

## XI. Plans, Specifications, and Estimates (PS&E) Development

**Overview.** Construction management includes several major steps with sub-stages in each major step, including pre-planning, conceptual design, PS&E development, bidding and awarding contracts, project execution and construction, project monitoring, and project completion.

In the PS&E Development, also referred to as Project Development, the process takes a transportation improvement from concept through design. The primary function of design is to designate those standards, policies, and standard specifications that are acceptable for application in the geometric and structural features of highways, road, bridges, and walkways. Key objectives for design and should include:

- Improving safety for all users,
- Promoting project design choices that are consistent with Tribal transportation plan and policies,
- Providing facility designed to meet the functional and operational goals established by the project purpose and need in the NEPA process,
- Providing accessibility for people with disabilities,
- Compatibility with other transportation modes, facilities and land uses,
- Cost effectiveness to ensure value returned, and
- The project is sensitive to the local context and meets the needs of the people it serves.

The need for early identification of issues and alternatives is important. In addition, community values, natural, historic, and cultural resources should be fully considered throughout the design process. The role of the Tribe is to ensure the key objectives for design are met.

***NOTE:** A Tribe has several options in the developing PS&E package. A Tribe can develop the PS&E package in house or subcontract the service out to a consultant, BIA, or FLH.*

*Under the authority prescribed in 23 U.S.C. 204, FLH can perform any or all phases of IRR project development and construction, if requested by a Tribal government. If so requested, each of the FLH Divisions (Eastern, Central, and Western) may execute individual Project Agreements with Tribal governments to perform any or all project development activities if IRR funds are used (see **Example 9.4 - Tribal Request for Services form**).*

### **Statutory/Regulatory Requirements.**

23 U.S.C. 202(d)(2)(F)(ii) allows an Indian Tribal government to approve plans, specifications, and estimates (PS&Es).

The following requirements must be met by the Tribal government when approving a PS&E package:

1. **Assurances.** The Tribe will provide assurances that the construction will meet or exceed applicable health and safety standards. This can be accomplished by:
  - a. A State-licensed civil engineer must certify (seal) on the plans that the PS&E meets applicable health and safety standard; and
  - b. The Tribe must provide a copy of the certification letter by the State-licensed civil engineer to the Deputy Assistant Secretary for Tribal Government Affairs or the Assistant Secretary for Indian Affairs (see **Example 11.1 - PS&E Certification Letter**).

2. **Public Hearing.** (a) Criteria to determine if a public hearing will be held are listed in 25 CFR 170.435. (b) Requirements for a “Notice of No Public Hearing” are listed in 25 CFR 170.437. (c) Public hearing process is in 25 CFR 170.438 to 170.441.
3. **Environmental and Archeological.** Requirements for archeological and environmental are in 25 CFR 170.450, 25 CFR 170.451, and Appendix A to Subpart D - Cultural Resource and Environmental Requirements for the IRR Program.
4. **Design Standards.** Design standards are directed by 25 CFR 170.454 - 170.456. Specifically:
  - a. Standards listed in 25 CFR 170, Appendix B to Subpart D – Design Standards for the IRR Program.
  - b. FHWA-approved State design standards.
  - c. FHWA-approved Tribal road and bridge design standards that are consistent with or exceed applicable Federal standards.
  - d. MUTCD Manual of Uniform Traffic Safety Devices, latest edition
  - e. Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, latest edition.
  - f. Design standards used must be applied for each construction project consistent with a minimum 20-year design life for highway projects and 75-year design life for highway bridges. The design of IRR projects must take into consideration:
    - i. The existing and planned future use of the IRR transportation facility in a manner that is conducive to safety, durability, and economy of maintenance;
    - ii. The particular needs of each locality, and the environmental, scenic, historic, aesthetic, community, and other cultural values and mobility needs in a cost-effective manner; and
    - iii. Access and accommodation for other modes of transportation.
5. **Design Exception.** Design exception requests must be submitted to the FHWA Tribal Coordinator by the Tribe. The State registered Civil Engineer must submit written documentation with appropriate supporting data, sketches, details, and justification based on engineering analysis (see **Example 11.2 - Highway Design Standards Certification**). The FHWA may grant design exceptions for:
  - a. Experimental features on projects, and
  - b. Projects where conditions warrant that exceptions be made.

The FHWA can approve a project design exception only after giving due consideration to all project conditions such as:

- a. Maximum service and safety benefits for the dollar invested;
- b. Compatibility with adjacent features; and
- c. Probable time before reconstruction of the project due to changed conditions or transportation demands.

The FHWA has 30 days from receiving the request to approve or decline the design exception (for BIA ownership, the BIA will review, recommend, and concur).

