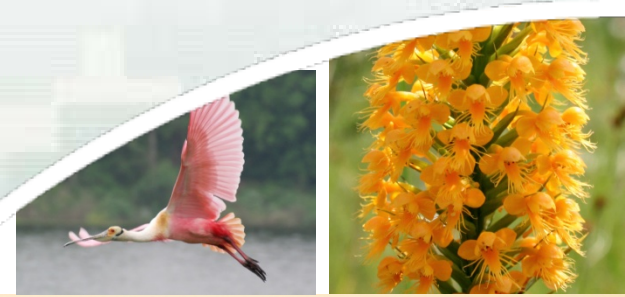


ALTERNATIVES ANALYSIS

USACE, Jacksonville District



US Army Corps of Engineers
BUILDING STRONG

Alternatives Analysis

- Why evaluate alternatives
- What forms the basis of the alternatives analysis
- How to develop reasonable and practicable alternatives
- Determine the least environmentally damaging practicable alternative
- Summary



Why Evaluate Alternatives?

- In the evaluation of Section 404 permit applications to discharge dredged or fill material into waters of the U.S (WOTUS), including wetlands, the U.S. Army Corps of Engineers (USACE) is required to analyze alternatives that could achieve the purpose and need.
- USACE conducts this analysis pursuant to two main requirements:
 - National Environmental Policy Act (NEPA)
 - Clean Water Act Section 404(b)(1) Guidelines



National Environmental Policy Act

- Requires federal agencies to consider:
 - environmental impacts of the proposed actions
 - range of **reasonable** alternatives to those actions
- **Reasonable** alternatives:
 - do not require consideration of every conceivable variation of an alternative (40 CFR §1502.14)
 - must be capable of achieving the basic project goal



National Environmental Policy Act

- Alternatives that are considered reasonable include those alternatives “that are practical or feasible from a technical and economic standpoint and using *common sense*.”

“**Reasonable**” = reasonable range + basic goals

- Example: A proposal to fill wetlands on a project site could involve an infinite number of alternatives from impacting 0 to 100% of the wetlands.



Section 404(b)(1) Guidelines

Clean Water Act Section 404 (b)(1) Guidelines

- Established by U.S. Environmental Protection Agency (EPA)
- Substantive environmental criteria
- Required for Department of the Army permit applications for the discharge of fill material in WOTUS
(40 CFR § 230)
- Non-compliance with the Guidelines = permit denial



Section 404(b)(1) Guidelines

- *“No discharge of dredged or fill material shall be permitted if there is a **practicable** alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.” 40 C.F.R. § 230.10(a)*
- **Practicable** means:
 - available
 - capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose



RGL 95-01: Individual Permit Flexibility for Small Landowners

Presumes alternatives located on property not owned by the applicant are not practicable

- Section 404 of the Clean Water Act
- Up to two acres of non-tidal wetlands
- Construction or expansion of home or farm building or expansion of small business

On-site minimization and compensatory mitigation is still required

USACE has flexibility, not a requirement



Reasonable vs. Practicable

- NEPA
 - Reasonable alternatives
 - Basic project goals or purpose
- Section 404(b)(1) Guidelines
 - Practicable alternatives
 - Overall project purpose



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Project Purpose

Under NEPA (33 CFR Part 325, Appendix B) and under Section 404 of the Clean Water Act pursuant to the Guidelines (40 CFR Part 230), there are three ways that USACE examines the underlying goals, or purpose, of a project:

- The applicant's stated purpose and need,
- The "basic" project purpose, and
- An "overall" project purpose.



Applicant's Purpose and Need

- Applicant submits a purpose and need statement.
 - Significant thought
 - Drives the alternatives analysis under both NEPA and the Guidelines
- From the applicant's purpose and need statement, the USACE defines the basic and the overall project purpose.

Example: The purpose of the project is the construction of affordable housing for lower-mid income families. Affordable housing is needed in the northeastern portion of Palm Beach County as many of those who work in northeastern Palm Beach County live in southern St. Lucie County.



Basic Project Purpose

- Basic project purpose = water dependency or not
- If special aquatic sites, including wetlands, will be affected and the activity is not “water dependent,” then we presume **practicable** alternatives that do not involve special aquatic sites
 - Are available and
 - Have less adverse impact on the aquatic ecosystem, *unless clearly demonstrated otherwise* 40 CFR § 230.10(a)(3)

Example: The basic project purpose is residential housing.

Because residential housing is not water dependent, practicable alternatives are presumed to be available.



