

## Regional Indicators Initiative Project: City of St. Anthony

Updated 2/12/13

		2008	2009	2010	2011	2012
<b>Population<sup>1</sup></b>						
Residents		8,437	8,514	8,226	8,333	8,152
Jobs		2,989	3,003	2,984	3,145	3,253
Households		4,079	4,136	3,848	3,881	4,062
<b>Pop. Density (Res/sq. mi.)<sup>2</sup></b>						
	2.25	3,750	3,784	3,656	3,704	3,623
<b>Energy<sup>3</sup></b>						
Cooling Degree Days <sup>4</sup>		781	719	1,014	1,023	0
Electricity (MWh)		25,371	24,106	25,457	26,031	0
Res		40,739	39,178	40,507	40,725	0
Com/Ind		<b>66,110</b>	<b>63,284</b>	<b>65,964</b>	<b>66,756</b>	<b>0</b>
Total						
Heating Degree Days <sup>4</sup>		8,509	8,001	7,367	7,565	0
Therms		2,649,613	2,603,170	2,286,464	2,529,606	0
Res		2,495,585	2,459,402	2,297,638	2,448,941	0
Com/Ind		<b>5,145,198</b>	<b>5,062,572</b>	<b>4,584,102</b>	<b>4,978,547</b>	<b>0</b>
Total						
Total Energy (MMBtu)		351,526	342,566	315,506	341,779	0
Res		388,560	379,617	367,975	383,846	0
Com/Ind		<b>740,086</b>	<b>722,183</b>	<b>683,480</b>	<b>725,625</b>	<b>0</b>
Total						
Res. Energy (kBtu/household/day)		236	227	225	241	0
Com/Ind Energy (kBtu/job/day)		356	346	338	334	0
Total Energy (kBtu/person/day)		240	232	228	239	0
<b>Water<sup>5</sup></b>						
Precipitation (inches)		24.5	25.4	36.9	32.9	0.0
Potable Water (gallons)		232,425,677	230,170,631	198,618,344	203,827,957	0
Res		75,012,576	77,514,778	61,231,519	64,704,694	0
Com/Ind		<b>307,438,253</b>	<b>307,685,409</b>	<b>259,849,863</b>	<b>268,532,651</b>	<b>0</b>
Total						
Res. Water (gal./household/day)		156	152	141	144	0
Com/Ind Water (gal./job/day)		69	71	56	56	0
Total Water (gal./person/day)		100	99	87	88	0
<b>Travel<sup>6</sup></b>						
Vehicle Miles Traveled		31,587,264	29,304,390	30,604,520	30,604,520	0
Travel (VMT/person/day)		10.3	9.4	10.2	10.1	0.0
<b>Waste (pounds)<sup>7</sup></b>						
Recycled		9,027,476	8,918,424	8,732,822	8,542,420	0
Incinerated		6,538,940	6,264,966	5,443,761	6,115,010	0
Landfill		5,582,433	7,926,978	8,320,299	4,537,761	0
Total		<b>21,148,849</b>	<b>23,110,368</b>	<b>22,496,882</b>	<b>19,195,191</b>	<b>0</b>
Waste (pounds/person/day)		6.9	7.4	7.5	6.3	0.0
<b>Subtotal of Primary Sources Greenhouse Gas Emissions (CO<sub>2</sub>e tonnes)<sup>8</sup></b>						
Energy		66,612	62,516	58,501	62,597	0
VMT		15,020	13,714	14,096	14,078	0
Waste		2,752	2,960	2,519	1,970	0
Total		<b>84,383</b>	<b>79,191</b>	<b>75,116</b>	<b>78,645</b>	<b>0</b>
CO <sub>2</sub> e (tonnes/person/year)		10.0	9.3	9.1	9.4	0.0
<b>Total Greenhouse Gas Emissions (CO<sub>2</sub>e tonnes)<sup>9</sup></b>						
Total		<b>98,067</b>	<b>90,984</b>	<b>85,740</b>	<b>89,044</b>	<b>0</b>
CO <sub>2</sub> e (tonnes/person/year)		11.6	10.7	10.4	10.7	0.0
<b>Total Costs (\$) <sup>10</sup></b>						
Energy		10,941,995	9,258,173	9,229,077	9,779,090	0
Water		68,656	73,276	62,180	67,016	0
VMT		5,741,736	3,847,155	4,730,922	6,021,522	0
Waste		1,744,219	1,880,956	1,821,841	1,590,157	0
Total		<b>18,496,606</b>	<b>15,059,561</b>	<b>15,844,020</b>	<b>17,457,785</b>	<b>0</b>
Cost (\$/person/year)		2,192	1,769	1,926	2,095	0

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### Keyed Notes on Sources:

1. Resident and household data from Metropolitan Council of the Twin Cities, [http://stats.metc.state.mn.us/data\\_download/DD\\_start.aspx](http://stats.metc.state.mn.us/data_download/DD_start.aspx); Job data from North American Industry Classification System (NAICS) and the Quarterly Census of Employment Wages (QCEW), <http://www.positivelyminnesota.com/apps/lmi/qcew/ResultsDisp.aspx>
2. Land area (first cell to right) from U.S. Census Bureau, 2010, <http://quickfacts.census.gov/qfd/states/27000.html>
3. Sum of total energy consumed in city. Source: Xcel Energy for electricity and CenterPoint Energy for natural gas.
4. Heating and Cooling Degree Days from Degree Days.net, Station ID: KMIC, <http://www.degreedays.net>
5. Precipitation from Minnesota Climatology Working Group, State Climatology Office - DNR Division of Ecological and Water Resources, Zip code: 55418. <http://climate.umn.edu/wetland/wetland.asp>. Potable water data from city.
6. Vehicle miles traveled from Minnesota Department of Transportation, <http://www.dot.state.mn.us/roadway/data/reports/vmt.html>. Vehicle fuel consumption by fuel type and GHG emissions rates for Minnesota from *City of Minneapolis Greenhouse Gas Inventories: A Geographic Inventory, City of Minneapolis*, 5/11/12.
7. Per-capita amounts by waste management method for the county are used to estimate per-capita amounts for the city. Waste amounts from Minnesota Pollution Control Agency SCORE reports (<http://www.pca.state.mn.us/index.php/data/score/recycling-and-solid-waste-data.html>) and county Waste Certification reports. Waste composition from: *Final Report, Statewide MSW Composition Study: A Study of Discards in the State of Minnesota*, Solid Waste Management Coordinating Board, Minnesota Pollution Control Agency, March 2000.
8. Subtotal of Primary Sources include greenhouse gas emissions from energy consumption, vehicle miles traveled, and solid waste management in units of carbon dioxide equivalents (CO<sub>2</sub>e). Primary sources for these estimates are as follows:
  - a) CO<sub>2</sub> emission factors for electricity and natural gas from the utility companies. Emission factors for other greenhouse gases from the *International Local Government Greenhouse Gas Emissions Analysis Protocol*, Version 1.1, May 2010, produced by the United Nations, ICLEI - Local Governments for Sustainability and The Climate Registry.
  - b) Calculation of emissions from vehicle miles traveled (VMT) involve four primary data sources and calculations that include VMT, national vehicle fleet mix, average fuel economy statistics, and Minnesota fuel characteristics. Data sources include the federal and State departments of transportation, the USEPA, the Minnesota Pollution Control Agency, the Clean Air Climate Protection (CACP) software, 2009, developed by ICLEI--Local Governments for Sustainability, and the *City of Minneapolis Greenhouse Gas Inventories: A Geographic Inventory*, City of Minneapolis, 5/11/12.
  - c) Calculations of solid waste emissions from landfilling are based on the waste-in-place estimates from the Clean Air Climate Protection (CACP) software, 2009, developed by ICLEI--Local Governments for Sustainability.
  - d) Calculations of emissions from the combustion of solid waste are from the *City of Minneapolis Greenhouse Gas Inventories: A Geographic Inventory*, City of Minneapolis, 5/11/12.
9. In order to comply with the reporting requirements of the *U.S. ICLEI Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*, October 2012, "Total Greenhouse Gas Emissions" also include the city's share of emissions from the Minneapolis St. Paul International Airport (MSP) and from the Metro Wastewater Treatment Plant. MSP Airport emissions are from: *Greenhouse Gas Report: Metropolitan Airports Commission*, December 2010. <http://www.msairport.com/docs/about-msp/sustainability/MSP-2010-GHG-Report-Jan-2011.aspx>. The city's share of MSP emissions are from the Metropolitan Council of the Twin Cities. Source for the city's share of wastewater treatment emissions is the Metropolitan Council Environmental Services.
10. Total costs include costs associated with the retail cost of delivered energy; the fuel costs for vehicle miles traveled; statewide average costs of solid waste management for combustion (incineration and RDF processing), recycling, and landfilling; and electricity and natural gas costs of producing and distributing potable water. Primary sources not already listed above include the following:
  - a) Energy costs (electricity, natural gas, fuel oil, coal): Xcel Energy; the US Energy Information Administration, [http://www.eia.gov/dnav/ng/ng\\_pri\\_sum\\_dcu\\_smn\\_a.htm](http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_smn_a.htm); and State Electricity Profiles 2010, January 2012, U.S. Energy Information Administration, <http://www.eia.gov/electricity/state/pdf/sep2010.pdf>; "Residual Fuel Oil Prices by Sales Type" Source: US Energy Information Administration: [http://www.eia.gov/dnav/pet/PET\\_PRI\\_RESID\\_DCU\\_R20\\_M.htm](http://www.eia.gov/dnav/pet/PET_PRI_RESID_DCU_R20_M.htm). Prices for sub-bituminous coal from "Table 7.9 Coal Prices, 1949-2011." Source: US Energy Information Administration: <http://www.eia.gov/coal/data.cfm#prices>
  - b) Vehicle miles traveled costs: Total fuel costs are derived in Table 4b in the Conversion Factors spreadsheet. Primary sources: Weekly Retail Gasoline and Diesel Prices, Minnesota (all grades). Source: US Energy Information Agency, [http://www.eia.gov/dnav/pet/pet\\_pri\\_gnd\\_dcu\\_smn\\_a.htm](http://www.eia.gov/dnav/pet/pet_pri_gnd_dcu_smn_a.htm); Clean Cities Alternative Fuel Price Report, US Department of Energy, <http://www.afdc.energy.gov/publications/search/keyword/?q=alternative%20fuel%20price%20report>; Midwest #2 Diesel Retail Prices: Source: US Energy Information Agency, [http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pets&s=emd\\_epd2d\\_pte\\_r20\\_dpg&f=a](http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pets&s=emd_epd2d_pte_r20_dpg&f=a)
  - c) Solid waste management costs: Source: "2008 Payments and Spending for Integrated Solid Waste Management (ISWM) in Minnesota," Sig Scheurle, Minnesota Pollution Control Agency.
  - d) Potable water costs: Energy consumption rate per gallon is based on the collective experience of numerous US cities as reported in the *Climate and Air Pollution Planning Assistant*, by ICLEI Local Governments for Sustainability USA, "Low maintenance landscaping" model. Cost per gallon based on the statewide average, commercial/industrial electricity rate (cited above).

