

Capitol Lake – Deschutes Estuary, Maintenance Dredging  
 Planning-Level Cost Estimates for Draft EIS  
 High-Level Summary



Alternative	In – Water Disposal		Upland Disposal	
	Lower End Probable Cost	Lower End Probable Cost	Higher End Probable Cost	Higher End Probable Cost
<b>Managed Lake</b>	Not applicable	Not applicable	\$248 Million	\$447 Million
<b>Estuary*</b>	\$66 Million	\$119 Million	\$367 Million	\$660 Million
<b>Hybrid*</b>	\$90 Million	\$162 Million	\$513 Million	\$924 Million

\*Of these totals, the U.S. Army Corps of Engineers (Corps), Port of Olympia (Port), and marinas would be responsible for \$18M, which is the projected cost for maintenance dredging over 30 years under the No Action Alternative. The costs reflected in this spreadsheet are for all dredging that would be needed in West Bay under the Estuary and Hybrid Alternatives. The costs reported in the Draft EIS for the Estuary and Hybrid Alternatives subtract the \$18M from the totals reported herein to account for the baseline dredging that would remain the responsibility of the Corps, Port and marinas. (This is not applicable to the Managed Lake Alternative because project-related maintenance dredging would occur in the North Basin, not in West Bay.)

Estuary - Maintenance Dredging In-Water Disposal				
Year after Construction Completion	Location	Quantity (cy)	Cost	Cycle Cost
6	OYC	21,600	\$ 7,540,000	
				\$ 7,540,000
12	OYC	21,600	\$ 7,540,000	
	Marinas	15,600	\$ 6,670,000	
	Port/TB	247,800	\$ 17,700,000	
				\$ 31,910,000
18	OYC	21,600	\$ 7,540,000	
				\$ 7,540,000
24	OYC	21,600	\$ 7,540,000	
	Marinas	15,600	\$ 6,670,000	
	Port/TB	247,800	\$ 17,700,000	
	Access	65,400	\$ 2,000,000	
				\$ 33,910,000
30	OYC	21,600	\$ 7,540,000	
				\$ 7,540,000
<b>TOTAL PLANNING-LEVEL ESTIMATE FOR MAINTENANCE DREDGING</b>			<b>\$ 88,440,000</b>	
			<b>High +35%*</b>	<b>\$ 119,390,000</b>
			<b>Low -25%*</b>	<b>\$ 66,330,000</b>

Hybrid - Maintenance Dredging In-Water Disposal				
Year after Construction Completion	Location	Quantity (cy)	Cost	Cycle Cost
5	OYC	21,600	\$ 7,540,000	
				\$ 7,540,000
10	OYC	21,600	\$ 7,540,000	
	Marinas	15,600	\$ 6,670,000	
	Port/TB	247,800	\$ 17,700,000	
				\$ 31,910,000
15	OYC	21,600	\$ 7,540,000	
				\$ 7,540,000
20	OYC	21,600	\$ 7,540,000	
	Marinas	15,600	\$ 6,670,000	
	Port/TB	247,800	\$ 17,700,000	
	Access	65,400	\$ 2,000,000	
				\$ 33,910,000
25	OYC	21,600	\$ 7,540,000	
				\$ 7,540,000
30	OYC	21,600	\$ 7,540,000	
	Marinas	15,600	\$ 6,670,000	
	Port/TB	247,800	\$ 17,700,000	
				\$ 31,910,000
<b>TOTAL PLANNING-LEVEL ESTIMATE FOR MAINTENANCE DREDGING</b>			<b>\$ 120,350,000</b>	
			<b>High +35%*</b>	<b>\$ 162,470,000</b>
			<b>Low -25%*</b>	<b>\$ 90,260,000</b>

Managed Lake - Maintenance Dredging Upland Disposal				
Year after Construction Completion	Location	Quantity (cy)	Cost	Cycle Cost
20	Lake	472,000	\$ 331,080,000	
				\$ 331,080,000
<b>TOTAL PLANNING-LEVEL ESTIMATE FOR MAINTENANCE DREDGING</b>			<b>\$ 331,080,000</b>	
			<b>High +35%</b>	<b>\$ 446,960,000</b>
			<b>Low -25%</b>	<b>\$ 248,310,000</b>

\*Of this total, the U.S. Army Corps of Engineers (Corps), Port of Olympia (Port), and marinas would be responsible for \$18M, which is the projected cost for maintenance dredging over 30 years under the No Action Alternative. The costs reflected in this spreadsheet are for all dredging that would be needed in West Bay under the Estuary and Hybrid Alternatives. The costs reported in the Draft EIS for the Estuary and Hybrid Alternatives subtract the \$18M from the totals reported herein to account for the baseline dredging that would remain the responsibility of the Corps, Port and marinas. (This is not applicable to the Managed Lake Alternative because project-related maintenance dredging would occur in the North Basin, not in West Bay.)

Estuary - Maintenance Dredging, if Upland Disposal				
Year after Construction Completion	Location	Quantity (cy)	Cost	Cycle Cost
6	OYC	21,600	\$ 19,440,000	
				\$ 19,440,000
12	OYC	21,600	\$ 19,440,000	
	Marinas	15,600	\$ 15,260,000	
	Port/TB	247,800	\$ 160,540,000	
				\$ 195,240,000
18	OYC	21,600	\$ 19,440,000	
				\$ 19,440,000
24	OYC	21,600	\$ 19,440,000	
	Marinas	15,600	\$ 15,260,000	
	Port/TB	247,800	\$ 160,540,000	
	Access	65,400	\$ 40,290,000	
				\$ 235,530,000
30	OYC	21,600	\$ 19,440,000	
				\$ 19,440,000
<b>TOTAL PLANNING-LEVEL ESTIMATE FOR MAINTENANCE DREDGING</b>			<b>\$ 489,090,000</b>	
		<b>High +35%*</b>	<b>\$ 660,270,000</b>	
		<b>Low -25%*</b>	<b>\$ 366,820,000</b>	

