



# CITY OF DULUTH



**Public Works & Utilities Department  
2015 Annual Report**

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Front cover photos:  
 Coffee Creek stream restoration; photos by Chris  
 Kleist, Utility Programs Coordinator

# OFFICERS OF THE DEPARTMENT

Mayor ..... Don Ness  
Chief Administrative Officer ..... Dave Montgomery

City Council Public Works & Utilities Committee  
Councilor Jennifer Julsrud

Duluth Public Utilities Commission  
Rob Prusak, President                      Councilor Zack Filipovich  
Jim Ramnes, Vice President              Councilor Jennifer Julsrud  
Linda Sellner                                  Councilor Joel Sipress  
Jason Thorsell

## DEPARTMENT OF PUBLIC WORKS & UTILITIES

Director ..... Jim Benning  
City Engineer ..... Cindy Voigt  
Chief Engineer, Transportation ..... Cari Pedersen  
Chief Engineer, Utilities ..... Eric Shaffer  
Manager, Customer Service ..... Elizabeth Bieter  
Manager, Utility Operations ..... Howard Jacobson  
Financial Analyst ..... Ken Taylor



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**Water Utility  
Statement of Net Income  
For The Year Ended December 31, 2014 and 2015  
(Unaudited)**

	2014		2015
<b><u>Operating Revenue</u></b>			
Metered Water Sales	\$ 14,217,938		\$ 14,275,924
Other	321,458		159,488
<b>Total Operating Revenue</b>	<b>\$ 14,539,396</b>		<b>\$ 14,435,412</b>
<b><u>Operating Expense</u></b>			
Director's Office	78,427		66,034
Capital Related Expenses	1,885,042		1,761,309
Utility General Expense	1,292,879		968,448
Engineering	358,196		347,398
Utility Operations	3,233,966		3,009,286
Water Treatment and Pumping	2,833,173		2,811,113
Customer Service	1,483,467		1,274,186
<b>Total Operating Expense</b>	<b>(11,165,150)</b>		<b>(10,237,774)</b>
<b>Operating Income</b>	<b>3,374,246</b>		<b>4,197,638</b>
<b><u>Other Revenue</u></b>			
Contributed Capital	30,742		161,465
Gain or Loss on the Sale of Fixed Assets	13,590		14,847
Transfer from Other Funds			
Administrative Billing Fee	5,275		97,537
Street Maintenance	0		10,660
Street Lighting	10,660		10,660
Intergovernmental	16,919		16,919
Interest Income	16,211		4,640
<b>Total Other Revenue</b>	<b>93,397</b>		<b>316,728</b>
<b><u>Other Expenses and Transfers</u></b>			
Transfer to Other Funds			
Investing Activities	13,182		0
Non-Capital Improvements	185,930		114,313
Reimbursement for MIS Programmer	21,700		21,700
Reimbursement for Janitors	0		38,500
Other Transfers	12,844		0
Interest on Long Term Debt	274,990		269,225
<b>Total Other Expenses and Transfers</b>	<b>(508,646)</b>		<b>(443,738)</b>
<b>Net Income or Loss</b>	<b>\$ 2,958,997</b>		<b>\$ 4,070,628</b>

**Water Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

	<b>Assets &amp; Deferred Outflows</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Assets</u></b>		
Cash	\$ 500,253	\$ 483,951
Restricted Cash and Equivalents:		
Minnesota Water Connection Fees	89,278	89,466
Accounts Receivable (Net)	1,347,657	1,352,486
Special Assessments	41,125	159,872
Due from Other Funds	30,455	115,828
Due from Other Governments	205	31,969
Inventory	992,286	1,102,069
Prepays	<u>0</u>	<u>200,678</u>
<b>Total Current Assets</b>	<b>\$ 3,001,259</b>	<b>\$ 3,536,319</b>
<b><u>Utility Plant</u></b>		
In Service	83,073,059	91,988,100
Construction	<u>9,572,083</u>	<u>3,869,976</u>
Less Accumulated Depreciation	<u>(35,331,173)</u>	<u>(36,850,951)</u>
<b>Total Utility Plant Assets</b>	<b>57,313,969</b>	<b>59,007,125</b>
<b><u>Other Assets</u></b>		
Special Assessments Receivable	<u>82,719</u>	<u>3,924</u>
<b>Total Other Assets</b>	<b>82,719</b>	<b>3,924</b>
<b>Total Assets</b>	<b>60,397,947</b>	<b>62,547,368</b>
<b><u>Deferred Outflows</u></b>		
Deferred Loss from Debt Refunding	27,243	17,161
Deferred Pension Obligation Outflows	<u>0</u>	<u>422,134</u>
<b>Total Deferred Outflows</b>	<b>27,243</b>	<b>439,295</b>
<b>Total Assets and Deferred Outflows</b>	<b>\$ 60,425,190</b>	<b>\$ 62,986,663</b>

**Water Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

	<b>Liabilities &amp; Net Assets</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Liabilities</u></b>		
Accounts Payable	\$ 239,587	\$ 186,638
Contracts Payable	309,411	365,632
Notes Payable	1,097,474	1,057,139
Leases Payable	211,563	219,657
Due to Other Funds	23,267	17,891
Due to Other Governments	137,151	136,333
Accrued Interest Payable	109,861	89,770
Accrued Salaries Payable	210,490	63,323
Vacations Payable	225,075	223,158
Unearned Revenue	87,157	61,801
Customer Deposits	10,000	10,000
Bonds Payable	451,251	388,095
<b>Total Current Liabilities (Payable from Current Assets)</b>	<b>\$ 3,112,287</b>	<b>\$ 2,819,437</b>
<b><u>Long Term Liabilities</u></b>		
Notes Payable	9,457,468	8,717,918
Leases Payable	2,158,374	1,938,717
Pension Liability	0	3,009,997
Net Other Post Employment Benefits	266,012	0
Bonds Payable	1,603,420	1,125,325
Less Unamortized Bond Discount or Premium	32,213	45,327
<b>Total Long Term Liabilities</b>	<b>13,517,487</b>	<b>14,837,284</b>
<b>Total Liabilities</b>	<b>16,629,774</b>	<b>17,656,721</b>
<b><u>Deferred Inflows</u></b>		
Deferred Pension Obligation Inflows	0	400,698
<b>Total Deferred Inflows</b>	<b>0</b>	<b>400,698</b>
<b><u>Net Assets</u></b>		
Invested in Capital Assets, Net of Related Debt	42,329,449	45,532,108
Unrestricted	1,465,967	(602,864)
<b>Total Net Assets</b>	<b>43,795,416</b>	<b>44,929,244</b>
<b>Total Liabilities and Net Assets</b>	<b>\$ 60,425,190</b>	<b>\$ 62,986,663</b>



**City of Duluth**  
**Water Utility Bonds, Notes and Capital Leases Payable**  
**December 31, 2015**

	<u>Issued</u>	<u>Issue Date</u>	<u>Final Maturity</u>	<u>Principal Outstanding 12/31/2014</u>	<u>Issued</u>	<u>Draw Down</u>	<u>Retired</u>	<u>Principal Outstanding 12/31/2015</u>
<b>Water Utility</b>								
<b>Bonds</b>								
Revenue and General Obligation	1,120,000	12/19/2006	2/1/2022	680,000	0	0	680,000	0
Revenue and General Obligation Refunding	950,000	12/13/2007	2/1/2016	270,000	0	0	130,000	140,000
Revenue and General Obligation	196,000	2/19/2009	2/1/2024	140,000	0	0	12,000	128,000
Revenue and General Obligation Refunding	1,625,000	11/23/2010	2/1/2018	964,671	0	0	234,251	730,420
Revenue and General Obligation Refunding	515,000	11/5/2015	2/1/2022	0	515,000	0	0	515,000
<b>Bond Total</b>				<u>\$ 2,054,671</u>	<u>\$ 515,000</u>	<u>\$ 0</u>	<u>\$ 1,056,251</u>	<u>\$ 1,513,420</u>
<b>Notes</b>								
Public Facilities Authority	\$ 870,000	8/25/2003	8/20/2018	\$ 272,660	\$ 0	\$ 0	\$ 65,475	\$ 207,185
Public Facilities Authority	1,971,532	7/2/2004	8/20/2018	609,000	0	0	147,000	462,000
Public Facilities Authority	1,668,813	10/28/2009	8/20/2019	851,000	0	0	167,000	684,000
Public Facilities Authority	1,293,200	8/31/2010	8/20/2025	958,000	0	0	82,000	876,000
Public Facilities Authority	3,344,131	8/31/2010	8/20/2025	2,574,000	0	0	222,000	2,352,000
Public Facilities Authority	1,221,631	11/18/2011	8/20/2026	816,120	0	173,856	107,000	882,976
Public Facilities Authority	4,778,806	3/24/2014	8/20/2029	4,474,162	0	143,734	307,000	4,310,896
<b>Note Total</b>				<u>\$ 10,554,942</u>	<u>\$ 0</u>	<u>\$ 317,590</u>	<u>\$ 1,097,475</u>	<u>\$ 9,775,057</u>
<b>Capital Leases</b>								
AMR System	\$ 3,375,986	7/12/2007	2/1/2024	\$ 2,369,936	\$ 0	\$ 0	\$ 211,563	\$ 2,158,373
<b>Capital Lease Total</b>				<u>\$ 2,369,936</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 211,563</u>	<u>\$ 2,158,373</u>
<b>Total Water Utility Bonds, Notes and Capital Leases</b>				<u>\$ 14,979,549</u>	<u>\$ 515,000</u>	<u>\$ 317,590</u>	<u>\$ 2,365,289</u>	<u>\$ 13,446,850</u>

<b>Future Payments:</b>			
<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2016	\$ 1,664,892	\$ 227,762	\$ 1,892,654
2017	1,634,596	199,004	1,833,600
2018	1,671,493	165,786	1,837,279
2019	1,210,846	135,535	1,346,381
2020	1,054,251	114,151	1,168,402
2021	1,077,017	93,676	1,170,693
2022	1,095,156	72,639	1,167,795
2023	1,024,684	52,421	1,077,105
2024	893,915	33,023	926,938
2025	740,000	22,005	762,005
2026	405,000	13,993	418,993
2027	322,000	9,750	331,750
2028	325,000	6,530	331,530
2029	328,000	3,280	331,280
	<u>\$ 13,446,850</u>	<u>\$ 1,149,555</u>	<u>\$ 14,596,405</u>

**Water Fund  
Schedule of Fixed Assets  
Year Ending December 31, 2015**

	<u>Balance Jan. 1, 2015</u>	<u>Additions</u>	<u>Deductions</u>	<u>Balance Dec. 31, 2015</u>	<u>Accumulated Depreciation</u>	<u>Book Value</u>
Lands and Grounds	\$ 203,700	\$ 0	\$ 0	\$ 203,700	\$ 0	\$ 203,700
Infrastructure	52,428,028	8,826,969	0	61,254,997	17,676,992	43,578,005
Buildings and Structures	22,338,952	0	0	22,338,952	13,710,003	8,628,949
Equipment and Tools	8,102,379	277,816	189,744	8,190,451	5,463,956	2,726,495
Work in Progress	<u>9,572,083</u>	<u>3,148,950</u>	<u>8,851,057</u>	<u>3,869,976</u>	<u>0</u>	<u>3,869,976</u>
<b>Total</b>	<b><u>\$ 92,645,142</u></b>	<b><u>\$ 12,253,735</u></b>	<b><u>\$ 9,040,801</u></b>	<b><u>\$ 95,858,076</u></b>	<b><u>\$ 36,850,951</u></b>	<b><u>\$ 59,007,125</u></b>

