

**FEDERAL HIGHWAY BRIDGE PROGRAM**  
**GUIDELINES FOR LOCAL GOVERNMENTS**

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## INTRODUCTION

The purpose this and other associated documents is to provide guidance for the Local Governments (LG) in the development of bridge projects utilizing Federal Highway Bridge Program (HBP) funds. This document covers project development from initiation of design through concurrence in award of a construction project. For additional guidance on complying with all environmental regulations, please refer to the document titled “Environmental Documentation for Local Government Projects”. The primary contacts for the LG are:

**Ralph Manna**, Office of Structures (OOS), who is responsible for overall coordination of the program and for technical reviews of the contract documents,

**Jeff Robert**, Office of Structures (OOS), who assists Ralph in the overall coordination of the program,

**Mark Glass**, Office of Structures (OOS), who handles the biennial bridge inspection program,

**Prakash Dave**, Office of Structures (OOS), who handles hydraulic and scour reviews,

**Steve Pearce**, Federal Aid Programming Section (FAPS), who handles Programming and Administrative Preliminaries for the projects,

**Donald Sparklin**, Environmental Planning (EP), who handles reviews and approvals of Environmental Documentation,

**Elizabeth Wright**, FAPS, who reviews and approves the Plans, Specifications & Estimates (PS&E) packages,

**Geoffrey Graff**, Office of Real Estate (ORE), who handles the Certification of Right-of-Way,

**Norie Calvert**, Office of Procurement and Contracts (OPC), who handles the reviews and approvals of the agreements between the local governments and the consultant chosen to perform preliminary engineering for design.

The locations, email addresses, and telephone numbers for these primary contacts are listed on pages 2-3. On occasion, it may be necessary for the LG to contact District personnel. A link is provided to obtain SHA’s District Offices contact information on Page 3.

The Federal Highway Administration (FHWA), under the Department of Transportation (DOT), is responsible for overseeing the federal-aid highway program. To carry out this role, FHWA reviews and approves the transportation plans and environmental impact assessments, reviews and approves states’ property acquisition activities; and enforces a variety of requirements, such as civil rights laws, that states and LG’s accept as a condition of federal aid.

FHWA also oversees the design and construction of federally-aided projects. This oversight is classified as either full oversight or exempt. With full oversight, FHWA will perform direct review and approval of design plans, contract awards, and construction progress. For exempt projects, FHWA has delegated the authority of reviews and approvals of design plans and contract award to the state. FHWA will

review the State process to ensure that the state has adequate controls to effectively manage federally-assisted projects.

The majority of LG projects will be classified under the exempt classification and will be reviewed and approved by the State Highway Administration. Regardless of the classification, exempt or full oversight, all contact with the FHWA shall be through SHA.

## STATE HIGHWAY ADMINISTRATION CONTACTS

### SHA Headquarters

**Ralph Manna, Local Government Bridge Coordinator**  
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***DISTRICT CONTACT INFORMATION***  
**<http://www.roads.maryland.gov/Index.aspx?PageId=839>**

## **ACRONYMS**

**ADE**-ASSISTANT DISTRICT ENGINEER

**ADT**-AVERAGE DAILY TRAFFIC

**AFALE**-ASSISTANT FEDERAL AID LIAISON ENGINEER

**BSR** – BRIDGE SUFFICIENCY RATING

**CAT**-CONTRACTS AWARD TEAM

**CE**-CATEGORICAL EXCLUSION

**CFR** – CODE OF FEDERAL REGULATIONS

**CID**-CONSTRUCTION INSPECTION DIVISION

**CSP**-CONSULTANT SELECTION PROCEDURES

**DE**-DISTRICT ENGINEER

**DBE**-DISADVANTAGED BUSINESS ENTERPRISES

**DTE**-DISTRICT TRAFFIC ENGINEER

**EAF**-ENVIRONMENTAL ASSESSMENT FORM

**EP**-ENVIRONMENTAL PLANNING

**FALE**-FEDERAL AID LIAISON ENGINEER

**FAPG**-FEDERAL AID POLICY GUIDE

**FAPS**-FEDERAL AID PROGRAMMING SECTION

**FHWA**-FEDERAL HIGHWAY ADMINISTRATION

**FMIS**-FISCAL MANAGEMENT INVENTORY SYSTEM

**HBP**-HIGHWAY BRIDGE PROGRAM

**HDD**-HIGHWAY DESIGN DIVISION

**IFB**-INVITATION FOR BIDS

**LG-LOCAL GOVERNMENT(S)**

**MBIR – MD BRIDGE INVESTMENT REQUIREMENT**

**NBIR – NATIONAL BRIDGE INVESTMENT REQUIREMENT**

**NHS-NATIONAL HIGHWAY SYSTEM**

**OOS-OFFICE OF STRUCTURES**

**OPC-OFFICE OF PROCUREMENT AND CONTRACTS**

**ORE-OFFICE OF REAL ESTATE**

**PE-PRELIMINARY ENGINEERING**

**PI-PRELIMINARY FIELD INVESTIGATION**

**PCE-PROGRAMMATIC CATEGORICAL EXCLUSION**

**PS&E-PLANS, SPECIFICATIONS and ESTIMATES**

**ROW-RIGHT OF WAY (also R/W)**

**SAFETEA-LU-SAFE, ACCOUNTABLE, FLEXIBLE, EFFICIENT SURFACE**

TRANSPORTATION EQUITY ACT-LEGACY FOR USERS

**SHA-STATE HIGHWAY ADMINISTRATION**

**SIA – STRUCTURAL INVENTORY AND APPRAISAL**

**SOW-SCOPE OF WORK**

**SP-SPECIAL PROVISIONS**

**SPI-SPECIAL PROVISIONS INSERT**

**STIP-STATE TRANSPORTATION IMPLEMENTATION PROGRAM**

**TCP-TRAFFIC CONTROL PLAN**

**TS&L-TYPE, SIZE and LOCATION**



## **OVERVIEW OF THE HIGHWAY BRIDGE PROGRAM**

The Code of Federal Regulations (CFR) 23CFR650 SubPart D sets forth the purpose, procedures, and requirements of the Bridge Program. The following is an excerpt from the CFR and is included to provide Program definitions, and an overview of eligibility requirements with slight modifications to address the local program. The Code of Federal Regulations can be accessed through the following link:

[http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title23/23cfr650\\_main\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title23/23cfr650_main_02.tpl)

### **650.403 Definition of terms.**

(a) *Bridge*. A structure, including supports, erected over a depression or an obstruction, such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of the openings for multiple boxes; it may include multiple pipes where the clear distance between openings is less than half of the smaller contiguous opening.

(b) *Sufficiency rating*. The numerical rating of a bridge based on its structural adequacy and safety, essentiality for public use, and its serviceability and functional obsolescence.

(c) *Rehabilitation*. The major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects.

### **650.405 Eligible projects.**

(a) *General*. Deficient highway bridges on all public roads may be eligible for replacement or rehabilitation.

(b) *Types of projects which are eligible*. The following types of work are eligible for participation in the Highway Bridge Program (HBP), hereinafter known as the Bridge Program.

(1) *Replacement*. Total replacement of a structurally deficient or functionally obsolete bridge with a new facility constructed in the same general traffic corridor. A nominal amount of approach work, sufficient to connect the new facility to the existing roadway or to return the grade line to an attainable touchdown point in accordance with good design practice is also eligible. The replacement structure must meet the current geometric, construction and structural standards required for the types and volume of projected traffic on the facility over its design life.

(2) *Rehabilitation*. The project requirements necessary to perform the major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects are eligible except as noted under ineligible work.

(c) *Ineligible work*. Except as otherwise prescribed by the Federal Highway Administration (FHWA), the costs of long approach fills, causeways, connecting roadways, interchanges, ramps, and other extensive earth structures, when constructed beyond the attainable touchdown point, are not eligible under the Bridge Program.

#### **650.407 Application for bridge replacement or rehabilitation.**

- (a) Agencies participate in the Bridge Program by conducting bridge inspections and submitting Structure Inventory and Appraisal (SI&A) sheet inspection data. Local governments supply SI&A sheet data to the State agency for review and processing. The State is responsible for submitting the data containing all public road SI&A sheet bridge information through the FHWA Division Administrator for processing.
- (b) Inventory data may be submitted as available and shall be submitted at such additional times as the FHWA may request. Changes in SI&A data shall be submitted to the State within 180 days.
- (c) Inventory data on bridges that have been strengthened or repaired to eliminate deficiencies or those that have been replaced or rehabilitated using bridge replacement and/or other funds, must be revised in the inventory through data submission.

#### **650.409 Evaluation of bridge inventory.**

- (a) *Sufficiency rating of bridges.* Upon receipt and evaluation of the bridge inventory, a sufficiency rating will be assigned to each bridge by the FHWA in accordance with the approved AASHTO sufficiency rating formula. The sufficiency rating will be used as a basis for establishing eligibility and priority for replacement or rehabilitation of bridges; in general the lower the rating, the higher the priority.
- (b) *Selection of bridges for inclusion in State program.* After evaluation of the inventory and assignment of sufficiency ratings, the FHWA will provide the State with a selection list of bridges within the State that are eligible for the bridge program. From that list or from previously furnished selection lists, the State may select bridge projects.

