

# Appendix A: Tables

**Table 3.1 Volume Distribution**

Combined Discharge Capacity of Tunnels (cfs)*	Volume to be Stored During the Storm (MG)	Volume Discharged Through Tunnels During the Storm (MG)
170	30.8	12.2
500	16.2	26.8
700	10.3	32.7
1,000	3.9	39.1
1,500	0.0	43.0

\*The existing Daly City Outfall Tunnel has a rated discharge capacity of 170 cfs. Combined flows larger than this assume a new tunnel is constructed to provide the additional capacity.

Table 4.1 Summary of Drainage Tunnel Alignment Alternatives Without Stormwater Detention Facilities

No.	Tunnel Diameter, Length, & Flow Capacity	Alignment	Vista Grande Canal Modifications	Outfall Structure Requirements	Required System Connections & Modifications	Construction Shaft/Portal Location(s) & Staging Area(s)	Wetlands Development Opportunities	Utility Relocations	Permitting Issues	Right of Way Issues
1A	13-foot ID x 4,500-foot 1,330 cfs	Southwest from Lake Merced Blvd & John Muir Dr., Beneath the Olympic Club	No modifications required.	New Outfall Structure for 1,330 cfs discharge	<ul style="list-style-type: none"> <li>▪ New drop structure at (E) canal headworks with overflow weir to (N) tunnel</li> <li>▪ New trash screening facility at Lake Merced Blvd &amp; John Muir Dr.</li> </ul>	Adjacent to OC maintenance yard near the intersection of Lake Merced Blvd & John Muir Drive	Preserves existing available wetlands developmental area	Unconfirmed at this time	State Lands Commission & GGNRA approval for new outfall structure will be time consuming.	<ul style="list-style-type: none"> <li>▪ OC</li> </ul>
4	13-foot ID x 4,700-foot 1,330 cfs	West from Westlake Park beneath Northgate Drive			<ul style="list-style-type: none"> <li>▪ New drop structure in Westlake Park.</li> <li>▪ Connect to Northgate 24-inch diameter culvert</li> <li>▪ Connect to 7-foot x 6-foot box culvert</li> <li>▪ Connect to Cliffside 60-inch diameter culvert</li> <li>▪ New trash screening facility at Lake Merced Blvd &amp; Westlake Park</li> </ul>	Westlake Park: ball field or tennis courts.	Preserves existing available wetlands developmental area	Unconfirmed at this time	State Lands Commission & GGNRA approval for new outfall structure will be time consuming.	<ul style="list-style-type: none"> <li>▪ Existing ROW along Northgate.</li> <li>▪ Acquire new between ball field &amp; Cliffside Drive 60" culvert</li> <li>▪ GGNRA</li> </ul>
5B	15-foot ID x 5,200-foot 1,330 cfs	Northwest from the Vista Grande Canal, beneath the Olympic Club	Add approx. 800 feet of 15-foot x 10-foot box culvert to provide a total canal capacity of 1,500 cfs.	Rehabilitate the existing outfall structure with a new 1,500 cfs discharge capacity	<ul style="list-style-type: none"> <li>▪ New concrete drop structure at the canal inlet.</li> <li>▪ New trash screening facility along John Muir Drive</li> </ul>	Area between John Muir Drive & the canal, approx. 90 feet wide (min) by 440 feet long; 120 feet wide (max)	Increases available wetlands developmental area by providing space above new box culvert.	<ul style="list-style-type: none"> <li>• Electric O/H</li> <li>• Telephone U/G</li> <li>• Water U/G</li> <li>• MH (TBD)</li> </ul>	Requires State Lands Commission & GGNRA approval to rehab existing outfall structure.	<ul style="list-style-type: none"> <li>▪ OC</li> <li>▪ GGNRA</li> </ul>
6	15-foot ID x 4,200-foot 1,500 cfs		Add approx. 2,100 feet of 15-foot x 10-foot box culvert to provide a total canal capacity of 1,500 cfs.			Area between John Muir Drive & the canal, approx. 50 feet wide (min) by 660 feet long; 200 feet wide (max)	Increases available wetlands developmental area by providing space above new box culvert.			
7	15-foot ID x 3,200-foot 1,330 cfs		Add approx. 3,500 feet of 15-foot x 10-foot box culvert to provide a total canal capacity of 1,500 cfs.			Area between John Muir Drive & the canal, approx. 40 feet wide (min) by 540 feet long; 75 feet wide (max)	Increases available wetlands developmental area by providing space above new box culvert.			
7*	8-foot ID x 3,200-foot 330 cfs		No modifications required			Area between John Muir Drive & the canal, approx. 40 feet wide (min) by 540 feet long; 75 feet wide (max)	Increases available wetlands developmental area by providing space above new box culvert.			