6. **Review, Content, and Approval of PS&E Package.** Criteria governing review and approval of PS&E packages are in 25 CFR 170.460 through 25 CFR 170.463. The content of the PS&E package includes, at a minimum, the following:

- a. Certified stamped plans by a State licensed professional engineer that the plan meet or exceed design, health, and safety standards.
- b. A copy of the PS&E certification letter (**see Example 11.1 – PS&E Certification Letter**) by an additional the State-licensed civil engineer that the PS&E meets applicable health and safety standards as outlined in 25 CFR 107 Appendix B to subpart D.
- c. Specifications that ensure that materials and construction techniques will meet acceptable standards.
- d. Estimates that reasonably anticipate the project cost.
- e. A Tribal resolution or other authorized document supporting the project.
- f. Certification that right-of-way clearances have been obtained.
- g. Certification that required environmental, archeological, and cultural clearances have been obtained.
- h. Design exceptions have been identified and approved (if used in the plans).
- i. Public hearing requirements have been met.
- j. Any utility agreements.

## **Guidelines / Procedures.**

### **1. PS&E Development Process for a BIA or Tribally Owned Facility.**

- a) Engage the services of a licensed professional engineer to supervise design and approval of the PS&E package.
- b) Ensure that the licensed professional engineer has certified that the PS&E meets or exceeds the design, health, and safety standards in Appendix B to subpart D of 25 CFR 170.
- c) Before soliciting bids for the project, provide a copy of the certification and approved PS&E package to the Deputy Assistant Secretary for Tribal Government Affairs with a copy to the BIA Regional Director and the FLH Associate Administrator.

### **2. PS&E Development Process for a Facility Maintained by a Public Authority Other Than the BIA or a Tribe.**

- a) Engage the services of a licensed professional engineer to supervise design and approval of the PS&E package.
- b) Ensure that the licensed professional engineer has certified that the PS&E meets or exceeds the design, health, and safety standards in Appendix B to subpart D of 25 CFR 170.
- c) Before soliciting bids for the project, provide a copy of the certification and approved PS&E package to the Deputy Assistant Secretary for Tribal Government Affairs with a copy to the BIA Regional Director and the FLH Associate Administrator.
- d) Develop an agreement between the public authority (see example Project Agreement) and the Tribe that delineates the roles and responsibilities of the two entities for the development, construction, and continued maintenance of the project after construction.
- e) Provide the public authority the opportunity to review and comment on the Tribe's PS&E package when it is between 75 and 95 percent complete, unless an agreement between the Tribe and the public authority states otherwise.
- f) Allow the public authority at least 30 days for review and comment unless the Tribe and the public authority agree upon a longer period of time.

- g) Before soliciting bids for the project, certify in writing to the FHWA Administrator that it afforded the public authority an opportunity to review and comment on the PS&E package, addressed all comments, and received no written comments from the public authority that prevent the Tribe from proceeding with the project.
3. **Utility Coordination.** If utility adjustments are necessary to construct a project, it is essential that utility companies be advised well in advance and every step of the process of any developments that will affect their facilities. Therefore, utility companies should be advised on the following schedule:
- **30% Design Stage.** When plans for a project are at the 30 percent design stage, it is recommended that copies be sent to the utility companies.
  - **50% Design Stage.** When plans are at the 50 percent design stage a second set of plans, including cross-sections, is sent to the utilities companies for utility conflict identification and design purposes.
  - **90% Design Stage.** At the 90 percent design stage, a third set of plans is sent to the utility companies for final design of utility relocations. During this time the utility company and the owner agency should draft agreements which outline areas of responsibility, estimates and division of costs, and utility plans approval.
4. **Permits and Clearances.** All required permits must be obtained prior to advertising the project for construction bids. Requirement permits include, but are not limited to:
- wetlands,
  - railroads,
  - airports, and
  - utilities.
- Permits and clearances are obtained during the final design of the project.
5. **Project Development Milestones (Targets).** The following outlines a traditional approach to highway design process and identifies milestones needed in order to ensure the PS&E package is complete:
- a) **30 Percent Plans (Preliminary Plans).**
- Generally contain complete base map information and roadway information.
  - Preliminary alignment is set and this information is used to identify whether additional field survey data is needed for utility delineation, subsurface exploration, and hydraulic and environmental surveys.
  - An on-site meeting is generally held at this stage with all project development disciplines, and stakeholders to discuss the progress of the project.
  - The NEPA documentation should be completed with information developed at this stage, before further design is completed, in order to ensure that all environmental considerations can be incorporated into the final design.
- b) **90 Percent Plan Review (Detailed Plans).**
- Detailed project design is complete at this stage.
  - A meeting is held to review the final plans. The meeting provides stakeholders a last opportunity to comment on the plans and specifications.
6. **Indian Tribal Government Approval.** The Tribe reviews and approves the PS&E package.

7. **Submittal of the Approved PS&E Package.** Upon completion of the approved plans, the Tribe should provide FHWA and the facility owner with a complete PS&E package. The attached PS&E Certification Checklist (see **Example 11.3 – PS&E Certification Checklist**) should be included with the PS&E package.
8. **Public Authority Review Certification Letter.** (For a facility maintained or operated by a public authority other than the BIA or Tribe) Before soliciting bids for the project(s) the Tribe must certify in writing to the Administrator that they afforded the public authority an opportunity to review and comment on the PS&E package and received no written comments from the public authority that prevent the Tribe from proceeding with the project.

