

**MEMORANDUM OF AGREEMENT
AMONG
THE FEDERAL EMERGENCY MANAGEMENT AGENCY,
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE,
THE NEW YORK STATE OFFICE OF EMERGENCY MANAGEMENT,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND
THE TOWN OF PHILIPSTOWN
REGARDING A SECTION 406 HAZARD MITIGATION PROPOSAL FOR
THE OLD ALBANY POST ROAD,
TOWN OF PHILIPSTOWN, PUTNAM COUNTY, NEW YORK**

WHEREAS, the Federal Emergency Management Agency (FEMA) of the Department of Homeland Security, pursuant to Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. §§ 5121-5206) and implementing regulations in Title 44 of the Code of Federal Regulations (44 CFR) Part 206, proposes to provide assistance to the Town of Philipstown, Putnam County, New York (Sub-grantee), through the New York State Office of Emergency Management Office (SOEM), to mitigate¹ damage to the Old Albany Post Road-Philipstown Section (Road) located in the Town of Philipstown, Putnam County, New York (Undertaking) during storms that occurred April 14-18, 2007, and resulted in Presidential Disaster Declaration DR-1692-NY; and

WHEREAS, a 6.6-mile portion of the Road was listed in the National Register of Historic Places (NRHP) on July 8, 1982; and

WHEREAS, according to the National Register of Historic Places, "The Old Albany Post Road was the original transportation artery by land between New York City and Albany. Laid out over ancient Indian paths along the ridge of hills paralleling the Hudson River, the route was successively improved throughout the seventeenth and eighteenth centuries for the movement of mail, commodities, and people in eastern New York. Virtually bypassed by the Highland Turnpike in 1806, the Old Albany Post Road (Philipstown section) has retained a significant amount of its eighteenth-century character and appearance. Important artifacts, such as stone walls and milestones, and landscape features remain which enhance the visual impact of this historic thoroughfare. It is the least altered extant section of the Post Road which originally extended 150 miles north from New York City to Albany"; and

¹ The fields of historic preservation and emergency management use the word "mitigation" in different ways. Under Section 106 of the National Historic Preservation Act, mitigation generally refers to measures proposed to offset an undertaking's adverse effect on significant historic or cultural resources. Under Section 406 of the Stafford Act, mitigation refers to measures undertaken to reduce or eliminate the threat of future similar damage to a facility damaged during a disaster. (FEMA's regulations require that the measures apply directly to, and mitigate future damages to, the damaged facility; that policy prevents the consideration of alternatives that include off-site components for their effectiveness.) For purposes of clarity, this document will use the terms "Section 106" and "Section 406" to distinguish between historic preservation mitigation measures and emergency or hazard mitigation measures, respectively

WHEREAS, according to the National Register of Historic Places, the Old Albany Post Road's setting is defined as: "Lined by stone walls and mature trees, the road has been maintained in its original route and eighteenth-century dimensions which, together with its rural context, contribute to a distinctive history atmosphere"; and

WHEREAS, all parties to this agreement agree that the relative rarity of this resource type in New York State and its great age make the Old Albany Post Road an irreplaceable piece of American History and worthy of appropriate local, state and federal protection; and

WHEREAS, the Sub-grantee submitted a request for funding under the FEMA Public Assistance (PA) Program that proposed repairing damages and restoring the Road to pre-existing conditions and FEMA's review of this project resulted in a finding of No Adverse Effect, with which the New York State Historic Preservation Officer (SHPO) concurred; and FEMA provided funding for this project that consisted of filling the scoured sections of the road surface with gravel and grading to restore the road surface to pre-disaster design, function, and appearance; and

WHEREAS, the Sub-grantee also requested Section 406 mitigation funding under the FEMA PA Program in order to prevent recurring damage due to drainage of the Road and address the safety and emergency issues that arise when the Road is eroded, and as part of its Section 406 mitigation project initially proposed: to add catch basins along the Road's shoulder for a distance of 1,300 feet north of the intersection of the Road and Sprout Brook Road; to pave the Road with asphalt and integral asphalt curbing on both sides for a distance of approximately 450 feet north of the edge of existing paving; whereas the average width of the existing road is significantly less than 18 feet (after a site visit by all parties it proved to be between 13 and 14 feet), the road shall be widened in certain positions not to exceed 18 feet; to realign the Road by straightening existing curves; and to remove an unspecified amount of mature roadside vegetation and a portion of a large boulder around which the Road was originally constructed; and

WHEREAS, the Area of Potential Effect (APE) for the Undertaking encompasses the Road and its right of way that was designated as the historic property's boundary in the Road's NRHP nomination or the area consisting of 25 feet to either side of the existing centerline, whichever is greater, for a distance of 1,300 feet north of the intersection of the Road and Sprout Brook Road because of the potential of additional drainage work proposed by the Sub-grantee; and

WHEREAS, FEMA determined in correspondence to the SHPO on February 21, 2008 that the Undertaking would result in adverse effects on the Road; and the SHPO concurred in its March 17, 2008 response; and

WHEREAS, information about the Undertaking has been made available in local repositories and through public announcement and the Consulting Parties have conducted site visits, held meetings to discuss the Undertaking, considered prudent and feasible project alternatives and revised the Undertaking accordingly, identified measures that would reduce the Undertaking's impact on historic resources, and memorialized revisions and measures in this Memorandum of Agreement (MOA) to avoid, minimize, and mitigate (under Section 106) the effects of the Undertaking, and have concluded coordination under the Section 106 consultation process; and

WHEREAS, the junction of the Road and Sprout Brook Road is located in an area determined by the SHPO to be archeologically sensitive; and FEMA has determined that historic and prehistoric archeological resources may be present within the area physically affected by the Undertaking, but has additionally determined that the wheel paths of the roadbed have been disturbed by repeated erosion, scour, and repair; and