## COMPARATIVE STATEMENT, OPERATING EXPENSE OF ALL STATIONS

Station	Year	Daily Average Gallons Pumped, Initial Supply	Gallons Pumped	K.W.H. Consumed	Electricity
Lakewood	2015	14,190,000	5,179,400,000	8,563,350	\$ 683,251
	2014	14,257,863	5,204,120,000	8,407,350	\$ 660,196
Middle	2015	2,463,197	899,067,000	1,196,800	\$ 103,422
	2014	2,477,893	904,431,000	1,242,400	\$ 109,865
Woodland	2015	1,501,917	548,200,000	1,617,600	\$ 138,332
	2014	1,355,232	494,660,000	2,863,200	\$ 144,053
West Duluth	2015	5,139,879	1,876,056,000	537,984	\$ 49,450
	2014	6,352,756	2,318,756,000	558,720	\$ 50,467
Orphanage	2015	242,832	88,634,000	61,440	\$ 7,214
	2014	272,786	99,567,000	70,400	\$ 7,853
Highland	2015	1,265,183	461,792,000	491,328	\$ 44,926
	2014	1,322,232	482,615,000	518,400	\$ 46,202
Arlington	2015	1,287,079	469,784,000	704,448	\$ 68,099
	2014	1,323,898	483,223,000	722,304	\$ 66,413
Lakeside	2015	130,301	47,560,000	75,920	\$ 10,792
	2014	104,778	38,244,000	70,240	\$ 10,327
Bay View	2015	460,789	168,188,000	239,680	\$ 26,597
	2014	493,000	179,945,000	262,080	\$ 27,949
Proctor	2015	431,386	157,456,000	225,600	\$ 25,480
	2014	459,421	176,689,000	247,760	\$ 27,305
Airport	2015	-	unmetered	11,136	\$ 1,365
	2014	-	unmetered	3,840	\$ 856
<b>TOTALS</b>	<b>2015</b>	<b>27,112,563</b>	<b>9,896,137,000</b>	<b>13,725,286</b>	<b>\$ 1,158,928</b>
	<b>2014</b>	<b>28,419,859</b>	<b>10,382,250,000</b>	<b>14,966,694</b>	<b>\$ 1,151,486</b>

## WATER PLANT STATISTICS

	2015	2014	2013	2012	2011	2010	2009
Water Pumped							
Million Cubic Feet	692.43	695.74	695.88	751.10	739.80	773.20	829.10
Water Sold							
Million Cubic Feet	589.84	591.00	605.95	644.40	592.60	665.70	658.00
General & Distribution Operating							
Costs including Maintenance (*)	\$ 8,528,252	\$ 9,529,831	\$ 9,394,544	\$ 8,897,762	\$ 9,395,019	\$ 9,275,099	\$ 9,250,685
Cost per 100 Cubic Feet	\$ 1.4459	\$ 1.6125	\$ 1.5504	\$ 1.3808	\$ 1.5854	\$ 1.3933	\$ 1.4059
Interest charges	\$ 269,225	\$ 274,990	\$ 274,206	\$ 296,162	\$ 297,135	\$ 304,164	\$ 297,249
Cost per 100 Cubic Feet	\$ 0.0456	\$ 0.0465	\$ 0.0453	\$ 0.0460	\$ 0.0501	\$ 0.0457	\$ 0.0452
Depreciation charge	\$ 1,709,522	\$ 1,635,319	\$ 1,576,417	\$ 1,487,132	\$ 1,414,602	\$ 1,414,807	\$ 1,252,343
Cost per 100 Cubic Feet	\$ 0.2898	\$ 0.2767	\$ 0.2602	\$ 0.2308	\$ 0.2387	\$ 0.2125	\$ 0.1903
Total Cost per 100 Cubic Feet	\$ 1.7813	\$ 1.9357	\$ 1.8558	\$ 1.6575	\$ 1.8742	\$ 1.6515	\$ 1.6414
Operating revenue	\$ 14,435,412	\$ 14,539,396	\$ 14,878,380	\$ 13,911,617	\$ 11,743,510	\$ 12,006,506	\$ 11,944,996
Revenue per 100 Cubic Feet Sold	\$ 2.4473	\$ 2.4601	\$ 2.4554	\$ 2.1588	\$ 1.9817	\$ 1.8036	\$ 1.8153
Water meters in service	28,208	28,131	28,069	28,050	29,069	30,317	27,950
Water main miles	433.4	430.70	428.3	426.7	427.5	427.3	425.2
Water meters per mile of main	65.09	65.31	65.54	65.74	68.00	70.95	65.73
Hydrants on system	2,688	2,659	2,671	2,594	2,577	2,535	2,506

(\*) Depreciation not included

## WATER PURIFICATION 2015 LAKEWOOD STATION

Month	Total Number of Gallons Treated	Average Water Temperature at Treatment Bldg Degree F	Ammonia Lbs. Used	Chlorine Lbs. Used
January	419,790,000	34.8	1,913	6,681
February	403,240,000	32.8	1,812	6,572
March	437,460,000	34.5	1,970	7,102
April	400,230,000	35.7	1,928	6,485
May	414,380,000	37.8	1,910	6,857
June	405,730,000	42.1	1,876	7,034
July	526,460,000	43.9	2,295	8,871
August	488,050,000	45.1	2,177	8,139
September	472,050,000	50.4	2,268	8,282
October	423,120,000	52.3	1,977	8,305
November	392,430,000	45.4	1,858	6,993
December	396,460,000	39.1	1,912	6,937
<b>TOTAL</b>	5,179,400,000		23,896	88,258
<b>Average/Month</b>	431,616,667	41.2	1,991	7,355

**2015  
LAKE SUPERIOR RAW WATER  
AND DULUTH FINISHED WATER (LABORATORY ANALYSES)**

Milligrams per Liter (except pH, Specific Conductance, Turbidity, and Temperature)

	<b>RAW</b>	<b>FINISHED</b>
	Average	Average
Dissolved Oxygen	12.00	12.18
pH	7.91	8.91
Monthly Specific Conductance, Micromhos/cm	102.6	129.4
Alkalinity	42	45
Sulfates	2.94	10.12
Fluorides	0.07	0.78
Turbidity, NTU	0.74	0.037
Chlorine	0.00	1.32
Temperature, °F	41.2	

## WATER TREATMENT 2015

<b>Month</b>	<b>Alum Used Gal.</b>	<b>Fluoride Used Gal.</b>	<b>Turbidity of Effluent NTU</b>
January	8,000	1,719	0.03
February	8,000	1,467	0.03
March	8,000	1,359	0.03
April	8,000	1,217	0.04
May	12,000	1,381	0.03
June	8,000	1,379	0.03
July	12,000	1,937	0.05
August	12,000	1,651	0.04
September	12,000	1,426	0.04
October	12,000	1,342	0.04
November	8,000	1,349	0.04
December	12,000	1,407	0.04
<b>Average/Month</b>	10,000	1,470	0.037

## BACTERIOLOGICAL DATA 2015

Average for	RAW WATER INTAKE			TREATED WATER		DISTRIBUTION		
	Number Samples	Total Bacteria per ml 48 Hours, 35°C	Coliform per 100 ml	Fecal Coliform per 100 ml	Number Samples	Number Samples Positive	Number Samples	Number Samples Positive
January	33	1.61	0.88	0.09	196	0	92	0
February	34	1.38	2.24	0.09	222	0	92	1
March	41	6.12	0.32	0.04	224	0	95	0
April	36	0.86	0.00	0.02	222	0	95	0
May	29	1.38	2.17	0.44	178	0	91	0
June	17	N/A	1.08	N/A	210	0	93	0
July	16	N/A	1.00	N/A	226	0	90	0
August	17	N/A	0.65	N/A	216	0	92	0
September	17	N/A	4.24	N/A	208	0	94	0
October	17	N/A	1.47	N/A	216	0	91	0
November	13	N/A	3.00	N/A	180	0	98	0
December	15	N/A	4.13	N/A	203	0	91	0
<b>TOTAL</b>	285	N/A	N/A	N/A	2,501	0	1,114	1
<b>Average for Month</b>	23.8	2.27	1.77	0.14	208	0	92.8	0.08



## LENGTH OF WATER MAINS IN FEET 2015

Diameter Inches	Cast Iron	Ductile Iron	Steel	Copper	Polyvinyl Chloride	High Density Polyethylene	Total	Valves	Vaults
1				886			886	6	
2	33		182	2,025		10,306	12,546	30	
3	1,391					619	2,010	14	
4	9,810	2,395				7	12,212	63	
6	991,422	154,302	569		1,729	11,204	1,159,226	2,674	2
8	80,499	95,162	458		298	155,583	332,000	703	5
10	152,916	54,984	6,917			32,602	247,419	466	6
12	157,763	42,963	1,904			17,894	220,524	373	7
14						2,405	2,405	2	
16	83,564	24,411	10,358				118,333	139	2
18	1,389	434				2,095	3,918	2	
20	13,906	1,795	29,291			177	45,169	33	4
24	8,445	3,084	54			5,950	17,533	11	
30			2,670				2,670	2	
36	24,998	25,732	11,368				62,098	31	13
42	182		49,204				49,386	7	
48							0		
<b>TOTALS</b>	<b>1,526,318</b>	<b>405,262</b>	<b>112,975</b>	<b>2,911</b>	<b>2,027</b>	<b>238,842</b>	<b>2,288,335</b>	<b>4,556</b>	<b>39</b>
<b>Total Miles -</b>							<b>433.4</b>		
<b>Change from 2014 -</b>							<b>3.0</b>	<b>408</b>	<b>0</b>

Notes: Pipe and valves in hydrant branches are not included in the above table.  
 Air valves, valves without gates and valves inside pump stations are not included.  
 All Main and Hydrant information provided from Geographic Information System.

## HYDRANTS AND BRANCHES

	Mueller	4"	Mathews		Michigan	Unknown	Waterous	Iowa		Stockholm	Total	Valves on	Lineal Feet
	5"		4 1/2"	5"				5"	4"				
<b>TOTAL IN SERVICE 12/31/2014</b>	133	0	459	0	3	353	1,709	0	2	2	2,659	2,580	55,340
<b>TOTAL IN SERVICE 12/31/2015</b>	132	0	441	0	3	352	1,759	0	1	0	2,688	2,609	55,045

Number of Hydrants added in 2015 - 29  
 Number of Hydrant Valves added in 2015 - 29  
 Lineal feet of Hydrant branch main added in 2015 - -295

## DATA, RESERVOIRS AND TANKS

Location	Capacity (Gallons)	Overflow Elevation (Feet)	Greatest Depth (Feet)	Dimension (Feet)	Remarks
Lakeside Tank	100,000	500.00	23.75	Diameter 27	Built in 1961
34th Avenue East "Reservoir A"	16,320,000	294.00	30.00	284 x 391	Built 1898, Rebuilt 1938
Endion Reservoir	14,140,000	290.00	28.00	240 x 320	Built by G & W Company Rebuilt 1922 New Roof 1966 Lined 1988
West End Reservoirs #1-6	10,200,000	290.00	33.00	Diameter 100	Built 1953
West Duluth Reservoir	10,000,000	290.00	21.00	327.3 x 263.3	Built 1906 Remodeled 1925 New Roof 2014
Middle System - Reservoir #1	5,171,000	560.00	28.00	Diameter 187.38	Built 1913 New Roof 1928 Lined 1988
Middle System - Reservoir #2	5,131,000	560.00	25.00	Diameter 190	Built in 1951
Woodland Reservoir #1	1,021,000	806.00	22.00	Diameter 91.5	Built in 1915 Lined 1939 Refaced 2002
Woodland Reservoir #2	2,015,000	806.00	35.50	Diameter 100	Built in 1950 Lined 2000 Refaced 2002
Arlington Reservoir #1	240,490	806.00	27.00	Diameter 40	Built in 1925
Arlington Reservoir #2	1,534,000	806.00	27.50	Diameter 100	Built in 1950
Orphanage Tank #1	400,000	916.00	129.40	Diameter 51.5	Built 1994
Highland Water Tower	1,000,000	141.60	40.00	Diameter 74.8 1/4	Built 2011
Bay View Heights Steel Tank	100,000	550.00	26.00	Diameter 26	Built 1972
Proctor Tank	400,000	825.00	142.00	Diameter 51.5	Built 1989
<b>TOTAL</b>	<b>67,772,490</b>				

