# WFLHD SUPPLEMENT 5.3.1.1-1

## 5.3.1.1 Horizontal Datum

Add the following to Section 5.3.1.1:

This supplement provides guidance for setting the horizontal datum within WFLHD.

Use the State Plane Coordinate System (SPCS), also known as grid coordinate system, for all projects.

Include a Survey Control Sheet in the project plan set. On the Survey Control sheet, include the project units, coordinate system, epoch date, and vertical datum.

Example 1:

PROJECT UNITS: US Survey Foot
COORDINATE SYSTEM: Washington SPCS, South Zone (4602) NAD83(2011)
EPOCH DATE: 2010.000
VERTICAL DATUM: NAVD88 Orthometric Elevations based on GEOID12b

For projects that include a proposed bridge greater than 50 feet in length, use the SPCS for the overall project and develop a local ground coordinate system for each bridge site. Provide the following information in the Plans:

- Survey Control Sheet – On the Survey Control sheet for each bridge, provide the factors to convert between ground coordinates and state plane coordinates. Also include a table showing both the grid coordinates and ground coordinates for each point that is defined (i.e., begin bridge, end bridge, pier 1, pier 2, etc.). See Example 2 below.
- Plan and Profile Sheets – On the Plan and Profile sheets (usually Plan Section D), show the Road stationing at the bridge beginning and end.
- Bridge Plan Sheets – On the bridge plan sheets, include the following note: "Build bridge to dimensions shown in the Plans using Begin Bridge as the reference point/line." Show Road Stationing at the Beginning of the Bridge. Do not show Road (i.e. grid) stationing for intermediate locations, piers, or end of bridge.

Example 2 (Survey Control Sheet for Bridge Projects):

Include the three notes and the two tables below on the Survey Control Sheet:

***NOTE:***

1. *To convert from bridge ground coordinates to project State plane coordinates (grid) add 490,000.000 to the northing and 1,670,000.000 to the easting, then multiply by the average combined scale factor of 0.999816498.*
2. *The scale factor and translation data for the local bridge coordinate system are only valid in the vicinity of this bridge. Other areas of the project should be scaled according to the combined factors shown on the control sheet.*
3. *Grid Bridge Stationing =807+60 to 811+19.86*
   *Ground Bridge Stationing=1+00 to 4+60.00*

| | **Grid North** | **Grid East** | **Ground North** | **Ground East** | **Grid/Ground Station at C/L** |
|---|---|---|---|---|---|
| Begin Bridge | 492100.303 | 1678225.133 | 2289.097 | 8868.983 | 807+60.00=1+00.00 |
| End Bridge | 492219.868 | 1677885.715 | 2408.708 | 8529.434 | 811+19.86=4+60.00 |

| **Pier** | **Grid North** | **Grid East** | **Ground North** | **Ground East** | **Ground Station at C/L** |
|---|---|---|---|---|---|
| Pier 1 | 492130.195 | 1678140.279 | 2319.000 | 8784.096 | 1+90.00 Bridge=Pier 1 |
| Pier 2 | 492160.086 | 1678055.424 | 2348.903 | 8699.209 | 2+80.00 Bridge=Pier 2 |
| Pier 3 | 492189.977 | 1677970.570 | 2378.805 | 8614.322 | 3+70.00 Bridge=Pier 3 |