#### **650.411 Procedures for bridge replacement and rehabilitation projects.**

- (a) Consideration shall be given to projects which will remove from service highway bridges most in danger of failure.
- (b) Local Government bridge replacement or rehabilitation projects shall be submitted by the State to the FHWA. \*
- (c)(1) Each approved project will be designed, constructed, and inspected for acceptance in the same manner as other projects on the system on which the project is located. It shall be the responsibility of the State agency to properly maintain, or cause to be properly maintained, any project constructed under this bridge program. The State highway agency shall enter into a formal agreement for maintenance with appropriate local government officials in cases where an eligible project is located within and is under the legal authority of such a local government.

\* *(revised for local program)*

(c)(2) Whenever a deficient bridge is replaced or its deficiency alleviated by a new bridge under the bridge program, the deficient bridge shall either be dismantled or demolished or its use limited to the type and volume of traffic the structure can safely service over its remaining life. For example, if the only deficiency of the existing structure is inadequate roadway width and the combination of the new and existing structure can be made to meet current standards for the volume of traffic the facility will carry over its design life, the existing bridge may remain in place and be incorporated into the system.

**650.413 Funding.**

(a) Funds apportioned to a State shall be made available throughout each State on a fair and equitable basis.\*

How federal apportionment is arrived at:

$$AP = \frac{MBIR}{NBIR} \quad \text{where}$$

MBIR = MD bridge investment requirement  
NBIR = National bridge investment requirement  
AP = Apportionment factor

Bridge investment requirement definition:

Cost to replace or rehabilitate deficient bridges (State & LG) on or off the federal – aid system based on Federal bridge sufficiency rating, and rated condition of certain bridge elements

The AP is applied to the total funds allocated annually to the HBP to determine how much Maryland will receive.

(b) The Federal share payable on account of any HBP project, not on the Interstate System, shall be 80 percent of the eligible cost.

\* *revised for local program*

**FORMULA FOR  
STATE/COUNTY DISTRIBUTION OF BRIDGE PROGRAM  
FUNDS IN MARYLAND**

Developed by SHA in 1979  
FORMULA 'A'

Average of (deck area and total number of bridges) on MD, US and Interstate routes (SHA, Baltimore City, MdTA) compared to (deck area and total number of bridges) on all other local roads

1979-1982 MD, US, I 60%	ALL OTHERS 40%
1983-1986 MD, US, I 71%	ALL OTHERS 29%
1987-1991 MD, US, I 70%	ALL OTHERS 30%

Reviewed by SHA in 1992  
FORMULA 'B'

Percentage of (deck area of deficient bridges) on MD, US and Interstate routes (SHA, Baltimore City, MdTA) compared to (deck area of deficient bridges) on all other local roads

FORMULA 'A' MD, US, I 70%	ALL OTHERS 30%
FORMULA 'B' MD, US, I 68%	ALL OTHERS 32%

Decided to continue with FORMULA 'A':

- FHWA reviewed distribution system and approved it as equitable in 1980
- Counties and Baltimore City agreed to system
- Original ratio (FORMULA 'A') confirmed by deficient bridge method (FORMULA 'B')
- Ratio is recalculated prior to the start of each new federal transportation act

**FORMULA FOR DISTRIBUTION  
OF BRIDGE PROGRAM FUNDS AMONG COUNTIES & BALTIMORE CITY**

County & Baltimore City distribution:

1/3	=	Area of bridges and number of bridges
1/3	=	Population
1/3	=	Number of deficient bridges

Average of above three items gives % of total local dollars that go to a particular county and/or Baltimore City. Baltimore City receives an additional allocation for its bridges on MD, US and Interstate routes.

## **REALLOCATION OF LOCAL GOVERNMENT FUNDS**

It is SHA's goal to utilize as much as possible of the HBP funds to replace or rehabilitate deficient bridges. To meet that goal SHA reallocates unused LG bridge funds at the end of the federal Program, or earlier, if the unobligated balance is large. In order to reallocate the unused funds in a fair and equitable manner, the following framework was developed.

- Local governments who have used or will use 100% of their funds may submit additional candidate projects. The submission should include a brief description of the bridge, its location and criticalness to the community it serves, the bridge's Sufficiency Rating, when the project could be ready for advertising and its estimated cost.
- Each local government requesting reallocation dollars must be satisfied before any local government may receive funds for a second reallocation project.
- The submissions will be evaluated on the following factors listed in order of priority:
  1. Bridge is only access to an area
  2. Bridge restrictions impact large number of residents
  3. Bridge replacements ranked by sufficiency rating
  4. Bridge rehabilitations ranked by sufficiency rating
  5. Cost of project

The following is modified from a non-regulatory supplement, HNG-33, from the FHWA, which provides additional guidance and criteria for HBP projects.

1. **NEW AND MAJOR RECONSTRUCTION OF BRIDGES. (23 CFR 650.405)** The FHWA established a "10-year rule" for determining a bridge's eligibility for HBP funding after construction or major reconstruction has taken place. The rule prevents a bridge from remaining in a deficient classification after major reconstruction and thereby affecting the bridge fund apportionments to a State.

A bridge improvement would be subject to the 10-year rule if it is classified as rehabilitation or replacement under the definition of eligible projects, described earlier. The 10-year criteria in which a bridge will not be eligible for HBP funding applies to bridges replaced or reconstructed with any Federal-aid funds, with all State or local funds, private funds, or any combination thereof. Conversely, a bridge improvement would not be subject to the 10-year rule if it cannot be classified as rehabilitation or replacement under one of the definitions.

2. **HBRRP PROGRAM FUNDING POLICY ON CLOSED BRIDGES (23 CFR 650.413).** The FHWA has developed a funding policy for closed bridges. The HBRRP funds can only be used to replace or to rehabilitate bridges which are significantly important and are unsafe. Bridges out of service (closed) prior to the establishment of the Special Bridge Replacement Program (December 31, 1970) are not eligible for the HBRRP and were removed from the National Bridge Inventory. Bridges taken out of service after December 31, 1970, are also not eligible unless the State highway agency has made reasonable progress in scheduling the rehabilitation or replacement of the facility, thus indicating that the bridge was of significant importance. Bridges that have been closed for 5 consecutive years, with no corrective action taken, may indicate that the bridge is not significant and should be removed from the NBI (November 16, 2001 Memorandum referenced above).
3. **USE OF HIGHWAY BRIDGE PROGRAM (HBP) FUNDS FOR APPROACH ROADWAY CONSTRUCTION. (23 CFR 650.413)** The FHWA is concerned that in some instances approach roadway costs associated with HBP projects are excessive to the point of not falling within the congressional intent for the program "to improve deficient bridges." States and local governments are encouraged to use other categories of funds for approach roadways and miscellaneous non-bridge items. Also, the FHWA Division offices are directed to review and revise policy relating to inclusion of approach roadway items in HBP projects to provide for more national uniformity in bridge program management and minimize approach roadway project costs. This action should result in a nationwide average of no more than 10 percent.
4. **PURCHASE AND INSTALLATION OF BRIDGE LOAD POSTING SIGNS WITH HIGHWAY BRIDGE PROGRAM FUNDS. (23 CFR 650.413)** The FHWA has determined that it is consistent with the purpose of the HBP to allow the use of bridge program funds to purchase and install load posting signs to protect the public

until such bridges can be replaced or rehabilitated. Therefore, the initial set of load posting signs immediately adjacent to the bridge is considered eligible for HBP funds.

5. **HIGHWAY BRIDGE PROGRAM FUNDING OF BRIDGE INSPECTIONS. (23 CFR 650.413)** The FHWA has determined that it is consistent with the purpose of the HBP to allow the use of bridge program funds for the biennial continued inspection of bridges.
6. **HIGHWAY BRIDGE PROGRAM FUNDING OF SCOUR COUNTERMEASURES.** The FHWA has determined that it is consistent with the purpose of the HBP to allow the use of bridge program funds for the installation of scour countermeasures regardless of whether the bridge is on the selection list of eligible bridges.
7. **HIGHWAY BRIDGE PROGRAM. (23 CFR 650.409)** The National Bridge Inventory will be used for preparing the selection list of bridges both on and off of Federal-aid highways. Highway bridges considered structurally deficient or functionally obsolete and with a sufficiency rating of 80 or less will be used for the selection list. Those bridges appearing on the list with a sufficiency rating of less than 50.0 will be eligible for replacement or rehabilitation while those with a sufficiency rating of 80.0 or less will be eligible for rehabilitation. To be considered for the classification of deficient bridge, a structure must be of bridge length, and had not been constructed or had major reconstruction within the past 10 years.

**General Qualifications:** In order to be considered for either the structurally deficient or functionally obsolete classification a highway bridge must meet the following:

**Structurally Deficient –**

1. A condition rating of 4 or less for
  - Item 58 – Deck; or
  - Item 59 – Superstructures; or
  - Item 60 – Substructures; or
  - Item 62 – Culvert and Retaining Walls<sup>(1)</sup> or
2. An appraisal rating of 2 or less for
  - Item 67 – Structural Condition; or
  - Item 71 – Waterway Adequacy<sup>(2)</sup>.

