

CITY OF DULUTH - 2013, 2012 and 2011 ENERGY USE REDUCTIONS and ENERGY COST SAVINGS from small retrofits in City-owned buildings and other savings

CITY of DULUTH									
CITY OPERATIONS ENERGY ACTION PLAN		APRIL 4 2014 REPORT							
2013 ENERGY & COST SAVINGS in EXISTING BUILDINGS and Facilities									
LOCATION	KW REDUCED	KWH REDUCED	ELECTRIC COST SAVED	O&M COSTS SAVED	THERMS	NATURAL GAS COST SAVED	WATER & SEWER CHARGES	TOTAL FULL YEAR COST SAVINGS	
LIGHTING - BUILDING EXTERIOR and INDOOR									
2013	Wheeler Fieldhouse Exit Lights	0.4	3027	\$184	\$6			\$130	
2013	Fire Hall #1 - Lower Garage lights/sensors	2.4	8157	\$602	\$105			\$707	
2013	Fire Hall #1 - LED round fixtures in halls and rooms	0.1	242	\$19	\$10				
2013	Fire Hall #2 - LED round fixtures in halls and rooms	0.0	0	\$0	\$10			\$10	
2013	Fire Hall #2 - Sensors in apparatus garage		2573	\$136	\$0			\$136	
2013	Fire Hall #2 - LED fixtures on parking lot poles	0.6	2310	\$161	\$10			\$171	
2013	Animal Shelter - Wall pack (was not operating)	0.5	1819	\$133	\$10			\$143	
2013	Animal Shelter - T12s to T8s -	0.1	483	\$34	\$5			\$39	
2013	Washington Center lamp replacements	5.0	10628	\$349	\$130			\$1,079	
2013	City Center West - West Branch Library - T12s to T8s retrofit- 3 lamps to 2 lamp	5.3	13524	\$1,030	\$49			\$1,139	
2013	City Center West - West Branch Library - Utube to LED 2 x 2 panels, 21 Watt	0.8	2053	\$166	\$45			\$211	
2013	City Center West - West Branch Library - Parking Lot lights to LED	3.1	12802	\$834	\$20			\$914	
2013	Facilities Maintenance inside lighting	1.3	6573	\$481	\$18			\$499	
2013	Facilities Maintenance - motion sensors - utility bay and lower garage		15408	\$815	\$15			\$830	
2013	Piedmont CC T12 to T8 and LED wall packs	0.7	1777	\$143	\$22			\$165	
2013	Duluth Heights - LED wallpack	0.1	355	\$24	\$5			\$29	
LIGHTING - OUTDOOR									
2013	42nd Ave W/Parks Tool House wall packs	0.6	2373	\$166	\$10			\$176	
2013	Grassy Point - installed LED lamps in tunnel fixtures	0.9	3854	\$266	\$40			\$306	
2013	LEDs - Lakewalk Path Lighting Pilot - 12 fixtures (MN Power rebate fom calc)	2.9	12036	\$5,376	\$49			\$5,425	
2013	LEDs - Bayfront Music Stage Column Lighting	4.4	4384	\$540	\$40			\$580	
2013	LEDs or Fluorescents - East Superior Street Parking Ramp Lighting - CONTROLS only		8147	\$613	\$50			\$663	
2013	LED - Lund Tool House- LED wall pack over man door	0.1	355	\$24	\$5			\$29	
BOILERS & FURNACES and assoc.WINDOWS, INSULATION, OVERHEAD DOORS, WATER HEATERS									
2013	Fire Hall #2 - 285 MBTU BOILERS, installed 2					1,000	\$1,200		
2013	Parks Tool House - 285 MBTU BOILERS installed 2 - east side					700	\$550		
2013	Parks Tool House - Tankless Water Heater					300	\$250		
2013	Central Hillside Community Center window replacement - single to double pane low E								
2013	1-Overhead Door at Animal Shelter								
