitoring and management. The EPA has provided guidance detailing important components of a management plan that may apply if agreed to by the Corps and ANR for the particular mitigation/compensation site. Sections VI through IX, of the EPA's *Guidelines* suggest that project objectives be set and standards be created by which achievement of those objectives are judged. It also includes explicit provisions for corrective action to be taken if monitoring should show that the standards for success are not being met. The standards are directly related to reestablishing or developing the physical and biological components of the aquatic ecosystem being restored or created. The *Guidelines* also detail when and how monitoring might occur and be reported and when inspections should occur and compliance be verified. It is important that AOT and ANR, including all relevant Departments, form an inter-agency team to examine the site once a year to assess its success and determine what, if any, corrective steps may be needed.

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Vermont Agency of Natural Resources  
by Barbara G. Ripley, Secretary

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Vermont Agency of Transportation  
by Glenn Gershaneck, Secretary

**Appendices**

1. State and federal wetland statutes
2. AOT/ANR MOU
3. ANR Conservation Procedure
4. *Submittals to the COE and ANR for Wetland Mitigation Sites*, prepared for AOT by DuBois and King Consulting Engineers.
5. *Wetland Program General Guidelines for Wetland Restoration and Creation Plans*, prepared by EPA Region 1

## Appendix 1

### Federal Wetlands Statutes

1. Clean Water Act Section 404 [33 USC 1344]
2. Rivers and Harbors Act of 1899 Section 10 [33 USC 403 et seq.].
3. Environmental Protection Agency, Section 404(b)(1) Guidelines [40 CFR Part 230]. Guidelines for Specification of Disposal Sites for Dredged or Fill Material.
4. Department of the Army, Section 404 Permit Regulations [33 CFR Parts 320-330]. Policies for evaluating permit applications to discharge dredged or fill material.
5. Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines [February 6 1990].
6. Title XII Food Security Act of 1985 as amended by the Food, Agriculture, Conservation and Trade Act of 1990 [16 USC 3801 et seq.].
7. National Environmental Policy Act [42 USC 4321 et seq.], including the Council on Environmental Quality's implementing regulations [40 CFR Parts 1500-1508].
8. Fish and Wildlife Coordination Act [16 USC 661 et seq.].
9. Fish and Wildlife Service Mitigation Policy [46 FR pages 7644-7663, 1981].
10. Magnuson Fishery Conservation and Management Act [16 USC 1801 et seq.].
11. National Marine Fisheries Service Habitat Conservation Policy [48 FR pages 53142-53147, 1983].

### State Wetlands Statutes and Rules

1. The Vermont Wetland Rules, adopted by the Vermont Water Resources Board pursuant to Title 10 V.S.A. Chapter 37, sec.905(7-9)
2. The state of Vermont has been delegated authority over Section 401 Water Quality Certification under the Federal Clean Water Act Section 401 [33 USC 1344]
3. Act 250 (10 V.S.A., ch 151)



Memorandum of Understanding  
Between the Vermont Agency of Natural  
Resources and Agency of Transportation



WHEREAS, part of the mission of the Vermont Agency of Transportation is to make decisions that balance human needs and the natural environment; and

WHEREAS, part of the mission of the Vermont Agency of Natural Resources is to foster the proper development, protection and management of Vermont's natural resources; and

WHEREAS, both state agencies share a common and mutual responsibility to the citizens of Vermont to carry out the direction of the State's Governor and Legislature; and

WHEREAS, both agencies recognize the need to collaborate to serve a common clientele, deliver effective services, respect the natural environment for the benefit of residents and visitors to the state, and maximize ever decreasing staff resources to deliver these services; and

WHEREAS, both agencies recognize the benefits of sharing information and data bases as an aid to effective decision-making; and

WHEREAS, both agencies agree that early communication in project

planning and design is beneficial by providing for identification and resolution of concerns early in the planning process and thus avoiding later delays and costs; and

WHEREAS, both agencies hold a common interest and obligation to ensure that Vermont benefits from opportunities provided by various federal programs and regulations; and

WHEREAS, both Agencies signed an umbrella Memorandum of Understanding on 3/4/94 which set up a process that allowed for more detailed agreements to be developed by Agency staff; and

WHEREAS, this process has culminated in a set of agreements on a variety of procedural and operational matters as contained in the attached agreements;

NOW THEREFORE, be it resolved that:

1. The two agencies will work collaboratively to implement the following set of agreements in the following areas:

A. The development and adoption of a long range planning process as discussed in more detail in Appendix A.

B. The collection, indexing, analysis and maintenance of data of mutual interest as discussed in more detail in Appendix B.

C. Project formulation, review, permitting and implementation as discussed in more detail in Appendix C. Particular attention will be devoted to early communication in order to avoid larger problems and issues later in the process.

D. Air quality protection and improvement as discussed in more detail in Appendix D.

E. Collaboration by the Agency of Transportation on the Agency of Natural Resources Conservation Procedure development as discussed in more detail in Appendix E.

F. Development and implementation of strategies related to maintenance operations of the agencies and the regulatory and jurisdictional nexus in which such operations occur, as discussed in more detail in Appendix F.

2. As fellow representatives of a single state government through the use of early, open and thorough collaboration, each agency will work towards:

A. Mutual respect and a cooperative relationship

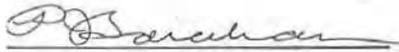
B. The sharing of and full access to public information

C. Open, timely and frank discussions regarding proposed actions

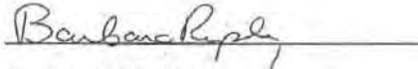
or alternatives

D. Firm commitments at critical points in the project formulation process resulting from collaborative and iterative processes

3. The ability to fulfill the spirit and letter of this agreement is in part governed by the availability of human, technological and financial resources. Strategic allocation of these resources will be the subject of open discussion and coordination.



Patrick J. Garahan  
Secretary  
of Transportation



Barbara Ripley  
Secretary of Natural Resources

DATE: Oct 6, 1995

DATE: Oct 6, 1995

Summary of VAOT/ANR Memorandum of Understanding

**Long Range Planning and Policy Development**

\* Need for improvements in communication at all levels of the Agencies.

\* All parties should emphasize our collaborative efforts and shared vision rather than focusing on differences.

\* The VAOT should support the creation of a position in the ANR Planning Division designed to provide project and policy coordination (accomplished in part).

\* The ANR should become a partner in the VAOT transportation planning efforts through increased participation in the Transportation Planning Initiative. Recommendation to create two liaison positions in ANR to accomplish this (the budget situation is a major setback at this time).

\* Continue ongoing efforts to share databases and other information.

\* Implement the VAOT Project Scoping and Permitting Process (underway). Pledge to ensure that understandings and Agency positions made during the process are honored where possible.

\* The VAOT will review its current policy with respect to which projects undergo project scoping. Consistency in the review process will be sought.

\* Development of a comprehensive inventory of both Agencies' rules and procedures (See Maintenance Draft MOU for similar proposal). Propose elimination of outmoded or unneeded regulations. Both Agencies' affirm their intent to develop new rules by means of the Vermont State Agency Rulemaking process.

\* Both Agencies support the work of the Design Standards Committee.

\* The VAOT will introduce legislation which clarifies the issue of tort liability when "alternative" design standards are used (Accomplished).

\* The VAOT will develop a roadway functional classification system which considers scenic and economic values and emerges from local and regional planning (underway as embodied in the efforts of both the work on Multimodal System Classification to be completed in the next year as well as the Design Standards Committee).

\* The VAOT will propose legislation which would extend its



authority to take for necessity purposes land to be used for project mitigation.

\* Both Agencies will encourage local and regional conservation commissions to assume management of small mitigation parcels. Sufficient financial support of this policy will be required.

\* The VAOT will explore the use of performance indicators and risk assessment techniques designed to assess organizational performance (a committee is exploring this as a part of the VAOT Strategic Planning process).

#### Data

\* Both Agencies will work with their MIS staffs as well as the State Chief Information Officer to enhance hardware and software compatibility.

\* Both Agencies will prepare and distribute a Data Catalog describing the types of data collected, collection cycles, and contact person.

\* Both Agencies will provide early notification of data needs and requests.

