

## **Alternative 2A - Lake Michigan Supply with Return Direct to Lake Michigan Near Milwaukee and Oak Creek**

Supply from Oak Creek. Return Direct to Lake Michigan Near Milwaukee and Oak Creek. No corridor sharing between pipelines.

### **Capital Cost**

	<b>Quantity</b>	<b>Unit Cost</b>	<b>Total</b>
<b>Lake Michigan Supply Pump Station (27th and Puetz Rd)</b>			
16.7 mgd	1	\$ 8,830,125	\$ 8,831,000
<b>Lake Michigan Supply Pipeline</b>			
19 miles of 30"	100,320	\$ 429	\$ 43,084,000
<b>Return Pump Station and Pipeline Direct to Lake Michigan Near Milwaukee and Oak Creek</b>			
16.7 mgd	1	\$ 7,297,000	\$ 7,297,000
22 miles of 30"	116,160	\$ 459	\$ 53,282,000
<b>Distribution System Improvements</b>			
5 mi of 24" pipes	24,800	\$ 206	\$ 5,109,000
<b>Subtotal</b>			<b>\$ 117,603,000</b>
3% markup for Bonds & Insurance			\$3,529,000
5% markup for Mob/Demob			\$5,881,000
8% markup for Contractors Overhead			\$10,162,000
4% markup for Contractors profit			\$5,081,000
25% Contingency			\$35,564,000
<b>Subtotal Markups and Contingency</b>			<b>\$ 60,217,000</b>
<b>Total Project Construction Costs</b>			<b>\$ 177,820,000</b>
8% allowance for engineering and design			\$14,226,000
12% allowance for permitting, legal and admin.			\$21,339,000
8% allowance for engr services during construction			\$14,226,000
<b>Subtotal Other Project Costs</b>			<b>\$49,791,000</b>
<b>TOTAL PROJECT CAPITAL COST</b>			<b>\$ 227,600,000</b>

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**Operating and Maintenance Cost**

<b>Source of Supply</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Ext. Cost</b>	<b>Total</b>
Purchased water	\$/1000 gal	3,686,500	\$ 1.830	\$ 6,746,295	
					\$ 6,746,000
<b>Treatment/Pumping</b>					
Lake Michigan Pumping Energy	\$/kWh	6,176,619	\$ 0.06	\$ 370,597	
Lake Michigan Pump Station O&M	%	\$ 8,831,000	2%	\$ 176,620	
Return Flow Pumping Energy	\$/kWh	4,616,262	\$ 0.06	\$ 276,976	
Return Flow Pump Station O&M	%	\$ 7,297,000	2%	\$ 145,940	
					\$ 970,000
<b>Transmission</b>					
Operation and Maintenance	\$/lf/yr	142,560	\$ 0.52	\$ 74,131	
					\$ 74,131
<b>Total O&amp;M (\$/yr.)</b>					<b>\$ 7,800,000</b>

<b>PRESENT WORTH (6%, 20 yrs)</b>	<b>\$ 89,000,000</b>
<b>PRESENT WORTH (6%, 50 yrs)</b>	<b>\$ 123,000,000</b>
<b>Total Present Worth (6%, 20 years)</b>	<b>\$ 316,600,000</b>
<b>Total Present Worth (6%, 50 years)</b>	<b>\$ 350,600,000</b>