

**Sellwood Bridge River Span Bridge Type
Evaluation Criteria**

ID #	Criteria	Weight	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	Alternative I	Alternative J	Alternative K	Alternative L
			Concrete Box Girder	Steel Box Girder	Fabricated Steel Plate	Concrete Delta Frame	Concrete Deck Arch	Steel Deck Arch	Concrete Deck-Tied Arch	Steel Deck-Tied Arch	Concrete Extradosed	Steel Extradosed	Steel Through Arch	Hybrid Concrete/Steel Through Arch
			Staged	Both	Both	Staged	Staged	Both	Staged	Staged	Roll-in	Roll-in	Roll-in	Roll-in
Criterion 1 - Aesthetics/User Experience														
A	Respond to Site Conditions	7%	2.3	2.3	2.2	2.3	3.7	4.1	4.2	5.0	1.2	1.3	1.8	1.5
B	Appropriate Bridge Character	6%	2.3	2.4	2.2	2.3	4.1	4.7	4.1	4.8	1.2	1.3	1.6	1.5
C	Impact on Landscape and Surroundings	5%	2.3	2.3	2.4	2.1	3.4	4.3	3.6	4.4	1.4	1.5	1.9	1.9
D	Materiality and Expression	4%	1.8	1.8	2.2	2.4	3.8	4.6	3.8	4.8	1.8	1.8	2.5	2.5
	Weighted Score Criteria 1		49	49	49	50	83	97	87	105	30	32	42	39
Criterion 2 - Construction Time														
A	Total Construction Duration	5%	5	5	5	5	1	5	2	5	5	5	5	5
B	Traffic Closure Duration During Construction	4%	1	1	1	1	1	5	1	1	5	5	5	5
	Weighted Score Criteria 2		29	29	29	29	9	45	14	29	45	45	45	45
Criterion 3 - Constructability														
A	Schedule Risk/In-Water Work Duration	3%	5	3	3	5	1	4	4	4	3	3	3	2
B	Provides Oregon Construction Firms Opps to Compete for Contracts	3%	4	3	4	3	5	3	4	3	1	1	2	2
C	Use Materials Produced or Fabricated in Oregon	3%	4	3	3	4	5	3	4	3	2	1	3	3
	Weighted Score Criteria 3		39	27	30	36	33	30	36	30	18	15	24	21
Criterion 4 - Cost														
A	Overall Construction Cost	7%	4.8	4.0	5.0	4.0	3.8	3.8	3.4	2.9	1.5	1.0	1.3	1.6
B	Overall Maintenance Cost	4%	5	4	4	4	3	3	3	3	2	2	1	1
C	Material Price Volatility	2%	4	3	3	4	5	2	4	3	4	1	2	4
D	Bid Competition	2%	4	5	5	3	5	3	3	3	1	1	2	2
	Weighted Score Criteria 4		70	60	67	58	58	48	50	45	29	19	21	27
Criterion 5 - Impacts to Social Environment														
A	Impacts to River Traffic	2%	5	3	3	3	1	2	4	4	3	3	2	2
B	Noise Impacts During Construction	2%	5	3	3	3	1	3	3	3	4	4	2	2
C	Provides Opportunities for DMWESB Firms	2%	4	2	2	4	5	1	4	2	4	2	1	3
D	Post-Construction Noise Impacts to Surrounding Area	4%	4	2	2	3	3	1	3	1	5	3	1	2
E	Post-Construction Noise Impacts to Users on Deck	3%	5	4	4	5	5	4	5	4	3	2	1	1
	Weighted Score Criteria 5		59	36	36	47	41	28	49	34	51	36	17	25

1 ----- 3 ----- 5			Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	Alternative I	Alternative J	Alternative K	Alternative L
Low Benefit/ High Impact	Average	High Benefit/ Low Impact	Concrete Box Girder	Steel Box Girder	Fabricated Steel Plate	Concrete Delta Frame	Concrete Deck Arch	Steel Deck Arch	Concrete Deck- Tied Arch	Steel Deck- Tied Arch	Concrete Extradosed	Steel Extradosed	Steel Through Arch	Hybrid Concrete/Steel Through Arch
Weight														
Criterion 6 - Impacts to Natural Environment														
A	Protects Habitat for Fish and Wildlife	3%	3	3	3	1	5	5	2	2	4	4	3	3
B	Protects Endangered Species and Stream Banks	3%	4	4	4	1	2	2	3	3	4	4	5	5
C	Permanent Impacts Due to River and Approach Foundation Constr.	3%	3	5	5	2	3	5	2	4	1	3	5	4
D	Temporary Impacts Due to Bridge Construction	2%	4	4	4	3	1	3	2	3	4	5	3	3
Weighted Score Criteria 6			38	44	44	18	32	42	25	33	35	43	45	42
Criterion 7 - Seismic Performance														
A	Seismic Performance	5%	4	5	3	3	3	3	2	3	3	4	1	2
Weighted Score Criteria 7			20	25	15	15	15	15	10	15	15	20	5	10
Criterion 8 - Sustainability														
A	Carbon Footprint	3%	4	4	5	3	3	2	3	1	5	2	1	2
B	Maximize Recycling of Construction Waste	2%	2	4	5	1	2	4	3	4	2	4	4	3
C	Optimizes Conservation of Materials and Resources	2%	2	5	5	2	2	4	2	4	1	4	4	3
D	Required Painting	1%	5	1	5	5	5	3	5	3	5	4	2	2
Weighted Score Criteria 8			25	31	40	20	22	25	24	22	26	26	21	20
Criterion 9 - Maintainability														
A	Type and Frequency of Required Maintenance and Inspection	3%	5	4	4	4	3	2	3	2	2	2	1	1
B	Reparability/Sequential Repair or Replacement of Elements	3%	1	4	4	1	2	3	3	3	2	5	5	4
C	Allowed Inspection and Maintenance Access	2%	5	5	4	5	4	3	4	4	3	2	1	1
Weighted Score Criteria 9			28	34	32	25	23	21	26	23	18	25	20	17

Total Score (of 500): **356 335 342 298 316 351 321 336 266 261 240 246**

Ranking: **1 5 3 8 7 2 6 4 9 10 12 11**

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Score calculation description:

The scores given to a bridge type for each criterion above are taken as the sum of each subcriterion score times that subcriterion's weight.

For example, under Criterion 6, for Alternative A, the score is: $Score = 3 \cdot 3 + 3 \cdot 4 + 3 \cdot 3 + 2 \cdot 4 = 38$.

The highest possible score is equal to 5 times the sum of the subcriterion weights. For Criterion 6 this is: $(Highest\ possible) = 3 \cdot 5 + 3 \cdot 5 + 3 \cdot 5 + 2 \cdot 5 = 55$.

The total score given to a bridge type is the sum of that type's individual criterion scores.

For Alternative A, this is: $Total = 49 + 29 + 39 + 70 + 59 + 38 + 20 + 25 + 28 = 356$.

The highest possible overall score is 500.