
200.00 PROJECT DEVELOPMENT PROCESS

200.40 DEVELOPMENT/DESIGN

Authorization

FHWA will not reimburse any costs incurred before the date of federal authorization. Federal authorization for design covers the scoping document, NEPA documentation, and preliminary and final design activities. ROW and construction require subsequent federal authorizations separate from design.

The CA Agency must submit a written request for federal authorization for design on a project to the ADOT PM and receive authorization before starting any work associated with the project tasks eligible for federal reimbursement for design. The request includes the project end date for design in accordance with 2 C.F.R. § 200.210, after which no further charges will be eligible for reimbursement. FHWA will send an email, which serves as an official authorization, to ADOT, indicating a date of authorization and the corresponding funding amount. The ADOT PM will then forward this email to the CA Agency to serve as their NTP date. When the ADOT PM receives a copy of the Federal-Aid Project Agreement from Resource Administration, which includes ADOT's and FHWA's electronic signatures, the ADOT PM will provide a copy to the CA Agency. If the CA Agency does not receive a copy, the CA Agency must request it from the ADOT PM for their records.

The CA Agency must have a copy of the authorization form, FMISD05A (for PE authorizations) and FMISD06A (for construction authorization), in their files before proceeding with work and incurring project costs. The ADOT PM will inform the local agency when the project has been authorized.

Design Financial Administration

In accordance with 23 C.F.R. § 630.112(c)(2), the CA Agency must repay all federal reimbursements for preliminary engineering costs on a project when ROW acquisition or construction has not started by the close of the tenth fiscal year following the fiscal year when the project was authorized, unless FHWA grants a time extension.

Procurement of an Engineering or Design-related Services Consultant

For FAHP projects, the CA Agency may use ADOT's list of prequalified consultants available through ADOT ECS, its own list from an ADOT-approved prequalification process. A pre-qualified firm does not represent or guarantee an award of a contract. A CA Agency's professional service contract procurement and administration process must be an approved qualification-based selection process, requiring the consultant to provide financial information demonstrating the firm's financial viability and compliant accounting system that complies with federal acquisition regulations.

When using federal funds for FAHP projects, the CA Agency must adhere to federal and state laws and regulations, including the Brooks Act (40 U.S.C. §§ 1101 through 1104), 23 U.S.C. § 112, 23 U.S.C. § 117,

2 C.F.R. Part 200, 23 C.F.R. Part 172, 48 C.F.R. Chapter 12, and 49 C.F.R. Part 26 during the selection, negotiation, and management of design contracts.

According to 23 U.S.C. § 112(b)(2)(D) and (E), the CA Agency must ensure the contract and subcontracts are performed and audited according to the cost principles contained in 48 C.F.R. Part 31. The CA Agency must conduct a final/incurred cost audit to determine contract cost allowability, allocability, and reasonableness.

For a CA Agency to use an on-call contract procurement method, the CA Agency must receive an approval from ADOT of the CA Agency's on-call contract administration and procurement procedures before advertising. If the CA Agency needs to deviate from the approved procedures, the CA Agency must submit a request with justification to the ADOT LPA Section for ADOT approval before the procurement of on-call services.

Design Advertisement

The CA Agency must administer the solicitation and contract award in compliance with 23 U.S.C. § 112, 23 C.F.R. Part 172, and ADOT-approved procurement procedures.

Project Meetings

The CA Agency must schedule and participate in project meetings for FAHP projects. The CA Agency must notify the ADOT PM in advance of the kick-off meeting and include the ADOT PM in the distribution of the meeting materials, notes, and documentation of engineering decisions.

Scoping Document

The CA Agency must determine and prepare the proper scoping document (i.e., scoping letter, project assessment [PA], or design concept report [DCR]) commensurate with the level of effort for each project. The scoping document refines the scope and further evaluates the total project cost, schedule, and potential design and construction alternatives, including an assessment of the clearance and permit needs identified during pre-planning. In conjunction with the preliminary scoping document, supporting technical reports (i.e., geotechnical, drainage, traffic analysis, etc.) may be required when appropriate.