**Legend**

ID – Inside diameter

(N) – New Facility

(E) – Existing Facility

OC- Olympic Club

GGNRA- Golden Gate National Recreation Area

TCE- Temporary Construction Easement

O/H – Overhead

U/G - Underground

**Table 4.2A Hydraulic Analysis Including Stormwater Detention for Tunnel Alignment Alternatives 1A & 4**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Existing Vista Grande Canal Flow Usable Capacity	New Additional Canal Design Flow Capacity	Existing Outfall Tunnel Flow	New Tunnel Design Flow	Approx. Required Storage Volume	Westlake Park Approx Detention Structure Dimensions (W x L x operating depth)	New Outfall Tunnel Diameter
	(cfs)	(cfs)	(cfs)	(cfs)	(MG)	(ft)	(ft)
<u>Option 1:</u> 1,500 cfs to Tunnels & No Storage	170	1,330	170	1,330	0	N/A	13
<u>Option 2:</u> 1,000 cfs to Tunnels & Balance to Storage	170	830	170	830	3.9	Beneath Softball Field 310 x 100 x 17	10
<u>Option 3:</u> 500 cfs to Tunnels & Balance to Storage	170	330	170	330	16.2	Beneath Softball Field 310 x 290 x 25	7
<u>Option 4:</u> 170 cfs to Tunnels & Balance to Storage	170	0	170	0	30.8	Beneath Softball Field 310 x 290 x 46	N/A
<u>Option 5:</u> 0 cfs to Tunnels & Balance to Storage	0	0	0	0	43.0	Beneath Softball Field 310 x 290 x 65	N/A

**Table 4.2B Hydraulic Analysis Including Stormwater Detention for Tunnel Alignment Alternatives 5B, 6, & 7**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Existing Vista Grande Canal Flow Usable Capacity	New Additional Canal Design Flow Capacity	Existing Outfall Tunnel Flow	New Tunnel Design Flow	Approx. Required Storage Volume	Approx Detention Structure Dimensions (W x L x operating depth)	New Outfall Tunnel Diameter
	(cfs)	(cfs)	(cfs)	(cfs)	(MG)	(ft)	(ft)
<u>Option 1:</u> 1,500 cfs to Tunnels & No Storage	170	1,330	170	1,330	0	N/A	15
<u>Option 2:</u> 1,000 cfs to Tunnels & Balance to Storage	170	830	170	830	3.9	Beneath Softball Field 310 x 100 x 17	13
<u>Option 3:</u> 500 cfs to Tunnels & Balance to Storage	170	330	170	330	16.2	Beneath Softball Field 310 x 290 x 25	8
<u>Option 4:</u> 170 cfs to Tunnels & Balance to Storage	170	0	170	0	30.8	Beneath Softball Field 310 x 290 x 46	N/A
<u>Option 5:</u> 0 cfs to Tunnels & Balance to Storage	0	0	0	0	43.0	Beneath Softball Field 310 x 290 x 65	N/A

Table 4.3 Summary of Tunnel Alignment Alternatives with 1,000 cfs diverted to Stormwater Detention Facilities

