

# Lehigh County Authority Cost of Service Study



Suburban Water – Common Rates Division  
Presentation to Board – October 23, 2017



**LEHIGH COUNTY AUTHORITY  
SCHEDULE OF WATER RATES AND CHARGES**

**COMMON RATE SYSTEMS: Central Lehigh, North Whitehall, Washington Township, Heidelberg Heights, Arcadia, Pine Lakes, Mill Creek, Beverly Hills, Emmaus Consecutive Divisions & Clearview Farm Estates**

**A. Metered Water Use**

<b>Fixed Charges</b>	
<b>Meter Size</b>	<b>Fixed Charge</b>
<i>Quarterly</i>	
5/8" & 3/4"	\$ 11.70
1"	21.60
<i>Monthly</i>	
1-1/2"	14.10
2"	21.00
3"	43.80
4"	64.20
6"	120.30
8"	186.90
10"	263.10

<b>Volume Charges</b>		
<b>Quarterly Usage (gal.)</b>	<b>Monthly Usage (gal.)</b>	<b>Rate per 1,000 Gal.</b>
First 120,000	First 0 - 40,000	\$2.39
Next 2,880,000	Next 960,000	\$2.19
Next 24,000,000	Next 8,000,000	\$1.79
Next 147,000,000	Next 49,000,000	\$1.51
Over 174,000,000	Over 58,000,000	\$1.26

**B. Public Fire Protection**

Each Public Fire Hydrant (O&M Charge)           \$7.87/month  
Each Inch-Squared Foot (System Charge)       \$0.00152/year

**C. Private Fire Protection**

<b>Fire Line Size</b>	<b>Charge per Month</b>
Single Family Residential	\$ 5.00
2"	13.61
2-1/2"	21.26
3"	30.62
4"	54.43
6"	122.47
8"	217.72
10"	340.18
12"	489.87

**Arcadia Division Fire Protection Charge**

\$.00321	<b>Monthly Charge per Sq. Ft. of Building Space</b>
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**EXHIBIT 1  
LEHIGH COUNTY AUTHORITY  
OPERATING BUDGET ESTIMATES (1)**

<b><u>BUDGET LINE ITEM</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>	<b><u>2020</u></b>	<b><u>2021</u></b>	<b><u>2022</u></b>	<b><u>TOTAL</u></b>
	<b>BASE YEAR</b>						
<b>PERSONNEL</b>							
PERMANENT	\$861,508	\$1,034,000	\$1,065,020	\$1,096,970	\$1,129,880	\$1,163,780	\$6,351,158
OVERTIME	81,123	68,000	70,040	72,140	74,300	76,530	442,133
EMPLOYEE BENEFITS	297,803	501,050	516,080	531,560	547,510	563,940	2,957,943
<b>SUBTOTAL</b>	<b>\$1,240,434</b>	<b>\$1,603,050</b>	<b>\$1,651,140</b>	<b>\$1,700,670</b>	<b>\$1,751,690</b>	<b>\$1,804,250</b>	<b>\$9,751,234</b>
<b>PURCHASE OF SERVICES</b>							
INTERNAL SERVICES - OVERHEAD & SUPPORT	\$765,840	\$802,000	\$826,060	\$850,840	\$876,370	\$902,660	\$5,023,770
UTILITIES	493,000	457,000	471,000	485,000	500,000	515,000	2,921,000
ENGINEERING	48,000	57,000	58,710	60,470	62,280	64,150	350,610
ANALYSES - EXTERNAL	51,785	191,000	196,730	202,630	208,710	214,970	1,065,825
CONTRACT OPERATING SERVICES	38,270	38,000	39,140	40,310	41,520	42,770	240,010
COMPLIANCE EXPENSE	0	42,000	43,260	44,560	45,900	47,280	223,000
MAINTENANCE SERVICES	534,380	150,000	154,500	159,140	163,910	168,830	1,330,760
FLEET MANAGEMENT SERVICES	30,000	29,000	29,870	30,770	31,690	32,640	183,970
EXTRAORDINARY EXPENDITURES	100,000	0	0	0	0	0	100,000
INDUSTRIAL METER TESTING & REPAIR	8,600	9,000	9,270	9,550	9,840	10,140	56,400
MISCELLANEOUS SERVICES	94,310	46,000	47,380	48,800	50,260	51,770	338,520
WATER PURCHASES	1,923,000	2,099,000	2,161,970	2,226,830	2,293,630	2,362,440	13,066,870
<b>SUBTOTAL</b>	<b>\$4,087,185</b>	<b>\$3,920,000</b>	<b>\$4,037,890</b>	<b>\$4,158,900</b>	<b>\$4,284,110</b>	<b>\$4,412,650</b>	<b>\$24,900,735</b>
<b>MAINTENANCE &amp; SUPPLIES</b>							
PUMP SUPPLIES	\$67,300	\$17,000	\$17,510	\$18,040	\$18,580	\$19,140	\$157,570
PURIFICATION SUPPLIES	101,450	51,000	52,530	54,110	55,730	57,400	372,220
DISTRIBUTION & TRANSMISSION SUPPLIES	102,750	80,000	82,400	84,870	87,420	90,040	527,480
FLEET MANAGEMENT SERVICES	2,500	3,000	3,090	3,180	3,280	3,380	18,430
MISCELLANEOUS MATERIAL & SUPPLIES	60,695	51,000	52,530	54,110	55,730	57,400	331,465
FUEL & MILEAGE	65,100	66,000	67,980	70,020	72,120	74,280	415,500
<b>SUBTOTAL</b>	<b>\$399,795</b>	<b>\$268,000</b>	<b>\$276,040</b>	<b>\$284,330</b>	<b>\$292,860</b>	<b>\$301,640</b>	<b>\$1,822,665</b>
<b>EQUIPMENT</b>	<b>\$137,000</b>	<b>\$103,000</b>	<b>\$106,090</b>	<b>\$109,270</b>	<b>\$112,550</b>	<b>\$115,930</b>	<b>\$683,840</b>
<b>TOTAL</b>	<b>\$5,864,414</b>	<b>\$5,894,050</b>	<b>\$6,071,160</b>	<b>\$6,253,170</b>	<b>\$6,441,210</b>	<b>\$6,634,470</b>	<b>\$37,158,474</b>

(1) OPERATING EXPENSES HAVE BEEN INFLATED AT 3 PERCENT ANNUALLY. DEVIATIONS FROM THIS INFLATION RATE HAVE BEEN MADE TO ADJUST FOR CHANGES IN OPERATING PROCEDURES AS REQUIRED.

