



WEST DAVIS  
CORRIDOR

# Technical Memorandum 31: Cost Estimates for WDC Alternatives in the Final EIS

---

in support of the  
Environmental Impact Statement

## West Davis Corridor Project

Federal Highway Administration  
Utah Department of Transportation



UDOT Project No. S-0067(14)0

Prepared by  
HDR Engineering, Inc.  
2825 E. Cottonwood Parkway, Suite 200  
Salt Lake City, UT 84121

**June 22, 2017**



## Contents

<b>1.0</b>	<b>METHODOLOGY FOR DEVELOPING THE WEST DAVIS CORRIDOR FINAL EIS COST ESTIMATE .....</b>	<b>1</b>
1.1	Project Segmentation and Alternatives .....	1
1.2	Quantity and Unit Estimation .....	2
1.3	Cost Library .....	2
1.4	Preparation of Cost Estimate .....	3
<b>2.0</b>	<b>MAJOR ITEMS OF WORK .....</b>	<b>3</b>
2.1	Construction.....	3
2.1.1	General .....	3
2.1.2	Removal and Reconstruction.....	4
2.1.3	Earthwork .....	4
2.1.4	Pavement and Pavement Markings.....	4
2.1.5	Concrete.....	4
2.1.6	Drainage .....	4
2.1.7	Fencing .....	4
2.1.8	Barriers .....	5
2.1.9	Noise Walls .....	5
2.1.10	Bridges.....	5
2.1.11	Retaining Walls .....	5
2.1.12	Minor Structures and Overhead Signs .....	5
2.1.13	Signals .....	5
2.1.14	Other Construction .....	6
2.1.15	Indirect Cost, Fixed Fee, and Bonding/Insurance.....	6
2.2	Major Utilities and Agreements .....	6
2.2.1	Major Utilities .....	6
2.2.2	Agreements.....	6
2.3	Right-of-Way .....	6
2.4	Environmental Mitigation .....	7
2.5	Program Management, Preconstruction Engineering, and Construction Engineering (PM, PE, CE) .....	7
<b>3.0</b>	<b>RESULTS .....</b>	<b>8</b>
3.1	Cost Estimate for the Final EIS Alternatives .....	8
3.2	Contingency .....	9
3.3	Escalation.....	10
3.4	Changes from the Draft EIS.....	10
	<b>APPENDIX A – FINAL EIS COST ESTIMATES.....</b>	<b>11</b>



## Tables

Table 1. Project Segmentation .....	1
Table 2. Project Alternatives .....	2
Table 3. Final EIS Cost Estimates.....	8
Table 4. Contingency by Work Category.....	9

# 1.0 Methodology for Developing the West Davis Corridor Final EIS Cost Estimate

This technical memorandum describes the process followed to develop the Final Environmental Impact Statement (EIS) cost estimate for the West Davis Corridor (WDC) Project. The cost estimate is based on preliminary plans developed by the WDC team for the Final EIS in the first quarter of 2017. In general, development of the cost estimate comprised the following steps, which are described in Sections 1.1 through 1.4:

1. Establish project segmentation and alternatives (Section 1.1)
2. Identify project elements and measure quantities (Section 1.2)
3. Develop a cost library (Section 1.3)
4. Prepare the cost estimate (Section 1.4)

## 1.1 Project Segmentation and Alternatives

The overall project has been divided into segments as shown in Table 1. In general, each segment captures all costs associated with a particular option for the geographical location listed in the segment description.

**Table 1. Project Segmentation**

Segment	Segment Description
Segment 1a	Glovers Lane interchange to just south of Gentile St. (Western Option)
Segment 1b	Glovers Lane interchange to just south of Gentile St. (Wetland Avoidance Option)
Segment 4	Gentile Street to 700 South (A Alternatives)
Segment 5	Gentile Street to 700 South (B Alternatives)
Segment 6	700 South to 5400 West/5500 South (Alternative A2)
Segment 7	700 South to 4100 West/1800 North (Alternative A1)
Segment 8	700 South to 4800 West/1800 North (Alternative B2)
Segment 9	700 South to 4100 West/1800 North (Alternative B1)
Segment 9a	5500 West Trail connection and Park Lane Trail crossing

Project alternatives are created by grouping various segments together to form a complete project as shown in Table 2.

**Table 2. Project Alternatives**

Segment	Alternative							
	A1	A2	A1 with Wetland Avoidance Options	A2 with Wetland Avoidance Options	B1	B2	B1 with Wetland Avoidance Options	B2 with Wetland Avoidance Options
Segment 1a	X	X			X	X		
Segment 1b			X	X			X	X
Segment 4	X	X	X	X				
Segment 5					X	X	X	X
Segment 6		X		X				
Segment 7	X		X					
Segment 8						X		X
Segment 9					X		X	
Segment 9a	X	X	X	X	X	X	X	X

## 1.2 Quantity and Unit Estimation

The design teams compiled and provided a list of preliminary scope items and quantities based on their work in developing each WDC action alternative for the Final EIS conceptual design. The items were comprehensive enough to adequately define the overall scope of the project while reflecting the level of design development and quantities that could readily be measured. Allowances for items not developed at the Final EIS stage but known to be included with projects of this type are included in the estimate as unquantified items and are described in Section 1.3 below.

## 1.3 Cost Library

The cost library is a compilation of all construction and non-construction items contained within the cost estimate. Items shown in the cost library are assumed to be base costs, with the items presented in first-quarter (Q1) 2017 dollars and excluding any escalation or risk/contingency. The items are characterized as unit price, composite price, parametric/percentage price, and allowance. The characterization of each item is based on the level of design for that item, or group of items, and the ability of the WDC team to measure or quantify the element of work.

**Unit Costs.** Unit costs represent basic construction elements such as roadway excavation, import borrow, curb and gutter, etc., that are typically bid by a contractor on a given project. Unit pricing for these items is developed primarily through comparison to recently let projects of similar size and complexity in the state of Utah.

**Composite Costs.** Composite costs were generated to account for a combination of anticipated construction elements that might not be well defined in the project plans, or where an alternative unit of measure was desired for estimating purposes. Composite costs were

built up from unit costs as described above and quantities for typical arrangements or layouts. As an example, the price per square yard of PCC paving might be built up with quantities estimated from a typical cross-section and costs of activities required to construct the pavement section. These activities include excavation, sub-base, and concrete pavement, among other unit costs.

***Parametric/Percent-Based Costs and Allowances.*** Parametric/percent-based costs and allowances site costs are intended to capture elements known to be a part of this type of project, but not known and/or defined at the time the estimate was prepared. Examples include parametric costs for bridge construction measured as cost per square foot of bridge deck; percent-based costs for items such as mobilization, traffic control, unquantified removals, and minor utility relocations, to name a few; and allowances for items such as environmental mitigation and right-of-way costs. These costs are based on historical sources or prevailing experience.

## **1.4 Preparation of Cost Estimate**

A Microsoft Excel workbook was developed for the Final EIS cost estimate. In general, individual tables were created to hold specific information such as the cost library, segmentation, quantity takeoff, work categorization, schedule association, etc. These tables are compiled in the Base Cost Estimate worksheet via lookup or other formulaic methodology. This approach provides consistency for elements that are distributed in a variety of locations throughout the estimate. In addition, it provides a single database from which various summaries can be easily generated to provide responses to a wide variety of potential information requests.

## **2.0 Major Items of Work**

The following section is intended to describe the major elements of work. It is not intended to describe all elements. Rather, it is intended to capture the key cost drivers associated with the project as currently described in the project documentation.

### **2.1 Construction**

#### **2.1.1 General**

General costs include costs necessary to mobilize the contractor and to support construction and include items such as mobilization, traffic control, erosion control and maintenance, and public information. With little definition available at this stage, these costs are represented in the estimate as a percentage of overall construction cost and based on a parametric analysis of recent projects of similar size, scope, and complexity.

## **2.1.2 Removal and Reconstruction**

Removal and reconstruction items were undefined at the time the Final EIS cost estimate was developed. Costs for these types of items are included as an unquantified item and measured as a percentage of construction. In addition to these unquantified costs, a takeoff of individual buildings requiring demolition has been conducted and an allowance per building included in the cost estimate.

## **2.1.3 Earthwork**

Earthwork items are made up from common bid items including clearing and grubbing, embankment for bridge, pond excavation, roadway borrow, and roadway excavation. In each instance, the bid items have been taken off from the conceptual plans and priced in units commonly associated with such items. Costs are based on recent completed projects of similar size, scope and complexity.

## **2.1.4 Pavement and Pavement Markings**

Pavement costs are included for hot mixed asphalt (HMA) arterial, HMA trail, and Portland cement concrete pavement (PCCP) mainline sections. These items are included in the estimate as composite items. Each item is measured by the square foot of paved surface and includes additional items such as granular borrow, untreated base course, and all other elements that typically make up the entire roadway section.

Pavement markings are included as an unquantified item and based on the percentage of overall construction cost.

## **2.1.5 Concrete**

Concrete items include sidewalk and curb and gutter. Sidewalks are measured by the length foot and include base material and an assumed width of 5 feet. Curb and gutter is measured by the length foot and includes all materials normally associated with this bid item. Pricing is based on recently let projects of similar size, scope, and complexity.

## **2.1.6 Drainage**

Drainage items include costs for various features required to capture and convey stormwater. Included are turf reinforcement mat, earthen and concrete canal construction, relocation of pipeline canals, and various sizes of reinforced concrete storm drain pipes and structures.

