



Comment Letter; 4.15.2024

Comment on Army Corps of Engineers Proposed Regulation: COE–2023–0005

“Agency Specific Procedures to Implement the Principles, Requirements, and Guidelines for Federal Investments in Water Resources”

To be submitted to Regulations.gov docket

To whom it may concern:

The Coastal Flood Resilience Project appreciates the opportunity to respond to the [notice](#) by the U.S. Army Corps of Engineers (Corps) establishing agency specific procedures to implement the interagency [Principles and Requirements, and Guidelines for Federal Investments in Water Resources](#).

The [Coastal Flood Resilience Project](#) (CFRP) is a coalition of nonprofit organizations working for stronger national programs to prepare for coastal storm flooding and rising sea levels along the coast of the United States. The CFRP website includes white papers and letters to Congress and federal agencies on a range of topics related to coastal flood resilience and sea level rise.

Although the proposed regulations implementing the Principles and Requirements apply to Corps projects for both inland and coastal waters, these comments focus on coastal projects. The serious and growing risks to federal investments in coastal areas resulting from more severe storms and rising sea levels are described in an attachment to these comments.

General Comments

The CFRP urges the Corps to consider the following comments in finalizing proposed regulations:

- 1) Finalize Regulations in 2024:** The Corps’ regulations implementing the *Principles and Requirements* (P&R) are a critical element of the federal government commitment to effective decision-making for water resources investments. Some important elements of the proposed regulations include:

- **Non-monetized Costs and Benefits:** commitment to inclusion of non-monetized and non-quantified costs and benefits in cost-benefit analysis of alternatives;
- **Required Alternatives:** requirement for a “final array” of alternatives that is to include both a non-structural and a nature-based alternative; and
- **Environmental Justice:** recognition of environmental justice as a “guiding principle” for the planning process.

The Corps’ implementation of the P&R has been delayed for many years and prompt action to finalize the proposed regulations this year will avoid the risk of further delays.

The CFRP urges the Corps to maintain the existing comment period (i.e., ending April 15) and make determined efforts to review comments and issue a final regulation as soon as possible but not later than the end of 2024.

2) Select Final Projects that are Justified by Comparing Benefits to Costs, Rather than “Maximizing” the Ratio of Benefits to Costs: The P&R states:

“Any recommendation for Federal investments in water resources to address identified water resources needs **must be justified by the public benefits when compared to costs** [emphasis added]....It is recognized that most of the activities pursued by the Federal government will require an assessment of tradeoffs by decision makers and that in many cases the final decision will require judgment that considers the extent of both monetized and nonmonetized effects.” (see page 13)

The proposed regulation offers a narrower basis for selection of a final project from the array of alternatives evaluated that will **“maximize net public benefits, relative to public costs.”** [emphasis added] (234.11(a)(2)). The term “maximize” is used in the [Interagency Guidelines](#) that elaborate on the P&G text (i.e., “maximize the public benefits, relative to public costs” (see page 26). This term is qualified in both the *Interagency Guidelines* and the Corps’ proposed regulation by noting “There could be more than one alternative that reasonably and approximately maximizes the public benefits relative to costs.”

There are two problems with the “maximize” framing of the decision-process.

- By directing the Assistant Secretary of the Army for Civil Works to “maximize” net benefits (i.e., not just find that the benefits justify the costs but that the selected alternative has the greatest ratio of benefits to costs), an Assistant Secretary is likely to rely more heavily on monetized benefits than on qualitative, nonmonetized benefits or considerations such as social justice. A decision to select a project alternative with the highest ratio of monetized benefits to costs is easier to defend as

providing maximum benefits relative to costs than is a decision that relies on nonmonetized benefits.

- The language asserting that there could be more than one alternative that “maximizes” benefits relative to costs is contradictory on its face and is effectively subordinate to the “maximize” direction.

CFRP recommends that the Corps adopt a final regulation that includes project selection guidance to ensure projects achieve the federal objective in light of the authorized purpose and are justified by public benefits relative to costs (i.e., use language in the P&R and remove the language in the proposal calling for “maximizing” benefits relative to costs).