**Functionally Obsolete –**

3. An appraisal rating of 3 or less for
  - Item 68 – Deck Geometry; or
  - Item 69 – Underclearance<sup>(3)</sup>; or
  - Item 72 – Approach Roadway Alignment, or
4. An appraisal rating of 3 for

- Item 67 – Structural Condition: or
- Item 71 – Waterway Adequacy<sup>(2)</sup>.

Any bridge classified as structurally deficient is excluded from the functionally obsolete category.

1. Item 62 applies only if the last digit of Item 43 is coded 19.
2. Item 71 applies only if the last digit of Item 42 is coded 0, 5, 6, 7, 8 or 9.
3. Item 69 applies only if the last digit of Item 42 is coded 0, 1, 2, 4, 6, 7 or 8.

**8. USE OF DEBRIS FROM DEMOLISHED BRIDGES AND OVERPASSES**

**(SECTION 1805 OF SAFETEA-LU)** States have the responsibility to administer or implement Section 1805 - Use of Debris From Demolished Bridges and Overpasses of SAFETEA-LU. The legislation directs a State to first make the debris from the demolition of such structure available for beneficial use by a Federal, State, or local government, unless such use obstructs navigation. This section covers the beneficial use of debris from a demolished structure that is eligible for Federal assistance under the HBP. The “beneficial use” is defined as the use of the debris for purposes of shore erosion control or stabilization, ecosystem restoration, and marine habitat creation.

**9. LRFD DESIGN REQUIREMENTS** On June 28, 2000, FHWA issued a Policy Memorandum announcing its decision regarding a transition time frame for the use of Load and Resistance Factor Design (LRFD) for the design of new bridges on Federal-aid funded projects. According to the memo, all new bridges on which States initiate preliminary engineering after October 1, 2007, shall be designed by the AASHTO LRFD Bridge Design Specification. States unable to meet this date shall provide justification and a schedule, acceptable to the FHWA, to complete the transition.

- The term "preliminary engineering" as stated in the LRFD Policy Memorandum shall be interpreted as the initiation of the studies or design activities related to identification of the type, size, and/or location of bridges. The term "initiate" means the date when Federal-aid funds are obligated for preliminary engineering. In cases where Federal-aid funds are not used in preliminary engineering, but are used in construction or other phases of the project, the term "initiate" means the date when the State obligates or expends their own funds for preliminary engineering.
- Superstructure, substructure, and foundation bridge elements shall be designed by LRFD.
- For modifications to existing structures, States have the option of using the LRFD Specifications or the specifications which were used for the original design.
- Shelved bridge projects designed and packaged for construction prior to October 1, 2007, are not subject to the LRFD Policy Memorandum, unless a redesign is required by the State after October 1, 2007.
- The term "new bridges" as stated in the LRFD Policy Memorandum shall be interpreted to include both new and total replacement bridges.
- Finally, the policy applies to all States-initiated Federal-aid funded projects, not just those funded with Highway Bridge Program funds, including on system and off-system projects.



10. **REHABILITATION AND REPLACEMENT OF BRIDGE DECKS** Consistent with the program direction established in legislation and the Federal Highway Administration's interest in reducing structural deficiencies, the rehabilitation or replacement of structurally deficient bridge decks (those with National Bridge Inventory Item 58 - Deck  $\leq$  4) is eligible for Highway Bridge Program (HBP) funding. Such bridge work is to be considered rehabilitation under the HBP regardless of the bridge's sufficiency rating. The 10-year rule will not prevent a current structurally deficient deck from being replaced or rehabilitated; however, once the deck has been replaced or rehabilitated, the 10-year rule will apply.

Eligibility of structurally deficient bridge decks does not relieve the bridge owner of the need to perform other work required to restore the structural integrity of a bridge or work necessary to correct safety deficiencies. Bridges to be rehabilitated must, as a minimum, conform to the provisions of 23 CFR Part 625, Design Standards for Highways, for the class of highway on which the bridge is a part.

**Deck rehabilitation or replacement projects should be identified systematically, in conjunction with a comprehensive bridge management system, in order to make the most effective use of HBP and other bridge funds. An overall balanced program that considers major rehabilitation, replacements, deck rehabilitation and replacement, along with maintenance and preservation activities, should be the ultimate goal.**

## **SECTION I – PROJECT INITIATION**

### **ADMINISTRATIVE PRELIMINARIES**

Administrative Preliminaries are the forms and other paperwork that are required to initiate a project under this program. It is requested that all forms be typed. However, in order for the final administrative preliminaries package to be in order, please fax or e-mail a draft of the paperwork to the FALE first so a review of the form, content and costs can be performed. The following is a list of all the paperwork that will need to be submitted:

#### **FOR THE PRELIMINARY ENGINEERING PHASE OF A PROJECT**

##### **TO THE OFFICE OF STRUCTURES**

- Bridge Master Schedule (if revisions are necessary)

##### **TO THE FEDERAL AID PROGRAMMING SECTION**

- Final 25C and location map (electronic copy)
- Supplemental Letter to the Master Agreement (2 originals)
- Federal Aid Project Questionnaire (electronic copy)

#### **FOR THE CONSTRUCTION PHASE OF A PROJECT**

##### **TO THE OFFICE OF STRUCTURES**

- Bridge Master Schedule (if revisions are necessary)

##### **TO THE FEDERAL AID PROGRAMMING SECTION**

- Preliminary and Final 25C and location maps (electronic copy)
- Supplemental Letter to the Master Agreement (2 originals, if not completed for PE phase)
- Federal Aid Project Questionnaire (electronic copy)
- Federal Aid Right of Way Questionnaire (1 original and 1 copy)

## **BRIDGE MASTER SCHEDULE**

A Bridge Master Schedule (see **ATTACHMENT A**) is a list of bridges selected by the LG as candidates for HBP funds. The Master Schedule must be submitted to the OOS for approval prior to any new bridge project(s) getting underway. The following phases qualify for these funds:

- Preliminary Engineering (PE)
- Right of Way (ROW)
- Construction
- Bridge Inspection Program
- Scour Evaluation and Countermeasure Program
- Painting

The Master Schedule should be completed using the best known projected start/advertising date and estimated total project costs, broken down to the 80/20 split for Federal Funds and LG Funds, respectively. The Description should show the bridge number, location and type of project (replacement or rehabilitation). The OOS will fill in the balance and allocation data in the upper right corner. The Master Schedule will be forwarded directly to the OOS with a letter outlining the proposed changes to the Master Schedule. (An electronic copy should also be emailed to the OOS Bridge Coordinator.) Should the LG wish to add a candidate project(s) not presently included on the Master Schedule, or, withdraw a project(s), the LG will submit a revised Master Schedule showing those updates plus any revised project costs and ad dates for already established projects.

The OOS will review the Master Schedule and return an approved copy to the LG. Approval of the Master Schedule merely indicates that the bridges are eligible for HBP funding. Approved projects may include work that is not eligible for HBP funding (e.g. excessive approach roadway work, etc.). This work shall be paid for with 100% LG funds, or other federal or state funds which may be available. The limits of work for which Federal funding may be used on a particular project will be determined during the project's development. The preliminary cost estimates and estimated ad dates on the Bridge Master Schedule will also be used to place all LG projects into the STIP or TIP each fiscal year.

NOTE: When a FHWA Project Agreement (formerly PR-1240), that obligates Federal funds for a particular phase of work, is received by the LG, then that phase of work shall be deleted from the next submitted Master Schedule. A Master Schedule does not have to be submitted each time a phase of work is deleted.

## **FORM 32L**

The Form 32L (Cost Sharing Agreement) documents that the LG agrees to pay for the costs of services provided by the SHA. These services may include SHA administration and review of projects during the preliminary phase; surveys; right-of-way plat preparation and acquisition activities; materials inspection; construction inspection, etc., all at the request of the LG. In addition, this Form shall be used if the LG desires to have an SHA consultant perform design or construction inspection related activities. See **ATTACHMENT B** and the following instructions.

### **INSTRUCTIONS FOR SHA FORM 32L**

1. If a LG wishes to initiate a project, a Form 32L will be required. The LG will submit a request to the OOS describing the requested services (plan review, use of a design consultant, etc.).
2. The request should describe the project including the bridge number, location, etc., provide the name, title and billing address of the authorized LG representative, typically the director or similar official, and give a detailed description of the requested services.
3. OOS will prepare the Form 32L, including an estimate of the cost of the services, and forward it to the LG for signature by the authorized representative. The LG will return the signed form to OOS for processing.

## **FORM 25C**

The Form 25C (see **ATTACHMENT C**) is used to set up federal funds for a project. It will be completed by the LG based upon the most recent and best available information known about the project. Sufficient information shall be provided so that the project can be evaluated for eligibility for federal funds. This will be forwarded, along with a location map, to the FAPS. Should the need for a Design Exception be known, a letter requesting such from the OOS describing the area that falls below SHA approved standards shall accompany the 25C. When received in the FAPS, this package will be forwarded to the OOS and EP for review and processing.