Hybrid - Maintenance Dredging, if Upland Disposal				
Year after Construction Completion	Location	Quantity (cy)	Cost	Cycle Cost
5	OYC	21,600	\$ 19,440,000	
				\$ 19,440,000
10	OYC	21,600	\$ 19,440,000	
	Marinas	15,600	\$ 15,260,000	
	Port/TB	247,800	\$ 160,540,000	
				\$ 195,240,000
15	OYC	21,600	\$ 19,440,000	
	Reflecting Pool			
				\$ 19,440,000
20	OYC	21,600	\$ 19,440,000	
	Marinas	15,600	\$ 15,260,000	
	Port/TB	247,800	\$ 160,540,000	
	Access	65,400	\$ 40,290,000	
				\$ 235,530,000
25	OYC	21,600	\$ 19,440,000	
				\$ 19,440,000
30	OYC	21,600	\$ 19,440,000	
	Marinas	15,600	\$ 15,260,000	
	Port/TB	247,800	\$ 160,540,000	
	Reflecting Pool		\$ -	
				\$ 195,240,000
<b>TOTAL PLANNING-LEVEL ESTIMATE FOR MAINTENANCE DREDGING</b>			<b>\$ 684,330,000</b>	
		<b>High +35%*</b>	<b>\$ 923,850,000</b>	
		<b>Low -25%*</b>	<b>\$ 513,250,000</b>	

\*Of this total, the U.S. Army Corps of Engineers (Corps), Port of Olympia (Port), and marinas would be responsible for \$18M, which is the projected cost for maintenance dredging over 30 years under the No Action Alternative. The costs reflected in this spreadsheet are for all dredging that would be needed in West Bay under the Estuary and Hybrid Alternatives. The costs reported in the Draft EIS for the Estuary and Hybrid Alternatives subtract the \$18M from the totals reported herein to account for the baseline dredging that would remain the responsibility of the Corps, Port and marinas. (This is not applicable to the Managed Lake Alternative because project-related maintenance dredging would occur in the North Basin, not in West Bay.)



Estuary - Maintenance Dredging Schedule (10hr/day, 5day/wk)					
Year after Construction Completion	Location	Quantity (cy)	Production (cy/day)	Duration (Months)	Total (cy)
6	OYC	21,600	852	2	
					21,600
12	OYC	21,600	852	2	
	Marinas	15,600	852	1	
	Port/TB	247,800	1,800	7	
					285,000
18	OYC	21,600	852	2	
					21,600
24	OYC	21,600	852	2	
	Marinas	15,600	852	1	
	Port/TB	247,800	1,800	7	
	Access	65,400	4,199	1	
					350,400
30	OYC	21,600	852	2	
					21,600

Managed Lake - Maintenance Dredging Schedule (10hr/day, 5day/wk)					
Year after Construction Completion	Location	Quantity (cy)	Production (cy/day)	Duration (Months)	Total (cy)
20	North Basin	472,000	1,019	22	
					472,000

Hybrid - Maintenance Dredging Schedule (10hr/day, 5day/wk)					
Year after Construction Completion	Location	Quantity (cy)	Production (cy/day)	Duration (Months)	Total (cy)
5	OYC	21,600	852	2	
					21,600
10	OYC	21,600	852	2	
	Marinas	15,600	852	1	
	Port/TB	247,800	1,800	7	
					285,000
15	OYC	21,600	852	2	
					21,600
20	OYC	21,600	852	2	
	Marinas	15,600	852	1	
	Port/TB	247,800	1,800	7	
	Access	65,400	4,199	1	
					350,400
25	OYC	21,600	852	2	
					21,600
30	OYC	21,600	852	2	
	Marinas	15,600	852	1	
	Port/TB	247,800	1,800	7	
					285,000

Description	QTY	Unit	Unit Cost	Subtotal	Total	Notes
<b>Managed Lake - Maintenance Dredging in North Basin</b>						
<b>Upland Disposal (assumed due to presence of New Zealand Mudsnaill)</b>						
Mobilization/Demobilization	1	LS	\$9,263,637	\$9,263,637		Assumes 10% for mobilization
Construct Temp Offload Site	1	LS	\$645,047.65	\$645,048		
Dredging Unit	472,000	CY	\$7.79	\$3,677,577		
Towing Unit	472,000	CY	\$5.63	\$2,657,927		
Scow Unit	472,000	CY	\$1.14	\$539,267		
Unloading Unit	472,000	CY	\$9.40	\$4,435,469		Assumes Cat 336, Cat 966, & Cat D6
Load Out Trucks	472,000	CY	\$9.02	\$4,257,613		Includes water truck & grader Street sweeper included full time.
						Assume haul to Roosevelt Regional Landfill. Material not accepted at local landfill. Roosevelt used for cost estimating and because they could accept the sediment. A landfill would be selected before maintenance dredging in the future.
Haul to Disposal Site	472,000	CY	\$125.91	\$59,431,464		
Tipping Fee	708,000	Ton	\$24.00	\$16,992,000		
<b>Indirects</b>						
Overhead	15%	%		\$15,285,000		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$3,984,290		
Profit	20%	%		\$24,233,859		
Escalation	98%	%		\$142,495,089		Assumes 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$43,184,736		High contingency since volume assumptions have high risk of changing
<b>Total</b>					<b>\$331,082,978</b>	

Description	QTY	Unit	Unit Cost	Subtotal	Total	Notes
<b>Estuary and Hybrid Alternatives - Maintenance Dredging in impacted areas of West Bay</b>						
<b>Olympia Yacht Club</b>						
<b>In-water Disposal at Anderson Ketron (assumed)</b>						
Mobilization/Demobilization	1	LS	\$211,052	\$211,052		Assumes 10% for mobilization
Remove/Reinstall Docks	350,000	SF	\$3.52	\$1,233,274		
Dredging Unit	21,600	CY	\$9.31	\$201,173		Assumes Cat 336 excavator
Towing Unit	21,600	CY	\$29.04	\$627,295		Larger tug working 24hr/day for disposal runs to Anderson Ketron
Scow Unit	21,601	CY	\$2.26	\$48,776		Split hull scow(s) for disposal runs to Anderson Ketron operating 24hr/day
<b>Indirects</b>						
Overhead	15%	%		\$348,236		Assume 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$90,773		
Profit	20%	%		\$552,116		
Escalation	98%	%		\$3,246,442		Assume 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$983,871		High contingency since volume assumptions and dock removal requirements (under Estuary and Hybrid Alternatives) have high risk of changing
<b>Total</b>					<b>\$7,543,009</b>	
<b>Upland Disposal (not assumed, but remains a potential if conditions change)</b>						
Mobilization/Demobilization	1	LS	\$543,799	\$543,799		Assumes 10% for mobilization
Remove/Reinstall Docks	350,000	SF	\$3.52	\$1,233,274		
Dredging Unit	21,600	CY	\$9.31	\$201,173		Assumes Cat 336 excavator
Towing Unit	21,600	CY	\$6.73	\$145,396		
Scow Unit	21,600	CY	\$1.37	\$29,499		
Unloading Unit	21,600	CY	\$6.48	\$140,008		Assumes Cat 365 excavator would be required to reach scows below pier
Load Out Trucks	21,600	CY	\$8.61	\$185,891		Includes water truck Street sweeper included full time.
Haul to Disposal Site	21,600	CY	\$126.16	\$2,725,151		Assume haul to Roosevelt Regional Landfill. Material not accepted at local landfill. Roosevelt used for cost estimating and because they could accept the sediment. A landfill would be selected before maintenance dredging in the future.
Tipping Fee	32,400	Ton	\$24.00	\$777,600		
<b>Indirects</b>						
Overhead	15%	%		\$897,269		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$233,888		
Profit	20%	%		\$1,422,590		
Escalation	98%	%		\$8,364,827		Assumes 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$2,535,055		High contingency since volume assumptions and dock removal requirements (under Estuary and Hybrid Alternatives) have high risk of changing
<b>Total</b>					<b>\$19,435,418</b>	