## PUMPING STATIONS - WATER PUMPING EQUIPMENT

Station	Source of Supply	Reservoirs Discharged Into	No. Units and Year Installed	Make of Pump	Type of Pump	Unit No.	Pumps Driven By	R.P.M.	Average Capacity G.P.M. Each Unit
Lakewood Low Lift	Lake Superior	Lakewood	1 -- 1992	Patterson	Single Stage Centrifugal	2	1 Unit direct connected to 300 hp, 2300 volt, 60 cycle, GE Induction motor	900	17,400
			1 -- 1949	DeLaval		4	1 Unit direct connected to 350 hp, 2300 volt, 60 cycle, GE Induction motor	440	20,800
			1 -- 1981	Worthington	Single Stage	1	1 Unit direct connected to 200 hp, 2300 volt, 60 cycle, GE Induction motor	500	11,389
Lakewood High Lift	Lakewood (Detention Basin)	Reservoir A Endion, West End, & West Duluth	1 -- 1992	Patterson	Single Stage Centrifugal	2	2 Unit direct connected to 1500 hp, 2300 volt, 60 cycle GE Induction motor with VFD and fixed controller	1,200	17,400
			1 -- 1949	DeLaval	Two Stage Centrifugal	4	2 Unit direct connected to 2000 hp, 2300 volt, 60 cycle, GE synchronous motor, with direct exciter	720	20,800
			1 -- 1981	Worthington	Single Stage	1	1 Unit direct connected to 1000 hp, 2300 volt, 60 cycle GE capacitor induction motor	1,185	11,389
Middle	Reservoir A and Endion	Middle Service	1 -- 1950	Allis-Chalmers	Single Stage, Two Unit, Centrifugal	3	Direct connected to 400 hp, 2300 volt, 60 cycle, Allis-Chalmers synchronous motor, with direct connected exciter	1,800	4,000
			1 -- 1969	Aurora	Single Stage, One Unit, Centrifugal	4	Direct connected to 250 hp, 2300 volt, 60 cycle, 3-phase Louis Allis Induction motor	1,750	2,500
			1 -- 1986	Fairbanks-Morse	Single Stage, One Unit, Centrifugal	5	Direct connected to 250 hp, 2300 volt, 60 cycle, 3-phase Siemens-Allis motor	1,785	2,600
Woodland	Reservoir A	Woodland & Arlington Reservoir	1 -- 1950	Allis-Chalmers	All Units Single Stage, Two Unit, Centrifugal	3	Direct connected to 500 hp, 2300 volt, 60 cycle, Allis-Chalmers synchronous motor, with direct connected exciter	1,800	2,050
			1 -- 1986	Fairbanks Morse Co.		4	Direct connected to 300 hp, 2300 volt, 60 cycle, Siemens-Allis Induction motor	1,775	1,720
			1 -- 1975	Aurora #421	Two Stage, Centrifugal	5	Direct connected to 240 hp, 2300 volt, 60 cycle, 3-phase Marathon Induction motor	1,750	1,250

## PUMPING STATIONS - WATER PUMPING EQUIPMENT

Station	Source of Supply	Reservoirs Discharged Into	No. Units and Year Installed	Make of Pump	Type of Pump	Unit No.	Pumps Driven By	R.P.M.	Average Capacity G.P.M. Each Unit
West Duluth	Reservoir A, Endion & West	West Duluth Reservoir & West Duluth System	2 -- 2009	Fairbanks-Morse	All Units Single Stage	2	200 hp, 460 volt, 60 cycle 3-phase WEG NEMA Premium Induction motor, with VFD drive	1,200	6,000
Orphanage	Woodland Reservoirs	Orphanage Tanks	1 -- 1961	Worthington Type L-2	Single Stage Centrifugal	5	Direct connected to 40 hp, 440 volt, 60 cycle, U.S. Induction motor	1,750	1,000
			1 -- 1961		Single Stage Centrifugal	6	Direct connected to 40 hp, 440 volt, 60 cycle, U.S. Induction motor	1,750	1,000
Highland	Arlington Reservoirs	Highland Tanks	2 -- 2012	Aurora	Single Stage, Single Suction Centrifugal	3	2-Unit Direct connected to 150 hp, 460 volt, 60 HZ, 3-phase Marathon Electric XRI high efficiency motor	1,800	1,200
Arlington	Middle Reservoirs	Arlington Reservoirs	3 -- 2010	Aurora Type 411 BF Size 6x8x20	Single Stage Centrifugal	3	250 hp, 460 volt, 60 cycle 3-phase Baldor Induction motor with VFD drive	1,750	1,700
Lakeside	Two 10" Mains	Lakeside Tank	2 -- 1961	Worthington Type L-3	Single Stage Centrifugal	1	Each unit direct connected to 100 hp, 440 volt, 60 cycle, 3-phase U.S. Induction motor	1,750	1,000
					Single Stage Centrifugal	2			
Bay View	West Duluth Reservoir	Bay View Tank	2 -- 1973	Aurora	Single Stage Centrifugal	1	Each unit direct connected to 125 hp, 440 volt, 60 cycle, 3-phase U.S. Induction motor	3,500	1,200
			2-- 2002		Single Stage Centrifugal	2			
Proctor	Bay View Tank	Proctor Standpipe	2 -- 1973	Aurora	Single Stage Centrifugal	1	Each unit direct connected to 125 hp, 440 volt, 60 cycle, 3-phase Louis Allis motor	3,500	1,200
					Single Stage Centrifugal	2			

## WATER UTILITY ACTIVITIES 2015

ACTIVITY	WORK COMPLETED
Repair of water services and mains	314
Repair of valves	146
Repair of main breaks	147
Cut off services	87
Install services	42
Steam requests (hydrants/services)	39
Water leak checks	364
Miscellaneous Customer Service requests	343
Fire hydrants: Replace and repair hydrants	32
Inspection	All fire hydrants in the City are inspected by the Fire Department and Utility Operations as part of a preventative maintenance program.

## CUSTOMER SERVICE DIVISION WATER ACTIVITIES 2015

ACTIVITY	WORK COMPLETED
<b>Meter Truck:</b> Gauge water service Applications (water & gas) Credit (water & gas) Emergency (water & gas) General (water & gas)	100 5,990 1,722 932 2,238
<b>Meter Shop:</b> Water meters repaired Water meters tested Plumbing truck orders (water & gas)	169 545 386

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**Gas Utility  
Statement of Net Income  
For The Year Ended December 31, 2014 and 2015  
(Unaudited)**

	2014	2015
<b><u>Operating Revenue</u></b>		
Residential Sales	\$ 36,202,605	\$ 22,744,503
Commercial & Industrial - Firm	15,307,779	8,620,493
Commercial & Industrial - Interruptible	4,572,716	2,715,389
Servicing Appliances	823,680	780,174
Other	1,383,628	633,478
<b>Total Operating Revenue</b>	<b>\$ 58,290,408</b>	<b>\$ 35,494,037</b>
<b><u>Operating Expense</u></b>		
Director's Office	87,678	142,336
Capital Related Expenses	1,459,680	1,490,651
Utility General Expense	1,743,153	1,256,230
Engineering	588,872	566,448
Utility Operations	1,934,100	2,006,810
Natural Gas	38,847,866	19,258,983
Customer Service	4,328,999	4,293,508
<b>Total Operating Expense</b>	<b>(48,990,348)</b>	<b>(29,014,966)</b>
<b>Operating Income</b>	<b>9,300,060</b>	<b>6,479,071</b>
<b><u>Other Revenue</u></b>		
Contributed Assets	46,333	57,399
Gain or Loss on Sale of Fixed Assets	153	26,680
Transfer from Other Funds		
Administrative Billing Fee	5,275	0
Street Maintenance	0	15,990
Street Lighting	15,990	15,990
Intergovernmental	23,365	23,365
Interest Income	144,716	(19,384)
<b>Total Other Revenue</b>	<b>235,832</b>	<b>120,040</b>
<b><u>Other Expenses and Transfers</u></b>		
Interest Expense	215,201	179,433
Transfers to Other Funds		
Payment to City in Lieu of Taxes	5,664,592	4,080,329
Investing Activities	95,975	0
Non-Capital Improvements	541	71,445
Reimbursement for MIS Programmer	21,700	21,700
Reimbursement for Janitors	0	27,300
Other Transfers	16,499	5,401
<b>Total Other Expenses and Transfers</b>	<b>(6,014,508)</b>	<b>(4,385,608)</b>
<b>Net Income or Loss</b>	<b>\$ 3,521,384</b>	<b>\$ 2,213,503</b>

**Gas Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

	<b>Assets &amp; Deferred Outflows</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Assets</u></b>		
Cash	\$ 6,035,675	\$ 5,292,734
Restricted Cash and Equivalents:		
Customer Deposit	1,816,033	2,109,072
Accounts Receivable (Net)	6,076,447	3,936,502
Special Assessments	7,244	10,334
Due from Other Funds	42,199	29,794
Due from Other Governments	68	80
Inventory	991,584	973,851
Prepaid Expenses	125,560	693,615
Prepaid gas	2,075,606	1,575,036
	<u>\$ 17,170,416</u>	<u>\$ 14,621,018</u>
<b><u>Utility Plant</u></b>		
In Service	68,073,476	69,352,417
Construction	3,715,026	6,014,449
	<u>71,788,502</u>	<u>75,366,866</u>
Less Accumulated Depreciation	(23,539,351)	(24,671,567)
	<u>48,249,151</u>	<u>50,695,299</u>
<b>Total Utility Plant Assets</b>	<u>48,249,151</u>	<u>50,695,299</u>
<b><u>Other Assets</u></b>		
Special Assessments Receivable	7,450	0
Advance to Other Funds	1,200,000	1,050,000
	<u>1,207,450</u>	<u>1,050,000</u>
<b>Total Other Assets</b>	<u>1,207,450</u>	<u>1,050,000</u>
<b>Total Assets</b>	<u>66,627,017</u>	<u>66,366,317</u>
<b><u>Deferred Outflows</u></b>		
Deferred Loss from Debt Refunding	76,772	55,076
Deferred Pension Obligation Outflows	0	519,688
	<u>76,772</u>	<u>574,764</u>
<b>Total Deferred Outflows</b>	<u>76,772</u>	<u>574,764</u>
<b>Total Assets and Deferred Outflows</b>	<u>\$ 66,703,789</u>	<u>\$ 66,941,081</u>

**Gas Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

<b>Liabilities &amp; Net Assets</b>		
	<b>2014</b>	<b>2015</b>
<b><u>Current Liabilities</u></b>		
Accounts Payable	\$ 3,051,009	\$ 1,646,573
Contracts Payable	140,353	296,240
Leases Payable	193,933	201,352
Due to Other Funds	45,724	36,379
Due to Other Governments	99,354	69,925
Due to Component Units	0	22,493
Accrued Interest Payable	95,620	71,156
Accrued Salaries Payable	262,289	77,863
Accrued Vacations Payable	324,424	319,641
Unearned Revenue	785,810	1,217,603
Customer Deposits	1,816,034	2,109,072
Bonds Payable	922,972	869,955
<b>Total Current Liabilities (Payable from Current Assets)</b>	<b>\$ 7,737,522</b>	<b>\$ 6,938,252</b>
<b><u>Long Term Liabilities</u></b>		
Leases Payable	1,978,509	1,777,157
Pension Liability	0	3,705,569
Bonds Payable	3,402,886	1,887,931
Less Unamortized Bond Discount	157,657	113,613
<b>Total Long Term Liabilities</b>	<b>5,539,052</b>	<b>7,484,270</b>
<b>Total Liabilities</b>	<b>13,276,574</b>	<b>14,422,522</b>
<b><u>Deferred Inflows</u></b>		
Deferred Pension Obligation Inflows	0	493,291
<b>Total Deferred Inflows</b>	<b>0</b>	<b>493,291</b>
<b><u>Net Assets</u></b>		
Invested in Capital Assets, Net of Related Debt	41,669,966	45,900,367
Unrestricted	11,757,249	6,124,901
<b>Total Net Assets</b>	<b>53,427,215</b>	<b>52,025,268</b>
<b>Total Liabilities and Net Assets</b>	<b>\$ 66,703,789</b>	<b>\$ 66,941,081</b>