\* Both Agencies agree to provide the other final review and comment on reports and documents using the other's data.

\* On-line access to each other's data will be explored. Use of electronic communication and exchange of data and other information should be encouraged.

\* The ANR will make available to the VAOT data and information concerning locations where environmental resources and transportation infrastructure might conflict.

\* The VAOT will share environmental information delineated as a part of transportation project development.

#### Project Formulation, Review and Permitting

\* Both Agencies pledge to use the Scoping Process to identify project issues and problems and to seek mutually agreed to solutions.

\* Positions articulated and agreed to in these deliberations must be honored throughout the process provided that the process occurs in a timely fashion and positions are in accordance with all applicable statutes, rules and procedures throughout the process.

\* Both Agencies pledge to approach each other from a position of mutual respect and communication.

\* Use of the VAOT Scoping and Permitting flowchart is accepted.

#### Air Quality

\* There is an existing MOU dating from 1979 which requires the following:

\* VAOT agrees to share project plans early in the development process (essentially handled by the new Scoping Process).

\* ANR agrees to a two-tiered approach to project air quality analysis and approval: 1.) mesoscale analysis for CO, HC, and NOx. Microscale analysis will also be performed for CO. VAOT will be responsible for preparing the analysis for projects involving low traffic volumes.

\* Both Agencies agree to share technical data.

\* The new MOU proposes the following:

\* The Agencies agree to pursue the implementation of an appropriate auto emission check program for Vermont.

\* The Agencies agree to pursue the development of a mechanics training focused on the diagnosis and repair of motor vehicle air pollution control systems. The Agency of Transportation agrees to seek federal funding to support the purchase of test equipment to be placed in a technical school for use as a teaching tool.

\* The Agencies agree to cooperatively explore means and methods to eliminate or reduce air contaminants from a variety of construction and maintenance practices. These efforts will be considered in collaboration with issues and actions described in Appendix F.

\* The Agency of Transportation agrees to continue to provide traffic data and analysis to support The Agency of Natural Resources Indirect Source permitting program.

\* The Agency of Transportation agrees to continue to support the Agency of Natural Resources motor vehicle related toxic air pollutant data collection effort.

\* The Agencies agree to continue to review issues and options related to the interface between the federal Clean Air Act and the ISTEA. The Agency of Natural Resources agrees to provide the Agency of Transportation with meeting notices and other relevant material (member information packets) with respect to the deliberations of the Northeast Ozone Transport Commission (OTC).

\* The Agencies agree to work cooperatively to develop strategies to quantify the impact of heavy duty motor vehicles on

Vermont's air quality.

\* The Agencies agree to seek opportunities for public outreach and education concerning the linkage between air pollution and transportation.

#### Implementation of Long Term Mitigation Strategies

\* Agreement on this MOU will await the completion of the ANR Conservation Strategy process. ANR agrees that the VAOT will be a significant participant in the conception and development of this Strategy.

#### Maintenance

\* Both Agencies pledge to seek greater communication with each other. Annual meetings of appropriate staff will be arranged to discuss issues of mutual interest.

\* Both Agencies agree to prepare a handbook or manual which compiles existing Agency rules, regulations or procedures and to distribute the results.

\* ANR will provide training to VAOT staff on issues relating to environmental concerns and maintenance practices.

MEMORANDUM OF UNDERSTANDING BETWEEN THE VERMONT AGENCY OF  
NATURAL RESOURCES AND AGENCY OF TRANSPORTATION

APPENDIX A

LONG RANGE PLANNING AND POLICY DEVELOPMENT

The Long Range Planning and Policy Development Working Group consisted of the following members:

Bruce Bender	representing	AOT Planning Division
Barry Cahoon	"	Dept. of Environmental Conservation
Barry Driscoll	"	AOT Planning Division
Canute Dalmasse	"	Dept. of Environmental Conservation
Peter Gregory	"	Two Rivers--Ottawquechee RPC
Bernie Johnson	"	ANR Office of the Secretary
Rose Paul	"	ANR Planning Division
Jeff Squires	"	AOT Planning Division

Following is a report of this group's discussions, analysis and recommendations:

The working group agreed early in its discussions that their objective was to address the need for improved communication and coordination networks between the two agencies. The group reaffirmed that both agencies share common goals and agree that increased communication and collaboration will enhance each agency's ability to achieve their objectives. Furthermore, the working group agreed to consider the resources available in each agency that are needed to improve the effectiveness of cooperative planning and policy efforts as well as in project development and permitting activities.

It is the consensus of the group that successful implementation of the report recommendations is greatly dependent upon parallel coordination processes at both the staff and cabinet levels within each agency.

Complete cooperation is not possible without this parallel process, since power is dealt out to both the cabinet level members of an agency and the permanent staff. Each has a different and complementary type of power. Cabinet members have a large influence on how events happen in the immediate present: the power to make decisions in complex situations. Permanent staff have a large amount of knowledge and historical understanding: day-to-day decisions appear in the context of a relatively long continuum of events. To achieve effective policy coordination, policies must be aligned in both these arenas of power, and take place in a complementary fashion.

The desired result of this process would manifest itself as "no surprises" at cabinet meetings for cabinet members. They would go to meetings fully briefed. Staff would benefit by being able to participate in a fully informed decision-making process, with reduced "ad-hoc-ery" in the day-to-day operations of each agency.

Please consider the following issues and recommendations in this context:

**Issue #1:** Shared goals of the Vermont Agency of Natural Resources (ANR) and the Vermont Agency of Transportation (AOT) provide a foundation for collaborative planning and policy making.

Public perception tends to case AOT as developer and ANR as regulator which has some basis in practice. However, this relationship does not in any way predominate. In fact, the view serves to perpetuate a myth.

The agencies have many commonly shared goals.

Public accountability is a common goal. AOT-ANR are both charged with efficient use of public funds. There is a common responsibility to inform, educate and involve the public in decision making. The agencies share interest in maintenance of public health and safety.

Furthermore, in recognition of the connection between environmental health, transportation efficiency and economic prosperity, it can be said that the agencies share goals relating to quality of life. These include conservation of energy, land resources, wildlife habitats, aesthetics, air and water quality, economic vitality, productivity and Act 200 goals relating to the issue of land fragmentation and promotion of compact settlement patterns.

The management of transportation vehicles and modes is a shared interest as are the areas of risk assessment, standards assessment, limitations of human and financial resources and facilities and systems management.

The agencies share the task of exploring the limits and applying the benefits of technology in the pursuit and achievement of goals. Similarly, both agencies face the challenge of exploring and developing citizen awareness of options to transportation needs such as alternative fuels and transit modes, public transit opportunities and viable natural resource mitigation techniques.

However, AOT-ANR purposes occasionally diverge. There exist inherent differences in the bases for long range planning upon which the agencies depend; people and public transportation needs for AOT and natural resources for ANR. Federal mandates and the resultant accountability of the agencies sometimes conflict. But rather than be seen as a point of conflict, this should evolve into a platform for collaborative effort.

#### RECOMMENDATIONS:

\*\* Emphasize the collaborative vision of AOT-ANR relationships through public forums, cabinet, management and staff level meetings and other appropriate opportunities.

\*\* Use opportunities for collaborative effort to demonstrate the ability of the two agencies to work together for the benefit of all.

**ISSUE #2: Capacity for AOT-ANR interactions**

A major problem in the communications between the agencies has been the inability of ANR to adequately participate in AOT-ANR interactions. ANR responses to AOT requests for information, review or regulatory decisions may be delayed, conflicting or inadequate. ANR staff is often unable to attend AOT scheduled site meetings. ANR participation in long range planning initiatives is lacking.

The present system is not work due to ANR resources being limited to meet demands of AOT processes. Shared vision is therefore not being achieved.

**RECOMMENDATIONS:**

- \*\* Using ISTEA funding, AOT should underwrite a permanent position within ANR Planning Division for an AOT Projects Coordinator.
- \*\* Assure that AOT-ANR interactive procedures are compatible with the capacity of the respective agencies.