2017 PROJECTED

**EXHIBIT 2**  
**LEHIGH COUNTY AUTHORITY**  
**OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

<b>BUDGET LINE ITEM</b>	<b>SUPPLY</b>	<b>PUMPING</b>	<b>TREATMENT</b>	<b>STORAGE</b>	<b>TRANS. &amp; DIST.</b>	<b>FIRE HYD.</b>	<b>MAINT. / SERVICE</b>	<b>METER READING</b>	<b>ADMIN.</b>	<b>CUSTOMER SERVICE</b>	<b>TOTAL</b>
<b>PERSONNEL</b>											
PERMANENT	\$5,995	\$133,038	\$108,701	\$5,600	\$115,213	\$17,481	\$19,702	\$76,527	\$246,686	\$132,564	\$861,508
OVERTIME	565	12,527	10,236	527	10,849	1,646	1,855	7,206	23,229	12,483	81,123
EMPLOYEE BENEFITS	2,072	45,988	37,575	1,936	39,827	6,043	6,811	26,454	85,274	45,824	297,803
<b>SUBTOTAL</b>	<b>\$8,632</b>	<b>\$191,554</b>	<b>\$156,512</b>	<b>\$8,063</b>	<b>\$165,889</b>	<b>\$25,170</b>	<b>\$28,368</b>	<b>\$110,187</b>	<b>\$355,189</b>	<b>\$190,870</b>	<b>\$1,240,434</b>
<b>PURCHASE OF SERVICES</b>											
INTERNAL SERVICES - OVERHEAD	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$765,840	\$0	\$765,840
UTILITIES	0	493,000	0	0	0	0	0	0	0	0	493,000
ENGINEERING	44,430	1,587	1,587	0	397	0	0	0	0	0	48,000
ANALYSES - EXTERNAL	0	0	51,785	0	0	0	0	0	0	0	51,785
CONTRACT OPERATING SERVICES	266	5,910	4,829	249	5,118	777	875	3,399	10,958	5,889	38,270
COMPLIANCE EXPENSE	0	0	0	0	0	0	0	0	0	0	0
MAINTENANCE SERVICES	10,308	187,290	14,498	89,279	146,057	16,491	63,575	3,441	0	3,441	534,380
FLEET MANAGEMENT SERVICES	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	30,000
EXTRAORDINARY EXPENDITURES	0	0	0	0	0	0	0	0	100,000	0	100,000
INDUSTRIAL METER TESTING & REPAIRS	0	0	0	0	0	0	8,600	0	0	0	8,600
MISCELLANEOUS SERVICES	9,431	9,431	9,431	9,431	9,431	9,431	9,431	9,431	9,431	9,431	94,310
WATER PURCHASES	1,923,000	0	0	0	0	0	0	0	0	0	1,923,000
<b>SUBTOTAL</b>	<b>\$1,990,435</b>	<b>\$700,217</b>	<b>\$85,129</b>	<b>\$101,959</b>	<b>\$164,002</b>	<b>\$29,699</b>	<b>\$85,481</b>	<b>\$19,272</b>	<b>\$889,229</b>	<b>\$21,761</b>	<b>\$4,087,185</b>
<b>MAINTENANCE &amp; SUPPLIES</b>											
PUMP SUPPLIES	\$0	\$67,300	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$67,300
PURIFICATION SUPPLIES	0	0	101,450	0	0	0	0	0	0	0	101,450
DISTRIBUTION & TRANSMISSION SUPPLIES	0	0	0	0	102,750	0	0	0	0	0	102,750
FLEET MANAGEMENT SERVICES	250	250	250	250	250	250	250	250	250	250	2,500
MISCELLANEOUS MATERIAL & SUPPLIES	6,070	6,070	6,070	6,070	6,070	6,070	6,070	6,070	6,070	6,070	60,695
FUEL & MILEAGE	6,510	6,510	6,510	6,510	6,510	6,510	6,510	6,510	6,510	6,510	65,100
<b>SUBTOTAL</b>	<b>\$12,830</b>	<b>\$80,130</b>	<b>\$114,280</b>	<b>\$12,830</b>	<b>\$115,580</b>	<b>\$12,830</b>	<b>\$12,830</b>	<b>\$12,830</b>	<b>\$12,830</b>	<b>\$12,830</b>	<b>\$399,795</b>
<b>EQUIPMENT</b>	<b>\$1,303</b>	<b>\$21,630</b>	<b>\$66,845</b>	<b>\$1,303</b>	<b>\$10,685</b>	<b>\$11,727</b>	<b>\$20,901</b>	<b>\$2,606</b>	<b>\$0</b>	<b>\$0</b>	<b>\$137,000</b>
<b>TOTAL</b>	<b>\$2,013,200</b>	<b>\$993,531</b>	<b>\$422,766</b>	<b>\$124,154</b>	<b>\$456,156</b>	<b>\$79,425</b>	<b>\$147,580</b>	<b>\$144,894</b>	<b>\$1,257,247</b>	<b>\$225,461</b>	<b>\$5,864,414</b>

2018 PROJECTED

**EXHIBIT 2**  
**LEHIGH COUNTY AUTHORITY**  
**OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

<b>BUDGET LINE ITEM</b>	<b>SUPPLY</b>	<b>PUMPING</b>	<b>TREATMENT</b>	<b>STORAGE</b>	<b>TRANS. &amp; &amp; DIST.</b>	<b>FIRE HYD.</b>	<b>MAINT. / SERVICE</b>	<b>METER READING</b>	<b>ADMIN.</b>	<b>CUSTOMER SERVICE</b>	<b>TOTAL</b>
<b>PERSONNEL</b>											
PERMANENT	\$7,195	\$159,675	\$130,466	\$6,721	\$138,282	\$20,981	\$23,647	\$91,850	\$296,078	\$159,106	\$1,034,000
OVERTIME	473	10,501	8,580	442	9,094	1,380	1,555	6,040	19,471	10,463	68,000
EMPLOYEE BENEFITS	3,487	77,375	63,220	3,257	67,008	10,167	11,459	44,508	143,472	77,098	501,050
<b>SUBTOTAL</b>	<b>\$11,155</b>	<b>\$247,551</b>	<b>\$202,266</b>	<b>\$10,420</b>	<b>\$214,383</b>	<b>\$32,527</b>	<b>\$36,661</b>	<b>\$142,398</b>	<b>\$459,021</b>	<b>\$246,667</b>	<b>\$1,603,050</b>
<b>PURCHASE OF SERVICES</b>											
INTERNAL SERVICES - OVERHI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$802,000	\$0	\$802,000
UTILITIES	0	457,000	0	0	0	0	0	0	0	0	457,000
ENGINEERING	52,760	1,884	1,884	0	471	0	0	0	0	0	57,000
ANALYSES - EXTERNAL	0	0	191,000	0	0	0	0	0	0	0	191,000
CONTRACT OPERATING SERVI	264	5,868	4,795	247	5,082	771	869	3,376	10,881	5,847	38,000
COMPLIANCE EXPENSE	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	42,000
MAINTENANCE SERVICES	2,894	52,572	4,070	25,061	40,998	4,629	17,846	966	0	966	150,000
FLEET MANAGEMENT SERVI	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	29,000
EXTRAORDINARY EXPENDITU	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTING	0	0	0	0	0	0	9,000	0	0	0	9,000
MISCELLANEOUS SERVICES	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	46,000
WATER PURCHASES	2,099,000	0	0	0	0	0	0	0	0	0	2,099,000
<b>SUBTOTAL</b>	<b>\$2,166,618</b>	<b>\$529,024</b>	<b>\$213,448</b>	<b>\$37,008</b>	<b>\$58,251</b>	<b>\$17,100</b>	<b>\$39,415</b>	<b>\$16,042</b>	<b>\$824,581</b>	<b>\$18,513</b>	<b>\$3,920,000</b>
<b>MAINTENANCE &amp; SUPPLIES</b>											
PUMP SUPPLIES	\$0	\$17,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,000
PURIFICATION SUPPLIES	0	0	51,000	0	0	0	0	0	0	0	51,000
DISTRIBUTION & TRANSMISSIO	0	0	0	0	80,000	0	0	0	0	0	80,000
FLEET MANAGEMENT SERVI	300	300	300	300	300	300	300	300	300	300	3,000
MISCELLANEOUS MATERIAL &	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	51,000
FUEL & MILEAGE	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	66,000
<b>SUBTOTAL</b>	<b>\$12,000</b>	<b>\$29,000</b>	<b>\$63,000</b>	<b>\$12,000</b>	<b>\$92,000</b>	<b>\$12,000</b>	<b>\$12,000</b>	<b>\$12,000</b>	<b>\$12,000</b>	<b>\$12,000</b>	<b>\$268,000</b>
<b>EQUIPMENT</b>	<b>\$980</b>	<b>\$16,262</b>	<b>\$50,256</b>	<b>\$980</b>	<b>\$8,033</b>	<b>\$8,817</b>	<b>\$15,714</b>	<b>\$1,959</b>	<b>\$0</b>	<b>\$0</b>	<b>\$103,000</b>
<b>TOTAL</b>	<b>\$2,190,753</b>	<b>\$821,837</b>	<b>\$528,970</b>	<b>\$60,407</b>	<b>\$372,667</b>	<b>\$70,444</b>	<b>\$103,789</b>	<b>\$172,399</b>	<b>\$1,295,602</b>	<b>\$277,181</b>	<b>\$5,894,050</b>

