

**Owego Elementary School
Facility Relocation Project**

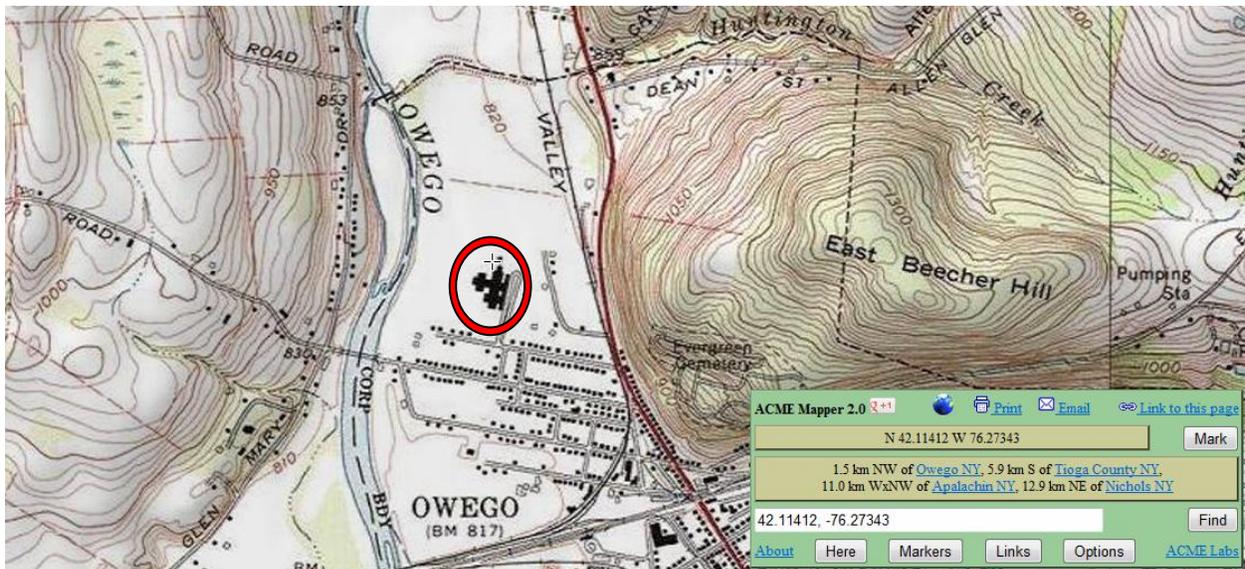
Appendix G

**EO 11988
Eight-Step Review**

EO 11988 Eight-Step Decision-Making Process Summary
Owego Apalachin Central School District
Owego Elementary School Replacement
FEMA-4031-DR-NY PW02002

Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetland) require Federal agencies “to take steps to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of the floodplain/wetlands and to avoid direct or indirect support of floodplain/wetland development wherever there is a practicable alternative.” FEMA’s implementing regulations are contained in 44 CFR Part 9, which includes an eight-step decision making process for floodplain and wetlands compliance.

This Eight-Step Process is applied to the replacement of the Owego Elementary School in the Village of Owego, Tioga County, New York at 1 Christa McAuliffe Lane (42.11412, -76.27343) hereinafter referred to as the Project. The grantee for the proposed project is the New York State Office of Emergency Management and the subgrantee is the Owego Apalachin Central School District (hereafter referred to as “subgrantee”). The project scope of work is documented in Project Worksheet #02002 for FEMA-4031-DR-NY.



Heavy rain from Tropical Storm Lee caused the Owego Creek to overflow its banks, flooding the elementary school with heavily silted water. The water slowly receded over several days, leaving contaminants and silt in and on all submerged items. All finishes, mechanical systems, electrical systems and permanent equipment were damaged.

It has been estimated by FEMA that the cost to repair the facility exceeded 50% of the estimated cost to reconstruct it. Therefore, the facility is eligible for replacement. Thus, the steps in this decision making process are steps 1, 2, 3, 4, 5, 6, 7 and 8 per 44 CFR Part 9.5(d), as follows:

Step 1 Determine if the proposed action is located in or affects the floodplain or a wetland.

The proposed project is located within the 100-Year Floodplain. It is located in Zone AE, which is within the Special Flood Hazard Area (SFHA), as illustrated on the National Flood Insurance Program's Flood Insurance Rate Map (Community-Panel Number 36107C0382E dated April 17, 2012). The Base Flood Elevation (BFE) is between 817 and 818 feet (North American Vertical Datum of 1988).