**ISSUE #3: ANR-RPC Communication**

AOT and Vermont's twelve regional planning commissions (RPCs) have created a partnership to de-centralize the transportation planning process. This process is designed to foster local and regional participation in determining priorities in infrastructure investment. The RPCs are in a unique position to assist in this important step which directly served AOT in achieving its mission(s).

Although ANR-RPC interaction is increasing, especially in data exchange, much more could be accomplished by formally structuring the ANR-RPC relationship. A more comprehensive and accurate natural resource database could be created thereby facilitating protection of critical resources. AS with the AOT-RPC relationship, ANR would see its goals and mission supported and implemented by the RPCs. ANR will be able to influence the process of transportation system improvement by increasing sensitivity of natural resource values at the RPC level.

**RECOMMENDATIONS:**

- \*\* Enhance ANR-RPC-AOT relationships which establish ANR as a full and meaningful partner in RPC transportation planning processes.
- \*\* Pursue funding and resources necessary to create two positions within ANR Planning Division to be direct liaison with RPCs on issues of mutual concern.
- \*\* Continue efforts dedicated to natural resource database creation, maintenance and refinement.

**ISSUES #4: AOT-ANR interactions through initial scoping**

AOT has developed a detailed scoping flow chart from which four opportunities for AOT-ANR interaction may occur. Those key areas of interaction are as follows:

**1. Regulatory Agency Notification.**

Following the addition of an identified problem to the annual scoping list, the AOT Planning Division, Scoping Section or, alternatively, an RPC scoping consultant, will contact ANR designated AOT Project Coordinator to schedule an on site meeting.

The coordinator will notify all potentially interested parties within ANR and will take primary responsibility for representation and presentation of ANR interests at the site investigation and for written documentation of ANR input.

Primary focus of this meeting is to familiarize personnel with the problem, define the geographic area potentially involved and provide an opportunity for contact with all stakeholders including locals.

The results of the meeting should help define purpose and need of a project and begin to establish an information base from which potential alternatives can be derived.

**2. Identify Environmental Constraints**

This is envisioned as free and open staff level interchange of information relating to all environmental issues potentially involved in order to satisfy the previously identified purpose and need for the project.

Environmental constraints will provide the framework for identifying and assessing alternatives. The identified constraints will be used to help develop alternative solutions to the problem. Solution options shall not be allowed to drive constraints identification and evaluation.

The staff level interchange should be encouraged to continue through development of the evaluation matrix.

**3. Stakeholder Input**

Immediately following identification of the recommended alternative, the Scoping Section will convene a meeting of all stakeholders and present the recommended alternative for comment. Based on level of stakeholder acceptance, project will either loop back to preparation of a new list of alternatives or will proceed on to development of the initial scoping report or will be routed through NEPA process.

**4. Regulatory Agency Coordinator**

The goal of this coordination step will be to confirm that the preferred alternative represents the least environmentally damaging scenario and an assessment by the regulatory agencies that all major issues can likely be resolved.

RECOMMENDATIONS:

- \*\* AOT should adopt the scoping flow chart with the text of issue #4 above attached as a formal procedure.
- \*\* Stress that commitments made during the scoping process will be honored during permitting.
- \*\* Commit to automatic, unlimited and unrestricted information and applicable resource sharing between agencies.
- \*\* AOT should review the policy that addresses which types of projects are or are not presently subject to scoping. Amend policy as appropriate to assure that consistency of review criteria, compatibility with state and regional plans and alternatives analysis is conducted. The initial assumption should be that all projects should be scoped. Project types may be eliminated from scoping only upon justification.

ISSUE #5: Adoption policies for agency practices, policies and rules.

Typically, ANR, by necessity, makes greater use of formal policy and rulemaking procedures than does AOT. ANR has developed a formal policy on rules adoption which emphasizes participation by the public and other interested agencies and departments. The procedure requires goal definition, a needs justification, a public participation plan and a schedule. It establishes procedures for draft reviews and coordination with stakeholders.

RECOMMENDATIONS:

- \*\* A formal rulemaking procedure analogous to that currently in effect at ANR should be adopted by AOT. It should, at a minimum, outline the procedural steps to be taken, analyses to be performed, and stakeholder interactions required as part of the formal rulemaking action.
- \*\* AOT and ANR should develop a complete inventory of adopted rules, procedures and practices. Determine which should be reviewed, updated or revised on a periodic basis. Examine all existing rules to determine which should be revised or eliminated.
- \*\* Both agencies should consider a review of existing policies and rules to eliminate, resolve and/or prevent conflicts or contradictions both inter and intra-agency.

ISSUE #6: Relationship of design standards and liability of public employees.

In this rapidly changing world where economic development, population growth and demands for greater mobility are combining to change the very character of Vermont's human and natural communities, opportunities to implement transportation infrastructure improvements are becoming increasingly constrained in the absence of design standards flexibility.

This may be one of the more intractable issues between the agencies. ANR often advocates for greater standards flexibility in order to protect environmental resources. AOT tends to consider the present standards as a current practice and as providing a safety net of liability protection.

Although there apparently is no case history in Vermont in which public officials have suffered liability as a result of implementation of reasonable exceptions to accepted standards, the concern has sometimes been promoted by AOT in its arguments against exceptions where proposed by ANR to avoid or minimize adverse impacts on natural resources.

A subcommittee of the AOT Long Range Plan initiative is actively developing a policy on design standards. ANR is represented in the work of the committee.

#### RECOMMENDATIONS:

- \*\* Continue to support work of the Design Standards Committee.
- \*\* Encourage development and adoption of Vermont Transportation Standards which would allow greater design flexibility and will be sensitive to Vermont's transportation needs and its environment.
- \*\* Introduce legislation for consideration by the general assembly which would restrict tort liability of state and municipal officials where adopted standards are applied even though they may represent departure from national or other previously accepted standards.

#### ISSUE #7: Deficiency of one-dimensional functional highway classification system.

AOT presently classifies highways by traffic demand and service type. Transportation planning would be significantly enhanced if the classification system were supplemented by taking into account the scenic character of the corridor, the travel experience provided, promotion of growth centered economic development and other pertinent concerns.

#### RECOMMENDATION:

- \*\* AOT, in partnership with other stakeholders, should develop an enhanced roadway classification system which integrates and takes into consideration scenic and economic values and local or regional goals.

**ISSUE #8: Acquisition and maintenance of lands for conservation purposes.**

AOT is not structured to acquire and maintain lands necessary for mitigation of natural resource losses associated with agency projects. Although the management of such lands falls much more in line with natural resource management rather than transportation system maintenance, ANR is little better equipped with available resources.

Traditionally, statewide conservation organizations have little or no interest in acquiring or holding small acreages typical of mitigation projects.

**RECOMMENDATIONS:**

- \*\* Draft legislation for consideration by the general assembly which would provide statutory authority to AOT to take, by necessity judgment, lands to accomplish transportation project natural resource mitigation purposes.
- \*\* RPC's should encourage interest by local conservation commissions and regional land trusts in the ownership and maintenance of small mitigation parcels. In the purchase and transfer of such lands to local or regional conservation organizations, consideration should be made to providing an endowment to finance management in perpetuity for pertinent conservation goals.
- \*\* Seek potential alternative funding sources for mitigation lands management.

**ISSUE #9: Indicators, Planning and Comparative Risk Assessment**

In the context of AOT and ANR planning, indicators are measures of environmental resource or transportation system quality. They are useful to show the condition of a resource or system component and, if measured and recorded over time, indicators are a useful tool for a results-oriented planning and management process.

Comparative risk provides a framework for presenting information about a wide range of environmental or transportation system problems. That framework is a set of criteria, designed around the concept of risk, against which problems can be evaluated and quantified. The concept of risk may be broadly defined as the possibility of harm to things people value.

ANR and many agencies in other states have begun to use comparative risk assessment to gain a better understanding of environmental conditions as a first step in setting policy priorities and to assess the effectiveness of programs and policies.

Indicators can describe how current conditions do or do not match the desired state for any given resource or system component. Any discrepancy may become the basis for goal setting. Further, continuous or periodic monitoring of indicators serves to measure progress toward the goal. The trends established provide a powerful communication tool to facilitate public involvement in policy debate.

Three broad categories of criteria relating to transportation system problems might be:

- \* human health and safety
- \* transportation efficiency
- \* quality of travel experience

The comparative risk analysis made in conjunction with the indicators, seeks to quantify the causes and effects of system stressors and provide a basis to weigh alternative solutions to specific problems.

**RECOMMENDATIONS:**

- \*\* AOT should seek to learn more about and explore the possibility of indicators Na ocparative risk assessment
- \*\* AOT should consider establishing an indicator and comparative risk assessment system similar to the ANR program.



APPENDIX B  
DATA MANAGEMENT TASK FORCE VAOT/ANR

DEFINITION: The term data applies to all information collected by either agency using public funds and subject to the federal freedom of information act.

OVERALL GOALS:

1. To minimize the duplication of data collection efforts by both agencies.
2. To ensure that both agencies have the most up to date and reliable information when making decisions.
3. To ensure, that to the extent possible, data is collected and stored in compatible electronic formats.
4. To reduce the time and manpower expended on exchanging information.

LEGAL BASIS: All information collected through the use of public funds is public information and should be available to both the public and other state or federal agencies. There is currently no requirement that data be provided to the public or other state agencies in any format requested.

MECHANICS:

1. Acting in coordination with the State office of Computer Information Technology (CIT), the Governors Chief Information Officer (CIO), and the VAOT Chief Information Officer (CIO), the agencies will seek to ensure that all hardware and software is compatible. This should include, but is not limited to, E-Mail, spreadsheets, word processing, global positions systems, PC databases, etc.
2. The agencies should seek to develop "data catalogs", that will describe the data available, the collection cycle, the format and the point of contact for the data.
3. When either agency intends to initiate a project/plan that will require significant data collection, they will notify the other agency so that they may be able to support or benefit from the data being collected.

- Examples:
1. When a new State Air Quality Plan is required, ANR should alert AOT so that the traffic information necessary to support the plan can be collected.
  2. When AOT is conducting public surveys on

transportation alternatives, ANR should be advised to see if they may be able to benefit from the information being collected.

4. Any reports or publications to be released by either agency which contain significant data collected by the other, shall ensure that the sister agency has sufficient opportunity to review the report for accuracy prior to the public release of the report. Examples include: the State Clean Air Implementation Plan or the AOT's Long Range Transportation Plan.

5. The Agencies, in cooperation with the CIO shall seek to implement on line access to each others databases.

**RESPECTIVE ROLES:**

Both agencies shall work towards the seamless exchange of data between the agencies and to ensure that all data is made available.

ANR: The Agency of Natural Resources shall make available to the AOT information on the location of sensitive natural areas that may be impacted by changes to the state's transportation infrastructure.

AOT: The Agency of Transportation shall provide ANR with data relative to all sensitive natural areas that have been delineated by AOT during project development.

**CAPACITY:** It is anticipated that there will be very little additional financial burden to either agency and that by providing on line electronic access to databases will reduce the current demand on personnel to reproduce and distribute data.

**IMPEDIMENTS:** Current impediments to data sharing are primarily:

1. A lack of knowledge of what data the other agency possess.
2. A lack of hardware (communication lines) to provide on line access.
3. A lack of common database software.

**MEMORANDUM OF UNDERSTANDING BETWEEN THE VERMONT  
AGENCY OF NATURAL RESOURCES AND AGENCY OF TRANSPORTATION**

**APPENDIX C**

**COORDINATION OF PROJECT SCOPING AND PERMITTING**

**Purpose and Background**

This appendix to the Memorandum of Understanding (MOU) between the Agency of Transportation (AOT) and the Agency of Natural Resources (ANR) will help ensure that state and state-administered bridge and highway construction programs are implemented expeditiously, meet the needs of Vermonters, and protect the integrity of the Vermont environment.

The document sets forth a framework for communication and cooperation between the Agencies, and is based on the following premises. First, any issues pertaining to a project should be identified as early as possible in the project scoping process in order to foster a clearer understanding of the respective Agencies' and the public's concerns and encourage project solutions and designs satisfactory to all parties. Every attempt will be made to honor the Agencies' commitments made during project scoping. Second, communication between the Agencies must be open, and guided by mutual respect of each Agency's roles and responsibilities.

The ANR recognizes the expertise of the AOT in the design and construction of state-owned and administered bridge and highway projects. It is the responsibility of the AOT to make sure that issues including, but not limited to, functionality, structural integrity, safety, cost, regional and local involvement, the environment, and aesthetics are addressed at all stages of planning and permitting. The resulting projects must conform to all relevant Federal, State and municipal laws, rules, and regulations and represent a fair balancing of interests.

It is the responsibility of the ANR to oversee the protection of Vermont's environment and natural resources, help make sure that environmental impacts associated with AOT projects are avoided, minimized, and/or mitigated, and administer specific statutes, rules, regulations and regulatory programs for which the Agency has authority or standing.

Several recent developments make this effort imperative despite an existing working relationship that has successfully implemented numerous projects that meet the Agencies' concerns. Increasing state and local traffic and transportation maintenance demands, a decreasing state work force, increased need for bridge and highway replacement and rehabilitation, and changes in regulatory requirements have dramatically increased the need for efficient communication and coordination between the Agencies.

## Affected Programs

This memorandum applies to all almost all AOT project programs except for the Bridge and Culvert, Class Two Paving Programs and several other programs where coordination of the type outlined below is not essential to the success of the program. However, the spirit of communication and collaborative effort embodied by this agreement will hopefully include these projects as well. There are numerous ANR regulatory and non-regulatory programs and programs administered by other state and federal entities of which the ANR is an important participant that are relevant to this memorandum. The most commonly applicable programs are listed below.

The 1988 amendments to Title 24, Chapter 117, Act 200: regarding the importance of interagency-coordination and planning based on commonly held goals.

401 Water Quality Certificates pursuant to Section 404 of the federal Clean Water Act

Title 19 (Stream Alterations) VSA Section 10(12): regarding construction activities in waterways and the effects on habitat and other river values.

Title 10, Chapter 47: regarding stormwater protection.

The Vermont Wetland Rules of 1990, Title 10 VSA Chapter 37

Vermont Endangered Species Law, Title 10 VSA Chapter 123, and Act 250, Title 10 VSA Chapter 151 (criterion 8 (rare and irreplaceable natural areas) and 8A (endangered species): regarding rare, threatened and endangered species and significant natural communities of outstanding significance.

Management of Lakes and Ponds, Title 29 VSA Chapter 11

Act 250, Title 10 VSA Chapter 151

## Project Scoping: Consultation and Review Procedure

The attached flow chart outlines the AOT's project scoping procedure. It includes various contacts and consultation with federal, state, regional, and local interests. Contacts with the ANR are indicated in green.<sup>1</sup> All ANR contacts represented on the chart are made through the ANR Planning Division, Regulatory Review Coordinator. All AOT contacts are made through the AOT Planning Division, Project Planning Engineer.

Portions of the flow chart relevant to this memorandum are summarized below. The headings within the boxes correspond to the various icons in the flow chart.

<b>PROJECT ADDED TO VAOT SCOPING LIST</b>	<ul style="list-style-type: none"><li>• The list of transportation problems identified during Statewide Candidate Selection as having a high priority are added to the AOT Scoping List.</li><li>• The AOT Planning Division distributes the annual Scoping List to all state regulatory agencies (i.e. the ANR, the Division for Historic Preservation (DHP), the Department of Agriculture (Dept. of Ag.), the Land Water and Conservation Fund (LWCF), the Federal Highway Administration (FHWA), the Army Corps of Engineers (COE). (A portion of this Scoping List may not become viable projects.)</li></ul>
<b>INVESTIGATE LOCAL &amp; REGIONAL CONCERNS</b>	<ul style="list-style-type: none"><li>• The AOT Planning Division circulates a notice informing the interested parties of an informal on-site meeting to occur in three weeks. Parties include the AOT, the Regional Planning Commission (RPC), Town officials, local citizens, the ANR, the DHP, the Dept. of Ag., the LWCF, the FHWA, and the COE.</li><li>• Information in the meeting notification includes preliminary information the AOT has available regarding the project.</li><li>• The meeting's purpose is to gather general information and determine the initial concerns and expectations of all parties.</li></ul>
<b>IDENTIFY CONSTRAINTS/ RESOURCES</b>	<ul style="list-style-type: none"><li>• This next step includes staff level interaction between state agencies. AOT resource personnel identify potential issues regarding environmental, historic and archaeological resources and relay this information to the appropriate agencies including DHP personnel, ANR contact people, with copies sent to the ANR Regulatory Review Coordinator.</li><li>• The AOT solicits formal comments during this step and the agencies have four weeks to comment.</li></ul>

<sup>1</sup> The flow chart shows many potential natural resources issues but is not an all inclusive list. There are other ANR concerns that may arise during project scoping associated with such matters as hazardous waste, groundwater and river protection, state lands and recreation.