FAPS will request EP to obtain and update Programmatic Categorical Exclusion (PCE) approval for the Preliminary Engineering (PE) portion of projects in which Federal aid for PE will be requested. No environmental approval for the PE phase is required where the PE phase is not to be federally funded. No action is required of the LG, other than notification of the intent to use Federal funds for Construction.

### **FOR THE PRELIMINARY ENGINEERING (PE) PHASE OF A PROJECT:**

Fill out the Form 25C and check FINAL in the upper left hand corner. Submit an electronic copy including location map to the FAPS. The LG does not have to fill out the Design Data (Section J) on page 2 of the Form 25C.

Once approved by SHA and design funds are authorized by FHWA, the FAPS will forward a electronic copy of the Project Agreement to the LG. State and federal aid project numbers will be established at this time.

Note: the Preliminary 25C is not required for the Preliminary Engineering (Design) phase.

## **FOR THE CONSTRUCTION PHASE OF A PROJECT:**

### **PROJECT AT TYPE, SIZE & LOCATION (TS&L) PHASE:**

Fill out the Form 25C and check PRELIMINARY in the upper left hand corner. Please fill out the Design Data (Section J) on page 2 using the best available information and submit an electronic copy including location map to the FAPS. When received in the FAPS, the PRELIMINARY 25C package for Construction will be forwarded to the OOS for review and comments, which will be conveyed to the LG. The LG should incorporate these comments when the LG prepares the Final 25C.

### **PROJECT AT FINAL REVIEW PHASE:**

Fill out the Form 25C and check FINAL in the upper left hand corner. The Final 25C must reflect the latest project data as shown on the plans. Please fill out the entire form using the instructions provided in this manual. Submit an electronic copy including location map to the FAPS.

Once approved by SHA and construction funds are authorized by FHWA, the FAPS will forward an electronic copy of the Project Agreement to the LG. State and federal aid project numbers will be established at this time.

## SUPPLEMENTAL LETTER TO THE MASTER AGREEMENT

Each local government entity is a signatory to the Master State/Local Agreement which sets forth the conditions under which the LG would carry out a bridge related project utilizing federal funds.

See **ATTACHMENT D** for the list of Master Agreement dates. The Supplemental Letter provides data about a specific project. The data to be described in the letter are:

- location of the project,
- the type of improvements to be made, and
- the need for right of way activity.

One of the clauses within the Master Agreement stipulates that the project would be performed in accordance with the regulations, policies and procedures of the FHWA; more specifically, the Federal Aid Policy Guide (FAPG).

The SHA's Office of Counsel requires that all Supplemental Letters comply with Section 2(a) of the Master Agreement. Supplemental Letters must contain a statement on Right-of-Way which includes the appropriate language pursuant to Section 2(a)(1), 2(a)(2), or 2(a)(3), of the Master Agreement. Sections 2(a)(1), 2(a)(2), and 2(a)(3), shall be edited to reference the FAPG. If Section 2(a)(1) is used, the reference on page 3, line 3 of the Master Agreement is to be edited to read "Federal Aid Policy Guide, Part 710, Sec. 710.205". Every project is required to have two (2) original Supplemental Letters signed by the Director of Public Works or position of equal authority (see **ATTACHMENT E** set up in generic fashion). The LG shall submit the letters to the FAPS as part of the Administrative Preliminaries package.

### **Federal Aid Project Questionnaire**

Attached to each original Supplemental Letter will be a copy of the Federal Aid Project Questionnaire with the respective sections marked with an X (see **ATTACHMENT F**). As with the 25C, this should be completed in full, based upon the most recent and best available information.

The Supplemental Letter package will be forwarded to the FAPS. When approved, an original is returned to the LG for the project file.

Should the LG request that Federal Funds be used to purchase Right of Way in conjunction with a Construction project, then the LG will contact the ORE at SHA Headquarters and the District ORE for assistance necessary to get the acquisition process under way.

### **Federal Aid Right-of-Way Questionnaire**

To complete the list of required forms is the Federal Aid ROW Questionnaire (see blank copy). As with the other forms, it will be completed using the best and latest information available and signed by the Director of Public Works or position of equal authority (see **ATTACHMENT G**).



## SECTION II – RIGHT-OF-WAY

A detailed explanation of the Federal acquisition requirements is beyond the scope of this book. The major points of the Federal policies to be followed for right-of-way acquisitions can be summarized as follows:

### Right of Way

When Federal funds are used in any phase of a project, any property acquired for that project must be acquired following the Federal policies for right-of-way acquisition as authorized under the Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

The right of way can be more than just the property over which the project is constructed. Land used for water drainage, land entered upon to adjust the terrain slopes, land used during the construction period to store equipment or supplies, even restrictions placed on nearby properties due to project requirements can all be a part of the right-of-way for a project.

Property acquisitions can be in a form other than fee simple acquisitions. Property acquisitions can include perpetual easements, revertible easements and temporary easements. All of the above are acquisitions of less than the complete fee simple rights. Some can be considered as 'rent'.

In addition, property acquisition can include limitations placed on a property, such as denial of vehicular access to enter the road, either over certain areas or along the entire property.

Any property or property rights not owned at the start of the project by the agency advertising the project will be part of the right-of-way needed for the project. Any property or property rights acquired for the project after first requesting federal funding assistance for the project will also be included as right of way acquired for the project.

### Acquisition Procedures

#### A. Activities when Federal funds are used to acquire right-of-way

In most cases Federal funds are use to construct the project, but are not used to acquire the right-of-way. If Federal funds **are** used to acquire right-of-way there are several additional preliminary and ending steps, as follows:

- 1) Pre-acquisition steps – Before beginning activity to acquire any property or property rights the acquiring Local Government (LG) must supply a cost estimate for the right-of-way acquisition and must work with the Maryland State Highway Administration (SHA) to complete the documents required to satisfy the National Environmental Policy Act (NEPA). With that information, the SHA's Office of Real Estate (ORE) can then prepare the documents to request Federal Highway Administration (FHWA) approval to

begin the acquisition process. Until Federal approval is received, no acquisition activities may take place.

- 2) Post-acquisition steps – Upon completion of the acquisition process and prior to the LG requesting reimbursement from the FHWA for the eligible acquisition costs the ORE will make a detailed review of the LG’s acquisition activities and payments to ensure they have followed Federal procedures.

## B. Conditions for start of Acquisitions

When Federal funds are not used to acquire right-of-way, or when they are and the preliminary steps in Section A above have been completed, the acquisition process can be initiated.

While the Federal acquisition regulations require the N.E.P.A. study be completed before acquisition activities can be started, the Maryland Office of FHWA has determined that if no Federal funds are used in the property acquisition, a Local Government (LG), may acquire property before the NEPA study, provided they understand these two caveats:

- 1) The LG may never go back to the FHWA to request Federal funding participation in any property acquisition for this project.
- 2) The LG is acquiring the properties at their own risk. Should any appeal or legal action result from the LG’s acquisition process the LG will not be eligible for any FHWA support or resources to conclude the issue.

## C. Acquisition Activities for any Federally funded project

Before any offer to acquire property may be made an appraisal of the land to be acquired must be completed, by a qualified appraiser. Additionally, a second appraiser or a qualified LG employee must review the appraisal. It is this review of the appraisal that determines just compensation. In addition, the appraiser must offer the property owners the chance to accompany him when he inspects the property.

It is important that the appraiser and the reviewing appraiser be separate and independent of each other, and that the acquisition officer also be independent of the appraisers.

After the appraisal is reviewed, and accepted by the LG, an offer to acquire the property may be made. This offer may be made in person, by telephone or by mail. However the offer is made, a written letter of offer, a copy of the plan or plat showing the acquisition needed, a written summary of the various components of the offer, and the deed, option contract, deed of easement or other document required to finalize the property acquisition must all be presented to the property owner.

Federal procedures require that the offer be made in the full amount of the approved appraisal.

After the first offer the acquiring LG must keep in communication with the property owner, attempting to resolve any concerns or issues the property owner may have. It is a goal of the

Federal regulations to support efforts to reach an amicable settlement with the property owner, and the LG must make all reasonable efforts to negotiate a settlement with the property owner.

Upon reaching an agreement with the owners, the LG shall have the property owner sign the appropriate document of transfer, and the LG must also approve the document. This document must give the constructing LG the right to build, use and maintain the improvement. The subject property may not be used for construction until the property owners have been compensated for the acquisition.

#### D. Record Keeping

Acquiring LGs are required to keep complete and accurate records of their acquisition activities. In addition to maintaining all letters and documents sent and received concerning the acquisition, the LG is required to keep a log of the pertinent acquisitions contacts, referred to as the Negotiator's Record. This should list all pertinent contacts, the date of the contact, who the other party is, the format of the contact (letter, phone call, etc.) and any key points of the negotiating process that were discussed.