WHEREAS, the Consulting Parties concur that, due to the particulars of location, grade, and associated drainage issues that are specific to this portion of the Road and that are identified in the report entitled *Recommendations for the Maintenance of Old Albany Post Road* (PSU Report) prepared by the Penn State Center for Dirt and Gravel Road Studies (Appendix A), the roadway requires unique consideration of Section 406 mitigation and further, the resulting Undertaking requires the unique treatment measures encompassed by this MOA; and while they further concur that these unique 406 mitigation and treatment measures do not necessarily apply to the remaining portion of the Road that is listed in the NRHP, the PSU Report may provide useful information for those interested in the Road's history and protection in the future; and

WHEREAS, the SHPO has participated in the consultation for the Undertaking and has executed this MOA as a Signatory Party with the understanding that it will approve the final project plans and specifications (scopes of work) for the Undertaking and the protocols for archaeological testing and monitoring, in consultation with the Signatory parties and as outlined in Stipulations I.B and III of this MOA, prior to the commencement of construction and that the Undertaking may not commence without that approval; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP) has participated in this consultation and has executed this MOA as a Signatory Party; and

WHEREAS, SOEM, as the Grantee, has participated in this consultation and FEMA has invited SOEM to execute this MOA as a Signatory Party; and

WHEREAS, the Town of Philipstown, as the Sub-grantee, has participated in this consultation and will be conducting the Undertaking in accordance with the terms of the Stipulations of this MOA, and FEMA has invited the Sub-grantee to execute this MOA as a Signatory Party; and

WHEREAS, the Old Road Society of Philipstown (ORSP), a local historic organization, has participated in this consultation and has signed this MOA as a Concurring Party;

NOW, THEREFORE, FEMA, SHPO, SOEM, ACHP, the Sub-grantee, and ORSP (Consulting Parties) agree that the Undertaking will be implemented in accordance with the following Stipulations that take into account the effects of the Undertaking on historic properties and satisfy FEMA's Section 106 responsibilities for the Undertaking.

STIPULATIONS

To the extent of its legal authority and in coordination with SHPO, SOEM, ACHP, the Sub-grantee, and ORSP, FEMA will require that the following measures that avoid, minimize, or mitigate the effects of the Undertaking, as provided by Section 106, are implemented:

I. MINIMIZATION OF ADVERSE EFFECTS

A. FEMA and the other Consulting Parties identified the following project specifications with which the adverse effects of the Undertaking would be minimized to the greatest extent possible, given the overlapping needs to provide hazard mitigation to protect the Road from future damage; to protect the public; and to preserve the character-defining features of the Road. Prior to the commencement of work, the sub-grantee shall provide work plans for review by all signatories to this agreement.

1. **Road Surface:** The Sub-grantee will surface the existing gravel roadway with asphalt paving for a distance of no greater than 450 feet north, beginning at a point at the edge of existing paving (estimated +/- 80 feet) north of the intersection of the Road and Sprout Brook Road. If possible, the road surface should achieve a rough surface finish, such as that of a typical asphalt base course, with the desire being to create a surface more closely resembling the appearance of a gravel surface than a typical asphalt road surface, also allowing the flexibility to explore products that are applied quickly and provide long-lasting results. If a curb is installed, it will be integral with the road surface, constructed of the same material, and replicate the color, texture, and appearance of the road surface; stone and concrete curbing will not be used. The Town will identify surface selection under the submitted plan. It is understood that preparation of the roadway base would be held to a minimum to remain more easily reversible.
2. **Width:** The FEMA undertaking involves the southern end of the Old Albany Post Road at its intersection with Sprout Brook Road, where there currently exists a paved apron placed to make two transitions: the first from a wide turning apron to the actual width of the road at the transition which the plans show as 13 to 14 feet., and the second from a paved surface to a gravel road. Although some widening of the Road would occur where it is necessary to safely and adequately implement the drainage improvements, the Sub-grantee may increase the road to a maximum of 18 feet, however, it will not widen the Road to a uniform distance throughout the entire distance of the road. Any alteration to the widening of the road shall be in accordance with the submitted plan. Further, the Sub-grantee will coordinate any proposed changes to the road's width using the procedures described in I.B below. Moreover, upon surveying and marking the center line of the road way, it was agreed that the centerline be adjusted to reflect the actual field conditions as laid out below. Prior to commencing work, the Sub-grantee shall annotate the current map reflecting the measurements below:

Roadway Station	Relocation of Roadway centerline & direction	Comments
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1 + 00	None	End of existing pavement adjacent to Sprout Brook Road intersection
1 + 50	0-1'± to east	18' wide; Must blend into existing pavement section
2 + 00	3'± to east	East curb to be 11' off surveyor's hub
2 + 15	-	17' wide; west curb 2± feet off stone wall
2 + 33	-	16.5'± wide; west curb 2± feet off stone wall
@ rock	-	16' wide; East curbline to move approx 1 foot further into rock face from that marked out, to match modified roadway alignment on either side of rock
3 + 00	2½-3'± to east	Driveway on west side
3 + 50	4'± to east	To set up alignment at rock
4 + 00	4'± to east	Trees on right adjacent to roadway
4 + 50	3½'± to east	
5 + 00	3½'± to east	Tree
5 + 50	3'± to east	Tree
6 + 00	2-2½'± to east	
6 + 50	3'± to east	
7 + 00	2-3'± to east	
7 + 50	3'± to east	Just above Upland Drive

3. **Alignment:** After a site visit it was determined that the due to the proximity of trees, stone walls, driveway locations and related constraints, the roadway centerline and curb lines were modified. The above table has been established to provide a more appropriate roadway centerline to minimize the historic and environmental impact of the project and the distances contained therein shall be annotated on the submitted plans.
4. **Drainage:** The Sub-grantee will install a drainage system (approximately 450 feet) along the road within the section identified to be paved under I. A. 1. The drainage system as currently identified will consist of a 24-inch outfall line, eleven catch basins, and up to six cross pipes connecting basins. The Town potentially shall extend the drainage system 850 feet north of the end of paving, but would remain within the 1,300-foot APE.
5. **Landscape and Setting:** The Sub-grantee will minimize its impact on the Road's landscape and setting throughout the course of the project by:

- a. limiting the removal of vegetation and trees to include only those plants whose removal is necessary for the purposes of safe project construction directly related to the Undertaking [This Stipulation represents a revision to the Sub-grantee's original proposal; it results directly from the Section 106 consultation process and will reduce the Undertaking's impacts to historic and cultural resources]; and
 - b. replacing any vegetation removed as part of the resurfacing of the Road and the installation of drainage components with indigenous plants and trees [This Stipulation represents a revision to the Sub-grantee's original proposal; it results directly from the Section 106 consultation process and will reduce the Undertaking's impacts to historic and cultural resources]; and
 - c. limiting removals at the large boulder on the east side of the Road to approximately three feet; and ensuring that if removals occur, the finished surface will generally reflect the slope, shape and texture of the existing boulder face; and
 - d. The Town will retain the stone wall identified in the table contained in Stipulation I.A.2 as well as the tree row located near that wall.
6. **Monitoring:** The Old Road Society of Philipstown has agreed to monitor the progress of this project and report any potential issues to the appropriate party via telephone followed by a written communication detailing the issue that has arose.

B. Review of Project Design and Specifications

- 1. Prior to the start of work, the Sub-grantee will submit a set of marked-up drawings identifying the features noted in the Table in I.A.2 above. This will be the agreed-to master plan that will guide construction and all discussions about possible revisions.
- 2. If the Sub-grantee proposes changes to the project for any reason, they will first consult with the Old Road Society of Philipstown. If agreement is reached, work may proceed; if not, the Sub-grantee will contact SOEM to begin coordination with all Consulting Parties on the proposed revisions.
- 3. If the Consulting Parties cannot reach agreement on revisions for the Undertaking, they will conduct further consultation according to Stipulation VI of this MOA.

II. MITIGATION OF ADVERSE EFFECTS UNDER SECTION 106 OF THE NHPA

Prior to the Sub-grantee's implementation of the Undertaking as described in Stipulation I, FEMA will digitally photograph all historic features of the Road that may be demolished or altered by the Undertaking. The recordation will be performed by or under the direct supervision of an individual who meets the Secretary of the Interior's Professional Qualification Standards (48 FR 44716, Sept. 1983) for History, Architectural History, Architecture, or Historic Architecture. The digital photography must comply with the following requirements from the National Archives and Records Administration's (NARA's) guidance to supplement requirements in 36 CFR 1228.270 for transferring permanent electronic records to NARA.

- A. Administration's (NARA's) guidance to supplement requirements in 36 CFR 1228.270 for transferring permanent electronic records to NARA.
1. Image files must be saved as JPEG files using high quality compression settings at a minimum. These files must be transferred as first generation JPEG files that have not been degraded in quality by multiple revisions and re-saving. The image files must be saved on archival quality CD-R media.
 2. Digital camera files must be captured as 6 megapixel files or greater with a minimum pixel array of 3,000 pixels by 2,000 pixels.
 3. Color images must be produced in RGB (Red Green Blue) color mode as 24-bit or 48-bit color files.
 4. Photographic prints must comply with the National Park Service's (NPS) revised March 2008 *Updated Photo Policy for the National Register of Historic Places and National Historic Landmarks Survey*.
 5. The photographs must meet the NPS Photo Expansion Policy 75-year permanence standard.
 6. Paper prints must follow the "Acceptable Ink and Paper Combinations for Digital Images" guidelines in the Photo Expansion Policy.
 7. Paper prints must be identified by the name and location of the historic resource, a description of the view including the direction of the camera, the date of the photograph, and the name of the photographer.
 8. FEMA will prepare copies of the digital photographs, electronically and as prints, and submit them to (1) SHPO for submission to the New York State Archives; (2) the Putnam County Historical Society in Cold Spring; and (3) the Julia L. Butterfield Memorial Library in Cold Spring.
- B. FEMA will conduct a Historic Resource Study (Study) of the 6.6-mile length of the Road that is listed in the NRHP. The Study will provide an enhanced historic context to better understand the thematic trends or patterns of development of the Road over time; will assess the Road's historic integrity; and will identify extant features of the Road that are located on and adjacent to the NRHP portion of the Road. The Study will be designed to enhance the community's understanding of the significance of the Road and the features that make it eligible for listing in the NRHP.
1. The Survey will identify those sections of the Road that have been paved and those that remain unpaved; locate significant components of the Road, such as natural features, stone walls, mileposts, that are within or adjacent to the NRHP boundaries of the Road; assess whether those resources appear to be contributing or noncontributing to the NRHP district that encompasses the Road; and identify other

historic properties within and adjacent to the Road's NRHP boundaries that are listed in the NRHP or have been determined eligible for such listing, along with the listed or eligible boundaries of those resources.

2. FEMA will contact the Stockbridge-Munsee Band of Mohican Indians as part of the historical research effort for the Study.
3. FEMA will prepare the Study as a narrative report that will include an historic context, discussion of the Road and its significant historic features, photographs and maps. The Survey will be performed by or under the direct supervision of an individual who meets the Secretary of the Interior's Professional Qualification Standards (48 FR 44716, Sept. 1983) for History, Architectural History, Architecture, or Historic Architecture. Photographs will be prepared and submitted according to the standards outlined in Stipulation II.A of this MOA.

III. ARCHEOLOGICAL TESTING AND MONITORING

- A. Upon receipt of the preliminary project plans and specifications for the Undertaking submitted by the Sub-grantee through SOEM, FEMA will implement an archaeological field-testing protocol (Field Protocol) to define how archeological testing will occur within the APE of the Undertaking.
 1. FEMA will coordinate a proposed Field Protocol with SHPO for review and approval. SHPO will review the proposed Field Protocol and, if it is in conformance with this MOA, FEMA will inform SOEM and the Sub-grantee of the determination within 10 business days and FEMA will immediately proceed to carry out the archaeological field-testing. If SHPO believes the Field Protocol is not in conformance with this MOA, FEMA and SHPO will consult in order to develop and approve a Field Protocol that meets the needs of the Undertaking.
 2. Archeological field testing will consist of Phase IB/II testing and assessment to identify the presence of archeological artifacts and features, including historic artifacts, features or physical evidence of significant modifications to the Road, within those areas of ground disturbance that will result from the Undertaking. No Phase 1A archaeological testing will be conducted for the Undertaking.
 3. In order to focus on the portion of the APE with the most potential to cause adverse effects on archaeological resources, archeological field testing will be conducted at the location of each proposed drainage catch basin.
 4. An archeologist who satisfies the qualifications specified in 36 CFR 61, Appendix A will develop a testing methodology and conduct the testing in consultation with the SHPO.
 5. The results of the archeological field testing will be presented in a report (Field Report) that follows the SHPO's archeological report format requirements.