EVALUATION  
MATRIX

- The AOT creates a matrix outlining all alignments with associated resource impacts, cost, project benefits, drawbacks, and other relevant issues.
  - This is primarily a staff level interaction to make sure appropriate significance is given to the affected resources.
- 

LOCAL &  
REGIONAL  
MEETING

- The AOT hosts an evening meeting with Municipalities and the RPC. State regulatory agencies are invited to the meeting. Four week notice is given for the meeting.
  - The purpose of the meeting is to present recommended alignments, solicit comments and ascertain the degree of local support.
  - The introduction to the project details the "Purpose and Need."
  - This is the first formal discussion of the project matrix. Resource maps are available for viewing.
- 

REGULATORY  
AGENCY  
COORDINATION

- This step includes staff coordination with the Federal Regulatory Agencies as needed. It may take place at the bimonthly COE meetings.
  - Resource impacts are available for the discussion.
- 

ISR  
REVIEW

- The Initial Scoping Report (ISR) contains the project Purpose and Need, project description/background and discussion of principal issues. An evaluation matrix of alternates studied with the recommended alternative is also included. To support the recommended alternative, the following information is included: location maps, plans with typical and critical sections as needed, photographs, traffic and accident data, level of service analysis, sufficiency ratings, bridge inspection report and hydraulic report (if bridge project) as well as all correspondence with the state regulatory agencies.
  - Efforts to avoid and minimize resource impacts are documented in the report.
  - The ISR is distributed for review and comment to the AOT, the RPC, the Municipality, the COE, and the state regulatory agencies.
  - The reviewers have three weeks to respond with their comments.
- 

PUBLIC  
INFORMATIONAL  
MEETING

- An optional meeting is scheduled if requested by the town and/or the RPC.
- The state regulatory agencies are invited to attend.

## Project Design and Permitting: Consultation and Review Procedure

The attached flow chart outlines the AOT's project design and permitting procedure. The process includes various contacts and consultation with federal, state, regional, and local interests. Contacts with the ANR are indicated in green.<sup>2</sup> All ANR contacts represented on the chart should be made through the ANR Planning Division, Regulatory Review Coordinator and directed to the AOT Planning Division, Project Planning Engineer.

Most ANR permit decisions and Conditional Use Determinations will be based on AOT preliminary plans. The ANR and the AOT agree that no changes which affect the environmental aspects of a project will be made by either Agency following issuance of any permit or Conditional Use Determination without mutual consent. If either Agency discovers new information regarding the environmental impacts which was not available during the initial review or permitting phase of the project, the other Agency will be notified and appropriate steps will be taken.

Portions of the flow chart relevant to this memorandum are summarized below. The headings within the boxes correspond to the various icons in the flow chart.

CONCEPTUAL  
PLANS  
REVIEWED  
BY  
REGULATORY  
AGENCIES

- The AOT distributes Conceptual Plans to in-house resource personnel, municipalities, and all affected regulatory agencies.
- The purpose of this review is to verify that issues identified during the Scoping Process have been adequately addressed in the project design as developed thus far.
- Municipalities and regulatory agencies have 4 weeks to comment.

ACT 250 PERMIT  
REQUEST  
(IF REQUIRED)

- Conceptual Plans are reviewed by the AOT to determine the likelihood of Act 250 jurisdiction. A permit application is then filed with the appropriate District Commission and includes all relevant regulatory agency review comments.

STATE APPROVALS  
AND  
PERMIT REQUESTS

- The AOT submits the Preliminary Plans along with permit applications and requests for approval to the ANR, the DHP, and the Dept. of Ag. These permits and approvals are required for impacts relating to issues such as Section 4(f) or 106 properties, Stream Alterations, Water Quality, Wetland Conditional Uses, Storm Water Discharge, Lakes and Ponds, Threatened and Endangered Species, Hazardous Wastes, critical habitats and prime agricultural soils.
- This process is based on the positions identified during the Scoping Process.

<sup>2</sup> The flow chart shows many potential natural resources issues but is not an all inclusive list. There are other ANR concerns that may arise during project scoping associated with such matters as hazardous waste, groundwater and river protection, state lands and recreation.

ALL STATE  
AND FEDERAL  
ENVIRONMENTAL  
PERMITS IN HAND

- Final determinations are made and all state permits, except Act 250, are issued to the AOT. These permits accompany the National Environmental Policy (NEPA) document submitted to the FHWA for concurrence.
- The NEPA process is completed and the AOT Final Plans design commences.

OBTAIN  
CLEARANCES

- The final Act 250 hearing is held and the Land Use Permit is issued conditional on Final Plans review.

FINAL PLAN  
REVIEW  
ACT 250

- The Act 250 Commission reviews the Final Plans and finds compliance with any conditions.

#### Living Document

Staff will meet upon request to evaluate the review process and consider changes that improve its efficiency. Periodic assessment of ANR-AOT interaction, communication, and operating procedures will be made.

#### Special Considerations

This appendix to the MOU will become effective as soon as signed by all parties and will continue until terminated by one party after thirty (30) days notice in writing to the other party of the intention to end the Memorandum of Understanding. Attempts will be made to incorporate some aspects of the process for projects that are currently in or beyond the scoping process.

IN WITNESS THEREOF, the Secretary of the Agency of Natural Resources and the Secretary of the Agency of Transportation execute this document on this \_\_\_\_\_ day of \_\_\_\_\_, 1995.

AGENCY OF NATURAL RESOURCES

AGENCY OF TRANSPORTATION

BY: \_\_\_\_\_  
Barbara Ripley  
Secretary

BY: \_\_\_\_\_  
Patrick Garahan  
Secretary



## APPENDIX D

### Air Quality and Transportation

The Agency of Transportation and the Agency of Natural Resources are resolved to work collaboratively toward the goal of air quality protection and improvement while providing a safe and efficient transportation system for Vermont now and in the future.

Transportation is an important aspect of air pollution in Vermont. Current estimates by ANR indicate that sixty percent of the air pollution created in Vermont is related to Transportation. These pollutants contribute to such environmental and human threats as global warming, acid rain, smog formation, visibility impairment, and toxic and carcinogenic air pollutants. For Vermont to protect and improve air quality, measures to prevent pollution and a better understanding of emissions from the Transportation sector are important.

A Memorandum of Understanding (MOU) has existed between the Agencies on the matter of air pollution control since 1979. The 1979 MOU describes a series of technical analyses performed by both staffs relative to a transportation project's impact at the micro-scale level. In addition, the MOU describes an information sharing protocol. While cooperation has been good, the 1979 MOU is expanded in light of the federal legislation on clean air and transportation. As a result of this federal legislation, both agencies see fit to expand their cooperative efforts beyond the project impact assessment level.

#### *Specific Actions*

Both Agencies have enabling authorities under state law to carry out their assigned responsibilities. Federal legislation (Clean Air Act and Intermodal Surface Transportation and Efficiency Act, ISTEA) have made the linkage between transportation and air quality more explicit.

Following are specific actions intended to achieve the goal of this MOU. Implementation of these measures will prevent air pollution, and thereby enhance and maintain air quality in Vermont below national air quality standards while maintaining an effective and convenient transportation system.