2019 PROJECTED

**EXHIBIT 2  
LEHIGH COUNTY AUTHORITY  
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

<u>BUDGET LINE ITEM</u>	<u>SUPPLY</u>	<u>PUMPING</u>	<u>TREATMENT</u>	<u>STORAGE</u>	<u>TRANS. &amp; &amp; DIST.</u>	<u>FIRE HYD.</u>	<u>MAINT. / SERVICE</u>	<u>METER READING</u>	<u>ADMIN.</u>	<u>CUSTOMER SERVICE</u>	<u>TOTAL</u>
<b>PERSONNEL</b>											
PERMANENT	\$7,411	\$164,465	\$134,379	\$6,923	\$142,430	\$21,610	\$24,357	\$94,605	\$304,960	\$163,879	\$1,065,020
OVERTIME	487	10,816	8,837	455	9,367	1,421	1,602	6,222	20,055	10,777	70,040
EMPLOYEE BENEFITS	3,591	79,696	65,117	3,355	69,018	10,472	11,803	45,843	147,775	79,411	516,080
<b>SUBTOTAL</b>	<b>\$11,490</b>	<b>\$254,977</b>	<b>\$208,334</b>	<b>\$10,733</b>	<b>\$220,815</b>	<b>\$33,503</b>	<b>\$37,761</b>	<b>\$146,670</b>	<b>\$472,791</b>	<b>\$254,067</b>	<b>\$1,651,140</b>
<b>PURCHASE OF SERVICES</b>											
INTERNAL SERVICES - OVERHI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$826,060	\$0	\$826,060
UTILITIES	0	471,000	0	0	0	0	0	0	0	0	471,000
ENGINEERING	54,343	1,941	1,941	0	485	0	0	0	0	0	58,710
ANALYSES - EXTERNAL	0	0	196,730	0	0	0	0	0	0	0	196,730
CONTRACT OPERATING SERVI	272	6,044	4,939	254	5,234	794	895	3,477	11,207	6,023	39,140
COMPLIANCE EXPENSE	4,326	4,326	4,326	4,326	4,326	4,326	4,326	4,326	4,326	4,326	43,260
MAINTENANCE SERVICES	2,980	54,149	4,192	25,812	42,228	4,768	18,381	995	0	995	154,500
FLEET MANAGEMENT SERVI	2,987	2,987	2,987	2,987	2,987	2,987	2,987	2,987	2,987	2,987	29,870
EXTRAORDINARY EXPENDITU	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTING	0	0	0	0	0	0	9,270	0	0	0	9,270
MISCELLANEOUS SERVICES	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,738	47,380
WATER PURCHASES	2,161,970	0	0	0	0	0	0	0	0	0	2,161,970
<b>SUBTOTAL</b>	<b>\$2,231,617</b>	<b>\$545,185</b>	<b>\$219,852</b>	<b>\$38,118</b>	<b>\$59,999</b>	<b>\$17,613</b>	<b>\$40,597</b>	<b>\$16,523</b>	<b>\$849,318</b>	<b>\$19,069</b>	<b>\$4,037,890</b>
<b>MAINTENANCE &amp; SUPPLIES</b>											
PUMP SUPPLIES	\$0	\$17,510	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,510
PURIFICATION SUPPLIES	0	0	52,530	0	0	0	0	0	0	0	52,530
DISTRIBUTION & TRANSMISSI	0	0	0	0	82,400	0	0	0	0	0	82,400
FLEET MANAGEMENT SERVI	309	309	309	309	309	309	309	309	309	309	3,090
MISCELLANEOUS MATERIAL &	5,253	5,253	5,253	5,253	5,253	5,253	5,253	5,253	5,253	5,253	52,530
FUEL & MILEAGE	6,798	6,798	6,798	6,798	6,798	6,798	6,798	6,798	6,798	6,798	67,980
<b>SUBTOTAL</b>	<b>\$12,360</b>	<b>\$29,870</b>	<b>\$64,890</b>	<b>\$12,360</b>	<b>\$94,760</b>	<b>\$12,360</b>	<b>\$12,360</b>	<b>\$12,360</b>	<b>\$12,360</b>	<b>\$12,360</b>	<b>\$276,040</b>
<b>EQUIPMENT</b>	<b>\$1,009</b>	<b>\$16,750</b>	<b>\$51,764</b>	<b>\$1,009</b>	<b>\$8,274</b>	<b>\$9,081</b>	<b>\$16,185</b>	<b>\$2,018</b>	<b>\$0</b>	<b>\$0</b>	<b>\$106,090</b>
<b>TOTAL</b>	<b>\$2,256,476</b>	<b>\$846,782</b>	<b>\$544,839</b>	<b>\$62,220</b>	<b>\$383,847</b>	<b>\$72,558</b>	<b>\$106,903</b>	<b>\$177,570</b>	<b>\$1,334,470</b>	<b>\$285,496</b>	<b>\$6,071,160</b>

2020 PROJECTED

**EXHIBIT 2  
LEHIGH COUNTY AUTHORITY  
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

<u>BUDGET LINE ITEM</u>	<u>SUPPLY</u>	<u>PUMPING</u>	<u>TREATMENT</u>	<u>STORAGE</u>	<u>TRANS. &amp; &amp; DIST.</u>	<u>FIRE HYD.</u>	<u>MAINT. / SERVICE</u>	<u>METER READING</u>	<u>ADMIN.</u>	<u>CUSTOMER SERVICE</u>	<u>TOTAL</u>
<b>PERSONNEL</b>											
PERMANENT	\$7,634	\$169,399	\$138,411	\$7,131	\$146,703	\$22,259	\$25,087	\$97,443	\$314,109	\$168,795	\$1,096,970
OVERTIME	502	11,140	9,102	469	9,648	1,464	1,650	6,408	20,657	11,100	72,140
EMPLOYEE BENEFITS	3,699	82,086	67,070	3,455	71,088	10,786	12,157	47,218	152,208	81,793	531,560
<b>SUBTOTAL</b>	<b>\$11,835</b>	<b>\$262,626</b>	<b>\$214,583</b>	<b>\$11,055</b>	<b>\$227,438</b>	<b>\$34,508</b>	<b>\$38,894</b>	<b>\$151,069</b>	<b>\$486,974</b>	<b>\$261,689</b>	<b>\$1,700,670</b>
<b>PURCHASE OF SERVICES</b>											
INTERNAL SERVICES - OVERHI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$850,840	\$0	\$850,840
UTILITIES	0	485,000	0	0	0	0	0	0	0	0	485,000
ENGINEERING	55,972	1,999	1,999	0	500	0	0	0	0	0	60,470
ANALYSES - EXTERNAL	0	0	202,630	0	0	0	0	0	0	0	202,630
CONTRACT OPERATING SERVI	281	6,225	5,086	262	5,391	818	922	3,581	11,542	6,203	40,310
COMPLIANCE EXPENSE	4,456	4,456	4,456	4,456	4,456	4,456	4,456	4,456	4,456	4,456	44,560
MAINTENANCE SERVICES	3,070	55,775	4,317	26,588	43,496	4,911	18,933	1,025	0	1,025	159,140
FLEET MANAGEMENT SERVIC	3,077	3,077	3,077	3,077	3,077	3,077	3,077	3,077	3,077	3,077	30,770
EXTRAORDINARY EXPENDITU	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTING	0	0	0	0	0	0	9,550	0	0	0	9,550
MISCELLANEOUS SERVICES	4,880	4,880	4,880	4,880	4,880	4,880	4,880	4,880	4,880	4,880	48,800
WATER PURCHASES	2,226,830	0	0	0	0	0	0	0	0	0	2,226,830
<b>SUBTOTAL</b>	<b>\$2,298,566</b>	<b>\$561,412</b>	<b>\$226,446</b>	<b>\$39,263</b>	<b>\$61,800</b>	<b>\$18,142</b>	<b>\$41,818</b>	<b>\$17,019</b>	<b>\$874,795</b>	<b>\$19,641</b>	<b>\$4,158,900</b>
<b>MAINTENANCE &amp; SUPPLIES</b>											
PUMP SUPPLIES	\$0	\$18,040	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$18,040
PURIFICATION SUPPLIES	0	0	54,110	0	0	0	0	0	0	0	54,110
DISTRIBUTION & TRANSMISSI	0	0	0	0	84,870	0	0	0	0	0	84,870
FLEET MANAGEMENT SERVIC	318	318	318	318	318	318	318	318	318	318	3,180
MISCELLANEOUS MATERIAL &	5,411	5,411	5,411	5,411	5,411	5,411	5,411	5,411	5,411	5,411	54,110
FUEL & MILEAGE	7,002	7,002	7,002	7,002	7,002	7,002	7,002	7,002	7,002	7,002	70,020
<b>SUBTOTAL</b>	<b>\$12,731</b>	<b>\$30,771</b>	<b>\$66,841</b>	<b>\$12,731</b>	<b>\$97,601</b>	<b>\$12,731</b>	<b>\$12,731</b>	<b>\$12,731</b>	<b>\$12,731</b>	<b>\$12,731</b>	<b>\$284,330</b>
<b>EQUIPMENT</b>	<b>\$1,039</b>	<b>\$17,252</b>	<b>\$53,315</b>	<b>\$1,039</b>	<b>\$8,522</b>	<b>\$9,354</b>	<b>\$16,670</b>	<b>\$2,079</b>	<b>\$0</b>	<b>\$0</b>	<b>\$109,270</b>
<b>TOTAL</b>	<b>\$2,324,170</b>	<b>\$872,061</b>	<b>\$561,185</b>	<b>\$64,088</b>	<b>\$395,361</b>	<b>\$74,735</b>	<b>\$110,113</b>	<b>\$182,898</b>	<b>\$1,374,500</b>	<b>\$294,060</b>	<b>\$6,253,170</b>