- 3) Address Coordination with Federal Flood Risk Management Standard:** The Federal Flood Risk Management Standard (FFRMS) provides that federal investments be located outside of existing and future flood and sea level rise risk areas whenever possible or be protected when development in risk areas is unavoidable.

The P&R was written prior to the FFRMS, so it does not specifically require FFRMS implementation in the case of flood resilience projects. Nothing in the FFRMS, however, exempts water resources projects and the FFRMS includes substantive requirements that apply to Corps water resources projects. The regulation preamble describes the Corps’ policy of “recognizing and incorporating requirements of the FFRMS” but the proposed text of the regulations does not mention the FFRMS and does not describe how Corps decision-making will be consistent with the FFRMS. Adding a specific reference to compliance with the FFRMS in the regulation would avoid confusion and inefficiency among multiple parties.

CFRP recommends that the final regulatory text (e.g., section 234.6(c)(2)) specifically address how the FFRMS will be implemented by the Corps in all covered water resources project decision-making.

- 4) Add Commitment to Interagency Sea Level Rise Scenarios:** Rising sea levels pose a significant risk to coastal water resources projects and projections of future sea level rise are a critical factor for water resources project design and options selection (see attachment for more information). The P&R states:

“From specification of existing problems and opportunities to the formulation, evaluation and selection of plans, projected accelerating changes in aquatic systems and sea level resulting from a changing climate should inform the understanding of water resource needs and how these needs can be realistically addressed.”

The Corps' draft regulation calls for using "the best available actionable science" (234.7(c)(1)). The federal Interagency Sea Level Rise and Coastal Flood Hazard and Tools Interagency Task Force published in 2022 [sea level rise scenarios](#) that represent the most current science with respect to the rate of future sea level change. These scenarios are recognized as the federal government's best estimate of future sea level rise for the purposes of implementing the FFRMS. The interagency sea level rise scenarios are the basis for the descriptions of sea level rise risk in the fifth [National Climate Assessment](#), published in 2023.

The Corps, however, has consistently relied on sea level rise curves developed within the Corps (see [Sea Level Analysis Tool](#) or SLAT) and used these projections, rather than the Interagency Task Force's projections. In general terms, SLAT predicts lower future sea level rise than the Interagency Task Force.

The proposed regulations do not describe how the Corps will evaluate future sea level rise, do not explain any objections to the interagency sea level rise scenarios, and do not commit to using the interagency scenarios. By proceeding to use sea level rise projections that differ from those more widely used across the federal government, the Corps will generate public confusion, expose project analysis to legal challenge, and risk development of project assessments that underestimate sea level rise risks.

CFRP recommends that the Corps include in final regulations a commitment to use the federal Interagency Sea Level Rise and Coastal Flood Hazard and Tools Interagency Task Force's sea level rise scenarios in implementation of the P&R.

- 5) **Avoid "Period of Analysis" Too Short to Account for Rising Seas:** The proposed regulations provide that the impacts of projects are to be evaluated over a "period of analysis." The length of this period is a crucial element of the assessment and a period that is too short can result in oversight of some future risks (e.g., use of the most accurate projections of rising sea level might understate sea level rise impacts if applied to a short "period of analysis").

The proposed rule states that the "period of analysis" is to be "sufficient to encompass the lifespan and significant long-term impacts of the project." Although this statement might lead to meaningful analysis, it is common practice to identify the life of a project as just twenty years. Lack of clarifying language describing a "lifespan" as the period a project is likely to be in service (e.g., one hundred years). Major federal projects can also have long term, cumulative impacts that generate other development that could put at risk (e.g., a seawall might last fifty years but development behind the seawall built in year forty of the project might be at risk beyond the fifty-year period).

CFRP recommends that the final regulation include new text clarifying the period of analysis, including with respect to project lifespan and the cumulative effects of federal projects.