Included with the Negotiator's Record should be a Negotiators Certificate, signed by both the negotiator and his supervisor. The Negotiator's Certificate should be very close to the following:

- 1) The written agreement embodies all of the considerations agreed upon between the negotiator, acting on behalf of the (your agency) and the property owner(s).
- 2) The agreement was reached without coercion, promises other than those shown in the agreement, or threats of any kind whatsoever by or to either party. And that the findings, notations and recommendations represent my best judgment.
- 3) The parcel(s) herein agreed to be conveyed are being secured for use in connection with a Federal-Aid project.
- 4) I have no direct or indirect present or contemplated future personal interest in the parcel(s) or in any benefit from the acquisition of such property.
- 5) I did not make an appraisal of this property, and I was not a Reviewing Appraiser of same.

All records must be maintained for at least three years after the closing of the project.

#### Certification

Upon completion of the acquisition process a representative of the ORE must review the acquiring LG's acquisition activities and records to determine that Federal procedures have been complied with.

Upon completion of a successful review of the acquisition process the ORE will prepare a letter certifying that the right-of-way is cleared, allowing the LG to bid and award the contract to construct the project.

## Conditional Certification

It is possible for the LG to advertise for bids to construct the project before all right-of-way has been acquired. To do this the LG must have made offers to acquire all properties, and the ORE must review the acquisition process up to that point.

In addition, the ORE must be satisfied that the negotiations have reached a point that a successful conclusion is imminent.

When the above has been resolved to the satisfaction of the SHA, the ORE will issue a limited certification letter, allowing the LG to advertise for bids to construct the project, but NOT to issue a Notice to Proceed.

Before the winning bid can be awarded the LG must complete the right-of-way process and the ORE must review the completed right-of-way process and prepare the letter certifying that the right-of-way is cleared and that a Notice to Proceed may be issued.

## Donations of needed properties

It is permissible for the LG to request that the property owners donate the rights-of-way required to complete the project. In these cases the property owners **MUST** be informed that they have the right to be compensated for any use of their property, and by donating their property they are waiving their right to compensation for this project.

As it is the goal of the Federal acquisition procedures to assure that all property owners are treated fairly and equally, LGs should be very cautious about asking property owners to donate their property.

## Appraisal Waiver and other exceptions

There are two exceptions to the above procedures that may be allowed, if the acquiring LG demonstrates the ability to do so.

- 1) If the value of the acquisition is under \$25,000.00 and the appraisal process is simple a full appraisal may not be required. A less complicated determination, an appraisal waiver, may be used. This requires that the acquiring LG have available a person to do the appraisal waiver who is qualified to appraise and who has a clear understanding of property values in the project area.
- 2) Again, if the value of the acquisition is under \$25,000.00 and the appraisal process is simple it may be possible for the appraiser to also negotiate the acquisition. This splitting of responsibilities is considered necessary because the appraiser is charged with creating as accurate a property value as possible and defending that value, changing it only when facts determine the value is no longer accurate, while the negotiator is charged with protecting the rights and interests of both the citizens of his jurisdiction and the individual property owners.

This exception to the Federal procedures may be allowed only if the acquiring LG can prove the potential appraiser/negotiator has the appraisal experience needed to value the property, the negotiating expertise to handle complex negotiations and a clear understanding of the responsibilities of each position.

## Relocation Assistance

If, as a result of the project, a property owner is removed from his home, business or farm, or his ability to use and enjoy his home, business or farm is restricted, it may be necessary to relocate the property owner to a new home, business or farm. In this case it is necessary for the acquiring LG to assist the owner in locating and moving to the new location, and to compensate the owner for the cost of the relocation.

This Relocation Assistance process is more complex than can be summarized in this document. If your LG is required to supply Relocation Assistance, or if there is any question as to the need for Relocation Assistance, please contact the State Highway Administration at the number below.

For more information on any aspect of right of way or property acquisition contact the Maryland State Highway Administrations, Office of Real Estate, Local Government coordinator at (410-545-0353) or toll-free 1-888-204-4245.

### **SECTION III – CONTRACT DOCUMENT DEVELOPMENT**

The contract document development portion of a project is broken into several distinct phases. The LG should not start any phase until the preceding phase has been approved. The three (3) phases are: **Preliminary Engineering**, which is generally defined as the level of design necessary to determine environmental impacts, minimization or mitigation of impacts, or to complete the environmental document required for the Final Design, Right of Way or Construction Phase; **Final Design**, which includes the PS&E review; and **Construction** which includes advertising, bid opening and concurrence in award.

In addition to the general guidance provide in this document, please refer to the Environmental Documentation For Local Government Projects and the Accessibility Policy & Guidelines for Pedestrian Facilities along State Highways for additional guidance to see in more detail what is required before proceeding to each phase. These documents can be found at the following location.

[http://www.marylandroads.com/OBD/Environmenta%20LG\\_Guidance.pdf](http://www.marylandroads.com/OBD/Environmenta%20LG_Guidance.pdf)  
<http://www.roads.maryland.gov/Index.aspx?PageId=26>

## **PRELIMINARY ENGINEERING**

### **Preliminary Investigation**

The complexity of the bridge project will govern whether a Preliminary Field Investigation (PI) will be necessary. The need for a PI should be discussed with the OOS Project Engineer. If the PI is necessary, the LG will determine when they have sufficient information to hold the meeting at the project site. When the Plans are approximately 20-40 percent complete, the LG will contact the OOS to establish a date and time for the meeting. The OOS will also provide the LG with the names and addresses of the SHA people who should be invited to the meeting. The LG can then prepare a notice (see **ATTACHMENT H**) which shall include the date, time, and location of the PI and a copy of the following:

- a. Title sheet with location map, design speed and traffic data
- b. Roadway plan and profile sheets
- c. Typical roadway section
- d. Preliminary bridge plans
- e. Proposed traffic control plan

All parties involved with the project will receive a copy of the notice and the Plans. Other attendees may be invited as appropriate. If the LG so desires, copies of the notice and plans can be provided to the OOS for distribution to SHA personnel.

Following the PI, the LG will prepare the PI Report (see **ATTACHMENT I**). The report shall consist of the comments and suggestions provided by the attendees and the decisions agreed to. The report should include the following basic information:

- a. Date, time and location of PI
- b. Names of attendees and agency they represent
- c. Any agency not present offering comments
- d. Project description
- e. Constructability Issues
- f. Permit and Environmental information
- g. Right of Way
- h. Traffic control concepts and approved scheme
- i. Utilities
- j. Bridge widths-lane widths
- k. Structural, geometric and/or design elements that will fall below SHA approved standards

As no two projects are alike, the guidelines for the report may be modified to suit individual projects. At the end of the report, a representative of the LG shall sign the report indicating concurrence. Finally, there should be a signature block for approval by the Director, OOS. When the report is complete, the LG will forward the report to the OOS for approval. The OOS will return an approved copy of the report to the LG.

## **Bridge Type, Size and Location (TS&L) Review**

Following SHA approval of the PI Report (if required), it is then necessary for the LG to submit the Type, Size and Location (TS&L) for the candidate bridge. This submission will include all comments and revisions resulting from the PI and the plans will contain the following basic information in addition to that submitted with the PI:

### Design Data

- Present and Future ADT
- Design Speed

### Maintenance of Traffic

- Detour Plan or
- Bridge Stages of Construction

### Approach Roadway

- Existing and Proposed Typical Sections
- Roadway Plan

### Bridge General Plan and Elevation

- Existing and Proposed Structures
- Existing Utilities and their Disposition
- Stream Invert and Normal Water Surface Elevations at Structure
- Water Surface Elevations for 10 year storm, 25 year storm, design year storm, etc.

### Bridge Typical Section

- Lane, shoulder, sidewalk, barrier, etc. widths
- Proposed fencing or railing
- Type of superstructure and spacing of elements
- Type of Crash Tested Barrier

### Bridge Substructure

- Typical Sections of Abutment and Pier

The LG will forward three (3) sets of the TS&L, along with a cover letter to the OOS requesting review and comments. If there is extensive approach roadway work within the project, the OOS may forward a copy of the TS&L to the SHA's Highway Design Division (HDD) for review and comments on the roadway portions of the TS&L. Following completion of the reviews, the OOS will send a letter to the LG noting that the OOS reviewed the bridge portion of the TS&L and attach a copy of HDD's comments and recommendations. Included with the letter may be a marked up set of plans, indicating the OOS's comments. The OOS may also note at this time for the LG to proceed with the preparation of the Scour and Foundation Review Report, provided, that the comments from the OOS and HDD on the TS&L are addressed. The LG should not proceed without approval from the OOS.

In order to expedite the review process, a combined TS&L/Foundation/Scour review may be made if all of the necessary data is available.