6. Construction related to the Undertaking will not commence until archeological field testing has been completed and SHPO has reviewed and approved a preliminary draft of the Field Report and its recommendations and has provided its opinion in writing that no additional archaeological investigations are needed. SHPO will review the Field Report and provide its comments within 15 business days.
 7. If SHPO believes additional archaeological investigations are needed it will consult with FEMA, SOEM and the Sub-grantee within 10 business days and will make every effort to identify the minimally acceptable approach to conducting additional archaeological investigations to avoid or minimize adverse effects on archeological artifacts or features.
- B. Upon receipt of the preliminary project plans and specifications for the Undertaking submitted by the Sub-grantee through SOEM, FEMA will develop an archaeological field monitoring protocol (Monitoring Protocol) to define how archeological monitoring would occur to observe specific construction activities associated with the Undertaking that are likely to cause ground disturbance.
1. FEMA will coordinate the proposed Monitoring Protocol with SHPO for review and approval. SHPO will review the proposed Monitoring Protocol and, if it is in conformance with this MOA, will inform FEMA. FEMA will inform SOEM and the Sub-grantee of their determination in writing within 10 business days. If SHPO believes the Monitoring Protocol is not in conformance with this MOA, FEMA and SHPO will consult in order to develop and approve a Monitoring Protocol that meets the needs of the Undertaking
 2. If during the course of work, FEMA archeological monitors observe significant or potentially significant archeological artifacts or features because of activities associated with the Undertaking, FEMA archeological monitors and the Sub-grantee shall treat the findings as stipulated in Section IV. If a FEMA archeological monitor determines that a findings assessment will require a discontinuation of work greater than one hour in duration, the archeological monitor will promptly notify SOEM and the Sub-grantee regarding the delay. If after the initial one-hour findings assessment, the archeologist has determined more evaluation time will be necessary at this location, the archeologist shall promptly convey this to SOEM and the Sub-grantee.

IV. DISCOVERIES AND UNFORESEEN EFFECTS

- A. The Sub-grantee's construction activities and contracts will require the Sub-grantee and its contractors to exercise care in all excavation activities, and to be alert to any indication of prehistoric archaeological deposits or concentrated historical building materials, i.e., Native American materials, foundations, privies, collections of refuse, etc. If in the course of the Undertaking intact archaeological materials are uncovered, the Sub-grantee shall ensure that it or its contractor immediately stop work near the discovery and take all reasonable measures to avoid or minimize harm to the finds. The Sub-grantee shall

ensure that the archaeological findings are secured and access to the area of the discovery is restricted until the consultation described below is completed.

- B. The Sub-grantee will notify FEMA through SOEM of a discovery or an unforeseen effect as soon as practicable and will e-mail digital photographs of the discovery or unforeseen effect with the notification. FEMA will notify and consult with SHPO to determine if further steps to minimize effects on the Road or to evaluate the National Register eligibility of the discovery and identify its treatment are necessary. FEMA will provide the Sub-grantee, SOEM, and ORSP the opportunity to participate in this consultation. FEMA may, in consultation with the SHPO, assume that a newly discovered property is eligible for the National Register for purposes of this MOA. FEMA and the SHPO will conclude this consultation if the discovery does not contain human remains and FEMA and the SHPO determine that the discovery is not eligible for the National Register or FEMA and the SHPO determine that the unforeseen effect will not adversely affect a historic property, and FEMA will notify the Sub-grantee that work may be resumed in the area of the discovery or unforeseen effect.
- C. If FEMA and the SHPO determine that further steps are necessary to evaluate or treat the unforeseen effect or the newly discovered property and it does not contain human remains, FEMA shall work with SHPO, SOEM, and the Sub-grantee to agree on timeframes and determine ways to avoid, minimize, or mitigate under Section 106 any adverse effects. Upon request from any Consulting Party, to review the situation, FEMA will arrange for such a meeting. At the conclusion of this consultation, FEMA will provide all parties that participated in the discovery consultation with a written summary of the consultation and its resolution. This summary may be provided by e-mail.
- D. If human skeletal remains are uncovered during the Undertaking, the Sub-grantee first will immediately notify the Putnam County Sheriff's Office and/or the Putnam County Coroner's Office and then shall notify FEMA and SOEM. The local law enforcement officials shall assess the nature and age of the human skeletal remains. FEMA will coordinate with SHPO and ORSP and shall ensure that the SHPO's Historic Remains Discovery Protocol is followed and that notice of the discovery is given to SHPO by contacting its Archeology Unit at 518-237-8643 within seventy-two hours of the discovery. FEMA shall take the lead in working with SHPO, Indian tribes, the Sub-grantee, and SOEM to ensure compliance with applicable state and federal laws and this MOA. In addition, FEMA shall require that the guidelines contained in the ACHP's 2007 "Policy Statement Regarding Burial Sites, Human Remains, and Funerary Objects" or any subsequent Policy Statements that are issued after the execution of this MOA are followed.

V. ANTICIPATORY ACTIONS

FEMA will not grant assistance to the Sub-grantee should it, with intent to avoid the requirements of this MOA or Section 106 of the NHPA, significantly adversely affect those portions of the Road to which this assistance is related.