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Detailed Greenhouse Gas Assessment Summary														
Updated: 1/8/13														
Greenhouse Gas Emission Sources	2008		2009		GHG Change from 2008		2010		GHG Change from 2009		2011		2012	
	Amount	GHG Emissions (tonnes)	Amount	GHG Emissions (tonnes)	Amount	Percent Change	Amount	GHG Emissions (tonnes)	Amount	Percent Change	Amount	GHG Emissions (tonnes)	Amount	GHG Emissions (tonnes)
<b>Energy:</b>														
Electricity (MWh):	66,110	38,316	63,284	34,675	(3,641)	-10%	65,964	33,291	(1,385)	-4%	66,756	35,218	-	-
Residential (MWh)	25,371	14,566	24,106	13,079	(1,487)	-10%	25,457	12,726	(353)	-3%	26,031	13,601	-	-
Commercial & Industrial (MWh)	40,579	23,657	38,961	21,476	(2,180)	-9%	40,244	20,431	(1,046)	-5%	40,489	21,492	-	-
Public street and highway lighting	160	93	217	120	26	28%	264	134	14	12%	236	125	-	-
Natural gas (therms)	5,145,198	28,296	5,062,572	27,841	(454)	-2%	4,584,102	25,210	(2,631)	-9%	4,978,547	27,379	-	-
Residential	2,649,613	14,571	2,603,170	14,316	(255)	-2%	2,286,464	12,574	(1,742)	-12%	2,529,606	13,911	-	-
Commercial and industrial	2,495,585	13,724	2,459,402	13,525	(199)	-1%	2,297,638	12,636	(890)	-7%	2,448,941	13,468	-	-
<b>Subtotal GHG emissions</b>		<b>66,612</b>		<b>62,516</b>	<b>(4,095)</b>	<b>-6%</b>		<b>58,501</b>	<b>(4,016)</b>	<b>-6%</b>		<b>62,597</b>		-
Percent of total Community emissions		68%		68%		1%		68%		0%		70%		#DIV/0!
Per-capita GHG emissions		7.9		7.3	(0.6)	-7%		7.1	(0.231)	-3%		7.5		0.0
Normalized for weather		66,450		64,338	(2,112)	-3%		58,577	(5,761)	-9%		62,028		#DIV/0!
Weather-normalized per-capita emissions		7.9		7.6	(0.3)	-4%		7.1	(0)	-6%		7.4		#DIV/0!
<b>Transportation:</b>														
Vehicle miles traveled	31,587,264	15,020	29,304,390	13,714	(1,305)	-8.7%	30,604,520	14,096	382	3%	30,604,520	14,078	-	-
Share of MSP Airport emissions		13,049		11,210	(1,839)	-14%		10,063	(1,147)	-10%		9,675		-
<b>Subtotal GHG emissions</b>		<b>28,069</b>		<b>24,924</b>	<b>(3,144)</b>	<b>-11%</b>		<b>24,159</b>	<b>(765)</b>	<b>-3%</b>		<b>23,753</b>		-
Percent of total Community emissions		29%		27%		-1%		28%		1%		1206%		#DIV/0!
Per-capita GHG emissions		3.3		2.9	(0.4)	-12%		2.9	0.0	0%		2.9		0.0
<b>Solid Waste Management</b>														
Estimated total MSW managed (US tons)	10,574	2,752	11,555	2,960	208.4	8%	11,248	2,519	(442)	-15%	9,598	1,970	-	-
Percent of total Community emissions		2.8%		3.3%		0.4%		2.9%		-0.3%		2.2%		#DIV/0!
Per-capita GHG emissions		0.3		0.3	0.02	7%		0.3	(0.04)	-12%		0.2		#DIV/0!
<b>City share of wastewater treatment emissions</b>		<b>635</b>		<b>583</b>	<b>(52)</b>	<b>-8%</b>		<b>561</b>	<b>(22)</b>	<b>-4%</b>		<b>724</b>		-
Percent of total Community emissions		0.6%		0.6%		-0.01%		0.7%		0.01%		0.9%		#DIV/0!
Per-capita GHG emissions		0.1		0.1	(0.01)	-9%		0.1	(0.00)	0%		0.1		0.0
<b>Community Emissions Total:</b>		<b>98,067</b>		<b>90,984</b>	<b>(7,083)</b>	<b>-7%</b>		<b>85,740</b>	<b>(5,244)</b>	<b>-6%</b>		<b>89,044</b>		-
Per-capita emissions		11.6		10.7	(0.9)	-8%		10.4	(0.3)	-2%		10.7		-
Normalized for weather		84,856		81,596	(3,261)	-4%		75,754	(5,842)	-7%		78,800		#DIV/0!
Weather-normalized per-capita emissions		10.1		9.6	(0.5)	-5%		9.2	(0)	-4%		9.5		#DIV/0!
<b>Other factors:</b>														
City population	8,437		8,514		77	0.9%	8,226		(288)	-3%	8,333		8,152	
NSP Minnesota GHG emission factor (tonnes GHG/MWh)	0.583		0.551		-0.032	-5%	0.508		(0.044)	-8%				
Seasonal cooling degree days	781		719		-62	-8%	1,014		295	41%	1,023		-	
Seasonal heating degree days	8,509		8,001		-508	-6%	7,367		-634	-8%	7,565		-	
<b>Sector Share of GHG and Energy, 2010</b>	<b>GHG (tonnes)</b>	<b>Percent of Total GHG</b>	<b>MMBtu</b>	<b>Percent of Total MMBtu</b>	<b>Percent of Total Costs</b>	<b>Percent of GHG from Building Energy</b>								
						<b>Residential</b>	<b>Commercial</b>	<b>Total</b>						
Electricity	33,291	39%	225,070	25%	36%	22%	35%	57%						
Natural Gas	25,210	29%	458,410	52%	22%	21%	22%	43%						
Vehicle Miles Traveled	14,096	16%	206,305	23%	30%									
Airport share	10,063	12%	not applicable	not applicable	not applicable									
Solid Waste	2,519	3%	not applicable	not applicable	11.5%									
City Share of Wastewater Treatment	561	1%	not applicable	not applicable	0.4%									
Potable Water	not applicable	not applicable	not applicable	not applicable	0.2%									
<b>Total</b>	<b>85,740</b>	<b>100%</b>	<b>889,785</b>	<b>100%</b>	<b>100%</b>	<b>43%</b>	<b>57%</b>	<b>100%</b>						

