

**Appendix C**  
**Monetary Evaluation**

**Oakland-Macomb Interceptor Drain Drainage District**  
**Present Worth & User Charge Estimate**  
**NO ACTION OPTION**  
 June 2009

**PRESENT WORTH ANALYSIS**

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$$PW = F * (1 / (1 + i)^n)$$

\$ - = F Future Value [Est Project Cost]  
 0.045 = i EPA discount Rate  
 20 = n Number of Years

$$PW = 0 * (1 / (1 + 0.025)^{20})$$

\$	-	=	PW	Present Worth
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**USER CHARGE ANALYSIS**

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\$ - = Principal [Project Cost]  
 0.025 = Interest [Discount Rate]  
 20 = Term [Number of Years]

	\$0	=	Annual Payment	
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\$40,000	Manhole Inspection	100	at	\$400
\$75,000	Manhole Repair	25	at	\$3,000
\$115,000	Total Systemwide Manhole O/M Cost			
3	Year Maintenance Cycle			

\$	38,333	=	Annual Manhole O/M Cost	
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112,959 Length of OMID in feet

\$ 10.00	Avg cost per foot inspection			assume 100% of system is inspected
\$ 10.00	Avg cost per foot cleaning			assume 10% of system cleaned @ \$100/ft
\$ 15.00	Avg cost per foot grouting			assume 5 leaks per 1000 ft at \$3,000/ea
\$ 3,953,565	Total Cost to Clean and Grout OMID			
8	Year Maintenance Cycle			

\$	494,196	=	Annual Pipe O/M Cost	
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\$	300,000	=	Annual Meter O/M Cost	12	at	\$	25,000
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\$	832,529	=	Total Annual O/M Cost	
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\$	832,529	=	Total Annual Cost	
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832,902 Tributary Area Population [SEMCOG '09]  
 2.61 Average household size [SEMCOG]  
 319,120 Number of customers

\$	2.61	=	Annual Cost per Customer	
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Current Average Annual Costs per Customer:

\$ 182.16 Oakland County  
 \$ 208.59 Macomb County

<u>Estimated Future Annual Costs per Customer:</u>		
\$	184.77	Oakland County
\$	211.20	Macomb County

**Oakland-Macomb Interceptor Drain Drainage District**  
**Present Worth & User Charge Estimate**  
**Replacement Option**  
 June 2009

**PRESENT WORTH ANALYSIS**

$$PW = F * (1 / (1 + i)^n)$$

\$ 499,000,000 = F Future Value [Est Project Cost]  
 0.045 = i EPA discount Rate  
 20 = n Number of Years

$$PW = 499,000,000 * (1 / (1 + 0.045)^{20})$$

\$	206,906,787	=	PW	Present Worth
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**USER CHARGE ANALYSIS**

\$ 499,000,000 = Principal [Project Cost]  
 0.025 = Interest [Discount Rate]  
 20 = Term [Number of Years]

\$	32,009,417	=	Annual Payment	
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\$40,000	Manhole Inspection	100	at	\$400
\$75,000	Manhole Repair	25	at	\$3,000
\$115,000	Total Systemwide Manhole O/M Cost			
3	Year Maintenance Cycle			

\$	38,333	=	Annual Manhole O/M Cost	
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112,959 Length of OMID in feet

\$ 10.00	Avg cost per foot inspection	assume 100% of system is inspected	
\$ 10.00	Avg cost per foot cleaning	assume 10% of system cleaned @ \$100/ft	
\$ 15.00	Avg cost per foot grouting	assume 5 leaks per 1000 ft at \$3,000/ea	
\$ 3,953,565	Total Cost to Clean and Grout OMID		
8	Year Maintenance Cycle		

\$	494,196	=	Annual Pipe O/M Cost	
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\$	300,000	=	Annual Meter O/M Cost	12	at	\$	25,000
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\$	832,529	=	Total Annual O/M Cost	
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\$	32,841,946	=	Total Annual Cost	
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832,902 Tributary Area Population [SEMCOG '09]  
 2.61 Average household size [SEMCOG]  
 319,120 Number of customers

\$	102.91	=	Annual Cost per Customer	
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Current Average Annual Costs per Customer:

\$ 182.16 Oakland County  
 \$ 208.59 Macomb County

<u>Estimated Future Annual Costs per Customer:</u>		
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\$	285.07	=	Oakland County	
\$	311.50	=	Macomb County	

**Oakland-Macomb Interceptor Drain Drainage District**  
**Present Worth & User Charge Estimate**  
**Rehabilitation Option**  
 June 2009

**PRESENT WORTH ANALYSIS**

$$PW = F * (1 / (1 + i)^n)$$

\$ 144,601,347 = F Future Value [Est Project Cost]  
 0.045 = i EPA discount Rate  
 20 = n Number of Years

$$PW = 144,601,347 * (1 / (1 + 0.045)^{20})$$

\$	59,957,916	=	PW	Present Worth
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**USER CHARGE ANALYSIS**

\$ 144,601,347 = Principal [Project Cost]  
 0.025 = Interest [Discount Rate]  
 20 = Term [Number of Years]

\$	9,275,761	=	Annual Payment	
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\$40,000	Manhole Inspection	assume	100	at	\$400
\$75,000	Manhole Repair	assume	25	at	\$3,000
\$115,000	Total Systemwide Manhole O/M Cost				
3	Year Maintenance Cycle				

\$	38,333	=	Annual Manhole O/M Cost	
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112,959	Length of OMID in feet				
\$ 10.00	Avg cost per foot inspection	assume	100% of system is inspected		
\$ 10.00	Avg cost per foot cleaning	assume	10% of system cleaned @ \$100/ft		
\$ 15.00	Avg cost per foot grouting	assume	5 leaks per 1000 ft at \$3,000/ea		
\$ 3,953,565	Total Cost to Clean and Grout OMID				
8	Year Maintenance Cycle				

\$	494,196	=	Annual Pipe O/M Cost	
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\$	300,000	=	Annual Meter O/M Cost	assume	12	at	\$	25,000
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\$	832,529	=	Total Annual O/M Cost	
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\$	10,108,290	=	Total Annual Cost	
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832,902	Tributary Area Population [SEMCOG '09]				
2.61	Average household size [SEMCOG]				
319,120	Number of customers				

\$	31.68	=	Annual Cost per Customer	
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Current Average Annual Costs per Customer:

\$	182.16	=	Oakland County	
\$	208.59	=	Macomb County	

<u>Estimated Future Annual Costs per Customer:</u>				
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\$	213.84	=	Oakland County	
\$	240.27	=	Macomb County	