Wastewater Calculations and Cost Estimates
Cold Springs

COLD SPRINGS INTERCEPTORS, FORCE MAINS, AND RECLAIMED PIPELINE CALCULATIONS

NEW INTERCEPTORS									Comments
Pipe Segment	**Pipe (ft)**	**Diameter (In.)**	**Slope (ft/ft)**	**Upstr Q (mgd)**	**Q In (mgd)**	**Total Q**	**Capacity 0.5 d/D (mgd)**	**Velocity (fps)**	
F	7,428	20	0.0194	3.98	0.44	4.42	5.83	8.3	Conveys flows from E. Add Shed 5
G	4,641	20	0.0129		3.98	3.98	4.75	6.7	Contribution from Shed 1
H	5,738	18	0.0052		2.20	2.20	2.28	4.0	Contribution from Shed 2 and half of Shed 5 (other half to existing FM)
I	2,640	20	0.0152		4.26	4.26	5.16	7.3	Contribution from Shed 3
NEW FORCE MAINS									
A	3,077	16			4.26	4.26		4.7	Contribution from Shed 3
B	13,308	18		4.26	1.33	5.59		4.9	Add Shed 4
C	9,007	12			2.20	2.20		4.3	Contribution from Shed 2 and half of Shed 5 (other half to existing FM)
D	7,772	22		7.79		7.79		4.6	Conveys flows from B & C, no inflow
E	10,986	16			3.98	3.98		4.4	Contribution from Shed 1
RECLAIMED WATER PIPELINE									
	18,080	16			4.50	4.50		5.0	Conveys all reclaimed water. Cost is in reclaimed water table.

Bold numbers represent where capacity criteria have been exceeded.
Data received from the city current as of July 2006

NEW COLD SPRINGS INTERCEPTORS, FORCE MAINS, WASTEWATER LIFT STATIONS, AND RECLAIMED WATER PUMP STATION COSTS

INTERCEPTORS									
Pipe Segment	**Pipe (ft)**	**Diameter (In.)**	**County (mgd)**	**City (mgd)**	**Total Q**	**County % Flow**	**City % Flow**	**County Cost**	**City Cost**
F	7,428	20	0.44	3.98	4.42	10	90	$177,465	$1,605,000
G	4,641	20	0.00	3.98	3.98	0	100	$0	$1,114,000
H	5,738	18	0.67	1.53	2.20	30	70	$377,456	$862,000
I	2,640	20	0.00	4.26	4.26	0	100	$0	$634,000
Sub Total								**$600,000**	**$4,200,000**
FORCE MAINS									
A	3,077	16	0.00	4.26	4.26	0	100	$0	$591,000
B	13,308	18	1.33	4.26	5.59	24	76	$684,000	$2,191,000
C	9,007	12	0.67	1.53	2.20	30	70	$395,000	$902,000
D	7,772	22	2.00	5.79	7.79	26	74	$527,000	$1,525,000
E	10,986	16	0.00	3.98	3.98	0	100	$0	$2,109,000
Sub Total								**$1,600,000**	**$7,300,000**
WASTEWATER LIFT STATIONS									
A	3,077	16	0.00	4.26	4.26	0	100	$0	$1,670,000
B	13,308	18	1.33	4.26	5.59	24	76	$503,000	$1,611,000
C	9,007	12	0.67	1.53	2.20	30	70	$299,000	$684,000
D	7,772	22	2.00	5.79	7.79	26	74	$731,000	$2,116,000
E	10,986	16	0.00	3.98	3.98	0	100	$0	$1,577,000
Sub Total								**$1,530,000**	**$7,660,000**
RECLAIMED WATER PUMP STATION								**$310,000**	**$690,000**
Total								**$4,000,000**	**$19,900,000**
Engineering (20%)								**$800,000**	**$4,000,000**
Contingency (20%)								**$800,000**	**$4,000,000**
Total								**$5,600,000**	**$27,900,000**

20 Cities ENRCCI = 7,942 May 2007

Data received from the city current as of July 2006

Cold Springs Treatment Cost and Flow Allocations

Capital Cost for CSWWTP (Expansion from 0.7 MGD to 4.5 mgd)

