U.S. Department of Homeland Security
FEMA, Region 1
220 Binney Street
Cambridge, MA 02142

FEMA

September 11, 2025

Dawn Brantley
Director
Massachusetts Emergency Management Agency
400 Worcester Road
Framingham, MA 01702-5399

Richard E. McGuinness
Deputy Director
Boston Climate & Coastal Resilience
Infrastructure Delivery Planning Department
1 City Hall Square
Boston, MA 02201-1020

Re: Subapplication Determination
Program: FY 2018 Pre-disaster Mitigation Grant Program, Assistance Listing # 97.047
Applicant: Massachusetts Emergency Management Agency
Subapplicant: City of Boston
Subapplication: PDMC-PJ-01-MA-2018-008 – Resilient Fort Point Channel Infrastructure Project

Dear Director Brantley and Richard E. McGuinness:

This letter provides a final determination concerning subapplication PDMC-PJ-01-MA-2018-008 – Resilient Fort Point Channel Infrastructure Project that the Massachusetts Emergency Management Agency submitted under the FY 2018 Pre-disaster Mitigation ("PDM") Grant Program. The subapplicant is the City of Boston ("Subapplicant") and the subapplication's scope of work includes constructing a coastal flood control system to protect homes, businesses, and critical infrastructure in the Fort Point District in South Boston. The proposed flood control system is designed to provide a level of protection equal to the current base flood elevation plus an additional 21 inches for sea level rise plus two feet freeboard. The total estimated project cost is $19,147,504.76, with requested federal funding of $9,999,999.99.

As explained in the enclosed determination analysis, the Subapplicant has not demonstrated that the Project is technically feasible and effective at mitigating flood risk to the proposed design, would meet National Flood Insurance Program requirements, and would be cost-effective. I am, accordingly, denying the subapplication and this letter constitutes the official notification of this decision. There is no reconsideration process for this decision, making this the final agency decision concerning the subapplication under the 2018 PDM Grant Program. That being said, you may wish to consider further developing the subapplication to address the issues described in the enclosed analysis and applying for FEMA funding under a future mitigation grant program offering.

You may contact Anthony Galluzzo, Acting Hazard Mitigation Assistance Branch Chief, at anthony.galluzzo@fema.dhs.gov if you have any questions concerning this determination or about revising the subapplication and submitting it under a future mitigation grant program offering.

Sincerely,

RICHARD H VERVILLE

Digitally signed by RICHARD H VERVILLE
Date: 2025.09.11 08:13:21 -04'00'

Richard H. Verville
Director, Mitigation Division

Enclosure:
(1) Determination Analysis

DETERMINATION ANALYSIS
FY 2018 PRE-DISASTER MITIGATION GRANT PROGRAM
Subapplication PDMC-PJ-01-MA-2018-008
Resilient Fort Point Channel Infrastructure Project

I. BACKGROUND

The Federal Emergency Management Agency ("FEMA") published the *Fiscal Year 2018 Pre-disaster Mitigation Grant Program Notice of Funding Opportunity* ("*NOFO*") on August 3, 2018.[1] Following *NOFO* publication, the Massachusetts Emergency Management Agency ("MEMA") submitted a timely Predisaster Mitigation ("PDM") Grant Program application on January 25, 2019, that included ten subapplications. FEMA denied three subapplications and selected seven subapplications for further review. Following its review of the four subapplications selected for further review, FEMA awarded a PDM grant to MEMA on September 9, 2019, that included those four subapplications within the approved scope of work.[2] FEMA later approved and added to the PDM grant two of the remaining subapplications selected for further review, although MEMA later withdrew one subapplication.[3] The remaining subapplication selected for further review for which FEMA has not made a final determination is PDMC-PJ-01-MA-2018-008, Resilient Fort Point Channel Infrastructure Project ("Project").[4]

The subapplicant for PDMC-PJ-01-MA-2018-008 is the City of Boston ("City") and the Project is a flood risk reduction project. The proposed scope of work is to construct a flood control system along the southeastern shoreline of the Fort Point Channel in Boston.[5] The proposed flood control system includes 2,300 linear feet of integrated mitigation features to protect homes, businesses, and critical infrastructure from flooding.[6] These mitigation features include embankments, knee walls, a deployable flood gate, closures, and an elevated seawall/harbor walk to function as a floodwall. The Flood Insurance Rate Map ("FIRM") shows that the entire Project site is located within the Special Flood Hazard Area ("SFHA").[7] The proposed Project design elevation is 14 feet North American Vertical Datum ("NAVD"), which is equivalent to the 1-percent annual chance of flood event with 21 inches of sea level rise plus two feet freeboard.

The total estimated Project cost is $19,147,504.76, with requested federal funding of $9,999,999.99. To demonstrate cost-effectiveness, the subapplication included a Benefit Cost Analysis ("BCA") that utilized the damage frequency assessment ("DFA") module within FEMA's BCA Toolkit that calculated a benefit cost ratio ("BCR") of 2.75. The City later submitted a revised BCA that calculated a BCR of 3.42 based on $72,167,309.00 as the present

[1] U.S. Department of Homeland Security, *Notice of Funding Opportunity FY 2018 Pre-Disaster Mitigation* (Aug. 3, 2018) ["*NOFO*"].
[2] Letter from Captain W. Russ Webster, Regional Administrator, FEMA Region 1, to Samantha Phillips, Director, Massachusetts Emergency Management Agency re: *FY 2018 Pre-Disaster Mitigation Grant Program Catalog of Federal Domestic Assistance No. 97.047 Award No. EMB-2019-PC-0006* (Sep. 19, 2019). FEMA subsequently approved three extensions to the grant's period of performance, with the current period of performance ending March 26, 2026. However, following the issuance of this determination, FEMA will be working with MEMA to close the grant award because there are no open projects.
[3] All five approved projects under the PDM grant to MEMA are completed and closed and there are no open projects. FEMA is in the process of closing the one project that was awarded but later withdrawn by MEMA.
[4] Subgrant Project Application, City of Boston Resilient Fort Point Channel Infrastructure Project, PDMC-PJ-01-MA-22018-008 ("Subapplication").
[5] *Id.* at 4-11.
[6] *Id.*
[7] FIRM Panels 25025C0083J and 25025C0081K.

value of project benefits and $21,154,394.00 as the present value of project costs.[8] The BCA, in calculating benefits, used the reduction in direct physical damages to buildings and contents, displacement costs for residential and non-residential property owners, and loss of function for roadways.[9] As it related to reducing direct physical damages and displacement costs, the BCA identified that the Project would reduce—but not eliminate—the costs for 10, 50, 100, and 1000-year flood events. As it related to the loss of function for roadways, the BCA identified that the Project would result in no loss of function for the 10, 50, 100, and 1000-year flood events.

FEMA identified eligibility concerns with the subapplication concerning the Project's technical feasibility and effectiveness, potential negative impacts to areas up and downstream from the Project site, compliance with National Flood Insurance Program ("NFIP") regulation at 44 C.F.R. § 65.10, compliance with the floodplain management requirements at 44 C.F.R. § 60.3, and cost-effectiveness. FEMA convened various calls with the City and MEMA and issued a series of requests for information ("RFIs") between 2019 and 2024 to try and obtain additional information necessary to address the eligibility concerns.[10] This RFI process culminated in August 2024, which is when FEMA required that—for FEMA to continue considering the subapplication—the City must finalize Project design, finalize the Project's operations and maintenance plans, and submit and receive FEMA approval of a Conditional Letter of Map Revision ("CLOMR") meeting all requirements of 44 C.F.R. § 65.10. FEMA set a deadline February 5, 2025, for the City and MEMA to meet these conditions.[11]

The City submitted a CLOMR to FEMA on January 28, 2025.[12] FEMA, following its review, identified the need for additional data to successfully determine that the Project would meet the requirements of 44 C.F.R. § 65.10 and communicated the additional data requirements to the City on April 17, 2025.[13] The City has not responded to those additional data requirements and the City also did not submit an operations and maintenance plan or final Project design documents. Because the City and MEMA did not meet the conditions that FEMA set in August 2024 to warrant further consideration of the subapplication, FEMA is moving forward to issue a final eligibility determination for the subapplication.

[8] Benefit Cost Analysis, Project: PDM-01-MA-IR (Apr. 11, 2019).
[9] *Benefit Cost Analysis Methodology Technical Memorandum, Resilient Fort Point Channel Infrastructure Project* (Jan. 2019).
[10] FEMA issued RFIs on August 15, 2019, and January 16, 2020, concerning programmatic requirements and an RFI on July 22, 2021, concerning environmental and historic preservation review requirements. FEMA then sent a letter on September 2, 2021, requiring the City to submit a CLOMR to demonstrate that the project meets the requirements of 44 C.F.R. § 65.10. The City responded to the RFIs and the letter of September 2, 2021. There were also various email exchanges and meetings from 2019 to 2024 between FEMA, MEMA, and the City.
[11] FEMA set these requirements as part of approving a third extension to the period of performance for the PDM grant award until March 31, 2026. Letter from Richard H. Verville, Deputy Director, Mitigation Division, FEMA Region 1, to Dawn Brantley, Director, Massachusetts Emergency Management Agency re: *FY 2018 Pre-Disaster Mitigation Grant Program Award No. EMB-2019-PC-0006 Amendment 7 – Extension of Period of Performance* (Aug. 2, 2024).
[12] Conditional Letter of Map Revision Request, Case No.: 25-01-0457R, Community No.: 250286.
[13] Letter from Cheryl Hannan, P.E., Zone 1 Revisions Manager, National Flood Insurance Program MT-2 Contractor to Alex Shaw, P.E., Project Manager, Wood Hole Group re: *Case No.: 25-01-0457R* (Apr. 17, 2025) ["*CLOMR Response Letter*"].

II. DISCUSSION

A. Applicable Law, Regulations and Policies

FY 2018 Pre-Disaster Mitigation Grant Program

Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act ("Stafford Act") authorizes FEMA to provide technical and financial assistance to States and local governments to assist in implementing predisaster hazard mitigation measures that are cost-effective and designed to reduce injuries, loss of life, and damage and destruction of property.[14] FEMA is authorized to interpret and implement Section 203 of the Stafford Act and the rules and regulations issued to carry out that statute.[15] Pursuant to Section 203 and the FY 2018 FEMA Federal Assistance appropriation,[16] FEMA administratively carries out these authorities through the FY 2018 PDM Grant Program. FEMA has promulgated the *NOFO*, *Hazard Mitigation Assistance Guidance* ["*HMA Guidance*"],[17] and other policies to set forth mandatory requirements and/or interpretive guidance for the FY 2018 PDM Grant Program.

Technical Feasibility and Effectiveness

One type of eligible mitigation project under the FY 2018 PDM Grant Program is a flood risk reduction project, which is a project to lessen the frequency or severity of flooding and decrease predicted flood damage.[18] To demonstrate that a flood risk reduction project meets Section 203's requirement to reduce injuries, loss of life, and damage and destruction of property, the *HMA Guidance* requires that project to be feasible and effective at mitigating the risks of flooding for which the project is designed.[19] A flood risk reduction project's *technical feasibility* is demonstrated through conformance with accepted engineering practices, established codes, standards, modeling techniques, or best practices. A project's *effectiveness* is demonstrated by providing a long-term or permanent solution to flood risk.[20] FEMA uses the information provided in a subapplication to determine the feasibility and effectiveness of the proposed scope of work under a flood risk reduction project.[21]

The subapplicant for a flood risk reduction project must provide design plans, specifications, and engineering analysis to demonstrate that the project would be technically feasible and effective at providing the designed level of protection.[22] A subapplicant must also provide documentation demonstrating that the project will not have negative impacts upstream or downstream of the

[14] Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 93-288, § 203(b) (1974) (codified as amended at 42 U.S.C. § 5133(b)).
[15] *Id.* § 701 (codified as amended at 42 U.S.C. § 5201).
[16] Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, Division F, Title III.
[17] Federal Emergency Management Agency, *Hazard Mitigation Assistance Guidance* (Feb. 27, 2015) ["*HMA Guidance*"].
[18] *Id.* at 36; *NOFO*, at 17-18.
[19] *HMA Guidance*, p. 44.
[20] *Id.*
[21] *Id.* at 70.
[22] Federal Emergency Management Agency, *Job Aid No. 1.4 – Flood Risk Reduction*, at 1 (Apr. 2017); Federal Emergency Management Agency, *Job Aid No. T1.4 Supplement – Hazard Mitigation Assistance Technical Review Job Aid Series, Flood Risk Reduction Technical Review*, at 4 (Apr. 2017).

project site.[23] This is because flood risk reduction projects are unique in that there is a potential to reduce the risk of flooding in one area while increasing flood risk in another area. The proposed project cannot cause an increase in flood risk or create potential for other damages (such as bank erosion) to any areas outside of the project limits.

National Flood Insurance Program Requirements

FEMA will evaluate whether a flood risk reduction project involving construction of a levee system providing protection to the 100-year flood event or greater has been designed to meet the criteria in 44 C.F.R. § 65.10. This NFIP regulation describes the information that FEMA needs to recognize on Flood Insurance Rate Maps ("FIRMs") that a levee system provides protection from the 100-year flood. A levee means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to provide protection from temporary flooding.[24] FEMA, to ensure that a levee system project is designed to meet the requirements of 44 C.F.R. § 65.10, may require a subapplicant to submit a CLOMR request pursuant to 44 C.F.R. § 65.8 and part 72. A CLOMR is FEMA's comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in modifying, among other things, the effective base flood elevations and/or the SFHA.

FEMA requires a local government subapplicant under the FY 2018 PDM Grant Program to participate in the NFIP if a subapplication involves a project sited in the SFHA.[25] As a condition of NFIP participation, a local government must adopt and enforce floodplain management regulations that meet or exceed the standards at 44 C.F.R. pt. 60.[26] One such standard is 44 C.F.R. § 60.3(c)(10), which prohibits new construction, substantial improvement, or other development (including fill) within Zone AE on the community's FIRM unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase water surface elevation of the base flood more than one foot at any point within the community.[27] FEMA's floodplain management regulations at 44 C.F.R. pt. 9 prohibit FEMA from providing financial assistance for any action located in the SFHA that is not consistent with 44 C.F.R. § 60.3 and all other NFIP criteria.[28]

Cost-Effectiveness

Section 203 of the Stafford Act requires a mitigation project to be cost-effective. To demonstrate cost-effectiveness, FEMA requires a FY 2018 PDM Grant Program subapplication to include a BCA using the FEMA BCA Toolkit that evaluates the future benefits (projected losses avoided) of the project in relation to project costs.[29] The evaluation of benefits to project costs results in a

[23] *Id*.
[24] 44 C.F.R. § 59.1.
[25] *HMA Guidance*, at 49.
[26] National Flood Insurance Act of 1968, Pub. L. 90-448, Title XIII, § 1315(a) (codified as amended at 42 U.S.C. § 4022(a)).
[27] 44 C.F.R. § 60.3.
[28] *Id*. § 9.11(d)(6).
[29] *HMA Guidance*, at 57 and 64.

BCR.[30] If the future benefits are equal to or greater than the cost, then the BCR is equal to or greater than 1.0 and the proposed project is cost-effective. If not, then the project is not cost-effective and ineligible. One module that an applicant can use in the BCA Toolkit is the damage frequency assessment ("DFA") module, which can be applied to any natural hazard for which a frequency-damage relationship can be established such as flooding.

The DFA module in FEMA's BCA Toolkit was designed to calculate project benefits and costs based on professional expected damages for a minimum of one hazard event with known recurrence intervals. The basis for professional expected damages is entirely forward-looking, such that the question to be answered is "If an event of [X] recurrence interval were to occur, how much damage would be expected?" A subapplicant should consult with an engineer familiar with the proposed project to obtain cost estimates for damages resulting from hazard events with different recurrence intervals and must submit with the subapplication all applicable engineering reports and analysis to document expected damages inputs.[31] A subapplicant must support all data entered into the BCA Toolkit for professional expected damages by clearly describing the methodology used to develop the data and supporting documentation.

The benefits in the BCA calculation can include the avoided costs from physical damage and also the direct economic impact that occurs when physical damages are severe enough to interrupt the function of a facility (known as a "loss of function").[32] To calculate the benefits provided by a proposed project under the DFA, the BCA Toolkit uses the amount of damages and losses before mitigation and compares it to the estimated damages and losses after mitigation. Most mitigation projects will not eliminate all damages after mitigation and only reduce damages by a certain percentage or up to a certain design level, such that the project will remain subject to damage from future events (also known as "residual damage").[33] The documentation required for damages after mitigation will vary based on the hazard, mitigation measure, and level of protection provided by the measure.

Reconsideration Requests

The *NOFO* states that FEMA will initially review a project subapplication and provide it with one of three designations, which are Identified for Further Review, Not Selected, or Does Not Meet HMA Requirements.[34] At its discretion, FEMA may review this threshold decision regarding a project subapplication that is Not Selected or Does Not Meet HMA Requirements only where there is an indication of substantive technical or procedural error that may have influenced FEMA's decision.[35] Applicants must send requests for reconsideration based on technical or procedural error to their Regional Office within 60 days of FEMA posting the subapplication status. However, if FEMA designates a project subapplication as Identified for Further Review and later determines that the subapplication is ineligible, the *NOFO* provides no