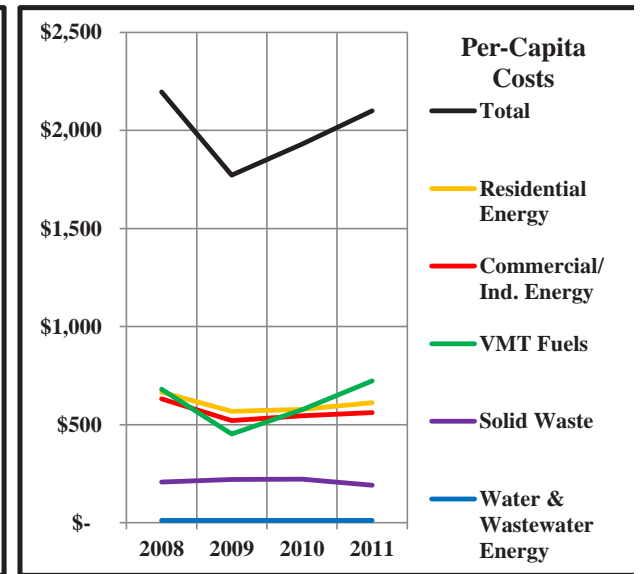
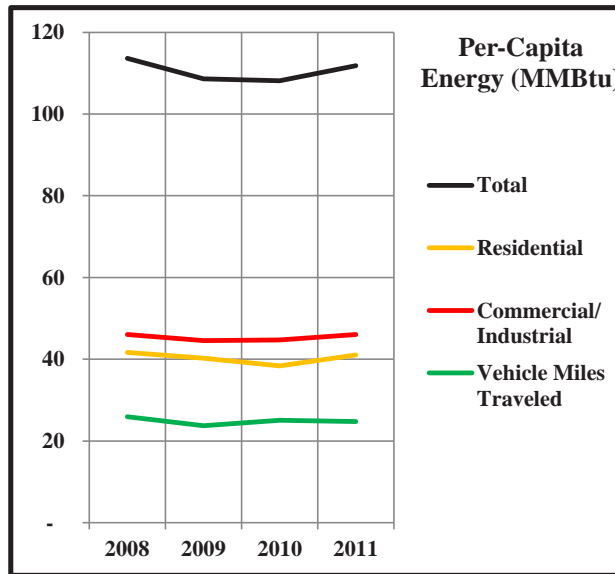
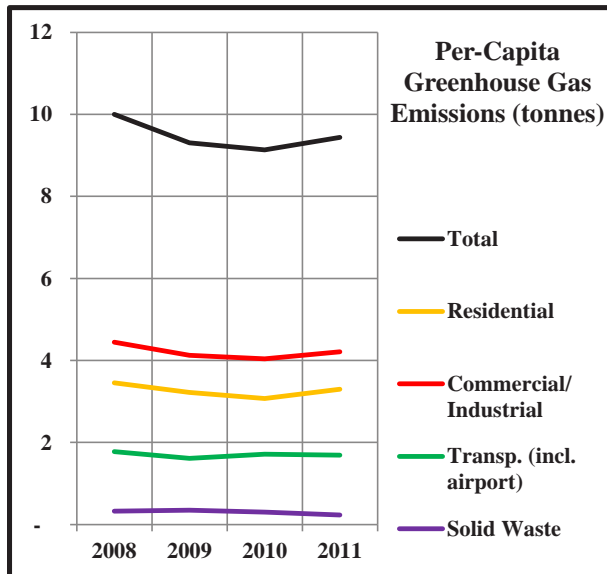
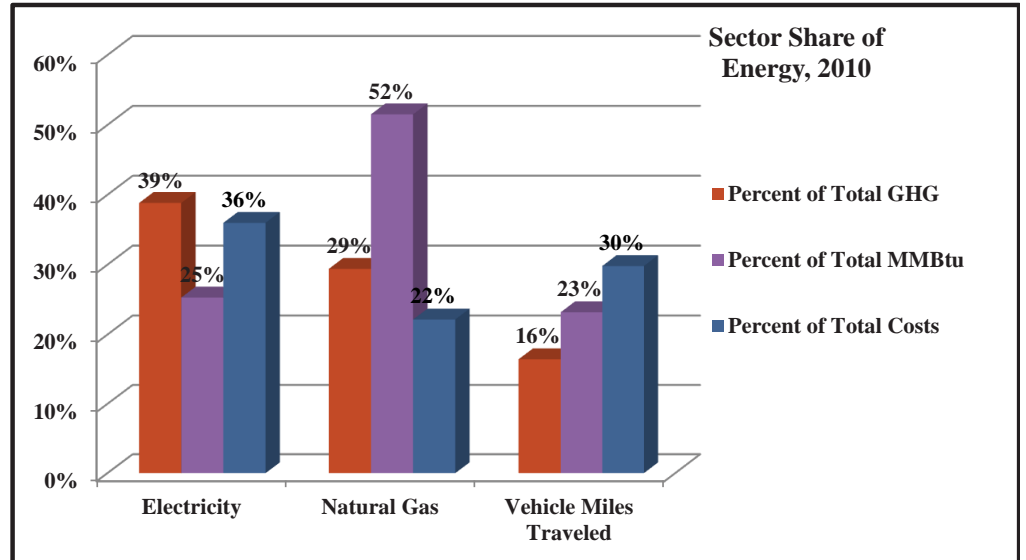
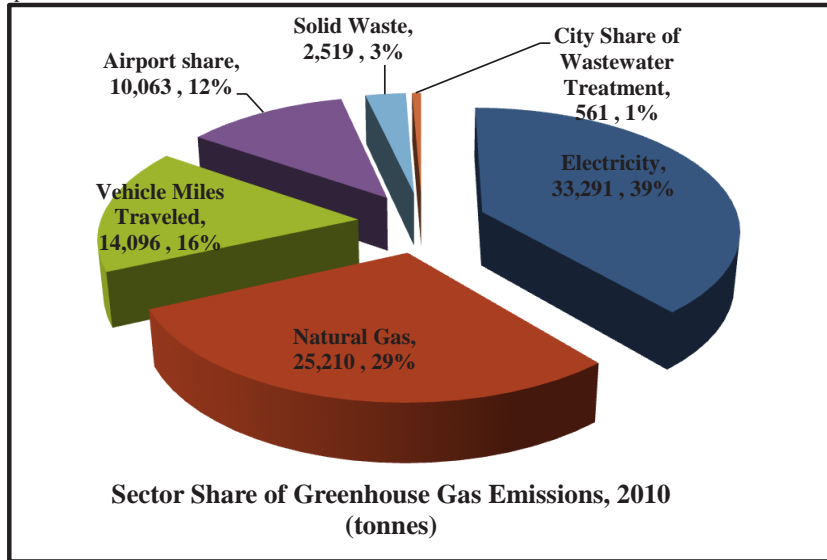
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City of St. Anthony