2013	1- Overhead Door at 40th Ave W. Tool House - washbay								
OTHER MEASURES									
2013	City Hall Entrance Door Replacement							\$0	
2013	Central Hillside Windows and Doors							\$0	
2013	City Hall - MIS area new chiller w economizer option with VFD	2.1	156375	\$6,052	\$425			\$6,477	
2013	Animal Shelter - Refrigerator replacements	0.3	1547	\$102	\$15			\$117	
2013	Charge Point EV Charging Station - Depot Ramp			delivered				\$0	
SUBTOTAL		32.2	270,862	\$18,971	\$1,093	2,000	\$2,000	\$0	\$22,063
2013	White Roof at City Center West	0							
2013	Small jobs - weatherization, doors, timers, sensors	0	1,000	\$1,500	\$30	est		\$1,530	
SUBTOTAL		0.0	1,000	\$1,500	\$30				\$1,530
2013	estimate total energy savings in buildings for 2013	32.2	271,862	\$ 20,471	\$ 1,123	2,000	\$2,000	\$0	\$ 23,593
2013 TOTALS		32.2	271,862	\$20,471	\$1,123	2,000	\$2,000	\$0	\$23,593
2012 TOTALS		104.7	438,191	\$43,079	\$2,869	6,400	\$5,253		\$51,201
2011 TOTALS		91.5	288,334	\$22,720	\$50	7,268	\$8,211	6307	\$37,238
COMBINED 2011, 2012 and 2013 TOTALS		228.4	1,058,447	\$86,270	\$4,041	15,668	\$15,464	\$6,307	\$112,033

CITY of DULUTH										
CITY OPERATIONS ENERGY ACTION PLAN										
2012 ENERGY & COST SAVINGS in EXISTING BUILDINGS & FACILITIES with Savings Summary for 2011-2012										
	LOCATION	KW REDUCED	kWh REDUCED	ELECTRIC COST SAVED	O&M COSTS SAVED	THERMS	NATURAL GAS COST SAVED	WATER CHARGES	SEWER CHARGES or Icing Rinks	TOTAL FULL YEAR COST SAVINGS
2012										
2012	Central Hillside Comm Center - replace 2 HPS250 on poles with LED 100w Floods	0.4	1624	\$115	\$10	-	-	-		\$125
2012	Central Hillside Comm Center - replace 2 70HPS with 42w CFLs (under rebate threshold)	0.1	424	\$30		-	-	-		\$30
2012	Chester Bowl - LED floodlights for ski hill	7.2	7536	\$903	\$115					\$1,018
2012	City Center West - exterior LED wall packs	2.4	9720	\$687	\$75					\$762
2012	City Center West - interior lighting replacement	1.4	4859	\$355	\$118					\$473
2012	City Hall - Parks and Recs LED and 20w lamps in former police offices	1.1	2176	\$192	\$10					\$202
2012	Depot Ramp Lighting - Changed to LED - on City Circuit	8.7	48,811	\$3,204	\$183	-	-	-		\$3,387
2012	Fire Hall #1 - 2 LED floodlights at stairs and flagpole	0.2	992	\$70	\$10					\$80
2012	Fire Hall #1 - Apparatus Bay (Garage) lights/sensors	3.0	25498	\$1,560	\$108					\$1,668
2012	Fire Hall #2 - Apparatus Bay (Garage) lights	1.6	8086	\$540	\$8	-	-	-		\$548
2012	Fire Hall #4 - Apparatus Bay (Garage) lights/sensors	1.5	11921	\$740	\$7					\$747
2012	Fire Hall 7 - Apparatus Bay (Garage) lights/sensors	1.5	12679	\$781	\$47					\$827
2012	Fire Hall #8 - Apparatus Bay (Garage) lights/sensors	1.3	6592	\$444	\$15					\$459
2012	Fire Hall #11 - Apparatus Bay (Garage) lights	0.6	2175	\$157	\$4					\$161
2012	Fryberger Arena - Hockey Assoc purchased fixtures/City purchased T5 lamps	4.0	11,610	\$896	\$16					\$912
