US Army Corps of Engineers ®
Albuquerque District

Alternatives Analysis Framework

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The U.S. Army Corps of Engineers (Corps) federal permit program requires all applicants for a Department of the Army (DA) permit to avoid and minimize impacts to waters of the U.S. Under the National Environmental Policy Act[1] (NEPA) and the Clean Water Act Section 404 (b)(1) Guidelines[2] (Guidelines), the Corps is required to evaluate alternatives to a proposed project. Alternatives may include on-site designs or off-site locations. The permit applicant is required to prepare and submit information regarding project alternatives. The information applicable to NEPA and the Guidelines can be combined in a single report called an alternatives analysis. The preparation of an alternatives analysis requires close coordination between the Corps and the permit applicant. This document provides a framework for preparing an alternatives analysis.

The NEPA requires the Corps to evaluate reasonable alternatives that would accomplish the underlying purpose and need of a proposed project. Under NEPA, the Corps must also evaluate a "no action" alternative, which is an alternative resulting in construction not requiring a DA permit. The no action alternative may be a modified project design or a location that eliminates work that would require a DA permit (i.e., avoidance) or the Corps' denial of the permit.

In addition to NEPA, projects that include the discharge of dredged or fill material into waters of the U.S. are subject to evaluation under the Guidelines. The Guidelines are regulations published by the U.S. Environmental Protection Agency and are the substantive criteria used in evaluating proposed discharges into waters of the U.S. The Guidelines have been written to provide an added degree of discouragement for non-water dependent activities proposed to be located in a special aquatic site, which include sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes.

In accordance with the Guidelines, when an activity associated with a discharge is proposed to occur in a special aquatic site and the activity is not water dependent, the regulations presume that (1) practicable alternatives that do not involve impacting special aquatic sites are available and (2) these alternatives will have less adverse impact on the aquatic ecosystem. 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.

[1] 33 CFR 325, Appendix B. NEPA Implementation Procedures for the Regulatory Program
[2] 40 CFR 230. Guidelines for Specification of Disposal Sites for Dredged or Fill Material

The permit applicant is responsible for rebutting the presumptions that an alternative not involving impacts to a special aquatic site is available and would have less adverse impact on the aquatic environment. The parameters used to rebut the presumptions and to evaluate alternatives must be coordinated with and approved by the Corps. The Corps makes the final determination regarding the analysis and the Corps completes an independent determinations of whether all of the Guideline requirements have been met. For these reasons, the Corps encourages applicants to coordinate early during the development of the project, such as in pre-application meetings.

The alternatives analysis should be completed in a sequential manner to ensure the requirements of the NEPA and Guidelines are met. A conceptual "framework" for preparing an analysis is shown on the attached flowchart. It is strongly recommended the applicant meet with the Corps to complete Steps 1 through 4. If these steps are not correctly interpreted and applied, the Corps could deem the subsequent analysis insufficient and the applicant would need to completely revise the analysis. The alternatives analysis must be a thorough and objective evaluation of alternatives. The purpose of the analysis is not to support a pre-determined outcome, but to identify and evaluate project alternatives. If an analysis is designed to justify an applicant's preconceived proposal and does not seriously consider alternative sites and configurations, significant delays or permit denial may result.

As described in the flowchart, the following steps are recommended to complete a thorough and objective evaluation of alternatives:

- Establish the project need
- Define the basic project purpose to determine water dependency
- Define overall project purpose and geographic area for alternatives
- Develop project criteria to evaluate alternatives
- Identify potential alternatives within the geographic area
- Evaluate alternatives to determine if they are practicable
- Evaluate practicable alternatives to determine if the applicant's proposed project is the least environmentally damaging alternative

<u>Establishing the Project Need</u>

The project *need* should clearly outline the specific problem the project is intended to remedy. The applicant must provide details on the need for the project. As a practical matter, when the Corps receives a permit application it is generally assumed the work is needed and the project is economically viable. However, the Corps will determine the project need for all permit applications from both the applicant's and public's perspective. The Corps may question the public need for projects that are unduly speculative. A speculative project is when there is no demonstrable need for the project and is instead based on some unknown future or desired use.

Speculative projects, due to their lack of specific project definition, cannot be evaluated within the requirements of NEPA or the Guidelines.

When establishing need, the applicant should provide evidence that the problem exists. To the extent possible, the need should be factually and numerically based. For example, if the problem is the lack of housing and an applicant is proposing a housing development the information to support the need may be based on data regarding available housing or lack thereof, a housing market analysis for the region, and data on population growth and demand for housing.

Define the Basic Project Purpose

The *basic* purpose is the fundamental, essential, or irreducible purpose of the proposed project and is used to determine whether the project is "water dependent" or not. Water dependency pertains to whether or not the proposed project requires access or proximity to, or siting within, a special aquatic site in order to fulfill its basic purpose. For example, the basic purpose of a restaurant is to feed people, and it is therefore not a water dependent activity. Most development projects are not water dependent activities, because they do not need to be sited in or near a special aquatic site. The Guidelines are applicable to all waters of the U.S., but afford special aquatic sites a higher level of protection. As stated at the beginning of this document, if a project is not water dependent, the applicant must rebut the presumptions that an alternative which does not impact a special aquatic site exists and is less environmentally damaging.

Define the Overall Project Purpose and Geographic Area of the Alternatives Analysis

The *overall project* purpose statement describes the specific project and how the need (problem) will be met. The overall project purpose must be properly defined; otherwise, an alternative analysis cannot be accomplished. The development of the overall purpose statement is an important step in any alternatives analysis and requires close coordination with the Corps.

In a permit application, the applicant generally provides a project purpose statement from their perspective. However, when appropriate, the Corps will revise the project purpose based on a public interest perspective. While generally focusing on the applicant's statement, the Corps will exercise independent judgment in defining the project purpose. While input on the project purpose from the applicant and others is given full and complete consideration, their input is not given any undue deference.

In defining the overall project purpose, the applicant must determine the geographic area to be considered. The geographic area should be specifically stated in the overall project purpose. An alternative must be capable of achieving the overall project purpose in order to be considered a practicable alternative. Therefore, the purpose should not be defined so narrowly as to limit the range of otherwise practicable alternatives. A narrowly defined purpose statement often includes an excessive number of project components or is simply a description of the project as

proposed in the permit application. A narrow purpose statement that can only be met by the project as proposed in the permit application is not acceptable and precludes a reasonable search for alternatives. Conversely, a purpose statement that is too general or broad could be met by any number of alternatives.

The overall project purpose should generally be a single concise statement. For example, a purpose statement for housing might be "To provide single-family housing in Clackamas County, Oregon." This purpose statement identifies the type of housing and the geographic market area. Elements of the specific housing proposal are established in the project criteria.

Develop Project Criteria

After determining the overall project purpose, project criteria are established. Project criteria define the requirements of a particular type of project (e.g., site size, location/distance to market, specific amenities). The project criteria are used to determine if an alternative is practicable.

Under the Guidelines, a practicable alternative is defined as an alternative that is or was available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose(s). As a general rule, the Corps will evaluate the existence of available alternatives at the time the permit application is received. However, in certain circumstances, a site could be considered a practicable alternative if the site was available when the applicant was selecting a building location (i.e., time of market entry) even though the site was no longer available at the time the applicant submitted a permit application. An "available" alternative may be a site the applicant already owns or it may be a site not presently owned by the applicant, but one that could be reasonably obtained, utilized, expanded, or managed in order to fulfill the project purpose.

Cost, existing technology, and logistics are used to define project criteria. The project criteria, in addition to the project purpose, are used to determine if a potential alternative is practicable.

Cost is simply a comparative analysis of the cost of different alternatives and it is generally not necessary to define a specific cost criterion. The mere fact that an alternative may cost somewhat more than the applicant's proposed project does not necessarily mean the alternative is not practicable. The evaluation of cost also does not include the applicant's financial standing or desired profits. Furthermore, a cost-benefit analysis is generally not applicable to the evaluation of a permit application.

Existing technology generally applies to construction equipment, methods and materials. For example, an existing technology to avoid wetland impacts for the installation of utilities may be to use an underground directional drilling technology instead of an excavated open trench method.

Logistics deals with the specific designs of a viable project. Logistical criteria are often the primary factors in determining if an alternative is practicable. Logistical criteria are generally based on industry standards or other requirements for the "type" of project being proposed. To facilitate the evaluation of alternatives, logistical criteria should be defined as minimum/maximum or pass/fail. For example, logistical criteria for a project could include: site size of at least five acres (minimum); a site with no more than 15% slopes (maximum); ability to connect to utilities (pass/fail).

Proposed project criteria should be specific and the supporting rationale for use of the criteria must be provided. Avoid using ambiguous and un-measurable terms such as: difficult, more/less costly, significantly, highly, and constraining. These terms are subjective, unquantifiable, and cannot be applied equally across each alternative in a consistent manner. Instead, focus on measurable limits, factors, and thresholds that constitute and relate to practicability. For each criterion provide: a definition of the criteria; a discussion of what constraints or limiting factors are the basis for the criteria; and the thresholds at which those constraints or factors are not practicable.

Property ownership and zoning designations do not preclude an alternative from being practicable or evaluated. Zoning is a planning tool and is subject to adjustments through local land use and policy changes. However, the procedures required in a rezone request could be considered in terms of cost, existing technology, and logistics.

Identify Least Environmentally Damaging Practicable Alternative

Once a set of potentially practicable alternatives has been identified within the geographic area based on the project purpose and project criteria, an environmental evaluation of those alternatives must be conducted. A typical alternatives analysis includes a detailed evaluation of the applicant's preferred alternative, several other on-site or off-site alternatives as applicable, and the no action alternative. The environmental evaluation should be in terms of impacts to the aquatic environment, particularly waters of the U.S., and other environmental consequences and not in terms of critical or sensitive areas that are not under the direct purview of the Corps. Buffers and other environmental impacts (e.g., loss of riparian habitat,) should be considered secondary in the evaluation.

The least environmentally damaging layout/configuration of project features (i.e., buildings, roads, parking, etc.) within each alternative site or configuration should be used for comparison of impacts between and across all practicable alternatives. These configurations must be depicted on the drawings for each alternative. Avoidance and minimization measures must be applied equally across all alternatives for an objective comparisons. The alternatives analysis under the Guidelines is used to determine the least environmentally damaging practicable alternative (LEDPA).

Compensatory mitigation may *not* be used as a method to reduce environmental impacts in the evaluation of alternatives under the Guidelines. Compensatory mitigation may be required to offset unavoidable adverse impacts which remain after implementing

all appropriate and practicable avoidance and minimization measures. Compensatory mitigation cannot be used to "buy down" environmental impacts when determining the LEDPA.

Other *significant* adverse effects of the project are considered in determining the LEDPA; however, there are stringent criteria as to what constitutes "significant," and the determination would be made on a case-by-case basis. Significant adverse effects could include, but are not limited to, impacts to human health and welfare and impacts to fish and wildlife values. Upon completion of the analysis, only the LEDPA can be permitted. If more than one practicable alternative could be supported as the LEDPA (i.e., the impacts are virtually equal between alternatives), then the applicant's preferred alternative would take preference.

Conclusion

The Corps is required to evaluate alternatives to a proposed project as part of the permit decision-making process. Early coordination with the Corps and the early consideration of alternatives can assist applicants in the siting and design of proposed projects. Information prepared based on criteria not approved by the Corps may require a new assessment and cause delays. When conducted properly, an alternatives analysis is a systematic and objective approach to the evaluation of project alternatives. The alternatives analysis process is potentially the best and most useful means to evaluate proposed projects resulting in permit decisions that allow for reasonable development while protecting important environmental resources.

Additional information on the Corps' Regulatory Program and information on how to request a pre-application meeting is available on the Albuquerque District website at: www.spa.usace.army.mil.

*This guidance document was originally authored by Steve Manlow, Peter Olmstead, and Joe Brock of Seattle District USACE and web published on 18 April 2016. It is intended for wide distribution throughout the regulatory program.

ALTERNATIVES ANALYSIS FRAMEWORK