

10-13-02

Obtain 3 I-5 alternatives from Parsons; Bob to obtain Landbridge file from Jones ~~Jones~~ ^{Agenda}, Thayer to produce analysis in 3 weeks.

Monday, October 13, 2003
I-5 - Land Bridge

- Welcome and Introductions
- Discussion of Placement of Landbridge,
in relationship to proposed new I-5 crossing
what about the idea of pedestrian bridge over I-5? - brother bridges?
- Timing of new I-5 planning/development/building
- Funding - update from us
- Naming - Critical to the Tribes
- Set next steps

Himes, Dale

From: Legry, Mary
Sent: Friday, October 10, 2003 11:06 AM
To: Himes, Dale
Subject: FW: Reminder and Agenda for Meeting, Monday October 13 1:30 pm

-----Original Message-----

From: Legry, Mary
Sent: Friday, October 10, 2003 11:06 AM
To: Gernhart, Bart
Subject: FW: Reminder and Agenda for Meeting, Monday October 13 1:30 pm

-----Original Message-----

From: Shirley Powell [mailto:shirley@confluenceproject.org]
Sent: Friday, October 10, 2003 10:44 AM
To: Jan.Bader@ci.vancouver.wa.us; thayer.rorabaugh@ci.vancouver.wa.us; clarkm@wsdot.wa.gov; legrym@wsdot.wa.gov
Subject: FW: Reminder and Agenda for Meeting, Monday October 13 1:30 pm

-----Original Message-----

From: Shirley Powell [mailto:shirley@confluenceproject.org] **On Behalf Of** Jane Jacobsen (E-mail)
Sent: Friday, October 10, 2003 9:12 AM
To: 'Val Ogden'; 'bob balaski'; 'Jan Bader'; 'jane jacobsen'; 'Mark Brown'; 'Mary legry'; 'mike Clark'; 'Royce Pollard'; 'Thayer Rorabaugh'
Cc: 'Shirley Powell'
Subject: Reminder and Agenda for Meeting, Monday October 13 1:30 pm

Just a reminder regarding the Monday's I-5/Land Bridge meeting to be held at Confluence Offices.

1:30 pm
The Academy
400 E. Evergreen Blvd
Vancouver, WA 98660

Suite 101

Agenda

- Welcome and Introductions
- Discussion of Placement of Landbridge

In relationship to proposed new I-5 crossing

What about the idea of pedestrian bridge over I-5? – brother bridges?

- Timing of new I-5 planning/development/building
- Funding – update from us
- Naming – Critical to the Tribes
- Set next steps

Legry, Mary

Dale - Can you listen in?

Subject: SR 14 Landbridge
Location: Mary's Office
Start: Mon 9/22/2003 12:30 PM
End: Mon 9/22/2003 1:30 PM
Show Time As: Tentative
Recurrence: (none)
Meeting Status: Not yet responded
Required Attendees: Legry, Mary; Lorenzo, Judy

*me
9/22/03*

Conference call with Judy Lorenzo to discuss status of land bridge from WSDOT's perspective.

Judy
What number should I call you at?

Himes, Dale

From: Clark, Mike
Sent: Monday, September 22, 2003 1:34 PM
To: Vancouver Transportation Director
Cc: Himes, Dale
Subject: FW: SR 14 Land Bridge

Thayer

This is a concern that I expressed to the Confluence Project Manager regarding the SR 14 Land Bridge for which Jane Jacobson is leading the charge.

-----Original Message-----

From: Clark, Mike
Sent: Thursday, August 07, 2003 2:33 PM
To: Bob Balaski (E-mail)
Cc: Legry, Mary; Gernhart, Bart; McConnaughey, John; Owings, Don
Subject: SR 14 Land Bridge

After some discussion the only concern we have is the replacement of the I-5 bridge over the Columbia River, and the associated northbound to eastbound ramp to SR 14. We are in the conceptual stages of the I-5 project and won't likely have a final design for at least 6 years. The most likely scenario is that this future ramp from I-5 to SR 14 would go over the top of the Land Bridge, which may defeat the effect that you would like to have with the Land Bridge.

Legry, Mary

From: Wagner, Don
Sent: Wednesday, August 06, 2003 7:52 AM
To: Dabney, Kim; Legry, Mary
Subject: FW: Land Bridge Stakeholders Meeting

Kim, I know I will not be able to go, but maybe Mary should be there to represent WSDOT.