2012	Hillside Sport Court (under rebate threshold)	1.6	8	\$114		-	-	-		\$114
2012	IndianPoint Campground	1.6	6353	\$452	\$33	-	-	-		\$484
2012	Lafayette Square Community Center	0.3	1323	\$98	\$15					\$113
2012	Lincoln Park Pavilion	1.0	3920	\$277	\$20					\$297
2012	Medical District Parking Ramp - replaced 40w CFLs with 32w CFLs (2 rebates)	0.6	5466	\$334	\$39					\$373
2012	Norton Park Community Center - lighting and water heater replacement	2.9	4147	\$423	\$166	-	-	-		\$589
2012	Norton Park Community Center - eliminated one refrigerator		666	\$35						\$35
2012	Park Point Beach House - 24 CFLs by Rick Hanson		1066	\$119						\$119
2012	Parks Toolhouse - Garage fixtures	1.3	6203	\$418	\$57					\$475
2012	Parks Refrigerators	2.5	3627	\$367	\$150					\$517
2012	Washington Center									\$0
2012	Wheeler Garages - 26.5 LED wallpacks	0.2	868	\$59	\$1					
2012	Wheeler Field House and West Duluth Tools Refrigerators	0.0	1332	\$71	\$10					\$81
	SUBTOTAL	47.0	189,682	\$13,441	\$1,215	-	\$0	\$0		\$14,655
2012	Elevator replacement - measured new elevator energy use in 2013	19.8	66,572	\$4,016	150					\$4,166
	BOILERS & FURNACES and assoc.WINDOWS, INSULATION, OVERHEAD DOORS, WATER HEATERS									
2012	Furnaces at Fire Hall #7					1,030	\$1,192	0		\$1,192
	Furnaces or boilers at Fire Hall #11					704	\$434			\$434
	Furnaces or boilers at Parks Tool House					600	\$ 492			\$492
	Windows at Parks Tool House					1326	\$ 818			\$818
	Insulated Garage doors					181	\$ 119			\$119
2012	Furnace at Fryberger Arena					1,586	\$1,301	0		\$1,301
2012	Water Heater at Fryberger Arena					973	\$798			\$798
	OTHER MEASURES									
2012	City Hall - timer on Ventilation Fans or shut off fans nightly	10.0	156517	\$15,652	\$0					
2012	Small jobs - weatherization, doors, timers, sensors		1,000	\$3,000	\$30		\$100			\$3,130
	SUBTOTAL	29.8	224,089	\$22,668	\$ 180	6,400	\$5,253	0		\$28,101
	Estimate total energy savings in buildings for 2012	76.8	413,771	\$36,108	\$ 1,395	6400	\$5,253			\$42,756
2012	MIS Computers and Monitors -for 2010-11 submitted in 2012	27.9	84,420	\$6,971	\$1,474					\$8,445
	2012 TOTALS	104.7	498,191	\$43,079	\$2,869	6400	\$5,253			\$51,201
	2011 TOTALS	91.5	288,394	\$22,720	\$50	7268	\$8,211	\$ 179	\$6,128	\$37,238
	COMBINED 2011 & 2012 TOTALS	196.3	786,585	\$65,799	\$2,919	13668	\$13,464	\$ 179	\$6,128	\$88,439

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2011 ENERGY & COST SAVINGS in EXISTING BUILDINGS and Facilities									
	LOCATION	Kw REDUCED	kWh REDUCED	ELECTRIC COST SAVED	THERMS	NATURAL GAS COST SAVED	WATER CHARGES	SEWER CHARGES for Icing Pinks	TOTAL FULL YEAR COST SAVINGS
2011	Bayfront Comfort Station	0.15	522	\$29					\$29
2011	Central Hillside Comm Center - replace 190 with 26'w Compact Floods	2.4	6688	\$456					\$456