- 6) Account for Costs of Abandonment of Coastal Projects Due to Rising Seas:** The proposed regulation calls for full assessment of project costs and benefits, stating:

“The analysis will evaluate the economic benefits and costs, environmental benefits and costs, and social benefits and costs of alternatives, regardless of how they are included (monetized, quantified or described).” (234.9(c))

In the case of coastal projects in areas at risk of rising sea levels, it is important to recognize that the rate of sea level rise is accelerating and that sea level will continue to rise for hundreds of years (see attachment for more information). The Corps should work with the federal Interagency Sea Level Rise and Coastal Flood Hazard and Tools Interagency Task Force to use 2022 sea level rise scenarios to identify areas at risk of sea level rise (e.g., areas expected to be inundated by 2100 under the Intermediate High scenario).

CFRP recommends that the final regulation provide that any analysis of costs and benefits of projects proposed for coastal areas at risk of sea level rise account for the certainty that the project will be inundated eventually and include the costs of safe removal and disposal of structures. For projects in risky coastal areas, the “period of analysis” should be extended to cover projected inundation and abandonment of a structure.

- 7) Encourage Relocation and Buyouts as a Coastal Protection Option:** The P&G offers a strong endorsement of “nonstructural” options, stating:

“Nonstructural approaches can often be the most cost-effective and environmentally protective alternative to implement. Nonstructural measures are particularly effective in minimizing adverse effects on floodplain functions and the aquatic environment....A nonstructural measure or measures may in some cases offer a more effective alternative to a traditional structural measure....Full consideration and reporting on nonstructural alternative actions or plans should be an integral part in the evaluation of Federal investments in water resources.” (see P&G page 11).

The proposed regulation provides that the “final array of alternatives” is to include “a nonstructural option” (see 234.8(a)(2)) and the regulations also define nonstructural options to include relocation and property buyouts. In the case of a federal investment not designed as a coastal protection measure, relocation to a place not at risk of rising

seas would reduce costs associated with flood mitigation and removal of abandoned structures. In the case of a structure designed as a protection measure (e.g., a seawall), a nonstructural alternative such as relocation would avoid the high costs of eventual failure of the structure due to more severe storms and rising seas. (As noted in comment #10, evaluation of alternatives should eliminate or avoid disproportionate adverse effects on minority, Tribal, and low-income populations.)

Although the proposed rule would support consideration of nonstructural options, the chance of the final selection of a relocation or buyout approach for a project proposed for a risky coastal area are low for several reasons:

- the “period of analysis” may not be long enough to account for rising seas;
- the cost analysis may not include cumulative costs (e.g., costs of damages or removal of structures built behind failed protection structures);
- the cost analysis of the project may not include full costs (e.g., including removal of inundated protection structures); and
- the “problem” the federal investment is intended to address may be incompletely identified (i.e., a proposed coastal protection structure may be designed to avoid damages to property due to more severe storms but not be designed to account for the permanent inundation that will result from rising sea level) resulting in a failure to meet the federal objectives for “effectiveness,” “efficiency,” and “completeness”.

CFRP recommends that the final regulation include a new “guiding principle” under section 234.6(c) that addresses the unique risks and decision-making challenges associated with selection of projects in areas that are at risk of inundation by rising seas.

- 8) Describe New Processes to Support Nature-Based Solutions:** The draft regulations provide important support for consideration of nature-based solutions to water resources problems. For example, a nature-based solution must be considered among the “Final Array of Alternatives” (234.8(a)(3)) and is addressed as a key part of the project evaluation framework. (234.7(h))

Expanded recognition of the value of nature-based solutions and commitment to evaluate nature-based alternatives is important.

As in the case of nonstructural solutions, however, selection of a nature-based solution based on the text in the “Select the Recommended Plan” phase of the process (234.11) faces significant obstacles (e.g., this text specifically requires the selected plan to “maximize net public benefits to society” and section 234.8 provides for a discrete

alternative that “seeks to maximize net public benefits” (234.8(a)(5)) separate from the nature-based and other alternatives. These alternatives are qualified with the phrase: “An alternative, if one exists, that can effectively address the problem through the feasible use of nonstructural approaches [or nature-based solutions]. This effectively presents a structural solution as the solution that maximizes net public benefits.