Description	QTY	Unit	Unit Cost	Subtotal	Total	Notes
<b>Private Marinas</b>						
<b>In-water Disposal at Anderson Ketron (assumed)</b>						
Mobilization/Demobilization	1	LS	\$186,684	\$186,684		Assumes 10% for mobilization
Remove/Reinstall Docks	350,000	SF	\$3.52	\$1,233,274		
Dredging Unit	15,600	CY	\$9.31	\$145,292		Assumes Cat 336 excavator
Towing Unit	15,600	CY	\$29.04	\$453,047		Larger tug working 24hr/day for disposal runs to Anderson Ketron
Scow Unit	15,600	CY	\$2.26	\$35,226		Split hull scow(s) for disposal runs to Anderson Ketron operating 24hr/day
Indirects						
Overhead	15%	%		\$308,028		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$80,293		
Profit	20%	%		\$488,369		
Escalation	98%	%		\$2,871,608		Assume 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$870,273		High contingency since volume assumptions and dock removal requirements (under Estuary and Hybrid Alternatives) have high risk of changing
<b>Total</b>					<b>\$6,672,093</b>	
<b>Upland Disposal (not assumed, but remains a potential if conditions change)</b>						
Mobilization/Demobilization	1	LS	\$427,001	\$427,001		Assumes 10% for mobilization
Remove/Reinstall Docks	350,000	SF	\$3.52	\$1,233,274		
Dredging Unit	15,600	CY	\$9.31	\$145,292		Assumes Cat 336 excavator
Towing Unit	15,600	CY	\$6.73	\$105,008		
Scow Unit	15,600	CY	\$1.37	\$21,305		
Unloading Unit	15,600	CY	\$6.48	\$101,117		Assumes Cat 365 excavator would be required to reach scows below pier
Load Out Trucks	15,600	CY	\$8.61	\$134,255		Includes water truck Street sweeper included full time.
Haul to Disposal Site	15,600	CY	\$126.16	\$1,968,164		Assume haul to Roosevelt Regional Landfill. Material not accepted at local landfill. Roosevelt used for cost estimating and because they could accept the sediment. A landfill would be selected before maintenance dredging in the future.
Tipping Fee	23,400	Ton	\$24.00	\$561,600		
Indirects						
Overhead	15%	%		\$704,552		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$183,653		
Profit	20%	%		\$1,117,044		
Escalation	98%	%		\$6,568,221		Assume 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$1,990,573		High contingency since volume assumptions and dock removal requirements (under Estuary and Hybrid Alternatives) have high risk of changing
<b>Total</b>					<b>\$15,261,061</b>	

Description	QTY	Unit	Unit Cost	Subtotal	Total	Notes
<b>Port of Olympia &amp; Turning Basin</b>						
<b>In-water Disposal at Anderson Ketron (assumed)</b>						
Mobilization/Demobilization	1	LS	\$495,255	\$495,255		Assumes 10% for mobilization
Dredging Unit	247,800	CY	\$5.16	\$1,279,101		Assumes 21cy clamshell dredge
Towing Unit	247,800	CY	\$13.75	\$3,408,431		Tug working 24hr/day for disposal runs to Anderson Ketron
Scow Unit	247,800	CY	\$1.07	\$265,016		Assume 1ea Split hull scow for disposal runs to Anderson Ketron operating 24hr/day
Indirects						
Overhead	15%	%		\$817,170		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$213,009		
Profit	20%	%		\$1,295,597		
Escalation	98%	%		\$7,618,107		Assumes 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$2,308,753		High contingency since volume assumptions have high risk of changing
<b>Total</b>					<b>\$17,700,439</b>	
<b>Upland Disposal (not assumed, but remains a potential if conditions change)</b>						
Mobilization/Demobilization	1	LS	\$4,492,003	\$4,492,003		Assumes 10% for mobilization
Dredging Unit	247,800	CY	\$5.16	\$1,279,101		Assumes 21cy clamshell dredge
Towing Unit	247,800	CY	\$5.21	\$1,291,029		
Scow Unit	247,800	CY	\$0.89	\$220,847		Assumes 2ea scows - 1 for dredging & 1 for offloading
Unloading Unit	247,800	CY	\$3.19	\$789,504		Assumes Cat 374 exc required to reach scows below pier
Load Out Trucks	247,800	CY	\$5.03	\$1,245,685		Includes water truck Street sweeper included full time.
						Assume haul to Roosevelt Regional Landfill. Material not accepted at local landfill. Roosevelt used for cost estimating and because they could accept the sediment. A landfill would be selected before maintenance dredging in the future.
Haul to Disposal Site	247,800	CY	\$125.80	\$31,173,061		
Tipping Fee	371,700	Ton	\$24.00	\$8,920,800		
Indirects						
Overhead	15%	%		\$7,411,804		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$1,932,010		
Profit	20%	%		\$11,751,169		
Escalation	98%	%		\$69,096,872		Assumes 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$20,940,583		High contingency since volume assumptions have high risk of changing
<b>Total</b>					<b>\$160,544,467</b>	