Costs											
Updated: 1/8/13											
Greenhouse Gas Emission Activities	2008		2009		2010		2011		2012		
	Amount	Costs	Amount	Costs	Amount	Costs	Amount	Costs	Amount	Costs	
<b>Energy:</b>											
Electricity (MWh):	66,110	\$ 5,508,652	63,284	\$ 5,243,070	65,964	\$ 5,711,991	66,756	\$ 5,995,415	-	-	
Residential (MWh)	25,371	\$ 2,622,052	24,106	\$ 2,490,863	25,457	\$ 2,747,829	26,031	\$ 2,912,111	-	-	
Commercial & Industrial (MWh)	40,579	\$ 2,876,457	38,961	\$ 2,738,402	40,244	\$ 2,947,032	40,489	\$ 3,067,207	-	-	
Public street and highway lighting	160	\$ 10,144	217	\$ 13,806	264	\$ 17,131	236	\$ 16,097	-	-	
Natural gas (therms)	5,145,198	\$ 5,433,343	5,062,572	\$ 4,015,103	4,584,102	\$ 3,517,086	4,978,547	\$ 3,783,675	-	\$ -	
Residential	2,649,613	\$ 2,991,413	2,603,170	\$ 2,340,250	2,286,464	\$ 2,002,942	2,529,606	\$ 2,190,639	-	-	
Commercial and industrial	2,495,585	\$ 2,441,930	2,459,402	\$ 1,674,853	2,297,638	\$ 1,514,143	2,448,941	\$ 1,593,036	-	-	
<b>Subtotal Energy Costs</b>		<b>\$ 10,941,995</b>		<b>\$ 9,258,173</b>		<b>\$ 9,229,077</b>		<b>\$ 9,779,090</b>		<b>\$ -</b>	
Percent of total Community costs		59%		61%		58%		56%		#DIV/0!	
Per-capita costs total:		\$ 1,297		\$ 1,087		\$ 1,122		\$ 1,174		\$ -	
Residential		\$ 665		\$ 567		\$ 578		\$ 612		\$ -	
Commercial and industrial		\$ 632		\$ 520		\$ 544		\$ 561		\$ -	
<b>Vehicle Miles Traveled:</b>	31,587,264		29,304,390		30,604,520		30,604,520		-		
Total fuel costs		\$ 5,741,736		\$ 3,847,155		\$ 4,730,922		\$ 6,021,522			
Percent of total Community costs		31%		25%		30%		3%		#REF!	
Per-capita costs		\$ 681		\$ 452		\$ 575		\$ 723		\$ -	
<b>Solid Waste Management</b>											
Estimated total MSW managed (US tons)	10,574	\$ 1,744,219	11,555	\$ 1,880,956	11,248	\$ 1,821,841	9,598	\$ 1,590,157	-	-	
Processed via combustion (incineration and RDF processing)	3,269	\$ 572,157	3,132	\$ 548,185	2,722	\$ 476,329	3,058	\$ 535,063			
Landfilling	2,791	\$ 404,726	3,963	\$ 574,706	4,160	\$ 603,222	2,269	\$ 328,988			
Recycling	4,514	\$ 767,335	4,459	\$ 758,066	4,366	\$ 742,290	4,271	\$ 726,106			
Percent of total Community costs		9.4%		12.5%		11.5%		9.1%		#DIV/0!	
Per-capita costs		\$ 207		\$ 221		\$ 221		\$ 191		\$ -	
<b>Water Consumption (gal):</b>											
Residential	232,425,677	\$ 51,904	230,170,631	\$ 54,816	198,618,344	\$ 47,528	203,827,957	\$ 50,868			
Commercial and Industrial	75,012,576	\$ 16,751	77,514,778	\$ 18,460	61,231,519	\$ 14,652	64,704,694	\$ 16,148			
Total	307,438,253	\$ 68,656	307,685,409	\$ 73,276	259,849,863	\$ 62,180	268,532,651	\$ 67,016			
Percent of total Community costs		0.4%		0.5%		0.4%		0.0%		#DIV/0!	
Per-capita costs		\$ 8		\$ 9		\$ 8		\$ 8		\$ -	
<b>Energy Costs of Wastewater Treatment:</b>											
City share of wastewater treatment	0.31%	\$ 31,316	0.30%	\$ 28,046	0.31%	\$ 26,929	0.35%	\$ 31,471	0.00%		
Percent of total Community costs		0.2%		0.2%		0.2%		0.0%		#DIV/0!	
Per-capita costs		\$ 4		\$ 3		\$ 3		\$ 4		\$ -	
<b>Community Costs Total:</b>		<b>\$ 18,527,923</b>		<b>\$ 15,087,607</b>		<b>\$ 15,870,949</b>		<b>\$ 17,489,256</b>		<b>\$ -</b>	
Per-capita costs		\$ 2,196		\$ 1,772		\$ 1,929		\$ 2,099		\$ -	
<b>Other Factors:</b>											
City population	8,437		8,514		8,226		8,333		8,152		
<b>Sector Share of Costs, 2010</b>	<b>Costs</b>	<b>Percent of Total Costs</b>	<b>Percent of Total Costs from Building Energy</b>								
			<b>Residential</b>	<b>Commercial</b>	<b>Total</b>						
Electricity	\$ 5,711,991	36%	30%	32%	62%						
Natural Gas	\$ 3,517,086	22%	22%	16%	38%						
Vehicle Miles Traveled (total fuel costs)	\$ 4,730,922	30%									
Solid Waste	\$ 1,821,841	11%									
Water Consumption (costs of energy)	\$ 62,180	0.4%									
Wastewater Treatment (energy costs)	\$ 26,929	0.2%									
<b>Total</b>	<b>\$ 15,870,949</b>	<b>100%</b>	<b>51%</b>	<b>49%</b>	<b>100%</b>						

Sector Shares of Greenhouse Gas Emissions and Energy

Updated: 11/9/12



Energy Consumption and Associated Greenhouse Gas Emissions														
Updated: 11/19/12														
Sectors and Fuels	Consumption and GHG <sup>4</sup>													
	2008		2009		GHG Change from 2008		2010		GHG Change from 2009		2011		2012	
	Amount	GHG	Amount	GHG	Amount	% Change	Amount	GHG	Amount	% Change	Amount	GHG	Amount	GHG
<b>Electricity (MWh) <sup>1</sup></b>														
Residential														
Wind <sup>2</sup>	384	0	378	0			389	0			408	0	-	0
Non-wind-generated power	24,986	14,566	23,728	13,079	(1,487)	-10%	25,068	12,726	(353)	-3%	25,623	13,601	-	-
Subtotal	25,371	14,566	24,106	13,079	(1,487)	-10%	25,457	12,726	(353)	-3%	26,031	13,601	-	-
Commercial and Industrial														
Wind <sup>2</sup>	0	0	0	0			0	0			0	0	0	0
Non-wind-generated power	40,579	23,657	38,961	21,476	(2,180)	-9%	40,244	20,431	(1,046)	-5%	40,489	21,492	-	-
Subtotal	40,579	23,657	38,961	21,476	(2,180)	-9%	40,244	20,431	(1,046)	-5%	40,489	21,492	-	-
Public street and highway lighting	160	93	217	120	26	28%	264	134	14	12%	236	125	-	-
<b>Electricity totals</b>	<b>66,110</b>	<b>38,316</b>	<b>63,284</b>	<b>34,675</b>	<b>(3,641)</b>	<b>-10%</b>	<b>65,964</b>	<b>33,291</b>	<b>(1,385)</b>	<b>-4%</b>	<b>66,756</b>	<b>35,218</b>	<b>-</b>	<b>-</b>
<b>Normalized for weather <sup>3</sup></b>	<b>70,765</b>	<b>41,014</b>	<b>69,490</b>	<b>38,075</b>	<b>(2,939)</b>	<b>-7%</b>	<b>65,753</b>	<b>33,184</b>	<b>(4,891)</b>	<b>-13%</b>	<b>66,397</b>	<b>35,028</b>	<b>#DIV/0!</b>	<b>#DIV/0!</b>
<b>Natural gas (therms) <sup>1</sup></b>														
Residential	2,649,613	14,571	2,603,170	14,316	(255)	-2%	2,286,464	12,574	(1,742)	-12%	2,529,606	13,911	-	-
Commercial and Industrial	2,495,585	13,724	2,459,402	13,525	(199)	-1%	2,297,638	12,636	(890)	-7%	2,448,941	13,468	-	-
<b>Natural gas totals</b>	<b>5,145,198</b>	<b>28,296</b>	<b>5,062,572</b>	<b>27,841</b>	<b>(454)</b>	<b>-2%</b>	<b>4,584,102</b>	<b>25,210</b>	<b>(2,631)</b>	<b>-9%</b>	<b>4,978,547</b>	<b>27,379</b>	<b>-</b>	<b>-</b>
<b>Normalized for weather <sup>3</sup></b>	<b>4,625,176</b>	<b>25,436</b>	<b>4,775,560</b>	<b>26,263</b>	<b>827</b>	<b>3%</b>	<b>4,617,454</b>	<b>25,393</b>	<b>(869)</b>	<b>-3%</b>	<b>4,909,578</b>	<b>27,000</b>	<b>#DIV/0!</b>	<b>#DIV/0!</b>
<b>Total GHG for electricity and natural gas</b>		<b>66,612</b>		<b>62,516</b>	<b>(4,095)</b>	<b>-6%</b>		<b>58,501</b>	<b>(4,016)</b>	<b>-6%</b>		<b>62,597</b>		<b>-</b>
<b>Total GHG for electricity and natural gas, normalized for weather</b>		<b>66,450</b>		<b>64,338</b>	<b>(2,112)</b>	<b>-3%</b>		<b>58,577</b>	<b>(5,761)</b>	<b>-9%</b>		<b>62,028</b>		<b>#DIV/0!</b>
<b>Other factors:</b>														
NSP Minnesota GHG emission rates (tonnes GHG/MWh)	0.583		0.551		(0.03)	-5%	0.508		(0.04)	-8%	0.531		0.004	
Population	8,437		8,514		77	0.9%	8,226		(288)	-3%	8,333		8,152	
<b>Per-capita rates:</b>														
Electricity	7.8	4.5	7.4	4.1	(0.5)	-10%	8.0	4.0	(0.0)	-1%				
Natural gas	609.8	3.4	594.6	3.3	(0.1)	-2%	557.3	3.1	(0.2)	-6%				
Total GHG for electricity and natural gas		7.9		7.3	(0.6)	-7%		7.1	(0.2)	-3%				
Total GHG for electricity and natural gas, normalized for weather		7.9		7.6	(0.3)	-4%		7.1	(0.4)	-6%				
<b>Notes:</b>														
1	Source: Xcel Energy for electricity and CenterPoint Energy for natural gas													
2	The wind turbines that are used for Xcel Energy's "Windsources" program are treated as separate assets. They are not part of the regular system supply and they do not count toward Xcel Energy's target under Minnesota's renewable energy standards.													
3	Normalized Standard Heating/Cooling Degree Days predicts the energy consumption based on the average SHDD/SCDD, not the actual amounts. For electricity, it is assumed 25% of electricity consumption is for air conditioning. For natural gas, it is assumed 80% is for heating buildings.													
4	Electricity in MWh, natural gas in therms. Carbon dioxide equivalents (CO <sub>2</sub> e) are expressed in metric tonnes, which equal 1,000 kilograms, 2,204.6 pounds, or 1.102 US tons.													

