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3.2 Bridges

The information in Article 3.2 for preliminary design of bridges generally is organized by task in the design process. The sequence of the tasks for a specific design project will not necessarily follow the sequence in this article but, before completing a preliminary design, the designer should review the information on each of the following topics that are applicable.

- Identification numbers
- Stream and river crossings
- Highway Crossings
- Railroad crossings
- Pedestrian and Shared Use Path Crossings
- Superstructures
- Substructures
- Cost estimates
- Preliminary Situation plans
- Permits and approvals
- Forms

When developing the site for bridge projects the designer should endeavor to use standard bridges as much as possible. The office has four types of standard bridges described in the superstructures article:

- Three-span continuous concrete slab (CCS) bridges, J-series [\[BDM 3.2.6.1.1\]](#),
- Single-span pretensioned prestressed concrete beam (PPCB), HSI-series [\[BDM 3.2.6.1.2\]](#),
- Three-span pretensioned prestressed concrete beam (PPCB) bridges, H-series [\[BDM 3.2.6.1.4\]](#), and
- Three-span rolled steel beam (RSB) bridges [\[BDM 3.2.6.1.5\]](#).

Additionally the office has several series of standard pretensioned prestressed concrete beams [\[BDM 3.2.6.1.6\]](#) that may be used to assemble bridges with lengths and numbers of spans that vary from the standard bridges. For spans above 155 feet or for bridges on significant horizontal curves the designer may select a continuous welded plate girder superstructure [\[BDM 3.2.6.1.7\]](#).

3.2.1 Identification numbers

A new bridge will be assigned three identification numbers: a bridge design number, an FHWA number, and a bridge maintenance number. The preliminary designer need only assign the bridge design number and the FHWA number; bridge maintenance numbers are assigned later by others. Assigning the bridge design number requires consideration of record keeping, letting dates, and final design plan preparation.

Each bridge should be assigned a separate design number even if there are two bridges with the same geometry in the same letting. A bridge with a common approach roadway crown that requires a 2-inch separation to reduce temperature forces should be assigned one design number if both portions are in the same letting. However, if a bridge is separated by a 2-inch gap with a separate roadway approach crown, two design numbers should be assigned. The designer shall consult with the preliminary bridge design section leader if there are any unique situations for assigning design numbers.

For corridor projects the preliminary designer shall assign a file number for each preliminary engineering (PE) number. For smaller projects without a PE number, assign a file number for each project. To minimize file numbers, miscellaneous structures generated before a project is complete shall be associated with the original file number.