Description	QTY	Unit	Unit Cost	Subtotal	Total	Notes
<b>Navigational Access out to Federal Navigation Channel</b>						
<b>In-water Disposal at Anderson Ketron (assumed)</b>						
Mobilization/Demobilization	1	LS	\$56,018	\$56,018		Assumes 10% for mobilization
Dredging Unit	65,400	CY	\$2.21	\$144,679		Assume 21cy clamshell dredge
Towing Unit	65,400	CY	\$5.89	\$385,526		Tug working 24hr/day for disposal runs to Anderson Ketron
Scow Unit	65,400	CY	\$0.46	\$29,976		Assumes 1ea Split hull scow for disposal runs to Anderson Ketron operating 24hr/day
Indirects						
Overhead	15%	%		\$92,430		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$24,093		
Profit	20%	%		\$146,544		
Escalation	98%	%		\$861,681		Assumes 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$261,142		High contingency since volume assumptions have high risk of changing
<b>Total</b>					<b>\$2,002,091</b>	
<b>Upland Disposal (not assumed, but remains a potential if conditions change)</b>						
Mobilization/Demobilization	1	LS	\$1,127,265	\$1,127,265		Assumes 10% for mobilization
Dredging Unit	65,400	CY	\$2.21	\$144,679		Assumes 21cy clamshell dredge
Towing Unit	65,400	CY	\$2.23	\$146,028		
Scow Unit	65,400	CY	\$0.38	\$24,980		Assumes 2ea scows - 1 for dredging & 1 for offloading
Unloading Unit	65,400	CY	\$2.39	\$156,520		Assumes 2ea Cat 374 exc required to reach scows below pier
Load Out Trucks	65,400	CY	\$3.35	\$218,769		Includes water truck Street sweeper included full time.
						Assume haul to Roosevelt Regional Landfill. Material not accepted at local landfill. Roosevelt used for cost estimating and because they could accept the sediment. A landfill would be selected before maintenance dredging in the future.
Haul to Disposal Site	65,400	CY	\$125.80	\$8,227,273		
Tipping Fee	98,100	Ton	\$24.00	\$2,354,400		
Indirects						
Overhead	15%	%		\$1,859,987		Assumes 15% of construction cost for overhead
Bond & Insurance	3.4%	%		\$484,837		
Profit	20%	%		\$2,948,947		
Escalation	98%	%		\$17,339,809		Assumes 15 year escalation @ 3.5% annually; start of const 2028 w/ avg life span of 6 yrs; (28yr)
Contingency	15%	%		\$5,255,024		High contingency since volume assumptions have high risk of changing
<b>Total</b>					<b>\$40,288,516</b>	



Managed Lake Alternative				
Dredge Area	Description	Hourly Rate	Qty	Subtotal
<b>North Basin</b>				
	Excavator Dredge - Dredge Unit			
	Cat 336	\$159.06	1	\$159.06
	40x10 floats	\$9.70	4	\$38.80
	Spud Pockets	\$1.88	3	\$5.64
	Spuds	\$1.73	3	\$5.19
	2 Drum Winch	\$21.74	2	\$43.48
	Portable 500amp welder	\$15.19	1	\$15.19
	Field Office 8x28	\$1.62	1	\$1.62
	Operator Foreman	\$108.96	1	\$108.96
	Leverman	\$107.98	1	\$107.98
	Mate	\$98.78	1	\$98.78
	Deckhand	\$93.79	1	\$93.79
	Oiler	\$93.79	1	\$93.79
	Runabout 16ft	\$21.52	1	\$21.52
	Excavator Dredge - Tow Unit (upland disposal)			
	Tow Boat - 700hp	\$378.53	1	\$378.53
	Operator	\$101.39	1	\$101.39
	Deckhand	\$93.79	1	\$93.79
	Excavator Dredge - Scow Unit (upland disposal)			
	40x10 floats	\$9.70	12	\$116.40
	Excavator Dredge - Offload Unit			
	Cat 336	\$159.06	1	\$159.06
	CAT 966 Loader	\$117.68	1	\$117.68
	Cat DG Dozer	\$140.92	1	\$140.92
	Operator Foreman	\$108.96	1	\$108.96
	Operator	\$101.39	3	\$304.17
	Oiler	\$93.79	1	\$93.79
	LD Truck 4x4	\$32.81	1	\$32.81
	Excavator Dredge - Load Out Unit			
	Cat 336	\$159.06	1	\$159.06
	Cat 12M Articulated Frm Grdr	\$84.11	1	\$84.11
	Off Hwy Water Tanker 5k gal	\$84.90	1	\$84.90
	Street Sweeper (manned)	\$150.00	1	\$150.00
	Operator	\$101.39	3	\$304.17
	Laborer (flagger)	\$68.38	2	\$136.76
	Excavator Dredge - Hauling Unit			
	On Hwy End Dump 18cy	\$113.57	68	\$7,722.76
	Truck Driver	\$75.08	68	\$5,105.44
	Tipping Fee - \$24.00/ton			

Estuary and Hybrid Alternatives				
Dredge Area	Description	Hourly Rate	Qty	Subtotal
<b>Port of Olympia &amp; Turning Basin</b>				
	21cy Clamshell - Dredge Unit			
	Clamshell Dredge - 21cy	\$404.07	1	\$404.07
	Operator Foreman	\$108.96	1	\$108.96
	Leverman	\$107.98	1	\$107.98
	Mate	\$98.78	1	\$98.78
	Deckhand	\$93.79	1	\$93.79
	Oiler	\$93.79	1	\$93.79
	Runabout 16ft	\$21.52	1	\$21.52
	21cy Clamshell - Offload Unit (Port/TB)			
	Cat 374	\$330.18	1	\$330.18
	Operator Foreman	\$108.96	1	\$108.96
	Operator	\$101.39	1	\$101.39
	LD Truck 4x4	\$32.81	1	\$32.81
	21y Clamshell - Load Out Unit (Port/TB)			
	Cat 374	\$330.18	1	\$330.18
	Off Hwy Water Tanker 5k gal	\$84.90	1	\$84.90
	Street Sweeper (manned)	\$150.00	1	\$150.00
	Operator	\$101.39	2	\$202.78
	Laborer (flagger)	\$68.38	2	\$136.76
	21cy Clamshell - Hauling Unit (Port/TB)			
	On Hwy End Dump 18cy	\$113.57	120	\$13,628.40
	Truck Driver	\$75.08	120	\$9,009.60
	10cy Clamshell - Dredge Unit			
	Clamshell Dredge - 10cy	\$206.51	1	\$206.51
	Operator Foreman	\$108.96	1	\$108.96
	Leverman	\$107.98	1	\$107.98
	Mate	\$98.78	1	\$98.78
	Deckhand	\$93.79	1	\$93.79
	Oiler	\$93.79	1	\$93.79