Component	Cost, $ M
New Headworks and Grit removal	1.7
Five Oxidation Ditches	7.0
Four Secondary Clarifiers	3.1
Two RAS/WAS Pump Stations	2.2
Tertiary Filters	2.7
Chlorine Contact Basin	1.6
Chemical Feed Facilities	1.6
Solids Holding Tank	1.1
Solids Handling Facilities	3.3
Subtotal	24.2
Yard Structures (10%)	2.4
Yard Piping/Sitework (10%)	2.4
Subtotal	29.0
Electrical (25%)	7.3
Subtotal	36.3
Contingency (20%)	7.3
Total Construction Cost	43.6
Engineering, Admin, CM (20%)	8.7
Total Project Cost	52.3

20 cities ENRCCI = 7,942 May 2007

Cold Springs-Stead Flow Allocations

	Total 2030 Capacity (MGD)	Total Existing Capacity (MGD)	Total New Capacity (MGD)	Regional Facilities (%)	2030 County Capacity (MGD)	Existing County Capacity (MGD)	New County Capacity (MGD)	2030 City Capacity (MGD)	Existing City Capacity (MGD)	New City Capacity (MGD)	County %	City %
RSWRF	7.2	2.35	4.85	59.5%	2.75	0	2.75	4.45	2.35	2.1	56.7%	43.3%
CSWWTP	4.5	0.7	3.8	43.9%	1.4	0.7	0.7	3.1	0	3.1	18.4%	81.6%

20 cities ENRCCI = 7,942 May 2007

Cold Springs Regional Reservoir and Long Valley Export Costs

Reservoir - Regional Disposal/Reclaimed Water Costs

Facility	Length (ft)	Diameter (in)	Subtotal
Stormwater Bypass	5,500	36	$1,188,000
Dam/Earthwork			$4,573,000
Subtotal			$5,800,000
Engineering (20%)			$1,200,000
Contingency (20%)			$1,200,000
Total			$8,200,000

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Long Valley Export - Regional Disposal/Reclaimed Water Costs

Facility	Length (ft)	Diameter (in)	Pump Q (MGD)	Subtotal
Discharge Piping	33,000	24		$9,504,000
Pump Station			5	$1,900,000
Whites Lake Disposal	1,800	16		$345,600
Total				$11,400,000
Engineering (20%)				$2,300,000
Contingency (20%)				$2,300,000
Total				$16,000,000

[1] Discharge piping sized at 24" based on input from City of Reno staff

20 Cities ENRCCI = 7,942 May 2007

Cold Springs-Stead Regional Disposal/Reclaimed Water Costs

		Stead			Cold Springs		
Regional Facilities	Cost	Total	City	County	Total	City	County
Reservoir	$8,200,000	$4,600,000	$2,000,000	$2,600,000	$3,600,000	$2,900,000	$700,000
Long Valley Creek Disposal	$16,000,000	$9,000,000	$3,900,000	$5,100,000	$7,000,000	$5,700,000	$1,300,000
Total	$24,200,000	$13,600,000	$5,900,000	$7,700,000	$10,600,000	$8,600,000	$2,000,000

[1] Based on percent-flow allocations (See Cold Springs Treatment Cost & Flow Allocation)

20 Cities ENRCCI = 7,942 May 2007

Cold Springs Regional Disposal/Reclaimed Water Costs

Cold Springs Reclaimed Water Costs

Reclaimed Water Facilities	Length (ft)	Diameter (in)	Pump Q (MGD)	Subtotal	Comments
Pump Station			4.2	$1,700,000	For reservoir pumping & expanded reuse distribution
Distribution Piping	18100	16		$3,500,000	
Subtotal				$5,200,000	
Engineering (20%)				$1,040,000	
Contingency (20%)				$1,040,000	
Total				$7,280,000	
City Share				$5,020,000	
County Share				$2,260,000	

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System Info	
Flow, Q (cfs)	6.5016
Static Head (ft)	300
Headloss (ft)	20
Total Head, H (ft)	320

4.2 MGD