Typically, the scoping document and supporting technical reports provide detailed information on the following topics:

- Construction cost estimates
- Construction feasibility issues
- Current site characteristics
- Environmental considerations
- Geotechnical considerations
- Hydrologic and drainage conditions
- ROW Information/Land ownership
- Major project components
- Material source and supply
- Potential design alternatives
- Potential project footprint
- Traffic analysis
- Utility and railroad coordination
- Purpose of project
- Background
- Project Scope of Work
- Development Considerations
- Involvement Matrix
- Construction Schedule/Duration

The CA Agency must submit the scoping document, supporting technical reports, and the accompanying design plans to the ADOT PM and Environmental Planning for review.

The CA Agency Responsible Charge must approve the final scoping document and ensure a professional engineer or landscape architect registered in the State of Arizona signs and seals the final scoping document.

Scoping Changes

If the scope of work for the project changes at any time during project development, the CA Agency may need to prepare an amendment to the MPO TIP and STIP. If an amendment is needed, the CA Agency must notify the ADOT PM and ADOT LPA Section and contact the MPO representative for instructions on how to submit amendments to the MPO TIP and STIP.

Design Phases

The project development process is segmented into stages that follow a standardized design progression. The CA Agency must define a phased program for completing FAHP projects or follow ADOT's phased program, as defined in the *ADOT Dictionary of Standardized Work Tasks*.

Design Criteria

NHS Projects

As specified in 23 U.S.C. § 109(c), FHWA has adopted design standards for the NHS, which are listed in 23 C.F.R. § 625.4 and 49 C.F.R. § 37.9. Regardless of the funding source for the project, the CA Agency must comply with the FHWA-adopted design standards for all projects on the NHS, as well as FAST ACT Section 1404 (b), Design Standard Flexibility, notwithstanding 23 U.S.C. § 109(o), for additional flexibility in design standards.

Non-NHS Projects

In accordance with 23 C.F.R. 625.3(a)(2), FAHP projects not on the NHS are to be designed, constructed, operated, and maintained in accordance with State laws, regulations, directives, safety standards, design standards, and construction standards.

ADOT does not review the CA Agency's design for technical accuracy or compliance standards unless the project impacts ADOT's ROW or facility.

Design Exceptions

Design exceptions are required when any of the 10 Controlling Criteria (design speed, lane width, shoulder width, superelevation rate, horizontal curve radius, maximum grade, stopping sight distance, cross slope, vertical clearance, and Design Loading Structural Capacity) are not met. The CA Agency must document the need for design exceptions and notify the ADOT PM as early as possible to discuss or seek FHWA approval. All ten controlling criteria apply to high-speed roadways on the NHS projects while only two controlling criteria, Design Speed and Design Loading Structural Capacity, apply to low-speed roadways (Design speed < 50 mph) on the NHS. The CA Agency should submit design exceptions for consideration before 60 percent design plans. The CA Agency must send the design exception requests with appropriate justification to the ADOT PM. Deviations from criteria contained in the standards for

projects on and off the NHS which are not considered to be controlling criteria should be documented by the CA Agency in accordance with State laws, regulations, directives, and safety standards.

Design exceptions, subject to FHWA's approval, or ADOT's approval on FHWA's behalf, are required to include the following as part of the Design Exception Documentation packet:

- Specific design criteria not met
- Existing roadway characteristics
- Alternatives considered
- Comparison of safety and operational performance, along with other factors
- Proposed mitigation measures
- Compatibility with adjacent sections
- Additional requirements for design speed and design loading structural capacity exceptions

All design exceptions decisions and design deviation decisions should be documented to demonstrate compliance with accepted engineering principles and the reasons for the decision.

When using design exceptions in the project design, the CA Agency must ensure a professional engineer or landscape architect registered in the State of Arizona signs and seals the design exceptions. The CA Agency must include a statement in the federal authorization letter and the design exception in the final PS&E.

NHS Routes

In accordance with 23 C.F.R. § 625, FHWA, in its sole discretion, will approve all design exceptions on the NHS routes regardless of funding source. When controlling criteria is not met, the design exception should be submitted to the ADOT PM for State and FHWA approval. FHWA and ADOT have published guidelines, procedures and requirements for the documentation and approval of design exceptions.