Don Wagner

SWRegion Administrator

-----Original Message-----

From: Shirley Powell [mailto:shirley@confluenceproject.org]
Sent: Monday, August 04, 2003 4:32 PM
To: royce.pollard@ci.vancouver.wa.us; leann.johnson@ci.vancouver.wa.us; owslight@teleport.com; dennismk@pacifier.com; traci.chumbley@ci.vancouver.wa.us; kelly.putney@ci.vancouver.wa.us; Jan.Bader@ci.vancouver.wa.us; mark.brown@ci.vancouver.wa.us; 'Lewis and Clark Committee Vancouver/Clark County'; 'Tom Koenninger'; clarkm@wsdot.wa.gov; legrym@wsdot.com; lorenzj@wsdot.wa.gov; elson.strahan@vnhrt.org; edlynch@pacifier.com; tracy_fortmann@nps.gov; hank_florence@nps.gov; rbrent@eltorito.com; WSLU7075@eltorito.com; 'Steve.'; AERO180-@aol.com; dean@rtc.wa.gov; rpval@comcast.net; wagnerd@wsdot.wa.gov
Cc: jane@confluenceproject.org; 'Betsy Henning'; Bob Balaski
Subject: Land Bridge Stakeholders Meeting

✓ We are planning a Land Bridge Stakeholders meeting to be held on **TUESDAY, SEPTEMBER 23, 8:30 am - 10:00 am, Council Chambers, City Hall** hosted by **Val Ogden and Al Bauer**.

This is an opportunity for all interested parties to meet and share information and hear the latest updates regarding this project. Additionally, the Confluence Project is hosting an event the following evening, **Wednesday, September 24, 7:00 pm at Historic Fort Vancouver**, to share with our entire Community plans for the Land Bridge and landscape artwork by Maya Lin for the site at Blurock at Frenchman's Bar.

Please let me know if you will be able to attend this meeting.

Thank you.

Shirley
360.693.0123

SR14 Pedestrian Landbridge Concept Plans
Review Comments by WSDOT Bridge & Structures Office
August 5, 2003

Scheme "A": Great Circle Bridge

This scheme offers a natural organic setting that could be found in a natural landscape formation. It represents a natural gateway if properly landscaped. This scheme will be structurally challenging because of the torsion induced from the horizontal curve. It most likely will have the least cost when compared to the other two schemes. Perhaps the use of natural stone-faced retaining walls on the approaches to the elevated bridge may fit better with the context of the natural setting. This scheme has a dynamic visual impact to the drivers on SR14 and the natural terracing and landforms are a plus for this scheme.

Pros:

1. Low profile of the bridge; it does not negatively impact the skyline.
2. More economical to construct if made from concrete.
3. Connection to existing Apple Tree Park.
4. Uses the existing tunnel under the railroad to access waterfront park area.

Cons:

1. Simple span with horizontal curvature will require a torsionally resistant cross-section and foundation at the abutments.
2. Falsework opening required for concrete placement of the proposed arch shaped bridge will impact SR14 traffic. Maximum falsework opening is 40'-0".
3. Vertical clearance over the I-5 to SR14 ramp and SR14 is a key design parameter for determining the profile grade of the bridge.
4. River view may be obstructed by the railroad.

Recommendations:

1. Consider straight alignment to eliminate torsion and simplify design of the bridge.
2. To determine final profile grade, allow 36" minimum depth for falsework plus 14'-6" minimum vertical clearance to falsework during construction. This will provide the final 17'-6" minimum vertical clearance required in WSDOT Design Manual Section 1120.04 (5)(a)
3. Suggest using precast girders to minimize construction impact to SR14 traffic.
3. Suggest adding a center pier in the medium of SR14 to minimize structure depth.
4. Suggest incorporating gateway aesthetics with precast girder design.

Scheme "B": Terraced Bridge

This scheme offers the best experience for pedestrian visitors crossing the bridge. The winding path and the interpretive areas and viewpoints are located strategically for maximum views of the river and the fort. Structurally, it requires careful placement of the columns to meet the sight distance requirement and the framing of the superstructures. This scheme may also be the most expensive to construct. However, this scheme does not have the natural organic look to drivers on SR 14. The two sets of columns and the terraced structures definitely take on a man-made structure rather than a natural landform.

Pros:

1. Direct connection to waterfront.
2. Good view of the Columbia River from bridge viewpoint.
3. More bridge deck area for the pedestrian trail.
4. Straight bridge alignment with intermediate support piers.

Cons:

1. High profile grade in order to cross railroad. Required minimum vertical clearance over the railroad is 23'-6"
2. Higher cost for bridge approaches including high walls due to high profile.
3. During construction over the railroad, the minimum vertical clearance to bottom of falsework is 22'-6". Using a falsework depth of 3'0" for cast-in-place concrete, the vertical clearance to the bottom of the bridge would be 25'-6" in the final configuration. This will require a higher profile grade than Scheme "A".
4. Intermediate bridge piers may cause sight distance issue for SR14.
5. Tapered bridge deck width is not cost effective.