## **2.1.7 Fencing**

Costs are included for both right-of-way fencing and traditional chain-link fencing. Right-of-way fencing has been quantified based on the Final EIS plan sets and priced by the length foot based on recent pricing from similar projects. Other types of fencing that might be required are not defined and are included as an unquantified item based on a percentage of the overall project cost.



### **2.1.8 Barriers**

Barrier costs are included both as a quantified unit price for cast-in-place concrete constant slope barrier and an unquantified barrier item to capture additional costs for other unquantified items such as guard rail and approach/trailing end sections.

### **2.1.9 Noise Walls**

Noise walls are included in the cost estimate and are measured by the length of the expected wall at each location. The pricing is based on an assumed average of costs from various heights of wall from recent projects of similar size, scope, and complexity.

### **2.1.10 Bridges**

Bridges are captured in the cost estimate as a parametric item based on cost per square foot of deck area. Pricing is based on a parametric analysis of bridges constructed as a part of recently let similar projects and estimator experience. Pricing has been developed for pedestrian bridges, typical concrete beam bridges, and second- and third-level steel bridges.

### **2.1.11 Retaining Walls**

Costs for mechanically stabilized earth (MSE)–type retaining walls are included in the cost estimate as a parametric item measured as cost per square foot of retained surface area. Pricing is based on a parametric analysis of walls from recently let similar projects and estimator experience.

### **2.1.12 Minor Structures and Overhead Signs**

Minor structures include various box culverts throughout the project area. Box culverts have been grouped into small (less than 10-foot span), medium (about 10-foot span), and large (12-foot span) and taken off by the linear foot of required box. Pricing is based on a parametric analysis of box culverts constructed as part of recently let projects of similar size, scope, and complexity.

Overhead signs are included for both the service interchanges and system interchanges and are quantified by the cost per location. Pricing is based on an allowance per location that is intended to capture all costs associated with the foundation, poles, signs, and other elements. Pricing is based on estimator experience with similar elements from other recent projects.

### **2.1.13 Signals**

Signals are included in the estimate as an allowance per signalized location at major interchanges. The allowance is intended to account for all lighting, foundations, wiring, cabinets, etc., to fully construct signals at each location. Costs are based on recently let projects with similar signal improvements.

### **2.1.14 Other Construction**

The remaining items that are unquantified are aesthetics and landscaping, roadway signing, lighting, Advanced Traffic Management System (ATMS), and miscellaneous minor utility relocations. These items are included in the cost estimate as a percentage of total construction cost based on a parametric analysis of recent projects of similar size, scope, and complexity.

### **2.1.15 Indirect Cost, Fixed Fee, and Bonding/Insurance**

All items described previously in Section 2.0 are assumed to reflect the direct cost of each item. *Direct cost* is defined as the cost for labor, materials, equipment, and subcontractors to construct individual scope elements in the field. Excluded from the direct cost elements are indirect costs (fixed and time-based), fixed fee (contractor overhead and profit), and bonding and insurance costs. To develop a fully loaded estimate, these costs are estimated and spread across the individual bid items within the project. For this estimate, indirect costs were set at 12%, fixed fee was set at 8%, and bonding/insurance was set at 0.75%. To spread these costs through the estimate, the mobilization bid item was loaded until it equaled 10% of construction. The remaining costs were then spread based on a weighted dollar value to each individual bid item.

## **2.2 Major Utilities and Agreements**

### **2.2.1 Major Utilities**

Included within the project are relocations of about 12,000 linear feet of 138-kilovolt and 15,000 linear feet of 345-kilovolt PacifiCorp overhead power lines. These relocations are measured by the linear foot of alignment and are intended to include all costs associated with removal of existing poles and wiring that is in conflict with the roadway improvements, and reconstruction of new poles and wiring. Costs are based on a parametric analysis of other recent projects that included these types of overhead power relocations.

### **2.2.2 Agreements**

Projects of this type often include a combination of utility relocation costs that are completed by the Utah Department of Transportation (UDOT) contractor, and those that are completed by a third party and billed to the project through agreement. This estimate assumes that, on average, all miscellaneous minor utility relocations are split 50/50 between UDOT and the third-party owner. Thus, the estimate carries the portion that it will pay to UDOT's contractor within the construction portion of the estimate where it is subject to indirect, fixed fee, and bonding costs. The portion that is assumed to be billed by agreement back to the project is carried outside the construction contract.

## **2.3 Right-of-Way**

The purchase of necessary right-of-way to construct the project, and relocation of affected individuals, is included in the cost estimate. Costs are measured as an allowance per



residential or commercial parcel affected, as well as cost per acre of vacant land requiring purchase.

## **2.4 Environmental Mitigation**

Costs for various environmental mitigations are included in the cost estimate. These mitigations include wetland mitigation and mitigation for impacts to historic properties, archaeological resources, and Section 4(f) resources. Wetland mitigation and Section 4(f) mitigation are included in the cost estimate as a lump sum based on total anticipated area of impact and estimates of the costs of acquiring and rehabilitating or enhancing mitigation properties. Impacts to historic properties and archaeological resources are included as allowances per location impacted.

## **2.5 Program Management, Preconstruction Engineering, and Construction Engineering (PM, PE, CE)**

Costs for various professional services including program management, project management, final design, procurement, construction management, owner-controlled insurance program, and incentives are included in the cost estimate. Costs are carried as percentages of total construction cost and are based on estimator experience with similar projects, and with input from UDOT project management.

## 3.0 Results

This section summarizes the Final EIS cost estimate.

### 3.1 Cost Estimate for the Final EIS Alternatives

The cost estimate is summarized by alternative and major category in Table 3. As shown, the cost estimates of the alternatives evaluated in the Final EIS range from \$682 million to \$729 million.

**Table 3. Final EIS Cost Estimates**

in millions \$

Alternative	Construction	Utility	Right-of-Way	Environmental	PM, PE, CE	Total Base Cost	Escalation	Contingency	Total Cost of Alternative
A1	396	20	89	19	67	591	0	90	<b>682</b>
A2	420	20	98	19	71	628	0	95	<b>723</b>
A1 with wetland avoidance options	395	20	92	18	67	592	0	91	<b>682</b>
A2 with wetland avoidance options	419	21	100	18	71	629	0	95	<b>724</b>
B1	421	21	93	22	72	628	0	97	<b>725</b>
B2	424	21	93	21	72	632	0	97	<b>728</b>
B1 with wetland avoidance options	421	21	95	21	71	629	0	97	<b>725</b>
B2 with wetland avoidance options	423	21	96	20	72	632	0	97	<b>729</b>

## 3.2 Contingency

Contingency is included in the cost estimate and is assigned to individual project work categories based on the engineers' and estimators' assessment of risk associated with each individual category. Table 4 lists the contingencies applied to each category.

**Table 4. Contingency by Work Category**

<b>Group Name</b>	<b>Contingency Percent (%)</b>
Mobilization	5
Quality Control	5
Traffic Control	10
Erosion Control	10
Public Information	5
Other	5
Remove/Reconstruct	15
Earthwork	33
Pavement	10
Pavement Markings	10
Concrete	10
Geotech	20
Drainage	30
Fencing	15
Barrier	15
Noise walls	20
Bridges	10
Retaining Walls	20
Minor	15
Overhead Signs	15
Landscaping	15
Signing	15
Signals	15
Lighting	15
ATMS	15
Relocations	30
Major Utility	20
Minor Utility	10
Professional Services	10
Purchase	10
Relocate	10
Environmental Mitigation	10
Program Management	5
Project Management	5
Construction Management	5
Insurance	5
Incentives	5

### 3.3 Escalation

At the time the Final EIS was being prepared, the project's schedule for construction was uncertain. Therefore, escalation is excluded from this cost estimate. The WDC team understands that actual year-of-expenditure costs would include price escalation and would likely be higher in cost than the Final EIS cost estimates. The Final EIS cost estimates will have to be evaluated once the project moves into an expected construction phase.

### 3.4 Changes from the Draft EIS

The cost estimates for the alternatives in the Final EIS have changed from the estimates in the Draft EIS based on the following factors:

- For some alternatives in the Final EIS, the alternatives' alignment, typical section, and engineering features have changed compared to the alternatives that were evaluated in the Draft EIS. See Section 2.3.8, Changes to Alternatives after the Release of the Draft EIS, of the Final EIS for more details regarding the changes to the alternatives between the release of the Draft EIS and the Final EIS.
- The Final EIS cost estimates include additional engineering work and use updated quantities.
- The Final EIS quantity cost estimates were updated to use 2017 unit cost estimates that were estimated based on recently completed similar UDOT projects. The Draft EIS unit costs were based on 2012 pricing.
- The Final EIS cost estimates include more-detailed property value information for right-of-way costs that was estimated using recently completed purchases in the WDC study area for similar properties. The Final EIS right-of-way costs are higher than right-of-way costs in the Draft EIS.
- The Final EIS cost estimates include more-detailed estimates for wetland, wildlife, and Section 4(f) mitigation.