**City of Duluth  
Gas Utility Bonds and Capital Leases Payable  
December 31, 2015**

	<u>Issued</u>	<u>Issue Date</u>	<u>Final Maturity</u>	<u>Principal Outstanding 12/31/2014</u>	<u>Issued</u>	<u>Draw Down</u>	<u>Retired</u>	<u>Principal Outstanding 12/31/2015</u>
<b>Gas Utility</b>								
Bonds								
Revenue and General Obligation	\$ 1,190,000	12/19/2006	2/1/2022	\$ 725,000	\$ 0	\$ 0	\$ 725,000	\$ 0
Revenue and General Obligation Refunding	2,846,814	12/17/2009	2/1/2017	1,270,858	0	0	412,972	857,886
Revenue and General Obligation Refunding	3,125,000	11/29/2011	2/1/2019	2,330,000	0	0	430,000	1,900,000
Bond Total				\$ 4,325,858	\$ 0	\$ 0	\$ 1,567,972	\$ 2,757,886
Capital Leases								
AMR System	\$ 3,094,654	7/12/2007	2/1/2024	\$ 2,172,442	\$ 0	\$ 0	\$ 193,933	\$ 1,978,509
Capital Lease Total				\$ 2,172,442	\$ 0	\$ 0	\$ 193,933	\$ 1,978,509
<b>Total Gas Utility Bonds and Capital Leases</b>				\$ 6,498,300	\$ 0	\$ 0	\$ 1,761,905	\$ 4,736,395

<b>Future Payments:</b>			
<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2016	\$ 1,071,307	\$ 157,333	\$ 1,228,640
2017	1,111,987	120,686	1,232,673
2018	697,054	87,194	784,248
2019	730,359	59,189	789,548
2020	233,980	40,467	274,447
2021	242,933	31,516	274,449
2022	252,226	22,221	274,447
2023	261,877	12,571	274,448
2024	134,672	2,552	137,224
	\$ 4,736,395	\$ 533,729	\$ 5,270,124

**Gas Fund**  
**Schedule of Fixed Assets**  
**Year Ending December 31, 2015**

	<u>Balance Jan.</u> <u>1, 2015</u>	<u>Additions</u>	<u>Deductions</u>	<u>Balance Dec.</u> <u>31, 2015</u>	<u>Accumulated</u> <u>Depreciation</u>	<u>Book Value</u>
Lands and Grounds	\$ 420,815	\$ 0	\$ 0	\$ 420,815	\$ 0	\$ 420,815
Infrastructure	56,906,716	1,202,558	0	58,109,274	18,447,368	39,661,906
Buildings and Structures	2,592,124	0	0	2,592,124	877,262	1,714,862
Equipment and Tools	8,153,821	319,020	242,637	8,230,204	5,346,937	2,883,267
Work in Progress	<u>3,715,026</u>	<u>3,558,423</u>	<u>1,259,000</u>	<u>6,014,449</u>	<u>0</u>	<u>6,014,449</u>
Total	<u>\$ 71,788,502</u>	<u>\$ 5,080,001</u>	<u>\$ 1,501,637</u>	<u>\$ 75,366,866</u>	<u>\$ 24,671,567</u>	<u>\$ 50,695,299</u>

## GAS STATISTICS

	2015	2014	2013	2012	2011	2010	2009
Gas sold MMBTU	4,885,371	5,354,836	5,355,988	4,191,481	4,864,262	4,617,923	4,804,897
Cost of gas sold	\$ 18,713,748	\$ 38,271,381	\$ 24,132,568	\$ 19,376,845	\$ 25,207,873	\$ 25,014,748	\$ 27,647,451
Cost per MMBTU sold	\$ 3.8306	\$ 7.1471	\$ 4.5057	\$ 4.6229	\$ 5.1823	\$ 5.4169	\$ 5.7540
Other operating costs, including maintenance(*)	\$ 9,543,411	\$ 9,364,188	\$ 9,506,116	\$ 9,314,644	\$ 9,168,387	\$ 9,238,887	\$ 9,243,290
Cost per MMBTU sold	\$ 1.9535	\$ 1.7487	\$ 1.7749	\$ 2.2223	\$ 1.8848	\$ 2.0007	\$ 1.9237
Interest charges	\$ 179,433	\$ 215,201	\$ 246,635	\$ 274,210	\$ 295,311	\$ 503,288	\$ 554,975
Cost per MMBTU sold	\$ 0.0367	\$ 0.0402	\$ 0.0460	\$ 0.0654	\$ 0.0607	\$ 0.1090	\$ 0.1155
Depreciation charge(**)	\$ 1,374,853	\$ 1,354,779	\$ 1,313,680	\$ 1,272,122	\$ 1,240,613	\$ 1,219,538	\$ 1,056,585
Cost per MMBTU sold	\$ 0.2814	\$ 0.2530	\$ 0.2453	\$ 0.3035	\$ 0.2550	\$ 0.2641	\$ 0.2199
Total cost per MMBTU sold	\$ 6.1022	\$ 9.1890	\$ 6.5719	\$ 7.2141	\$ 7.3829	\$ 7.7906	\$ 8.0131
Operating revenue per MMBTU	\$ 7.2654	\$ 10.8856	\$ 7.5544	\$ 8.0977	\$ 8.4867	\$ 8.5967	\$ 9.6227
Gas meters in service	27,873	27,682	27,435	27,075	26,592	26,668	26,148
Gas main miles	539.40	534.90	527.10	520.00	510.10	512.40	506.00
Gas transmission miles	5.30	5.30	5.30	5.30	5.30	5.30	5.30
Gas meters per mile of main	51.67	51.75	52.05	52.07	52.13	52.05	51.68

(\*) Does not include depreciation for the cost of natural gas

(\*\*) Does not include depreciation due to change in Capital Policy

## GAS ANALYSIS 2015

Month	Gas Purchased MMBTU	Storage Gas	MMBTU Transport	Consumption w/o Transport MMBTU	Total Transport BTU's	Number of Transport Customers
<b>Beginning Balance</b>		<b>504,519</b>				
January	703,910	-208,715	27,771	731,681	1,036	1
February	702,665	-165,312	28,479	731,144	1,034	1
March	500,433	-83,126	22,427	522,860	1,041	1
April	315,974	-47,366	20,098	336,072	1,043	1
May	292,078	45,446	15,527	307,605	1,036	1
June	277,360	138,018	15,717	293,077	1,021	1
July	269,849	145,421	14,634	284,483	1,022	1
August	283,259	136,307	15,351	298,610	1,019	1
September	286,285	159,082	13,411	299,696	1,022	1
October	391,479	130,084	15,658	407,137	1,044	1
November	431,838	-4,000	19,032	450,870	1,034	1
December	430,241	-186,448	30,408	460,649	1,034	1
<b>Storage Balance</b>		<b>563,910</b>				
<b>Totals</b>	4,885,371		238,513	5,123,884		

- withdraw, + inject

## LENGTH OF GAS MAINS IN FEET 2015

Diameter - Inches	Polyethylene	Steel	Total	Valves
1	50,178		50,178	64
1 1/4		3,607	3,607	28
2	1,802,011	28,874	1,830,885	887
3	381,402	7,338	388,740	250
4	2,862	43,564	46,426	52
6	55,099	75,999	131,098	90
8	20,768	142,996	163,764	68
10		121,062	121,062	27
12	5,589	10,653	16,242	11
14		4,118	4,118	
16		91,712	91,712	9
<b>Totals</b>	<b>2,317,909</b>	<b>529,923</b>	<b>2,847,832</b>	<b>1,486</b>

**Total Miles Gas Main                    539.4**

**Added in 2015                                4.5**

**Pressure Regulators                         23**

**Gas Valves added in 2015                 3**

Note: Valves used only as plugs on end of mains are not included in the above table.  
 Gas main quantities are derived from Geographic Information System.



## GAS UTILITY ACTIVITIES 2015

ACTIVITY	WORK COMPLETED
SERVICES AND MAINS	
Installations	68
Cutoffs	86
Repaired services and mains (not considered hits)	19
Rerouted/replaced	14
Lowered gas services/mains	4
Valves inspected and operated	390
Hits	43

## CUSTOMER SERVICE DIVISION GAS ACTIVITIES 2015

ACTIVITY	WORK COMPLETED
<b>Service Workorders Completed:</b>	
Appliance service	3,585
Furnace cleaning	3,219
Tin shop	289
<b>Meter Truck:</b>	
Applications (water & gas)	5,990
Credit (water & gas)	1,722
Emergency (water & gas)	932
General (water & gas)	5,033
<b>Meter Shop:</b>	
Gas meters repaired	248
Gas meters tested	232
Plumbing truck orders (water & gas)	386
<b>Other:</b>	
Gas leak detection surveys	10,531
Inspect and paint gas meters and risers	2,539
Skips/Previewers	1,278

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**Sewer Utility  
Statement of Net Income  
For The Year Ended December 31, 2014 and 2015  
(Unaudited)**

	2014	2015
<b><u>Operating Revenue</u></b>		
General Sewage Revenue	\$ 17,575,118	\$ 17,926,756
Other	86,154	223,696
<b>Total Operating Revenue</b>	\$ 17,661,272	\$ 18,150,452
<b><u>Operating Expense</u></b>		
Director's Office	69,612	62,676
Capital Related Expenses	1,368,794	1,522,096
Utility General Expense	878,317	646,614
Engineering	538,660	568,598
Utility Operations	2,068,326	1,999,564
Wastewater Treatment	8,447,300	9,021,705
Inflow and Infiltration	1,425,362	843,837
Customer Service	477,154	445,940
<b>Total Operating Expense</b>	(15,273,525)	(15,111,030)
<b>Operating Income</b>	2,387,747	3,039,422
<b><u>Other Revenue</u></b>		
Contributed Assets	568,854	2,623,767
Gain or Loss on Sale of Fixed Assets	4,731	31,977
Transfer from Other Funds		
Administrative Billing Fee	5,275	0
Street Maintenance	0	9,430
Street Lighting	9,430	9,430
Intergovernmental	8,283	8,283
Interest Income	37,680	(190)
<b>Total Other Revenue</b>	634,253	2,682,697
<b><u>Other Expenses and Transfers</u></b>		
Transfer to Other Funds		
Investing Activities	20,760	0
Non-Capital Improvements	21,563	71,445
Reimbursement for MIS Programmer	21,600	21,600
Reimbursement for Janitors	0	27,400
Other Transfers	7,809	0
Interest on Long Term Debt	403,443	379,597
<b>Total Other Expenses and Transfers</b>	(475,175)	(500,042)
<b>Net Income or Loss</b>	\$ 2,546,825	\$ 5,222,077

**Sewer Utility  
Statement of Net Assets  
For The Year Ending December 31, 2014 and 2015  
(Unaudited)**

	<b>Assets &amp; Deferred Outflows</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Assets</u></b>		
Cash	\$ 2,762,772	\$ 1,593,085
Restricted Cash and Equivalents:		
Construction	76,761	205,317
Accounts Receivable (Net)	1,637,195	1,823,562
Special Assessments	49,444	290,160
Due from Other Funds	30,741	37,319
Due from Other Governments	402,996	60,242
Inventory	68,354	63,551
Prepays	<u>140,264</u>	<u>193,816</u>
<b>Total Current Assets</b>	<b>\$ <u>5,168,527</u></b>	<b>\$ <u>4,267,052</u></b>
<b><u>Utility Plant</u></b>		
In Service	64,979,605	66,977,798
Construction	<u>2,905,029</u>	<u>7,331,594</u>
Less Accumulated Depreciation	<u>(16,426,593)</u>	<u>(17,444,149)</u>
<b>Total Utility Plant Assets</b>	<b><u>51,458,041</u></b>	<b><u>56,865,243</u></b>
<b><u>Other Assets</u></b>		
Special Assessments Receivable	<u>223,184</u>	<u>7,639</u>
<b>Total Other Assets</b>	<b><u>223,184</u></b>	<b><u>7,639</u></b>
<b>Total Assets</b>	<b><u>56,849,752</u></b>	<b><u>61,139,934</u></b>
<b><u>Deferred Outflows</u></b>		
Deferred Loss from Debt Refunding	227,326	178,340
Deferred Pension Obligation Outflows	<u>0</u>	<u>253,240</u>
<b>Total Deferred Outflows</b>	<b><u>227,326</u></b>	<b><u>431,580</u></b>
<b>Total Assets and Deferred Outflows</b>	<b>\$ <u><u>57,077,078</u></u></b>	<b>\$ <u><u>61,571,514</u></u></b>

