

Federal Highway Administration

Every Day Counts

Innovation Initiative



Clarifying the Scope of Preliminary Design

This initiative will identify the amount of design work allowable under current law prior to NEPA completion regardless of contracting mechanism and develop guidance to allow this work to be done consistently.

Preliminary Design Maximizes Project Efficiency

Planning ahead is a good idea in most aspects of professional life. It generally leads to better decisionmaking in everything from budgets to management plans. In transportation projects, preliminary design is an important key to time-effectiveness, cost-effectiveness, and environmental responsibility. By clarifying the parameters of acceptable preliminary design activities, a much wider range of efficiencies can be incorporated in highway planning.

Preliminary vs. Final Design. The dividing line between preliminary design and final design is not always clear. Final design means any design activities following preliminary design—but where does preliminary design stop? Preliminary design stops at the point where a declaration of initiation of Final Design begins. The definition of Final Design is identified in the FHWA Directive 6640.1A A Policy on Permissible Project Related Activities During the NEPA Process. Unless there is clarity between preliminary and final design, the NEPA process may be open to challenge as being compromised.

Final design clearly includes the preparation of construction plans and detailed specifications for construction work to be performed. To ensure that those plans and specification will be time-effective and cost-effective, the right steps need to be taken to ensure focused *preliminary design*.

Taking the Right First Steps. *Preliminary design* is the stage in which general project location and design concepts are determined. It includes all that is necessary to conduct a NEPA alternatives analysis and review process properly, but good preliminary design goes beyond that. Preliminary design can also include additional activities which do not materially affect the objective consideration of alternatives.

Preliminary design can include a wide range of preliminary engineering and other activities and analyses, including but not limited to:

- Environmental assessments
- Topographic surveys
- Metes and bounds surveys
- Geotechnical investigations
- Hydrologic analysis
- Hydraulic analysis
- Utility engineering

- Traffic studies
- Financial plans
- Revenue estimates
- Hazardous materials assessments
- General estimates of the types and quantities of materials, and other work needed to establish parameters for the final design

NEPA Review Requirements. The National Environment Policy Act (NEPA) review process requires an objective consideration of any reasonable alternatives for projects and the identification of their potential environmental impacts. The purpose and need for the project will establish the correct parameters for choosing reasonable alternatives. For example, if a highway project location is essential in an environmentally sensitive area, relocation may not be a reasonable alternative, but alternatives which include various construction methods or materials might mitigate the environmental impact.

Pitfalls of Misunderstanding Preliminary Design. Highway practitioners are often conservative in which activities they classify as preliminary design. Some consider preliminary design to involve only the activities needed to make a NEPA determination; they view everything else as final design activities. This overly cautious approach creates unnecessary delays to highway projects, because it inadvertently postpones essential planning until it is too late to be effective.

States have the flexibility to pursue many design activities not required for a NEPA determination under preliminary design. When performed concurrently with the NEPA process, these activities can expedite project delivery without affecting eligibility for federal-aid. Examples include, but are not limited to:

- Soil borings
- Preliminary traffic control plans
- Types of grading

Such preliminary design activities must be undertaken in compliance with the provisions in NEPA regulations at 23 CFR Part 771 and 40 CFR Parts 1500-1508. They do not limit the choice of reasonable alternatives (40 CFR 1506.1(a)-(b)).

Clarifying the Scope of Preliminary Design Shortens Project Delivery. The purpose of the “Clarifying the Scope of Preliminary Design” initiative is to explain the difference between preliminary and final design activities. The initiative answers the essential question of which preliminary design activities can be carried out during the NEPA phase.

Many preliminary design activities can be conducted during the NEPA process to shorten overall project delivery without jeopardizing the objectivity requirements and intent of NEPA. Clarifying these will lead to improved project decision-making and reduction in project delivery times.

The FHWA’s Role. The Federal Highway Administration (FHWA) is taking the lead in identifying the additional types of design work allowable under current law and regulation within the NEPA project development process. It is focusing on steps that can be done prior to and concurrent with the NEPA approval, regardless of contracting mechanism. By highlighting and clarifying the flexibilities available to states, additional project-specific design can be initiated during NEPA review, as provided in current regulations and statutes.

Guidance and outreach material will ensure that states are consistent in applying the definitions of preliminary design and final design on Federal Aid projects. FHWA’s goal is to clarify the flexibilities available to states and integrate them into a State DOT’s policies and project development process. Preliminary design isn’t just good sense. It’s a time-effective and cost-effective way to address transportation and environmental needs at the same time.