[30] *Id*. at 44 and 64; Federal Emergency Management Agency, *Benefit-Cost Analysis Reference Guide*, at 2-5 (June 2009) ["*BCA Reference Guide*"].
[31] *Id*.
[32] *BCA Reference Guide*, pp. xi and 3-4; Federal Emergency Management Agency, *BCA Reference Guide Supplement*, at 2-3 (June 2011) ["*BCA Reference Guide Supplement*"].
[33] *BCA Reference Guide*, Appendix A, at A-10; *BCA Reference Guide Supplement*, at 2-4.
[34] *NOFO*, at 20-21.
[35] *Id.* at 21.

opportunity for submitting a request for reconsideration. There are also no statutory rights of appeal under Section 203 of the Stafford Act.

B. The Subapplicant Has Not Demonstrated that the Project Would Be Technically Feasible and Effective

The CLOMR and all other documentation submitted for the subapplication do not demonstrate that the Project is technically feasible and effective at lessening the frequency or severity of flooding and decreasing flood damage to the project's designed level of protection. This is because the core coastal modeling is incorrect or incomplete, overland wave and runup data are not clearly established, key geotechnical and structural assurances are missing, and critical closure/operations details are undefined. As a result, the City has not demonstrated that the Project will function as intended and meet FEMA levee accreditation standards.

Flood Modeling

Flood modeling is essential for accurately predicting flood behavior, including water flow, inundation areas, depths, and durations. If flood modeling is inaccurate, it undermines the ability to assess the feasibility and effectiveness of proposed flood risk reduction for several reasons. First, if the model is flawed, then the baseline data may not reflect the true flood risks, making it impossible to measure improvements or reductions in risk caused by the project. Second, flood risk reduction projects rely on modeling to simulate how they would alter flood behavior and inaccurate modeling means the project's impact on flood patterns cannot be reliably predicted, leaving uncertainty about its effectiveness.

The coastal hydraulics and waves modeling for the Project have various issues that undermine FEMA concluding that, as designed, the Project would be feasible and effective at reducing flood risk to the 100-year base flood elevation plus 21 inches for sea level rise plus two feet freeboard. This includes the Automated Coastal Engineering System ("ACES") calculations not being applied to each of the three transects and the average depth reference being unclear, which calls into question the wave inputs. It also includes concerns that the Wave Height Analysis for Flood Insurance Studies ("WHAFIS") model runs terminate seaward of the embankment and are not propagated to the structure toe, preventing valid overland wave conditions. The runup calculations, furthermore, should have used WHAFIS instead of ACES to set wave parameters inside the Fort Point Channel to establish the crest height for all components of the flood control system. Lastly, the Simulating Waves Nearshore ("SWAN") modeling applies a wind velocity of zero that was not adequately supported.

Structural Performance

Engineering analyses play a critical role in FEMA assessing and validating whether flood control measures such as levees and floodwalls will perform as intended under various flood scenarios. This includes evaluating a measure's ability to withstand forces like water pressure, erosion, and debris impact and determining that the measure's design meets sound engineering standards without introducing new risks such as failure or unintended flooding in other areas. FEMA, as result, may require a subapplication to submit various analyses in support of a flood risk reduction project that a registered professional engineer has signed and stamped, particularly

when FEMA requires the submission of a CLOMR. There are four analyses that are either missing from the subapplication or are not signed by a registered professional engineer and, as a result, FEMA cannot validate the Project's resistance to erosion, piping, slope instability, long-term deformation, and interior flood performance.

The first missing analysis is an engineer approved embankment protection analysis demonstrating that no appreciable erosion of the embankment can be expected during the base flood because of either waves or currents and that any anticipated erosion would not result in the failure of the embankment or its foundation directly or indirectly through reduction of the seepage path and subsequent instability.[36] The second missing analysis is an engineer approved embankment and foundation stability analysis that evaluated expected seepage during loading conditions during a base flood and demonstrated that seepage into or through the levee and its embankment foundation and will not jeopardize their stability.[37] The third missing analysis is an engineer approved settlement analysis that assesses the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrates that freeboard will be maintained according to certain minimum standards.[38] And the last missing analysis is an engineer approved interior drainage analysis that identifies the source of interior flooding and determines the elevation and extent of the flooded area.[39]

In addition to lacking the required analyses, the subapplication also left undefined certain critical Project components. This includes the absence of a list of all the Project's openings and types of closure devices used at each location and lack of clarity concerning the specifications of the deployable barriers that will be used. Without a complete inventory and clear barrier specifications, FEMA cannot verify a continuous, reliable line of protection or that the Project will perform during a base flooding by closing all gaps to the required elevation and withstanding design loads. This information is essential to credible hydraulic, structural, and geotechnical analysis.