No.	Tunnel Diameter, Length, & Flow Capacity	Alignment	Vista Grande Canal Modifications	Outfall Structure Requirements	Required System Connections & Modifications	Construction Shaft/Portal Location(s) & Staging Area(s)	Wetlands Development Opportunities	Permitting Issues	Right of Way Issues
1A	7-foot ID x 4,500-foot 330 cfs	Southwest from Lake Merced Blvd & John Muir Dr., Beneath the Olympic Club	No modifications required.	Construct new Outfall Structure for 500 cfs discharge	<ul style="list-style-type: none"> <li>New drop structure at (E) canal headworks with overflow weir to (N) tunnel</li> </ul>	Adjacent to OC maintenance yard near the intersection of Lake Merced Blvd & John Muir Drive	Preserves existing available wetlands developmental area	Same as Table 4.1	Same as Table 4.1
4	7-foot ID x 4,700-foot 330 cfs	West from Westlake Park beneath Northgate Drive			<ul style="list-style-type: none"> <li>New drop structure in Westlake Park.</li> <li>Connect to Northgate 24-inch diameter culvert</li> <li>Connect to 7-foot x 6-foot box culvert</li> <li>Connect to Cliffside 60-inch diameter culvert</li> </ul>	Westlake Park: ball field or tennis courts.	Preserves existing available wetlands developmental area		
5B	8-foot ID x 5,200-foot 330 cfs	Northwest from the Vista Grande Canal, beneath the Olympic Club	Add hydraulic control at new tunnel drop structure to split flows; 170 cfs max. to Vista Grande Canal and 330 cfs to new tunnel.	No Modifications Required	<ul style="list-style-type: none"> <li>New concrete drop structure at the canal inlet.</li> <li>Trashrake &amp; conveyor @ end of canal</li> </ul>	Area between John Muir Drive & the canal	Reduces available wetlands developmental area Reduces available wetlands developmental area Significantly reduces available wetlands developmental area Preserves existing available wetlands developmental area		
6	8-foot ID x 4,200-foot 330 cfs								
7	8-foot ID x 3,200-foot 330 cfs								
7*	Not required		No modifications required						

**Legend**

ID – Inside diameter

OC- Olympic Club

GGNRA- Golden Gate National Recreation Area

TCE- Temporary Construction Easement

O/H – Overhead

U/G - Underground

**Table 5.1 Regional Faults and Seismicity**

Fault Segment	Approx. Distance from Fault (kmk)	Direction from Site	Mean Characteristic Moment Magnitude
San Andreas – 1906 Rupture	1.1	Southwest	7.9
San Andreas – Peninsula	1.1	Southeast	7.2
San Gregorio	12	Southwest	7.4
South Hayward	24	Southeast	6.7
Northern Hayward	18	Northeast	6.9
Northern Calaveras	30	East	6.9
Southern Calaveras	42	Southeast	6.5

**Table 5.2 Generalized Categories of Ground Conditions for Soft Ground Tunnels**

Classification	Tunnel Working Conditions
Firm	A heading may be advanced several feet or more without immediate support. Hard clays and cemented sand or gravel generally fall in this category.
Raveling	After excavation, material above the tunnel or in the upper part of the working face tends to flake off and fall into the heading. In the fast raveling ground, the process starts within a few minutes; otherwise the ground is slow raveling. Slightly cohesive sands, silts, and fine sands gaining their strength from apparent cohesion typically exhibit this type of behavior.
Running	Cohesionless, dry soils run from any unsupported vertical face until a stable slope forms at the natural angle of repose (i.e., approximately 30 degrees to 35 degrees). Running ground consists of dry, cohesionless materials, such as clean loose sand or gravel.
Flowing	If seepage develops at the working face, raveling or running ground is transformed to flowing ground, which advances like a viscous fluid into the heading. Silt, sand or gravel below the water table without a high enough clay content to develop significant cohesion will be flowing-type soils.
Swelling	A condition where the ground absorbs water, increases in volume and expands slowly into the tunnel. This may occur in highly over-consolidated clays that exhibit high volume change characteristics upon wetting.
Squeezing	Squeezing ground conditions are analogous to plastic flow, and the soil is observed to advance slowly into the tunnel excavation without any signs of fracturing. Squeezing occurs without an increase in the water content or a volume change in the soil and is governed by the soil strength in comparison to the overburden pressure. Squeezing ground may include soft to medium stiff or stiff clays depending on the overburden pressure at the tunnel level.