Overall Project Purpose

- Overall purpose defines the geographic scope.
- The overall project purpose should be:
 - reasonably set to define the area of alternatives and
 - based on the project purpose



Overall Project Purpose

Example: The overall project purpose is the construction of affordable residential housing in northeastern Palm Beach County.



Because the need is in northeastern Palm Beach County, the alternatives analysis would focus on alternative sites in that area.



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Overall Project Purpose

- Careful consideration by USACE
- USACE may require modification
- For complex projects, USACE recommends early input in the development of the overall project purpose and the alternatives analysis (Time = Money)
 - A pre-application meeting
 - Early communication in application review



Alternatives Evaluation

- Pursuant to 33 CFR Part 325, Appendix B, USACE will in all cases, exercise **independent judgment** from both the applicant's and the public's perspective.
- Once the basic and overall project purpose is defined, USACE must evaluate alternatives that are **reasonable** and **practicable**.



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Reasonable Alternatives

- NEPA regulations (Section 1502.14) require that reasonable alternatives are considered, but not every alternative conceivable to the mind. To be considered reasonable, an alternative must be capable of achieving the basic project goal.
- Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and use *common sense*, rather than simply desirable from the standpoint of the applicant.



Reasonable Alternatives

- Applicant's preferred alternative
- No action alternative
- Alternative offsite locations (might have less impacts to WOTUS)
- Onsite alternatives (with less adverse impact to WOTUS)
- Alternatives (both offsite and onsite) that would involve greater adverse impact to WOTUS but avoid or minimize other significant adverse environmental consequences – typically uncommon



Reasonable Alternatives

- The maximum number of reasonable alternatives depends on the nature and scope of the proposed project.
- The level of detail in an alternatives analysis should be commensurate with the scale of the adverse environmental effects of the project.
 - Larger projects with greater impacts
 - Smaller acreage of impacts but to high value aquatic resources
- This is the preliminary list of reasonable alternatives; the next stage of the analysis will evaluate the alternatives for practicability.



Analyze Alternatives for Practicability

- Practicable alternatives:
 - Available
 - Able to achieve the overall project purpose, and
 - Feasible considering cost, existing technology and/or logistics
- A screening process is used to further refine the reasonable alternatives. (A matrix is helpful for reference and comparison.)



Practicable Alternatives

At a minimum, the following general site information for each alternative site examined should be provided:

- Specific parcel information: aerial photos, location maps, and land use codes
- Presence, quantity and quality of wetlands or other WOTUS
- County/city zoning designation
- Site infrastructure - new access roads/infrastructure



Analyze Practicability

Cost: overall cost of the project and whether it is unreasonably expensive or exorbitant

- **Excludes** the consideration of financial return or profit, land price, investment, and other types of individual financial considerations
- Objective, industry-neutral inquiry that **does not** consider an individual applicant's financial standing
- "Typical project"
- Data should be current (i.e., from the time of the USACE review)



Analyze Practicability

Cost examples to consider:

- Transportation cost or transportation needs
- Utilization of existing infrastructure (such as existing power or water supplies) or
- Proximity to existing infrastructure (roads, water, sewer, electricity)
- Requirement to construct infrastructure

If one alternative costs more than another, this does not mean that it is impracticable. Cost is analyzed in the context of the overall cost of the project and whether it is unreasonably expensive or exorbitant.



Practicability

Existing Technology – Are the most efficient/least-impacting construction methods currently available being used?

Examples:

- *Engineered retaining walls that minimize wetland impacts by eliminating fill slopes*
- *Mining limestone or other minerals that could replace that mineral resource in mass-production of concrete*



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Practicability

Logistics - placement of facilities within a required distance, utilization of existing storage or staging areas, safety concerns

Examples:

- *Land-locked parcel that cannot be accessed by public roads or easement*
- *A site that is too small to meet the overall project purpose*
- *A requirement to be located a certain distance from a hospital or firehouse*



Availability

Availability: “If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.”
40 C.F.R. § 230.10(a)(2)

In other words, if the applicant doesn't own an alternative parcel, that doesn't rule that parcel out as a practicable alternative.

The applicant should consider and anticipate alternatives available during the timeframe that USACE conducts its alternatives analysis. An evaluation of availability for purchase and projected cost can be included here.