Recommendations:

1. Suggest eliminating railroad-crossing portion of the bridge span.
2. Suggest using a connection similar to Scheme "A" to cross railroad by using existing tunnel for access to waterfront.
3. Realign bridge to cross SR14 as close to 90° as possible.
4. Suggest making the bridge a constant width.

Scheme "C": Multi-Pathed Bridge

The observation tower is a good idea, but it does not fit the context of the surrounding landform. It most likely will become a dominating feature to the surrounding landforms. There are also maintenance and safety issues whenever elevators are used. The owner of this facility will have maintenance problems associated with elevators and the liability associated with personal safety. Again, this scheme does not have the natural organic look to the drivers on SR14. The two sets of columns, elevated ramp, metal bridge, observation tower will be visually overwhelming. There is too much visual activity going on in a relatively small confined space, and it will have the tendency to create chaos. This scheme most likely will be simple to design and construct.

Pros:

1. Direct connection to waterfront through viewing tower.
2. Connection to existing Apple Tree park and railroad tunnel.
3. No need for tall walls and earth fill for bridge approaches.
4. Great river view from tower.

Cons:

1. Will require a high profile grade in order to cross railroad. See comments under Scheme "B" regarding railroad clearances over the railroad, particularly during construction.
2. Increased construction, maintenance, and liability costs for the viewing tower.
3. Tapered bridge deck width will cost more than a uniform deck width.

Recommendations:

1. Make bridge constant in width.
2. Construct tower and bridge from concrete to minimize cost.

Conclusions:

Scheme "A" best defines the context of the natural landforms providing it can be designed to resist torsion due to the horizontal curvature. It offers the best experience to both the drivers on SR 14 and the pedestrian visitors.

Scheme "B" definitely offers a great experience for the pedestrian visitors but lacks the aesthetic experience for drivers on SR 14.

Scheme "C" is the least desirable solution. It may meet the requirement of crossing SR 14, but the dominating chaotic features and tall stairway negatively impact the context of the natural landforms and skyline.

Clark, Mike

From: Clark, Mike
Sent: Wednesday, August 06, 2003 4:17 PM
To: 'Bob Balaski (E-mail)'
Cc: Legry, Mary; VanLund, John
Subject: SR 14 Pedestrian Land Bridge Estimate

Bob

Attached is a revised estimate based on the square footages that Jones & Jones gave to me for the structures. I haven't added any additional wall costs, which may be increased based on these designs. We should probably brainstorm this a bit more before utilizing this estimate.



Ped Bridge SR14.xls

SR14 Pedestrian Bridge	1994 Amount	Inflation Adjmt.	*Revised Amount	Bridge & #Trail (x 1.7) Adjustment	#Trail (x 1.7) Adjustment
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#Trail for Scenarios 2 & 3 is 70% longer than Scenario 1.

Mob. is 10% of items for Scenarios 1, 2 & 3, and Schemes A & B.

			Scenario 1	Scenario 2	Scenario 3
Preparation					
Mobilization	\$70,000.00		\$174,720.11	\$260,690.44	\$223,909.64
Clearing and Grubbing	\$2,100.00	30%	\$2,730.00	\$4,641.00	\$4,641.00
Archaeological and Paleontological Salvage	\$20,000.00	30%	\$26,000.00	\$44,200.00	\$44,200.00
Removal of Structure and Obstruction	\$2,700.00	30%	\$3,510.00	\$5,967.00	\$5,967.00
Removing Cement Curb	\$1,500.00	30%	\$1,950.00	\$1,950.00	\$1,950.00

Grading					
Roadway Excavation (including haul)	\$5,040.00	30%	\$6,552.00	\$6,552.00	\$6,552.00
Gravel Borrow (including haul)	\$40,455.00	30%	\$52,591.50	\$89,405.55	\$89,405.55

Drainage					
Light Loose Riprap	\$14,500.00	30%	\$18,850.00	\$18,850.00	\$18,850.00
Quarry Spalls	\$2,328.00	30%	\$3,026.40	\$3,026.40	\$3,026.40
Drain Pipe (6" diameter)	\$700.00	30%	\$910.00	\$910.00	\$910.00

Storm Sewer					
Catch Basis (Type 1)	\$3,000.00	30%	\$3,900.00	\$3,900.00	\$3,900.00
Testing Storm Sewer Pipe	\$294.00	30%	\$382.20	\$382.20	\$382.20
Plain Construction Storm Sewer Pipe (8" dia.)	\$3,920.00	30%	\$5,096.00	\$5,096.00	\$5,096.00
Stormwater Treatment (New Item)			\$100,000.00	\$100,000.00	\$100,000.00