Xcel Energy Data					
Updated: 11/19/12					
Source: Xcel Energy					
Year	Class of Service	Electric Only Premise Count	Total Energy Consumed (MWh)	Electric Energy Generated by Wind	Xcel Energy's Minnesota Electric Emission Factor (US tons CO2/MWh)
<b>2008</b>	Residential	3,797	24,625	0	0.638
	Res Windsource	106	746	384	0.638
	Commercial & Industrial	371	40,579	0	0.638
	Pub St & Hwy Ltg	0	160	0	0.638
	<b>Total</b>		<b>4,274</b>	<b>66,110</b>	<b>384</b>
<b>2009</b>	Residential	0	23,399	0	0.603
	Res Windsource	105	707	378	0.603
	Commercial & Industrial	383	38,961	0	0.603
	Pub St & Hwy Ltg	0	217	0	0.603
	<b>Total</b>		<b>488</b>	<b>63,284</b>	<b>378</b>
<b>2010</b>	Residential	0	24,739	0	0.555
	Res Windsource	101	718	389	0.555
	Commercial & Industrial	378	40,244	0	0.555
	Pub St & Hwy Ltg	0	264	0	0.555
	<b>Total</b>		<b>479</b>	<b>65,964</b>	<b>389</b>
<b>2011</b>	Residential	0	25,294	0	0.581
	Res Windsource	102	737	408	0.581
	Commercial & Industrial	379	40,489	0	0.581
	Pub St & Hwy Ltg	0	236	0	0.581
	<b>Total</b>		<b>481</b>	<b>66,756</b>	<b>408</b>
<b>2012</b>	Residential				
	Res Windsource				
	Commercial & Industrial				
	Pub St & Hwy Ltg				
	<b>Total</b>				
<b>Notes (from Xcel Energy):</b>					
1. An Xcel Energy 'customer' may receive electric, gas or both electric and gas service at a given location. To provide the clearest breakout of customers, this information has been prepared using a 'premise' as a proxy for a customer. A premise is a physical location where electricity, gas or both may be supplied. Typically there is only one meter for electricity and/or one for gas at each location.					
2. Only premises showing energy consumption during the reporting period are included.					
3. The reports include all retail energy consumed within the specified local government's boundaries. Consumption, including streetlights, traffic signals and other non-metered premises, by all types of government is incorporated. Also included is the use of energy by the company, excluding only the gas to fuel power plants (which is accounted for in the electric emission factor) and gas to fuel the compressors on the gas pipeline system.					
4. Premises are assigned to a class of service based on the electric and gas rates used at the premise. If a premise has more than one class of service, the service with the highest priority is assigned. Priorities are Residential=1, Residential Windsource=2, Commercial=3, Commercial Windsource=4, Industrial=5 and Industrial Windsource=6.					
5. Windsource is a voluntary wind energy program offered by Xcel Energy to its electric customers in Colorado. Customers have the option of purchasing 100 - kilowatt-hour (kWh) blocks of Windsource or the 100% Windsource option. (1000 kWh equals one Megawatt-hour or MWh). For Windsource rows, 'Total Electric Energy Consumed (MWh)' column includes all energy consumed by Windsource premises whether from renewable Windsource generation or from traditional non-renewable sources.					
6. Windsource energy is included in the calculation of Xcel Energy's Colorado Electric Emission Factor. The total emissions for the community, or 'Total Tons of CO2 From CONS' column, is calculated with Windsource emissions assigned a zero emissions factor. This may not reflect current or future carbon reporting protocols or the Company's position on them; check your carbon reporting protocols to determine how green pricing programs are handled.					
7. By definition, commercial electric service is delivered at secondary voltage (typically 120, 208, 240 or 480 volts). Industrial electric service is delivered at primary voltage (typically 13 Kilovolts) or transmission voltage (typically 115 or 230 Kilovolts).					
8. Apartment buildings often have individual electric meters for each unit, which are served on a residential rate and are included in the electric Residential class of service. They usually have another electric meter for laundry rooms and for common area lighting and cooling, served on a commercial electric rate and included in the Commercial class. These same apartment buildings often have one gas meter connected to a boiler and a water heater providing heat and hot water to all of the individual units. These meters are served on a commercial gas rate and are included in the gas Commercial class. However, if each unit has an individual gas meter serving only that unit's individual furnace and/or water heater, then it is served on a residential gas rate and included in the gas Residential class.					
9. For gas transportation customers, where gas is purchased from a third party supplier and Xcel Energy only delivers the gas to the end customer, premises and consumption are included in the gas Commercial class of service rows.					
10. Gas transportation customers are set up by contract rather than as traditional premises. The 12-month median of the number of gas transportation service and facilities charges paid in the jurisdiction is used as a proxy.					
11. No premise counts are provided for Public Street & Highway Lighting since these are set up by contract rather than as traditional premises. The identified local government is the major or only customer.					
This report was prepared by Marketing - Information Services. Consumption data is from Xcel Energy's internal databases used for reporting to regulatory agencies. It is based on information available on 6/20/2011. It should be consistent with various reports prepared for those agencies.					

<b>Natural Gas Usage</b>	
Source: CenterPoint Energy	
<b>Fiscal year: 2008</b>	<b>Total (therms)</b>
Residential Service Gas	2,649,613
Commercial/Industrial Gas	2,495,585
<b>Fiscal Year: 2009</b>	<b>Total (therms)</b>
Residential Service Gas	2,603,170
Commercial/Industrial Gas	2,459,402
<b>Fiscal Year: 2010</b>	<b>Total (therms)</b>
Residential Service Gas	2,286,464
Commercial/Industrial Gas	2,297,638
<b>Fiscal Year: 2011</b>	<b>Total (therms)</b>
Residential Service Gas	2,529,606
Commercial/Industrial Gas	2,448,941
<b>Fiscal Year: 2012</b>	<b>Total (therms)</b>
Residential Service Gas	
Commercial/Industrial Gas	