As indicated by the map below, the school is in the 100-year floodplain but it is not located in the floodway.



As indicated by the map above, the school is not located in a wetland. Thus, no further wetland analysis is required.

Executive Order 11988
Executive Order 11990

Step 2 Early public notice (Preliminary Notice).

A cumulative public notice for the disaster was published in the New York Press Service newspapers on October 10, 2011. As indicated in the notice, “projects and activities may adversely affect historic property, floodplains or wetlands, or may result in continuing vulnerability to damage by flooding...however, certain measures to mitigate the effects of future flooding or other hazards may be included in the work”. The notice also states that “mitigation measures will be incorporated on an action by action basis and this (the October 10, 2011 notice) may be the only public notice concerning these actions.”

In addition, a project specific notice was mailed to stakeholders and published in the Binghamton Sun on December 26, 2012. The public notice invited comments within 15 days of the date of the notice (by January 10, 2013). FEMA received no public comments in response to the notice.

Step 3 Identify and evaluate alternatives to locating in the base floodplain.

44 CFR 9.9 (b) requires that FEMA “identify and evaluate practicable alternatives to carrying out a proposed action in floodplains or wetlands, including:

- 1) Alternative sites outside the floodplain or wetland;
- 2) Alternative actions which serve essentially the same purpose as the proposed action, but which have less potential to affect or be affected by the floodplain or wetlands; and
- 3) No action. The floodplain and wetland site itself must be a practicable location in light of the factors set out in this section” (below).

Factors to consider in determining practicable alternatives include:

- 1) the natural environment (topography, habitat, hazards, etc.);
- 2) social concerns (aesthetics, historical and cultural values, land patterns, etc.);
- 3) economic aspects (cost of space, construction, services and relocation);
- 4) legal constraints (deeds, leases, etc.); and
- 5) engineering feasibility.

The subgrantee determined that repair of the existing facility was not practicable. As noted prior, the building was determined by FEMA to be eligible for replacement based upon the 50% rule (*Reference: Public Assistance Digest FEMA 321, January 2008*). The original facility will be demolished. The subgrantee provided FEMA with an analysis of alternative sites that were considered for possible relocation of the school. Due to natural, social and legal constraints, however, no practicable alternatives were identified outside the floodplain. Sites considered by the subgrantee included:

- Site #1A: The existing school site (1 Christa McAuliffe Lane, Owego) built on fill
- Site #1B: The existing school site (1 Christa McAuliffe Lane, Owego) built on stilts (open works)
- Site #2: The northern most area of the Owego school complex (athletic and open fields)
- Site #3: The State Route 434 site owned by the Owego Industrial Development Agency

Sites 2 and 3 were determined to be not practicable alternatives because Site 2 has development constraints which would delay reconstruction of the school and Site 3 has site development

Executive Order 11988

Executive Order 11990

issues with estimated total development costs over \$44,715,473; that would make it too expensive to develop. FEMA has determined that Sites #1A and #1B are both practicable alternatives even though they are both located in the floodplain, see attached documentation.

Likewise, it has been reported to FEMA that the State Education Department has determined that there is no alternative action, such as sending the Owego Elementary School students to the other existing elementary school within the district on a permanent basis that could be implemented to provide the necessary educational facility without development in the floodplain. Therefore, FEMA determines there is not an alternative action, which essentially serves the same purpose as the proposed action, and that does not have less potential to affect or be affected by the floodplain.

Since there is not an alternative site outside the floodplain and there is not an alternative action outside the floodplain, FEMA must either take no action or find the site within the floodplain as a practicable alternative. From a natural, social, economic, engineering feasibility and legal perspective, replacement of the elementary school within the floodplain is a practicable alternative because:

- the Project proposes to reconstruct the elementary school at an elevation in excess of the base flood elevation in accordance with the National Flood Insurance Program requirements, as well as local and state floodplain management laws, regulations and building codes.
- it is within the legal control of the subgrantee.
- it complies with the State Education Department requirements for elementary schools.
- it has historically been used as an elementary school and is therefore part of the social fabric of the community.
- the estimated replacement cost is \$24,260,488. This estimate includes costs for expansion due to New York State Building Codes and Standards (NYSBCS).