Structure					
Structure Excavation	\$7,452.00	30%	\$9,687.60	\$9,687.60	\$9,687.60
Shoring or Extra Excavation	\$4,370.00	30%	\$5,681.00	\$5,681.00	\$5,681.00
Gravel Backfill (for wall)	\$7,524.00	30%	\$9,781.20	\$9,781.20	\$9,781.20
St. Reinforcement Bar (retaining wall)	\$7,776.00	30%	\$10,108.80	\$10,108.80	\$10,108.80
Conc. Class 4000 (for wall)	\$102,200.00	30%	\$132,860.00	\$132,860.00	\$132,860.00
Pedestrian Bridge	\$350,000.00		\$949,000.00	1,314,000	\$949,000.00
Handrail	\$34,920.00	30%	\$45,396.00	\$45,396.00	\$45,396.00
Bridge Rail - Glass (New Item)				\$ 300,000.00	\$ 300,000.00
Jones & Jones Bridge Rail Scenario					

Cost is based on widening the structure to 20 feet and estimating it at a cost of \$130/sq. ft.

Cost is based on widening the bridge to 30 feet and estimating it at a cost of \$120/sq. ft.

Cost for Scheme A is based on a bridge 40 feet wide and approx. 300 feet long at a cost of \$250/sq. ft.

Cost for Scheme B is based on 3 short bridges 40-60 feet wide approx. 275 feet long at a cost of \$225/sq. ft.

Hand Rail under Scenarios 2 & 3, and Schemes A & B are for railing on the walls.

For Schemes A & B the Glass Bridge Rail is not included; need to add cost for proposal by Jones & Jones

Surfacing

Crushed surfacing base course	\$3,240.00	30%	\$4,212.00	\$7,160.40	\$7,160.40
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Asphalt Concrete Pavement

Asphalt Concrete Pavement	\$8,580.00	30%	\$11,154.00		
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Cement Concrete Pavement

Cement Concrete Sidewalk				\$82,667.00	\$82,667.00
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Concrete is utilized in lieu of asphalt pavement under scenarios 2 & 3, and Schemes A & B (3,100'x12'/9 Sq.ft./yd.x\$20/sq.yd.).

Irrigation and Water Distribution

Automatic Control Valve Pressure Regulated	\$225.00	30%	\$292.50	\$497.25	\$497.25
Valve Box	\$100.00	30%	\$130.00	\$221.00	\$221.00
Direct Burial Cable (14 gage)	\$150.00	30%	\$195.00	\$331.50	\$331.50
Drip Tubing (1/4" diameter)	\$180.00	30%	\$234.00	\$397.80	\$397.80
Drip Tubing (3/4" diameter)	\$480.00	30%	\$624.00	\$1,060.80	\$1,060.80
Pop-up Rotary Sprinkler	\$665.00	30%	\$864.50	\$1,469.65	\$1,469.65
Shrub Spray (12" Pop Up)	\$1,300.00	30%	\$1,690.00	\$2,873.00	\$2,873.00
Emitter Pressure Compensating	\$72.00	30%	\$93.60	\$159.12	\$159.12
PVC Pipe (3/4")	\$537.50	30%	\$698.75	\$1,187.88	\$1,187.88
PVC Pipe (1")	\$135.00	30%	\$175.50	\$298.35	\$298.35
PVC Pipe (1 1/4")	\$258.75	30%	\$336.38	\$571.84	\$571.84
PVC Pipe (2")	\$1,550.00	30%	\$2,015.00	\$3,425.50	\$3,425.50
PVC Pipe (2 1/2")	\$1,045.00	30%	\$1,358.50	\$2,309.45	\$2,309.45
In Line Emitter Drip Tubing	\$400.00	30%	\$520.00	\$884.00	\$884.00
Drip Control Zone Assembly	\$100.00	30%	\$130.00	\$221.00	\$221.00
Line Flushing Valve	\$100.00	30%	\$130.00	\$221.00	\$221.00

Erosion Control and Planting

Topsoil Type C	\$6,500.00	30%	\$8,450.00	\$14,365.00	\$14,365.00
Seeding, Fertilizing, and Mulching	\$6,000.00	30%	\$7,800.00	\$13,260.00	\$13,260.00
Soil Amendment	\$75.00	30%	\$97.50	\$165.75	\$165.75
PSIPE Oak	\$300.00	30%	\$390.00	\$663.00	\$663.00
PSIPE Cherry	\$250.00	30%	\$325.00	\$552.50	\$552.50
PSIPE Ivy	\$33,495.00	30%	\$43,543.50	\$74,023.95	\$74,023.95
PSIPE Cotoneaster	\$1,750.00	30%	\$2,275.00	\$3,867.50	\$3,867.50
Bark Mulch	\$8,125.00	30%	\$10,562.50	\$17,956.25	\$17,956.25