Conversion Factors																	
Updated: 11/5/12																	
Table 1: Conversion Factors for Utilities	2008			2009			2010			2011			2012				
	GHG Emission Factors	Global Warming Potential	GHG	GHG Emission Factors	Global Warming Potential	GHG	GHG Emission Factors	Global Warming Potential	GHG	GHG Emission Factors	Global Warming Potential	GHG	GHG Emission Factors	Global Warming Potential	GHG		
<b>Xcel Energy/NSP</b>																	
CO <sub>2</sub> (lbs/MWh) <sup>1</sup>	1,276.0	1	1,276	1,206.0	1	1,206.0	1,110.0	1	1,110.0	1,161.0	1	1,161.0		1	-		
N <sub>2</sub> O (lbs/MWh) <sup>2</sup>	0.02779	310	8.6	0.02779	310	8.6	0.02779	310	8.6	0.02779	310	8.6	0.02779	310	8.6		
CH <sub>4</sub> (lbs/MWh) <sup>2</sup>	0.02880	21	0.6	0.02880	21	0.6	0.02880	21	0.6	0.02880	21	0.6	0.02880	21	0.6		
Total CO <sub>2</sub> e (lbs/MWh)			1,285.2			1,215.2			1,119.2			1,170.2			9.2		
<b>Total CO<sub>2</sub>e (tonnes/MWh) <sup>3</sup></b>			<b>0.583</b>			<b>0.551</b>			<b>0.508</b>			<b>0.531</b>			<b>0.004</b>		
<b>CenterPoint Energy <sup>4</sup></b>																	
CO <sub>2</sub> (kg/therm)	5,302	1	5.3	5,302	1	5.3	5,302	1	5.3	5,302	1	5.3	5,302	1	5.3		
N <sub>2</sub> O (kg/therm)	0.00042	310	0.1	0.00042	310	0.1	0.00042	310	0.1	0.00042	310	0.1	0.00042	310	0.1		
CH <sub>4</sub> (kg/therm)	0.00320	21	0.1	0.00320	21	0.1	0.00320	21	0.1	0.00320	21	0.1	0.00320	21	0.1		
Total CO <sub>2</sub> e (kg/therm)			5.5			5.5			5.5			5.5			5.5		
<b>Total CO<sub>2</sub>e (tonnes/therm)</b>			<b>0.005</b>			<b>0.005</b>			<b>0.005</b>			<b>0.005</b>			<b>0.005</b>		
<b>Notes:</b>																	
1	Xcel Energy emission factor for CO <sub>2</sub> is for Xcel's wholly owned generating company, NSP Minnesota.																
2	Emission factors for CH <sub>4</sub> and N <sub>2</sub> O are from the USEPA eGRID for Midwest Regional Organization West. Factors do not include emissions from transmission and distribution losses. Latest data is for 2009. Source: <a href="http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html">http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html</a>																
3	Carbon dioxide equivalents (CO <sub>2</sub> e) are expressed in metric tonnes, which equal 1,000 kilograms, or 2,204.6 pounds.																
4	Source: Table G.1 and G.3, Local Government Operations Protocol, for the Quantification and Reporting of Greenhouse Gas Emissions Inventories, Version 1.1, May 2010. The therm (symbol thm) is a unit of heat energy equal to 100,000 British thermal units (BTU). It is approximately the energy equivalent of burning 100 cubic feet (often referred to as 1 hcf) of natural gas. A million BTUs (MMBtu) equals a decatherm (10 therms). Natural gas emission factors do not vary substantially over time.																
<b>Table 2: Greenhouse Gas Emission Sources</b>																	
	Unit	Data Source	kBtu	GHG (tonnes)	GHG Per kBtu (tonnes)												
Electricity (NSP MN 2010)	1 kWh	1	3412.0	0.0005	0.0001												
Natural gas	Therms	1	100.0	0.0055	0.0550												
E-10 gasoline	US gallon	2	120.1	0.0089	0.0743												
B-5 diesel	US gallon	2	126.8	0.0105	0.0829												
Gasoline	US gallon	3	125.0	0.0092	0.0739												
Diesel	US gallon	3	129.5	0.0107	0.0830												
Ethanol	US gallon	3	76.1	0.0061	79.5352												
<b>Data source:</b>																	
1	Minnesota Public Building Enhanced Energy Efficiency Program (PBEEEP)																
2	The State of Minnesota requires gasoline and diesel fuels sold in the state be oxygenated by 10% and 5% ethanol respectively.																
3	"Fuel Economy Impact Analysis of RFG", US Environmental Protection Agency, 2007-08-14. <a href="http://www.epa.gov/oms/rfgecon.htm">http://www.epa.gov/oms/rfgecon.htm</a> .																
<b>Table 3: Greenhouse Gas Emissions</b>																	
	GHG Emission Factors			National Fleet Share <sup>4</sup>	Minnesota Fuel Blends <sup>5</sup>		Minnesota Fleet Emission Factors <sup>5</sup>										
	E-100 (Ethanol) <sup>3</sup>	Gasoline	Diesel		E-10 Gasoline	B-5 Diesel	2001-2005: Use of E-10 Only	2006-Present: Use of E-10 and B-5									
CO <sub>2</sub> (g/gal) <sup>1</sup>	5,750	8,780	10,210	9,025	8,477	9,987	8,794	8,746									
CO <sub>2</sub> e (g/gal) <sup>2</sup>	6,053	9,242	10,747	9,500	8,923	10,513	9,257	9,206									
CO <sub>2</sub> e (tonnes per 1,000 gal)	6.05	9.24	10.75	9.50	8.92	10.51	9.26	9.21									
National fleet share <sup>4</sup>	2%	76%	22%														
<b>Notes:</b>																	
1	Table G.11 and G.13, <i>International Local Government Greenhouse Gas Emissions Analysis Protocol</i> , Version 1.1, May 2010.																
2	Source: <a href="http://www.epa.gov/oms/climate/420f05004.htm">http://www.epa.gov/oms/climate/420f05004.htm</a> . "In addition to carbon dioxide, automobiles produce methane (CH <sub>4</sub> ) and nitrous oxide (N <sub>2</sub> O) from the tailpipe, as well as HFC emissions from leaking air conditioners. The emissions of CH <sub>4</sub> and N <sub>2</sub> O are related to vehicle miles traveled rather than fuel consumption, and the emissions of CH <sub>4</sub> , N <sub>2</sub> O, and HFCs are not as easily estimated from a vehicle as for CO <sub>2</sub> [3.] On average, CH <sub>4</sub> , N <sub>2</sub> O, and HFC emissions represent roughly 5 - 6 percent of the GHG emissions from passenger vehicles, while CO <sub>2</sub> emissions account for 94-95 percent, accounting for the global warming potential of each greenhouse gas. (These percentages are estimated from the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 - 2001.)" To simplify this estimate, it is assumed that CH <sub>4</sub> , N <sub>2</sub> O, and HFCs account for 5 percent of emissions, and the CO <sub>2</sub> estimate was multiplied by 100/95 to incorporate the contribution of the other greenhouse gases.																
3	Source: Table G.12, <i>International Local Government Greenhouse Gas Emissions Analysis Protocol</i> provides the E-100 emission factor. Emission factors for E-85 and E-10 are derived as proportionate mixtures of E-100 and gasoline.																
4	The national fleet share refers to the percentage share of the main transportation fuels used in the US fleet. Source (2005 data): <a href="http://needtoknow.nas.edu/energy/energy-sources/emerging-technologies/biofuels.php">http://needtoknow.nas.edu/energy/energy-sources/emerging-technologies/biofuels.php</a>																
5	Transportation fuels sold in Minnesota have blends of ethanol that are higher than the national average, thus, per-gallon GHG emissions will be relatively lower. From 2001 to 2005, the state required 10% ethanol in gasoline. From 2006 to the present, the state added the requirement of 5% ethanol in diesel fuels.																
<b>Table 4a: Derivation of MMBtu Associated with Vehicle Miles Traveled <sup>1</sup></b>																	
Year:	Gasoline		Ethanol		Diesel		Biodiesel		Total MMBtu	Total VMT	MMBtu per Million VMT						
	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu									
2006	103,021,426	12,877,678	11,446,825	871,103	24,957,074	3,231,941	509,328	65,242	17,045,965	2,407,535,255	7,080						
2007	106,606,651	13,325,831	11,845,183	901,418	26,045,742	3,372,924	531,546	68,088	17,668,262	2,524,701,350	6,998						
2008	101,502,106	12,687,763	11,278,012	858,257	25,010,186	3,238,819	510,412	65,381	16,850,220	2,436,024,630	6,917						
2009	98,071,149	12,258,894	10,896,794	829,246	23,873,759	3,091,652	494,740	127,421	16,307,213	2,385,221,345	6,837						
2010	97,036,508	12,129,564	10,781,834	820,498	23,743,262	3,074,752	1,249,645	160,074	16,184,887	2,400,983,870	6,741						
2011	96,168,052	12,021,007	10,685,339	1,355,222	23,663,739	2,842,252	1,245,460	161,287	16,379,767	2,385,924,781	6,865						
<b>Notes:</b>																	
1	Fuel consumption is for the City of Minneapolis from 2006 to 2010. Data are from the City of Minneapolis Greenhouse Gas Inventories: A Geographic Assessment, City of Minneapolis, 5/11/12. Data for other years are based on linear regression using the actual data and kBtu estimates from the Clean Air Climate Protection software developed by ICLEI—Local Governments for Sustainability.																