2021 PROJECTED

**EXHIBIT 2**  
**LEHIGH COUNTY AUTHORITY**  
**OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

<b>BUDGET LINE ITEM</b>	<b>SUPPLY</b>	<b>PUMPING</b>	<b>TREATMENT</b>	<b>STORAGE</b>	<b>TRANS. &amp; &amp; DIST.</b>	<b>FIRE HYD.</b>	<b>MAINT. / SERVICE</b>	<b>METER READING</b>	<b>ADMIN.</b>	<b>CUSTOMER SERVICE</b>	<b>TOTAL</b>
<b>PERSONNEL</b>											
PERMANENT	\$7,863	\$174,481	\$142,563	\$7,345	\$151,104	\$22,926	\$25,840	\$100,366	\$323,532	\$173,859	\$1,129,880
OVERTIME	517	11,474	9,375	483	9,936	1,508	1,699	6,600	21,275	11,433	74,300
EMPLOYEE BENEFITS	3,810	84,549	69,082	3,559	73,221	11,110	12,521	48,635	156,775	84,247	547,510
<b>SUBTOTAL</b>	<b>\$12,190</b>	<b>\$270,504</b>	<b>\$221,020</b>	<b>\$11,386</b>	<b>\$234,262</b>	<b>\$35,543</b>	<b>\$40,061</b>	<b>\$155,601</b>	<b>\$501,583</b>	<b>\$269,539</b>	<b>\$1,751,690</b>
<b>PURCHASE OF SERVICES</b>											
INTERNAL SERVICES - OVERHI	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$876,370	\$0	\$876,370
UTILITIES	0	500,000	0	0	0	0	0	0	0	0	500,000
ENGINEERING	57,648	2,059	2,059	0	515	0	0	0	0	0	62,280
ANALYSES - EXTERNAL	0	0	208,710	0	0	0	0	0	0	0	208,710
CONTRACT OPERATING SERVI	289	6,412	5,239	270	5,553	842	950	3,688	11,889	6,389	41,520
COMPLIANCE EXPENSE	4,590	4,590	4,590	4,590	4,590	4,590	4,590	4,590	4,590	4,590	45,900
MAINTENANCE SERVICES	3,162	57,447	4,447	27,384	44,800	5,058	19,500	1,056	0	1,056	163,910
FLEET MANAGEMENT SERVI	3,169	3,169	3,169	3,169	3,169	3,169	3,169	3,169	3,169	3,169	31,690
EXTRAORDINARY EXPENDITU	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTING	0	0	0	0	0	0	9,840	0	0	0	9,840
MISCELLANEOUS SERVICES	5,026	5,026	5,026	5,026	5,026	5,026	5,026	5,026	5,026	5,026	50,260
WATER PURCHASES	2,293,630	0	0	0	0	0	0	0	0	0	2,293,630
<b>SUBTOTAL</b>	<b>\$2,367,513</b>	<b>\$578,703</b>	<b>\$233,240</b>	<b>\$40,439</b>	<b>\$63,652</b>	<b>\$18,686</b>	<b>\$43,075</b>	<b>\$17,529</b>	<b>\$901,044</b>	<b>\$20,229</b>	<b>\$4,284,110</b>
<b>MAINTENANCE &amp; SUPPLIES</b>											
PUMP SUPPLIES	\$0	\$18,580	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$18,580
PURIFICATION SUPPLIES	0	0	55,730	0	0	0	0	0	0	0	55,730
DISTRIBUTION & TRANSMISSI	0	0	0	0	87,420	0	0	0	0	0	87,420
FLEET MANAGEMENT SERVI	328	328	328	328	328	328	328	328	328	328	3,280
MISCELLANEOUS MATERIAL &	5,573	5,573	5,573	5,573	5,573	5,573	5,573	5,573	5,573	5,573	55,730
FUEL & MILEAGE	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	72,120
<b>SUBTOTAL</b>	<b>\$13,113</b>	<b>\$31,693</b>	<b>\$68,843</b>	<b>\$13,113</b>	<b>\$100,533</b>	<b>\$13,113</b>	<b>\$13,113</b>	<b>\$13,113</b>	<b>\$13,113</b>	<b>\$13,113</b>	<b>\$292,860</b>
<b>EQUIPMENT</b>	<b>\$1,070</b>	<b>\$17,770</b>	<b>\$54,915</b>	<b>\$1,070</b>	<b>\$8,778</b>	<b>\$9,634</b>	<b>\$17,170</b>	<b>\$2,141</b>	<b>\$0</b>	<b>\$0</b>	<b>\$112,550</b>
<b>TOTAL</b>	<b>\$2,393,886</b>	<b>\$898,670</b>	<b>\$578,018</b>	<b>\$66,009</b>	<b>\$407,225</b>	<b>\$76,977</b>	<b>\$113,419</b>	<b>\$188,384</b>	<b>\$1,415,740</b>	<b>\$302,882</b>	<b>\$6,441,210</b>