## Appendix A – Final EIS Cost Estimates





Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. A1 1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost			
A	Construction	General	Mobilization	Mobilization	0.100 %	\$39,562,942			
			Traffic Control	Traffic Control	0.025 %	\$8,901,662			
			Erosion Control	Erosion Control/Maintenance	0.010 %	\$3,560,665			
			Public Information	Public Information	0.005 %	\$1,780,332			
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260		
		Roadway	Remove/Reconstruct	Unquantified Removals	0.005 %	\$1,780,332			
			Demolition, Buildings	Demolition, Buildings	15,000.00 EA	59.00	\$970,672		
			Earthwork	Clearing And Grubbing	Clearing And Grubbing	2,000.00 AC	703.66	\$1,543,555	
				Embankment for Bridge	Embankment for Bridge	21.50 CY	343,333.00	\$8,096,240	
				Pond Excavation	Pond Excavation	7.00 CY	109,010.00	\$836,939	
				Roadway Borrow	Roadway Borrow	15.00 CY	5,031,948.00	\$82,785,971	
				Roadway Excavation	Roadway Excavation	8.00 CY	455,973.00	\$4,000,907	
			Pavement	HMA, Arterial	HMA, Arterial	4.49 SF	458,800.00	\$2,259,990	
				HMA, Trail	HMA, Trail	35.00 SY	249,759.00	\$9,587,790	
				PCCP, Mainline	PCCP, Mainline	6.14 SF	10,091,565.00	\$67,935,852	
			Pavement Markings	Unquantified Pavement Marking	0.0015 %	\$534,100			
			Concrete	Concrete Sidewalk	Concrete Sidewalk	17.50 LF	78,933.00	\$1,515,047	
				Concrete Curb and Gutter	Concrete Curb and Gutter	15.50 LF	15,933.00	\$270,869	
			Drainage	Turf Reinforcement Mat	Turf Reinforcement Mat	5.60 SY	522,000.00	\$3,206,180	
				Canals (earth)	Canals (earth)	28.93 LF	6,880.00	\$218,273	
				Canals (concrete)	Canals (concrete)	413.22 LF	0.00	\$0	
				Canal Pipeline Relocation	Canal Pipeline Relocation	181.82 LF	0.00	\$0	
				Stream Relocation	Stream Relocation	5,251.21 LF	0.00	\$0	
				18-inch Storm Dain	18-inch Storm Dain	45.00 LF	21,690.00	\$1,070,536	
				24-inch Storm Drain	24-inch Storm Drain	55.00 LF	21,430.00	\$1,292,749	
				30-inch Storm Drain	30-inch Storm Drain	65.00 LF	11,850.00	\$844,814	
				36-inch Storm Drain	36-inch Storm Drain	80.00 LF	2,229.88	\$195,659	
				42-inch Storm Drain	42-inch Storm Drain	105.00 LF	1,979.88	\$228,012	
			48-inch Storm Drain	48-inch Storm Drain	120.00 LF	1,199.88	\$157,924		
			Fencing	Drainage, Structures and End Sctions	Drainage, Structures and End Sctions	0.010 %	\$3,560,665		
		Fence, ROW		Fence, ROW	2.00 LF	267,728.40	\$587,292		
		Barrier	Fence, Unquantified	Fence, Unquantified	0.00 %	\$890,166			
			CIP Concrete Constant Slope Barrier	CIP Concrete Constant Slope Barrier	53.00 LF	119,500.00	\$6,946,613		
		Noisewall	Barrier, Unquantified	Barrier, Unquantified	0.0025 %	\$890,166			
			Precast Noise Wall	Precast Noise Wall	247.93 LF	4,924.00	\$1,339,008		
		Structures	Bridges	Pedestrian Bridge	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551	
				Concrete Beam Bridge (2nd Level)	Concrete Beam Bridge (2nd Level)	140.00 SF	179,564.00	\$27,572,532	
				Steel Beam Bridge (2nd Level)	Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404	
				Steel Beam Bridge (3rd Level)	Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139	
			Retaining Walls	MSE Retaining Wall (1 Stage)	MSE Retaining Wall (1 Stage)	45.00 SF	424,370.00	\$20,945,297	
				Minor	Box Culverts, Small(<10' span)	Box Culverts, Small(<10' span)	800.00 LF	3,500.00	\$3,071,053
					Box Culverts, Medium (10' span)	Box Culverts, Medium (10' span)	1,500.00 LF	990.00	\$1,628,755
		Box Culverts, Large(12' span)	Box Culverts, Large(12' span)		2,000.00 LF	1,950.00	\$4,277,539		
		Overhead Signs	Signing (Service Interchange)	Signing (Service Interchange)	123,966.94 EA	5.00	\$679,838		
			Signing (SSystem Interchange)	Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629		
		Landscaping	Landscaping	Architectural/Landscaping Aesthetics	Architectural/Landscaping Aesthetics	0.008 %	\$2,670,499		
				Baseline Aesthetics	Baseline Aesthetics	0.013 %	\$4,450,831		
				Landscaping in TCE and other	Landscaping in TCE and other	0.010 %	\$3,560,665		
		Signing	Signing	Unquantified Signing	0.0030 %	\$1,068,199			
		Signals	Signals	Lighting and Signals (Diamond Interchange)	Lighting and Signals (Diamond Interchange)	115,702.48 EA	2.00	\$253,806	
Lighting and Signals (SPUI Interchange)	Lighting and Signals (SPUI Interchange)			132,231.40 EA	0.00	\$0			
Lighting	Lighting	Lighting, Unquantified	0.005 %	\$1,780,332					
Atms	Atms	ATMS, Unquantified	0.015 %	\$5,340,997					
Utilities	Relocations	Misc. Minor Utility Relocation	Misc. Minor Utility Relocation	0.010 %	\$2,658,413				
		Misc. Minor Utility Relocation (N of Gentile)	Misc. Minor Utility Relocation (N of Gentile)	0.030 %	\$2,706,757				
<b>Construction Total</b>						<b>\$395,629,417</b>			
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,000.00	\$4,800,000		
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000		
			Minor Utility	Misc. Minor Utility Reimbursement	0.010 %	\$2,423,779			
				Misc. Minor Utility Reimbursement (N of Gentile)	0.030 %	\$2,467,856			
				<b>Utility Total</b>					
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	332.00	\$1,660,000		
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000	
					Homes	300,000.00 LS	25.00	\$7,500,000	
					Land (vacant)	100,000.00 LS	728.00	\$72,800,000	
				Relocate	Relocation (Homes)	45,000.00 EA	24.00	\$1,080,000	
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000		
			Platted Relocations		100,000.00 LS	1.00	\$100,000		
			Relocation (Special Use)		500,000.00 LS	3.00	\$1,500,000		
			<b>ROW &amp; Corridor Preservation Total</b>						<b>\$89,440,000</b>
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	4,342,550.00
Historic Buildings	3,000.00 EA	3.00					\$9,000		
Archaeological	30,000.00 EA	1.00					\$30,000		
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747		
<b>Environmental Total</b>						<b>\$19,141,297</b>			
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.005 %	\$1,978,147			
				Program Management	0.010 %	\$3,956,294			
			Project Management	Final Design	0.050 %	\$19,781,471			
				Procurement	0.015 %	\$5,934,441			
				Project Management	0.005 %	\$1,978,147			
			Construction Management	Construction Management	0.050 %	\$19,781,471			
			Insurance	OCIP	0.030 %	\$11,868,883			
			Incentives	Incentives	0.005 %	\$1,978,147			
			<b>PM, PE, CE Total</b>						<b>\$67,257,001</b>

**Total Cost** \$591,359,351  
**Contingency** \$90,459,215  
**Total Alternative Cost** \$681,818,565

Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. A2 1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost				
A	Construction	General	Mobilization	Mobilization	0.10 %	\$41,971,585				
			Traffic Control	Traffic Control	0.03 %	\$9,443,607				
			Erosion Control	Erosion Control/Maintenance	0.01 %	\$3,777,443				
			Public Information	Public Information	0.01 %	\$1,888,721				
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260			
		Roadway	Remove/Reconstruct	Unquantified Removals	0.01 %	\$1,888,721				
				Demolition, Buildings	15,000.00 EA	66.00	\$1,085,837			
			Earthwork	Clearing And Grubbing	2,000.00 AC	737.44	\$1,617,655			
				Embankment for Bridge	21.50 CY	392,222.00	\$9,249,106			
				Pond Excavation	7.00 CY	122,290.00	\$938,898			
				Roadway Borrow	15.00 CY	5,032,487.00	\$82,794,838			
				Roadway Excavation	8.00 CY	468,056.00	\$4,106,929			
			Pavement	HMA, Arterial	4.49 SF	492,834.00	\$2,427,637			
				HMA, Trail	35.00 SY	287,537.00	\$11,038,019			
				PCCP, Mainline	6.14 SF	10,715,049.00	\$72,133,111			
			Pavement Markings	Unquantified Pavement Marking	0.00 %	\$566,616				
			Concrete	Concrete Sidewalk	17.50 LF	78,933.00	\$1,515,047			
				Concrete Curb and Gutter	15.50 LF	15,933.00	\$270,869			
			Drainage	Turf Reinforcement Mat	5.60 SY	562,000.00	\$3,451,864			
				Canals (earth)	28.93 LF	6,880.00	\$218,273			
				Canals (concrete)	413.22 LF	240.00	\$108,774			
				Canal Pipeline Relocation	181.82 LF	0.00	\$0			
				Stream Relocation	5,251.21 LF	0.00	\$0			
				18-inch Storm Dain	45.00 LF	22,180.00	\$1,094,721			
				24-inch Storm Drain	55.00 LF	21,720.00	\$1,310,243			
				30-inch Storm Drain	65.00 LF	12,210.00	\$870,479			
				36-inch Storm Drain	80.00 LF	2,229.88	\$195,659			
				42-inch Storm Drain	105.00 LF	1,979.88	\$228,012			
			48-inch Storm Drain	120.00 LF	1,199.88	\$157,924				
				Drainage, Structures and End Sctions	0.01 %	\$3,777,443				
		Fencing	Fence, ROW	2.00 LF	289,900.00	\$635,927				
			Fence, Unquantified	0.00 %	\$944,361					
		Barrier	CIP Concrete Constant Slope Barrier	53.00 LF	119,500.00	\$6,946,613				
			Barrier, Unquantified	0.00 %	\$944,361					
		Noisewall	Precast Noise Wall	247.93 LF	4,924.00	\$1,339,008				
		Structures	Bridges	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551			
				Concrete Beam Bridge (2nd Level)	140.00 SF	210,247.00	\$32,283,989			
				Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404			
				Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139			
			Retaining Walls	MSE Retaining Wall (1 Stage)	45.00 SF	523,860.00	\$25,855,747			
		Minor	Box Culverts, Small(<10' span)	800.00 LF	3,680.00	\$3,228,993				
			Box Culverts, Medium (10' span)	1,500.00 LF	1,390.00	\$2,286,838				
			Box Culverts, Large(12' span)	2,000.00 LF	1,950.00	\$4,277,539				
		Overhead Signs	Signing (Service Interchange)	123,966.94 EA	6.00	\$815,805				
			Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629				
		Landscaping	Landscaping	Architectural/Landscaping Aesthics	0.01 %	\$2,833,082				
				Baseline Aesthetics	0.01 %	\$4,721,803				
				Landscaping in TCE and other	0.01 %	\$3,777,443				
		Signing	Signing	Unquantified Signing	0.00 %	\$1,133,233				
		Signals	Signals	Lighting and Signals (Diamond Interchange)	115,702.48 EA	3.00	\$380,709			
Lighting and Signals (SPUI Interchange)	132,231.40 EA			0.00	\$0					
Lighting	Lighting	Lighting, Unquantified	0.01 %	\$1,888,721						
		ATMS, Unquantified	0.02 %	\$5,666,164						
Atms	Relocations	Misc. Minor Utility Relocation	0.01 %	\$2,658,413						
		Misc. Minor Utility Relocation (N of Gentile)	0.03 %	\$3,357,090						
<b>Construction Total</b>						<b>\$419,715,854</b>				
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,000.00	\$4,800,000			
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000			
			Minor Utility	Misc. Minor Utility Reimbursement	0.01 %	\$2,423,779				
				Misc. Minor Utility Reimbursement (N of Gentile)	0.03 %	\$3,060,791				
			<b>Utility Total</b>						<b>\$20,484,570</b>	
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	375.00	\$1,875,000			
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000		
					Homes	300,000.00 LS	31.00	\$9,300,000		
					Land (vacant)	100,000.00 LS	782.00	\$78,200,000		
				Relocate	Relocation (Homes)	45,000.00 EA	30.00	\$1,350,000		
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000			
			Platted Relocations		100,000.00 LS	1.00	\$100,000			
			Relocation (Special Use)		500,000.00 LS	4.00	\$2,000,000			
			<b>ROW &amp; Corridor Preservation Total</b>						<b>\$97,625,000</b>	
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	4,166,160.00	\$4,166,160
Historic Buildings	3,000.00 EA	3.00					\$9,000			
Archaeological	30,000.00 EA	1.00					\$30,000			
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747			
<b>Environmental Total</b>							<b>\$18,964,907</b>			
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.01 %	\$2,098,579				
				Program Management	0.01 %	\$4,197,159				
				Final Design	0.05 %	\$20,985,793				
				Procurement	0.02 %	\$6,295,738				
				Project Management	0.01 %	\$2,098,579				
				Construction Management	0.05 %	\$20,985,793				
				Insurance	0.03 %	\$12,591,476				
				Incentives	0.01 %	\$2,098,579				
				<b>PM, PE, CE Total</b>						<b>\$71,351,695</b>

**Total Cost** \$628,142,026  
**Contingency** \$95,326,590  
**Total Alternative Cost** \$723,468,617

Alt. A1 Wetland Avoidance

6/22/2017

Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. A1 w/wetla1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost			
A	Construction	General	Mobilization	Mobilization	0.10 %	\$39,469,996			
			Traffic Control	Traffic Control	0.03 %	\$8,880,749			
			Erosion Control	Erosion Control/Maintenance	0.01 %	\$3,552,300			
			Public Information	Public Information	0.01 %	\$1,776,150			
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260		
		Roadway	Remove/Reconstruct	Unquantified Removals	0.01 %	\$1,776,150			
				Demolition, Buildings	15,000.00 EA	73.00	\$1,201,001		
			Earthwork	Clearing And Grubbing	2,000.00 AC	710.66	\$1,558,911		
				Embankment for Bridge	21.50 CY	343,333.00	\$8,096,240		
				Pond Excavation	7.00 CY	109,010.00	\$836,939		
				Roadway Borrow	15.00 CY	5,040,448.00	\$82,925,813		
				Roadway Excavation	8.00 CY	456,473.00	\$4,005,294		
			Pavement	HMA, Arterial	4.49 SF	458,800.00	\$2,259,990		
				HMA, Trail	35.00 SY	249,759.00	\$9,587,790		
				PCCP, Mainline	6.14 SF	10,106,565.00	\$68,036,831		
			Pavement Markings	Unquantified Pavement Marking	0.00 %	\$532,845			
			Concrete	Concrete Sidewalk	17.50 LF	18,933.00	\$363,402		
				Concrete Curb and Gutter	15.50 LF	15,933.00	\$270,869		
			Drainage	Turf Reinforcement Mat	5.60 SY	522,000.00	\$3,206,180		
				Canals (earth)	28.93 LF	6,880.00	\$218,273		
				Canals (concrete)	413.22 LF	0.00	\$0		
				Canal Pipeline Relocation	181.82 LF	0.00	\$0		
				Stream Relocation	5,251.21 LF	0.00	\$0		
				18-inch Storm Dain	45.00 LF	21,850.00	\$1,078,433		
				24-inch Storm Drain	55.00 LF	21,590.00	\$1,302,401		
				30-inch Storm Drain	65.00 LF	11,930.00	\$850,517		
				36-inch Storm Drain	80.00 LF	2,129.89	\$186,886		
				42-inch Storm Drain	105.00 LF	1,879.89	\$216,497		
				48-inch Storm Drain	120.00 LF	1,099.89	\$144,764		
					Drainage, Structures and End Sctions	0.01 %	\$3,552,300		
		Fencing	Fence, ROW	2.00 LF	267,728.40	\$587,292			
			Fence, Unquantified	0.00 %	\$888,075				
		Barrier	CIP Concrete Constant Slope Barrier	53.00 LF	119,500.00	\$6,946,613			
			Barrier, Unquantified	0.00 %	\$888,075				
		Noisewall	Precast Noise Wall	247.93 LF	4,924.00	\$1,339,008			
		Structures	Bridges	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551		
				Concrete Beam Bridge (2nd Level)	140.00 SF	179,164.00	\$27,511,111		
				Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404		
				Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139		
			Retaining Walls	MSE Retaining Wall (1 Stage)	45.00 SF	424,370.00	\$20,945,297		
		Minor	Box Culverts, Small(<10' span)	800.00 LF	3,500.00	\$3,071,053			
			Box Culverts, Medium (10' span)	1,500.00 LF	990.00	\$1,628,755			
			Box Culverts, Large(12' span)	2,000.00 LF	1,950.00	\$4,277,539			
		Overhead Signs	Signing (Service Interchange)	123,966.94 EA	5.00	\$679,838			
			Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629			
		Landscaping	Landscaping	Architectural/Landscaping Aesthetics	0.01 %	\$2,664,225			
				Baseline Aesthetics	0.01 %	\$4,440,374			
				Landscaping in TCE and other	0.01 %	\$3,552,300			
		Signing	Signing	Unquantified Signing	0.00 %	\$1,065,690			
		Signals	Signals	Lighting and Signals (Diamond Interchange)	115,702.48 EA	2.00	\$253,806		
Lighting and Signals (SPUI Interchange)	132,231.40 EA			0.00	\$0				
Lighting	Lighting	Lighting, Unquantified	0.01 %	\$1,776,150					
Atms	Atms	ATMS, Unquantified	0.02 %	\$5,328,449					
Utilities	Relocations	Misc. Minor Utility Relocation	0.01 %	\$2,650,047					
		Misc. Minor Utility Relocation (N of Gentile)	0.03 %	\$2,706,757					
<b>Construction Total</b>						<b>\$394,699,955</b>			
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,500.00	\$5,000,000		
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000		
			Minor Utility	Misc. Minor Utility Reimbursement	0.01 %	\$2,416,152			
				Misc. Minor Utility Reimbursement (N of Gentile)	0.03 %	\$2,467,856			
<b>Utility Total</b>						<b>\$20,084,008</b>			
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	347.00	\$1,735,000		
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000	
					Homes	300,000.00 LS	32.00	\$9,600,000	
					Land (vacant)	100,000.00 LS	726.00	\$72,600,000	
				Relocate	Relocation (Homes)	45,000.00 EA	31.00	\$1,395,000	
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000		
			Platted Relocations		100,000.00 LS	2.00	\$200,000		
			Relocation (Special Use)		500,000.00 LS	3.00	\$1,500,000		
			<b>ROW &amp; Corridor Preservation Total</b>						<b>\$91,830,000</b>
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	3,345,955.00
Historic Buildings	3,000.00 EA	4.00					\$12,000		
Archaeological	30,000.00 EA	1.00					\$30,000		
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747		
<b>Environmental Total</b>						<b>\$18,147,702</b>			
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.01 %	\$1,973,500			
				Program Management	0.01 %	\$3,947,000			
				Final Design	0.05 %	\$19,734,998			
			Project Management	Procurement	0.02 %	\$5,920,499			
				Project Management	0.01 %	\$1,973,500			
				Construction Management	0.05 %	\$19,734,998			
			Insurance	OCIP	0.03 %	\$11,840,999			
			Incentives	Incentives	0.01 %	\$1,973,500			
			<b>PM, PE, CE Total</b>						<b>\$67,098,992</b>