VI. DISPUTE RESOLUTION

- A. Should any Consulting Party object to FEMA in writing within five business days of receipt of any plans, specifications, or actions provided for review under this MOA, FEMA shall notify the Consulting Parties and consult further with the objecting party and the Consulting Parties to seek resolution.
- B. If FEMA determines that the dispute cannot be resolved, FEMA shall forward its proposed course of action and all relevant documentation to the ACHP. Within twenty business days after receipt of the documentation the ACHP will:
 - 1. Advise FEMA that it concurs with FEMA's proposed course of action; or
 - 2. Provide FEMA with recommendations, which FEMA shall take into account in reaching a final decision regarding the dispute; or
 - 3. Notify FEMA that it shall comment pursuant to 36 CFR §800.7(c), and proceed to comment. Any comment provided shall be taken into account by FEMA in accordance with 36 CFR §800.7(c)(4) with reference to the subject of the dispute.
- C. If the ACHP does not provide FEMA with comments or recommendations within twenty business days, FEMA may assume that the ACHP does not object to its recommended approach and it shall proceed accordingly.
- D. Any recommendation or comment provided by ACHP shall be understood to pertain only to the subject of the dispute, and FEMA's responsibilities to fulfill all actions that are not subject of the dispute shall remain unchanged.
- E. Any dispute regarding National Register eligibility will be resolved in accordance with 36 CFR § 800.4(c)(2).

VII. AMENDMENTS, TERMINATION, AND COMPLIANCE

- A. If the Sub-grantee determines that it is not feasible to complete the Undertaking or fulfill the requirements of this MOA, the Sub-grantee will immediately notify FEMA in writing of this determination through SOEM, and FEMA shall notify the SHPO and the Advisory Council. Within 21 days of the notice, FEMA will meet with the other Consulting Parties, in person or by telephone, to determine if the MOA must be amended or terminated, and proceed accordingly.
- B. Any Signatory Party may request in writing that the MOA be amended or terminated. Within 21 days of such a request, FEMA will initiate consultation with the Consulting Parties, in person or by telephone, to consider this request. The Parties will make a good faith effort to amend the MOA prior to any party taking steps to terminate it. The MOA may be amended only upon the written agreement of all Signatories, and the process will comply with 36 CFR § 800.6(c)(7).

- C. If the MOA is not amended, the Signatory Parties may terminate the MOA by providing a 30-day written notice to the other Consulting Parties. These Parties will consult during this 30-day time frame to seek amendments or other actions that would prevent termination. Should consultation fail, FEMA will promptly notify the other Parties in writing of termination pursuant to 36 CFR 800.7(a) and refer the matter to the ACHP for comment pursuant to 36 CFR 800.7(c). This MOA may be terminated without further consultation by execution by the Signatory Parties of a subsequent agreement that explicitly terminates or supersedes this MOA.
- D. The Sub-grantee will not initiate construction, drainage, or other activities before complying with applicable terms of this MOA. Failure by the Sub-grantee to fulfill its responsibilities under this MOA will jeopardize FEMA assistance for this Undertaking.

VIII. DURATION

Unless amended or terminated in accordance with Stipulation VII, this MOA will remain in effect through December 31, 2014, or until FEMA determines that the Stipulations of the MOA have been satisfactorily fulfilled. The Sub-grantee will notify FEMA through SOEM when the Undertaking is completed, and FEMA will notify the Consulting Parties by mail or e-mail when it determines that the Stipulations of this MOA have been fulfilled.

IX. EFFECTIVE DATE AND IMPLEMENTATION OF MOA

This MOA shall become effective immediately upon signature by all Signatory Parties. Specifically, the MOA will be effective upon the last dated signature. FEMA shall provide each Signatory and Concurring Party with a complete copy of the MOA including all executed signature pages.

EXECUTION AND IMPLEMENTATION of this MOA evidences that FEMA has afforded ACHP a reasonable opportunity to comment on the Undertaking and its effects on historic properties, that FEMA has taken into account the effects of the Undertaking on historic properties, and that FEMA has satisfied its responsibilities under Section 106 of the National Historic Preservation Act and applicable implementing regulations. Moreover, execution and implementation of this MOA by New York State agencies evidences that those agencies have concluded their consultation under Section 14.09 of the New York State Parks, Recreation, and Historic Preservation Law.

SIGNATORY PARTIES:

**DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY**

Lynn Gilmore Canton, Regional Administrator

Date: _____

NEW YORK STATE HISTORIC PRESERVATION OFFICE

Ruth Pierpont, Deputy State Historic Preservation Officer

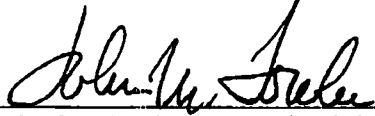
Date: _____

NEW YORK STATE OFFICE OF EMERGENCY MANAGEMENT

Andrew X. Feeney, Governor's Authorized Representative

Date: _____

ADVISORY COUNCIL ON HISTORIC PRESERVATION



John M. Fowler, Executive Director

Date: 8/25/11

TOWN OF PHILIPSTOWN

Richard Shea, Town Supervisor

Date: _____

CONCURRING PARTY:


THE OLD ROAD SOCIETY OF PHILIPSTOWN

Howard Kaplowitz, President

Date: _____

SIGNATORY PARTIES:

**DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY**


Lynn Gilmore Canton, Regional Administrator

Date: 8/18/11

NEW YORK STATE HISTORIC PRESERVATION OFFICE

Ruth Pierpont, Deputy State Historic Preservation Officer

Date: _____

NEW YORK STATE OFFICE OF EMERGENCY MANAGEMENT

Andrew X. Feeney, Governor's Authorized Representative

Date: _____

ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Fowler, Executive Director

Date: _____

TOWN OF PHILIPSTOWN

Richard Shea, Town Supervisor

Date: _____

CONCURRING PARTY:

THE OLD ROAD SOCIETY OF PHILIPSTOWN

Howard Kaplowitz, President

Date: _____

SIGNATORY PARTIES:

**DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY**

Lynn Gilmore Canton, Regional Administrator

Date: _____

NEW YORK STATE HISTORIC PRESERVATION OFFICE

Ruth Pierpont
Ruth Pierpont, Deputy State Historic Preservation Officer

Date: 6/29/11

NEW YORK STATE OFFICE OF EMERGENCY MANAGEMENT

Andrew X. Feeney, Governor's Authorized Representative

Date: _____

ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Fowler, Executive Director

Date: _____

TOWN OF PHILIPSTOWN

Richard Shea, Town Supervisor

Date: _____

CONCURRING PARTY:

THE OLD ROAD SOCIETY OF PHILIPSTOWN

Howard Kaplowitz, President

Date: _____

SIGNATORY PARTIES:

**DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY**

Lynn Gilmore Canton, Regional Administrator

Date: _____

NEW YORK STATE HISTORIC PRESERVATION OFFICE

Ruth Pierpont, Deputy State Historic Preservation Officer

Date: _____

NEW YORK STATE OFFICE OF EMERGENCY MANAGEMENT



Andrew X. Feeney, Governor's Authorized Representative

Date: 6/29/11

ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Fowler, Executive Director

Date: _____

TOWN OF PHILIPSTOWN

Richard Shea, Town Supervisor

Date: _____

CONCURRING PARTY:

THE OLD ROAD SOCIETY OF PHILIPSTOWN

Howard Kaplowitz, President

Date: _____

SIGNATORY PARTIES:

**DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY**

Lynn Gilmore Canton, Regional Administrator

Date: _____

NEW YORK STATE HISTORIC PRESERVATION OFFICE

Ruth Pierpont, Deputy State Historic Preservation Officer

Date: _____

NEW YORK STATE OFFICE OF EMERGENCY MANAGEMENT

Andrew X. Feeney, Governor's Authorized Representative

Date: _____

ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Fowler, Executive Director

Date: _____

TOWN OF PHILIPSTOWN



Richard Shea, Town Supervisor

Date 7/21/11

CONCURRING PARTY:

THE OLD ROAD SOCIETY OF PHILIPSTOWN

Howard Kaplowitz, President

Date: _____

SIGNATORY PARTIES:

**DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY**

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Date: _____

ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Fowler, Executive Director

Date: _____

TOWN OF PHILIPSTOWN

Richard Shea, Town Supervisor

Date: _____

CONCURRING PARTY:

THE OLD ROAD SOCIETY OF PHILIPSTOWN

Howard Kaplanitz
Howard Kaplanitz, President

Date: 8/17/11

APPENDIX A

Recommendations for the Maintenance of Old Albany Post Road
Compiled by Tim Ziegler, Field Operations Specialist, Penn State Center for Dirt and Gravel Road
Studies (Center)

COVER LETTER

January 9, 2009

Mr. Howard Kaplowitz, President
Old Road Society of Philipstown
Old Albany Post Road
Garrison, NY 10524

Dear Howard,

This letter is in reference to my visit on 10/7/08 to assess the stormwater situation and provide technical advice regarding the maintenance of Old Albany Post Road in Philipstown, New York. On that day I had the opportunity to make site observations on a stretch of road extending from the intersection of Indian Trail Road on the north end to Sprout Brook Road on the south end. My primary focus was to view the road drainage practices used on the road and compare them to the practices adopted and used by Pennsylvania's successful Dirt and Gravel Road Maintenance Program (*see the attachment with program details*).

In order to best understand why particular practices are presently used, and to make recommendations regarding potential changes to a maintenance scheme, it is necessary to gather as much historical, political, geological and practical background as possible. I fully understand that this would be impossible to do in the timeframe that I have allotted to review this road. However, based on my knowledge of unpaved road maintenance and the collective knowledge of the staff at the Center for Dirt and Gravel Roads, my observations did lead to a few maintenance recommendations that should be considered.

Attached to this letter is a summary of my notes from October 7, 2008. In the notes I make observations and recommendations based on site evaluations of the road and the surrounding road corridor, as well as from discussions with road maintenance personnel, citizens groups, and individuals that live along the road. In addition to my notes of 10/7 I have also enclosed reference material for those who are interested.

While I am probably overstepping my bounds here, it is my belief that open dialog and community cooperation is a big part of resolving challenges such as the current situation on Old Albany Post Road. The majority of the interests of all of the groups and individuals involved could likely be met, so long as all of those involved are willing to listen to, to try to understand, and to compromise with those of opposing viewpoints.

I hope you find the attached summary and recommendations helpful.

Sincerely,

Tim Ziegler

RECOMMENDATIONS

I was invited to Putnam County, New York at the request of the Old Road Society of Philipstown, who covered the cost of my travel and consultation fee. However, it should be understood that regardless of the financial sponsor of my trip, my evaluation and recommendations are unbiased and are representative of the same technical advice that would be given to municipal road maintenance professionals and conservation district staff involved in Pennsylvania's Dirt and Gravel Road Maintenance Program.

On the morning of Tuesday, October 7, 2008 a group of twenty or more concerned citizens met at the southern end of Old Albany Post Road. Among those present were myself, members of the Old Road Society of Philipstown, municipal officials from the Town of Philipstown, a representative of FEMA, and residents from the immediate area. The primary issue concerning the group involved conflicting opinions on whether or not to pave a 450' section of road up-slope of the stream crossing near the intersection with Sprout Brook Road.

The Environmentally Sensitive Maintenance Practices recommended here are proven maintenance techniques that both reduce sediment pollution and reduce the cost and frequency of road maintenance on unpaved roads. These practices have been used successfully on over 18,000 project sites throughout the seven different geologic regions of Pennsylvania, including counties along Pennsylvania's northern tier that are similar geologically and topographically to Putnam County, New York. In addition, these practices are not unique to PA, and many of these techniques are routinely used by transportation agencies across the country. For further information regarding Environmentally Sensitive Maintenance Practices, Pennsylvania's Dirt and Gravel Road Maintenance Program, or the Center for Dirt and Gravel Road Studies go to www.dirtandgravelroads.org or call toll free at 866-668-6683.

The five main principles of ESMPs on unpaved roads are:

- Avoid Concentrating Road Drainage
- Minimize Flow Volumes
- Reduce the Effects of Concentrated Drainage
- Prevent Surface Erosion
- Reduce the Cost and Frequency of Road Maintenance

The following pages outline a list of recommendations for the maintenance of Old Albany Post Road in the Town of Philipstown, New York using Environmentally Sensitive Maintenance Practices (ESMPs), based on site evaluations made on October 7, 2008. Site knowledge and input was gathered from all of those present and information was gathered from adjacent landowners when possible.