2022 PROJECTED

**EXHIBIT 2  
LEHIGH COUNTY AUTHORITY  
OPERATING BUDGET ESTIMATES BY FUNCTIONAL CATEGORY**

<b>BUDGET LINE ITEM</b>	<b>SUPPLY</b>	<b>PUMPING</b>	<b>TREATMENT</b>	<b>STORAGE</b>	<b>TRANS. &amp; &amp; DIST.</b>	<b>FIRE HYD.</b>	<b>MAINT. / SERVICE</b>	<b>METER READING</b>	<b>ADMIN.</b>	<b>CUSTOMER SERVICE</b>	<b>TOTAL</b>
<b>PERSONNEL</b>											
PERMANENT	\$8,098	\$179,716	\$146,841	\$7,565	\$155,638	\$23,614	\$26,615	\$103,378	\$333,239	\$179,075	\$1,163,780
OVERTIME	533	11,818	9,656	497	10,235	1,553	1,750	6,798	21,914	11,776	76,530
EMPLOYEE BENEFITS	3,924	87,086	71,155	3,666	75,418	11,443	12,897	50,094	161,480	86,776	563,940
<b>SUBTOTAL</b>	<b>\$12,555</b>	<b>\$278,621</b>	<b>\$227,652</b>	<b>\$11,728</b>	<b>\$241,291</b>	<b>\$36,610</b>	<b>\$41,263</b>	<b>\$160,270</b>	<b>\$516,633</b>	<b>\$277,627</b>	<b>\$1,804,250</b>
<b>PURCHASE OF SERVICES</b>											
INTERNAL SERVICES - OVERHEAD	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$902,660	\$0	\$902,660
UTILITIES	0	515,000	0	0	0	0	0	0	0	0	515,000
ENGINEERING	59,379	2,121	2,121	0	530	0	0	0	0	0	64,150
ANALYSES - EXTERNAL	0	0	214,970	0	0	0	0	0	0	0	214,970
CONTRACT OPERATING SERVICES	298	6,605	5,397	278	5,720	868	978	3,799	12,247	6,581	42,770
COMPLIANCE EXPENSE	4,728	4,728	4,728	4,728	4,728	4,728	4,728	4,728	4,728	4,728	47,280
MAINTENANCE SERVICES	3,257	59,172	4,580	28,206	46,145	5,210	20,086	1,087	0	1,087	168,830
FLEET MANAGEMENT SERVICES	3,264	3,264	3,264	3,264	3,264	3,264	3,264	3,264	3,264	3,264	32,640
EXTRAORDINARY EXPENDITURES	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL METER TESTING & REPAIR	0	0	0	0	0	0	10,140	0	0	0	10,140
MISCELLANEOUS SERVICES	5,177	5,177	5,177	5,177	5,177	5,177	5,177	5,177	5,177	5,177	51,770
WATER PURCHASES	2,362,440	0	0	0	0	0	0	0	0	0	2,362,440
<b>SUBTOTAL</b>	<b>\$2,438,542</b>	<b>\$596,066</b>	<b>\$240,237</b>	<b>\$41,653</b>	<b>\$65,564</b>	<b>\$19,247</b>	<b>\$44,373</b>	<b>\$18,055</b>	<b>\$928,076</b>	<b>\$20,837</b>	<b>\$4,412,650</b>
<b>MAINTENANCE &amp; SUPPLIES</b>											
PUMP SUPPLIES	\$0	\$19,140	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,140
PURIFICATION SUPPLIES	0	0	57,400	0	0	0	0	0	0	0	57,400
DISTRIBUTION & TRANSMISSION SUPPLIES	0	0	0	0	90,040	0	0	0	0	0	90,040
FLEET MANAGEMENT SERVICES	338	338	338	338	338	338	338	338	338	338	3,380
MISCELLANEOUS MATERIAL & SUPPLIES	5,740	5,740	5,740	5,740	5,740	5,740	5,740	5,740	5,740	5,740	57,400
FUEL & MILEAGE	7,428	7,428	7,428	7,428	7,428	7,428	7,428	7,428	7,428	7,428	74,280
<b>SUBTOTAL</b>	<b>\$13,506</b>	<b>\$32,646</b>	<b>\$70,906</b>	<b>\$13,506</b>	<b>\$103,546</b>	<b>\$13,506</b>	<b>\$13,506</b>	<b>\$13,506</b>	<b>\$13,506</b>	<b>\$13,506</b>	<b>\$301,640</b>
<b>EQUIPMENT</b>	<b>\$1,103</b>	<b>\$18,304</b>	<b>\$56,565</b>	<b>\$1,103</b>	<b>\$9,042</b>	<b>\$9,924</b>	<b>\$17,686</b>	<b>\$2,205</b>	<b>\$0</b>	<b>\$0</b>	<b>\$115,930</b>
<b>TOTAL</b>	<b>\$2,465,706</b>	<b>\$925,636</b>	<b>\$595,359</b>	<b>\$67,990</b>	<b>\$419,442</b>	<b>\$79,287</b>	<b>\$116,828</b>	<b>\$194,037</b>	<b>\$1,458,215</b>	<b>\$311,970</b>	<b>\$6,634,470</b>

**EXHIBIT 3**  
**LEHIGH COUNTY AUTHORITY**  
**PROJECTED DEBT SERVICE REQUIREMENTS**

	<b>2017</b>	<b>PROJECTED</b>				
	<b>BASE YEAR</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>PRINCIPAL REDUCTIONS - EXISTING DEBT</b>						
2015 Bonds	\$1,021,120	\$1,038,960	\$1,051,180	\$1,072,850	\$1,088,705	
2010 A Bonds	0	0	0	0	0	\$0
2015 A Bonds	297,200	299,400	311,400	318,100	304,500	1,475,100
2011 Bonds	104,415	115,313	\$118,525	121,825	125,218	74,644
2017 Bonds	226,857	591,800	\$591,800	591,800	577,050	570,850
Pennworks	165,931	169,279	172,696	176,181	179,737	183,365
PV - Mtr Backflow Upg	71,182	70,051	71,116	72,197	73,295	74,410
<b>EXISTING DEBT - PRINCIPAL REDUCTION</b>	<b>\$1,886,705</b>	<b>\$2,284,803</b>	<b>\$2,316,717</b>	<b>\$2,352,953</b>	<b>\$2,348,505</b>	<b>\$2,378,369</b>
<b>INTEREST EXPENSE - EXISTING DEBT</b>						
2015 Bonds	\$84,365	\$68,027	\$51,404	\$34,585	\$24,496	
2010 A Bonds	649,230	649,230	649,230	649,230	649,230	\$649,230
2015 A Bonds	215,536	208,373	201,158	193,653	185,987	178,648
2011 Bonds	16,955	13,831	10,619	7,319	3,925	686
2017 Bonds	0	0	0	295,000	310,000	315,000
Pennworks	38,224	34,875	31,458	27,973	24,417	20,789
PV - Mtr Backflow Upg	13,348	16,860	15,795	14,713	13,616	12,501
<b>EXISTING DEBT - INTEREST EXPENSE</b>	<b>\$1,017,658</b>	<b>\$991,196</b>	<b>\$959,664</b>	<b>\$1,222,473</b>	<b>\$1,211,671</b>	<b>\$1,176,854</b>
<b>FUTURE DEBT</b>						
Interest Expense					\$220,500	\$216,229
Principal Reductions					122,039	126,311
<b>TOTAL FUTURE DEBT EXPENSE</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$342,539</b>	<b>\$342,539</b>
<b>LESS: DEBT SERVICE REDUCTIONS</b>						
DSRF Interest Income	\$100,000	\$125,000	\$100,000	\$100,000	\$75,000	\$50,000
BAB Subsidy	105,775	105,775	105,775	105,775	105,775	105,775
<b>TOTAL DEBT SERVICE REDUCTIONS</b>	<b>\$205,775</b>	<b>\$230,775</b>	<b>\$205,775</b>	<b>\$205,775</b>	<b>\$180,775</b>	<b>\$155,775</b>
<b>ADDITIONAL DEBT REQUIREMENTS</b>						
FINANCING FEES	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
DEBT COVERAGE AT 115 PERCENT	435,654	491,400	491,457	536,314	585,407	584,664
<b>TOTAL ADDITIONAL REQUIREMENTS</b>	<b>\$443,154</b>	<b>\$498,900</b>	<b>\$498,957</b>	<b>\$543,814</b>	<b>\$592,907</b>	<b>\$592,164</b>
<b>TOTAL DEBT SERVICE REQUIREMENT</b>	<b>\$3,141,742</b>	<b>\$3,544,124</b>	<b>\$3,569,563</b>	<b>\$3,913,465</b>	<b>\$4,314,848</b>	<b>\$4,334,152</b>