**Total Cost \$591,860,658**  
**Contingency \$90,582,605**  
**Total Alternative Cost \$682,443,263**

Alt. A2 Wetland Avoidance

6/22/2017

Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. A2 w/wetla1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost			
A	Construction	General	Mobilization	Mobilization	0.10 %	\$41,878,639			
			Traffic Control	Traffic Control	0.03 %	\$9,422,694			
			Erosion Control	Erosion Control/Maintenance	0.01 %	\$3,769,078			
			Public Information	Public Information	0.01 %	\$1,884,539			
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260		
		Roadway	Remove/Reconstruct	Unquantified Removals	0.01 %	\$1,884,539			
			Demolition, Buildings	Demolition, Buildings	15,000.00 EA	80.00	\$1,316,166		
			Earthwork	Clearing And Grubbing	Clearing And Grubbing	2,000.00 AC	744.44	\$1,633,011	
				Embankment for Bridge	Embankment for Bridge	21.50 CY	392,222.00	\$9,249,106	
				Pond Excavation	Pond Excavation	7.00 CY	122,290.00	\$938,898	
				Roadway Borrow	Roadway Borrow	15.00 CY	5,040,987.00	\$82,934,681	
				Roadway Excavation	Roadway Excavation	8.00 CY	468,556.00	\$4,111,316	
			Pavement	HMA, Arterial	HMA, Arterial	4.49 SF	492,834.00	\$2,427,637	
				HMA, Trail	HMA, Trail	35.00 SY	287,537.00	\$11,038,019	
				PCCP, Mainline	PCCP, Mainline	6.14 SF	10,730,049.00	\$72,234,090	
			Pavement Markings	Unquantified Pavement Marking	0.00 %	\$565,362			
			Concrete	Concrete Sidewalk	Concrete Sidewalk	17.50 LF	18,933.00	\$363,402	
				Concrete Curb and Gutter	Concrete Curb and Gutter	15.50 LF	15,933.00	\$270,869	
			Drainage	Turf Reinforcement Mat	Turf Reinforcement Mat	5.60 SY	562,000.00	\$3,451,864	
				Canals (earth)	Canals (earth)	28.93 LF	6,880.00	\$218,273	
				Canals (concrete)	Canals (concrete)	413.22 LF	240.00	\$108,774	
				Canal Pipeline Relocation	Canal Pipeline Relocation	181.82 LF	0.00	\$0	
				Stream Relocation	Stream Relocation	5,251.21 LF	0.00	\$0	
				18-inch Storm Dain	18-inch Storm Dain	45.00 LF	22,340.00	\$1,102,618	
				24-inch Storm Drain	24-inch Storm Drain	55.00 LF	21,880.00	\$1,319,895	
				30-inch Storm Drain	30-inch Storm Drain	65.00 LF	12,290.00	\$876,183	
				36-inch Storm Drain	36-inch Storm Drain	80.00 LF	2,129.89	\$186,886	
				42-inch Storm Drain	42-inch Storm Drain	105.00 LF	1,879.89	\$216,497	
				48-inch Storm Drain	48-inch Storm Drain	120.00 LF	1,099.89	\$144,764	
				Drainage, Structures and End Sctions	Drainage, Structures and End Sctions	0.01 %	\$3,769,078		
		Fencing	Fence, ROW	Fence, ROW	2.00 LF	289,900.00	\$635,927		
			Fence, Unquantified	Fence, Unquantified	0.00 %	\$942,269			
		Barrier	CIP Concrete Constant Slope Barrier	CIP Concrete Constant Slope Barrier	53.00 LF	119,500.00	\$6,946,613		
			Barrier, Unquantified	Barrier, Unquantified	0.00 %	\$942,269			
		Noisewall	Precast Noise Wall	Precast Noise Wall	247.93 LF	4,924.00	\$1,339,008		
		Structures	Bridges	Pedestrian Bridge	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551	
				Concrete Beam Bridge (2nd Level)	Concrete Beam Bridge (2nd Level)	140.00 SF	209,847.00	\$32,222,568	
				Steel Beam Bridge (2nd Level)	Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404	
				Steel Beam Bridge (3rd Level)	Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139	
			MSE Retaining Wall (1 Stage)	MSE Retaining Wall (1 Stage)	45.00 SF	523,860.00	\$25,855,747		
		Minor	Box Culverts, Small(<10' span)	Box Culverts, Small(<10' span)	800.00 LF	3,680.00	\$3,228,993		
			Box Culverts, Medium (10' span)	Box Culverts, Medium (10' span)	1,500.00 LF	1,390.00	\$2,286,838		
			Box Culverts, Large(12' span)	Box Culverts, Large(12' span)	2,000.00 LF	1,950.00	\$4,277,539		
		Overhead Signs	Signing (Service Interchange)	Signing (Service Interchange)	123,966.94 EA	6.00	\$815,805		
			Signing (SSystem Interchange)	Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629		
		Landscaping	Landscaping	Architectural/Landscaping Aesthetics	Architectural/Landscaping Aesthetics	0.01 %	\$2,826,808		
				Baseline Aesthetics	Baseline Aesthetics	0.01 %	\$4,711,347		
				Landscaping in TCE and other	Landscaping in TCE and other	0.01 %	\$3,769,078		
		Signing	Signing	Unquantified Signing	0.00 %	\$1,130,723			
		Signals	Signals	Lighting and Signals (Diamond Interchange)	Lighting and Signals (Diamond Interchange)	115,702.48 EA	3.00	\$380,709	
Lighting and Signals (SPUI Interchange)	Lighting and Signals (SPUI Interchange)			132,231.40 EA	0.00	\$0			
Lighting	Lighting	Lighting, Unquantified	Lighting, Unquantified	0.01 %	\$1,884,539				
		ATMS, Unquantified	ATMS, Unquantified	0.02 %	\$5,653,616				
Utilities	Relocations	Misc. Minor Utility Relocation	Misc. Minor Utility Relocation	0.01 %	\$2,650,047				
		Misc. Minor Utility Relocation (N of Gentile)	Misc. Minor Utility Relocation (N of Gentile)	0.03 %	\$3,357,090				
<b>Construction Total</b>						<b>\$418,786,392</b>			
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,500.00	\$5,000,000		
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000		
			Minor Utility	Misc. Minor Utility Reimbursement	0.01 %	\$2,416,152			
				Misc. Minor Utility Reimbursement (N of Gentile)	0.03 %	\$3,060,791			
<b>Utility Total</b>						<b>\$20,676,943</b>			
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	390.00	\$1,950,000		
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000	
					Homes	300,000.00 LS	38.00	\$11,400,000	
					Land (vacant)	100,000.00 LS	780.00	\$78,000,000	
				Relocate	Relocation (Homes)	45,000.00 EA	37.00	\$1,665,000	
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000		
			Platted Relocations		100,000.00 LS	2.00	\$200,000		
			Relocation (Special Use)		500,000.00 LS	4.00	\$2,000,000		
			<b>ROW &amp; Corridor Preservation Total</b>						<b>\$100,015,000</b>
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	3,169,565.00
Historic Buildings	3,000.00 EA	4.00					\$12,000		
Archaeological	30,000.00 EA	1.00					\$30,000		
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747		
<b>Environmental Total</b>						<b>\$17,971,312</b>			
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.01 %	\$2,093,932			
				Program Management	0.01 %	\$4,187,864			
			Project Management	Final Design	0.05 %	\$20,939,320			
				Procurement	0.02 %	\$6,281,796			
				Project Management	0.01 %	\$2,093,932			
			Construction Management	Construction Management	0.05 %	\$20,939,320			
			Insurance	OCIP	0.03 %	\$12,563,592			
			Incentives	Incentives	0.01 %	\$2,093,932			
<b>PM, PE, CE Total</b>						<b>\$71,193,687</b>			
<b>Total Cost</b>						<b>\$628,643,334</b>			
<b>Contingency</b>						<b>\$95,449,980</b>			
<b>Total Alternative Cost</b>						<b>\$724,093,314</b>			

Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. B1 1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost			
A	Construction	General	Mobilization	Mobilization	0.10 %	\$42,149,748			
			Traffic Control	Traffic Control	0.03 %	\$9,483,693			
			Erosion Control	Erosion Control/Maintenance	0.01 %	\$3,793,477			
			Public Information	Public Information	0.01 %	\$1,896,739			
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260		
		Roadway	Remove/Reconstruct	Unquantified Removals	0.01 %	\$1,896,739			
				Demolition, Buildings	15,000.00 EA	59.00	\$970,672		
			Earthwork	Clearing And Grubbing	2,000.00 AC	738.48	\$1,619,937		
				Embankment for Bridge	21.50 CY	450,889.00	\$10,632,550		
				Pond Excavation	7.00 CY	156,540.00	\$1,201,857		
				Roadway Borrow	15.00 CY	5,382,457.00	\$88,552,570		
			Pavement	Roadway Excavation	8.00 CY	480,025.00	\$4,211,950		
				HMA, Arterial	4.49 SF	847,890.00	\$4,176,598		
				HMA, Trail	35.00 SY	360,222.00	\$13,828,263		
				PCCP, Mainline	6.14 SF	10,299,417.00	\$69,335,100		
			Pavement Markings	Unquantified Pavement Marking	0.00 %	\$569,022			
			Concrete	Concrete Sidewalk	17.50 LF	99,550.00	\$1,910,771		
				Concrete Curb and Gutter	15.50 LF	36,550.00	\$621,367		
			Drainage	Turf Reinforcement Mat	5.60 SY	523,200.00	\$3,213,550		
				Canals (earth)	28.93 LF	810.00	\$25,698		
				Canals (concrete)	413.22 LF	900.00	\$407,903		
				Canal Pipeline Relocation	181.82 LF	10,360.00	\$2,065,981		
				Stream Relocation	5,251.21 LF	0.00	\$0		
				18-inch Storm Dain	45.00 LF	21,320.00	\$1,052,275		
				24-inch Storm Drain	55.00 LF	22,340.00	\$1,347,644		
				30-inch Storm Drain	65.00 LF	10,650.00	\$759,263		
				36-inch Storm Drain	80.00 LF	1,869.88	\$164,071		
				42-inch Storm Drain	105.00 LF	1,199.88	\$138,184		
		48-inch Storm Drain		120.00 LF	1,499.88	\$197,409			
		Fencing	Drainage, Structures and End Sctions	0.01 %	\$3,793,477				
			Fence, ROW	2.00 LF	254,220.40	\$557,660			
		Barrier	Fence, Unquantified	0.00 %	\$948,369				
			CIP Concrete Constant Slope Barrier	53.00 LF	104,500.00	\$6,074,653			
		Noisewall	Barrier, Unquantified	0.00 %	\$948,369				
			Precast Noise Wall	247.93 LF	7,075.00	\$1,923,941			
		Structures	Bridges	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551		
				Concrete Beam Bridge (2nd Level)	140.00 SF	206,776.00	\$31,751,007		
				Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404		
				Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139		
			Retaining Walls	MSE Retaining Wall (1 Stage)	45.00 SF	364,620.00	\$17,996,263		
		Minor	Box Culverts, Small(<10' span)	800.00 LF	3,500.00	\$3,071,053			
			Box Culverts, Medium (10' span)	1,500.00 LF	980.00	\$1,612,303			
			Box Culverts, Large(12' span)	2,000.00 LF	1,770.00	\$3,882,689			
		Overhead Signs	Signing (Service Interchange)	123,966.94 EA	5.00	\$679,838			
			Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629			
		Landscaping	Landscaping	Architectural/Landscaping Aesthics	0.01 %	\$2,845,108			
				Baseline Aesthetics	0.01 %	\$4,741,847			
				Landscaping in TCE and other	0.01 %	\$3,793,477			
		Signing	Signing	Unquantified Signing	0.00 %	\$1,138,043			
Signals	Signals	Lighting and Signals (Diamond Interchange)	115,702.48 EA	2.00	\$253,806				
		Lighting and Signals (SPUI Interchange)	132,231.40 EA	0.00	\$0				
Lighting	Lighting	Lighting, Unquantified	0.01 %	\$1,896,739					
		ATMS, Unquantified	0.02 %	\$5,690,216					
Atms	Atms	Misc. Minor Utility Relocation	0.01 %	\$2,658,413					
		Misc. Minor Utility Relocation (N of Gentile)	0.03 %	\$3,405,194					
<b>Construction Total</b>						<b>\$421,497,480</b>			
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,000.00	\$4,800,000		
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000		
			Minor Utility	Misc. Minor Utility Reimbursement	0.01 %	\$2,423,779			
				Misc. Minor Utility Reimbursement (N of Gentile)	0.03 %	\$3,104,649			
<b>Utility Total</b>						<b>\$20,528,428</b>			
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	329.00	\$1,645,000		
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000	
					Homes	300,000.00 LS	26.00	\$7,800,000	
					Land (vacant)	100,000.00 LS	763.00	\$76,300,000	
				Relocate	Relocation (Homes)	45,000.00 EA	25.00	\$1,125,000	
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000		
			Platted Relocations		100,000.00 LS	1.00	\$100,000		
			Relocation (Special Use)		500,000.00 LS	2.00	\$1,000,000		
			<b>ROW &amp; Corridor Preservation Total</b>						<b>\$92,770,000</b>
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	6,867,910.00
Historic Buildings	3,000.00 EA	5.00					\$15,000		
Archaeological	30,000.00 EA	1.00					\$30,000		
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747		
<b>Environmental Total</b>						<b>\$21,672,657</b>			
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.01 %	\$2,107,487			
				Program Management	0.01 %	\$4,214,975			
			Project Management	Final Design	0.05 %	\$21,074,874			
				Procurement	0.02 %	\$6,322,462			
				Project Management	0.01 %	\$2,107,487			
			Construction Management	Construction Management	0.05 %	\$21,074,874			
			Insurance	OCIP	0.03 %	\$12,644,924			
			Incentives	Incentives	0.01 %	\$2,107,487			
<b>PM, PE, CE Total</b>						<b>\$71,654,572</b>			

**Total Cost** \$628,123,137  
**Contingency** \$96,580,241  
**Total Alternative Cost** \$724,703,377



Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. B2 1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost			
A	Construction	General	Mobilization	Mobilization	0.10 %	\$42,420,791			
			Traffic Control	Traffic Control	0.03 %	\$9,544,678			
			Erosion Control	Erosion Control/Maintenance	0.01 %	\$3,817,871			
			Public Information	Public Information	0.01 %	\$1,908,936			
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260		
		Roadway	Remove/Reconstruct	Unquantified Removals	0.01 %	\$1,908,936			
			Demolition, Buildings	Demolition, Buildings	15,000.00 EA	61.00	\$1,003,576		
			Earthwork	Clearing And Grubbing	Clearing And Grubbing	2,000.00 AC	740.23	\$1,623,776	
				Embankment for Bridge	Embankment for Bridge	21.50 CY	460,667.00	\$10,863,128	
				Pond Excavation	Pond Excavation	7.00 CY	156,480.00	\$1,201,396	
				Roadway Borrow	Roadway Borrow	15.00 CY	5,383,195.00	\$88,564,712	
				Roadway Excavation	Roadway Excavation	8.00 CY	480,522.00	\$4,216,311	
			Pavement	HMA, Arterial	HMA, Arterial	4.49 SF	848,332.00	\$4,178,775	
				HMA, Trail	HMA, Trail	35.00 SY	416,197.00	\$15,977,040	
				PCCP, Mainline	PCCP, Mainline	6.14 SF	10,218,954.00	\$68,793,427	
			Pavement Markings	Unquantified Pavement Marking	0.00 %	\$572,681			
			Concrete	Concrete Sidewalk	Concrete Sidewalk	17.50 LF	99,578.00	\$1,911,308	
				Concrete Curb and Gutter	Concrete Curb and Gutter	15.50 LF	36,578.00	\$621,843	
			Drainage	Turf Reinforcement Mat	Turf Reinforcement Mat	5.60 SY	525,200.00	\$3,225,835	
				Canals (earth)	Canals (earth)	28.93 LF	810.00	\$25,698	
				Canals (concrete)	Canals (concrete)	413.22 LF	360.00	\$163,161	
				Canal Pipeline Relocation	Canal Pipeline Relocation	181.82 LF	10,360.00	\$2,065,981	
				Stream Relocation	Stream Relocation	5,251.21 LF	0.00	\$0	
				18-inch Storm Dain	18-inch Storm Dain	45.00 LF	21,420.00	\$1,057,210	
				24-inch Storm Drain	24-inch Storm Drain	55.00 LF	22,510.00	\$1,357,899	
				30-inch Storm Drain	30-inch Storm Drain	65.00 LF	10,850.00	\$773,522	
				36-inch Storm Drain	36-inch Storm Drain	80.00 LF	2,029.88	\$178,111	
				42-inch Storm Drain	42-inch Storm Drain	105.00 LF	1,199.88	\$138,184	
			Fencing	Drainage, Structures and End Sctions	Drainage, Structures and End Sctions	0.01 %	\$3,817,871		
				Fence, ROW	Fence, ROW	2.00 LF	255,371.00	\$560,184	
		Barrier	Fence, Unquantified	Fence, Unquantified	0.00 %	\$954,468			
			CIP Concrete Constant Slope Barrier	CIP Concrete Constant Slope Barrier	53.00 LF	114,500.00	\$6,655,960		
		Noisewall	Barrier, Unquantified	Barrier, Unquantified	0.00 %	\$954,468			
			Precast Noise Wall	Precast Noise Wall	247.93 LF	7,075.00	\$1,923,941		
		Structures	Bridges	Pedestrian Bridge	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551	
				Concrete Beam Bridge (2nd Level)	Concrete Beam Bridge (2nd Level)	140.00 SF	210,204.00	\$32,277,386	
				Steel Beam Bridge (2nd Level)	Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404	
				Steel Beam Bridge (3rd Level)	Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139	
			Retaining Walls	MSE Retaining Wall (1 Stage)	MSE Retaining Wall (1 Stage)	45.00 SF	349,870.00	\$17,268,259	
				Minor	Box Culverts, Small(<10' span)	Box Culverts, Small(<10' span)	800.00 LF	3,500.00	\$3,071,053
			Box Culverts, Medium (10' span)		Box Culverts, Medium (10' span)	1,500.00 LF	980.00	\$1,612,303	
			Box Culverts, Large(12' span)		Box Culverts, Large(12' span)	2,000.00 LF	1,770.00	\$3,882,689	
			Overhead Signs	Signing (Service Interchange)	Signing (Service Interchange)	123,966.94 EA	5.00	\$679,838	
				Signing (SSystem Interchange)	Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629	
		Landscaping	Landscaping	Architectural/Landscaping Aesthetics	Architectural/Landscaping Aesthetics	0.01 %	\$2,863,403		
				Baseline Aesthetics	Baseline Aesthetics	0.01 %	\$4,772,339		
				Landscaping in TCE and other	Landscaping in TCE and other	0.01 %	\$3,817,871		
		Signing	Signing	Unquantified Signing	0.00 %	\$1,145,361			
		Signals	Signals	Lighting and Signals (Diamond Interchange)	Lighting and Signals (Diamond Interchange)	115,702.48 EA	2.00	\$253,806	
				Lighting and Signals (SPUI Interchange)	Lighting and Signals (SPUI Interchange)	132,231.40 EA	0.00	\$0	
Lighting	Lighting	Lighting, Unquantified	0.01 %	\$1,908,936					
Atms	Atms	ATMS, Unquantified	0.02 %	\$5,726,807					
Utilities	Relocations	Misc. Minor Utility Relocation	Misc. Minor Utility Relocation	0.01 %	\$2,658,413				
		Misc. Minor Utility Relocation (N of Gentile)	Misc. Minor Utility Relocation (N of Gentile)	0.03 %	\$3,478,376				
<b>Construction Total</b>						<b>\$424,207,908</b>			
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,000.00	\$4,800,000		
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000		
			Minor Utility	Misc. Minor Utility Reimbursement	0.01 %	\$2,423,779			
				Misc. Minor Utility Reimbursement (N of Gentile)	0.03 %	\$3,171,372			
			<b>Utility Total</b>						<b>\$20,595,151</b>
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	328.00	\$1,640,000		
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000	
					Homes	300,000.00 LS	27.00	\$8,100,000	
					Land (vacant)	100,000.00 LS	758.00	\$75,800,000	
				Relocate	Relocation (Homes)	45,000.00 EA	26.00	\$1,170,000	
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000		
			Platted Relocations		100,000.00 LS	1.00	\$100,000		
			Relocation (Special Use)		500,000.00 LS	3.00	\$1,500,000		
			<b>ROW &amp; Corridor Preservation Total</b>						<b>\$93,110,000</b>
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	6,668,570.00
Historic Buildings	3,000.00 EA	5.00					\$15,000		
Archaeological	30,000.00 EA	1.00					\$30,000		
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747		
<b>Environmental Total</b>						<b>\$21,473,317</b>			
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.01 %	\$2,121,040			
				Program Management	0.01 %	\$4,242,079			
				Final Design	0.05 %	\$21,210,395			
			Project Management	Procurement	0.02 %	\$6,363,119			
				Project Management	0.01 %	\$2,121,040			
				Construction Management	0.05 %	\$21,210,395			
			Insurance	OCIP	0.03 %	\$12,726,237			
			Incentives	Incentives	0.01 %	\$2,121,040			
			<b>PM, PE, CE Total</b>						<b>\$72,115,344</b>
<b>Total Cost</b>						<b>\$631,501,721</b>			
<b>Contingency</b>						<b>\$96,911,381</b>			
<b>Total Alternative Cost</b>						<b>\$728,413,101</b>			