## **Bridge Scour and Foundation Review**

Following OOS's approval of the TS&L, it is then necessary for the LG to prepare a Scour and Foundation Review submittal for the candidate project. SHA policy requires that a scour evaluation be performed for any bridge over a waterway that will be rehabilitated or replaced with Federal or State funds. Box culverts and other structures with paved bottoms do not require a scour evaluation. The review will contain the following basic information in addition to that submitted for the TS&L:

### **Boring and Drive Tests**

- Boring Location Plan
- Boring(s) at each foundation element and in the channel
- Borings plotted with the following information:
  1. Elevation of ground surface
  2. Bottom of Footing Elevations or
  3. Pile Tip Elevations
  4. Datum Elevation

### **Foundation/Scour Report**

- Recommended foundation type
- Type of pile, if applicable
- Allowable bearing pressure or
- Pile capacity
- Depth of scour

Chapter 11 of the OOS Manual of Hydrologic and Hydraulic Design provides detailed policies and procedures regarding the scour evaluation process and the design of scour countermeasures. The Manual is available on line at [www.gishydro.umd.edu](http://www.gishydro.umd.edu). The LG is to use the latest version of the Manual and associated computer programs in the conduct of the scour evaluation.

Studies in support of the scour evaluation include:

- Hydrology Report
- Geomorphology Study
- Hydraulics (HEC-RAS) Study

The scope and content of these studies as well as the scour evaluation study itself should be comparable to the studies prepared by the OOS. For certain types of projects, such as rehabilitation projects, or for particular bridge crossing conditions, a scour assessment as compared to a scour evaluation may be appropriate (See Chapter 11 of the OOS Manual of Hydrologic and Hydraulic Design). The LG is encouraged to meet with OOS personnel prior to commencement of detailed studies to discuss formation of an interdisciplinary team and to define the scope of studies necessary for the scour assessment or evaluation.

The LG will forward two (2) sets of the Scour and Foundation Review submittal along with a cover letter to the OOS requesting review and comments. After completing the review, the OOS will send a letter to the LG noting that the OOS reviewed and provided comments/approval of the Scour and Foundation submittal. The OOS may also note at this time that the LG may proceed with the Structural Review provided that the Scour and Foundation Review comments are addressed. Under no circumstances should the LG proceed to Structural Review, prior to receiving Foundation/Scour approval.

## Design Exception

All Federal-aid bridge projects are to be designed and constructed in a manner that meets American Association of State Highway Transportation Officials (AASHTO) criteria or approved State standards. However, Design Exceptions will be considered on a case-by-case basis. A list of the design elements requiring design exceptions is attached. As early in the PE process as possible, the LG shall make a formal submission to OOS supporting their request for a design exception. The request must include the following information:

### Description of Existing Bridge

- Owner
- Route Name
- Crossing
- Type of Structure/Age/Length
- Horizontal/Vertical Clearance (On and Under)
- Condition/Weight Limit
- Who is served by the bridge?
- Is the bridge historic?

### Proposed Project

- Description of Purpose and Need
- Description of Proposed Improvements
- Public Input (including emergency services, schools, etc.)
- Increase in Load Capacity if Bridge Remains Posted (Will school buses, emergency vehicles, small trucks, etc. be able to use the bridge?)
- Proposed Bridge Railing (Crash-Tested?)
- Proposed Retrofit of Fracture Critical Elements
- A Description of the Exception
  - The design element(s) that does not meet the standard
  - The minimum applicable standard for that feature
  - The proposed value of the substandard feature
  - The exact location of the substandard feature
  - The approximate cost of providing full standards
- Safety Information
  - Traffic Data (Present and future)
  - Three years' accident data
  - The statewide accident rates for that class of highway, if available
  - A narrative containing an analysis of the accident data
  - Approach roadway geometrics
  - Detour route length
- A description of the extenuating circumstances that led to the conclusion that the substandard feature is acceptable. This description should address the following items:
  - The reason(s) the standard is not being met
  - Any future improvements that are planned for the route
  - The environmental impact(s) of providing full standards
  - The effect that substandard feature contributed to the accident history

- Any social impact(s) of providing full standards
- The additional cost of providing full standards.
- The anticipated effect that the substandard feature will have on the safety and operation of the facility
- The amount that the existing substandard feature is being improved.
- Support of or opposition to the substandard feature by the community, emergency service providers, etc.
- A description of the mitigating features that were incorporated into the project plans to compensate for the substandard feature.

**ITEMS THAT REQUIRE A DESIGN EXCEPTION IF THE APPLICABLE  
CRITERIA IS NOT MET**

1. Design Speed
2. Lane Width
3. Shoulder Width
4. Sidewalk Width
5. Sidewalk Grades
6. Bridge Width
7. Structural Capacity
8. Horizontal Alignment
9. Vertical Alignment
10. Grades
11. Stopping Sight Distances
12. Cross Slope
13. Superelevation
14. Horizontal Clearance to Obstructions
15. Vertical Clearance

## **Value Engineering**

FHWA policy requires a Value Engineering study to be conducted on all projects that meet the following criteria:

1. each project on the Federal-aid system with an estimated total cost (which includes project development, design, right of way, and construction costs) of \$25 million or more that uses FAHP funding;
2. each bridge project located on or off of the Federal-aid system with an estimated total cost of \$20 million or more that uses FAHP funding.

Additional instances which would require a value engineering study are provided by the FHWA. For qualifying projects, please see your SHA representative for additional guidance.

## **Accelerated Bridge Construction (ABC)**

The Federal Highway Administration (FHWA) as part of their Every Day Counts Initiative has been actively promoting the advantages of ABC. Proven benefits include minimized traffic disruption, improved work zone safety, and reduced on-site environmental impacts. Local governments are encouraged to explore ABC alternatives as part of their bridge projects. Some of the major ABC technologies with widespread use are listed below. For more information on the Every Day Counts Initiative, refer to [www.fhwa.dot.gov/everydaycounts](http://www.fhwa.dot.gov/everydaycounts).

### **Prefabricated Bridge Elements**

Prefabricated bridge elements are a commonly used ABC method and can be incorporated into most bridge projects as a form of accelerated construction. Concrete bridge elements are prefabricated, transported to the construction site, placed in the final location, and tied into the structure. An entire bridge can be composed of prefabricated elements, or single bridge elements can be prefabricated as the need arises. Prefabricated bridge elements can also be used in combination with other accelerated bridge construction methods.

Prefabricated bridge elements are used to mitigate the on-site time required for concrete forming, rebar tying and concrete curing, saving weeks to months of construction time. Deck beam elements eliminate conventional onsite deck forming activities. To reduce onsite deck forming operations, deck beam elements are typically placed in an abutting manner. Prefabricated elements are often of higher quality than conventional field-constructed elements, because the concrete is cast and cured in a controlled environment. The elements are often connected using high strength grout, and post-tensioning or pretensioning.

### **Geosynthetic Reinforced Soil-Integrated Bridge Systems (GRS-IBS)**

Geosynthetic Reinforced Soil-Integrated Bridge Systems (GRS-IBS) are composed of two main components: Geosynthetic Reinforced Soil (GRS) and Integrated Bridge Systems (IBS). GRS is an engineered fill of closely spaced alternating layers of compacted fill and geosynthetic reinforcement that eliminates the need for traditional concrete abutments. IBS is a quickly-built, potentially cost-effective method of bridge support that blends the roadway

into the superstructure using GRS technology. This integration system creates a transition area that allows for uniform settlement between the bridge substructure and the roadway approach, alleviating the “bump at the bridge” problem caused from uneven settlement. The result of this system is a smoother bridge approach.

### **Bridge Slides**

Bridge placement using lateral sliding is another type of ABC where the entire superstructure is constructed in a temporary location and is moved into place over a night or weekend. This method is typically used for a bridge superstructure replacement of a primary roadway where the new superstructure is constructed on temporary supports adjacent and parallel to the bridge being replaced. Once the superstructure is fully constructed, the existing bridge superstructure is demolished, and the new bridge superstructure is moved transversely into place. In some instances, a more complicated method known as a bridge launch has been used, which involves longitudinally moving a bridge into place.

### **Self Propelled Modular Transporters (SPMT's)**

SPMTs are remote-controlled, self-leveling (each axle has its own hydraulic cylinder), multi-axle platform vehicles capable of transporting several thousand tons of weight. SPMTs have the ability to move laterally, rotate 360° with carousel steering, and typically have a jack stroke of 18 to 24 inches. They have traditionally been used to move heavy equipment that is too large for standard trucks to carry. SPMT allow a bridge or portions of a bridge such as the superstructure to be built away from the site at a nearby location such as roadway median without disruption of traffic. Once complete, the old bridge can be removed and the new bridge installed over night with a short full closure of the roadway.

## **FINAL DESIGN PHASE**

### **Structural Review**

After SHA approval of the Scour and Foundation Review submittal and with the plans 80 percent complete, it is then necessary for the LG to submit the Structural Review for the project. The Structural Review will contain the complete set of plans for the road and bridge. The LG will forward two (2) sets of the Structural Review submittal along with a cover letter to the OOS requesting review and comments. After completing the review, the OOS will send a letter and marked-up set of plans to the LG noting that the OOS reviewed the Structural Review plans which are approved subject to the attached comments.

At this review stage, the LG needs only to submit a list of the OOS Structural Standards which are to be used on this project. If requested by the LG (or consultant), the OOS will provide the Standard Detail Plates on a reproducible sheet with the LG's border, title block, etc. When using OOS's Standard Details, it is imperative that the word “STANDARD”, and all signature and approving blocks, be deleted.