CFRP recommends that the regulation clarify that plan alternatives be described based on method rather than alignment with objectives (i.e., alternative (5) that seeks to maximize net public benefit should be deleted and replaced with a structural alternative and all alternatives should be evaluated impartially against the “maximize net public benefit” and other criteria).

Finally, the regulation would be improved by formal endorsement of the valuable work of the Corps’ Engineering with Nature Program including discussion of recommendations included in a June 2023 [report](#) related to strengthening cost-benefit analysis. For example, the report calls for:

- “Development of a benefit transfer database and/or decision support tool(s) to support ecosystem valuation in BCA analysis”; and
- “Guidance for practitioners on use of multi-objective decision analysis to consider economic and non-economic quantitative outputs.”

9) Recognize Future Conditions Beyond the “Most Likely”: The draft regulation states:

“Alternatives should be formulated to meet planning objectives based on most likely future conditions expected with and without implementation of an alternative.”

This guidance is not explained or qualified and would result in a failure to account for future conditions that are significantly more risky than a “most likely” condition but also plausible. The consequences of a failure to recognize a more risky but plausible future condition that may not be the “most likely” could be disastrous in terms of economic, environmental, and social impacts. The harmful consequences of limiting analysis to a “most likely” future conditions might be small for some project types (e.g., a low-cost, small-scale project) but can be high in the case of major projects designed to protect human life and provide infrastructure critical to the normal operation of society. The report of the federal Interagency Sea Level Rise and Coastal Flood Hazard and Tools Interagency Task Force describing sea level rise scenarios includes extensive guidance on how to select an appropriate scenario considering the type of project.

CFRP recommends that the final regulations provide that project analysis include a full range of plausible future conditions, especially in the case of major, critical infrastructure projects.

10) Improve Consideration of Social and Environmental Justice: The P&R direct Federal agencies to make a clear commitment to social and environmental justice. The P&R provides:

“Agencies should ensure that Federal actions identify any disproportionately high and adverse public safety, human health, or environmental burdens of projects on minority, Tribal, and low-income populations. In implementing the Principles, Requirements and Guidelines, agencies should seek solutions that would eliminate or avoid disproportionate adverse effects on these communities.”

Although the proposed regulations address social and environmental justice and provide that all people “are fully protected from disproportionate and adverse human health and environmental effects” (234.6(c)(1)(i)), other proposed text seems to qualify this statement and revisions are needed in several respects.

- **Strengthen Standard for Final Project Options Selection:** The proposed regulation provides that:

“Any disproportionate adverse public safety, human health, or environmental burdens of project alternatives on communities with environmental justice concerns shall be avoided, minimized, or mitigated to the greatest extent reasonable.” (see 234.6 (c)(1)(ii))

The direction to minimize or mitigate to the greatest extent feasible is a qualitatively lesser standard than that of the P&R (i.e., to “eliminate or avoid disproportionate adverse effects...”. The terms “minimized” and “greatest extent reasonable” are undefined and effectively open-ended.

CFRP recommends that the Corps remove the proposed lesser standard and include in final regulations the stronger, clearer standard in the P&G.

- **Address Initial Selection of Projects and Delineation of Study Areas:** The draft regulations do not speak to the process that the Corps uses to identify a need for a project, relative to other possible projects, and move that project forward to the point where the project evaluation and selection processes described in the draft regulation apply.

In addition, the early delineation of project study areas can have significant consequences for the social and environmental justice aspects of a project. For example, it is generally understood that a project with a positive cost to benefit ratio is desirable and that protection of high value properties generate more benefits than low value properties. This can result in delineation of study areas that tend to serve higher value properties.

CFRP recommends that proposed regulations be revised to speak more clearly to how the Corps will consider social and environmental justice in initial selection of project study areas and delineation of the boundaries of these areas.