Each Local Agency must have a documented procedure for addressing, documenting, submitting and obtaining approval from ADOT and FHWA for addressing exceptions to the AASHTO Controlling Design Criteria and ADOT Roadway Design Guidelines.

Non-NHS Routes (Local Roadway)

Non-NHS projects are designed, constructed, operated, and maintained in accordance with State and Local laws, regulations, directives, and safety, design, and construction standards. Therefore, there is no federal requirement for design exceptions on highways and streets that are not part of the NHS, regardless of funding source. However, States (and local agencies) are encouraged to analyze situations and document exceptions on non-NHS routes in a similar fashion when design values are used that do not meet their adopted criteria.

Each Local Agency must have a documented procedure for addressing, documenting, submitting and obtaining approval for addressing exceptions to the Local Design Standards and AASHTO Controlling Design Criteria.

Non-NHS Routes (State Roadway)

Each Local Agency must have a documented procedure for addressing, documenting, submitting and obtaining approval from ADOT for addressing exceptions to the AASHTO Controlling Design Criteria and ADOT Roadway Design Guidelines.

Materials and Pavement Design Guidelines

The CA Agency must have materials and pavement design guidelines for new pavement and pavement preservation projects. The CA Agency must design pavement to accommodate current and predicted traffic needs in a safe, durable, and cost effective manner.

Proprietary Items

A proprietary item on a project is a specific product, specification, or process, also referred to as a patented or proprietary product. A proprietary item must meet one of the conditions listed under 23 C.F.R. § 635.411(a) or (c) to be eligible for federal reimbursement or used on a FAHP project. Guidance for use of proprietary items can be found in ADOT Policies and Procedures SUP 01-1.

Certification of a Proprietary Item

The CA Agency must request a certification of a proprietary item and include a statement that the particular proprietary item is either essential for synchronization with existing highway facilities or is a unique product for which there is no equally suitable alternative. The documentation will include a description of the proprietary item's:

- Uniqueness
- Essentiality
- Cost (estimate of any additional costs incurred as a result of the proprietary product requirement)
- Synchronization with existing facilities
- Maintenance requirements
- Availability
- Impacts on safety that would justify a higher standard
- Potential benefits to the Department

Synchronization may be based on a combination of:

- Function
- Aesthetics
- Logistics
- Life cycle
- Size and extent of products and systems to be synchronized with, and
- Relative cost of the proprietary item compared to the cost of replacing the existing elements requiring synchronization

The CA Agency must obtain ADOT approval from the appropriate Assistant State Engineer through the ADOT PM before including the product or process in the plans or specifications. The Assistant State Engineer will provide approval in the form of a signed statement certifying that a particular proprietary item is either essential for synchronization with existing highway facilities or a unique product for which there is no equally suitable alternative. If the certification extends beyond a single project, the CA Agency must obtain FHWA approval through the ADOT PM.

In the federal authorization packet, the CA Agency must include the product name, ADOT Group that certified, and certification date in the CA Agency request letter.

If ADOT denies the certification request, the CA Agency must competitively bid the item for it to be federally reimbursable.

Proprietary Item Public Interest Finding

The CA Agency must submit a Public Interest Finding (PIF) letter requesting that it is in the public interest to use a specific material or product even though other equally acceptable materials or products are available. The letter includes documentation of a compelling justification of the reasonableness of the CA Agency's minimal needs and best method to meet these needs consistent with the requirement for the broadest practical competition. The level of documentation depends on the nature of the product and project involved. Supporting materials may include:

- Additional costs, if any
- Benefits to the public
- Description of need, including limitations and conditions
- Engineering and economic considerations
- Evaluation of the pool of other equally acceptable products
- Logistical concerns
- Product availability
- Other unique considerations

The CA Agency must obtain ADOT approval through the ADOT PM to specify a proprietary item at project authorization. In the federal authorization packet, the CA Agency must include a statement with the product name, ADOT Group that certified, and certification date in the CA Agency request letter and a copy of all approved PIFs.