*Auto Emission Check Program.* Since the 1970's, federal law has required devices on individual automobiles to reduce the amount of air pollution from their use. These devices are effective in abating motor vehicle emissions when operating properly. However, vehicles with malfunctioning devices cause air pollution at levels which exceed the pre-1970 levels. Estimates are that 20% of the vehicles on the road are in

need of repair of their air pollution control system. As the growth of both the number of motor vehicles on the road and the use of the motor vehicles overall continues to increase, the proper functioning of these air pollution control devices becomes increasingly important to maintaining air quality. The Agencies of Natural Resources and Transportation agree to work cooperatively for the adoption of an appropriate motor vehicle emission check program.

*Mechanics Training.* Currently no comprehensive training is offered to automotive mechanics on the diagnostic and repair of motor vehicle air pollution control systems. In part, this is due to the fact that a comprehensive auto emission check program does not exist in Vermont. The Agencies of Natural Resources and Transportation agree to work to develop the capability within a regional vocational educational institution to comprehensively train automotive mechanics in the diagnostics and repair of auto emission control systems. The Agency of Transportation agrees to seek federal financial assistance to support the acquisition of test equipment to be placed in a technical school which will be used as a teaching tool.

*Alternative Motor Vehicle Fuels.* Fuels for transportation alternatives to gasoline have many attributes. Everyone of them emits less air pollution, and all are more domestic in origin, and some are renewable. Given the public policy implications of these forms of energy, efforts to explore and understand these technologies are appropriate. The Agency of Natural Resources and Transportation agree to work cooperatively between themselves and with other partners both in the public and private sector to explore transportation technology alternative to gasoline powered vehicles. As a first initiative, the Agencies of Natural Resources and Transportation will participate in an electric vehicle demonstration project.

*Pollution Prevention.* A number of activities within the function of roadway construction and maintenance results in the creation of air pollution. Examples of this would include drilling and blasting of roadway and ledge, painting and coatings used on highways and bridges, sandblasting of bridges and structures, open burning in clearing rights of way. In order to prevent the creation of pollution, the Agencies of Natural Resources and Transportation agree to work cooperatively to explore means and methods to eliminate if feasible, or minimize to greatest degree practicable, the creation of air contaminants from the following:

**Areas For Potentially Preventing Air Pollution**

Process	Air Quality Issues	Activities
Paints/Coatings	Toxics, Metals, VOC's	Roadway, Bridges/Structures
Drilling/Blasting	Particulate Matter/Fugitive Dust	Roadway Construction/Maintenance, Ledge Removal
Asphalt Plants	Particulate Matter, Combustion Emissions, Toxics	General Operations, Baghouse Fines, Use of Recycled Material
Sandblasting	Particulate Matter Toxics	Sandblasting bridges and other metal structures
Stone/Gravel Operations Open Burning	Particulate Matter, Fugitive Dust, Toxics, Particulate Matter	Crushing operations on roadway projects. Burning waste materials in barrels and the open.
Waste Oil Disposal	Toxics, Particulate Matter, Combustion emissions	Burning of waste oil

*Indirect Source Permitting.* The Agency of Natural Resources operates a permitting program which requires permits of large developments which may threaten air quality by attracting large amounts of traffic in concentrated areas. While the Agency of Natural Resources possesses the necessary technical expertise to perform and review the air pollution impact aspects of the technical analysis, such analysis is predicated upon data submitted by a permit applicant describing both the current traffic activity as well as projection of future conditions. In order for the Agency of Natural Resources to objectively review the complete application and to ensure that traffic analysis and projection methods are consistent with Agency of Transportation acceptable methods, the Agency of Transportation agrees to provide technical support to the Natural Resources Agency in the review of traffic data and analysis in support of an indirect

Source Permit.

*Program, Planning, Coordination and Analysis.* To address the interface of air quality and transportation issues there is an ongoing need for data collection, analysis, and program review. To facilitate this, the Agency of Natural Resources and Agency of Transportation agree to the following;

Data Collection--The Agency of Transportation will support the collection of motor vehicle related toxic air pollutant data by the Air Pollution Control Division.

Transportation/Air Quality--The Agency of Transportation will work together with the Air Pollution Control Division to review the issues of transportation and air quality as they evolve and affect the State of Vermont from the provisions of the federal Clean Air Act and ISTEA, and make appropriate recommendations for public policy in Vermont regarding this relationship. The Agency of Natural Resources will provide meeting notice and outcome briefings to the Agency of Transportation with respect to the activities of the Northeast Ozone Transport Commission (OTC).

Heavy Duty Motor Vehicles. Air pollution from heavy duty motor vehicles are of increasing concern to the public and the Agency of Natural Resources. This source category contributes significantly to emissions of nitrogen oxides, particulate matter, toxic air pollutants and is of concern for visible smoke and odor. More data is needed, and analyses needs to be performed, to better understand the issues and potential strategies to abate this source of air pollution. The Agency of Natural Resources and the Agency of Transportation agree to work cooperatively to collect such data and perform such analyses regarding this source of air pollution.

Public Outreach and Education. There is a continuing need to inform and educate the public on the health and environmental threats of transportation related air pollution and the programs to mitigate these effects. Joint opportunities to accomplish this goal will be sought by the Agencies of Natural Resources and Transportation.

*Progress Reports and Periodic Updates.* Implementation of the above actions will require coordination and ongoing collaboration by members of the Air Pollution Control Division and the Agency of Transportation. Specific work elements will developed and implemented. In order to track progress on these matters and amend this agreement as may be necessary, the Air Pollution Control Division and Transportation will report on the progress made and the actions intended on a reasonable and acceptable

APPENDIX F

AOT/ANR MEMORANDUM OF UNDERSTANDING

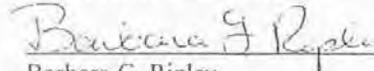
WHITE PAPER FOR MAINTENANCE OPERATIONS

GOAL: TO PRESERVE AND MAINTAIN THE TRANSPORTATION INFRASTRUCTURE TO MEET THE NEEDS AND SAFETY OF THE TRAVELLING PUBLIC, AND TO ENSURE THAT FULL CONSIDERATION IS GIVEN TO VERMONT'S ENVIRONMENTAL QUALITY.

ISSUES AND NEED ACTIONS:

- A. COMMUNICATION - Annual meetings shall be held between representatives of AOT and ANR to review concerns about maintenance operations that may impact environmental quality and that may be regulated activities.
- B. POLICY REVIEW - AOT Policy and guidelines on various maintenance programs shall be reviewed annually to insure compliance with the above goal. All policies, memoranda of understanding and other agreements between both agencies should be compiled in a handbook, available at all AOT/ANR offices. Both agencies need to insure that agreements reached are communicated throughout their respective agencies and that they represent the policy of the Agency.
- C. RESEARCH AND TRAINING - AOT and ANR shall conduct continuing review and investigation on all activities, procedures and materials aimed at minimizing the impact to air and ground water quality, stream bank vegetation, stream, fisheries and wildlife management programs, hazardous materials management programs, maintenance of scenic vistas, roadside safety and aesthetics. Technical support should be provided by ANR to assist AOT in developing new procedures. Technical workshops and other training programs should be open to both agencies where programs overlap.
- D. MANAGEMENT STRATEGIES - AOT should develop management strategies for all off site mitigation lands and easements. These strategies should include the permit process requiring long term management responsibilities.

## NATURAL RESOURCES CONSERVATION PROCEDURE

  
Barbara G. Ripley  
Secretary

Nov. 19, 1996  
Date

This procedure states 1) the Agency of Natural Resources' policy regarding the potential loss and/or replacement of a resource due to proposed development and 2) the framework within which all ANR mitigation rules and procedures will conform.

This procedure will provide guidance to Agency staff and inform permit applicants and the public of how the Agency makes decisions about actions that affect natural resources. The procedure is general in nature, describes the priorities and evaluation steps the Agency uses, and ensures that actions of the Agency are fair, consistent, and predictable.

This procedure will be applied, under statutes listed in Attachment 1, to activities of the Agency of Natural Resources, including but not limited to: planning, rule making, permitting, educational programming, grants administration, prescribing management policies and procedures, and funding and construction of Agency facilities. This procedure does not supersede the statutes and rules of the Agency concerning issuance of permits.

### Philosophy and Considerations

Important natural resources (such as endangered species, critical fish and wildlife habitats, significant wetlands, pristine waters, natural areas, and scenic resources) are often affected by the various actions of the Agency of Natural Resources and may be involved in proposed actions that come to the Agency of Natural Resources for review and/or permitting (see Attachment 1). Actions that may affect natural resources must only occur in a manner that maintains sustainable ecosystems and natural communities, viable populations, and/or individual organisms, whichever applies.

The Agency believes that certain natural resources, such as those listed above, cannot be replaced or recreated sufficiently or with enough certainty to ensure their continued presence. In some instances, critical natural resources cannot withstand further permanent reduction of acreage, numbers, or other appropriate measurement of their abundance, value, and quality.

However, the Agency also believes certain natural resource values and functions can be replaced (see definition on page 2) by an applicant. Replacement as compensation will be considered only if it is associated with specific, agreed-upon measures that the applicant will take to replace functions and values similar to those lost. The Agency will consider replacement only after all other steps in the conservation procedure are determined to be infeasible.

In general, the Agency will require applicants to alter their actions where impacts to identified natural resources are acceptable. There may be instances where impact to special resources will not be allowed.

### Strategy

The Agency of Natural Resources will base its actions and decisions on projects involving natural resources according to a sequential process of considerations.

**Alternatives:** First, for any proposed action that would affect critical natural resources, reasonable alternatives should be explored. Alternatives must also be examined for potential impacts on natural resources.

**Avoidance:** If it can be shown that no alternatives are reasonable<sup>1</sup>, avoidance will next be considered. "Avoidance" means redesigning or moving the project so that its size/scope will not interfere with the resources or identified values and functions.

**Mitigation:** If avoidance is not reasonable, the Agency will next consider mitigation. "Mitigation" means conducting actions on-site that minimize impacts so that there are no permanent undue adverse impacts on the resources. This may be accomplished by (listed in order of preference): (1) reducing or eliminating the impacts over time by protecting or maintaining the resources during the life of the action, or by (2) rectifying<sup>2</sup> the impacts by repairing, rehabilitating, or restoring the affected environment on-site.

**Replacement:** Where the steps above cannot overcome permanent undue adverse effects on the resources, values, or functions, the Agency may, in rare instances, consider replacement. In making this determination, the Agency will consider the likelihood of being able to replace the lost values and functions. "Replacement" means securing or creating (depending upon the program's rules) the same kind of resources, values, and functions as those lost. Replacement is not a form of avoidance, and must be considered separately, on its own merits. If replacement is a consideration:

- (a) In most cases, on-site replacement is preferred to off-site.

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<sup>1</sup>. Reasonable alternatives are those that are technically and economically feasible.

<sup>2</sup>. An example of rectifying the impact is placing structures in a streambed to improve or restore fish habitat.

(b) In rare cases, replacement banking (compiling "credits" from one replacement project which can be applied to other development projects) may be possible if, in the judgment of the Agency, it will ultimately maintain or (preferably) enhance the resource(s) in question.

**Implementation**

Proposals requiring consideration of natural resources conservation under this procedure shall be handled by the Agency or Department having jurisdiction over the resources in question or having statutory authority involving certain permits.

The Agency/Department shall be guided in its application of this procedure on a case-by-case basis, depending on the applicable statutes, rules, policies, and impacted resource(s) (Attachment 1).

**Contacts for Further Information**

Here is a list of Agency contacts by type of resource, with telephone numbers, addresses, and e-mail addresses, to obtain further information about this procedure and about specific regulations affected by this procedure.

Regulatory Review Coordinator  
802-241-3620  
103 South Main Street  
Center Building  
Waterbury, Vt. 05671

Director, Nongame and Natural Heritage Program  
802-241-3700  
103 South Main Street  
10 South  
Waterbury, Vt. 05671

Director of Wildlife  
802-241-3700  
Department of Fish and Wildlife  
103 South Main Street  
10 South  
Waterbury, Vt. 05671

Director of Fisheries  
802-241-3700  
Department of Fish and Wildlife  
103 South Main Street  
10 South  
Waterbury, Vt. 05671

State Wetlands Coordinator  
802-241-3770  
Water Quality Division  
103 South Main Street  
10 North  
Waterbury, Vt. 05671

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**ATTACHMENT I**  
**Statutes, rules, policies, and resources applicable to**  
**the Natural Resources Conservation Procedure**

- 0 VSA Ch. 123 [State Endangered Species Law] state endangered/threatened species
- 16 USC 1531-43 [U.S. Endangered Species Act] federal endangered/threatened species
- 10 VSA Ch. 103, §4081(a) [Fish and Wildlife Policy Law] fish and wildlife habitat
- 10 VSA Ch. 151 §6086 [VT Land Use and Development Law - Act 250]
  - critical fish and wildlife habitats
  - endangered/threatened species
  - significant wetlands
  - rare and irreplaceable natural areas
  - scenic resources
- 10 VSA Ch. 37, §905 [VT Wetlands Law] significant wetlands
- 10 VSA Ch. 47 [VT Water Pollution Control Law] state waters (surface and groundwater)
- 10 VSA Ch. 49, §1424(a) [Protection of Navigable Waters and Shorelands Law]
  - outstanding resource waters
- 29 VSA Ch. 11 [Lakes and Ponds Management Law] lakes and ponds
- 30 VSA §248 [New Gas and Electric Purchases, Investments, and Facilities]
  - critical fish and wildlife habitats
  - endangered/threatened species
  - significant wetlands
  - rare and irreplaceable natural areas
  - scenic resources
- 30 VSA §248 [Ryegate Wood-fired Energy Generation] endangered/threatened species
- 10 VSA Ch. 158 [Fragile Areas Registry Law] important state fragile areas

## SUBMITTALS TO THE COE AND VANR FOR WETLAND MITIGATION SITES

### I. COE SUBMITTALS

#### A. CONCEPTUAL PLANS

Conceptual plans for a compensatory wetland mitigation site are submitted to the Corps of Engineers (COE) with the 404 Permit application. Conceptual plans should show the COE where the proposed site is and what is proposed to be done there. They should include a **narrative** about:

- The site selection process;
- Regulatory agency involvement;
- A discussion of proposed site manipulation;
- An assessment of the ability of the site to compensate for impacted wetland functions and values;
- And a discussion about current ownership and the VAOT's intentions in terms of purchase/easement/ condemnation.

A typical submittal would include:

- A vicinity map;
- A plan view of existing conditions (with topo if available);
- A plan view of proposed conditions (may be overlaid on existing);
- A bubble-diagram of proposed plantings, indicating general areas and types of plants (e.g., herbs/shrubs/trees, with examples of likely choices of species);
- A discussion of the site's hydrology to the extent known; and
- A discussion of the site's soils, to the extent known.

#### B. 30% DESIGN = "DESIGN SUBMITTAL"

"30% Design" of a compensatory wetland mitigation site must be submitted to and accepted by the COE in order for the Corps to issue a 404 Permit. The term "30% Design" has led to a lot of confusion, since it is not clearly defined anywhere. Marty Abair (COE Vermont Project Office Manager) thinks it is a term which was developed within the COE. The intention of a 30% Design is to provide the COE with enough information on the proposed site so that the Corps can achieve a satisfactory level of confidence that the site will "work."

Typical submittals for a 30% Design would include:

Plan Views, showing:

- Topography
- Mitigation site boundaries

- Existing site conditions
- Proposed site conditions
- A planting plan, showing specific locations, numbers and species of plants.

Cross-sections, showing:

- Existing ground elevations
- Proposed ground elevations
- Average spring high groundwater elevations (If water levels are to be manipulated, show existing and proposed average spring high groundwater elevations.)

A narrative, discussing:

- Existing conditions
- Proposed site conditions
- Site manipulation required to achieve proposed site conditions
- Regulatory agency involvement to date
- Groundwater monitoring results/hydrologic study results, as needed.
- Soils analysis results
- A detailed analysis of the wetland functions and values which are expected to develop on the site, and a comparison of that to the wetland functions and values impacted by the project.
- A preliminary cost estimate to develop the site.