11) Require Reporting of Use of Exceptions Authority: The proposed regulations provide for selection of the project alternative that will “meet water resource objectives and maximize net public benefits, relative to public costs.” (234.11.(a)(2)) In addition, the draft regulations provide that the Assistant Secretary of the Army may make exceptions to this decision rule:

“A recommended plan for a federal water resources investment that does not maximize net public benefits requires an exception from the Assistant Secretary of the Army for Civil Works.” (234.11(b))

This authority might be used to overcome limitations imposed by a strict interpretation of “maximize net public benefits” to allow for selection of project alternatives with nonmonetizable benefits or projects offering nonstructural or nature-based solutions. Or, the exception might be used to select a conventional project alternative rather than one that meets the “net public benefits” test based largely on nonmonetized benefits.

In addition, the proposed regulation provides that:

“Exceptions to any requirements or policy contained in this part may be requested by the Corps or the non-Federal interest or responsible Tribal, State, or local government.” (234.3)

CFRP recommends that the Corps include in the preamble to a final rule explanation of the intended use of the exception authorities and add to the final rule a requirement for periodic reporting to the public of the Assistant Secretary’s use of any exception authority.

12) Clarify Treatment of Project Maintenance Costs in Alternatives Analysis: The proposed regulation states that analysis of “maximize net public benefits” provides that “the anticipated benefits will be presented relative to the costs associated with the accrual of those benefits.” Costs might reasonably be understood to include both construction costs and operation and maintenance costs. For some projects, the operation and

maintenance costs paid over many years by local sponsors are a significant part of the overall project costs.

Most Corps projects, however, provide funding for construction of the project but make post-construction maintenance costs the responsibility of a local sponsor who also shared in the initial construction costs. And, the regulation provides that operation and maintenance activities are generally “excluded from the requirements of this regulation” (234.d(2)(x)). Yet, operations and maintenance costs are to be included in initial investigations (234.6(e)). The description of “cost-benefit analysis” in the draft regulation does not mention operation and maintenance costs. (234.9(c))

CFRP recommends that the final regulation more clearly describe how operation and maintenance costs projected for the Corps and for local sponsors are to be included in the benefit-cost analysis used to evaluate the range of project alternatives.

The *Coastal Flood Resilience Project* is a coalition of organizations working for stronger programs to prepare for coastal storm flooding and rising sea level in the United States. The views expressed in this comment are those of the supporters listed below and do not represent the views or endorsements of their organizations.

Supporters of these comments include:

- Jay Austin; Environmental Law Institute
- Ian Blair; Wetlands Watch
- Kristin Butler; Earthjustice
- Stephen Eisenman; Anthropocene Alliance
- Harriet Festing; Anthropocene Alliance
- Sarah Guy; Ocean Defense Initiative
- Rich Innes; Senior Policy Director, Association of National Estuary Programs
- Charles Lester; Director of the Ocean and Coastal Policy Center at UC Santa Barbara and former executive director of the California Coastal Commission
- Jeffrey Peterson; author of *A New Coast: Strategies for Responding to Devastating Storms and Rising Seas* and former Deputy Associate Director for Water Policy, White House Council on Environmental Quality
- Eleanor Pierel; Ocean Conservancy
- Jason Scorse; Center for the Blue Economy, Middlebury Institute of International Studies
- Shana Udvardy; Union of Concerned Scientists
- Robert Young; Director, Program for the Study of Developed Shorelines; Western Carolina University

Attachment

Problem Statement: More Rainfall, More Severe Coastal Storms, and Rising Seas

Inland and coastal flooding has been a challenging problem in the United States for centuries. In recent decades, however, a changing climate has ramped up flood risks by driving more annual average and extreme event rainfall, intensifying coastal storm surges, and gradually rising sea levels.

More Extreme Precipitation and Flooding: The 2018 US [National Climate Assessment](#) (NCA) reported that “Annual precipitation since the beginning of the last century has increased across most of the northern and eastern United States and decreased across much of the southern and western United States. Over the coming century, significant increases are projected in winter and spring over the Northern Great Plains, the Upper Midwest, and the Northeast.”