Step 4 Identify impacts of the proposed action associated with occupancy or modification of the floodplain.

The proposed project will involve expanding the elementary school from 70,000 square foot to approximately 115,000 square foot building (additional 45,000 square foot) to comply with NYSBCS and subgrantee program requirements. The project will not significantly adversely impact natural habitat values or other functions. The proposed building expansion will increase the facility footprint and will result in small loss of floodplain habitat. However, the impacted area in its existing condition has diminished the natural floodplain value as a managed and disturbed landscape adjacent to the original building site. The proposed project's footprint expansion is not anticipated to induce flooding on upstream or downstream properties, as a no-net fill approach is planned as described in Step 5. The proposed project would likely not promote floodplain development for new uses beyond the existing use for educational facilities. The proposed project promotes continued floodplain occupancy of a facility and its occupants, as well as Federal investment at increased risk due to potential flood damage/impacts, as opposed to siting the facility in a less floodprone area. The continued risk, and enhanced risk to federal

investment due to new facility and expansion investment, will be minimized to the extent practicable as described below in Step 5.

Step 5 Design or modify the proposed action to minimize threats to life and property and preserve its natural and beneficial floodplain values.

Elevation of the project structure above the BFE for the 100-Year Floodplain will minimize threats to life and property. The preliminary design plans also indicate that the elevation of the egress from the school will be at or above the BFE. The design's flood damage risk minimization measures, together with an effective evacuation plan, will help to minimize threats to life and property related to continued floodplain occupancy. Details regarding an evacuation plan will be provided by the subgrantee in parallel with final design development. The project design will include an equivalent volume of soil excavation as compensation for any fill within the floodplain, and thus the project would not be anticipated to induce flooding on any downstream or upstream facility or property. Site erosion and sedimentation control plans will be required, along with dust control, and other best management practices for construction that will avoid and minimize potential temporary impacts to the human environment.

Step 6 Re-evaluate the proposed action.

No practicable alternatives were identified for locating the project outside of the 100-Year Floodplain. Taking "No Action" to replace the school facility is not an acceptable alternative, as the project purpose and need to replace the function of flood-damaged facility for the education system within the community would not be fulfilled. The flood damage risks to life and property have been minimized to the extent practicable via the proposed elevated building and egress design, and the development and implementation of an alert-notification and evacuation plan for preparedness and response. The public good of the project's purpose and function outweighs the risk of floodplain occupancy and outweighs Federal investment in a structure that will be at increased risk to future flood damage. Therefore, re-evaluation has resulted in a Federal agency decision to proceed with replacement reconstruction at the existing floodplain location.

Step 7 Findings and Public Explanation (Final Notification)

After evaluating alternatives, including impacts and minimization opportunities, FEMA and the grantee/sub-grantee determined that the proposed project is a practicable alternative. It is FEMA's determination that there is no practicable alternative to locating the proposed project within the 100-year floodplain. This Eight-Step Review will become part of the environmental assessment (EA) documentation for this project to be prepared in accordance with the National Environmental Policy Act (NEPA). As stated in Step 2, no public comments were received in response to a project specific public notice issued on December 26, 2012. The NEPA process will include public involvement, providing an opportunity to the public to comment on the final agency decision.

Step 8 Implement the action

The proposed project will be constructed in accordance with the proposed scope of work, and the incorporation and adherence to the floodplain impact minimization measures described in Step 5 will be conditions of the Federal grant. The subgrantee is responsible for review of the final building plans and will assure compliance with all applicable codes and standards. The subgrantee will obtain all required building and site development permits, such as a State Pollutant Discharge Elimination System (SPDES) permit pursuant to New York State Environmental Conservation Law, as a condition of the Federal grant, to preserve the floodplain environment, and to minimize risk and harm to life and property.



Dr. William Russell, Superintendent
Owego Apalachin Central School District
36 Talcott Street
Owego, NY 13827

December 20, 2012

RE: Floodplain Compliance and Owego Elementary School Replacement Project

Dear Dr. Russell,

FEMA has determined that the Owego Elementary School has sustained significant damages from Tropical Storm Lee. Their calculations indicate that the repair cost is greater than 50% of the replacement cost and therefore is eligible for replacement funding under the Stafford Act.