Traffic

Integral Cement Conc. Barrier	\$1,700.00	30%	\$2,210.00	\$2,210.00	\$2,210.00
Beam Guardrail (type 1)	\$3,000.00	30%	\$3,900.00	\$3,900.00	\$3,900.00
Beam Guardrail (type 4)	\$250.00	30%	\$325.00	\$325.00	\$325.00
Precast Conc. Barrier (type 2)	\$2,940.00	30%	\$3,822.00	\$3,822.00	\$3,822.00
Precast Conc. Barrier (type 4)	\$4,000.00	30%	\$5,200.00	\$5,200.00	\$5,200.00
Cast-in-Place Concrete Barrier	\$33,300.00	30%	\$43,290.00	\$43,290.00	\$43,290.00
Temporary Conc. Barrier	\$14,520.00	30%	\$18,876.00	\$18,876.00	\$18,876.00
Conc. Barrier Berm (type 1)	\$2,000.00	30%	\$2,600.00	\$2,600.00	\$2,600.00
Resetting Conc. Barrier	\$840.00	30%	\$1,092.00	\$1,092.00	\$1,092.00
Temporary Inertial Barrier	\$7,000.00	30%	\$9,100.00	\$9,100.00	\$9,100.00
Paint Stripe	\$392.50	30%	\$510.25	\$510.25	\$510.25
Illumination System	\$15,000.00	30%	\$19,500.00	\$19,500.00	\$19,500.00
Sequential Arrow Sign	\$3,750.00	30%	\$4,875.00	\$4,875.00	\$4,875.00
Changeable Message Sign	\$3,000.00	30%	\$3,900.00	\$3,900.00	\$3,900.00
Truck-Mounted Impact Attenuator	\$3,000.00	30%	\$3,900.00	\$3,900.00	\$3,900.00
Channelization Devices	\$1,200.00	30%	\$1,560.00	\$1,560.00	\$1,560.00
Traffic Control Labor	\$20,000.00	30%	\$26,000.00	\$26,000.00	\$26,000.00
Traffic Control Vehicle	\$5,500.00	30%	\$7,150.00	\$7,150.00	\$7,150.00
Traffic Control Supervisor	\$27,500.00	30%	\$35,750.00	\$35,750.00	\$35,750.00
Construction Signs Class A	\$2,610.00	30%	\$3,393.00	\$3,393.00	\$3,393.00

Other Items

Structure Excavation (class B)	\$675.00	30%	\$877.50	\$877.50	\$877.50
Shoring or extra excavation (class B)	\$830.00	30%	\$1,079.00	\$1,079.00	\$1,079.00
Gravel Backfill for Pipe Bedding	\$360.00	30%	\$468.00	\$468.00	\$468.00
Cement Conc. Sidewalk	\$18,400.00	30%	\$23,920.00	\$23,920.00	\$23,920.00
Semi-open Conc. Masonry Slope Protection	\$1,080.00	30%	\$1,404.00	\$4,212.00	\$1,404.00
Chain Link Fence (type 3)	\$4,008.00	30%	\$5,210.40	\$5,210.40	\$5,210.40
Chain Link Fence (type 4)	\$7,770.00	30%	\$10,101.00	\$10,101.00	\$10,101.00
End Corner and Pull Post for Chain Link	\$3,500.00	30%	\$4,550.00	\$4,550.00	\$4,550.00
Single 6' Chain Link Gate	\$1,000.00	30%	\$1,300.00	\$1,300.00	\$1,300.00
Field Office Building	\$9,000.00	30%	\$11,700.00	\$11,700.00	\$11,700.00
Temporary Fencing	\$1,400.00	30%	\$1,820.00	\$1,820.00	\$1,820.00
Constructing Geotextile for Silt Fence	\$1,160.00	30%	\$1,508.00	\$1,508.00	\$1,508.00
	\$957,077.75		\$1,921,921.18	\$2,867,594.82	\$2,463,006.02

Sales Tax

7.7%	\$147,987.93	\$220,804.80	\$189,651.46
	\$2,069,909.11	\$3,088,399.62	\$2,652,657.48

Contract Administration/Quality Control

16%	\$331,185.46	\$494,143.94	\$424,425.20
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Contingencies

4%	\$82,796.36	\$123,535.98	\$106,106.30
	\$2,483,890.94	\$3,706,079.55	\$3,183,188.98

Added %30 for inflation & tripled width of the Slope Protection to accommodate increased bridge width.
Added %30 for inflation & quadrupled width of the Slope Protection to accommodate increased bridge width.

Add \$300,000 for designing Scenarios 1,2 & 3
Add \$400,000 for designing Schemes A & B

	Scheme A w/ Trail (x1.7) Adjustment	Scheme B w/ Trail (x1.7) Adjustment
SR14 Pedestrian Bridge		

#Trail for Scenarios 2 & 3 is 70% longer than Scenario 1.

Mob. is 10% of items for Scenarios 1, 2 & 3,
and Schemes A & B.

Scheme A

Scheme B

Preparation

Mobilization	\$398,089.48	\$408,971.98
Clearing and Grubbing	\$4,641.00	\$4,641.00
Archaeological and Paleontological Salvage	\$44,200.00	\$44,200.00
Removal of Structure and Obstruction	\$5,967.00	\$5,967.00
Removing Cement Curb	\$1,950.00	\$1,950.00

Grading

Roadway Excavation (including haul)	\$11,138.40	\$11,138.40
Gravel Borrow (including haul)	\$89,405.55	\$89,405.55

Drainage

Light Loose Riprap	\$18,850.00	\$18,850.00
Quarry Spalls	\$3,026.40	\$3,026.40
Drain Pipe (6" diameter)	\$910.00	\$910.00

Storm Sewer

Catch Basis (Type 1)	\$3,900.00	\$3,900.00
Testing Storm Sewer Pipe	\$382.20	\$382.20
Plain Construction Storm Sewer Pipe (8" dia.)	\$5,096.00	\$5,096.00
Stormwater Treatment (New Item)	\$100,000.00	\$100,000.00

Structure

Structure Excavation	\$9,687.60	\$9,687.60
Shoring or Extra Excavation	\$5,681.00	\$5,681.00
Gravel Backfill (for wall)	\$9,781.20	\$9,781.20
St. Reinforcement Bar (retaining wall)	\$10,108.80	\$10,108.80
Conc. Class 4000 (for wall)	\$132,860.00	\$132,860.00
Pedestrian Bridge	\$2,982,000.00	\$3,090,825.00
Handrail	\$45,396.00	\$45,396.00
Bridge Rail - Glass (New Item)		
Jones & Jones Bridge Rail Scenario		

Cost is based on widening the structure to 20 feet and estimating it at a cost of \$130/sq. ft.

Cost is based on widening the bridge to 30 feet and estimating it at a cost of \$120/sq. ft.

Cost for Scheme A is based on a bridge 40 feet wide and approx. 300 feet long at a cost of \$250/sq. ft.

Cost for Scheme B is based on 3 short bridges 40-60 feet wide approx. 275 feet long at a cost of \$225/sq. ft.

Hand Rail under Scenarios 2 & 3, and Schemes A & B are for railing on the walls.

For Schemes A & B the Glass Bridge Rail is not included; need to add cost for proposal by Jones & Jones

Surfacing

Crushed surfacing base course	\$7,160.40	\$7,160.40
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Asphalt Concrete Pavement

Asphalt Concrete Pavement		
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Cement Concrete Pavement

Cement Concrete Sidewalk	\$82,667.00	\$82,667.00
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Concrete is utilized in lieu of asphalt pavement under scenarios 2 & 3, and Schemes A & B (3,100'x12'9 Sq.ft./yd.x\$20/sq.yd.).

Irrigation and Water Distribution

Automatic Control Valve Pressure Regulated	\$497.25	\$497.25
Valve Box	\$221.00	\$221.00
Direct Burial Cable (14 gage)	\$331.50	\$331.50
Drip Tubing (1/4" diameter)	\$397.80	\$397.80
Drip Tubing (3/4" diameter)	\$1,060.80	\$1,060.80
Pop-up Rotary Sprinkler	\$1,469.65	\$1,469.65
Shrub Spray (12" Pop Up)	\$2,873.00	\$2,873.00
Emitter Pressure Compensating	\$159.12	\$159.12
PVC Pipe (3/4")	\$1,187.88	\$1,187.88
PVC Pipe (1")	\$298.35	\$298.35
PVC Pipe (1 1/4")	\$571.84	\$571.84
PVC Pipe (2")	\$3,425.50	\$3,425.50
PVC Pipe (2 1/2")	\$2,309.45	\$2,309.45
In Line Emitter Drip Tubing	\$884.00	\$884.00
Drip Control Zone Assembly	\$221.00	\$221.00
Line Flushing Valve	\$221.00	\$221.00

Erosion Control and Planting

Topsoil Type C	\$14,365.00	\$14,365.00
Seeding, Fertilizing, and Mulching	\$13,260.00	\$13,260.00
Soil Amendment	\$165.75	\$165.75
PSIPE Oak	\$663.00	\$663.00
PSIPE Cherry	\$552.50	\$552.50
PSIPE Ivy	\$74,023.95	\$74,023.95
PSIPE Cotoneaster	\$3,867.50	\$3,867.50
Bark Mulch	\$17,956.25	\$17,956.25

Traffic

Integral Cement Conc. Barrier	\$2,210.00	\$2,210.00
Beam Guardrail (type 1)	\$3,900.00	\$3,900.00
Beam Guardrail (type 4)	\$325.00	\$325.00
Precast Conc. Barrier (type 2)	\$3,822.00	\$3,822.00
Precast Conc. Barrier (type 4)	\$5,200.00	\$5,200.00
Cast-in-Place Concrete Barrier	\$43,290.00	\$43,290.00
Temporary Conc. Barrier	\$18,876.00	\$18,876.00
Conc. Barrier Berm (type 1)	\$2,600.00	\$2,600.00
Resetting Conc. Barrier	\$1,092.00	\$1,092.00
Temporary Inertial Barrier	\$9,100.00	\$9,100.00
Paint Stripe	\$510.25	\$510.25
Illumination System	\$19,500.00	\$19,500.00
Sequential Arrow Sign	\$4,875.00	\$4,875.00
Changeable Message Sign	\$3,900.00	\$3,900.00
Truck-Mounted Impact Attenuator	\$3,900.00	\$3,900.00
Channelization Devices	\$1,560.00	\$1,560.00
Traffic Control Labor	\$26,000.00	\$26,000.00
Traffic Control Vehicle	\$7,150.00	\$7,150.00
Traffic Control Supervisor	\$35,750.00	\$35,750.00
Construction Signs Class A	\$3,393.00	\$3,393.00

Other Items

Structure Excavation (class B)	\$877.50	\$877.50
Shoring or extra excavation (class B)	\$1,079.00	\$1,079.00
Gravel Backfill for Pipe Bedding	\$468.00	\$468.00
Cement Conc. Sidewalk	\$23,920.00	\$23,920.00
Semi-open Conc. Masonry Slope Protection	\$5,616.00	\$5,616.00
Chain Link Fence (type 3)	\$5,210.40	\$5,210.40
Chain Link Fence (type 4)	\$10,101.00	\$10,101.00
End Corner and Pull Post for Chain Link	\$4,550.00	\$4,550.00
Single 6' Chain Link Gate	\$1,300.00	\$1,300.00
Field Office Building	\$11,700.00	\$11,700.00
Temporary Fencing	\$1,820.00	\$1,820.00
Constructing Geotextile for Silt Fence	\$1,508.00	\$1,508.00
	\$4,378,984.26	\$4,498,691.76

Sales Tax

\$337,181.79	\$346,399.27
\$4,716,166.05	\$4,845,091.03

**Contract Administration/Quality Control
Contingencies**

\$754,586.57	\$775,214.56
\$188,646.64	\$193,803.64
\$5,659,399.26	\$5,814,109.23

Added %30 for inflation & tripled width of the Slope Protection to accommodate increased bridge width.

Added %30 for inflation & quadrupled width of the Slope Protection to accommodate increased bridge width.

Add \$300,000 for designing Scenarios 1,2 & 3

Add \$400,000 for designing Schemes A & B

Clark, Mike

From: VanLund, John
Sent: Tuesday, August 05, 2003 12:01 PM
To: 'Bob@confluenceproject.org'; Clark, Mike
Cc: Kapur, Jugesh; Gernhart, Bart; Owings, Don
Subject: SR14 Pedestrian Landbridge Concept Plans

Bob Balaski, Project Manager

The attached file contains the WSDOT Bridge & Structures Office's comments on the three Landbridge Concept Plans.



SR14PedBridge.doc

This input is from Alex Young, WSDOT Principal Bridge Architect (360-705-7218), Jim Wei (360-7057169), and myself. Both Alex and Jim participated in the July 21st meeting in Seattle.

If you have any questions or need clarification, please feel free to contact Alex, Jim, or myself.

Thanks for allowing us the opportunity to review the plans.

John A. Van Lund

Bridge Projects Manager
Washington State Dept. of Transportation
Bridge & Structures Office
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Olympia, WA 98504-7340
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SR14 Pedestrian Landbridge Concept Plans
Review Comments by WSDOT Bridge & Structures Office
August 5, 2003

Scheme "A": Great Circle Bridge

This scheme offers a natural organic setting that could be found in a natural landscape formation. It represents a natural gateway if properly landscaped. This scheme will be structurally challenging because of the torsion induced from the horizontal curve. It most likely will have the least cost when compared to the other two schemes. Perhaps the use of natural stone-faced retaining walls on the approaches to the elevated bridge may fit better with the context of the natural setting. This scheme has a dynamic visual impact to the drivers on SR14 and the natural terracing and landforms are a plus for this scheme.

Pros:

1. Low profile of the bridge; it does not negatively impact the skyline.
2. More economical to construct if made from concrete.
3. Connection to existing Apple Tree Park.
4. Uses the existing tunnel under the railroad to access waterfront park area.

Cons:

1. Simple span with horizontal curvature will require a torsionally resistant cross-section and foundation at the abutments.
2. Falsework opening required for concrete placement of the proposed arch shaped bridge will impact SR14 traffic. Maximum falsework opening is 40'-0".
3. Vertical clearance over the I-5 to SR14 ramp and SR14 is a key design parameter for determining the profile grade of the bridge.
4. River view may be obstructed by the railroad.

Recommendations:

1. Consider straight alignment to eliminate torsion and simplify design of the bridge.
2. To determine final profile grade, allow 36" minimum depth for falsework plus 14'-6" minimum vertical clearance to falsework during construction. This will provide the final 17'-6" minimum vertical clearance required in WSDOT Design Manual Section 1120.04 (5)(a) 3. Suggest using precast girders to minimize construction impact to SR14 traffic.
3. Suggest adding a center pier in the medium of SR14 to minimize structure depth.
4. Suggest incorporating gateway aesthetics with precast girder design.

Scheme "B": Terraced Bridge

This scheme offers the best experience for pedestrian visitors crossing the bridge. The winding path and the interpretive areas and viewpoints are located strategically for maximum views of the river and the fort. Structurally, it requires careful placement of the columns to meet the sight distance requirement and the framing of the superstructures. This scheme may also be the most expensive to construct. However, this scheme does not have the natural organic look to drivers on SR 14. The two sets of columns and the terraced structures definitely take on a man-made structure rather than a natural landform.

Pros:

1. Direct connection to waterfront.
2. Good view of the Columbia River from bridge viewpoint.
3. More bridge deck area for the pedestrian trail.
4. Straight bridge alignment with intermediate support piers.

Cons:

1. High profile grade in order to cross railroad. Required minimum vertical clearance over the railroad is 23'-6"
2. Higher cost for bridge approaches including high walls due to high profile.
3. During construction over the railroad, the minimum vertical clearance to bottom of falsework is 22'-6". Using a falsework depth of 3'-0" for cast-in-place concrete, the vertical clearance to the bottom of the bridge would be 25'-6" in the final configuration. This will require a higher profile grade than Scheme "A".
4. Intermediate bridge piers may cause sight distance issue for SR14.
5. Tapered bridge deck width is not cost effective.

Recommendations:

1. Suggest eliminating railroad-crossing portion of the bridge span.
2. Suggest using a connection similar to Scheme "A" to cross railroad by using existing tunnel for access to waterfront.
3. Realign bridge to cross SR14 as close to 90° as possible.
4. Suggest making the bridge a constant width.

Scheme "C": Multi-Pathed Bridge

The observation tower is a good idea, but it does not fit the context of the surrounding landform. It most likely will become a dominating feature to the surrounding landforms. There are also maintenance and safety issues whenever elevators are used. The owner of this facility will have maintenance problems associated with elevators and the liability associated with personal safety. Again, this scheme does not have the natural organic look to the drivers on SR14. The two sets of columns, elevated ramp, metal bridge, observation tower will be visually overwhelming. There is too much visual activity going on in a relatively small confined space, and it will have the tendency to create chaos. This scheme most likely will be simple to design and construct.

Pros:

1. Direct connection to waterfront through viewing tower.
2. Connection to existing Apple Tree park and railroad tunnel.
3. No need for tall walls and earth fill for bridge approaches.
4. Great river view from tower.

Cons:

1. Will require a high profile grade in order to cross railroad. See comments under Scheme "B" regarding railroad clearances over the railroad, particularly during construction.
2. Increased construction, maintenance, and liability costs for the viewing tower.
3. Tapered bridge deck width will cost more than a uniform deck width.

Recommendations:

1. Make bridge constant in width.
2. Construct tower and bridge from concrete to minimize cost.

Conclusions:

Scheme "A" best defines the context of the natural landforms providing it can be designed to resist torsion due to the horizontal curvature. It offers the best experience to both the drivers on SR 14 and the pedestrian visitors.

Scheme "B" definitely offers a great experience for the pedestrian visitors but lacks the aesthetic experience for drivers on SR 14.

Scheme "C" is the least desirable solution. It may meet the requirement of crossing SR 14, but the dominating chaotic features and tall stairway negatively impact the context of the natural landforms and skyline.