**Sewer Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

	<b>Liabilities &amp; Net Assets</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Liabilities</u></b>		
Accounts Payable	\$ 200,103	\$ 41,669
Contracts Payable	447,321	1,263,483
Notes Payable	379,990	393,298
Leases Payable	182,179	189,149
Due to Other Funds	24,032	8,890
Due to Other Governments	685,216	771,219
Interest Payable	151,733	109,631
Accrued Salaries Payable	117,628	38,841
Vacations Payable	140,928	143,508
Unearned Revenue	50,697	80,326
Bonds Payable	1,494,752	1,164,375
<b>Total Current Liabilities (Payable from Current Assets)</b>	<b>\$ 3,874,579</b>	<b>\$ 4,204,389</b>
<b><u>Long Term Liabilities</u></b>		
Notes Payable	1,407,875	1,720,457
Leases Payable	1,858,599	1,669,450
Pension Liability	0	1,805,691
Bonds Payable	7,803,166	6,303,791
Less Unamortized Bond Discount or Premium	172,045	206,245
<b>Total Long Term Liabilities</b>	<b>11,241,685</b>	<b>11,705,634</b>
<b>Total Liabilities</b>	<b>15,116,264</b>	<b>15,910,023</b>
<b><u>Deferred Inflows</u></b>		
Deferred Pension Obligation Inflows	0	240,374
<b>Total Deferred Inflows</b>	<b>0</b>	<b>240,374</b>
<b><u>Net Assets</u></b>		
Invested in Capital Assets, Net of Related Debt	38,386,761	45,396,818
Legal Restricted Assets	76,761	205,317
Unrestricted	3,497,292	(181,018)
<b>Total Net Assets</b>	<b>41,960,814</b>	<b>45,421,117</b>
<b>Total Liabilities and Net Assets</b>	<b>\$ 57,077,078</b>	<b>\$ 61,571,514</b>

**City of Duluth  
Sewer Utility Bonds, Notes and Capital Leases Payable  
December 31, 2015**

	<u>Issued</u>	<u>Issue Date</u>	<u>Final Maturity</u>	<u>Principal Outstanding 12/31/2014</u>	<u>Issued</u>	<u>Draw Down</u>	<u>Retired</u>	<u>Principal Outstanding 12/31/2015</u>
<b>Sewer Utility Bonds</b>								
Revenue and General Obligation	\$ 765,450	12/19/2006	2/1/2022	\$ 461,700	\$ 0	\$ 0	\$ 461,700	\$ 0
Revenue and General Obligation	179,550	12/19/2006	2/1/2022	108,300	0	0	108,300	0
Revenue and General Obligation	2,120,000	12/13/2007	2/1/2023	1,420,000	0	0	1,420,000	0
Revenue and General Obligation Refunding	1,325,000	12/13/2007	2/1/2016	255,000	0	0	205,000	50,000
Revenue and General Obligation	1,244,000	2/19/2009	2/1/2024	891,648	0	0	75,812	815,836
Revenue and General Obligation Refunding	713,186	12/17/2009	2/1/2017	314,142	0	0	102,028	212,114
Revenue and General Obligation	905,000	12/17/2009	2/1/2025	705,000	0	0	55,000	650,000
Revenue and General Obligation Refunding	2,025,000	11/23/2010	2/1/2018	1,202,129	0	0	291,913	910,216
Revenue and General Obligation Refunding	2,265,000	11/29/2011	2/1/2020	1,940,000	0	0	305,000	1,635,000
Revenue and General Obligation Refunding	2,000,000	11/27/2012	2/1/2021	2,000,000	0	0	265,000	1,735,000
Revenue and General Obligation Refunding	1,110,000	11/5/2015	2/1/2023	0	1,110,000	0	0	1,110,000
Revenue and General Obligation Refunding	350,000	11/5/2015	2/1/2022	0	350,000	0	0	350,000
<b>Bond Total</b>				<b>\$ 9,297,919</b>	<b>\$ 1,460,000</b>	<b>\$ 0</b>	<b>\$ 3,289,753</b>	<b>\$ 7,468,166</b>
<b>Notes</b>								
Public Facilities Authority	\$ 100,000	8/25/2003	8/20/2018	\$ 31,340	\$ 0	\$ 0	\$ 7,526	\$ 23,814
Public Facilities Authority	1,179,115	10/17/2003	8/20/2018	365,000	0	0	89,000	276,000
Public Facilities Authority (Note 1)	1,973,033	7/12/2007	8/20/2022	1,205,000	0	0	145,000	1,060,000
Public Facilities Authority (Note 3)	279,117	11/18/2011	8/20/2021	136,524	0	61,042	38,000	159,566
Public Facilities Authority	1,255,464	9/4/2014	8/20/2024	50,000	0	644,839	100,464	594,375
<b>Note Total</b>				<b>\$ 1,787,864</b>	<b>\$ 0</b>	<b>\$ 705,881</b>	<b>\$ 379,990</b>	<b>\$ 2,113,755</b>
<b>Capital Leases</b>								
AMR System	\$ 2,907,099	7/12/2007	2/1/2024	\$ 2,040,779	\$ 0	\$ 0	\$ 182,179	\$ 1,858,600
<b>Capital Lease Total</b>				<b>\$ 2,040,779</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 182,179</b>	<b>\$ 1,858,600</b>
<b>Total Sewer Utility Bonds, Notes, and Capital Leases</b>				<b>\$ 13,126,562</b>	<b>\$ 1,460,000</b>	<b>\$ 705,881</b>	<b>\$ 3,851,922</b>	<b>\$ 11,440,521</b>

<b>Future Payments:</b>				
<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>	
2016	\$ 1,746,823	\$ 267,359	\$ 2,014,182	
2017	1,939,363	241,911	2,181,274	
2018	1,883,208	198,092	2,081,300	
2019	1,503,712	157,321	1,661,033	
2020	1,549,118	118,775	1,667,893	
2021	1,230,974	83,300	1,314,274	
2022	914,705	55,271	969,976	
2023	721,216	30,549	751,765	
2024	437,028	10,278	447,306	
2025	75,000	1,500	76,500	
	<b>\$ 12,001,147</b>	<b>\$ 1,164,356</b>	<b>\$ 13,165,503</b>	

**Sewer Fund  
Schedule of Fixed Assets  
Year Ending December 31, 2015**

	<u>Balance Jan. 1, 2015</u>	<u>Additions</u>	<u>Deductions</u>	<u>Balance Dec. 31, 2015</u>	<u>Accumulated Depreciation</u>	<u>Book Value</u>
Lands and Grounds	\$ 156,349	\$ 0	\$ 0	\$ 156,349	\$ 0	\$ 156,349
Infrastructure	51,399,487	1,927,068	0	53,326,555	10,223,358	43,103,197
Buildings and Structures	7,101,150	0	0	7,101,150	3,135,992	3,965,158
Equipment and Tools	6,322,619	369,014	297,889	6,393,744	4,084,799	2,308,945
Work in Progress	<u>2,905,029</u>	<u>6,389,361</u>	<u>1,962,796</u>	<u>7,331,594</u>	<u>0</u>	<u>7,331,594</u>
Total	<u>\$ 67,884,634</u>	<u>\$ 8,685,443</u>	<u>\$ 2,260,685</u>	<u>\$ 74,309,392</u>	<u>\$ 17,444,149</u>	<u>\$ 56,865,243</u>



## PUMPING STATIONS - SEWAGE PUMPING EQUIPMENT

	Station GIS Location	Station Type - Year Updated	Daily Flow Basin No.	Wet Well Capacity	Pump Cap. GPM each unit	Pump Mfg.	Motor HP	Motor Voltage - Phase	Motor F.L.A.	Force Main Size	Force Main Discharge GIS Location	Aux. Power Gen. Set No.
1	PS0880001	Triplex Submersible 6/16/2006	305,280 gal. 1	301,397 gal.	1 - 1700 2 - 1700 3 - 1700	KSB	1 - 83 hp 2 - 83 hp 3 - 83 hp	480 3	105	10"	SA0880119	Permanent Onsite 2779-150kW
2	PS0880002	Duplex Submersible 3/18/2009	2,160 gal. 1	927.6 gal.	23 23	Barnes	1 - 2 hp 2 - 2 hp	230 3	1 - 8 2 - 8	3"	SA0880117	All 60 Amp
3	PD0830003	Triplex Submersible 10/19/1999	397,872 gal. 4	N/A	1 - 265 2 - 1200 3 - 1200	KSB	1 - 10 hp 2 - 34 hp 3 - 34 hp	480 3	1 - 15.1 2 - 47.5 3 - 47.5	16"	SD1210001	Permanent Onsite 125kW
4	PS043004	Duplex Submersible 1/20/2006	3,024 gal. 6	927.52 gal.	1 - 100 2 - 100	KSB	1 - 5 hp 2 - 5 hp	208 3	1 - 15.4 2 - 15.4	4"	SW0430011	All 60 Amp
5	PS043005	Simplex Submersible 1970	720 gal. 6	97.3 gal.	1 - 67.42	Myers	1.9 hp	230 1	5.3	3"	SW0430012	
6	PS04100613	Duplex Submersible 8/12/2012	1,106,064 gal. 16	9,313.8 gal.	1 - 3000 2 - 3000 3 - 3000	RJB	50 hp 50 hp 50 hp C/G 5 hp	480 3	1 - 66.7 2 - 66.7 3 - 66.7 6	24"	CH0460269	Permanent
6SF	PS0410049	Duplex Submersible		8 mg		KSB	1 - 50 hp 2 - 50 hp	480 3	69.4 69.4	24"		Permanent
7	PS1090007	Duplex Submersible 2006	78,048 gal. 16	N/A	1 - 400 2 - 400	KSB	6.5 hp 6.5 hp	208 3	23 23	6"	SA1090003	All 60 Amp
8	PS1090008	Wet well Dry well 1983 & 1987 new pumps & motors	228,960 gal. 15	8,863.8 gal.	1 - 808 2 - 808	Fairbank Morse	30 hp	480 3	37.7	8"	SA109003	2765 2767 200 Amp
9	PS1090009	Duplex Submersible New motors 2011	165,888 gal. 15	3,941 gal.	1 - 850 2 - 850	KSB Grinder	1 - 7.5 hp 2 - 7.5 hp	208 3	26.3 26.3 17	10"	SA1090015	All 60 Amp
10	PS1100010	Duplex Submersible 1996	N/A 15	N/A	1 - 208 2 - 247.1	KSB	1 - 2.4 hp 2 - 2.4 hp	208 3	8.7	4"	SA0009	All 60 Amp