Dredge Area	Description	Hourly Rate	Qty	Subtotal
	Runabout 16ft	\$21.52	1	\$21.52
	10cy Clamshell - Tow Unit (upland disposal)			
	Tow Boat - 4000hp	\$742.37	1	\$742.37
	Operator	\$101.39	1	\$101.39
	Deckhand	\$93.79	1	\$93.79
	10cy Clamshell - Tow Unit (offshore disposal)			
	Tow Boat - 4000hp	\$742.37	1	\$742.37
	Operator	\$101.39	1	\$101.39
	Deckhand	\$93.79	2	\$187.58
	10cy Clamshell - Scow Unit (upland disposal)			
	Dump Scow - 4000cy	\$80.19	2	\$160.38
	10cy Clamshell - Scow Unit (offshore disposal)			
	Dump Scow - 4000cy	\$80.19	1	\$80.19
	10cy Clamshell - Offload Unit (Port/TB)			
	Cat 365	\$309.29	1	\$309.29
	Operator Foreman	\$108.96	1	\$108.96
	Operator	\$101.39	1	\$101.39
	LD Truck 4x4	\$32.81	1	\$32.81
	10cy Clamshell - Load Out Unit (Port/TB)			
	Cat 365	\$309.29	1	\$309.29
	Off Hwy Water Tanker 5k gal	\$84.90	1	\$84.90
	Street Sweeper (manned)	\$150.00	1	\$150.00
	Operator	\$101.39	2	\$202.78
	Laborer (flagger)	\$68.38	2	\$136.76
	10cy Clamshell - Hauling Unit (Port/TB)			
	On Hwy End Dump 18cy	\$113.57	92	\$10,448.44
	Truck Driver	\$75.08	92	\$6,907.36
<b>Navigational Access out to Federal Navigation Channel</b>				
	21cy Clamshell - Dredge Unit			
	Clamshell Dredge - 21cy	\$404.07	1	\$404.07
	Operator Foreman	\$108.96	1	\$108.96
	Leverman	\$107.98	1	\$107.98
	Mate	\$98.78	1	\$98.78
	Deckhand	\$93.79	1	\$93.79
	Oiler	\$93.79	1	\$93.79
	Runabout 16ft	\$21.52	1	\$21.52
	21cy Clamshell - Offload Unit (Port/TB)			
	Cat 374	\$330.18	2	\$660.36
	Operator Foreman	\$108.96	1	\$108.96
	Operator	\$101.39	2	\$202.78
	LD Truck 4x4	\$32.81	1	\$32.81
	21y Clamshell - Load Out Unit (Port/TB)			
	Cat 374	\$330.18	2	\$660.36
	Off Hwy Water Tanker 5k gal	\$84.90	1	\$84.90
	Street Sweeper (manned)	\$150.00	1	\$150.00
	Operator	\$101.39	3	\$304.17
	Laborer (flagger)	\$68.38	3	\$205.14
	21cy Clamshell - Hauling Unit (Port/TB)			
	On Hwy End Dump 18cy	\$113.57	280	\$31,799.60
	Truck Driver	\$75.08	280	\$21,022.40
	10cy Clamshell - Dredge Unit			
	Clamshell Dredge - 10cy	\$206.51	1	\$206.51
	Operator Foreman	\$108.96	1	\$108.96
	Leverman	\$107.98	1	\$107.98
	Mate	\$98.78	1	\$98.78
	Deckhand	\$93.79	1	\$93.79
	Oiler	\$93.79	1	\$93.79
	Runabout 16ft	\$21.52	1	\$21.52
	10cy Clamshell - Tow Unit (upland disposal)			
	Tow Boat - 4000hp	\$742.37	1	\$742.37
	Operator	\$101.39	1	\$101.39
	Deckhand	\$93.79	1	\$93.79
	10cy Clamshell - Tow Unit (offshore disposal)			
	Tow Boat - 4000hp	\$742.37	1	\$742.37
	Operator	\$101.39	1	\$101.39
	Deckhand	\$93.79	2	\$187.58
	10cy Clamshell - Scow Unit (upland disposal)			
	Dump Scow - 4000cy	\$80.19	2	\$160.38
	10cy Clamshell - Scow Unit (offshore disposal)			
	Dump Scow - 4000cy	\$80.19	1	\$80.19
	10cy Clamshell - Offload Unit (Access)			
	Cat 365	\$309.29	2	\$618.58
	Operator Foreman	\$108.96	1	\$108.96
	Operator	\$101.39	2	\$202.78