Rainfall is projected to [increase by 20%](#) in some areas by 2070-2090. Consequently, “the [frequency of floods](#) associated with heavy precipitation events is expected to increase. This includes urban floods, where relatively large areas of impermeable surfaces increase the volume of runoff, and flash floods that occur in relatively steep or small watersheds.” Flooding occurring in inland watersheds can move downstream to cause flooding in coastal areas, especially in conjunction with coastal storms.

More Severe Coastal Storms: Coastal communities have long faced significant risks from coastal storm surge flooding, but climate change heightens these storm risks and adds the new threat of permanent inundation by steadily rising sea level.

Coastal storms are a major risk to life and property and major storms can deliver [storms surges of over fifteen feet](#). A warming climate is causing an [increase in the number of the strongest storms](#). These storms bring more extensive coastal flooding, higher storm surges, and increased rainfall. Research indicates that intense storms are [slowing down and thus](#) raining on a given place for longer, generating more rainfall and flooding. Even as storms move more slowly, they [intensify more rapidly](#), making their landfall harder to predict and more likely to result in major damage and loss of life. Some storms deliver intense precipitation to inland areas that then [comes downstream to worsen coastal flooding](#).

Steadily Rising Sea Level: The National Oceanic and Atmospheric Administration (NOAA) recently issued [new estimates](#) of future sea level rise, concluding that the rate of sea level rise along the American coasts is accelerating and is likely to rise as much over the next 30 years (i.e., about 1.3 feet by 2050 in the “Intermediate” scenario) as it has over the last 100 years. Sea level rise averaging as high as 1.7 feet around the coastline is possible over this period and could reach as high as 2.2 feet in some places (e.g., in the Western Gulf of Mexico).

By the year 2100, NOAA projects sea level rise along the American coasts to average about 4 feet (in the “Intermediate” scenario) while an average increase of over 7.2 feet is possible. Sea level rise in some regions could be higher. By 2150, NOAA forecasts average sea level rise of over 7 feet in the “Intermediate” scenario with the possibility of average increases as high as 12.8 feet and increases in the Western Gulf of Mexico of 14.7 feet.

NOAA explains in its new report that the rate of increase of sea level rise depends on increases in global air temperature driven by the release of greenhouse gases. Additionally, the rapid deterioration of ice sheets in [Antarctica](#) and [Greenland](#) could result in higher projected increases occurring sooner than previously expected. These changes in ice sheets are difficult to model but are thought to pose the greatest risk in the decades after 2050. Finally, sea level will continue to rise for centuries after 2150, due to temperature and melting trends already underway.

Impacts of More Severe Rainfall, Coastal Storms, and Rising Seas: More extreme rainfall, severe storms, and rising seas will bring economic, environmental, and social disruption to coastal communities on an unprecedented scale.

In the case of inland flooding, increased rainfall and extreme rain events are [projected](#) to increase the annual cost of flooding by 26% over the next three decades. Much of this impact is expected to fall on minority and disadvantaged communities. Aging water and power infrastructure and population growth in flood risk areas make managing climate change driven flooding in inland areas more difficult.

In the short term, coastal communities can expect more [“sunny day flooding”](#) during high tides, larger surges, and greater flooding during storms. As sea levels rise, sunny day flooding will increase and gradually lead to permanent inundation. In the longer-term, all or parts of [hundreds of coastal communities](#) will face far more extensive flooding than they currently experience. Storm surges and rising sea levels are also forcing coastal ecosystems to migrate inland and posing a risk to infrastructure assets.

The combination of more severe storms and rising seas is costly to the country. NOAA [identified](#) 332 disasters of all types with costs of over \$1 billion each since 1980 and found that coastal hurricanes resulted in just over half of all the costs (i.e., \$1.1 trillion and over \$21 billion per event). Storms and rising seas are projected to result in future losses of coastal property running into [trillions of dollars](#). These loss estimates, however, are based on the existing population along the coast and are likely to rise as new development occurs in risky coastal places in response to population increases.

Many low-income and disadvantaged coastal communities are among those [in harm’s way](#). These communities are [disproportionately affected](#) by climate change including sea level rise and extreme coastal weather events, and often lack the resources to respond to these risks.