The existing school lies within a floodplain. Development within floodplains is generally prohibited unless a practicable alternative does not exist, and the floodplain location itself, is a practicable alternative. In order to gain compliance with the floodplain regulations a search was undertaken to determine if a suitable parcel is available nearby to relocate the elementary school.

This paper discusses the search for an alternative and the considerations and deliberations that affected decision making. This paper amends the Part 9 documentation/application that was provided to FEMA on December 13, 2012.

The search began:

The district, under your direction, retained the services of several professionals to assist with the search for an alternative. Many disciplines were required in order to facilitate good decision making. The group consisted of a 1) commercial real estate broker, 2) an architect, 3) a licensed professional engineer, 4) a construction management firm, 5) a grants management firm and 6) several subcontractor specialists to handle items such as historic preservation and flood velocity modeling.

The primary issues at hand included fair market value, site construction costs, environmental compliance, historic preservation, floodplain regulations, FEMA grants management requirements, and the ability to serve the district's constituents and student body. Of equal importance to the school district, as you have stressed over and over, is to avoid any delays in returning the student body, the teachers, administration and community to a permanent elementary school, avoiding additional stress to the affected parties and financial cost to the project associated with the operation of temporary school facilities at Linnaeus West.

The process used by the district was to identify potential sites according to certain selection criteria and then evaluate each site according to FEMA evaluation methods to ensure consistency. The criteria used to identify potential parcels were:

- Sites available for sale (on the open market) or owned by the district
- 10 acres minimum size that are not in a floodplain
- Major utilities near-by (power, water, sewer, high speed internet)
- Within 2 mile radius of the Village of Owego where 55% of students live

The outcome of the search revealed 4 potential alternatives at 3 sites for consideration:

1. The existing OES site built on fill
2. The existing OES site built on stilts (open works)
3. The northern most area of the Owego campus
4. The State Route 434 site owned by the Owego IDA

Discussion of the sites

Discussion of the 4 sites will begin in reverse order of the site list because we will explain our process of elimination as it led to our logical conclusions of the most practicable site.

4. The State Route 434 site owned by the Owego IDA

This site was ranked very low in our evaluation mainly due to cost considerations. The site has utilities near-by that could be extended for a reasonable price. The boundaries of this site are narrow and deep with topography having a 12% grade that elevates from the front-to-rear of the site.

A previous study conducted by the owner reveals that NYSDOT will require a traffic study for design of new turning lanes for each direction on this state highway in order to allow access to the property. This will add delays and significant site development costs to the project.

A large water storage facility would need to be constructed to provide sufficient water and pressure to operate a building-wide fire suppression system.

The IDA is pricing the site at \$20,000 per acre, yielding an acquisition cost of \$200,000 - \$360,000.

Most significantly, this type of site requires a great deal of cut-and-fill techniques to level the area to create acceptable grades for building, parking and play areas. The excavation has been estimated by our civil engineers at many millions of dollars.

All of these factors lead our team to conclude that the site is quite impracticable as an alternative, most importantly because it is not a cost effective solution.

3. The northern-most area of the Owego campus

The northern-most area of the Owego Campus has an area of softball diamonds and other playing fields. This site has some unique aspects to consider. A small portion of it is outside of the floodplain; it is owned by the district; it is immediately adjacent to a rail line; and it has been designated a site which is eligible for placement on the National Register of Historic Places given the archaeologist's findings of numerous pre-historical artifacts.

3.5 acres is outside of the floodplain, which is highly desirable. The size and geometric shape that is outside of the floodplain however will not fit the building footprint. A majority of the area of the proposed elementary school would still be required to be in the floodplain at this location. All parking areas and ancillary development would lie within the floodplain.

There are nearby utilities, however, there is an active rail road line immediately adjacent to the site which is between the utilities and the site. Excavations for pipe trenches under the rail line will escalate the cost of conveying water, waste water, power and high speed internet to the project. There will also be delays to the project in order to obtain easements and permission to access the utilities through property owned by others.

Another concern with proximity of the rail line to the elementary school is the safety risk to students due to the nearby "attractive nuisance" if not the legal sense but the practical sense. At present, there are no controls at the railroad crossing adjacent to the site.

The historic preservation concerns could be solved, but not easily or in a timely fashion. There is a way to 'clear' the site for development by extracting the pre-historic artifacts, cataloging the find and then proceeding with construction. This will take time and require additional fees (estimated at \$50,000 - \$100,000) for a study and careful extraction of artifacts prior to any excavation work beginning on the elementary school, resulting in a considerable delay.