Dredge Area	Description	Hourly Rate	Qty	Subtotal
	LD Truck 4x4	\$32.81	1	\$32.81
	10cy Clamshell - Load Out Unit (Access)			
	Cat 336	\$159.06	2	\$318.12
	Off Hwy Water Tanker 5k gal	\$84.90	1	\$84.90
	Street Sweeper (manned)	\$150.00	1	\$150.00
	Operator	\$101.39	3	\$304.17
	Laborer (flagger)	\$68.38	4	\$273.52
	10cy Clamshell - Hauling Unit (Access)			
	On Hwy End Dump 18cy	\$113.57	151	\$17,149.07
	Truck Driver	\$75.08	151	\$11,337.08
<b>Olympia Yacht Club &amp; Marinas</b>				
	Excavator Dredge - Dredge Unit			
	Cat 336	\$159.06	1	\$159.06
	40x10 floats	\$9.70	4	\$38.80
	Spud Pockets	\$1.88	3	\$5.64
	Spuds	\$1.73	3	\$5.19
	2 Drum Winch	\$21.74	2	\$43.48
	Portable 500amp welder	\$15.19	1	\$15.19
	Field Office 8x28	\$1.62	1	\$1.62
	Operator Foreman	\$108.96	1	\$108.96
	Leverman	\$107.98	1	\$107.98
	Mate	\$98.78	1	\$98.78
	Deckhand	\$93.79	1	\$93.79
	Oiler	\$93.79	1	\$93.79
	Runabout 16ft	\$21.52	1	\$21.52
	Excavator Dredge - Tow Unit (upland disposal)			
	Tow Boat - 700hp	\$378.53	1	\$378.53
	Operator	\$101.39	1	\$101.39
	Deckhand	\$93.79	1	\$93.79
	Excavator Dredge - Tow Unit (offshore disposal)			
	Tow Boat - 4000hp	\$742.37	1	\$742.37
	Operator	\$101.39	1	\$101.39
	Deckhand	\$93.79	2	\$187.58
	Excavator Dredge - Scow Unit (upland disposal)			
	40x10 floats	\$9.70	12	\$116.40
	Excavator Dredge - Scow Unit (offshore disposal)			
	Dump Scow - 4000cy	\$80.19	1	\$80.19
	Excavator Dredge - Offload Unit			
	Cat 365	\$309.29	1	\$309.29
	Operator Foreman	\$108.96	1	\$108.96
	Operator	\$101.39	1	\$101.39
	LD Truck 4x4	\$32.81	1	\$32.81
	Excavator Dredge - Load Out Unit			
	Cat 336	\$159.06	1	\$159.06
	Off Hwy Water Tanker 5k gal	\$84.90	1	\$84.90
	Street Sweeper (manned)	\$150.00	1	\$150.00
	Operator	\$101.39	2	\$202.78
	Laborer (flagger)	\$68.38	2	\$136.76
	Excavator Dredge - Hauling Unit			
	On Hwy End Dump 18cy	\$113.57	57	\$6,473.49
	Truck Driver	\$75.08	57	\$4,279.56

Location	QTY (CY)	Dig Face (ft)	Notes:	Location	QTY (CY)	Dig Face (ft)	Notes:
Olympia Yacht Club	21,600	3.25	Assume all floats & piles are removed before dredging starts	Marinas	15,600	3.25	Assume all floats & piles are removed before dredging starts
Cat 336 Excavator			Assume excavator required to get into shallow water (<8')	Cat 336 Excavator			Assume excavator required to get into shallow water (<8')
Max Dredge Depth	<b>24</b>	ft		Max Dredge Depth	<b>24</b>	ft	
Hours per Day	10.00	hr		Hours per Day	10.00	hr	
Efficiency	<b>0.75</b>		Efficiency less than 80% - assuming tiny scows are used	Efficiency	<b>0.75</b>		Efficiency less than 80% - assuming tiny scows are used
Work Hours per Day	7.50	hr		Work Hours per Day	7.50	hr	
Work Production	<b>60.00</b>	buckets/hr		Work Production	<b>60.00</b>	buckets/hr	
Bucket Size	2.97	cy		Bucket Size	2.97	cy	
Bucket Size	80.19	cf		Bucket Size	80.19	cf	
Bucket Height	4.31	ft		Bucket Height	4.31	ft	
Average Dig Face	3.25	ft		Average Dig Face	3.25	ft	
Operating Production	<b>45.00</b>	buckets/hr		Operating Production	<b>45.00</b>	buckets/hr	
Slurry Production	133.65	cy/hr		Slurry Production	133.65	cy/hr	
	<b>1,336.50</b>	cy/day			<b>1,336.50</b>	cy/day	
	0.08	acre-feet/hr			0.08	acre-feet/hr	
	<b>0.62</b>	acre-feet/day			<b>0.62</b>	acre-feet/day	
% Solids	<b>0.64</b>			% Solids	<b>0.64</b>		
Material Production	85.23	cy/hr		Material Production	85.23	cy/hr	
	<b>852.30</b>	cy/day			<b>852.30</b>	cy/day	
	0.05	acre-feet/hr			0.05	acre-feet/hr	
	<b>0.40</b>	acre-feet/day			<b>0.40</b>	acre-feet/day	
Water Production	48.42	cy/hr		Water Production	48.42	cy/hr	
	<b>484.20</b>	cy/day			<b>484.20</b>	cy/day	
	0.03	acre-feet/hr			0.03	acre-feet/hr	
	<b>0.23</b>	acre-feet/day			<b>0.23</b>	acre-feet/day	
Dewatering Zone Size	0.40	acres		Dewatering Zone Size	0.40	acres	
Dewatering Zone Fill depth	<b>7.00</b>	ft		Dewatering Zone Fill depth	<b>7.00</b>	ft	
Time to Fill Dewatering Area	7.00	days		Time to Fill Dewatering Area	7.00	days	
Time to dewater mtrl	<b>7.00</b>	days		Time to dewater mtrl	<b>7.00</b>	days	
Number of Dewatering Zones Required	2.00	zones		Number of Dewatering Zones Required	2.00	zones	
Total Area Required for Dewatering	<b>0.79</b>	acres		Total Area Required for Dewatering	<b>0.79</b>	acres	

