

FY 22 HMA – Grant Application Review Summary

Subapplication Number	EMA-2022-BR-001-0025		
Project Title	Downtown Utility Duct Bank and Stormwater		
Applicant Name	North Carolina Department of Public Safety		
Subapplicant Name	Town of Mount Pleasant		
Project Type	Infrastructure Retrofit and Stormwater Management		
Recommendation	Yes with Conditions		
Federal Cost (FEMA GO)	\$4,069,494	Phased Project	Yes
BCR (subapplication)	6.02	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 Downtown Utility Duct Bank and Stormwater Mitigation project. The subapplicant’s proposed project includes: (1) installing 2,275 linear feet of utility duct banks for electric and communications infrastructure (this will entail relocating the critical utility lines into underground, concrete-encased duct banks), and (2) stormwater mitigation measures replacing existing failing and/or undersized stormwater infrastructure and adding inlets in the sag locations. This is a phased project with engineered construction plans to be prepared within Phase 1 and constructed as part of Phase 2.

Technical Feasibility

Project Schedule

The schedule duration is 24 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 included a contingency cost of 10 percent, which is greater than the contingency cost range (1–5 percent; up to 7 percent for historical structures) recommended by the HMA Guidance.

Technical Design Information

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

Item	Documentation	Evaluation
Design Codes and Standards	Scope of work narrative	The subapplication supporting documentation notes that all activities will follow federal, state, and local applicable rules and regulations.

Item	Documentation	Evaluation
Design Drawings, Maps, Photographs	Conceptual drawings, project maps/photos, structure-specific details for retrofits	Conceptual design drawings with aerials and photographs were provided as supporting documentation.
Risk Information	Geotechnical studies, fluvial geomorphology, other applicable studies	A narrative was included with the supporting documentation. The subapplication states that additional recommendations regarding nature-based alternatives from the Downtown Stormwater Study will be incorporated into the stormwater improvements designed in Phase 1 of the project. The scope of work for the Downtown Stormwater Study is included with the supporting documentation.
Before-Mitigation Level of Protection	Scope of work narrative; Drainage Investigation Narrative	The level of protection of the existing stormwater system is the 5-year event. The system surcharges at the 10-year event.
After-Mitigation Level of Protection	Scope of work narrative	After-mitigation, the proposed stormwater system will protect to the 50-year storm event.
Flood Hazard Data	No documentation provided	The site is not in the Special Flood Hazard Area.
Independent Solution	Scope of work narrative	The project does not rely on the completion of another project to mitigate damage. However, the subapplication does state the proposed project requires a phased approach owing to the need to produce engineered construction plans following the Downtown Stormwater Study completion. The Downtown Stormwater Study is performed outside of the scope of work of the proposed 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 condition was identified:

- Confirm the Downtown Stormwater Study has been completed to allow for Phase 1 to begin with the preparation of engineered construction plans.

Provide the following Phase 1 deliverables to verify technical feasibility of the proposed project:

- H&H data/modeling and other relevant technical data, including documentation illustrating that the project will not negatively impact downstream areas.
- Engineering design (typically 30/60/90) and updated line-item cost estimate, which matches the updated engineering plan set and is consistent with the project scope of work and support documentation.

- Provide documentation of the Downtown Stormwater Study to have been completed in December 2022.
- Technical body of information needed to support nature-based alternatives added to the proposed project from the Downtown Stormwater Study.
- Technical body of information needed to support the desired level of effectiveness/protection or amount of risk reduction.

Cost-Effectiveness

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

The following was found during review of the submitted BCA:

Cost Estimation

Input	Value	Evaluation
Project Useful Life (PUL)	50 years 30 years	These values are consistent with the FEMA standard value with 50 years for Utilities and Roads/Bridges and 30 years for stormwater infrastructure.
BCA Toolkit Initial Project Cost	\$4,373,270	This amount is consistent with the subapplication project cost estimate. This cost does not include management costs.
Annual Maintenance Cost	\$0	This amount is not reasonable. The subapplicant should provide proposed maintenance costs. Maintenance responsibilities are identified within the subapplication. Although the Town of Mount Pleasant may not be the responsible party for all maintenance activities, the cost of the activities should be included to determine the overall BCR of the proposed project.
BCA Toolkit Total Project Cost	\$4,373,270	This amount is calculated based on the initial project cost, the annual maintenance costs, and the PUL.

Professional Expected Damages

Input	Evaluation
Facility Type	Several facility types are used in the BCA, including electric and telecommunication utility lines; roadway; and nonresidential building. These inputs are consistent with the proposed project in the subapplication.
Loss of Function	For the electrical and telecommunications utilities, 5,800 customers are served with the default values of unit of service (\$182 and \$130, respectively). Supporting documentation states that, for 2,300 households, there are 5,800 customers served, but further explanation or calculation is not provided. For the roadway, the number of one-way traffic detours (11,000) was utilized. However, for supporting documentation, the subapplicant provided a detour map to illustrate the length of detour and a total of 10,500 average daily vehicle trips.

Input	Evaluation
Before-Mitigation Damages	<p>For electrical and telecommunication utilities, before-mitigation damages are calculated for 1 impact day at a 3-year recurrence interval. However, supporting historical outage information has a maximum outage of only 10 hours and 56 minutes.</p> <p>For roadway detours, before-mitigation damages are calculated for 5 impact days for a 1-year recurrence interval. Supporting documentation is not provided.</p> <p>For the nonresidential structure, before-mitigation damages are calculated for the 10-, 25-, 50-, and 100-year rainfall events. Supporting documentation is not provided.</p>
After-Mitigation Damages	<p>For electrical and telecommunication utilities, after-mitigation damages are calculated as 1 impact day for a 100-year recurrence interval. Supporting documentation is not provided.</p> <p>For roadway detours, before-mitigation damages are calculated for 5 impact days for a 1-year recurrence interval. Supporting documentation is not provided.</p> <p>For the nonresidential structure, before-mitigation damages are calculated for the 10-, 25-, 50-, and 100-year rainfall events. Supporting documentation is not provided.</p>

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:

- Provide documentation for annual maintenance cost.
- Provide documentation for the number of impact days for roadway overtopping before and after mitigation.
- 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.

Provide the following Phase 1 deliverable needed to verify cost-effectiveness:

- Refinement of the BCA

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:

- Confirm the Downtown Stormwater Study has been completed to allow for Phase 1 to begin with the preparation of engineered construction plans.

- Provide documentation for annual maintenance cost.
- Provide documentation for the number of impact days for roadway overtopping before and after mitigation.
- 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.

Provide the following Phase 1 deliverables needed to determine technical feasibility and cost-effectiveness:

- H&H data/modeling and other relevant technical data, including documentation illustrating that the project will not negatively impact downstream areas.
- Engineering design (typically 30/60/90) and updated line-item cost estimate, which matches the updated engineering plan set and is consistent with the project scope of work and support documentation.
- Provide documentation of the Downtown Stormwater Study to have been completed in December 2022.
- Technical body of information needed to support nature-based alternatives added to the proposed project from the Downtown Stormwater Study.
- Technical body of information needed to support the desired level of effectiveness/protection or amount of risk reduction.
- Refinement of the BCA.
- Additional documentation required to support compliance with eligibility, technical feasibility, cost-effectiveness, and EHP requirements.

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.