## PUMPING STATIONS - SEWAGE PUMPING EQUIPMENT

	Station GIS Location	Station Type - Year Updated	Daily Flow Basin No.	Wet Well Capacity	Pump Cap. GPM each unit	Pump Mfg.	Motor HP	Motor Voltage - Phase	Motor F.L.A.	Force Main Size	Force Main Discharge GIS Location	Aux. Power Gen. Set No.
11	PS1110011	Duplex Submersible 1996	N/A 15	N/A	1 - 164.4 2 - 161.4	KSB	1 - 2.4 hp 2 - 2.4 hp	208 3	1 - 8.4 2 - 8.4	4"	SA1110002	All 60 Amp
12	PS1110012	Duplex Submersible 1996	80,640 gal. 15		1 - 170 2 - 170 (approx.)	KSB	1 - 2.4 hp 2 - 2.4 hp	208 3	1 - 6.9 2 - 6.9	4"	SA1110013	All 60 Amp
13	PS0400013	Duplex Submersible 1995	N/A 16	N/A	1 - 650 2 - 650 1&2 - 710	KSB	1 - 12.8 hp 2 - 12.8 hp	480 3	1 - 29 2 - 29	12"	SW0400031	2765 2767 200 Amp
14	PS0320014	Duplex Submersible 2013	50,976 gal. 18	1,008 gal.	1 - 230 2 - 230	Flygt	1 - 10 hp 2 - 10 hp	208 3	1 - 9.5 2 - 18.5	8"	SA0310022	2766 2770
15	PS0310015	Triplex Wet well Dry well ~1975	248,688 gal. 18	N/A	1 - 2400 2 - 2400 3 - 2400	Chicago	1 - 40 hp 2 - 40 hp 3 - 40 hp	480 3	54	10"	SW0310030	2765 2767 200 Amp
16	PS0300016	Duplex Submersible	23		1 - 1400 2 - 1400 1&2 - 2300	KSB		480 3				2765 2766 200 Amp
17	PS0290017	Duplex Submersible ~1975 2001	243,072 gal. 23	N/A	1 - 1000 2 - 1000 1&2 - 1500	KSB	1 - 10 hp 2 - 10 hp	240 3	1 - 32.5 2 - 32.5	8"	SW0290038	2767 2765 200 Amp
18	PS0180018	Duplex Submersible 1996	N/A 26	N/A	1 - 58.56 2 - 54.92 1&2 - 85	KSB	1 - 1.75 hp 2 - 1.75 hp	208 3	1 - 6.9 2 - 6.9	6"	SA0180041	All 60 Amp
19	PS1230019	Duplex Submersible 1984	2,880 gal. 28	409 gal.	1 - 73.7 2 - 79.2	Meyers	1 - 2 hp 2 - 2 hp	240	1 - 9.0 2 - 39.0	4"	SW1230034	All 60 Amp
20	PS0090001	Duplex Submersible 2004			1 - 360 2 - 360 1&2 - 540	KSB	1 - 5 hp 2 - 5 hp	208 30	1 - 17.7		SA0090036	2765 2767 200 Amp

## PUMPING STATIONS - SEWAGE PUMPING EQUIPMENT

	Station GIS Location	Station Type - Year Updated	Daily Flow Basin No.	Wet Well Capacity	Pump Cap. GPM each unit	Pump Mfg.	Motor HP	Motor Voltage - Phase	Motor F.L.A.	Force Main Size	Force Main Discharge GIS Location	Aux. Power Gen. Set No.
21	PS0020021	Duplex Submersible  2007	3,600 gal.  30	480 gal.	1 - 125 2 - 96.0	Chicago	1 - 10 hp 2 - 10 hp	208  3	1 - 33.4 2 - 30.1	4"	SA0030035	All 60 Amp
22	PS0730022	Duplex Submersible  2002	43,344 gal.  33		1 - 180 2 - 135.3  1-2:337.6	KSB	1 - 10 hp 2 - 3.4 hp	240  3	1 - 29.2 2 - 10.1	4"	SA0730023	2765 2767 200 Amp
23	PS0960023	Duplex steel shell Submersible ~1975	3,168 gal.  11	295.5 gal.	1 - 120.6 2 - 131.3	Flygt	1 - 3.8 hp 2 - 3.8 hp	240  1	14	4"	SA0960002	All 60 Amp
24	Removed											
25	PS1030025	Duplex Submersible 2001	8,352 gal.  11		1 - 200 2 - 200 1&2 - 300	KSB	1 - 15 hp 2 - 15 hp	240  3	1 - 52 2 - 52		SA1000001	2767 2765 200 Amp
26	PS0920026	Duplex Submersible 1999	49,680 gal.  5		1 - 200 2 - 200 1&2 - 300	KSB	1 - 16.5 2 - 16.5	240  3	1 - 52 2 - 52	4"	SA0860115	2767  2765
27	PS0420027	Duplex Submersible 1984	4,320 gal.  13	145.9 gal.	1 - 46.8 2 - 49.4 1&2 - 73	Myers	1 - 2 hp 2 - 2 hp	240  3	1 - 7.5 2 - 7.5	3"	SA0420086	All 60 Amp
28	PS1170028	Duplex Submersible 1998	17,136 gal.  22	N/A	1 - 159 2 - 159	KSB	1 - 3.4 hp 2 - 3.4 hp	240  3	1 - 10.2 2 - 10.2	4"	SA1170006	All 60 Amp
29	PS0470029	Duplex Submersible 1984	5,184 gal.  13	456.3 gal.	1 - 159 2 - 159 1&2 - 238	Barnes	1 - 3 hp 2 - 3 hp	240  3	1 - 9 2 - 9	4"	SA0470148	All 60 Amp
30	PS0580030	Duplex Submersible 1989	14,112 gal.  20	377.8 gal.	1 - 120.6 2 - 124.6 1&2 - 200	Flygt  CP3102	1 - 5 hp 2 - 5 hp	240  3	1 - 13 2 - 13	6"		All 60 Amp

## PUMPING STATIONS - SEWAGE PUMPING EQUIPMENT

	Station GIS Location	Station Type - Year Updated	Daily Flow Basin No.	Wet Well Capacity	Pump Cap. GPM each unit	Pump Mfg.	Motor HP	Motor Voltage - Phase	Motor F.L.A.	Force Main Size	Force Main Discharge GIS Location	Aux. Power Gen. Set No.
31	PS0600031	Duplex Submersible 1989	13,104 gal. 21	658.3 gal.	1 - 200.5 2 - 154.3 1&2 - 300	Flygt CP3102	1 - 5 hp 2 - 5 hp	240 3	1 - 13 2 - 13	6"		All 60 Amp
32	PS0600032	Duplex Submersible 1989	5,472 gal. 21	613.4 gal.	1 - 139 2 - 155 1&2 - 300	Flygt CP3102	1 - 5 hp 2 - 5 hp	240 3	1 - 13 2 - 13	4"	SA0600093	All 60 Amp
33	PS1280033	Duplex Submersible 1995	NA	420 gal.	1 - 140 2 - 140 1&2 - 210	KSB	1 - 3 hp 2 - 3 hp	208	1 - 9.8 2 - 9.8	4"	SA0030061	All 60 Amp
34	PS0560034	Duplex Submersible 1993	NA 20	433.9 gal.	1 - 166 2 - 156 1&2 - 249	Flygt CP3127	1 - 10 hp 2 - 10 hp	480 3	1 - 13 1 - 13	4"	SA0560093	2767 2765 200 Amp
35	PS0630001	Duplex Submersible 2007			1 - 200 2 - 200 1&2 - 300	KSB	1 - 7.5 2 - 7.5	208 3	1 - 25 2 - 25	4"		All 60 Amp
36	PS0900036	Duplex Submersible 1992	1,152 gal. 11	980 gal.	1 - 195.4 2 - 196.7	Flygt CP3127X	1 - 10 hp 2 - 10 hp	240 3	1 - 26 2 - 26	Twin 4"	SA0900005	2767 2765 200 Amp
37	PS0420037	Duplex Submersible 1984	3,888 gal. 13	441.4 gal.	1 - 186.5 2 - 191.9	Flygt CP3085	1 - 3 hp 2 - 3 hp	208 3	1 - 10 2 - 10	4"	SA0420080	All 60 Amp
38	PS1120038	Duplex Submersible	Operated by Facilities Management									
39	PS0150039	Duplex Submersible 1988	20,880 gal. 23	643.2 gal.	1 - 306.3 2 - 313.8	Flygt	1 - 5 hp 2 - 5 hp	240 3	1 - 13 2 - 13	6"		All 60 Amp
40	PS0330040	Steel shell dry well with 6' concrete wet well	36,864 gal. 18	534.9 gal.	1 - 286.6 2 - 281.5	Fairbanks Morse	1 - 7.5 hp 2 - 7.5 hp	240 3	1 - 22.6 2 - 22.6	8"	SA0320008	All 60 Amp

## PUMPING STATIONS - SEWAGE PUMPING EQUIPMENT

	Station GIS Location	Station Type - Year Updated	Daily Flow Basin No.	Wet Well Capacity	Pump Cap. GPM each unit	Pump Mfg.	Motor HP	Motor Voltage - Phase	Motor F.L.A.	Force Main Size	Force Main Discharge GIS Location	Aux. Power Gen. Set No.
41	PS0680041	Duplex Submersible	8,928 gal.  22		1 - 400 2 - 400	KSB	1 - 15 hp 2 - 15 hp	240  3	1 - 43.5 2 - 43.5	6"	SA0680029	2767  2765 200 Amp
42	PS1320042	Duplex Submersible 1996	NA  22	NA	NA	KSB	1 - 5 hp 2 - 5 hp	480  3	1 - 7.8 2 - 7.8	4" 6"	SD1180032	2767  2765 200 Amp
43	PS1280143	Duplex Submersible 2000			1 - 100 2 - 100 3 - 150	KSB	1 - 15 hp 2 - 15 hp	240  3	1 - 43.5 2 - 43.5		SA1280001	2767  2765 200 Amp
44	PS0010144	Duplex Submersible 2000			1 - 180 2 - 180 3 - 200	KSB	1 - 10 hp 2 - 10 hp	208  3	29 29	6"		2767  2765 200 Amp
45	PS0880016	Triplex Submersible 2005		2 MG	1 - 2000 2 - 2000 3 - 2000	KSB	1 - 50 hp 2 - 50 hp 3 - 50 hp	480  3	39	12"	SW0830136	Permanent on site 2778 100kW
46	PS0090046	Duplex Submersible Grinder ~2005				Barnes	1 - 2 hp 2 - 2 hp	208  3	9.2 9.2	1.25"		
47	PS0090047	(in Bethany Crisis Shelter) ~2005				Barnes						
48	PS0080001	(9) 723-3870 ~2005				Barnes						
49		Private  724-4053										
50		Storage Basin 2007		1 MG	No Pumps	Gravity In Gravity Out						
51	PS0430001	Storage Basin Oct. 2010		3 MG		KSB						Permanent on site

## LENGTH OF SANITARY SEWER PIPE IN FEET 2015

### PIPE MATERIAL

Dia. Inches	Force Main	ACP	BRA	CBR	CI/DI	CIPP	CMP	HDPE	PVC	RCP	UNK	VCP	Totals
1	113												113
1 1/4	190												190
1 1/2	1,576												1,576
2	25,567								651				26,218
3	12,993												12,993
4	23,478												23,478
6	12,650					675			1,062		176	5,942	20,505
8	9,212	7,027			11,497	193,813		1,120	460,766	305	1,941	827,218	1,512,899
9						5,239						21,142	26,381
10	6,136	14,970			3,607	16,108		153	32,982	3,299	637	69,969	147,861
12	3,699	2,123			1,443	12,185		513	20,247	43,762		43,762	127,734
14					163								163
15						6,317			11,765	32,354		27,138	77,574
16	5,297				397			999			48		6,741
18			1,286		79	8,426	1,056			13,373		17,833	42,053
20			118		12	1,291				466		1,940	3,827
21			439		111				1,094	6,503	7	654	8,808
22			2,571									1,224	3,795
24	702		1,006		747	911			693	12,504		3,167	19,730
26			622							983			1,605
27			454							720		530	1,704
28			1,386										1,386
30			499		119	1,284				3,998			5,900
32			1,403			482				403			2,288
34			496			65							561
36			1,425		3,057				105	2,038			6,625
42				466				10				122	598
45			7	460									467
48	90		191	157	35			1,166		703			2,342
54	940												940
55				80									80
UNK	5,783					86			345		359	342	6,915
<b>Total</b>	<b>108,426</b>	<b>24,120</b>	<b>11,903</b>	<b>1,163</b>	<b>21,267</b>	<b>246,882</b>	<b>1,056</b>	<b>3,961</b>	<b>529,710</b>	<b>121,459</b>	<b>3,120</b>	<b>1,020,983</b>	<b>2,094,050</b>

Notes: The City of Duluth Sanitary Sewer system includes 8,620 manholes.