In order to expedite the review process, a combined Structural/Final Review may be requested.

## Final Review

After the approval of the TS&L, Scour, Foundation and Structural Review submittals (with the Plans 90 percent complete), it will then be necessary for the LG to hold the required Final Review Meeting. The LG will arrange the Final Review Meeting with the OOS in the same manner as the PI. The LG will prepare a notice (see **ATTACHMENT J**) to include the date, time and location for the Final Review Meeting. All parties involved with the project should receive a copy of the notice and the Final Review Package consisting of a complete set of the Final Review Plans, Special Provisions and Cost Estimates.

A list of SHA standard Special Provisions (SP's) and Special Provisions Inserts (SPI's) may be substituted for the actual provisions as long as no modifications are required. Please note the following FHWA special requirements (for more detailed information please refer to the Code of Federal Regulations, section 635, Subpart D).

- Buy America is a requirement applied to Federal-aid construction projects. Projects located on highways classified as local roads and rural minor collectors; transportation enhancement projects; and non-highway construction are also covered by these requirements. The regulations require use of domestic steel and iron in federally funded construction projects. The steel or iron product must be permanently incorporated into the project. Please refer to SHA's proposal form packet (to be included with the project specifications) for more details.
- Proprietary items, any patented material, specification, or process that can only be obtained from one manufacturer cannot use Federal funds for payment for such items. These items are generally identified by the use of a trade name. Exceptions to this requirement are as follows:
  - SHA certifies the proprietary item is essential for synchronization with existing highway facilities and that no equally suitable alternative exists. Certification will require the LG to submit a letter of public interest finding to SHA for approval. The letter must include the brand name and manufacturer of the item in question as well as a detailed discussion of the factors that necessitate the item's use (synchronization with existing facilities, no equally suitable alternative is available, substantial cost savings, benefit / cost analysis when more than one proprietary item is available, etc.).
  - The proprietary item is used for research or for a special type of construction on relatively short sections of road (requires approved public interest finding from SHA).
  - Only proprietary items are acceptable, and at least three proprietary items are offered as alternatives (does not require approved public interest finding).
  - FHWA finds the utilization of the proprietary item is in the public interest.

Use of the term “or equal” following the name of a proprietary item does not supersede the need to obtain a public interest finding. The public interest finding requirement is only waived when at least three proprietary product names are listed in the proposal as possible alternatives for a specific item. When this is the case, it is recommended to add the term "or equal" in order to promote maximum competition.

Additionally, the specific characteristics of the proprietary product that is mentioned should be included in the job special provision. Construction personnel can use this information to determine if the substitute product is indeed “or equal”. Examples of specific characteristics are the reflective properties of pavement marking tape, width and length of crashworthy end treatments, signal controller units that are compatible with existing units in the field or other applications in which the district core team can specifically name product characteristics. When requested by a contractor to approve the use of a substitute product based upon the “or equal” provisions contained in the JSP, construction field personnel will coordinate their response to this request with the engineer of record.

All aspects of the project will be discussed at the final review meeting including, but not limited to, Maintenance of Traffic, Utilities, Constructability, ROW, Design Exceptions (if any), Permits, Environmental issues, Liquidated Damages, Working Days/Calendar Date, etc.

This Final Review meeting will ultimately assist the LG in preparing the PS&E for the project as the PS&E review is the final submission prior to FHWA’s authorization of funds (Project Agreement). About this time, the Final 25C shall be submitted.

Following the Final Review Meeting, the LG will prepare the Final Review Report (see **ATTACHMENT K**). The report shall include the date, time and location of the meeting, those in attendance and whom they represent and a list of comments and recommendations from same. The report shall also include comments from the parties not in attendance at the Final Review. At the end of the report, a representative of the LG shall sign the report or provide a cover letter indicating that the LG concurs with the information and decisions in the report. There should be a signature block for approval by Director, OOS. The report will be forwarded to the OOS for review and approval. The OOS will return an approved copy of the report to the LG. All attendees and all those who provided comments outside the SHA should be provided a copy of the approved report by the LG.

As part of the PS&E package, the LG must submit a request for a Disadvantaged/Minority Business Enterprises (DBE/MBE) goal. It is recommended that at Final Review time, the LG submit the latest Engineer’s Estimate to the FAPS who will forward same to SHA’s MBE Administrator, Office of Construction, for a recommendation of the DBE/MBE goal as determined by the Goals/Waivers Advisory Panel.

### **Plans, Specifications and Estimates (PS&E) Review**

The PS&E is the final submission of the design phase. The PS&E documents will be 100 percent complete. The Invitation for Bids (IFB) will contain all the necessary information and documentation to make the review complete and Estimates shall be checked by the LG to avoid

possible typographical errors and to assure that the Schedule of Prices pages are correct in relation to Item Numbers, Quantities and the Description of Items.

When the above conditions have been met, the LG will submit three (3) sets of the PS&E, and a copy of the Certification of Environmental Permits (see **ATTACHMENT L**), the Traffic Control Plan approval letter from the District Traffic Engineer, the Utilities Statement (see sample, **ATTACHMENT M**), along with a cover letter from the LG project engineer to the FAPS.

The SHA will withhold permission to advertise the LG's project until the FAPS has received a right-of-way certification from the SHA's ORE. Also, the SHA will not allow the opening of the bids unless all the permits are in hand.

The AFALE will retain a set and forward the remaining two (2) sets to the OOS (and HDD, if necessary) along with a cover letter requesting review and comments. The AFALE will then perform a thorough review of the PS&E and prepare a list of those areas and items that require revisions or corrections. Also, to keep track of the documentation being generated by all parties, the AFALE refers to a checklist. This checklist (see **ATTACHMENT N**) provides the AFALE the minimum amount of areas to be reviewed. In the interim, the OOS and HDD are preparing their own lists of areas that require corrections. When all reviews are complete, the AFALE will consolidate all comments. This list will be mailed to the LG and/or Consultant.

All minor comments will be corrected by the AFALE. If the comments are of a substantial nature, the PS&E will be returned to the LG for revision. Once the revisions are made, the LG will contact the AFALE for arrangements to submit the revised PS&E. If the resubmittal is made within a reasonable time frame, and, if additional minor changes become necessary, the AFALE will make those corrections. When the PS&E package is approved by the AFALE, the AFALE will prepare a letter of authorization request for Federal funds, together with a Fiscal Management Inventory System (FMIS) Report and forward same to the FHWA for approval of funds. The Project Agreement which authorizes Federal funds is then issued.

### **Quality Assurance**

Local Governments shall develop a policy for a quality assurance (QA) review of all contract documents. A good QA program is a deliberate and systematic approach to reduce the risk of introducing errors and omissions into a design. A useful resource for developing a QA program is AASHTO's Guide to Quality in Preconstruction Engineering.

The level and complexity of a quality review by the local government to a given bridge should be tempered by the size, complexity, and degree of redundancy in the Structural system involved. For major projects involving unusual, complex, and innovative features, an independent design consultant review may be desirable to raise the level of confidence in the quality of design and construction. An LG may use consultants presently under open-end contracts with SHA in order to perform this review.

At the very least, the LG shall have an established contract document checklist to perform an independent review of the contract documents. SHA's Office of Structures has developed plan review checklist available for use in performing these reviews.



## **Letter of Authorization-Project Agreement**

The Project Agreement (see example, **ATTACHMENT O**) is the official FHWA document granting authorization to proceed. When ready, the FHWA will forward the Project Agreement to the FAPS. The AFALE will then contact the LG and give permission to advertise the project. The LG will then proceed to advertise the project. Any actions affecting the PS&E after approval but before bid opening shall be by approved addendum. Please contact the AFALE for instructions.

### **CONSTRUCTION PHASE**

#### **Advertising**

Advertising guidelines can be found on the eMaryland Marketplace website at [www.eMarylandMarketplace.com](http://www.eMarylandMarketplace.com).

#### **Bid Opening**

Following the LG's permission to advertise, the LG will notify the FAPS and the District Office in writing (email is acceptable), of the date, time and location of the bid opening (see **ATTACHMENT P**).

#### **Concurrence in Award**

After following SHA procedures on advertising for bids and, after receiving bids, the LG shall submit a formal request for concurrence in award to FAPS for SHA approval. The LG will submit the following information:

- a. A complete copy of the successful bidder's proposal (one copy)
- b. A complete Tabulation of Bids and totals for all bidders. The Tabulation of Bids (see example, **ATTACHMENT Q**) must be signed and dated, verified and certified true and correct by the LG [six (6) copies]. Should there be more than three (3) bidders to any bid the bid tab should show only the three lowest bidders with their respective bids. The names and addresses of those remaining bidders and their accepted bids will be included on the last page of the bid tab or on an attached sheet.
- c. Contractor's signed non-collusion affidavit [three (3) copies] (if not signed by the president of the company, then submit a copy of the company's by-laws as to whom can sign the document)
- d. Experience and Equipment form [one (1) copy]
- e. Clear ROW Certification [three (3) copies]
- f. Disadvantaged Business Enterprises (DBE) Affirmative Action Plan approved by the LG, and DBE Forms OOC44 and OOC45 (OOC46 if necessary) (see blank copies) completed by the Contractor (All must be original signatures)
- g. Copies of advertisements of bid opening
- h. Bid Analysis must be signed, verified and certified true and correct by the LG [six (6) copies] (see example, **ATTACHMENT R**).