Conversion Factors																
Updated: 11/5/12																
Table 4b: Derivation of Costs Associated with Vehicle Miles Traveled <sup>1</sup>																
Year:		Gasoline <sup>2</sup>			Ethanol <sup>3</sup>			Diesel <sup>4</sup>			Biodiesel <sup>3</sup>			Total Fuel Costs	Total VMT	Fuel Costs per VMT
		Gallons	Cost/Gallon	Total Costs	Gallons	Cost/Gallon	Total Costs	Gallons	Cost/Gallon	Total Costs	Gallons	Cost/Gallon	Total Costs			
	2006	103,021,426	\$ 2.52	\$ 259,510,972	11,446,825	\$ 1.97	\$ 22,550,245	24,957,074	\$ 2.67	\$ 66,610,431	509,328	\$ 3.31	\$ 1,685,876	\$ 350,357,524	2,407,535,255	\$ 0.15
	2007	106,606,651	\$ 2.77	\$ 295,620,243	11,845,183	\$ 2.29	\$ 27,125,469	26,045,742	\$ 2.86	\$ 74,542,914	531,546	\$ 3.07	\$ 1,631,846	\$ 398,920,472	2,524,701,350	\$ 0.16
	2008	101,502,106	\$ 3.13	\$ 317,498,588	11,278,012	\$ 2.60	\$ 29,322,831	25,010,186	\$ 3.76	\$ 93,988,279	510,412	\$ 3.91	\$ 1,995,711	\$ 442,805,409	2,436,024,630	\$ 0.18
	2009	98,071,149	\$ 2.32	\$ 227,917,350	10,896,794	\$ 2.21	\$ 24,081,915	23,873,759	\$ 2.43	\$ 58,084,856	994,740	\$ 3.07	\$ 3,053,852	\$ 313,137,972	2,385,221,345	\$ 0.13
	2010	97,036,508	\$ 2.79	\$ 270,246,675	10,781,834	\$ 2.42	\$ 26,092,038	23,743,262	\$ 2.96	\$ 70,375,029	1,249,645	\$ 3.55	\$ 4,436,240	\$ 371,149,981	2,400,983,870	\$ 0.15
	2011	96,168,052	\$ 3.55	\$ 341,396,586	10,685,339	\$ 3.12	\$ 33,338,258	23,663,739	\$ 3.80	\$ 89,969,536	1,245,460	\$ 3.80	\$ 4,732,748	\$ 469,437,128	2,385,924,781	\$ 0.20
<b>Notes:</b>																
1	Fuel consumption is for the City of Minneapolis from 2006 to 2010. Data are from the City of Minneapolis Greenhouse Gas Inventories: A Geographic Assessment, City of Minneapolis, 5/11/12. Data for other years are based on linear regression using the actual data and kBtu estimates from the Clean Air Climate Protection software developed by ICLEI—Local Governments for Sustainability.															
2	Weekly Retail Gasoline and Diesel Prices, Minnesota (all grades). Source: US Energy Information Agency, <a href="http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_smn_a.htm">http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_smn_a.htm</a>															
3	Source: <i>Clean Cities Alternative Fuel Price Report</i> , US Department of Energy, <a href="http://www.afdc.energy.gov/publications/search/keyword?q=alternative%20fuel%20price%20report">http://www.afdc.energy.gov/publications/search/keyword?q=alternative%20fuel%20price%20report</a>															
4	Midwest #2 Diesel Retail Prices: Source: US Energy Information Agency, <a href="http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&amp;s=emd.epd2d_pte_r20_dpg&amp;f=a">http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&amp;s=emd.epd2d_pte_r20_dpg&amp;f=a</a>															
Table 4: Derivation of MMBtu Associated with Vehicle Miles Traveled <sup>1</sup>																
Year:		Gasoline		Ethanol		Diesel		BioDiesel		Total MMBtu	Total VMT	MMBtu per Million VMT	c			
		Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu							
	2006	103,021,426	11,692,932	11,446,825	871,103	24,957,074	3,231,941	509,328	65,242	15,861,219	2,407,535,255	658,816				
	2007	106,606,651	12,099,855	11,845,183	901,418	26,045,742	3,372,924	531,546	68,088	16,442,285	2,524,701,350	651,257				
	2008	101,502,106	11,520,489	11,278,012	858,257	25,010,186	3,238,819	510,412	65,381	15,682,946	2,436,024,630	643,793				
	2009	98,071,149	11,131,075	10,896,794	829,246	23,873,759	3,091,652	994,740	127,421	15,179,395	2,385,221,345	636,394				
	2010	97,036,508	11,013,644	10,781,834	820,498	23,743,262	3,074,752	1,249,645	160,074	15,068,967	2,400,983,870	627,616				
<b>Notes:</b>																
1	Fuel consumption from 2006 to 2010 are from the City of Minneapolis Greenhouse Gas Inventories: A Geographic Assessment, City of Minneapolis, 5/11/12. Data for other years are based on linear regression using the actual data and kBtu estimates from the Clean Air Climate Protection software developed by ICLEI—Local Governments for Sustainability.															
Table 5: Emission Factors and Byproducts for the Combustion of Municipal Solid Waste (MSW)																
Hennepin Energy Resources Center (HERC) mass burn garbage incinerator <sup>1</sup>																
GHG emissions (tonnes):																
	Fossil	133,191	134,057	133,972	129,883	131,292	140,341									
	Biogenic	225,765	227,890	228,264	219,170	218,699	193,804									
	Total waste (US tons)	365,000	346,676	348,979	338,337	363,350	364,575									
	Fossil GHG emission rate (tonnes per ton of MSW)	0.365	0.387	0.384	0.384	0.361	0.385									
	Biogenic GHG emission rate (tonnes per ton of MSW)	0.619	0.657	0.654	0.648	0.602	0.532									
Byproducts of combustion:																
	Exported electricity (MWh)	221,001	223,487	215,402	187,053	206,178	209,117									
	Energy value of exported electricity (MMBtu)	754,055,412	762,537,644	734,951,624	638,224,836	703,479,336	713,507,204									
	Steam sales (1,000 lbs) <sup>3</sup>				101,507	82,504	89,584									
	Energy value of exported steam (MMBtu) <sup>2</sup>				101,507	82,504	89,584									
	Subtotal of energy value (MMBtu)	754,055,412	762,537,644	734,951,624	638,326,343	703,561,840	713,596,788									
	GHG equivalent of exported electricity (tonnes) <sup>1</sup>	131,686	136,005	125,614	103,142	104,710	110,132									
	GHG equivalent of exported steam (tonnes) <sup>3</sup>				6	5	5									
	Total GHG equivalent of exported electricity and steam	131,686	136,005	125,614	103,148	104,715	110,137									
	Per ton of MSW total GHG equivalent of exported electricity and steam (tonnes)	0.36	0.39	0.36	0.30	0.29	0.30									
Ramsey/Washington County (Newport) and Elk River RDF facilities <sup>4</sup>																
	Fossil GHG emission rate (tonnes per ton of MSW)	0.365	0.387	0.384	0.384	0.361	0.385									
	Biogenic GHG emission rate (tonnes per ton of MSW)	0.619	0.657	0.654	0.648	0.602	0.532									
	GHG emission equivalent for electricity produced by RDF combustion (tonnes per ton of MSW processed)	0.36	0.39	0.36	0.30	0.29	0.30									
<b>Notes:</b>																
1	Data for 2006 to 2010 from <i>City of Minneapolis Greenhouse Gas Inventories: A Geographic Inventory, City of Minneapolis</i> , 5/11/12. The inventory includes data for the Hennepin Energy Resource Center (HERC) from Hennepin County, which owns the mass-burn, waste-to-energy garbage incinerator. 2010 data available per the US EPA's GHG Mandatory Reporting Rule: <a href="http://ghgdata.epa.gov/ghgp/main.do">http://ghgdata.epa.gov/ghgp/main.do</a> . According to the ICLEI Community Protocol (Appendix E), "The combustion of MSW components originally manufactured from fossil fuels (e.g., plastics, certain textiles, rubber, liquid solvents, and waste oil) results in fossil based CO <sub>2</sub> . The CO <sub>2</sub> emissions from combusting the biomass portion of MSW (e.g., yard waste, paper products) are biogenic in origin and are reported separately. Only the fossil-based emissions are counted for the purposes of carbon baseline assessments per the Protocol (Appendix E, p. 15). The fossil-based emissions also include all of the CH <sub>4</sub> and N <sub>2</sub> O emissions.															
2	Source for steam sales: Hennepin County. Steam energy content varies with pressure and feed water temperature. Energy value represents industry accepted estimate used when exact steam conditions are not known: 1 kBtu/lb. Source: Natural Resources, Canada, <a href="http://oec.nrcan.gc.ca/commercial/technical-info/tools/2531">http://oec.nrcan.gc.ca/commercial/technical-info/tools/2531</a>															
3	Steam sales offset natural gas consumption in the downtown district energy systems. Since a therm of natural gas equals 100 kBtu, the energy value of the exported steam is divided by 100 times the natural gas emission factor to yield GHG emissions.															
4	These refuse derived fuel (RDF) facilities process municipal solid waste into fuel pellets that are burned in certified Xcel Energy power plants in Minnesota. According to the EPA's Waste Reduction Model (WARM), processing MSW into RDF yields a more uniform fuel that has a higher heating value than that used for a mass burn facility (such as HERC). The EPA and ICLEI-USA have yet to derive a GHG emission rate that applies to MSW that has been processed and burned in this manner. As a default until an acceptable rate is available, the GHG emission rate for the HERC facility is used. The per-ton GHG equivalent of the electricity byproduct is assumed to be the same as for exported electricity for the HERC facility.															