ACP - Asbestos Cement Pipe  
 BRA - Brick Arch  
 CBR - Circular Brick Pipe  
 CI/DI - Cast or Ductile Iron

CIPP - Cured in Place Pipe  
 CMP - Corrugated Metal Pipe  
 HDPE - High Density Polyethylene  
 PVC - Polyvinyl Chloride

RCP - Reinforced Concrete Pipe  
 UNK - Unknown  
 VCP - Vitriified Clay Pipe

**Miles - 396.6**

Note: Pipe quantities are derived from Geographic Information System.

## SANITARY SEWER ACTIVITIES 2015

ACTIVITY	WORK COMPLETED
Sewer calls	246
Cleaning sanitary sewer pipe	489,505 ft
Televising sanitary sewer pipe	63,653 ft
I & I inspections (Inflow and Infiltration Grant Program)	
Homes inspected	795
Point of Sale certificates	1,124
Point of Sale waivers	76
Laterals rehabilitated	24
Inspections for connections and disconnections	
Connections	68 services
Disconnections	61 services
Dye testing	7
Field sampling	6
Flow monitoring	Ongoing

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**Clean Water Utility  
Statement of Net Income  
For The Year Ended December 31, 2014 and 2015  
(Unaudited)**

	<b>2014</b>		<b>2015</b>
<b><u>Operating Revenue</u></b>			
Charges for Services	\$ <u>1,842,153</u>		\$ <u>1,835,014</u>
<b>Total Operating Revenue</b>	\$ <u>1,842,153</u>		\$ <u>1,835,014</u>
<b><u>Operating Expense</u></b>			
Clean Water Expense	<u>1,257,604</u>		<u>628,864</u>
<b>Total Operating Expense</b>	<u>(1,257,604)</u>		<u>(628,864)</u>
<b>Operating Income</b>	<u>584,549</u>		<u>1,206,150</u>
<b><u>Other Revenue</u></b>			
Contributed Assets	125,900		0
Interest Income	<u>3,925</u>		<u>1,501</u>
<b>Total Other Revenue</b>	<u>129,825</u>		<u>1,501</u>
<b><u>Other Expenses and Transfers</u></b>			
Transfers to Other Funds			
Investing Activities	3,407		0
Interest on Long Term Debt	<u>177,857</u>		<u>163,795</u>
<b>Total Other Expenses and Transfers</b>	<u>(181,264)</u>		<u>(163,795)</u>
<b>Net Income or Loss</b>	<u>\$ <u>533,110</u></u>		<u>\$ <u>1,043,856</u></u>

**Clean Water Utility  
Statement of Net Assets  
For The Year Ending December 31, 2014 and 2015  
(Unaudited)**

	<b>Assets</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Assets</u></b>		
Cash	\$ 50,874	\$ 478,491
Accounts Receivable (Net)	<u>185,549</u>	<u>180,953</u>
<b>Total Current Assets</b>	<b>\$ <u>236,423</u></b>	<b>\$ <u>659,444</u></b>
<b><u>Utility Plant</u></b>		
In Service	39,685,143	39,685,143
Construction	<u>573,339</u>	<u>652,322</u>
Less Accumulated Depreciation	<u>(1,180,477)</u>	<u>(1,754,661)</u>
<b>Total Utility Plant Assets</b>	<b><u>39,078,005</u></b>	<b><u>38,582,804</u></b>
<b>Total Assets</b>	<b>\$ <u><u>39,314,428</u></u></b>	<b>\$ <u><u>39,242,248</u></u></b>

**Clean Water Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

	<b>Liabilities &amp; Net Assets</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Liabilities</u></b>		
Accounts Payable	\$ 6,590	\$ 0
Notes Payable	1,093,160	1,108,000
Interest Payable	63,198	57,694
Unearned Revenue	6,339	7,744
Bonds Payable	12,188	12,881
<b>Total Current Liabilities (Payable from Current Assets)</b>	<b>\$ 1,181,475</b>	<b>\$ 1,186,319</b>
<b><u>Long Term Liabilities</u></b>		
Notes Payable	11,145,000	10,037,000
Bonds Payable	131,163	118,283
<b>Total Long Term Liabilities</b>	<b>11,276,163</b>	<b>10,155,283</b>
<b>Total Liabilities</b>	<b>12,457,638</b>	<b>11,341,602</b>
<b><u>Net Assets</u></b>		
Invested in Capital Assets, Net of Related Debt	26,696,494	27,306,640
Unrestricted	160,296	594,006
<b>Total Net Assets</b>	<b>26,856,790</b>	<b>27,900,646</b>
<b>Total Liabilities and Net Assets</b>	<b>\$ 39,314,428</b>	<b>\$ 39,242,248</b>

**City of Duluth  
Clean Water Utility Bonds and Notes Payable  
December 31, 2015**

	<u>Issued</u>	<u>Issue Date</u>	<u>Final Maturity</u>	<u>Principal Outstanding 12/31/2014</u>	<u>Issued</u>	<u>Draw Down</u>	<u>Retired</u>	<u>Principal Outstanding 12/31/2015</u>
<b>Clean Water Utility</b>								
Bonds								
Revenue and General Obligation	\$ 200,000	2/19/2009	2/1/2024	\$ 143,352	\$ 0	\$ 0	\$ 12,189	\$ 131,163
Bond Total				\$ 143,352	\$ 0	\$ 0	\$ 12,189	\$ 131,163
Notes								
Public Facilities Authority	\$ 796,835	6/17/2009	8/20/2024	\$ 568,000	\$ 0	\$ 0	\$ 52,000	\$ 516,000
Public Facilities Authority	2,414,150	12/10/2009	8/20/2024	1,773,000	0	0	162,000	1,611,000
Public Facilities Authority	8,504,224	8/31/2010	8/20/2025	6,295,000	0	0	537,000	5,758,000
Public Facilities Authority	3,753,059	8/31/2010	8/20/2025	2,822,000	0	0	241,000	2,581,000
Public Facilities Authority	278,149	11/18/2011	8/20/2021	209,000	0	0	29,000	180,000
Public Facilities Authority	265,418	11/30/2011	8/20/2021	194,798	0	0	26,798	168,000
Public Facilities Authority	476,537	9/10/2012	8/20/2022	376,362	0	0	45,362	331,000
Note Total				\$ 12,238,160	\$ 0	\$ 0	\$ 1,093,160	\$ 11,145,000
<b>Total Clean Water Utility Bonds and Notes</b>				<u>\$ 12,381,512</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 1,093,160</u>	<u>\$ 11,276,163</u>

<b>Future Payments:</b>			
<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2016	\$ 1,120,881	\$ 158,780	\$ 1,279,661
2017	1,137,435	143,081	1,280,516
2018	1,153,435	127,131	1,280,566
2019	1,167,989	110,900	1,278,889
2020	1,185,681	94,426	1,280,107
2021	1,201,236	77,683	1,278,919
2022	1,159,235	60,694	1,219,929
2023	1,125,789	43,989	1,169,778
2024	1,142,482	27,503	1,169,985
2025	882,000	11,096	893,096
	<u>\$ 11,276,163</u>	<u>\$ 855,283</u>	<u>\$ 12,131,446</u>

**Clean Water Fund  
Schedule of Fixed Assets  
Year Ending December 31, 2015**

	<u>Balance Jan. 1, 2015</u>	<u>Additions</u>	<u>Deductions</u>	<u>Balance Dec. 31, 2015</u>	<u>Accumulated Depreciation</u>	<u>Book Value</u>
Lands and Grounds	\$ 525,000	\$ 0	\$ 0	\$ 525,000	\$ 0	\$ 525,000
Infrastructure	38,988,025	0	0	38,988,025	1,582,543	37,405,482
Equipment and Tools	172,118	0	0	172,118	172,118	0
Work in Progress	<u>573,339</u>	<u>78,983</u>	<u>0</u>	<u>652,322</u>	<u>0</u>	<u>652,322</u>
<b>Total</b>	<u>\$ 40,258,482</u>	<u>\$ 78,983</u>	<u>\$ 0</u>	<u>\$ 40,337,465</u>	<u>\$ 1,754,661</u>	<u>\$ 38,582,804</u>

# **STORMWATER**

**Stormwater Utility**  
**Statement of Net Income**  
**For The Year Ended December 31, 2014 and 2015**  
**(Unaudited)**

	2014	2015
<b><u>Operating Revenue</u></b>		
Stormwater Charges	\$ 4,583,257	\$ 4,724,013
Other	44,575	37,936
<b>Total Operating Revenue</b>	<b>\$ 4,627,832</b>	<b>\$ 4,761,949</b>
<b><u>Operating Expense</u></b>		
Director's Office	60,507	85,618
Capital Related Expenses	587,310	650,763
Utility General Expense	438,717	350,470
Engineering	727,612	652,459
Utility Operations	1,684,425	1,782,433
Customer Service	202,678	202,685
<b>Total Operating Expense</b>	<b>(3,701,249)</b>	<b>(3,724,428)</b>
<b>Operating Income</b>	<b>926,583</b>	<b>1,037,521</b>
<b><u>Other Revenue</u></b>		
Capital Contributions	(1,397)	(2,129)
Gain or Loss on Sale of Fixed Assets	40,500	5,742
Transfer from Other Funds		
Administrative Billing Fee	1,758	0
Street Maintenance	0	4,920
Street Lighting	4,920	4,920
Interest Income	42,242	5,661
<b>Total Other Revenue</b>	<b>88,023</b>	<b>19,114</b>
<b><u>Other Expenses and Transfers</u></b>		
Bond Interest	53,208	54,244
Transfer to Other Funds		
Investing Activities	28,907	0
Non-Capital Improvements	49,635	28,578
Street Sweeping	464,885	450,000
Reimbursement for MIS Programmer	21,600	21,600
Reimbursement for Janitors	0	27,400
Other Transfers	5,575	0
<b>Total Other Expenses and Transfers</b>	<b>(623,810)</b>	<b>(581,822)</b>
<b>Net Income or Loss</b>	<b>\$ 390,796</b>	<b>\$ 474,813</b>

**Stormwater Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

	<b>Assets &amp; Deferred Outflows</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Assets</u></b>		
Cash	\$ 2,083,144	\$ 1,642,193
Accounts Receivable	443,117	465,924
Special Assessments	21,845	27,897
Due from Other Funds	68,866	9,221
Inventory	70,721	65,124
Prepays	0	26,638
<b>Total Current Assets</b>	<b>\$ 2,687,693</b>	<b>\$ 2,236,997</b>
<b><u>Utility Plant</u></b>		
In Service	16,888,488	18,299,233
Construction	1,311,598	942,257
Less Accumulated Depreciation	(3,625,930)	(3,938,454)
<b>Total Utility Plant Assets</b>	<b>14,574,156</b>	<b>15,303,036</b>
<b><u>Other Assets</u></b>		
Special Assessments Receivable	0	160
<b>Total Other Assets</b>	<b>0</b>	<b>160</b>
<b>Total Assets</b>	<b>17,261,849</b>	<b>17,540,193</b>
<b><u>Deferred Outflows</u></b>		
Deferred Loss from Debt Refunding	11,069	7,486
Deferred Pension Obligation Outflows	0	188,330
<b>Total Deferred Outflows</b>	<b>11,069</b>	<b>195,816</b>
<b>Total Assets and Deferred Outflows</b>	<b>\$ 17,272,918</b>	<b>\$ 17,736,009</b>



**Stormwater Utility**  
**Statement of Net Assets**  
**For The Year Ending December 31, 2014 and 2015**  
**(Unaudited)**