Operations and Maintenance

Operations and maintenance plans ensure that flood control structures such as levees, floodwalls, and other mitigation measures will remain functional and reliable over time. These plans are critical for FEMA to determine that a flood control structure meets the criteria for technical effectiveness to reduce flood risk and protect areas from flooding. The *HMA Guidance* requires a subapplicant to sufficiently identify the maintenance requirements for a mitigation project and accept maintenance responsibility.[40] When submitting a CLOMR for a flood control structure, 44 C.F.R. § 65.10 requires a party to submit operations plans and maintenance plans that meet certain regulatory criteria.[41] FEMA, in turn, required the City to submit its operations and

[36] 44 C.F.R. § 65.10(b)(3).
[37] *Id*. § 65.10(b)(4).
[38] *Id*. § 65.10(b)(5).
[39] *Id*. § 65.10(b)(6).
[40] *HMA Guidance*, at 56.
[41] 44 C.F.R. § 65.10(c) and (d).

maintenance plans as part of submitting its CLOMR. The City, unfortunately, has not submitted those plans.[42]

C. The Subapplicant Has Not Demonstrated that the Project Would Meet NFIP Requirements

The NFIP regulation at 44 C.F.R. § 60.3(c)(10) requires a community participating in the NFIP to prohibit new construction, substantial developments, and other development in Zone AE on the community's FIRM unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point in the community. The Project involves work in Zone AE and, as such, the City needs to demonstrate that the Project meets the 1-foot rise criteria of the regulation. However, based on FEMA's analysis, the Project, as modeled, increases the base flood elevation by more than one foot. This indicates that the flood control system would worsen flood conditions rather than mitigate them, making the Project inconsistent with the criteria at 44 C.F.R. § 60.3(c)(10). This, in turn, means that 44 C.F.R. § 9.11(d) prohibits FEMA from providing financial assistance for the Project.

D. The Subapplicant Has Not Demonstrated that the Project Would Be Cost-Effective

The subapplicant completed a BCA for the Project using the DFA module based on professional expected damages for four flooding events at the 10-, 50-, 100-, and 1000-year flood events. The BCA assumed a Project design of 14 feet NAVD—this was the 100-year event surface elevation that includes 21 inches of sea rise and 2 feet of freeboard. As it related to the loss of function for roadways, the BCA identified that there would be no residual damage for the 10, 50, 100, and 1000-year flood events. On the other hand, as it related to physical damages and displacement costs, the City concluded that there would be residual damage at the 10-, 50-, and 100-year events even though the project design exceeded the base flood elevation. This was because flood pathways emerging from the Reserved Channel and South Boston waterfront become greater and the Project area would be impacted from other directions for which the flood control system under the Project would not protect.

Flood models serve as the foundation for estimating potential before and after mitigation damage, benefits of the mitigation, and overall project feasibility and effectiveness. If the flood modeling fails to account for critical variables, it can produce inaccurate projections of flood frequency severity, frequency, and affected areas. Similarly, insufficient project design introduces additional challenges to a BCA. An inadequately designed project may fail to address flood risk conditions that, in turn, results in the mitigation measures being insufficient to address their intended outcome. When the design has such issues, the projected benefits may be overstated and the actual costs underestimated.

To validate the BCA's before and after mitigation figures, the City needs to demonstrate that the 100-year flood elevation, plus 21 inches, plus two feet of freeboard would be 14 feet NAVD and that the Project is technically feasible and effective at providing protection to that elevation.

[42] *CLOMR Response Letter*, at 2.

However, as outlined above, the flood modeling and design information provided are insufficient, undermining the BCA's accuracy. Consequently, there are concerns that the BCA's data may be distorted, leading to an overestimation of the Project's benefits. FEMA, considering the shortfalls in the modeling and project design, cannot determine that the Project is cost-effective.

III. CONCLUSION

The Subapplicant has not demonstrated that the Project would be technically feasible and effective at mitigating flood risk to the proposed design, would meet NFIP requirements, and would be cost-effective. FEMA, accordingly, is denying the subapplication. Because there is no statutory right of appeal and the *NOFO* provides no reconsideration process for ineligibility determinations for project subapplications initially Identified for Further Review, this is the final agency decision concerning the subapplication.