FY 22 HMA – Grant Application Review Summary

Subapplication Number	EMA-2022-BR-001-0026		
Project Title	Mount Pleasant Road Pump Station Relocation		
Applicant Name	North Carolina Department of Public Safety		
Subapplicant Name	Onslow Water & Sewer Authority		
Project Type	Infrastructure Retrofit		
Recommendation	Yes with Conditions		
Federal Cost (FEMA GO)	$883,605	**Phased Project**	No
BCR (subapplication)	1.16	**Duplicate Project**	No
BCR (reanalysis)	1.00	**Benefits (reanalysis)**	$1,304,438

Summary

This is a technical feasibility and cost-effectiveness review in support of the National Technical Review process. Additional Environmental Planning and Historic Preservation (EHP), eligibility and completeness, and funding limitation considerations may affect the selection of this subapplication for further consideration and funding. No contact was made with the applicant or subapplicant; this review is solely based on information provided in the subapplication.

Scope of Work

The scope of work is well-defined and clearly explains the activities necessary to complete the work. The subapplicant has submitted a subapplication for the replacement of an existing wastewater pump station with a new pump station, including wet well, valve vault, power/control panel, and emergency generator, to be installed at an alternate location not within a flood area. The new pump station will be located outside of the 100-year floodplain and elevated 3 ft above the current pump's elevation.

Technical Feasibility

Project Schedule

The schedule duration is 34 months. The schedule includes all items in the scope of work and is reasonable.

Cost Estimate

The cost estimate includes sufficient line items consistent with the scope of work; however, the cost estimate does not match the supporting documentation. The subapplication includes management costs that are not included in the documentation.

Technical Design Information

The following information and documentation were provided to support the project:

Item	Documentation	Evaluation
Proposed Level of Protection	Subapplication Narrative	The project proposes to protect wastewater pump station up to the 100-year event.
Flood Risk Data	FEMA FIRMette	The proposed project is in the Special Flood Hazard Area. The provided documentation does show how the proposed project will reduce risk by relocating the

Item	Documentation	Evaluation
		pump station at a higher elevation and away from the erosion occurring at the current pump station.
Residual Risk	Flood Maps, Vulnerability Assessment	Documentation was provided to support the project. A technical memo included recommendations for the new pump and the proposed finished floor elevation of the pump station.
Design and Performance Standards	Subapplication Narrative	The subapplicant states that all activities will be in compliance with federal, state, and local applicable rules and regulations.
Design Drawings, Maps, Photographs	Design Drawings, Project Maps/Photos	Documentation was provided to support the project. Conceptual plans included the proposed layout of pump station.
Upstream and Downstream Impacts	Scope of Work Narrative	The documentation does not indicate whether the proposed project will have adverse upstream or downstream impacts.
CLOMR/LOMR	No Documentation was Provided.	The documentation does not indicate a CLOMR/LOMR is necessary.
Operation and Maintenance (O&M) Plans	No Documentation was Provided.	Subapplicant does not indicate that an O&M plan will be developed as part of the project.

Based on the documentation provided, the project is technically feasible and effective at reducing risk to individuals and property from natural hazards. The following conditions were identified:

- Projects that affect the hydrologic or hydraulic characteristics of a flooding source may require a Conditional Letter of Map Revision (CLOMR) and/or a Letter of Map Revision (LOMR) if they result in changes to the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA).
- Provide documentation to support that the proposed project will not have adverse upstream or downstream impacts.

Cost-Effectiveness

The Benefit-Cost Analysis (BCA) was completed based on historical damages.

The following was found during review of the submitted BCA:

Cost Estimation

Input	Value	Evaluation
Project Useful Life (PUL)	20 Years	This value is not consistent with the FEMA standard value. The FEMA standard value for pump stations is 50 years.

Input	Value	Evaluation
BCA Toolkit Initial Project Cost	$1,122,000	This amount is consistent with the subapplication project cost estimate. The BCA initial cost does not include costs for management and salaries that are included in the subapplication.
Annual Maintenance Cost	$11,022	The amount is reasonable.
BCA Toolkit Total Project Cost	$1,238,767	This amount is calculated based on the initial project cost, the annual maintenance costs, and the PUL.

Historical Damages

Input	Evaluation
Facility Type	The facility type of wastewater utility was used in the BCA. This input is consistent with the proposed project in the subapplication.
Year Built/ Analysis Duration	The value used in the BCA is not consistent with the supporting documentation. Supporting documentation states that the year built was 1984.
Loss of Function	The loss of function of the wastewater utility pump station was stated to impact 1,000 customers. The Value of Unit of Service was the default value of $60/person/day. Supporting documentation was not provided for the historical number of days of loss of function.
Before-Mitigation Damages	Six damage events were entered in the BCA with downtimes ranging from 7 to 11 days. The unknown frequency calculator was used to determine RIs. Documentation was not provided to support the damages or define whether the damages were related to erosion, flooding, or both.
After-Mitigation Damages	A RI of 20 years was used with 3 impact days for after-mitigation damages. Documentation was not provided to support the recurrence interval. The proposed level of protection in the supporting documentation is the 100-year flood event.

Reanalysis BCA

A reanalysis BCA was performed, and the following edits were made:

Input	Value	Explanation
Project Useful Life	50 years	The FEMA standard value for pump stations was used.
Year Property Built	1984	Documentation from the utility states the year the pump station was built.

Input	Value	Explanation
Number of Customers Served	700	Documentation from utility states 250 houses served by pump station. Census data estimates 2.8 people per household, thus approximately 700 customers.
Expected Damages After Mitigation	Recurrence interval: 101 years Impact Days: 7	Documentation states that the mitigation will protect the pump station in the 100-year flood.
Social Benefits	225 residents	Social benefits were used to bring the BCR to 1.00.

Based on the reanalysis BCA, the total benefits associated with this project, $1,304,438, are greater than the total project cost of $1,304,213, producing a BCR of 1.00.

Based on the documentation provided, the project is cost-effective. The following condition was identified:

- Provide documentation to support the impact days for all damage events, including information regarding the cause of the loss of function (erosion and/or flooding).

Conclusion

Based on the information provided, the project is technically feasible and cost-effective; therefore, it is recommended for further consideration with the following conditions:

- Projects that affect the hydrologic or hydraulic characteristics of a flooding source may require a Conditional Letter of Map Revision (CLOMR) and/or a Letter of Map Revision (LOMR) if they result in changes to the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA).
- Provide documentation to support that the proposed project will not have adverse upstream or downstream impacts.
- Provide documentation to support the impact days for all damage events, including information regarding the cause of the loss of function (erosion and/or flooding).

This review is an evaluation of the project's technical feasibility and cost-effectiveness. Additional EHP, eligibility and completeness, and funding limitation considerations may affect the selection of this subapplication for further consideration and funding.