This site did not score well as a practicable alternative due to safety, cost of utility conveyance, historic concerns, floodplain concerns, and delays with project completion due to historic preservation issues, easements and legal concerns.

1. The OES existing site built on fill
2. The OES existing site built on stilts (open works)

The only remaining choices for development are on the existing site – within the floodplain. As both alternatives are on the same site they will be discussed jointly for the purposes of this document. We will discuss the site characteristics first, then the type of construction – on-fill versus on-stilts.

The site is owned and within the control of the district which eliminates any concerns with zoning or easements.

The site has all required utilities on-site with very low cost to connect – a substantial factor affecting project cost.

The site is part of an existing campus dedicated to education with a close proximity to 54% of the student population living close by (within 2 miles). Approximately 57 students walk to school. This is almost 10% of the student body. It is easy to conclude that the existing location provides substantial social benefits to the community due to the close proximity to the Village of Owego.

The area surrounding the existing elementary school has undergone a Phase 1 A&B Archaeological investigation. The findings of that investigation conclude that 1) the elementary school area is not a culturally sensitive area and that 2) an area adjacent to the school known as the mitigation area has identified one potentially sensitive artifact. The report recommends further excavation at that area as part of a Phase 2.

Consultation with the archaeologist reveals that they believe they will clear the area for excavation based upon the Phase 2 findings. Therefore, there are no historic preservation concerns to prevent development of this site.

This leaves one remaining major concern with the site – it lies within the floodplain. Compliance with floodplain regulations and the local floodplain law can be achieved, however. It is possible to build within the floodplain under certain circumstances.

The two critical compliance issues are a) the new building must be dry flood proofed from a 500-year event and the techniques use to achieve that compliance (b) cannot have a negative impact on ‘down-stream’ properties. Both of these requirements have been met through either of the two alternatives – (1) elevate the building on fill or (2) construct it on open works or stilts.

The proposed new building is either elevated above the floodplain or constructed so that a flood could pass below the building. The district’s recovery team has concluded that the build on fill (1) solution is the most practicable due to cost.

The costs associated with (2) open works or stilts are very high as the soil-bearing conditions at the site require expensive piles to support the building. When (2) is compared to the more conventional methods of (1) spread footings on fill – the (1) build on fill solution is the most cost effective alternative and it is also the least likely to experience cost escalation as there are fewer variables associated with the conventional methods.

Either method would require a “mitigation area” to be excavated, either near the new school (if built on fill) or in the “stilts” area if built on open works. The purpose of this mitigation area is to equalize the flood volume displaced by the new building. This will ensure that the construction of the new school does not raise flood risk to others.

The (2) stilts method will require less excavation of the mitigation area than the (1) build on fill alternative, which requires a more substantial excavation.

FINAL CONCLUSION

Based upon the many considerations described in this paper and the scoring evaluation process, Site 1 – build on fill at the current location, is the preferred and most practicable solution to restoring the elementary school.

It is possible to rebuild on the current site in a cost-effective manner that meets the floodplain compliance laws and regulations.

Sincerely,



Ronald Simmons
Principal

OWEGO APALACHIN CSD
CONCEPTUAL ESTIMATES FOR OES SITE/FOUNDATION OPTIONS

December 11, 2012

The conceptual costs for a 115,000 SF building (100,000 sf 1st floor and 15,000 sf 2nd flr) are as follows:

Element	Site 4	Site 1	Site 2	Site 3
Building	\$ 20,685,595	\$ 20,685,595	\$ 20,685,595	\$ 20,685,595
Foundations*	\$ 1,713,878	\$ 1,164,218	\$ 5,897,275	\$ 1,164,218
Cut and Fill	\$ 20,000,000	\$ 1,537,525	\$ 1,945,138	N/A
Mitigation	N/A	\$ 568,150	N/A	N/A
Site Improvements	\$ 2,316,000	\$ 305,000	\$ 305,000	\$ 756,000
Total	\$ 44,715,473	\$ 24,260,488	\$ 28,833,008	\$ 22,605,813

*This number for Site 2 reflects the use of vibro displacement stone columns due to poor soil conditions noted during test boring.

This estimate is based on Lend Lease historical data as well as prevailing wage rates for the area the project is scheduled to be constructed.