



Alternatives Analysis for 401 Water Quality Certification Applications

Why is an alternatives analysis required?

Ohio Revised Code (ORC) [6111.30](#) and Ohio Administrative Code (OAC) [3745-32-03](#), [3745-1-05](#) and [3745-1-54](#) require an analysis of alternatives on all applications for a section 401 water quality certification (WQC). Recent changes to OAC 3745-32 have revised the alternatives analysis procedure to be consistent with the federal requirements. This will minimize duplicative and potentially confusing procedures for applicants that must obtain a 401 WQC from Ohio EPA and a 404 permit from the U.S. Army Corps of Engineers. Applicants are no longer required to submit preferred, minimal degradation and non-degradation alternatives with their 401 WQC application; however, applicants are required to provide enough alternatives to identify a least environmentally damaging practicable alternative (LEDPA) that serves the project purpose. The federal and state regulations and procedures outlined below should be followed to satisfy the alternatives analysis requirement.

What are the federal regulations for an alternatives analysis?

The regulations, located in 40 C.F.R. Part 230: Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, state that 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. An alternative is *practicable* if it is **available** and **capable of being done** after taking into consideration **cost, existing technology** and **logistics** in light of the overall project purpose. The federal guidelines include the following two assumptions:

- 1) If a project does not need to be in a special aquatic site to meet its basic purpose (project is not water dependent), it is presumed that alternatives that do not affect special aquatic sites are available.
- 2) If a project involves a discharge of dredged or fill material into a special aquatic site, a practicable alternative located in uplands is presumed to have less adverse impact on the aquatic ecosystem.

Special aquatic sites, listed in 40 C.F.R. Part 230, include **sanctuaries** and **refuges, wetlands, mud flats, vegetated shallows, coral reefs** and **rifle and pool complexes in streams**. It is the applicant's responsibility to clearly demonstrate to Ohio EPA that both of these presumptions have been rebutted in order to pass the alternatives portion of the federal guidelines and the avoidance requirements of OAC 3745-1-54. Therefore, all **401 applications must include an evaluation of practicable project alternatives**.

What are the required steps and components of an alternatives analysis?

Project purpose

The first, and most important, step in the alternatives analysis is the development and statement of the overall project purpose. This statement should be specific enough to define an applicant's needs but not too restrictive to preclude all other alternatives. The following are examples of overall project purpose statements for one project:

- 1) *To develop a 200-lot single-family residential development at the northwest intersection of State Route 122 and Harris Ave.*

This example is too restrictive because there are no alternative sites to consider. Detailing the exact number of lots can reduce the number of practicable alternatives.

- 2) *To develop a residential development in Southwest Ohio.*

This example is too wide in scope. This would create an unmanageable number of alternatives.

- 3) *To develop a single-family residential subdivision near State Route 122 in Middletown, Ohio, to meet local demand for housing.*

This is an appropriate overall project purpose statement as it narrows the geographic scope, clearly defines what the project involves, and the need for the project.

Alternatives Analysis for 401 Water Quality Certification Applications

Water dependency

The second step in the alternatives analysis is to determine if the project is water dependent. A project is water dependent if it requires access or proximity to or siting within a special aquatic site to fulfill its basic purpose. If a project is *not* water dependent, then the assumptions above must be rebutted with an alternatives analysis and included in the 401 WQC application. For example, the basic purpose of a restaurant is to feed people, and it is therefore not a water dependent activity. The basic purpose of a boat dock is to provide a place for boats to tie off, and it is therefore a water dependent activity.

Identify project alternatives

If a project is not water dependent, the third step in the alternatives analysis is to identify the alternatives that could meet the overall project purpose. Practicable project alternatives should include both offsite and onsite alternatives which are available and capable of meeting the project purpose and include avoidance and minimization measures.

Off-site alternatives: Here are some questions to consider when developing the off-site alternatives. What properties are or were available in the area? Are these alternatives practicable? Are there properties available that would meet the criteria that would not involve filling waters of the state? Keep in mind that not owning a property or zoning restrictions on a property does not eliminate it from consideration.

On-site alternatives: Here are some questions to consider when developing the on-site alternatives. Are there different building configurations that may reduce or eliminate fill into waters of the state? Is there a way to reduce the overall construction footprint that may reduce or eliminate fill into waters of the state? How does the chosen site plan make it the LEDPA?

Avoidance and Minimization: When preparing and evaluating project alternatives, keep in mind the requirements for avoidance and minimization of OAC 3745-1-54 for wetlands. Describe the avoidance and minimization considerations that were factored into the alternatives analysis. Some items to consider during this process include, but are not limited to:

- How could you implement your project without affecting water resources?
- How could the project be re-designed to fit the site without affecting water resources?
- How could the project be made smaller and still meet your needs?
- What other sites were considered?
- How did you determine whether other non-wetland sites are available for development in the area?
- What are the consequences of not building the project?
- How could the footprint of the project be minimized to lessen impacts to water resources?
- How will water quality be maintained after project completion in order to serve beneficial uses and pre-construction hydrologic functions of waters within the project area?
- How can road widths be minimized?
- How can structure size be reduced or structure location be changed?

What information should be included for each alternative?

Provide a description for each alternative that includes a description of potential resource impacts. A location map and any relevant drawings or exhibits should also be provided for each alternative considered.

How should the alternatives be assessed?

Once the alternatives have been identified for a project, each alternative should be evaluated for practicability based on the cost, existing technology and logistics. It is recommended that the alternatives analysis be presented in a table or matrix similar to the following example. Each alternative should be presented and evaluated based upon the relevant factors.

Once the practicable alternatives have been identified, those alternatives should be evaluated based upon the potential impacts to the environment. Each practicable alternative should be presented as exemplified in the table below. After the LEDPA has been identified, the alternatives analysis portion of the application is complete and the analysis should be included as part of the corresponding 401 WQC application.

Alternatives Analysis for 401 Water Quality Certification Applications

Example Off-Site Alternatives Comparison Matrix for Practicability

Practicability Category	Factor	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Availability	Available for Acquisition	YES applicant owns the parcel	YES listed for sale in multiple listing service (MLS)	YES listed in MLS	NO applicant does not have condemnation authority	YES listed in MLS	YES listed in MLS
Logistics	Sufficient Parcel Size	YES 200 acres	YES 270 acres	YES 300 acres	N/A – failed availability screen	NO 100 acres is not adequate size	YES 300 acres
Logistics	Existing Zoning Appropriate	YES zoned for this use	YES zoned for this use	YES zoned agriculture, city hasn't denied change	N/A	N/A – failed parcel size screen	YES zoned for this use
Logistics	Availability of Utilities	YES adjacent to site	YES 0.5 miles to existing utilities	YES already exist on-site	N/A	N/A	YES 1.5 miles to existing utilities
Logistics	Accessibility	YES county ROW on east boundary	YES county ROW on west boundary	NO landlocked by other parcels, request for easement denied	N/A	N/A	YES parcel fronts onto existing county road
Existing Technology	Site Conditions Feasible for Construction	YES	YES with use of retaining walls	N/A – failed access screen	N/A	N/A	YES with use of retaining walls
Cost	Reasonable Acquisition Costs	YES applicant owns the parcel	YES within normal market costs	N/A	N/A	N/A	NO costs are 10X more than similar land
Practicable?		YES	YES	NO	NO	NO	NO

Alternatives Analysis for 401 Water Quality Certification Applications

Example Practicable Alternatives Comparison Matrix for Environmental Factors

Environmental Factor	Alternative 1	Alternative 2
Wetland Impacts (Acres)	2.0	6.0
Stream Impacts (Linear Feet)	150	200
Open Water Impacts (Acres)	2	2.5
Floodplain Impacts (Acres)	0	0
Least Environmentally Damaging Practicable Alternative?	YES	NO

Contact

For more information or questions regarding the alternatives analysis for 401 WQC applications or general 401 WQC questions, contact the Division of Surface Water 401/Wetlands Section at (614) 644-2001 or visit the 401/Wetlands Section website at: epa.ohio.gov/dsw/401/permitting.aspx.