## COMMON RATE DIVISION

**TABLE 1**  
**LEHIGH COUNTY AUTHORITY**  
**PROJECTED REVENUE REQUIREMENT UNDER PRESENT RATES**

	2017	PROJECTED				
	BASE YEAR	2018	2019	2020	2021	2022
OPERATING EXPENSES						
PERSONNEL	\$1,240,434	\$1,603,050	\$1,651,140	\$1,700,670	\$1,751,690	\$1,804,250
PURCHASE OF SERVICES	4,087,185	3,920,000	4,037,890	4,158,900	4,284,110	4,412,650
MAINTENANCE & SUPPLIES	399,795	268,000	276,040	284,330	292,860	301,640
EQUIPMENT	137,000	103,000	106,090	109,270	112,550	115,930
TOTAL OPERATING EXPENSES	<u>\$5,864,414</u>	<u>\$5,894,050</u>	<u>\$6,071,160</u>	<u>\$6,253,170</u>	<u>\$6,441,210</u>	<u>\$6,634,470</u>
RENEWAL & REPLACEMENT FUND		\$0	\$0	\$0	\$0	\$0
DEBT SERVICE						
FUTURE DEBT	\$0	\$0	\$0	\$0	\$342,539	\$342,539
FINANCING FEES	7,500	7,500	7,500	7,500	7,500	7,500
DEBT RETIREMENT	1,886,705	2,284,803	2,316,717	2,352,953	2,348,505	2,378,369
INTEREST EXPENSE	1,017,658	991,196	959,664	1,222,473	1,211,671	1,176,854
COVERAGE	435,654	491,400	491,457	536,314	585,407	584,664
LESS: DEBT SERVICE REDUCTIONS	<u>(205,775)</u>	<u>(230,775)</u>	<u>(205,775)</u>	<u>(205,775)</u>	<u>(180,775)</u>	<u>(155,775)</u>
TOTAL DEBT SERVICE	<u>\$3,141,742</u>	<u>\$3,544,124</u>	<u>\$3,569,563</u>	<u>\$3,913,465</u>	<u>\$4,314,848</u>	<u>\$4,334,152</u>
TOTAL REVENUE REQUIREMENT	<u>\$9,006,156</u>	<u>\$9,438,174</u>	<u>\$9,640,723</u>	<u>\$10,166,635</u>	<u>\$10,756,058</u>	<u>\$10,968,622</u>
NON-OPERATING REVENUES						
BUSS ACRES USER CHARGES	\$41,101	\$41,101	\$41,101	\$41,101	\$41,101	\$41,101
MADISON NORTH USER CHARGES	41,880	41,880	41,880	41,880	41,880	41,880
MISCELLANEOUS INCOME	0	0	0	0	0	0
SITE VISIT TURN-ON CHARGES	8,000	8,000	8,000	8,000	8,000	8,000
PENALITIES	70,897	70,897	70,897	70,897	70,897	70,897
LIEN FEES	400	400	400	400	400	400
REIMBURSEMENT OF LAB COSTS	0	0	0	0	0	0
OTHER WATER SALES	45,891	45,891	45,891	45,891	45,891	45,891
INTEREST INCOME OPERATING	0	0	0	0	0	0
ARCADIA PRIVATE FIRE SERVICE REVENUE	161,145	161,145	161,145	161,145	161,145	161,145
TOTAL NON-OPERATING REVENUES	<u>\$369,314</u>	<u>\$369,314</u>	<u>\$369,314</u>	<u>\$369,314</u>	<u>\$369,314</u>	<u>\$369,314</u>
NET REVENUE REQUIREMENT	<u>\$8,636,842</u>	<u>\$9,068,860</u>	<u>\$9,271,409</u>	<u>\$9,797,321</u>	<u>\$10,386,744</u>	<u>\$10,599,308</u>

## COMMON RATE DIVISION

**TABLE 1**  
**LEHIGH COUNTY AUTHORITY**  
**PROJECTED REVENUE REQUIREMENT UNDER PRESENT RATES**

	<b>2017</b>	<b>PROJECTED</b>				
	<b>BASE YEAR</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
OPERATING REVENUES						
RESIDENTIAL	\$3,474,476	\$3,513,495	\$3,551,813	\$3,590,062	\$3,628,216	\$3,666,063
COMMERCIAL	1,026,814	1,030,932	1,034,757	1,038,140	1,040,641	1,042,700
INDUSTRIAL	2,007,997	2,007,997	2,007,997	2,007,997	2,007,997	2,007,997
INSTITUTIONAL	76,241	76,659	76,837	77,005	77,145	77,231
LARGE INDUSTRIAL	1,136,425	1,136,425	1,136,425	1,136,425	1,136,425	1,136,425
PRIVATE - FIRE PROTECTION	632,759	635,944	637,658	642,965	644,680	644,680
PUBLIC - FIRE PROTECTION	375,809	375,809	375,809	375,809	375,809	375,809
TOTAL OPERATING REVENUES	\$8,730,521	\$8,777,261	\$8,821,296	\$8,868,403	\$8,910,913	\$8,950,906
SURPLUS / (DEFICIT)	\$93,678	(\$291,599)	(\$450,114)	(\$928,918)	(\$1,475,831)	(\$1,648,402)
DEFICIT AS A PERCENT OF OPERATING REVENUES		3.32%	5.10%	10.47%	16.56%	18.42%
DEBT SERVICE COVERAGE	119.89%	106.81%	101.59%	88.57%	76.28%	71.77%

**APPENDIX B  
LEHIGH COUNTY AUTHORITY  
COMMON RATE DIVISION**

**PROJECTED SYSTEM GROWTH**

**RESIDENTIAL  
(QUARTERLY BILLED 5/8" METERS)**

	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
	<b>ADDITIONAL METERS</b>				
ADDITIONAL METERS	226	212	225	211	222
ADDITIONAL METERS BILLED	223	219	219	218	216
ADDITIONAL BILLS	892	876	874	872	865
ADDITIONAL USAGE ANNUALLY FROM NEW USERS	12,120,196	11,368,442	12,078,192	11,309,850	11,890,324
ADDITIONAL USAGE BILLED	11,959,178	11,744,319	11,723,317	11,694,021	11,600,087

**COMMERCIAL  
(QUARTERLY BILLED 5/8" METERS)**

	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
	<b>ADDITIONAL METERS</b>				
ADDITIONAL METERS	13	13	10	7	7
ADDITIONAL METERS BILLED	14	13	12	9	7
ADDITIONAL BILLS	56	52	46	34	28
ADDITIONAL USAGE ANNUALLY FROM NEW USERS	1,345,656	1,345,656	1,035,120	724,584	724,584
ADDITIONAL USAGE BILLED	1,449,168	1,345,656	1,190,388	879,852	724,584

**INSTITUTIONAL  
(QUARTERLY BILLED 5/8" METERS)**

	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
	<b>ADDITIONAL METERS</b>				
ADDITIONAL METERS	1	1	1	0	1
ADDITIONAL METERS BILLED	2	1	1	1	0
ADDITIONAL BILLS	8	4	3	3	2
ADDITIONAL USAGE ANNUALLY FROM NEW USERS	77,962	35,430	71,568	18,250	36,682
ADDITIONAL USAGE BILLED	133,481	56,696	53,499	44,909	27,466

## COMMON RATE DIVISION

**EXHIBIT 15**  
**LEHIGH COUNTY AUTHORITY**

**DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER**  
**FOR FISCAL YEAR 2018**

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$553,699	\$534,330	\$62,920	\$1,150,949
NUMBER OF BILLS	82,888	---	---	
NO. OF EQ. METERS	---	24,460	24,460	
UNIT COST	\$6.68	\$21.84	\$2.57	\$31.10

