

# **Appendix E**

## **Detailed Cost Estimates for Transmission Main Rehabilitation and/or Replacement (2012 – 2111)**

Date: July 7, 2011

Future Transmission Main Rehabilitation/Replacement Costs<sup>1</sup>

	2012			2013			2014			2015			2016			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>		0	\$150,000		0	\$150,000		0	\$150,000		0	\$150,000		0	\$150,000	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2017			2018			2019			2020			2021			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000		

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2022			2023			2024			2025			2026			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000		

Notes:

- 1 All costs are in 2011 dollars.
- 2 Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- 3 Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2027			2028			2029			2030			2031			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000	0	\$150,000		

Notes:

- <sup>1</sup> All costs are in 2011 dollars.
- <sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- <sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2032			2033			2034			3035			2036			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	3,115	\$202,475
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	1,558	\$163,538
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	1,558	\$327,075
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	6,230	\$693,088	
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	2,699	\$188,895
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	1,349	\$296,835
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	1,349	\$317,074
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	5,397	\$802,804	
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	339	\$27,120
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	170	\$22,035
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	170	\$44,070
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	678	\$93,225	
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	2,058	\$195,463
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	1,029	\$164,600
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	1,029	\$324,056
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	4,115	\$684,119	
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>		0	\$150,000		0	\$150,000		0	\$150,000		0	\$150,000		16,420	\$2,423,235	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2037			2038			2039			2040			2041			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2042			2043			2044			2045			2046			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).



	2047			2048			2049			2050			2051			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	588	\$38,220	\$65	2,627	\$170,723	\$65	704	\$45,760
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	294	\$30,870	\$105	1,313	\$137,891	\$105	352	\$36,960
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	294	\$61,740	\$210	1,313	\$275,783	\$210	352	\$73,920
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	1,176	\$130,830	<b>SUBTOTAL</b>	5,253	\$584,396	<b>SUBTOTAL</b>	1,408	\$156,640	
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	557	\$52,915
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	279	\$44,560
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	279	\$87,728
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	1,114	\$185,203	
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	1,176		\$280,830	5,253		\$734,396	2,522		\$491,843	

Notes:

- 1 All costs are in 2011 dollars.
- 2 Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- 3 Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2052			2053			2054			2055			2056			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	116	\$7,508	\$65	836	\$54,308	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	58	\$6,064	\$105	418	\$43,864	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	58	\$12,128	\$210	418	\$87,728	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	231	\$25,699	<b>SUBTOTAL</b>	1,671	\$185,899	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	382	\$30,520	\$80	969	\$77,520	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	191	\$24,798	\$130	485	\$62,985	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	191	\$49,595	\$260	485	\$125,970	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	763	\$104,913	<b>SUBTOTAL</b>	1,938	\$266,475	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	730	\$69,303	\$95	1,133	\$107,588	\$95	755	\$71,725	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	365	\$58,360	\$160	566	\$90,600	\$160	378	\$60,400	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	365	\$114,896	\$315	566	\$178,369	\$315	378	\$118,913	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	1,459	\$242,559	<b>SUBTOTAL</b>	2,265	\$376,556	<b>SUBTOTAL</b>	1,510	\$251,038	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>		1,459	\$392,559		3,259	\$657,168		5,119	\$853,411		0	\$150,000		0	\$150,000	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2057			2058			2059			2060			2061			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
<b>Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to CTP (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	

Notes:

- <sup>1</sup> All costs are in 2011 dollars.
- <sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- <sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2062			2063			2064			2065			2066			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
<b>Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to CTP (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
<b>16"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>18"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>20"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>24"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>30"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>36"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>48"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	

Notes:

- 1 All costs are in 2011 dollars.
- 2 Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- 3 Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2067			2068			2069			2070			2071			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2072			2073			2074			2075			2076			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
<b>Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to CTP (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
<b>16"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>18"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>20"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>24"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>30"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>36"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>48"</b>	Rehabilitation - Method A <sup>2</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	

Notes:

- 1 All costs are in 2011 dollars.
- 2 Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- 3 Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2077			2078			2079			2080			2081			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	469	\$30,453	\$65	9,700	\$630,468	\$65	104	\$6,728	\$65	192	\$12,448	\$65	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	234	\$24,596	\$105	4,850	\$509,224	\$105	52	\$5,434	\$105	96	\$10,054	\$105	0	\$0
	Replace (25% of Pipe)	\$210	234	\$49,193	\$210	4,850	\$1,018,448	\$210	52	\$10,868	\$210	96	\$20,108	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>		937	\$104,241	<b>SUBTOTAL</b>	19,399	\$2,158,139	<b>SUBTOTAL</b>	207	\$23,029	<b>SUBTOTAL</b>	383	\$42,609	<b>SUBTOTAL</b>	0	\$0
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	40	\$2,800	\$70	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	20	\$4,400	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	20	\$4,700	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	80	\$11,900	<b>SUBTOTAL</b>	0	\$0
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	165	\$13,160	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	82	\$10,693	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	82	\$21,385	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	329	\$45,238	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	8	\$1,120	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	0	\$0	\$235	4	\$940	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	4	\$1,880	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	16	\$3,940	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
<b>TOTALS</b>		937	\$254,241		19,744	\$2,357,316		207	\$173,029		463	\$204,509		0	\$150,000	

Notes:

- 1 All costs are in 2011 dollars.
- 2 Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- 3 Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2082			2083			2084			2085			2086			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	2,900	\$232,000	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	1,450	\$195,750	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	1,450	\$391,500	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>	5,800	\$969,250	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	619	\$40,235	\$65	0	\$0	\$65	208	\$13,520	\$65	4	\$228	\$65	18	\$1,170
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	310	\$32,498	\$105	0	\$0	\$105	104	\$10,920	\$105	2	\$184	\$105	9	\$945
	Replace (25% of Pipe)	\$210	310	\$64,995	\$210	0	\$0	\$210	104	\$21,840	\$210	2	\$368	\$210	9	\$1,890
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	4,673	\$981,330
	<b>SUBTOTAL</b>		1,238	\$137,728	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	416	\$46,280	<b>SUBTOTAL</b>	7	\$779	<b>SUBTOTAL</b>	36	\$4,005
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	6	\$420	\$70	22	\$1,540
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	3	\$660	\$220	11	\$2,420
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	3	\$705	\$235	11	\$2,585
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	4,048	\$951,280
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	12	\$1,785	<b>SUBTOTAL</b>	44	\$957,825
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	509	\$132,340
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$132,340
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	9	\$808	\$95	132	\$12,540
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	4	\$680	\$160	66	\$10,560
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	4	\$1,339	\$315	66	\$20,790
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	3,087	\$972,405
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	17	\$2,826	<b>SUBTOTAL</b>	264	\$1,016,295
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	6	\$840	\$140	2,083	\$291,550
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	3	\$705	\$235	1,041	\$244,694
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	3	\$1,410	\$470	1,041	\$489,388
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	12	\$2,955	<b>SUBTOTAL</b>	4,165	\$1,025,631
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	1,015	\$170,520	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	0	\$0	\$280	508	\$142,100	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	508	\$284,200	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	2,030	\$596,820	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	11,700	\$2,632,500	\$225	8,317	\$1,871,213
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	5,850	\$2,193,750	\$375	4,158	\$1,559,344
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	5,850	\$4,387,500	\$750	4,158	\$3,118,688
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	23,400	\$9,213,750	<b>SUBTOTAL</b>	16,633	\$6,549,244
<b>TOTALS</b>		1,238	\$287,728		2,030	\$1,566,070		416	\$196,280		23,448	\$9,372,095		21,142	\$9,835,340	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).



