**Superstructure**
Dies on the substructure and includes components that span an obstacle, such as water, ravine, or road. Includes the bridge deck, structural members, and railing.

**Substructure**
Supports the superstructure and includes footings, abutments, piers, and bents.

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**Parts of a Bridge**

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**Types of Truss Bridges**
- Deck Truss
- Pony Truss
- Through Truss

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**Types of Connections**
- Portal Bracing
- Pin Connection
- Riveted Connection

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**Drawings courtesy of Historic American Engineering Record, U.S. National Park Service.**
| **BRIDGE TERMS** |
|------------------|------------------|------------------|------------------|
| **Abutment/Wingwall**  
*Location on Bridge: Substructure*  
*Definition:*  
*Abutment:* A retaining wall that supports the ends of the superstructure. Abutments can be constructed of concrete, stone, or timber planks.  
*Wingwall:* An angled wall made of timber, masonry, concrete, or steel that is attached to the abutment. |
| **Approach Span**  
*Location on Bridge: Superstructure*  
*Definition:* The span(s) that connect the abutment with the main span(s) of the bridge. |
| **Bent**  
*Location on Bridge: Substructure*  
*Definition:* A support structure under the bridge. It generally includes vertical members (i.e. columns) and a horizontal bent cap. The foundation of the bent (usually concrete footings or drilled shafts) is below grade. A pier (defined below) is similar to a bent but it is one solid piece with integrated columns instead of stand-alone columns. |
| **Bent Cap**  
*Location on Bridge: Substructure*  
*Definition:* A horizontal bridge member that rests on top of the vertical members of a bent or pier. The bent cap can be integrated into the vertical members as one solid piece or it can be a separate member. |
| **Bolt/Rivet**  
*Location on Bridge: Superstructure*  
*Definition:*  
*Bolt:* A metal fastener that historically included a square nut and bolt thread used to connect members of a bridge together. Newer bolts have hexagonal nuts or button heads.  
*Rivet:* A metal fastener most often with rounded heads used to connect members of the bridge together. |
| **Bottom Chord/Top Chord**  
*Location on Bridge: Superstructure*  
*Definition:*  
*Bottom Chord:* The bottom and outermost members that are generally parallel to the deck.  
*Top Chord:* The uppermost members that are frequently parallel to the deck. |
| **Bracing**  
*Location on Bridge: Superstructure*  
*Definition:* Bridge members which help to stiffen the truss bridge. Several types of bracing are defined below. |
| **Bracing**  
*Location on Bridge: Superstructure*  
*Definition:* Bridge members which help to stiffen the truss bridge. Several types of bracing are defined below. |
| **Top (overhead) lateral bracing:** Typically cylindrical bars in a crisscross configuration connecting the top chords to each other. Only found on through truss bridges.  
**Bottom lateral bracing:** Typically cylindrical bars in a crisscross configuration under the deck connecting the floorbeams to each other. |
| Deck | Location on Bridge: Superstructure  
Definition: The roadway portion or riding surface of the bridge, including the shoulders. Bridges can be timber, concrete, or steel grid decks. |
| Diagonal | Location on Bridge: Superstructure  
Definition: The sloping members of a bridge or bracing system that connect the top and bottom chords. |
| Embankment | Location on Bridge: N/A  
Definition: Raised area of fill used in constructing roadway approaches. Embankments are sometimes supported or held in place by retaining walls. |
| End Post | Location on Bridge: Superstructure  
Definition: The outermost vertical or diagonal member of a bridge. |
| Floorbeam | Location on Bridge: Superstructure  
Definition: Steel beams under the deck. They are perpendicular to the deck and connect the two sides of the truss. |
| Footing | Location on Bridge: Substructure  
Definition: The part of the bent that rests directly on the soil, bedrock, or pile. It is usually below grade and not visible except in instances of erosion and scour. |
| Gusset Plate | Location on Bridge: Superstructure  
Definition: A metal plate used to connect multiple structural members. |
| Main Span | Location on Bridge: Superstructure  
Definition: The longest span(s) in a multiple-span bridge, located between the bridge’s main bents or piers. |
<table>
<thead>
<tr>
<th>Term</th>
<th>Location on Bridge</th>
<th>Definition</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier</td>
<td>Substructure</td>
<td>A support structure under the bridge. It is generally one solid piece with integrated vertical members (i.e., columns) and a bent cap. A bent (defined above) is similar to a pier but it has stand-alone columns instead of integrated columns.</td>
<td><img src="image1.jpg" alt="Pier Image" /></td>
</tr>
<tr>
<td>Pile</td>
<td>Substructure</td>
<td>A long column (often timber or steel) driven deep into the ground to form part of a foundation or substructure.</td>
<td><img src="image2.jpg" alt="Pile Image" /></td>
</tr>
<tr>
<td>Pin Connection</td>
<td>Superstructure</td>
<td>Intersection of several structural members that are held together with a steel or wrought iron pin.</td>
<td><img src="image3.jpg" alt="Pin Connection Image" /></td>
</tr>
<tr>
<td>Runners</td>
<td>Superstructure</td>
<td>Timber planks or metal runners that serve as the driving surface on bridges with timber decks.</td>
<td><img src="image4.jpg" alt="Runners Image" /></td>
</tr>
<tr>
<td>Scour</td>
<td>N/A</td>
<td>Erosion of a stream bank or channel causing removal of sediment (i.e., soil, sand, and rocks) from around bridge abutments, bents, or piers.</td>
<td><img src="image5.jpg" alt="Scour Image" /></td>
</tr>
<tr>
<td>Span</td>
<td>Superstructure</td>
<td>The horizontal space between two vertical support members (i.e., bents or piers).</td>
<td><img src="image6.jpg" alt="Span Image" /></td>
</tr>
<tr>
<td>Stringer</td>
<td>Superstructure</td>
<td>Steel or timber beams under the deck. They run parallel to and support the deck.</td>
<td><img src="image7.jpg" alt="Stringer Image" /></td>
</tr>
<tr>
<td>Vertical</td>
<td>Superstructure</td>
<td>The member that is perpendicular to the deck and connected to the top and bottom chords.</td>
<td><img src="image8.jpg" alt="Vertical Image" /></td>
</tr>
</tbody>
</table>