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$6.68	\$5.46	\$0.64	\$12.78	
3/4"	1.0	6.68	5.46	0.64	12.78	
1"	2.5	6.68	13.65	1.61	21.94	
1 1/2"	5.0	6.68	27.31	3.22		16.85
2"	8.0	6.68	43.69	5.14		22.96
3"	16.0	6.68	87.38	10.29		39.24
4"	25.0	6.68	136.53	16.08		57.55
6"	50.0	6.68	273.06	32.15		108.42
8"	80.0	6.68	436.90	51.45		169.46
10"	115.0	6.68	628.04	73.96		240.68

## COMMON RATE DIVISION

**EXHIBIT 15**  
**LEHIGH COUNTY AUTHORITY**

**DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER**  
**FOR FISCAL YEAR 2019**

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$570,790	\$522,077	\$63,900	\$1,156,767
NUMBER OF BILLS	83,820	---	---	
NO. OF EQ. METERS	---	24,693	24,693	
UNIT COST	\$6.81	\$21.14	\$2.59	\$30.54

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$6.81	\$5.29	\$0.65	\$12.74	
3/4"	1.0	6.81	5.29	0.65	12.74	
1"	2.5	6.81	13.21	1.62	21.64	
1 1/2"	5.0	6.81	26.43	3.23		16.70
2"	8.0	6.81	42.29	5.18		22.63
3"	16.0	6.81	84.57	10.35		38.45
4"	25.0	6.81	132.14	16.17		56.25
6"	50.0	6.81	264.28	32.35		105.69
8"	80.0	6.81	422.85	51.76		165.01
10"	115.0	6.81	607.85	74.40		234.23



## COMMON RATE DIVISION

**EXHIBIT 15**  
**LEHIGH COUNTY AUTHORITY**

**DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER**  
**FOR FISCAL YEAR 2020**

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$589,127	\$544,594	\$68,335	\$1,202,055
NUMBER OF BILLS	84,744	---	---	
NO. OF EQ. METERS	---	24,924	24,924	
UNIT COST	\$6.95	\$21.85	\$2.74	\$31.54

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$6.95	\$5.46	\$0.69	\$13.10	
3/4"	1.0	6.95	5.46	0.69	13.10	
1"	2.5	6.95	13.66	1.71	22.32	
1 1/2"	5.0	6.95	27.31	3.43		17.20
2"	8.0	6.95	43.70	5.48		23.35
3"	16.0	6.95	87.40	10.97		39.74
4"	25.0	6.95	136.56	17.14		58.19
6"	50.0	6.95	273.13	34.27		109.42
8"	80.0	6.95	437.00	54.83		170.90
10"	115.0	6.95	628.19	78.82		242.62

## COMMON RATE DIVISION

**EXHIBIT 15**  
**LEHIGH COUNTY AUTHORITY**

**DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER**  
**FOR FISCAL YEAR 2021**

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$608,042	\$568,740	\$73,395	\$1,250,177
NUMBER OF BILLS	85,653	---	---	
NO. OF EQ. METERS	---	25,151	25,151	
UNIT COST	\$7.10	\$22.61	\$2.92	\$32.63

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$7.10	\$5.65	\$0.73	\$13.48	
3/4"	1.0	7.10	5.65	0.73	13.48	
1"	2.5	7.10	14.13	1.82	23.06	
1 1/2"	5.0	7.10	28.27	3.65		17.74
2"	8.0	7.10	45.23	5.84		24.12
3"	16.0	7.10	90.45	11.67		41.14
4"	25.0	7.10	141.33	18.24		60.29
6"	50.0	7.10	282.66	36.48		113.48
8"	80.0	7.10	452.26	58.36		177.31
10"	115.0	7.10	650.12	83.90		251.77

## COMMON RATE DIVISION

**EXHIBIT 15**  
**LEHIGH COUNTY AUTHORITY**

**DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER**  
**FOR FISCAL YEAR 2022**

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$626,719	\$548,998	\$74,339	\$1,250,056
NUMBER OF BILLS	86,548	---	---	
NO. OF EQ. METERS	---	25,375	25,375	
UNIT COST	\$7.24	\$21.64	\$2.93	\$31.81

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$7.24	\$5.41	\$0.73	\$13.38	
3/4"	1.0	7.24	5.41	0.73	13.38	
1"	2.5	7.24	13.52	1.83	22.59	
1 1/2"	5.0	7.24	27.04	3.66		17.48
2"	8.0	7.24	43.27	5.86		23.62
3"	16.0	7.24	86.54	11.72		39.99
4"	25.0	7.24	135.22	18.31		58.42
6"	50.0	7.24	270.44	36.62		109.60
8"	80.0	7.24	432.71	58.59		171.01
10"	115.0	7.24	622.02	84.23		242.66

# Suburban Water Division Rate Study

## “What If” Analysis

Now that the water rate model is created to calculate rates based on current expenses, customer counts / usage by class, estimated growth over the next five years, etc., some additional analysis is possible based on scenarios LCA may wish to explore.

### 2018 Rate Proposal (to be finalized for Board consideration in November):

- Based on 2018 Budget as proposed
- Transition Upper Milford Central & Madison Park North customers into Common Rates
  - Last group of customers (216 total) not yet on common rates

### Other “What If” Scenarios to Explore for 2019-2022 Rates:

- Rate impact of moving to monthly billing frequency for Suburban Water Division
- Rate impact of moving more Capex into annual budget (paygo) vs. borrowing
  - Board Input Requested: What is the “right” mix of paygo vs. borrowing for Capex?
- Evaluation of 2018 budget levels for maintenance, equipment, supplies and contingencies
  - 2018 budget is baseline for years 2019-2022 in model, but includes cuts in key areas
- Rate impact of losing / gaining large industrial customers

COMMON RATE DIVISION

EXHIBIT 15 A  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2018

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,579,010	\$534,330	\$62,920	\$2,176,260
NUMBER OF BILLS	238,337	---	---	
NO. OF EQ. METERS	---	24,460	24,460	
UNIT COST	\$6.63	\$21.84	\$2.57	\$31.04

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$6.63	\$5.46	\$0.64		\$8.66
3/4"	1.0	6.63	5.46	0.64		8.66
1"	2.5	6.63	13.65	1.61		11.71
1 1/2"	5.0	6.63	27.31	3.22		16.80
2"	8.0	6.63	43.69	5.14		22.90
3"	16.0	6.63	87.38	10.29		39.18
4"	25.0	6.63	136.53	16.08		57.49
6"	50.0	6.63	273.06	32.15		108.36
8"	80.0	6.63	436.90	51.45		169.41
10"	115.0	6.63	628.04	73.96		240.62

COMMON RATE DIVISION

EXHIBIT 15 A  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2019

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,254,000	\$522,077	\$63,900	\$1,839,977
NUMBER OF BILLS	241,133	---	---	
NO. OF EQ. METERS	---	24,693	24,693	
UNIT COST	\$5.20	\$21.14	\$2.59	\$28.93

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.20	\$5.29	\$0.65		\$7.18
3/4"	1.0	5.20	5.29	0.65		7.18
1"	2.5	5.20	13.21	1.62		10.14
1 1/2"	5.0	5.20	26.43	3.23		15.09
2"	8.0	5.20	42.29	5.18		21.02
3"	16.0	5.20	84.57	10.35		36.84
4"	25.0	5.20	132.14	16.17		54.64
6"	50.0	5.20	264.28	32.35		104.08
8"	80.0	5.20	422.85	51.76		163.40
10"	115.0	5.20	607.85	74.40		232.62