**Table 9.1 Alternative Evaluation Methodology Framework**

<b>Objectives</b>	<b>Evaluation Criteria</b>	<b>Evaluation Rating</b>
<b>Deliver Public Benefits</b>	Community benefits	<u>Satisfaction Rating:</u> 1 (satisfied) to 5 (dissatisfied)
	Public inconvenience (temporary, interim, & permanent)	
	Water Re-Use Opportunities	
	Flood Protection	<u>Satisfaction Rating:</u> 1 (completely) to 5 (minimal)
	Reduce potential for overflow into Lake Merced	
	Debris screening	
	Wetlands enhancement	<u>Satisfaction Rating:</u> 1 (complements) to 3 (supports) to 5 (no support)
Groundwater recharge potential		
<b>Operability</b>	Facility operations	<u>Operability Rating:</u> 1 (convenient) to 5 (inconvenient)
	Stormwater screening effectiveness	<u>Operability Rating:</u> 1 (complete) to 5 (minimal)
	Stormwater screening maintainability	<u>Operability Rating:</u> 1 (convenient) to 5 (inconvenient)
<b>Environmental Compliance</b>	Impacts on the environment	<u>Environmental Impact Rating:</u> 1 (minimal) to 5 (significant)
	Effects on sensitive species	
	NEPA/CEQA requirements	<u>Permitting Rating:</u> 1 (simple and well understood) to 5 (complex and time consuming)
	Water Quality Permit requirements (RWQCB)	
<b>Minimizing Land Acquisition Costs</b>	Land acquisition and right-of-way requirements	<u>Land Use Rating:</u> 1 (simple and well understood) to 5 (complex and time consuming)
	Temporary easement requirements	
	Utility interference issues and relocation requirements	
<b>Maximize Constructability</b>	Construction working space and access	<u>Constructability Rating:</u> 1 (simple) to 5 (complex)
	Spoils management	
	Constructability	
	Construction duration	
	Pipeline connections	
	Anticipated Ground Conditions	
	<b>Score (sum of ratings)</b>	
<b>Minimize Lifecycle Costs</b>	Relative construction costs from relative cost sheet	<u>Cost Rating:</u> 1 (lowest cost-risk) to 5 (high cost-risk)
	Relative O&M costs-- debris removal & disposal, water treatment, pump maintenance & pumping costs	<u>O&amp;M Cost Rating:</u> 1 (lowest cost) to 5 (high cost)

**Table 9.2 Combination Descriptions**

Alignment Alternative	Stormwater (SW) Storage Option w/w/o Groundwater Recharge				
	No Storage + 1,500 cfs to tunnels <sup>1</sup> thru:	3.9 MG Storage <sup>2</sup> + 1,000 cfs to tunnels <sup>1</sup> thru:	16.2 MG Storage <sup>2</sup> + 500 cfs to tunnels <sup>1</sup> thru:	30.8 MG Storage <sup>2</sup> + 170 cfs thru:	43 MG Full Storage <sup>2</sup> + 0 cfs to tunnels
1A	<b>1A-0</b> <input type="checkbox"/> 3 1-way intercepts + <input type="checkbox"/> 1 debris screening chambers + <input type="checkbox"/> 13' dia. x 4,500' tunnel + <input type="checkbox"/> new outfall structure	<b>1A-3.9 MG</b> <input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 3 intercepts + <input type="checkbox"/> 1 debris screening chambers + <input type="checkbox"/> 10' dia. x 4,500' tunnel + <input type="checkbox"/> new outfall structure	<b>1A-16.2 MG</b> <input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 debris screening chambers + <input type="checkbox"/> 7' dia. x 4,500' tunnel + <input type="checkbox"/> new outfall structure	<b>9-30.8 MG</b> <input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> No modifications to existing canal and tunnel	<b>9-43 MG</b> <input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> No modifications to existing canal and tunnel
4	<b>4-0</b> <input type="checkbox"/> 3 1-way intercepts + <input type="checkbox"/> 2 debris screening chambers + <input type="checkbox"/> 13' dia. x 4,700' tunnel + <input type="checkbox"/> new outfall structure	<b>4-3.9 MG</b> <input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 3 intercepts + <input type="checkbox"/> 2 debris screening chambers + <input type="checkbox"/> 10' dia. x 4,700' tunnel + <input type="checkbox"/> new outfall structure	<b>4-16.2 MG</b> <input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 2 debris screening chambers + <input type="checkbox"/> 7' dia. x 4,700' tunnel + <input type="checkbox"/> new outfall structure		
5B	<b>5B-0</b> <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 900' box culvert <sup>3</sup> + <input type="checkbox"/> 15' dia. x 5,200' tunnel + <input type="checkbox"/> renovated outfall structure	<b>5B-3.9 MG</b> <input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 900' box culvert <sup>3</sup> + <input type="checkbox"/> 13' dia. x 5,200' tunnel + <input type="checkbox"/> renovated outfall structure	<b>5B-16.2 MG</b> <input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 900' box culvert <sup>3</sup> + <input type="checkbox"/> 8' dia. x 5,200' tunnel + <input type="checkbox"/> renovated outfall structure		
6	<b>6-0</b> <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 2,100' box culvert <sup>3</sup> + <input type="checkbox"/> 15' dia. x 4,200' tunnel + <input type="checkbox"/> renovated outfall structure	<b>6-3.9 MG</b> <input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 2,100' box culvert <sup>3</sup> + <input type="checkbox"/> 13' dia. x 4,200' tunnel + <input type="checkbox"/> renovated outfall structure	<b>6-16.2 MG</b> <input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 2,100' box culvert <sup>3</sup> + <input type="checkbox"/> 8' dia. x 4,200' tunnel + <input type="checkbox"/> renovated outfall structure		
7	<b>7-0</b> <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 3,500' box culvert <sup>3</sup> + <input type="checkbox"/> 15' dia. x 3,200' tunnel + <input type="checkbox"/> renovated outfall structure	<b>7-3.9 MG</b> <input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 3,500' box culvert <sup>3</sup> + <input type="checkbox"/> 13' dia. x 3,200' tunnel + <input type="checkbox"/> renovated outfall structure	<b>7-16.2 MG</b> <input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 3,500' box culvert + <input type="checkbox"/> 8' dia. x 3,200' tunnel + <input type="checkbox"/> renovated outfall structure		