Section Number 1 – The unpaved portion of Old Albany Post Road up-slope of the intersection with Sprout Brook Road through to the intersection with Upland Drive.

Surface stabilization and urban style stormwater management is recommended for this section of the road for the following reasons:

- Dense residential development adjacent to the road restricts outlet options for road drainage and brings additional off right-of-way water to the road.
- This is a relatively long and steep stretch of road with no viable ditch outlet locations along the adjoining road corridor.
- A road right-of-way situation exists that forces the town to deal with road drainage within a narrowly defined road corridor (from ditch line to ditch line).
- Since the situation requires that road drainage structures such as pipe inlets must be located at the immediate edge of the cartway, drop inlets (catch basins) are the most likely inlet option since their low profile allows vehicles to drive over them while passing and road maintenance equipment to more easily work around them. Drop inlets are not recommended on unpaved surfaces, as they are prone to plugging during large run-off events and they often become too high to effectively drain the roadside ditch when the elevation of the aggregate surface that surrounds them lowers over time.
- An ideal road drainage system is a road that has no ditches, where the water that falls on the road surface is shed from the road in diffuse sheet flow, similar to natural drainage patterns. This, however, is not possible or practical on this section of roadway.
- Additionally, the glacial material that comprises Item 4 aggregate does not resist erosion as well as road materials found in other geologic regions. The town has done a good job of compacting the cartway (road surface), and traffic action continues to compact the material on an ongoing basis. However the ditch line located at the road edge does not receive the same repeated compaction. Therefore, when water from the cartway and from multiple driveways collects in the ditch, it is concentrated at the least stable point of the road. Combine this with a 450' continuous run down a slope of 7% to 12% with no ditch outlets and a compelling argument can be made to reduce erosion and cyclical road maintenance through surface stabilization.

Surface stabilization with urban style storm sewers (interconnected catch basins) is the logical option for the 450' section of unpaved road up-slope of the Sprout Brook Road intersection. While the most common form of road surface stabilization is asphalt pavement, which is the option currently favored by the town, other stabilization methods can be used to harden the wearing course of an unpaved road in order to resist erosion. The Center for Dirt and Gravel Road Studies does not advocate specific commercial products, nor does the Center do extensive durability testing on commercial products, but instead identifies classifications of products and materials as "non-polluting", or environmentally safe, for use in unpaved road maintenance.

A representative of Soilworks, LLC has contacted Penn State and the Old Road Society regarding an environmentally safe copolymer product (Soiltac) designed to stabilize and solidify the existing aggregate surface. Used correctly, polymer stabilizers will create a hard/erosion resistant driving surface that maintains crown on unpaved roads, and may provide an economical option to paving. Representatives of Soilworks, LLC incorporated their product with surface material samples taken from Old Albany Post Road in laboratory tests and feel strongly that this product will create a durable driving surface that will maintain its shape and elevation. According to company representatives a mixture of their copolymer and the surface aggregate will form a hard material that provides traction and will form hard ditches and aprons around catch basins. Recently Penn State began reviewing product data to potentially include the Soiltac product on its list of Approved Products for the PA Dirt and Gravel Road Maintenance Program. Depending on the economics,

especially during times of skyrocketing oil prices, the use of this, or other alternative stabilization practices, may be a way the Town of Philipstown can address the various concerns of local residents, state regulatory agencies, and town budget managers.

In this section, the initial ~250' stretch up-slope of the bridge at Sprout Brook Road lays at an elevation that has seen previous flooding and may very well flood again if driveway culverts on the adjacent stream are not correctly sized and installed to handle significant future flood events, especially with continued residential development upstream.

While flood damage to hard surface roads is generally more severe when the flow runs across the road and less severe when the flow runs with the road (as is the case on this road), I would still recommend that the driveway culverts be addressed as part of a comprehensive upgrade/repair plan. Left unaddressed, it is likely that these pipes will again be an issue, and may create a situation that has the potential to damage any upgrades made to the road.

Section Number 2 – The portion of Old Albany Post Road from Upland Drive through to Indian Trail Road.

While I recommend surface stabilization, on the .1 mile length of road in Section Number 1, it is not necessary to harden the surface of the remaining unpaved portion of Old Albany Post Road with pavement or alternative methods in order to reduce sediment pollution and maintenance costs. Instead, I recommend that the Town of Philipstown adopt Environmentally Sensitive Maintenance Practices (ESMPs) when maintaining this portion of road as a means of achieving these goals. Specifically, I recommend the following practices:

- Eliminate road ditches when possible by removing all artificial berms, or grader lips, along the down-slope road edge that prevents surface drainage from sheet flowing off of the road to areas of lower elevation. If it is not possible to remove all roadside berms, remove as many sections of berm as is practical. Make the cut-outs as wide as possible to avoid concentrating flow at one narrow spot. *The artificial berms (grader lips) along Old Albany Post Road are very prominent. During my visit to the site I suggested to Roger and Frank that they remove them to establish sheet flow. I was informed by the road crew that they maintain the berms to prevent the road drainage from eroding the down-slope road bank and undermining the road edge. While I am not saying this is impossible, it is very unlikely that this type of erosion will occur if sheet flow is established. However, where a lack of suitable outlets forces long ditch runs, the ditch outlets should be stabilized with woody vegetation or stone to prevent scour (at crosspipes, turn-outs, or the first point beyond a bank where sheet flow is established).*
- When ditches are necessary, use as many ditch outlets as possible to create shorter ditch runs (crosspipes for up-slope ditches and turnouts for down-slope ditches). In addition, steeper sections of road and areas with more off right-of-way influences (driveways, spring seeps, etc.) will need more frequent ditch outlets.
- The Town of Philipstown should consider enacting an ordinance that requires all new access roads and driveways to be designed to limit run-off before it reaches the municipal road. Some driveways will be more challenging than others, but a number of tools exist to accomplish this goal.