Practicability

An alternatives comparison matrix is an effective way to present and compare the main parameters that were considered during the evaluation:

- Availability
- Cost
- Technology
- Logistics



Practicability

Category	Practicability Factor	Alternative 1 Applicant's Preferred Alt	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Availability	Existing Zoning appropriate or potential for zoning change?	YES – Zoned for this project type	YES – Zoned for this project type	YES – Zoned for this project type	YES - Zoned Agricultural but County has expressed support	YES – Zoned for this project type
Availability	Available for acquisition?	YES – applicant owns parcel	YES	YES	YES	YES
Cost	Reasonable Acquisition Cost?	YES – applicant owns parcel	YES	YES	YES	NO - Seller would only sell 350 acres without subdividing
Cost	Other Costs Feasible?	YES	YES	YES	NO - Costs to connect to utilities will increase project costs by \$	NO - retaining walls and construction of bridge would increase project costs by \$
Existing Technology	Site Conditions Feasible for Construction?	YES	YES - with retaining walls & drainage systems	YES	YES	YES - with use of retaining walls and bridge over Clear Creek
Logistics	Sufficient Parcel Size?	YES - 40 acres	YES - 48 acres	NO - 21 acres	NO - 17 acres	YES - 350 acres
Logistics	Availability of Utilities	YES	YES	YES	NO - 6 miles from existing water, sewer, & power	YES
Logistics	Availability of Access?	YES - County right-of-way on east property boundary	YES - County right-of-way to northwest of property	NO - landlocked by private parcels, no easements	NO - landlocked by private parcels, no easements will be granted	YES - County right-of-way to west side of property

Alternatives Evaluation

Applicant's purpose and need



Basic project purpose



Overall project purpose



Develop alternatives analysis



Reasonable alternatives



Practicable alternatives



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LEDPA

- Least Environmentally Damaging Practicable Alternative (LEDPA) must be identified
- LEDPA incorporates “practicable”
- NEPA requires a "hard look" and a "fair disclosure" of impacts
- The Guidelines require that the LEDPA be selected



LEDPA

To determine the LEDPA, identify the environmental impacts for each remaining practicable alternate site, using the same numbering system from the above step.

- Describe the direct impacts (beneficial or adverse) to the aquatic ecosystem of each alternative
- Describe the overall (beneficial or adverse) environmental impacts of each alternative
- Be specific and quantitative in these identifications of impacts



LEDPA

Consider evaluating many environmental/relevant factors, such as:

- Wetland impacts
- Federally listed threatened or endangered species
- High value upland habitat
- Historic properties
- Migratory birds

Emphasis should be placed on impacts to the aquatic environment through functional unit loss of wetlands or other WOTUS that would be impacted or eliminated by each alternative.



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LEDPA

Environmental Factors	Alternative 1: Applicant's Preferred Alternative	Alternative 2
Wetland Impacts (acres)	2.0	6.0
Loss in Wetland Function (UMAM Functional Units)	1.4	3.9
Impacts to Federally Listed Threatened or Endangered Species	No	No
Impacts to Migratory Birds	No	Yes
LEDPA	Yes	No



LEDPA

Conclude the alternatives analysis with a description of the alternative proposed to be the LEDPA, reiterating the rationale for this determination



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USACE Decision

USACE is neither an opponent nor a proponent of the applicant's proposal.

- *33 C.F.R. Part 325, Appendix B, Paragraph 9.b.(5)*

Decision options available to the district commander, which embrace all of the applicant's alternatives, are:

- Issue the permit
- Issue with modifications or conditions
- Deny the permit



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Summary

The level of detail in an alternatives analysis should be commensurate with the scale of the adverse environmental effects of the project.

- Larger projects with greater impacts
- Smaller impacts to important resources



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Summary



A permit cannot be issued if a practicable alternative exists that would have less adverse impact on the aquatic ecosystem, provided that alternative does not have other significant adverse environmental impacts.



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Summary

How can applicants develop a good alternatives analysis?

- Pre-application meeting
- Early input from USACE after submittal of application
- Communication



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Summary

USACE has developed a step-by-step tool to assist applicants in developing an alternatives analysis:

Alternatives Analysis Information for Applicants for Projects that include Clean Water Act Section 404 impacts

Step 1: Define Purpose and Need

Step 2: Identify Alternatives

Step 3: Describe and Analyze Alternatives

Step 4: Identify the Least Environmentally Damaging Practicable Alternative

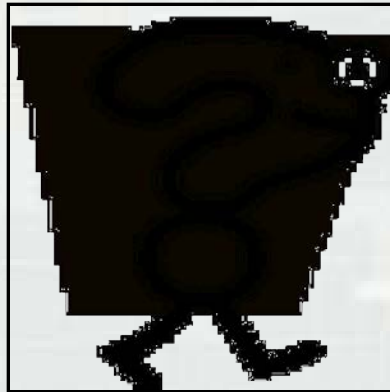


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Questions?



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