Notes:

1. "tunnels" include the existing Vista Grande outfall tunnel and the proposed new outfall tunnel.
2. These combinations may be used in conjunction with treatment for groundwater recharge.
3. Potential for utility interferences and/or relocations depends on length of disturbed lands.
4. Highlighted alternatives did not pass the initial screening process.

Table 9.3 Example of Preliminary Evaluation Results

Objectives	Evaluation Criteria	Evaluation Rating	Alt 5B- 3.9 MG	Alt 6- 3.9 MG	Alt 7- 3.9 MG	Alt 5B- 16.2 MG	Alt 6- 16.2 MG	Alt 7- 16.2 MG	Alt 9- 30.8 MG
<b>Deliver Public Benefits</b>	Community benefits	<u>Satisfaction Rating:</u> 1 (satisfied) to 5 (dissatisfied)							
	Public inconvenience (temporary, interim, & permanent)								
	Water Re-Use Opportunities								
	Flood Protection	<u>Satisfaction Rating:</u> 1 (completely) to 5 (minimal)							
	Reduce potential for overflow into Lake Merced								
	Debris screening								
	Wetlands enhancement	<u>Satisfaction Rating:</u> 1 (complements) to 3 (supports) to 5 (no support)							
	Groundwater recharge potential								
<b>Subtotal</b>		18.4	18.6	19.5	16.8	16.8	18.1	14.7	
<b>Operability</b>	Facility operations	<u>Operability Rating:</u> 1 (convenient) to 5 (inconvenient)							
	Stormwater screening effectiveness	<u>Operability Rating:</u> 1 (complete) to 5 (minimal)							
	Stormwater screening maintainability	<u>Operability Rating:</u> 1 (convenient) to 5 (inconvenient)							
	<b>Subtotal</b>		6.0	6.0	6.0	6.5	7.0	7.0	8.2
<b>Environmental Compliance</b>	Impacts on the environment	<u>Environmental Impact Rating:</u> 1 (minimal) to 5 (significant)							
	Effects on sensitive species								
	NEPA/CEQA requirements	<u>Permitting Rating:</u> 1 (simple and well understood) to 5 (complex and time consuming)							
	Water Quality Permit requirements (RWQCB)								
	<b>Subtotal</b>		10.2	10.5	10.0	10.5	10.5	10.7	8.7
<b>Minimizing Land Acquisition Costs</b>	Land acquisition and right-of-way requirements	<u>Land Use Rating:</u> 1 (simple and well understood) to 5 (complex and time consuming)							
	Temporary easement requirements								
	Utility interference issues and relocation requirements								
	<b>Subtotal</b>		7.8	8.0	8.2	8.2	8.3	8.5	5.2
<b>Maximize Constructability</b>	Construction working space and access	<u>Constructability Rating:</u> 1 (simple) to 5 (complex)							
	Spoils management								
	Constructability								
	Construction duration								
	Pipeline connections								
	Anticipated Ground Conditions								
	<b>Subtotal</b>			12.0	12.5	14.3	18.4	18.4	19.8
<b>Minimize Lifecycle Costs</b>	Relative construction costs from relative cost sheet	<u>Cost Rating:</u> 1 (lowest cost-risk) to 5 (high cost-risk)							
	Relative O&M costs-- debris removal & disposal, water treatment, pump maintenance & pumping costs	<u>O&amp;M Cost Rating:</u> 1 (lowest cost) to 5 (high cost)							
	<b>Subtotal</b>		4.5	2.5	3.0	8.0	9.0	10.5	8.5