	2087			2088			2089			2090			2091			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	9,604	\$1,680,700	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	4,802	\$1,392,580	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	4,802	\$2,785,160	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	4,586	\$871,340	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	2,293	\$722,295	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	2,293	\$1,433,125	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>	<b>28,380</b>	<b>\$9,035,200</b>	<b>SUBTOTAL</b>		<b>\$150,000</b>	<b>SUBTOTAL</b>		<b>\$150,000</b>	<b>SUBTOTAL</b>		<b>\$150,000</b>	<b>SUBTOTAL</b>		<b>\$150,000</b>	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	3,762	\$244,530	\$65	1,996	\$129,740	\$65	318	\$20,670	\$65	626	\$40,658	\$65	771	\$50,115
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$105	1,881	\$197,505	\$105	998	\$104,790	\$105	159	\$16,695	\$105	313	\$32,839	\$105	386	\$40,478
	Replace (25% of Pipe)	\$210	1,881	\$395,010	\$210	998	\$209,580	\$210	159	\$33,390	\$210	313	\$65,678	\$210	386	\$80,955
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	<b>7,524</b>	<b>\$837,045</b>	<b>SUBTOTAL</b>	<b>3,992</b>	<b>\$444,110</b>	<b>SUBTOTAL</b>	<b>636</b>	<b>\$70,755</b>	<b>SUBTOTAL</b>	<b>1,251</b>	<b>\$139,174</b>	<b>SUBTOTAL</b>	<b>1,542</b>	<b>\$171,548</b>	
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	111	\$10,498	\$95	1,291	\$122,598	\$95	492	\$46,740	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$160	55	\$8,840	\$160	645	\$103,240	\$160	246	\$39,360	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	55	\$17,404	\$315	645	\$203,254	\$315	246	\$77,490	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	<b>221</b>	<b>\$36,741</b>	<b>SUBTOTAL</b>	<b>2,581</b>	<b>\$429,091</b>	<b>SUBTOTAL</b>	<b>984</b>	<b>\$163,590</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	661	\$111,048	\$168	170	\$28,476
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	331	\$92,540	\$280	85	\$23,730
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	331	\$185,080	\$560	85	\$47,460
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>1,322</b>	<b>\$388,668</b>	<b>SUBTOTAL</b>	<b>339</b>	<b>\$99,666</b>	
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>3</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	<b>SUBTOTAL</b>	<b>0</b>	<b>\$0</b>	
<b>TOTALS</b>		<b>7,745</b>	<b>\$9,908,986</b>		<b>6,573</b>	<b>\$1,023,201</b>		<b>1,620</b>	<b>\$384,345</b>		<b>2,573</b>	<b>\$677,842</b>		<b>1,881</b>	<b>\$421,214</b>	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2092			2093			2094			2095			2096		
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main															
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	3,250	\$260,000
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	1,625	\$219,375
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	1,625	\$438,750
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main															
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main															
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0
<b>SUBTOTAL</b>			\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$1,068,125
16"															
Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	4,356	\$283,108	\$65	0	\$0	\$65	2,522	\$163,898	\$65	696	\$45,240	\$65	0	\$0
Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	2,178	\$228,664	\$105	0	\$0	\$105	1,261	\$132,379	\$105	348	\$36,540	\$105	0	\$0
Replace (25% of Pipe)	\$210	2,178	\$457,328	\$210	0	\$0	\$210	1,261	\$264,758	\$210	348	\$73,080	\$210	0	\$0
Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
<b>SUBTOTAL</b>		8,711	\$969,099	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	5,043	\$561,034	<b>SUBTOTAL</b>	1,392	\$154,860	<b>SUBTOTAL</b>	0	\$0
18"															
Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	2,706	\$189,420	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	1,353	\$297,660	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
Replace (25% of Pipe)	\$235	1,353	\$317,955	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
<b>SUBTOTAL</b>		5,412	\$805,035	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
20"															
Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
24"															
Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	42,089	\$3,998,408	\$95	0	\$0	\$95	158	\$15,010	\$95	187	\$17,765	\$95	0	\$0
Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	21,044	\$3,367,080	\$160	0	\$0	\$160	79	\$12,640	\$160	94	\$14,960	\$160	0	\$0
Replace (25% of Pipe)	\$315	21,044	\$6,628,939	\$315	0	\$0	\$315	79	\$24,885	\$315	94	\$29,453	\$315	0	\$0
Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
<b>SUBTOTAL</b>		84,177	\$13,994,426	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	316	\$52,535	<b>SUBTOTAL</b>	374	\$62,178	<b>SUBTOTAL</b>	0	\$0
30"															
Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	13,213	\$1,849,820	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	6,607	\$1,552,528	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
Replace (25% of Pipe)	\$470	6,607	\$3,105,055	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
<b>SUBTOTAL</b>		26,426	\$6,507,403	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
36"															
Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	11	\$1,848	\$168	0	\$0	\$168	7,565	\$1,270,920	\$168	22	\$3,612	\$168	222	\$37,296
Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	6	\$1,540	\$280	0	\$0	\$280	3,783	\$1,059,100	\$280	11	\$3,010	\$280	111	\$31,080
Replace (25% of Pipe)	\$560	6	\$3,080	\$560	0	\$0	\$560	3,783	\$2,118,200	\$560	11	\$6,020	\$560	111	\$62,160
Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
<b>SUBTOTAL</b>		22	\$6,468	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	15,130	\$4,448,220	<b>SUBTOTAL</b>	43	\$12,642	<b>SUBTOTAL</b>	444	\$130,536
48"															
Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
<b>SUBTOTAL</b>		0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0
<b>TOTALS</b>		124,748	\$22,432,431		0	\$150,000		20,489	\$5,211,789		1,809	\$379,680		444	\$1,198,661

Notes:

- All costs are in 2011 dollars.
- Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2097			2098			2099			2100			2101			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	165	\$10,725	\$65	0	\$0	\$65	3,870	\$251,550	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	83	\$8,663	\$105	0	\$0	\$105	1,935	\$203,175	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	83	\$17,325	\$210	0	\$0	\$210	1,935	\$406,350	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	882	\$185,220	\$210	3,940	\$827,400	\$210	1,056	\$248,160
	<b>SUBTOTAL</b>	330	\$36,713	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	7,740	\$1,046,295	<b>SUBTOTAL</b>	0	\$827,400	<b>SUBTOTAL</b>	0	\$248,160	
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	836	\$263,340
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$263,340	
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>		330	\$186,713		0	\$150,000		7,740	\$1,196,295		0	\$977,400		0	\$661,500	

Notes:

- 1 All costs are in 2011 dollars.
- 2 Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- 3 Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2102			2103			2104			2105			2106			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District Share of Capital Improvements to CTP (\$50,000/Year)			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	174	\$36,540	\$210	1,254	\$263,340	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$36,540	<b>SUBTOTAL</b>	0	\$263,340	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	573	\$148,980	\$260	1,454	\$378,040	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$148,980	<b>SUBTOTAL</b>	0	\$378,040	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	1,095	\$344,925	\$315	1,699	\$535,185	\$315	1,033	\$325,395	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$344,925	<b>SUBTOTAL</b>	0	\$535,185	<b>SUBTOTAL</b>	0	\$325,395	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0	\$494,925	0	\$870,705	0	\$1,116,775	0	\$150,000	0	\$150,000	0	\$150,000				

Notes:

- 1 All costs are in 2011 dollars.
- 2 Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.
- 3 Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).

	2107			2108			2109			2110			2111			
	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	Unit Cost (\$/ft)	Pipe Length (ft)	Est. Cost (\$)	
<b>Ongoing Testing/Monitoring/Condition Assessments (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to City of Sacramento Transmission Mains (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District Share of Capital Improvements to CTP (\$50,000/Year)</b>			\$50,000			\$50,000			\$50,000			\$50,000			\$50,000	
<b>District's Share of Cost to Rehabilitate/Replace City's 54" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	\$135	0	\$0	
Replace (25% of Pipe)	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	\$270	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 72" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	\$175	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	\$290	0	\$0	
Replace (25% of Pipe)	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	\$580	0	\$0	
<b>District's Share of Cost to Rehabilitate/Replace SJWD's 78" Transmission Main</b>																
Rehabilitation - Method A (50% of Pipe)	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	\$190	0	\$0	
Rehabilitation - Method B (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	
Replace (25% of Pipe)	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	\$625	0	\$0	
	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	<b>SUBTOTAL</b>		\$150,000	
16"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0	\$65	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0	\$105	0	\$0
	Replace (25% of Pipe)	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0	\$210	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
18"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0	\$70	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0	\$220	0	\$0
	Replace (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
20"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0	\$80	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0	\$130	0	\$0
	Replace (25% of Pipe)	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0	\$260	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
24"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0	\$95	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0	\$160	0	\$0
	Replace (25% of Pipe)	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0	\$315	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
30"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0	\$140	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0	\$235	0	\$0
	Replace (25% of Pipe)	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0	\$470	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
36"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0	\$168	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0	\$280	0	\$0
	Replace (25% of Pipe)	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0	\$560	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
48"	Rehabilitation - Method A <sup>1</sup> (50% of Pipe)	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0	\$225	0	\$0
	Rehabilitation - Method B <sup>2</sup> (25% of Pipe)	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0	\$375	0	\$0
	Replace (25% of Pipe)	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	Previously Rehabilitated T-Mains Reaching End of Extended Service Life	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0	\$750	0	\$0
	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	<b>SUBTOTAL</b>	0	\$0	
<b>TOTALS</b>	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	0		\$150,000	
															\$87,422,509	

Notes:

<sup>1</sup> All costs are in 2011 dollars.

<sup>2</sup> Method A pipeline rehabilitation is assumed to consist of various rehabilitation methods including joint welding rehabilitation, repair of internal corroded areas of pipeline, repair of internal corroded areas of pipe connections, installing an impressed current corrosion protection system and/or joint test welding.

<sup>3</sup> Method B pipeline rehabilitation is assumed to consist of sliplining of the existing pipe. Sliplining is completed by installing a smaller, "carrier pipe" into a larger "host pipe", grouting the annular space between the two pipes, and sealing the ends. The most common material used to slipline an existing pipe is high density polyethylene (HDPE).