Location	QTY (CY)	Dig Face (ft)	Notes:	Location	QTY (CY)	Dig Face (ft)	Notes:
Port of Olympia & Turning Basin	247,800	3		Port of Olympia & Turning Basin	247,800	3	
10cy Clamshell Dredge				21cy Clamshell Dredge			
bucket size	<b>10</b>	cy		bucket size	<b>21</b>	cy	
Bucket weight	<b>23.333333</b>	tons		Bucket weight	<b>49</b>	tons	
material weight	<b>120</b>	pcf		material weight	<b>120</b>	pcf	
	3240	lb/cy			3240	lb/cy	
	1.62	tons/cy			1.62	tons/cy	
Bucket Fill Capacity	<b>46%</b>			Bucket Fill Capacity	<b>29%</b>		
Weight of Material	7.5193739	tons		Weight of Material	9.86471	tons	
Weight of Loaded Bucket	<b>35.37</b>	tons		Weight of Loaded Bucket	<b>71.43</b>	tons	
	<b>70.733266</b>	kips			<b>142.851</b>	kips	
Boom Length	<b>110</b>	ft		Boom Length	<b>110</b>	ft	
working radius	<b>35</b>	ft		working radius	<b>35</b>	ft	
Avg. Dig Depth	<b>28.5</b>	ft		Avg. Dig Depth	<b>28.5</b>	ft	
Avg. Scow Freeboard	5	ft		Avg. Scow Freeboard	5	ft	
Hoisting speed	250	ft/min		Hoisting speed	250	ft/min	
Load Bucket	18	sec		Load Bucket	18	sec	
Lift Load	8	sec		Lift Load	8	sec	
Swing Load	9	sec		Swing Load	9	sec	
Dump Load	6	sec		Dump Load	6	sec	
Return Swing	9	sec		Return Swing	9	sec	
Lower Bucket	11	sec		Lower Bucket	11	sec	
Cycle Time	61	sec		Cycle Time	61	sec	
Lost Time @ 10%	6	sec		Lost Time @ 10%	6	sec	
Total Cycle Time	67	sec		Total Cycle Time	67	sec	
Max Dredge Depth	<b>N/A</b>	ft		Max Dredge Depth	<b>N/A</b>	ft	
Average Dredge Depth	<b>28.5</b>	ft		Average Dredge Depth	<b>28.5</b>	ft	
Hours per Shift	10.00	hr		Hours per Shift	10.00	hr	
Efficiency	<b>0.55</b>		Low efficiency for short radius, start up & shut down for short shifts	Efficiency	<b>0.55</b>		Low efficiency for short radius, start up & shut down for short shifts
Work Hours per Shift	5.50	hr		Work Hours per Shift	5.50	hr	
Work Production	<b>53.73</b>	buckets/hr		Work Production	<b>53.73</b>	buckets/hr	
Bucket Size	10.00	cy		Bucket Size	21.00	cy	
Operating Production	<b>29.55</b>	buckets/hr		Operating Production	<b>29.55</b>	buckets/hr	
Bucket Size	10.00	cy		Bucket Size	21.00	cy	
Bucket Size	270.00	cf		Bucket Size	567.00	cf	
Bucket Height	6.46	ft		Bucket Height	8.28	ft	
% Solids	<b>0.46</b>			Bucket Fill Factor	<b>0.29</b>		
Material Production	137.17	cy/hr		Material Production	179.95	cy/hr	
	<b>1,371.69</b>	cy/shift			<b>1,799.53</b>	cy/shift	
	0.09	acre-feet/hr			0.11	acre-feet/hr	
	<b>0.47</b>	acre-feet/shift			<b>0.61</b>	acre-feet/shift	

Location	QTY (CY)	Dig Face (ft)	Notes:	Location	QTY (CY)	Dig Face (ft)	Notes:
Navigational Access Area	65,400	7		Navigational Access Area	65,400	7	
10cy Clamshell Dredge				21cy Clamshell Dredge			
bucket size	<b>10</b> cy			bucket size	<b>21</b> cy		
Bucket weight	<b>23.33333333</b> tons			Bucket weight	<b>49</b> tons		
material weight	<b>120</b> pcf			material weight	<b>120</b> pcf		
	3240 lb/cy				3240 lb/cy		
	1.62 tons/cy				1.62 tons/cy		
Bucket Fill Capacity	<b>70%</b>			Bucket Fill Capacity	<b>68%</b>		
Weight of Material	11.34 tons			Weight of Material	23.0177 tons		
Weight of Loaded Bucket	<b>37.20</b> tons			Weight of Loaded Bucket	<b>77.74</b> tons		
	<b>74.40106667</b> kips				<b>155.478</b> kips		
Boom Length	<b>110</b> ft			Boom Length	<b>110</b> ft		
working radius	<b>35</b> ft			working radius	<b>35</b> ft		
Avg. Dig Depth	<b>28.5</b> ft			Avg. Dig Depth	<b>28.5</b> ft		
Avg. Scow Freeboard	5 ft			Avg. Scow Freeboard	5 ft		
Hoisting speed	250 ft/min			Hoisting speed	250 ft/min		
Load Bucket	18 sec			Load Bucket	18 sec		
Lift Load	8 sec			Lift Load	8 sec		
Swing Load	9 sec			Swing Load	9 sec		
Dump Load	6 sec			Dump Load	6 sec		
Return Swing	9 sec			Return Swing	9 sec		
Lower Bucket	11 sec			Lower Bucket	11 sec		
Cycle Time	61 sec			Cycle Time	61 sec		
Lost Time @ 10%	6 sec			Lost Time @ 10%	6 sec		
Total Cycle Time	67 sec			Total Cycle Time	67 sec		
Max Dredge Depth	<b>N/A</b> ft			Max Dredge Depth	<b>N/A</b> ft		
Average Dredge Depth	<b>28.5</b> ft			Average Dredge Depth	<b>28.5</b> ft		
Hours per Shift	10.00 hr			Hours per Shift	10.00 hr		
Efficiency	<b>0.60</b>		Slightly better efficiency due to larger dig face	Efficiency	<b>0.55</b>		Low efficiency for short radius, start up & shut down for short shifts
Work Hours per Shift	6.00 hr			Work Hours per Shift	5.50 hr		
Work Production	<b>53.73</b> buckets/hr			Work Production	<b>53.73</b> buckets/hr		
Bucket Size	10.00 cy			Bucket Size	21.00 cy		
Operating Production	<b>32.24</b> buckets/hr			Operating Production	<b>29.55</b> buckets/hr		
Bucket Size	10.00 cy			Bucket Size	21.00 cy		
Bucket Size	270.00 cf			Bucket Size	567.00 cf		
Bucket Height	6.46 ft			Bucket Height	8.28 ft		
% Solids	<b>0.70</b>			Bucket Fill Factor	<b>0.68</b>		
Material Production	225.67 cy/hr			Material Production	419.89 cy/hr		
	<b>2,256.72</b> cy/shift				<b>4,198.91</b> cy/shift		
	0.14 acre-feet/hr				0.26 acre-feet/hr		
	<b>0.84</b> acre-feet/shift				<b>1.43</b> acre-feet/shift		



