



DSC TECHNICAL BULLETIN 08-01

Subject: Pedestrian/Trail Bridge Design Considerations

Discussion:

While many pedestrian and trail bridge projects appear to be straight-forward, there are a number of issues to consider when planning these types of projects. Refer to the following checklist:

I. Location

- a. Where is the planned location of the bridge?
 - i. Is site topo information available?
 - ii. Is channel cross-section information available?
 - iii. Can the bridge be located on “benches” or does it need to span the full channel width?
 - iv. Have other locations, upstream or downstream from the proposed location, been considered?
- b. What are the site access constraints?
 - i. Can materials be easily delivered to the site?
 - ii. Is a staging area for materials/assembly available?
 - iii. Is site mixing of concrete for abutments required? Is ready-mix available?
 - iv. Is shoring/falsework required to erect the bridge?
 - v. Are there limitations on equipment such as cranes, lifts, concrete trucks, pumpers, etc?

II. Accessibility

- a. What are the accessibility considerations?
- b. [Federal Accessibility Guidelines](#)

III. Span

- a. What is the span length(s)?
- b. What are the terrain and approach conditions?
- c. Single or multi-span?

IV. Geotechnical

- a. What are the soil conditions at the proposed abutment and foundation locations?
- b. Is geotechnical info available?

V. Floods

- a. What are the requirements?
- b. [NPS Director's Order 77-2 Floodplain Management](#)
- c. What is the Design Flood Elevation (DFE)?
 - i. Lowest structural member on the bridge superstructure should be above the DFE.
 - ii. Corps of Engineers, USGS, State Engineers Offices, are potential sources for this information
 - iii. Is there the potential for scouring to occur at the abutments and foundations during high water events?

VI. Loads

- a. What are the loading requirements?
 - i. Consider potential increased future use
- b. Live Load for Pedestrian Bridges – 85 psf
- c. Equestrian Loading
- d. Small Vehicle Loads
 - i. Loads from ATV's, etc.
 - ii. Loads from wagons/carts
- e. Snow Loads
 - i. In some parks, the Snow Load requirement is more than the Live Load requirement
- f. Wind Loads
- g. Seismic loads

VII. Bridge Type

- a. What type of bridge is most appropriate?
 - i. Prefabricated
 - ii. Truss
 - iii. Arch
 - iv. Suspension
 - v. Cable-stayed
 - vi. Other

VIII. Materials

- a. Which materials are appropriate for the superstructure?
 - i. Timber
 - 1. Heavy timber
 - 2. Log
 - 3. Glulam
 - ii. Steel
 - 1. Painted
 - 2. Galvanized
 - 3. Weathering Steel (Cor-Ten)
 - iii. Concrete
 - 1. Cast-in-place
 - 2. Precast
- b. Which materials are appropriate for the bridge deck?
 - i. Timber
 - ii. Steel grating
 - iii. Concrete

- c. Which materials are appropriate for the abutment?
 - i. Concrete
 - ii. Stone
 - iii. Timber
- IX. Handrail Heights**
 - a. 42" for pedestrian bridges
 - b. 54" for bicycle bridges
 - c. Handrails may be higher for equestrian bridges
- X. Schedule**
 - a. What is the schedule for completion?
 - b. Is the construction season limited due to snow or high water?
- XI. Budget**
 - a. Are there adequate funds for
 - i. Engineering studies?
 - 1. Topo
 - 2. Geotech
 - ii. Engineering Design?
 - iii. Construction?
 - iv. Construction Administration?
- XII. Compliance**
 - a. What compliance is required?
 - i. NEPA
 - ii. NHPA
 - iii. Other
 - b. What is the impact to the schedule?
- XIII. Permitting**
 - a. Which permits are required?
 - b. What is the impact to the schedule?

Recommendation:

This list is not comprehensive, but it provides a starting for discussion when a pedestrian and/or trail bridge is being considered. It is recommended that this checklist be used for these projects to minimize disruptions during planning, design and construction.