2011	Chester Bowl - fixtures, ballasts, lamps and LED fixture	6.1	8265	\$555	144	\$149			\$704
2011	City Center West	4.9	7899	\$621					\$621
2011	City Hall	0.1	290	\$25					\$25
2011	CONEY RAMP - changed to LED lighting - no sensors	3.0	20655	\$1,307					\$1,307
2011	Duluth Heights Community Center	1.9	3861	\$336				\$1,660	\$1,996
2011	Endion Station - 2 thermostats	1.7	811	\$142	292	\$338			\$480
2011	Enger Park Golf Course	1.7	6521	\$454	429	\$532	\$10		\$996
2011	Facilities Maintenance Bldg	1.4	4746	\$347					\$347
2011	Fairmont Park Comfort Station			\$11			\$46		\$57
2011	Fire Hall #1	6.2	13849	\$1,168					\$1,168
2011	Fire Hall #4	2.4	9051	\$650					\$650
2011	Fire Hall #5	0.2	1268	\$90					\$90
2011	Fire Hall #6	0.7	2637	\$187					\$187
2011	Fire Hall #7	1.4	5213	\$353					\$353
2011	FireHall 10/Comm Club	2.5	3092	\$322					\$322
2011	Fleet Services Building	15.9	69789	\$4,823	217	\$251			\$5,074
2011	Goodfellowship Comm Center	2.8	8785	\$660				\$952	\$1,612
2011	Irving Community Center	1.6	1813	\$186					\$186
2011	Lafayette Comm Center	2.3	1387	\$224					\$224
2011	Lakeview Chalet	1.3	1823	\$186					\$186
2011	Lester Park Golf Course	3.2	10954	\$709					\$709
2011	Library Tunnel - thermostat								\$0
2011	Lincoln Park Community Club	0.2	450	\$31					\$31
2011	Longview Tennis Court	0.6	563	\$40					\$40
2011	Lower Chester Comm Center	1.0	1556	\$147	51	\$52			\$199
2011	Lund Toolhouse						\$77		\$77
2011	Medical District PARKING RAMP	0.3	5417	\$292	5,000	\$5,785			\$6,077
2011	Medical District Skywalk - reduced daytime fixtures per design	2.9	13317	\$913					\$913
2011	Merritt Community Center							\$1,072	\$1,072
2011	Norton Park Community Center	0.3	46	\$20	51	\$52			\$72
2011	Observation Hill Comm Center	0.2	1286	\$79		0			\$79
2011	Park Point Beach House	0.2	1130	\$76					\$76
2011	Parks Toolhouse	3.8	7580	\$656					\$656
2011	Piedmont Community Center							\$994	\$994
2011	Portman Community Center	0.6	861	\$81			\$46	\$1,450	\$1,577
2011	Sail Sculptor West of Mail Library	1.5	5800	\$410					\$410
2011	Tech Village Parking Ramp	1.3	11177	\$2,141					\$2,141
2011	Washington Center	0.7	14282	\$798					\$798
2011	Water & Gas Distribution Center	4.9	11992	\$886					\$886
2011	West Duluth Toolhouse	2.3	5184	\$393					\$393
2011	Wheeler Field House - thermostat				684	\$552			\$552
2011	Woodland Community Center	0.9	1392	\$104	295	\$242			\$346
	SUB TOTALS	84.2	270,038	\$20,775	6,868	\$7,711	\$179	\$6,128	\$34,793
2011	Highland Pumping Station - Public Utilities		12,354	\$1,112					\$1,112
2011	Computer Replacements - MIS								\$0
2011	Observation Hill - Furnace replacement - est \$500 savings for furnace				400	\$ 500			\$500
2011	Library - LCD Computer Screens - MIS								\$0
2011	Wheeler Scoreboard - submitted rebate in 2013	7.3	6,002	\$833					\$833
	2011 TOTALS	91.5	288,394	\$22,720	7,268	\$8,211	\$179	\$6,128	\$37,238