Location	QTY (CY)	Dig Face (ft)	Location	QTY (CY)	Dig Face (ft)	Location	QTY (CY)	Dig Face (ft)	Location	QTY (CY)	Dig Face (ft)
North Basin for Managed Lake	472,000	3.8	Offload		7	Loadout		7	Loadout		7
Cat 336 Excavator			Cat 365 Excavator			Cat 374 Excavator			Cat 336 Excavator		
Max Dredge Depth	<b>24</b>	<b>ft</b>	Max Dredge Depth	<b>24</b>	<b>ft</b>	Max Dredge Depth	<b>24</b>	<b>ft</b>	Max Dredge Depth	<b>24</b>	<b>ft</b>
Hours per Day	10.00	hr	Hours per Day	10.00	hr	Hours per Day	10.00	hr	Hours per Day	10.00	hr
Efficiency	<b>0.81</b>		Efficiency	<b>0.75</b>		Efficiency	<b>0.80</b>		Efficiency	<b>0.80</b>	
Work Hours per Day	8.08	hr	Work Hours per Day	7.50	hr	Work Hours per Day	8.00	hr	Work Hours per Day	8.00	hr
Work Production	<b>60.00</b>	<b>buckets/hr</b>	Work Production	<b>60.00</b>	<b>buckets/hr</b>	Work Production	<b>60.00</b>	<b>buckets/hr</b>	Work Production	<b>60.00</b>	<b>buckets/hr</b>
Bucket Size	2.97	cy	Bucket Size	4.00	cy	Bucket Size	4.97	cy	Bucket Size	3.00	cy
Bucket Size	80.19	cf	Bucket Size	108.00	cf	Bucket Size	134.19	cf	Bucket Size	81.00	cf
Bucket Height	4.31	ft	Bucket Height	4.76	ft	Bucket Height	5.12	ft	Bucket Height	4.33	ft
Average Dig Face	3.80	ft	Average Dig Face	7.00	ft	Average Dig Face	7.00	ft	Average Dig Face	7.00	ft
Operating Production	<b>48.50</b>	<b>buckets/hr</b>	Operating Production	<b>45.00</b>	<b>buckets/hr</b>	Operating Production	<b>48.00</b>	<b>buckets/hr</b>	Operating Production	<b>48.00</b>	<b>buckets/hr</b>
Slurry Production	144.05	cy/hr	Slurry Production	180.00	cy/hr	Slurry Production	238.56	cy/hr	Slurry Production	144.00	cy/hr
	<b>1,440.45</b>	<b>cy/day</b>		<b>1,800.00</b>	<b>cy/day</b>		<b>2,385.60</b>	<b>cy/day</b>		<b>1,440.00</b>	<b>cy/day</b>
	0.09	acre-feet/hr		0.11	acre-feet/hr		0.15	acre-feet/hr		0.09	acre-feet/hr
	<b>0.72</b>	<b>acre-feet/day</b>		<b>0.84</b>	<b>acre-feet/day</b>		<b>1.18</b>	<b>acre-feet/day</b>		<b>0.71</b>	<b>acre-feet/day</b>
% Solids	<b>0.71</b>		% Solids	<b>0.90</b>		% Solids	<b>0.90</b>		% Solids	<b>0.90</b>	
Material Production	101.88	cy/hr	Material Production	162.00	cy/hr	Material Production	214.70	cy/hr	Material Production	129.60	cy/hr
	<b>1,018.81</b>	<b>cy/day</b>		<b>1,620.00</b>	<b>cy/day</b>		<b>2,147.04</b>	<b>cy/day</b>		<b>1,296.00</b>	<b>cy/day</b>
	0.06	acre-feet/hr		0.10	acre-feet/hr		0.13	acre-feet/hr		0.08	acre-feet/hr
	<b>0.51</b>	<b>acre-feet/day</b>		<b>0.75</b>	<b>acre-feet/day</b>		<b>1.06</b>	<b>acre-feet/day</b>		<b>0.64</b>	<b>acre-feet/day</b>
Water Production	42.16	cy/hr									
	<b>421.64</b>	<b>cy/day</b>									
	0.03	acre-feet/hr									
	<b>0.21</b>	<b>acre-feet/day</b>									
Dewatering Zone Size	0.51	acres									
Dewatering Zone Fill depth	<b>7.00</b>	<b>ft</b>									
Time to Fill Dewatering Area	7.00	days									
Time to dewater mtrl	<b>7.00</b>	<b>days</b>									
Number of Dewatering Zones Required	2.00	zones									
Total Area Required for Dewatering	<b>1.02</b>	<b>acres</b>									



Capitol Lake – Deschutes Estuary, Maintenance Dredging  
 Planning-Level Cost Estimates for Draft EIS  
 Hauling Productions



	Estuary & Hybrid Alternatives					Managed Lake Alternative
	Olympia Yacht Club & Marinas	Port of Olympia & Turning Basin		Navigational Access		North Basin
<b>Dredging Equipment:</b>	Cat 336	10cy Clam	21cy Clam	10cy Clam	21cy Clam	Cat 336
<b>Exporting Equipment:</b>	18cy End Dump	18cy End Dump	18cy End Dump	18cy End Dump	18cy End Dump	18cy End Dump
<b>Export Location:</b>	Roosevelt Landfill	Roosevelt Landfill	Roosevelt Landfill	Roosevelt Landfill	Roosevelt Landfill	Roosevelt Landfill
<b>Haul Distance - one way (mi)</b>	250.00	250.00	250.00	250.00	250.00	250.00
<b>Avg Speed (mph)</b>	55.00	55.00	55.00	55.00	55.00	55.00
<b>Wait and Load (min)</b>	2.81	2.81	2.81	2.81	2.81	2.81
<b>Turn and Dump (min)</b>	5.00	5.00	5.00	5.00	5.00	5.00
<b>Round Trip Haul Time/Truck (hr)</b>	9.22	9.22	9.22	9.22	9.22	9.22
<b>Export Production (cy/dy)</b>	852.30	1,371.69	1,799.53	2,256.72	4,198.91	1,018.81
<b>Export Quantity (cy)</b>	21,600.00	247,800.00	247,800.00	65,400.00	65,400.00	472,000.00
<b>Hr/Day</b>	10.00	10.00	10.00	10.00	10.00	10.00
<b>Trips/Truck/Day</b>	1.00	1.00	1.00	1.00	1.00	1.00
<b>CY/Truck</b>	15.00	15.00	15.00	15.00	15.00	15.00
<b>No. of Trucks/Day</b>	57.00	92.00	120.00	151.00	280.00	68.00
<b>Export Duration (work days)</b>	26.00	181.00	138.00	29.00	16.00	464.00

\*Assumed haul to Roosevelt Regional Landfill. Material not accepted at local landfill. Roosevelt used for cost estimating and because they could accept the sediment. A landfill would be selected before maintenance dredging in the future.