**Table 9.4 Example Weighting Sensitivity Matrix**

	Deliver Public Benefits	Operability	Environmental Compliance	Minimize Land Acquisition Costs	Maximize Constructability	Minimize Lifecycle Costs	Description		Alt 5B- 3.9 MG	Alt 6- 3.9 MG	Alt 7- 3.9 MG	Alt 5B- 16.2 MG	Alt 6- 16.2 MG	Alt 7- 16.2 MG	Alt 9- 30.8 MG
A	100%	100%	100%	100%	100%	100%	Equal weight distribution	<b>Weighted Overall Score</b>	584	578	615	679	700	745	653
								<b>Rank</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>4</b>
B	15%	5%	10%	15%	5%	50%	65% cost + 35% non-cost	<b>Weighted Overall Score</b>	81	72	77	100	106	116	95
								<b>Rank</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>4</b>
C	33%	5%	10%	15%	5%	33%	48% cost + 52% non-cost	<b>Weighted Overall Score</b>	105	100	106	115	119	130	106
								<b>Rank</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>3</b>
D	33%	10%	10%	17%	5%	25%	35% cost + 65% non-cost	<b>Weighted Overall Score</b>	107	104	109	115	119	128	105
								<b>Rank</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>2</b>
Consolidated Rank									10.0	4.0	13.0	20.0	24.0	28.0	13.0
Overall Rank									<b>2</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>3</b>

**Table 10.1 Example Preliminary Alternatives Ranking**

<b>Rank</b>	<b>Brief Alternative Descriptions</b>
	<b><u>Alternative 6 Tunnel Alignment plus 3.9 MG of stormwater detention</u></b>
1	<input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 2,100' box culvert <sup>3</sup> + <input type="checkbox"/> 13' dia. x 4,200' tunnel + <input type="checkbox"/> renovated outfall structure
	<b><u>Alternative 5B Tunnel Alignment plus 3.9 MG of stormwater detention</u></b>
2	<input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 900' box culvert <sup>3</sup> + <input type="checkbox"/> 13' dia. x 5,200' tunnel + <input type="checkbox"/> renovated outfall structure
	<b><u>Alternative 7 Tunnel Alignment plus 3.9 MG of stormwater detention</u></b>
3	<input type="checkbox"/> 1 2-way intercept + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 drop structure + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 3,500' box culvert <sup>3</sup> + <input type="checkbox"/> 13' dia. x 3,200' tunnel + <input type="checkbox"/> renovated outfall structure
	<b><u>Alternative 9 - 30.8 MG of stormwater detention</u></b>
3	<input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> No modifications to existing canal and tunnel
	<b><u>Alternative 5B Tunnel Alignment plus 16.2 MG of stormwater detention</u></b>
5	<input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park tennis courts & ball field (124,800 SF x up to 35' deep) + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 900' box culvert <sup>3</sup> + <input type="checkbox"/> 8' dia. x 5,200' tunnel + <input type="checkbox"/> renovated outfall structure
	<b><u>Alternative 6 Tunnel Alignment plus 16.2 MG of stormwater detention</u></b>
6	<input type="checkbox"/> 3 2-way intercepts + <input type="checkbox"/> SW detention chambers beneath the Westlake Park softball fields + <input type="checkbox"/> 1 debris screening chamber + <input type="checkbox"/> 2,100' box culvert <sup>3</sup> + <input type="checkbox"/> 8' dia. x 4,200' tunnel + <input type="checkbox"/> renovated outfall structure

**Alternative 7 Tunnel Alignment plus 16.2 MG of stormwater detention**

- 3 2-way intercepts +
- SW detention chambers beneath the Westlake Park softball fields +
- 7  1 debris screening chamber +
- 3,500' box culvert +
- 8' dia. x 3,200' tunnel +
- renovated outfall structure