	<b>Liabilities &amp; Net Assets</b>	
	<b>2014</b>	<b>2015</b>
<b><u>Current Liabilities</u></b>		
Accounts Payable	\$ 28,576	\$ 49,409
Contracts Payable	47,696	247,994
Due to Other Funds	19,430	10,592
Due to Component Units	0	0
Due to Other Governments	12,453	588
Accrued Interest Payable	21,879	6,787
Accrued Salaries Payable	93,095	33,547
Vacations Payable	105,126	113,243
Unearned Revenue	15,603	14,953
Bonds Payable	<u>218,837</u>	<u>109,694</u>
<b>Total Current Liabilities (Payable from Current Assets)</b>	<b>\$ <u>562,695</u></b>	<b>\$ <u>586,807</u></b>
<b><u>Long Term Liabilities</u></b>		
Vacations Payable	0	4,985
Pension Liability	0	1,342,860
Net Other Post Employment Benefits	30,216	0
Bonds Payable	1,274,364	1,019,671
Less Unamortized Bond Discount or Premium	<u>15,172</u>	<u>47,840</u>
<b>Total Long Term Liabilities</b>	<b><u>1,319,752</u></b>	<b><u>2,415,356</u></b>
<b>Total Liabilities</b>	<b><u>1,882,447</u></b>	<b><u>3,002,163</u></b>
<b><u>Deferred Inflows</u></b>		
Deferred Pension Obligation Inflows	<u>0</u>	<u>178,769</u>
<b>Total Deferred Inflows</b>	<b><u>0</u></b>	<b><u>178,769</u></b>
<b><u>Net Assets</u></b>		
Invested in Capital Assets, Net of Related Debt	13,076,852	14,133,317
Unrestricted	<u>2,313,619</u>	<u>421,760</u>
<b>Total Net Assets</b>	<b><u>15,390,471</u></b>	<b><u>14,555,077</u></b>
<b>Total Liabilities and Net Assets</b>	<b>\$ <u><u>17,272,918</u></u></b>	<b>\$ <u><u>17,736,009</u></u></b>

**City of Duluth  
Stormwater Utility Bonds Payable  
December 31, 2015**

	<u>Issued</u>	<u>Issue Date</u>	<u>Final Maturity</u>	<u>Principal Outstanding 12/31/2014</u>	<u>Issued</u>	<u>Retired</u>	<u>Principal Outstanding 12/31/2015</u>
<b>Stormwater Utility</b>							
Bonds							
Revenue and General Obligation	\$ 1,705,000	9/7/2006	2/1/2022	\$ 1,045,000	\$ 0	\$ 1,045,000	\$ 0
Revenue and General Obligation Refunding	755,000	11/23/2010	2/1/2018	448,201	0	108,837	339,364
Revenue and General Obligation Refunding	790,000	11/5/2015	2/1/2022	<u>0</u>	<u>790,000</u>	<u>0</u>	<u>790,000</u>
Bond Total				\$ <u>1,493,201</u>	\$ <u>790,000</u>	\$ <u>1,153,837</u>	\$ <u>1,129,364</u>
<b>Total Stormwater Utility Bonds</b>				\$ <u>1,493,201</u>	\$ <u>790,000</u>	\$ <u>1,153,837</u>	\$ <u>1,129,364</u>

<b>Future Payments:</b>			
<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2016	\$ 109,694	\$ 22,700	\$ 132,394
2017	228,121	24,001	252,122
2018	241,549	18,184	259,733
2019	130,000	13,900	143,900
2020	135,000	10,575	145,575
2021	140,000	6,450	146,450
2022	145,000	2,175	147,175
	\$ <u>1,129,364</u>	\$ <u>97,985</u>	\$ <u>1,227,349</u>

**Stormwater Fund  
Schedule of Fixed Assets  
Year Ending December 31, 2015**

	<u>Balance Jan. 1, 2015</u>	<u>Additions</u>	<u>Deductions</u>	<u>Balance Dec. 31, 2015</u>	<u>Accumulated Depreciation</u>	<u>Book Value</u>
Lands and Grounds	\$ 8,481	\$ 0	\$ 0	\$ 8,481	\$ 0	\$ 8,481
Infrastructure	12,879,083	1,197,720	0	14,076,803	1,472,559	12,604,244
Buildings and Structures	1,401,897	0	0	1,401,897	322,436	1,079,461
Equipment and Tools	2,599,027	333,851	120,826	2,812,052	2,143,459	668,593
Work in Progress	<u>1,311,598</u>	<u>903,388</u>	<u>1,272,729</u>	<u>942,257</u>	<u>0</u>	<u>942,257</u>
Total	<u>\$ 18,200,086</u>	<u>\$ 2,434,959</u>	<u>\$ 1,393,555</u>	<u>\$ 19,241,490</u>	<u>\$ 3,938,454</u>	<u>\$ 15,303,036</u>

## LENGTH OF STORM SEWERS IN FEET 2015

Dia. Inch.	BR	CMP	CPD	CI/DI	HDPE	NCP	PPC	PVC	RCP	STN	STL	TP	VCP	UNK	Totals
3					840				56						896
4					33,150			508,833	1,021					133,657	676,661
6		2,822		127	245			19,286	61				3,120	17,646	43,307
8		90		150	201	48		6,166	459				756	3,269	11,139
10		1,130		294	39			2,951	8,997				2,274	22,079	37,764
12		40,302	5,761	1,469	35,833	780		21,006	384,491		65		1,103	62,505	553,315
13									47						47
14		59		38					232					301	630
15		2,504		25	3,999	169	52	2,454	165,868				1,095	37,628	213,794
16		89		803	515				212					781	2,400
17														91	91
18		5,799	181		5,047	50		1,971	108,944				616	25,206	147,814
20		50		90					1,079					3,898	5,117
21		297		63				5	36,582				571	5,150	42,668
22									747					282	1,029
23														38	38
24	277	3,121		184	1,154			612	69,650	160	67		396	17,987	93,608
26	1,733				160			48	3,874					12,759	18,574
27					28		44		12,997					1,096	14,165
28	662	160							3,530					2,122	6,474
29									335						335
30		484			1,958				35,141			143		6,154	43,880
31									133						133
32	372	67			24				2,520					753	3,736
33									711						711
34									293					326	619
36		1,119			232	460	226		27,460					9,373	38,870
38							14								14
40					42				627	659				210	1,538
42	204	64		304	46			188	9,105				85	1,524	11,520
44		158							3,402					345	3,905
45									320					455	775
46														77	77
48	228	545			56		52		14,708	623		78		4,983	21,273
50	240	24							284					36	584

## LENGTH OF STORM SEWERS IN FEET 2015

Dia. Inch.	BR	CMP	CPD	CI/DI	HDPE	NCP	PPC	PVC	RCP	STN	STL	TP	VCP	UNK	Totals
51									995						995
52									417						417
54									10,522					2,990	13,512
56									89					65	154
58									630						630
60	36	432				28	365		2,897	44				2,957	6,759
62									109					58	167
66									569	37				265	871
72		155					185		1,633	10				1,694	3,677
73														79	79
78		42							398						440
84	468	172						138	303	365					1,446
88	104								226						330
96									236					224	460
108									115						115
120									982					600	1,582
122									54						54
128									63	790				626	1,479
132									170					153	323
144									113						113
156									101						101
192									49						49
UNK	649	295			191			325	208	477				68,439	70,584
	4,973	59,980	5,942	3,547	83,760	1,535	938	563,983	914,765	3,165	132	221	10,016	448,881	2,101,838

Note: The Storm Sewer system also includes 10,541 catch basins and 4,978 manholes.

Pipe quantities are derived from Geographic Information System.

BR - Brick

CMP - Corrugated Metal

CPD - Corrugated Polyethylene Drainage Pipe

CI/DI - Cast or Ductile Iron

HDPE - High Density Polyethylene

NCP - Non-Reinforced Concrete Perforated Pipe

PPC - Pour-in-Place Concrete

PVC - Polyvinyl Chloride

RCP - Reinforced Concrete

STN - Stone

STL - Steel

TP - Thermoplastic

VCP - Vitrified Clay Pipe

UNK - Unknown

## DULUTH CREEKS AND STREAMS

Creek or Stream	Drainage Area (square miles)
Amity	16.60
58th Ave E	0.59
50th Ave E	0.63
47th Ave E	0.36
43rd Ave E	0.59
40th Ave E	0.45
38th Ave E	0.03
37th Ave E	0.13
34th Ave E	0.53
Tischer	7.30
Chester	7.30
Oregon	0.85
Brewery	1.66
Greys	0.63
Clarkhouse	1.00
Buckingham	1.10
Miller	9.70
Coffee	1.76
Merritt	2.30
32nd Ave W	0.73
41st Ave W	0.36
Keene	6.40

Creek or Stream	Drainage Area (square miles)
44th Ave W	0.78
49th Ave W	0.80
62nd Ave W	0.90
Kingsbury	8.60
68th Ave W	0.15
79th Ave W	0.14
82nd Ave W	0.26
Knowlton	1.56
84th Ave W	0.23
86th Ave W	0.08
Gogebic Street	0.34
Lenroot Street	0.61
Stewart Street	1.97
Morgan Park	1.31
U. S. Steel	2.70
Gary Street	0.33
Bowser Street	0.08
Heard Street	0.06
Sargent	3.30
Fond du Lac	0.58
Mission	10.30
Lester River	35.60

## MPCA MS4 CREEK DATA

MS4 Discharge Waterbodies	Water Quality Status	Cause of Impairment	TMDL Development Status	Other
Lake Superior	ORVW Impaired	Mercury (fish tissue) PCB (fish tissue)	Not started	Restricted Discharge Area
St Louis River	Impaired	Mercury (fish tissue and water column) PCB (fish tissue and water column) DDT Dieldrin Dioxin Toxaphene Fecal Coliform Aquatic Macroinvertebrate Bioassessments	Not started*	Area of Concern & Protected Water
Amity Creek	Impaired	Turbidity	Underway	Trout stream
E Br Amity	Impaired	Turbidity	Underway	Trout stream
Lester River	Impaired	Turbidity & Mercury (water column)	Underway (Turbidity)	Trout stream
Twin Ponds- Buckingham Creek	Impaired (Upper Twin Ponds)	PCB (fish tissue)- Upper Twin Mercury (fish tissue)- South Twin	Not started	Trout stream
Miller Creek	Impaired	Temperature Lack of coldwater assemblage Aquatic Macroinvertebrates E. coli Chloride	Study started for temp. and Lack of coldwater assemblage TMDL started	Trout stream
Chester Creek		Mercury		Trout stream
E Br Chester		E. coli		Trout stream
Keene Creek		E. coli		Trout stream
Kingsbury Creek		Fish Bioassessment Aquatic Macroinvertebrates		Trout stream
Mission Creek	No impairments			Trout stream
Sergeant Creek		E. coli		Trout stream
Stewart Creek		E. coli		Trout stream
Tischer Creek		E. coli		Trout stream
58th Ave E				
50th Ave E				
47th Ave E				

## MPCA MS4 CREEK DATA

MS4 Discharge Waterbodies	Water Quality Status	Cause of Impairment	TMDL Development Status	Other
43rd Ave E				
38th Ave E				
37th Ave E				
34th Ave E				
Oregon				
Brewery				
Greys				
Clarkhouse				
Coffee				Trout stream
Merritt				Trout stream
32nd Ave W				
41st Ave W				
44th Ave W				
49th Ave W				
62nd Ave W				
68th Ave W				
79th Ave W				
82nd Ave W				
Knowlton				Trout stream
84th Ave W				
85th Ave W				
Gogebic St				
Lenroot St				
Morgan Park				
U.S. Steel				
Gary St				
Bowser				
Heard St				

\*Not listed as underway in the MPCA status file:

<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/impaired-waters-list.html>



## STORMWATER UTILITY ACTIVITIES 2015

ACTIVITY	WORK COMPLETED
Ditch line (dug or repaired and seeded or sodded)	10,322 ft
Illicit discharges detected and removed	11
Line flushing	3,330 ft
Sediment trap cleaning	12 yds
Stream restoration	13 project sites
Televising storm sewer pipe	15,575 ft
Manhole repair or rehab	24
Catch basin repair or rehab	33
Culverts repaired or replaced	122
Steamed culverts and ditches blocked with ice	52
Outfalls inspected	21%
Structural sedimentation basins inspected	100%
Presentations	14
Radio, television and newspaper articles	3