COMMON RATE DIVISION

EXHIBIT 15 A  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2020

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,292,837	\$544,594	\$68,335	\$1,905,765
NUMBER OF BILLS	243,905	---	---	
NO. OF EQ. METERS	---	24,924	24,924	
UNIT COST	\$5.30	\$21.85	\$2.74	\$29.89

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.30	\$5.46	\$0.69		\$7.35
3/4"	1.0	5.30	5.46	0.69		7.35
1"	2.5	5.30	13.66	1.71		10.42
1 1/2"	5.0	5.30	27.31	3.43		15.55
2"	8.0	5.30	43.70	5.48		21.70
3"	16.0	5.30	87.40	10.97		38.09
4"	25.0	5.30	136.56	17.14		56.53
6"	50.0	5.30	273.13	34.27		107.77
8"	80.0	5.30	437.00	54.83		169.25
10"	115.0	5.30	628.19	78.82		240.97



COMMON RATE DIVISION

EXHIBIT 15 A  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2021

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,332,862	\$568,740	\$73,395	\$1,974,997
NUMBER OF BILLS	246,630	---	---	
NO. OF EQ. METERS	---	25,151	25,151	
UNIT COST	\$5.40	\$22.61	\$2.92	\$30.94

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.40	\$5.65	\$0.73		\$7.53
3/4"	1.0	5.40	5.65	0.73		7.53
1"	2.5	5.40	14.13	1.82		10.72
1 1/2"	5.0	5.40	28.27	3.65		16.04
2"	8.0	5.40	45.23	5.84		22.42
3"	16.0	5.40	90.45	11.67		39.45
4"	25.0	5.40	141.33	18.24		58.59
6"	50.0	5.40	282.66	36.48		111.78
8"	80.0	5.40	452.26	58.36		175.61
10"	115.0	5.40	650.12	83.90		250.08

COMMON RATE DIVISION

EXHIBIT 15 A  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2022

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,373,279	\$548,998	\$74,339	\$1,996,616
NUMBER OF BILLS	249,317	---	---	
NO. OF EQ. METERS	---	25,375	25,375	
UNIT COST	\$5.51	\$21.64	\$2.93	\$30.07

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.51	\$5.41	\$0.73		\$7.56
3/4"	1.0	5.51	5.41	0.73		7.56
1"	2.5	5.51	13.52	1.83		10.63
1 1/2"	5.0	5.51	27.04	3.66		15.74
2"	8.0	5.51	43.27	5.86		21.88
3"	16.0	5.51	86.54	11.72		38.26
4"	25.0	5.51	135.22	18.31		56.69
6"	50.0	5.51	270.44	36.62		107.86
8"	80.0	5.51	432.71	58.59		169.27
10"	115.0	5.51	622.02	84.23		240.92

COMMON RATE DIVISION

EXHIBIT 15 B  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2018

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,289,410	\$534,330	\$62,920	\$1,886,660
NUMBER OF BILLS	238,337	---	---	
NO. OF EQ. METERS	---	24,460	24,460	
UNIT COST	\$5.41	\$21.84	\$2.57	\$29.83

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.41	\$5.46	\$0.64		\$7.44
3/4"	1.0	5.41	5.46	0.64		7.44
1"	2.5	5.41	13.65	1.61		10.50
1 1/2"	5.0	5.41	27.31	3.22		15.58
2"	8.0	5.41	43.69	5.14		21.69
3"	16.0	5.41	87.38	10.29		37.97
4"	25.0	5.41	136.53	16.08		56.28
6"	50.0	5.41	273.06	32.15		107.15
8"	80.0	5.41	436.90	51.45		168.19
10"	115.0	5.41	628.04	73.96		239.41

COMMON RATE DIVISION

EXHIBIT 15 B  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2019

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,326,400	\$522,077	\$63,900	\$1,912,377
NUMBER OF BILLS	241,133	---	---	
NO. OF EQ. METERS	---	24,693	24,693	
UNIT COST	\$5.50	\$21.14	\$2.59	\$29.23

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.50	\$5.29	\$0.65		\$7.48
3/4"	1.0	5.50	5.29	0.65		7.48
1"	2.5	5.50	13.21	1.62		10.44
1 1/2"	5.0	5.50	26.43	3.23		15.39
2"	8.0	5.50	42.29	5.18		21.32
3"	16.0	5.50	84.57	10.35		37.14
4"	25.0	5.50	132.14	16.17		54.94
6"	50.0	5.50	264.28	32.35		104.38
8"	80.0	5.50	422.85	51.76		163.70
10"	115.0	5.50	607.85	74.40		232.92

COMMON RATE DIVISION

EXHIBIT 15 B  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2020

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,365,237	\$544,594	\$68,335	\$1,978,165
NUMBER OF BILLS	243,905	---	---	
NO. OF EQ. METERS	---	24,924	24,924	
UNIT COST	\$5.60	\$21.85	\$2.74	\$30.19

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.60	\$5.46	\$0.69		\$7.65
3/4"	1.0	5.60	5.46	0.69		7.65
1"	2.5	5.60	13.66	1.71		10.72
1 1/2"	5.0	5.60	27.31	3.43		15.84
2"	8.0	5.60	43.70	5.48		21.99
3"	16.0	5.60	87.40	10.97		38.39
4"	25.0	5.60	136.56	17.14		56.83
6"	50.0	5.60	273.13	34.27		108.06
8"	80.0	5.60	437.00	54.83		169.54
10"	115.0	5.60	628.19	78.82		241.27

COMMON RATE DIVISION

EXHIBIT 15 B  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2021

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,405,262	\$568,740	\$73,395	\$2,047,397
NUMBER OF BILLS	246,630	---	---	
NO. OF EQ. METERS	---	25,151	25,151	
UNIT COST	\$5.70	\$22.61	\$2.92	\$31.23

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.70	\$5.65	\$0.73		\$7.83
3/4"	1.0	5.70	5.65	0.73		7.83
1"	2.5	5.70	14.13	1.82		11.02
1 1/2"	5.0	5.70	28.27	3.65		16.34
2"	8.0	5.70	45.23	5.84		22.72
3"	16.0	5.70	90.45	11.67		39.74
4"	25.0	5.70	141.33	18.24		58.89
6"	50.0	5.70	282.66	36.48		112.08
8"	80.0	5.70	452.26	58.36		175.90
10"	115.0	5.70	650.12	83.90		250.37

COMMON RATE DIVISION

EXHIBIT 15 B  
LEHIGH COUNTY AUTHORITY

DEVELOPMENT OF SERVICE CHARGES FOR EACH SIZE METER  
FOR FISCAL YEAR 2022

	<u>BILLING</u>	<u>METERS</u>	<u>SERVICES</u>	<u>TOTAL</u>
TOTAL CUSTOMER ANNUAL COSTS	\$1,445,679	\$548,998	\$74,339	\$2,069,016
NUMBER OF BILLS	249,317	---	---	
NO. OF EQ. METERS	---	25,375	25,375	
UNIT COST	\$5.80	\$21.64	\$2.93	\$30.36

<u>METER SIZE</u>	<u>EQ. METER &amp; SERVICE RATIO</u>	<u>COST PER BILL</u>	<u>QUARTERLY COST</u>		<u>TOTAL QUARTERLY CHARGES</u>	<u>TOTAL MONTHLY CHARGES</u>
			<u>METERS</u>	<u>SERVICES</u>		
5/8"	1.0	\$5.80	\$5.41	\$0.73		\$7.85
3/4"	1.0	5.80	5.41	0.73		7.85
1"	2.5	5.80	13.52	1.83		10.92
1 1/2"	5.0	5.80	27.04	3.66		16.03
2"	8.0	5.80	43.27	5.86		22.18
3"	16.0	5.80	86.54	11.72		38.55
4"	25.0	5.80	135.22	18.31		56.98
6"	50.0	5.80	270.44	36.62		108.15
8"	80.0	5.80	432.71	58.59		169.57
10"	115.0	5.80	622.02	84.23		241.21