Alt. B1 Wetland Avoidance

6/22/2017

Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. B1 w/wetla 1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost			
A	Construction	General	Mobilization	Mobilization	0.10 %	\$42,056,802			
			Traffic Control	Traffic Control	0.03 %	\$9,462,780			
			Erosion Control	Erosion Control/Maintenance	0.01 %	\$3,785,112			
			Public Information	Public Information	0.01 %	\$1,892,556			
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260		
		Roadway	Remove/Reconstruct	Unquantified Removals	0.01 %	\$1,892,556			
			Demolition, Buildings	Demolition, Buildings	15,000.00 EA	73.00	\$1,201,001		
			Earthwork	Clearing And Grubbing	Clearing And Grubbing	2,000.00 AC	745.48	\$1,635,292	
				Embankment for Bridge	Embankment for Bridge	21.50 CY	450,889.00	\$10,632,550	
				Pond Excavation	Pond Excavation	7.00 CY	156,540.00	\$1,201,857	
				Roadway Borrow	Roadway Borrow	15.00 CY	5,390,957.00	\$88,692,413	
				Roadway Excavation	Roadway Excavation	8.00 CY	480,525.00	\$4,216,337	
			Pavement	HMA, Arterial	HMA, Arterial	4.49 SF	847,890.00	\$4,176,598	
				HMA, Trail	HMA, Trail	35.00 SY	360,222.00	\$13,828,263	
				PCCP, Mainline	PCCP, Mainline	6.14 SF	10,314,417.00	\$69,436,079	
			Pavement Markings	Unquantified Pavement Marking	0.00 %	\$567,767			
			Concrete	Concrete Sidewalk	Concrete Sidewalk	17.50 LF	39,550.00	\$759,126	
				Concrete Curb and Gutter	Concrete Curb and Gutter	15.50 LF	36,550.00	\$621,367	
			Drainage	Turf Reinforcement Mat	Turf Reinforcement Mat	5.60 SY	523,200.00	\$3,213,550	
				Canals (earth)	Canals (earth)	28.93 LF	810.00	\$25,698	
				Canals (concrete)	Canals (concrete)	413.22 LF	900.00	\$407,903	
				Canal Pipeline Relocation	Canal Pipeline Relocation	181.82 LF	10,360.00	\$2,065,981	
				Stream Relocation	Stream Relocation	5,251.21 LF	0.00	\$0	
				18-inch Storm Dain	18-inch Storm Dain	45.00 LF	21,480.00	\$1,060,172	
				24-inch Storm Drain	24-inch Storm Drain	55.00 LF	22,500.00	\$1,357,296	
				30-inch Storm Drain	30-inch Storm Drain	65.00 LF	10,730.00	\$764,967	
				36-inch Storm Drain	36-inch Storm Drain	80.00 LF	1,769.89	\$155,298	
				42-inch Storm Drain	42-inch Storm Drain	105.00 LF	1,099.89	\$126,668	
			Fencing	Drainage, Structures and End Sctions	Drainage, Structures and End Sctions	0.01 %	\$3,785,112		
				Fence, ROW	Fence, ROW	2.00 LF	254,220.40	\$557,660	
		Barrier	Fence, Unquantified	Fence, Unquantified	0.00 %	\$946,278			
			CIP Concrete Constant Slope Barrier	CIP Concrete Constant Slope Barrier	53.00 LF	104,500.00	\$6,074,653		
		Noisewall	Barrier, Unquantified	Barrier, Unquantified	0.00 %	\$946,278			
			Precast Noise Wall	Precast Noise Wall	247.93 LF	7,075.00	\$1,923,941		
		Structures	Bridges	Pedestrian Bridge	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551	
				Concrete Beam Bridge (2nd Level)	Concrete Beam Bridge (2nd Level)	140.00 SF	206,376.00	\$31,689,586	
				Steel Beam Bridge (2nd Level)	Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404	
			Retaining Walls	Steel Beam Bridge (3rd Level)	Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139	
				MSE Retaining Wall (1 Stage)	MSE Retaining Wall (1 Stage)	45.00 SF	364,620.00	\$17,996,263	
		Minor	Box Culverts, Small(<10' span)	Box Culverts, Small(<10' span)	800.00 LF	3,500.00	\$3,071,053		
			Box Culverts, Medium (10' span)	Box Culverts, Medium (10' span)	1,500.00 LF	980.00	\$1,612,303		
			Box Culverts, Large(12' span)	Box Culverts, Large(12' span)	2,000.00 LF	1,770.00	\$3,882,689		
		Overhead Signs	Signing (Service Interchange)	Signing (Service Interchange)	123,966.94 EA	5.00	\$679,838		
			Signing (SSystem Interchange)	Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629		
		Landscaping	Landscaping	Architectural/Landscaping Aesthetics	Architectural/Landscaping Aesthetics	0.01 %	\$2,838,834		
				Baseline Aesthetics	Baseline Aesthetics	0.01 %	\$4,731,390		
				Landscaping in TCE and other	Landscaping in TCE and other	0.01 %	\$3,785,112		
		Signing	Signing	Unquantified Signing	0.00 %	\$1,135,534			
		Signals	Signals	Lighting and Signals (Diamond Interchange)	Lighting and Signals (Diamond Interchange)	115,702.48 EA	2.00	\$253,806	
				Lighting and Signals (SPUI Interchange)	Lighting and Signals (SPUI Interchange)	132,231.40 EA	0.00	\$0	
Lighting	Lighting	Lighting, Unquantified	Lighting, Unquantified	0.01 %	\$1,892,556				
		ATMS, Unquantified	ATMS, Unquantified	0.02 %	\$5,677,668				
Utilities	Relocations	Misc. Minor Utility Relocation	Misc. Minor Utility Relocation	0.01 %	\$2,650,047				
		Misc. Minor Utility Relocation (N of Gentile)	Misc. Minor Utility Relocation (N of Gentile)	0.03 %	\$3,405,194				
<b>Construction Total</b>						<b>\$420,568,017</b>			
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,500.00	\$5,000,000		
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000		
			Minor Utility	Misc. Minor Utility Reimbursement	0.01 %	\$2,416,152			
				Misc. Minor Utility Reimbursement (N of Gentile)	0.03 %	\$3,104,649			
			<b>Utility Total</b>						<b>\$20,720,802</b>
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	344.00	\$1,720,000		
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000	
					Homes	300,000.00 LS	33.00	\$9,900,000	
					Land (vacant)	100,000.00 LS	761.00	\$76,100,000	
				Relocate	Relocation (Homes)	45,000.00 EA	32.00	\$1,440,000	
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000		
			Platted Relocations		100,000.00 LS	2.00	\$200,000		
			Relocation (Special Use)		500,000.00 LS	2.00	\$1,000,000		
			<b>ROW &amp; Corridor Preservation Total</b>						<b>\$95,160,000</b>
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	5,871,315.00
Historic Buildings	3,000.00 EA	6.00					\$18,000		
Archaeological	30,000.00 EA	1.00					\$30,000		
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747		
<b>Environmental Total</b>							<b>\$20,679,062</b>		
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.01 %	\$2,102,840			
				Program Management	0.01 %	\$4,205,680			
			Project Management	Final Design	0.05 %	\$21,028,401			
				Procurement	0.02 %	\$6,308,520			
				Project Management	0.01 %	\$2,102,840			
			Construction Management	Construction Management	0.05 %	\$21,028,401			
			Insurance	OCIP	0.03 %	\$12,617,041			
			Incentives	Incentives	0.01 %	\$2,102,840			
			<b>PM, PE, CE Total</b>						<b>\$71,496,563</b>
			<b>Total Cost</b>						<b>\$628,624,444</b>
<b>Contingency</b>						<b>\$96,703,631</b>			
<b>Total Alternative Cost</b>						<b>\$725,328,075</b>			