- Seek landowner buy-in to the idea of dispersing road drainage and enhancing infiltration. Promote the advantages of community cooperation and a “divide and conquer” stormwater management scheme by pointing out that the following will be reduced: costly and dangerous flood flows, costly road maintenance and repairs, and harmful environmental impacts. Ask residents to allow that road water be permitted to drain to their property if it will not do undue harm. *(A common hurdle to overcome when attempting to gain permission from landowners to outlet road drainage onto their property is the perception of what this will do to the property. Understandably so, many residents think this will lead to sediment plumes and scoured earth. This is the legacy of traditional road maintenance practices that concentrate drainage. The situation is compounded when ongoing development brings more off right-of-way water to the road and the number of ditch outlets remains the same or decreases during the same period. When approaching landowners regarding permission to outlet drainage to their property, be prepared to explain that by dividing drainage (creating shorter ditch runs) the amount of water and erosion at any one outlet is reduced. Explain that more outlets on a length of road mean less water and impact at any one point.)*
- Use innovative practices such as Shallow Crosspipes, Grade Breaks and Through-the-Bank Pipes to control surface erosion and material loss, and to avoid high maintenance tail ditches. *(see attached Technical Bulletins)*
- The Center for Dirt and Gravel Road Studies recommends establishing between 4% and 6% side-slope on unpaved roads. On the day I visited the crown on Old Albany Post Road looked sufficient to be effective. Roger Chirico, Philipstown Superintendent of Highways, said that they shoot for a 6% side slope when they do maintenance grading. This road shape should be enough to provide for effective road surface drainage.
- If the town has access to a vibratory roller, and has not already adopted the practice of post grading compaction, I recommend adding this to their unpaved road maintenance routine. This practice yields the best results when the road surface is damp. Compacting newly graded aggregate will more than pay for itself by lengthening maintenance cycles and reducing the loss of surface material.
- Also, to avoid inadvertently removing crown and scraping valuable road material to the ditch (where it can be washed away during winter thaws and heavy Spring rains), the Town of Philipstown should use shoes on their snowplows when plowing Old Albany Post Road, if they are not doing so already.

In conclusion, with changing fiscal, political, and environmental challenges faced by municipalities trying to provide effective road maintenance, as well as growing pressure and demands from residents and motorists, all potential road maintenance schemes should be kept open as available options for municipal road maintenance crews. Since no two roads have identical situations, maintenance programs should differ from road to road, and the factors determining the choice of maintenance program should differ also. While the residents along Old Albany Post Road have different ideas on what maintenance scheme should be employed by the town, and the town has its own plans, I encourage the different interest groups to work together to find solutions that are acceptable to all those involved. Neither safety nor history is my area of expertise. However, just as financial and environmental factors need to be considered when developing a road maintenance program, so too should these other factors important to the community. Since correctly implemented Environmentally Sensitive Maintenance Practices will reduce road maintenance costs and

environmental concerns related to unpaved roads while allowing the road to remain unpaved, I would suggest that the Town of Philipstown implement these practices when maintaining the dirt and gravel portion of Old Albany Post Road.

The Center for Dirt and Gravel Road Studies is available to do more detailed maintenance recommendations if the Town of Philipstown is interested in getting a more detailed project plan using ESMPs. Since we are a public entity, the fee for this service is very reasonable. Also, the Center puts on approximately ten two-day Environmentally Sensitive Maintenance Training courses a year for road maintenance professionals at various locations throughout PA. The courses are open to road maintenance personnel from states bordering PA. For more information contact Kathy Moir at 1-866-668-6683, or email Kathy at kam16@psu.edu.

ADDITIONAL NOTES

Below are additional notes from my 10/7/08 visit to Old Albany Post Road.

- So long as the corridor surrounding Philipstown's unpaved roads remains less densely developed, the town should use every opportunity to use alternative road maintenance practices such as ESMPs to promote the infiltration of stormwater, rather than pattern drainage after urban stormwater systems the exaggerate flood flows and reduce groundwater recharge.
- In a discussion with Roger Chirico he mentioned that the town enacted a policy or law that requires a landowner to pay for alternative drainage structures if he/she wants the town to close off an existing ditch outlet. It seems that this would be incentive to create as many ditch outlets as is practical before further development brings more off right-of-way water and limits outlet opportunities.
- Different organizations and publications use various determinants such as traffic count and road grade as benchmarks to determine when paving is recommended or justified on an unpaved road. These are guidelines, and since the effectiveness of drainage, as well as many other factors, affects the stability of a road, they are not hard and fast rules. Steep grades can exist on unpaved surfaces, so long as effective drainage can be achieved. Unless a situation exists such as that found on the southernmost unpaved portion of Old Albany Post Road there are generally cost effective maintenance options that do not require paving.
- Discussions with Roger and Frank of the Philipstown road crew, as well as local residents, reveal that since the flood event a great deal of maintenance time and material is being spent on the upkeep of the 450' stretch near Continental Village. It is likely that this stretch is adding significantly to the average annual road maintenance costs per mile for Old Albany Post Road.
- The stabilization of the road surface and the installation of catch basins along the southernmost .1 mile of the road will markedly cut back the loss of surface material and will reduce storm related turbidity in the waterways below, but will do nothing to address flood flow volume.
- Armoring a road by stabilizing the surface and hardening the ditches is a common response to a large flood event. However, this approach only addresses the symptoms of the problem rather than the cause. While it is important to use these practices to protect the road from further damage when good alternatives do not exist, it is also important to reduce or eliminate the cause of the problem (i.e. – overdevelopment of a watershed, uncontrolled sources of off right-of-way water, too few ditch outlets, etc.).
- The Town of Philipstown has a page on the town website under the Stormwater tab labeled "After the Storm" that suggests ideas on how residents can reduce stormwater run-off and encourage infiltration by using permeable pavement, grassy swales and vegetated filter strips. The practices follow much of the same line of thinking that ESMPs do in dealing with road drainage. The adoption and implementation of ESMPs on Old Albany Post Road would set a great example to the residents of Philipstown that the town is truly interested in practicing what it preaches. A public outreach campaign in the town newsletter and website could help to get this message across, create public buy-in, and increase public awareness to stormwater issues.