If ADOT denies the PIF request, then the item must be competitively bid or not be eligible for federal reimbursement.

Experimental Product

An experimental product is a proprietary item used for research or a distinctive type of construction on relatively short sections of roadway on an experimental basis. The CA Agency must designate the project as an experimental research project. The CA Agency must develop a work plan that includes:

- Description of the experimental feature
- Experimental feature objectives
- Construction requirements (including necessary measurements)
- Characteristics to be evaluated
- Time schedules
- Reporting requirements
- Cost estimates
- Construction and post-construction inspection schedules
- Control sections
- Evaluations to be conducted

The CA Agency must submit the work plan to the ADOT PM for ADOT approval and FHWA concurrence. In accordance with the funding program, the CA Agency must report the results to the ADOT PM, who will provide the results to FHWA upon completion of the project.

The same approval authority applies when an experimental product is requested through a construction change order.

Buy America

In accordance with the current “Buy America” requirements of 23 C.F.R. § 635.410 as well as added requirements of *ADOT Standard Specifications for Road and Bridge Construction*, as modified by *Stored Specification 106DMAT*, no FAHP project is to be authorized for advertisement or otherwise authorized to proceed unless one of the following requirements is met:

- The project includes no permanently incorporated steel or iron materials or if steel or iron materials are to be used, all manufacturing processes to produce these steel and iron materials, including any process which involved an application of a coating to iron and steel, must occur in the United States. These processes include all epoxy coating, galvanizing, painting, or any other coating which protect or enhance the value of the material to which the coating is applied.
- When steel and iron materials are used in a project, the requirements do not prevent a minimal use of foreign steel and iron materials, if the invoiced cost of such materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or \$2,500, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the steel and iron products as they are delivered to the project.

The CA Agency must address Buy America requirements during project design, because the delivery of steel and iron materials could affect the project schedule and cost.

FHWA is responsible for approving Buy America waivers. Meeting the contractor’s construction schedule when domestic materials are available and the cost differential between domestic and foreign products are not adequate bases for a waiver.

Plans, Specifications, and Estimates (PS&E)

The CA Agency must prepare and ensure a professional engineer or landscape architect registered in the State of Arizona signs and seals the final PS&E.

The plans and specifications describe the location and design features and construction requirements in enough detail to facilitate the advertising, bidding, awarding, contract control, construction, and estimation of construction costs of the project. The estimate shows the expected project cost in enough detail to provide an initial prediction of the financial obligations to be incurred by the CA Agency, ADOT, and FHWA and allow an effective review and comparison of the bids received.

The CA Agency must ensure NEPA approval, Right-of-Way (ROW), utility, and railroad clearances have been obtained (or necessary arrangements have been made) so as not to delay the construction contractor.

The CA Agency must submit the final PS&E to the ADOT PM for federal authorization for construction. The federal authorization packet is required to be bid-ready. The following includes a list of items that the CA Agency is required to have in it.

All bid advertisement documents (PS&E, special provisions including the DBE Special Provisions (EPRISE), bid/contract) and all required federal contract provisions as found under Construction Administration, subsection Contract Provisions:

- CA Agency request letter that includes a railroad, design exception, and proprietary products statements as well as specified contract time
- Clearances
 - ROW (Signed and approved by ADOT)
 - Utility and Railroad (required even when no railroad is involved in the FAHP project and can be included as a statement in the utility clearance)
- Current MPO TIP and STIP pages (showing the project name, funding year, and funding source)
- DBE Goal Assessment Notice (electronic notice sent back to the contractor)
- Financial recapitulation sheet, including a clear cost breakdown of local funds that are federally eligible and those that are not federally eligible
- Materials Quality Assurance project plan approval letter (signed and approved by ADOT)
- NEPA approval that has been validated prior to the PS&E submittal
- Period of performance, including the estimated construction schedule, and project start and end dates
- Project location/vicinity map
- Certification, PIF, or Experimental Product approval, if applicable
- Design exception approval, if applicable
- Executed IGA, if applicable
- Subprogram eligibility letter, if applicable
- Systems engineering checklist, if applicable