Alt. B2 Wetland Avoidance

6/22/2017

Project PIN S-0067(14)0  
 Project Name West Davis Corridor  
 Alt. B2 w/wetla 1

Item Category		Description	Unit Cost	Unit	Quantity	Total Cost				
A	Construction	General	Mobilization	Mobilization	0.10 %	\$42,327,845				
			Traffic Control	Traffic Control	0.03 %	\$9,523,765				
			Erosion Control	Erosion Control/Maintenance	0.01 %	\$3,809,506				
			Public Information	Public Information	0.01 %	\$1,904,753				
			Other	Preconstruction Survey	25,000.00 LS	3.00	\$82,260			
		Roadway	Remove/Reconstruct	Unquantified Removals	0.01 %	\$1,904,753				
				Demolition, Buildings	15,000.00 EA	75.00	\$1,233,905			
			Earthwork	Clearing And Grubbing	2,000.00 AC	747.23	\$1,639,131			
				Embankment for Bridge	21.50 CY	460,667.00	\$10,863,128			
				Pond Excavation	7.00 CY	156,480.00	\$1,201,396			
				Roadway Borrow	15.00 CY	5,391,695.00	\$88,704,554			
				Roadway Excavation	8.00 CY	481,022.00	\$4,220,698			
			Pavement	HMA, Arterial	4.49 SF	848,332.00	\$4,178,775			
				HMA, Trail	35.00 SY	416,197.00	\$15,977,040			
				PCCP, Mainline	6.14 SF	10,233,954.00	\$68,894,407			
			Pavement Markings	Unquantified Pavement Marking	0.00 %	\$571,426				
			Concrete	Concrete Sidewalk	17.50 LF	39,578.00	\$759,663			
				Concrete Curb and Gutter	15.50 LF	36,578.00	\$621,843			
			Drainage	Turf Reinforcement Mat	5.60 SY	525,200.00	\$3,225,835			
				Canals (earth)	28.93 LF	810.00	\$25,698			
				Canals (concrete)	413.22 LF	360.00	\$163,161			
				Canal Pipeline Relocation	181.82 LF	10,360.00	\$2,065,981			
				Stream Relocation	5,251.21 LF	0.00	\$0			
				18-inch Storm Dain	45.00 LF	21,580.00	\$1,065,107			
				24-inch Storm Drain	55.00 LF	22,670.00	\$1,367,551			
				30-inch Storm Drain	65.00 LF	10,930.00	\$779,225			
				36-inch Storm Drain	80.00 LF	1,929.89	\$169,337			
				42-inch Storm Drain	105.00 LF	1,099.89	\$126,668			
				48-inch Storm Drain	120.00 LF	1,399.89	\$184,249			
				Drainage, Structures and End Sctions	0.01 %		\$3,809,506			
		Fencing	Fence, ROW	2.00 LF	255,371.00	\$560,184				
			Fence, Unquantified	0.00 %		\$952,377				
		Barrier	CIP Concrete Constant Slope Barrier	53.00 LF	114,500.00	\$6,655,960				
			Barrier, Unquantified	0.00 %		\$952,377				
		Noisewall	Precast Noise Wall	247.93 LF	7,075.00	\$1,923,941				
		Structures	Bridges	Pedestrian Bridge	205.00 SF	15,800.00	\$3,552,551			
				Concrete Beam Bridge (2nd Level)	140.00 SF	209,804.00	\$32,215,965			
				Steel Beam Bridge (2nd Level)	205.00 SF	49,000.00	\$11,017,404			
				Steel Beam Bridge (3rd Level)	250.00 SF	148,800.00	\$40,801,139			
			Retaining Walls	MSE Retaining Wall (1 Stage)	45.00 SF	349,870.00	\$17,268,259			
		Minor	Box Culverts, Small(<10' span)	800.00 LF	3,500.00	\$3,071,053				
			Box Culverts, Medium (10' span)	1,500.00 LF	980.00	\$1,612,303				
			Box Culverts, Large(12' span)	2,000.00 LF	1,770.00	\$3,882,689				
		Overhead Signs	Signing (Service Interchange)	123,966.94 EA	5.00	\$679,838				
			Signing (SSystem Interchange)	144,628.10 EA	1.00	\$158,629				
		Landscaping	Landscaping	Architectural/Landscaping Aesthetics	0.01 %	\$2,857,130				
				Baseline Aesthetics	0.01 %	\$4,761,882				
				Landscaping in TCE and other	0.01 %	\$3,809,506				
		Signing	Signing	Unquantified Signing	0.00 %	\$1,142,852				
		Signals	Signals	Lighting and Signals (Diamond Interchange)	115,702.48 EA	2.00	\$253,806			
Lighting and Signals (SPUI Interchange)	132,231.40 EA			0.00	\$0					
Lighting	Lighting	Lighting, Unquantified	0.01 %	\$1,904,753						
		ATMS, Unquantified	0.02 %	\$5,714,259						
Atms	Atms	Misc. Minor Utility Relocation	0.01 %	\$2,650,047						
		Misc. Minor Utility Relocation (N of Gentile)	0.03 %	\$3,478,376						
<b>Construction Total</b>						<b>\$423,278,446</b>				
B	Utility	Agreements/Relocations	Major Utility	Pacificorp 138kV	400.00 LF	12,500.00	\$5,000,000			
				Pacificorp 345kV	680.00 LF	15,000.00	\$10,200,000			
			Minor Utility	Misc. Minor Utility Reimbursement	0.01 %	\$2,416,152				
				Misc. Minor Utility Reimbursement (N of Gentile)	0.03 %	\$3,171,372				
			<b>Utility Total</b>						<b>\$20,787,524</b>	
C	ROW & Corridor Preservation	ROW & Corridor Pres	Professional Services	Administration	5,000.00 PCL	343.00	\$1,715,000			
				Purchase	Commercial	1,500,000.00 LS	3.00	\$4,500,000		
					Homes	300,000.00 LS	34.00	\$10,200,000		
					Land (vacant)	100,000.00 LS	756.00	\$75,600,000		
				Relocate	Relocation (Homes)	45,000.00 EA	33.00	\$1,485,000		
			Relocation (Commercial)		100,000.00 EA	3.00	\$300,000			
			Platted Relocations	Platted Relocations	100,000.00 LS	2.00	\$200,000			
				Relocation (Special Use)	500,000.00 LS	3.00	\$1,500,000			
				<b>ROW &amp; Corridor Preservation Total</b>						<b>\$95,500,000</b>
			D	Environmental	Environmental	Environmental Mitigation	Wetland	1.00 LS	5,671,975.00	\$5,671,975
Historic Buildings	3,000.00 EA	6.00					\$18,000			
Archaeological	30,000.00 EA	1.00					\$30,000			
GSLSP Mitigation	1.00 LS	14,759,747.00					\$14,759,747			
<b>Environmental Total</b>							<b>\$20,479,722</b>			
E	PM, PE, CE	Professional Services	Program Management	Admin And Oversight	0.01 %	\$2,116,392				
				Program Management	0.01 %	\$4,232,784				
				Final Design	0.05 %	\$21,163,922				
				Procurement	0.02 %	\$6,349,177				
				Project Management	0.01 %	\$2,116,392				
				Construction Management	0.05 %	\$21,163,922				
				Insurance	0.03 %	\$12,698,353				
				Incentives	0.01 %	\$2,116,392				
				<b>PM, PE, CE Total</b>						<b>\$71,957,336</b>
				<b>Total Cost</b>						<b>\$632,003,028</b>
<b>Contingency</b>						<b>\$97,034,771</b>				
<b>Total Alternative Cost</b>						<b>\$729,037,799</b>				