**Resources.**

- FLHP's Project Development and Design Manual (PDDM):

<http://www.wfl.fhwa.dot.gov/design/manual/>

## Example 11.1 - PS&E Certification Letter

The Honorable [insert Tribal chairperson name]  
[insert name of Tribal Government]  
[insert Tribal address]

[date]

Dear Chairperson [name]

The purpose of this letter is to provide a certification of the Plans, Specifications and Engineer's Estimate (PS&E) for the [insert project name] project.

I certify that the PS&E:

- Meets or exceeds all the design, health, and safety standards in accordance with 25 CFR 170.454, 455, 456, 462 and Appendix B to Subpart D – Design Standards for the IRR Program;
- Meets or exceeds all the design, health, and safety standards in accordance with USC 23 Chapter 1, 109(a);
- Meets or exceeds all the design, health, and safety standards in accordance and in compliance with all the [insert State name] design standards; and

Please contact me if you have any questions concerning this letter.

Sincerely,

[Insert name], P.E.  
Project Engineer

State of Registration:  
Expiration Date:  
Registration Number:



<b>GEOMETRIC AND BRIDGE CRITERIA - Show Station Range</b>			
<b>GEOMETRIC AND BRIDGE CRITERIA</b>	<b>STANDARD</b>	<b>AS DESIGNED</b>	<b>EXCEPTION</b>
	facility	?	
2. Traveled Way Width			Example: Yes - see (2) below
3. Shoulder Width			Example: No
4. Crown	? %	? %	Example: N/A
5. Horizontal Curvature			
6. Superelevation	e(max) = ?% Δ = 0.??%	e(max) = ?% Δ = 0.??%	
7. Grades	?%	?%	
8. Vertical Curvature	K (crest) = K (sag) =	K (crest) = K (sag) =	
9. Stopping Sight Distance			
10. Horizontal Clearance (not clear zone)			
11. Vertical Clearance to Structure			
12. Bridge Width			
13. Bridge Loading			
14. Clear Zone			Example: Yes - see (3) below
15. Barrier Crashworthiness	NCHRP 350		Example: Yes - see (4) below
16. Design Flood	FLH Project Development and Design Manual Exhibit 7.1-A	Example: No	



GEOMETRIC AND BRIDGE CRITERIA - Show Station Range			
GEOMETRIC AND BRIDGE CRITERIA	STANDARD	AS DESIGNED	EXCEPTION
17. Pavement Design Service Life	?-year	?-year	Example: N/A

**Descriptions of and reasons for exceptions to standards (list separately):**  
(1)

**Analysis of risks and design features proposed to mitigate exceptions (list separately):**

**Approval of Design Exceptions:**

- There are no exceptions to applicable standards.
- The exceptions to the design standards as noted and their related risks have been reviewed with the appropriate agencies and parties and are considered acceptable for this project.

PREPARED BY: \_\_\_\_\_  
Lead Designer, Consultant Firm

\_\_\_\_\_  
Stamp and Date

APPROVAL IS RECOMMENDED: \_\_\_\_\_  
Design Manager or Project Manager, Consultant Firm

\_\_\_\_\_  
Stamp and Date

Tribal Road Department: \_\_\_\_\_ Date: \_\_\_\_\_  
I CONCUR WITH THE ABOVE RECOMMENDATIONS (optional):

Owning Agency: \_\_\_\_\_ Date: \_\_\_\_\_

Maintaining Agency: \_\_\_\_\_ Date: \_\_\_\_\_  
(if different from above)

THE ABOVE RECOMMENDATIONS ARE APPROVED:

\_\_\_\_\_  
IRR Program, Federal Lands Highway Office

\_\_\_\_\_  
Date:

## PS&E Certification Checklist

Tribe:

Agency with Jurisdiction over Facility:

Project Name:

Project Location:

Type of Work:

State:

County:

Action Item	v
1. The project facility is included in the IRR program inventory.	
2. The project is on a FHWA approved TIP.	
3. Public involvement has been completed in accordance with 25 CFR 170.435 through 170.441.	
4. Appropriate construction easements, maintenance and utility agreements have been obtained in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 for fee lands and 25 CFR 169 for trust lands.	
5. Cultural resources and environmental requirements listed in Appendix A to Subpart D of 25 CFR 170 have been met.	
6. This PE&E package meets or exceeds applicable design, health and safety standards listed in Appendix B to Subpart D of 25 CFR 170.	
7. For other than facilities under Tribal and BIA jurisdiction, the owner public authority was provided an opportunity to review and comment on the Tribe's PS&E package when it was between 75 and 95 percent complete.	
8. All applicable federal, state, and local permits (environmental, land use, etc.) have been obtained, and the resulting relevant conditions/commitments have been incorporated into the PS&E as appropriate.	

Tribal Signature:

Date: