

FY 22 HMA – Grant Application Review Summary

Subapplication Number	EMA-2022-BR-001-0003		
Project Title	Happy Hill PS and North Walnut Street PS Relocations		
Applicant Name	North Carolina Department of Public Safety		
Subapplicant Name	Town of Fairmont		
Project Type	Flood Risk Reduction		
Recommendation	Yes with Conditions		
Federal Cost (FEMA GO)	\$2,479,132	Phased Project	No
BCR (subapplication)	1.67	Duplicate Project	No
BCR (reanalysis)	0.00	Benefits (reanalysis)	\$0

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 relocation of two wastewater pump stations. The two existing pump stations (Happy Hill Pump Station and North Walnut Pump Station) are located within the special flood hazard area (SFHA). The project includes construction of new 80-gallon-per-minute (gpm) and 180 gpm pump stations with new force mains outside of the SFHA. Both new pump stations will include submersible pumps, wet well, valve vault, emergency bypass connection, generator, electrical, controls, SCADA, and other required improvements for the relocation of the pump station.

Technical Feasibility

Project Schedule

The schedule duration is 26 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. Line items include design, surveying, permitting, easement preparation, pump station relocation, construction management, and contingency.

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 the two wastewater pump stations during the 100-year event. The project plans to relocate the pump stations to higher ground outside of the 100-year floodplain,

Item	Documentation	Evaluation
		elevating rim elevations 5–10 feet above the 100-year floodplain.
Flood Risk Data	FEMA FIRM, Subapplication narrative	The proposed project is in the Special Flood Hazard Area. A map was provided with the new locations of the pump stations, indicating the locations are outside of the SFHA.
Residual Risk	Subapplication narrative	The subapplicant stated that rim elevations for the pump stations will be 5–10 feet above the 100-year floodplain. Residual Risk is likely to be storm events larger than the 100-year, as the pump stations are being relocated outside of the floodplain.
Design and Performance Standards	Subapplication narrative	The subapplicant noted that all permits will be obtained for required activities and ordinances at each level of government will be followed.
Design Drawings, Maps, Photographs	Conceptual drawings, project maps/photos	Documentation was provided to support the project. Design is conceptual. Subapplication does indicate the conceptual design will mitigate the hazard.
Upstream and Downstream Impacts	No documentation was provided to support this item	The documentation does not indicate whether the proposed project will have adverse upstream or downstream impacts. No impacts are expected, the existing pump stations will be removed from the floodplain.
Operation and Maintenance (O&M) Plans	Subapplication narrative	Subapplicant indicates that the O&M cost is based on proper upkeep, testing, and expected repairs to each pump station. The Town of Fairmont will be responsible for all maintenance after the project is complete.

Based on the documentation provided, the project is technically feasible and effective at reducing risk to individuals and property from natural hazards.

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)	50 years	This value is consistent with the FEMA standard value.

Input	Value	Evaluation
BCA Toolkit Initial Project Cost	\$2,752,650	This amount is not consistent with the subapplication project cost estimate. The cost estimate used in the BCA is slightly higher than the cost estimate provided in the subapplication.
Annual Maintenance Cost	\$8,750	This amount is reasonable. Documentation states the costs were estimated based on expected upkeep, testing, and repairs to each pump station.
BCA Toolkit Total Project Cost	\$2,873,407	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 'Utilities' was used in the BCA. This input is consistent with the proposed project in the subapplication.
Loss of Function	Loss of wastewater service was estimated using the FEMA standard value of service per day for 2,837 customers. However, there are only 168 customers in the pump station service areas. The higher number also includes downstream customers within the Town of Fairmont. Downstream customers are not expected to have a loss of service based on pump station flooding; therefore, the total number of impacted customers appears unreasonable.
Before-Mitigation Damages	<p>Before-mitigation damages were based on loss of service for three storm events in 2016, 2018, and 2020. Recurrence intervals for Hurricane Matthew in 2016 and Hurricane Florence in 2018 were based on NOAA rainfall totals. No documentation for the 5-year recurrence interval selected for the 2020 outage was provided.</p> <p>Each of the hurricanes used 7 impact days, while the 2020 event used 4.5 impact days. No supporting documentation was provided for the assumed number of impact days.</p>
After-Mitigation Damages	After-mitigation damages of zero days are listed for a 75-year recurrence interval. After-mitigation damages should not be zero, as it is likely the pump stations will experience damages for storms larger than the planned level of service.

BCA Assistance

This subapplication qualified for additional BCA assistance. Additional information is needed to show the project as cost effective. Additional benefits may include reduced risk of physical damages, loss of function and life safety, where applicable. Ecosystem services and social benefits may also be considered.

Based on the documentation provided, the project's cost-effectiveness could not be determined. The following conditions were identified:

- Additional information is needed to show the project as cost-effective. Additional benefits may include loss of service and social benefits for additional customers, reduced risk of physical damage to property, and reduced repair and replacement costs to the pump stations.
- Provide documentation to support the number of customers impacted by loss of function.
- Provide documentation to support the historical loss of function impact days.

Conclusion

Based on the information provided, the project is technically feasible, and additional information is needed to confirm the cost effectiveness. It is recommended for further consideration with the following conditions:

- Additional information is needed to show the project as cost-effective. Additional benefits may include loss of service and social benefits for additional customers, reduced risk of physical damage to property, and reduced repair and replacement costs to the pump stations.
- Provide documentation to support the number of customers impacted by loss of function.
- Provide documentation to support the historical loss of function impact days.

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