Should the contractor's bid be more than ten (10) percent over or fifteen (15) percent under the final approved engineer's estimate, then a letter of justification will be needed (see **ATTACHMENT S** set up in generic fashion). The letter will be written by the LG to the SHA's Chief, Contracts Award Team, Office of Construction and, along with that letter, forward the entire Concurrence in Award package to the FAPS.

A memorandum requesting concurrence will be prepared from the Director, Office of Construction, to the Deputy Administrator/Chief Engineer for Operations. When signed, a copy is forwarded to the FAPS who then contacts the LG Project Manager noting concurrence and that the official Notice to Proceed (NTP) has been given. The FAPS would then fax the concurrence letter (see sample letter, **ATTACHMENT T**) to the LG and the DE. The LG will then contact the DE noting that concurrence has been given by the SHA.

The District Office will be responsible for monitoring the work for compliance with the contract specifications and advise the LG that all requests for subcontractor approvals, as well as any change or deviation from the approved Affirmative Action Plan, must be approved by the SHA by way of the DE.

Note: This procedure may be subject to modification for local governments that have approved DBE programs that differ from the MD Department of Transportation Program.

## **SECTION IV – BRIDGE INSPECTIONS**

The National Bridge Inspection Standards (NBIS) are published in the Code of Federal Regulations, 23 CFR 650, Subpart C. The NBIS set the national standard for the proper safety inspection and evaluation of bridges and apply to all structures defined as highway bridges located on all public roads. Maryland SHA inspects bridges on the state system for compliance with the NBIS standards. LG's that own bridges not on the state system are responsible for inspections of those structures. The inspections must be completed at least every two years, either by the local jurisdiction staff or by private consultants.

The principal objective of the program (NBIS) is to ensure public safety. Not only are structural deficiencies to be identified during the course of the inspection process, but if the bridge is not capable of safely supporting legal load vehicles, the owner is responsible for advising the traveling public of any weight restrictions in a timely manner (bridge posting). It is vital that weight restriction signs be properly maintained and promptly replaced if they are damaged or removed.

Local government agencies that perform their own bridge inspections shall submit quarterly progress reports and annual electronic National Bridge Inventory records complying with FHWA reporting guidelines to the SHA Bridge Inspection Program Manager.

## SECTION V – CONSULTANT SELECTION

The following section provides guidelines and procedures for an LG to select a consultant utilizing federal funds.

### **OPEN-END CONSULTANTS CONTRACTED BY SHA:**

An LG may use consultants presently under open-end contracts with SHA in order to obtain services more quickly while still using federal funds. These consultants may be utilized for the following:

- Preliminary Engineering
- Construction Inspection
- Biennial Bridge Inspection
- Scour Evaluation
- Environmental Documentation

For the **PRELIMINARY ENGINEERING** phase of a project, the process is as follows:

1. LG will submit a request to OOS to use a consultant that SHA has a contract with to provide engineering services. The request should include a Scope of Work and an estimate of the consultant man-hours. (If the LG prefers, OOS will develop the man-hour estimate and ask for LG concurrence.)
2. OOS will review these items and advise the LG which consultants are available based on money remaining in their contract, type of work, etc.
3. OOS will set up a meeting with the LG and the selected consultant to discuss the project and request a technical proposal.
4. OOS and LG will review the technical proposal. Once it is acceptable, OOS will request a price proposal.
5. OOS and LG will review the proposal and negotiate a fee.
6. After the LG provides OOS with written approval of the Technical and Price Proposal, OOS will issue the NTP to the consultant.
7. Project would proceed similar to other LG projects, except OOS would pay the consultant invoice only after the LG has approved it. SHA would invoice the LG, in accordance with Item 6 of Form 32L. Typically, the LG requests that SHA deduct 80% of the total fee from the LG's federal bridge allocation and invoice the LG for the remaining 20%.
8. All of the ordinary Administrative Preliminaries (Form 32L, Form 25C, etc.) are still required.

For the **CONSTRUCTION INSPECTION** phase for a project, the process is as follows:

1. The LG will submit a request at the Final Review stage to OOS for SHA to perform Construction Management and Inspection Services. See **Attachment U**. The request should include: anticipated construction NTP date, number of working days or calendar days, and estimated construction cost for the requested services.

2. OOS will transmit the request to the DE.
3. The DE, along with the Construction Inspection Division (CID), will determine if SHA personnel or an SHA open-end consultant will perform the services.
4. The DE will notify the LG as to who will provide the construction management services.
5. Project would proceed similar to other LG construction projects.

Please contact the following SHA personnel for the procedures set up for their specialized areas:

- Mark Glass-Biennial Bridge Inspection
- Prakash Dave-Scour Evaluation
- Don Sparklin-Environmental Documentation

### **CONSULTANTS CONTRACTED BY THE LG:**

When the LG elects to utilize Federal Funds for a consultant to perform PE and/or Construction Inspection, it is *highly recommended* that the LG employ the SHA Open-End Consultants. This is due to the fact that there is a considerable amount of paperwork that the LG must be involved with if the LG wishes to hire a consultant using federal funds (refer to process below). In addition, the LG should allow at least a year to complete the selection process.

Should the LG elect to hire a consultant utilizing HBP monies, then the LG must either:

1. Have FHWA approved (FHWA oversight or pre-ISTEA) County-Wide Consultant Selection Procedures (CSP) in place, or
2. Develop their own County-Wide CSP, which would be good on all future Federal Aid preliminary engineering projects, or
3. Develop their own CSP just for that particular preliminary engineering project, or

If 2 or 3 need to be completed by the LG, please forward one of these three to the FAPS. FAPS will request the OPC to review the proposed CSP. If OPC reviews and finds acceptable the LG's proposed CSP, then the LG would be notified of approval by the FAPS. Once that is accomplished, the package of Administrative Preliminaries, along with the Scope of Work (SOW) for the proposed project, may be forwarded to the FAPS.

The LG, having made adjustments to the SOW (if any), will forward three (3) copies of the Technical and Price Proposal to the FAPS. Upon receiving the copies the FAPS will then forward two (2) copies of the Technical and Price Proposals to the SHA's OPC for review of form and content. The other copy will be forwarded to the SHA's Audit Section for pre-contract audit. Should there be any minor questionable areas with the audit review, the Audit Section will contact the Consultant directly and resolve those areas and/or request additional information to make the report complete.

Upon completion of review for form and content, OPC will forward a list of comments (if any) to the FAPS. Should these comments be of a minor nature, a statement will be made noting that the

technical proposal is acceptable to the SHA provided those comments are addressed. The FAPS will then forward a copy of the audit report and the comments of OPC to the LG who shall, in turn, make all necessary corrections to the Technical Proposal. When the corrections to the Technical Proposal have been made, the LG will forward to the FAPS two (2) copies of the unexecuted agreement between the Consultant and the LG for which the work will be performed. The unexecuted agreement shall include the specifications, the Consultant's Technical and Price Proposal (revisions, if any, included), the audit report and the detailed selection process. The copies will be forwarded to the FAPS where a copy will be forwarded to OPC for final comments. If there are no corrections to the unexecuted agreement, the LG will proceed with the execution of agreement between the LG and the Consultant and then forward three (3) copies of the executed agreement to the FAPS.

The FAPS will prepare a request for authorization of funds for a Consultant to perform PE on this project. By receipt of the FHWA Project Agreement, the FAPS will notify the LG that the Consultant may proceed with the work for the PE phase.

Reimbursement for the expenditure of funds will take place from the effective date of the project agreement. There will be no retroactive payment for work completed *before* the effective date.

## **SECTION VI – ATTACHMENTS**

The following attachments are examples/samples of documentation for a bridge replacement/rehabilitation project. As you read through this section, keep in mind that no two projects are alike and that not all of the memos, letters, etc. will be necessary for all projects. Some of the attachments have hidden text which provide additional information. To reveal the text, click on the “Show/Hide” symbol (¶) in the Toolbar above.

- A Bridge Master Schedule**
- B Form 32L**
- C Form 25C**
- D Master State/Local Agreement Dates**
- E Supplemental Letter to Master Agreement**
- F Federal Aid Project Questionnaire**
- G Federal Aid Right-of-Way Questionnaire**
- H Set Up Preliminary Field Investigation Meeting**
- I Preliminary Field Investigation Report**
- J Set Up Final Review Conference**
- K Final Review Report**
- L Certification of Environmental Permits**
- M Utilities Statement**
- N PS&E Checklist**
- O Project Agreement (formerly “Letter of Authorization”)**
- P Bid Opening**
- Q Bid Summary (Tabulation)**
- R Bid Analysis**
- S Bid Justification**
- T Concurrence in Award Memo**
- U Construction Inspection Services**