C. 100% OR FINAL DESIGN = "IMPLEMENTATION SUBMITTAL"

A "100% Design" must be submitted to and accepted by the COE in order for the Corps to authorize the construction of the mitigation site. Typically, construction of the project being mitigated would begin roughly concurrently with the construction of the mitigation site. Actual dates of these two construction commencement dates in relation to each other area apparently up to the discretion of the COE.

"100% Design" is, again, a fuzzy term, but the intention is to provide all details required to allow the Contractor(s) to construct the site and install any plantings. Essentially, the "100% Design" implements the 30% Design.

Typical submittals for a 100% Design would include:

- Construction documents, including plans, quantities, special provisions and notes.
- Stations and off-sets.
- All plans in VAOT format.

- A detailed planting plan with quantity sheets and planting details.
- Proof of VAOT control of the site, and of the dedication of the site as a mitigation site in perpetuity.
- A final cost estimate to develop the site.

## II. VANR WETLANDS OFFICE SUBMITTALS

- The VANR can issue a 401 for a project involving a compensatory wetland mitigation site based on the conceptual plans for the mitigation site.
- The VANR can issue a CUD for a project involving a compensatory wetland mitigation site based on a "Design Submittal."
- The CUD would include a condition requiring VANR review and approval of the "Implementation Submittal" before construction of the mitigation site could begin.

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**U.S. ENVIRONMENTAL PROTECTION AGENCY REGION I**

**WETLANDS PROGRAM**

**GENERAL GUIDELINES FOR WETLAND RESTORATION AND CREATION PLANS**

**March 1997**

The following guidelines can be used by anyone involved with wetland restoration and creation projects. These guidelines serve as general specifications for preparing fill removal and wetland restoration, or wetland creation plans. As environmental conditions vary at every site, precise specifications will depend upon the environmental conditions peculiar to the site in question. The size of the wetland area to be restored or created; the biological and physical characteristics of the land area in question; and, if applicable, the level of disturbance the wetland has experienced, will further define the scope and complexity of the restoration or creation plan. In most cases, the types and extent of information described below represent the minimum to formulate a satisfactory plan.

- I. Project Summary
  - A. A description of the project location, including a locus map; a brief narrative of the overall project, including current landscape (hydrogeomorphic) and project site settings, and the extent of jurisdictional waters and wetlands; and a list of all relevant parties, including contractors and consultants that will be involved with the project.
  - B. An explanation of project objectives, including a narrative description of the water and wetland habitats (types and areal extent) to be restored or created (near-term and long-term); the primary ecological functions to be restored or created; and how the restored or created water and wetland habitats will fit into the broader landscape.
- II. Existing Site Conditions - Detail
  - A. A surveyed site plan depicting property boundaries; streets; buildings; water bodies (with mean high water or high tide indicated); wetlands; FEMA 100-year floodplain (if applicable); areas of unpermitted fill (if applicable); elevation contours; and other ground surface features at a scale no greater than 1 inch = 40 feet. This plan will include a cross-section view of the site which shows soil depths, fill depths (if applicable), and average height of surface water or depth to the ground water table across the site.
  - B. A narrative description of existing physical and biological conditions, including current ownership status; the area of the site; area of unpermitted fill (if applicable); existing water bodies and wetlands (including the dominant

plant community(ies) present); soil types (preferably series) present (including the composition of any unpermitted fill present); the general hydrologic regime of the site and how it was determined (e.g., ground water table monitoring data, soil morphology, surface water inundation data, etc.); surrounding upland and wetland habitats and existing, adjacent land uses; and other relevant information.

III. Proposed Site Conditions - Detail

- A. Using the site plan described in II.A. as a base, show the exact areas where restoration or creation activities will occur (e.g., removal of fill, replacing dredged material into ditches, etc.). As applicable, indicate proposed finished grades; expected mean high water or high tide elevations; average depth to the ground water table and the expected depth to the high water table; the location of proposed plantings/seedings; and the location of all sediment and erosion control structures (e.g., hay bales, silt screens, etc.). This plan will include a cross-section view of the site which shows proposed soil depths, and average height of surface water or depth to the ground water table across the site.
- B. Provide a narrative description of the removal and restoration, or creation work to occur, including the methods and equipment to be employed; how the equipment will gain access to the site to perform the work; the location of the ultimate disposal site for any removed fill; how the work will progress across the site; the expected general hydrologic regime of the site in its restored or created condition; if applicable, a listing of the plant species to be seeded/planted at the site and why these species are appropriate; the sources of the plant material (note: as a rule, transplanting of plant stock from adjoining wetlands should not be approved); the planting method(s) and scheme (i.e., physical layout of how plant material will be installed); the type, source, composition and depth of seed or plant stock bedding (e.g., screened topsoil) to be placed; if applicable, a proposed irrigation scheme to ensure survival of the plant material seeded or planted; any methods to be used to minimize adverse impacts while work is underway (e.g., erosion and sedimentation controls); the identity of the wetland scientist or other qualified professional who will supervise the construction effort; and other relevant information.
- C. Delineate the area(s) on the site to be restored or created by installation of flagging, sedimentation and erosion control structures, or other appropriate method; this delineation will represent the limit of construction activities such that no work will occur beyond these boundaries.

IV. Actual Restored or Created Site Conditions - Detail

- A. Using the site plan described in II.A. as a base, show the actual physical conditions at the site at the completion of grading activities (i.e., an "as-built" plan), including actual finished grades and all pertinent ground surface features. This plan will include a cross-section view of the site which shows actual soil depths and, as applicable, mean high water or high tide, or average depth to the ground water table across the site. This as-built plan will be prepared and submitted prior to planting/seeding activities.

V. Progress Reports

- A. From the time of plan approval by EPA to issuance of a letter verifying construction completion (see §VIII.A, below), brief quarterly progress reports will be submitted to EPA. The progress report must describe activities underway or completed to date, activities remaining to be performed, an explanation of any delays experienced, and other pertinent information.

VI. Monitoring/Standards for Success

- A. Using the project objectives, and considering the scope and complexity of the restoration or creation efforts, standards will be established by which achievement of those objectives will be judged (i.e., measures of success). These standards must be directly related to reestablishing or developing the physical and biological components of the aquatic ecosystem being restored or created. Explicit provision will be included for corrective action to be taken, at the direction of EPA, should monitoring show that the standards for success are not being, or are not likely to be met. In addition, explicit provision should be included that addresses invasive and exotic plant species control and management.
- B. Normally, monitoring will be performed midway through and toward the end of the first growing season, then annually toward the end of each successive growing season for the duration of the required monitoring period. Monitoring should be performed for a minimum of five years; shorter or longer periods may be appropriate depending upon the scope and complexity of the restoration or creation efforts undertaken.
- C. The monitoring plan will incorporate a simple but comprehensive approach to assessing relative success or failure of restoration or creation efforts. Among others, monitoring methods may include establishing permanent sample plots for measuring plant community features; meander surveys for

determining wildlife utilization; and permanent soil pits for profile descriptions. Also, permanent stations will be established to create a continuous photographic record as part of the monitoring effort.

- D. A report will be prepared and submitted after each monitoring event that describes the environmental conditions at the site, the observations and results of the monitoring methods, and assesses relative success or failure of restoration or creation efforts. This report will include photographic evidence as well. This report will identify any problems discovered and recommend appropriate corrective action to ensure the success of restoration or creation.

#### VII. Inspections

- A. The plan will provide for inspections by EPA personnel after installation of all sedimentation and erosion control structures, after completion of grading activities, after completion of initial planting/seeding activities (if applicable), and after monitoring indicates that the standards for success have been attained.

#### VIII. Verification of Compliance

- A. After inspection of initial planting/seeding activities and determining that all construction work has been completed in accordance with the approved plan, EPA will issue a letter verifying that the construction portion of the restoration or creation project has been completed.
- B. After receipt and review of the final monitoring report and determining that the standards for success have been attained and maintained, EPA will issue a letter verifying that the monitoring portion of the restoration or creation project has been completed.

#### IX. Schedule

- A. A comprehensive schedule integrating all planning, construction, inspection, and monitoring activities as well as milestones, reports, and product submissions will be included.

The U.S. Environmental Protection Agency, Region I, reserves sole authority to revise these Guidelines at any time.