<b>Cost Factors</b>				
Updated: 10/24/12				
Cost Factors	2008	2009	2010	2011
<b>Electricity:</b>				
<b>NSP Minnesota electricity rates (dollars per MWh) <sup>1</sup></b>				
Residential	\$ 103.35	\$ 103.33	\$ 107.94	\$ 111.87
Commercial	\$ 78.33	\$ 76.95	\$ 81.52	\$ 83.32
Industrial	\$ 63.44	\$ 63.62	\$ 64.94	\$ 68.19
Retail	\$ 81.08	\$ 80.94	\$ 84.61	\$ 87.45
Average of Commercial and Industrial Rates	\$ 70.89	\$ 70.29	\$ 73.23	\$ 75.76
<b>Average Retail Price of Electricity, Minnesota (dollars per MWh): <sup>2</sup></b>				
Residential	\$ 97.40	\$ 100.40	\$ 105.90	\$ 109.73
Commercial	\$ 78.80	\$ 79.20	\$ 83.80	\$ 85.60
Industrial	\$ 58.70	\$ 62.60	\$ 62.90	\$ 65.60
Average of Commercial and Industrial Rates	\$ 68.75	\$ 70.90	\$ 73.35	\$ 75.60
<b>Natural Gas:</b>				
<b>NSP Minnesota natural gas rates (dollars per therm) <sup>1</sup></b>				
Residential	\$ 1.132	\$ 0.897	\$ 0.894	\$ 0.879
C & I Firm	\$ 1.070	\$ 0.832	\$ 0.814	\$ 0.806
C & I Interruptible	\$ 0.897	\$ 0.540	\$ 0.533	\$ 0.540
Average of Commercial and Industrial Rates	\$ 0.983	\$ 0.686	\$ 0.673	\$ 0.673
<b>Average Retail Price of Natural Gas, Minnesota (dollars per therm): <sup>3</sup></b>				
Residential	\$ 1.129	\$ 0.899	\$ 0.876	\$ 0.866
Commercial	\$ 1.052	\$ 0.796	\$ 0.760	\$ 0.743
Industrial	\$ 0.905	\$ 0.566	\$ 0.558	\$ 0.558
Average of Commercial and Industrial Rates	\$ 0.979	\$ 0.681	\$ 0.659	\$ 0.651
<b>Vehicle Miles Traveled:</b>				
<b>Cost per vehicle mile traveled (dollars per mile)</b>				
Total fuel costs <sup>4</sup>	\$ 0.18	\$ 0.13	\$ 0.15	\$ 0.20
<b>Solid waste management (dollars per ton) <sup>5</sup></b>				
Processed via combustion (incineration and RDF processing)	\$ 175	\$ 175	\$ 175	\$ 175
Landfilling	\$ 145	\$ 145	\$ 145	\$ 145
Recycling	\$ 170	\$ 170	\$ 170	\$ 170
<b>Potable Water Production and Distribution</b>				
Electricity consumption per gallon produced and distributed (kWh per gallon) <sup>6</sup>	0.0035	0.0035	0.0035	0.0035
Cost per gallon <sup>7</sup>	\$ 0.00022	\$ 0.00024	\$ 0.00024	\$ 0.00025
<b>Metro Wastewater Treatment Plant <sup>8</sup></b>				
Electricity consumption (MWh)	144,693	138,685	126,149	124,925
Cost of electricity	\$ 9,179,324	\$ 8,823,140	\$ 8,192,116	\$ 8,518,636
Natural gas consumption (therms)	843,914	790,100	688,632	846,982
Cost of natural gas	\$ 829,977	\$ 542,293	\$ 463,780	\$ 569,888
Total energy costs	\$ 10,009,301	\$ 9,365,433	\$ 8,655,896	\$ 9,088,523
<b>Fuel oil (\$ per gallon) <sup>9</sup></b>	\$ 1.70	\$ 1.16	\$ 1.64	\$ 1.87
<b>Notes:</b>				
1	Source: Xcel Energy			
2	US Energy Information Administration, <a href="http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_smn_a.htm">http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_smn_a.htm</a>			
3	Data for 2011 are forecasted based on actual 2008-2010 data. Source: State Electricity Profiles 2010, January 2012, U.S. Energy Information Administration, <a href="http://www.eia.gov/electricity/state/pdf/sep2010.pdf">http://www.eia.gov/electricity/state/pdf/sep2010.pdf</a>			
4	Total fuel costs are derived in Table 4b in the Conversion Factors spreadsheet.			
5	Figures are highly variable averages based on 2008 data. Since data is not available for subsequent years, the averages are assumed to be relatively stable and applicable for 2009-2011. The data exclude external costs associated with transportation; air, water, and land pollution; greenhouse gases; resource depletion; etc. They also exclude the external values associated with profits, economic activity, employment, resource & energy conservation, reduced long term liability, etc. Not shown are average costs for household hazardous waste and problem materials (\$225 per ton), source-separated organics (\$220 per ton), and re-use and reduction efforts (which are assumed to be cost neutral). Source: "2008 Payments and Spending for Integrated Solid Waste Management (ISWM) in Minnesota," Sig Scheurle, Minnesota Pollution Control Agency.			
6	Electrical consumption rate is based on the collective experience of numerous US cities as reported in the <i>Climate and Air Pollution Planning Assistant</i> , by ICLEI Local Governments for Sustainability USA, "Low maintenance landscaping" model.			
7	Cost per gallon equals electricity per gallon times the statewide average, commercial/industrial electricity rate. Baseline analyses for other cities indicate that natural gas consumption costs related to the production and distribution of potable water constitute about 8% of total costs. Therefore, the electricity costs are divided by 0.92 to account for the natural gas costs.			
8	Source of energy consumption figures: Metropolitan Council Environmental Services. Costs derived using NSP Minnesota cost averages since the Metro Plant is located in St. Paul.			
9	Prices for fuel oil from "Residual Fuel Oil Prices by Sales Type" Source: US Energy Information Administration: <a href="http://www.eia.gov/dnav/pet/PET_PRI_RESID_DCU_R20_M.htm">http://www.eia.gov/dnav/pet/PET_PRI_RESID_DCU_R20_M.htm</a>			

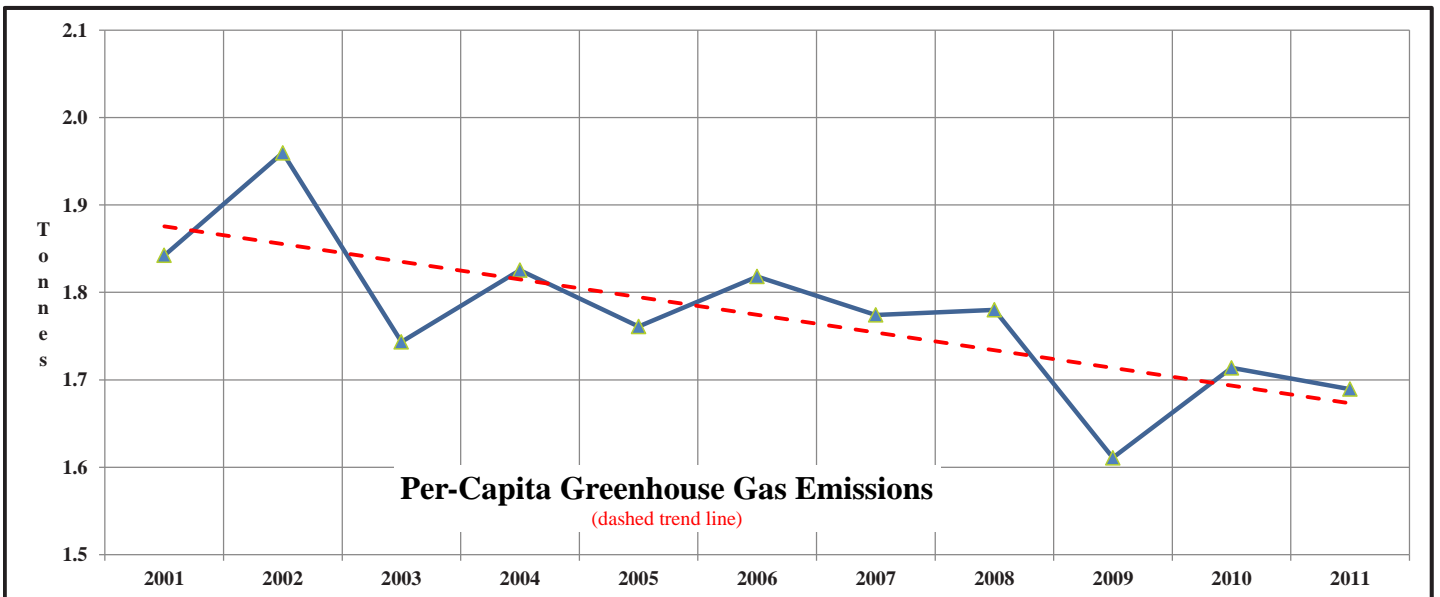
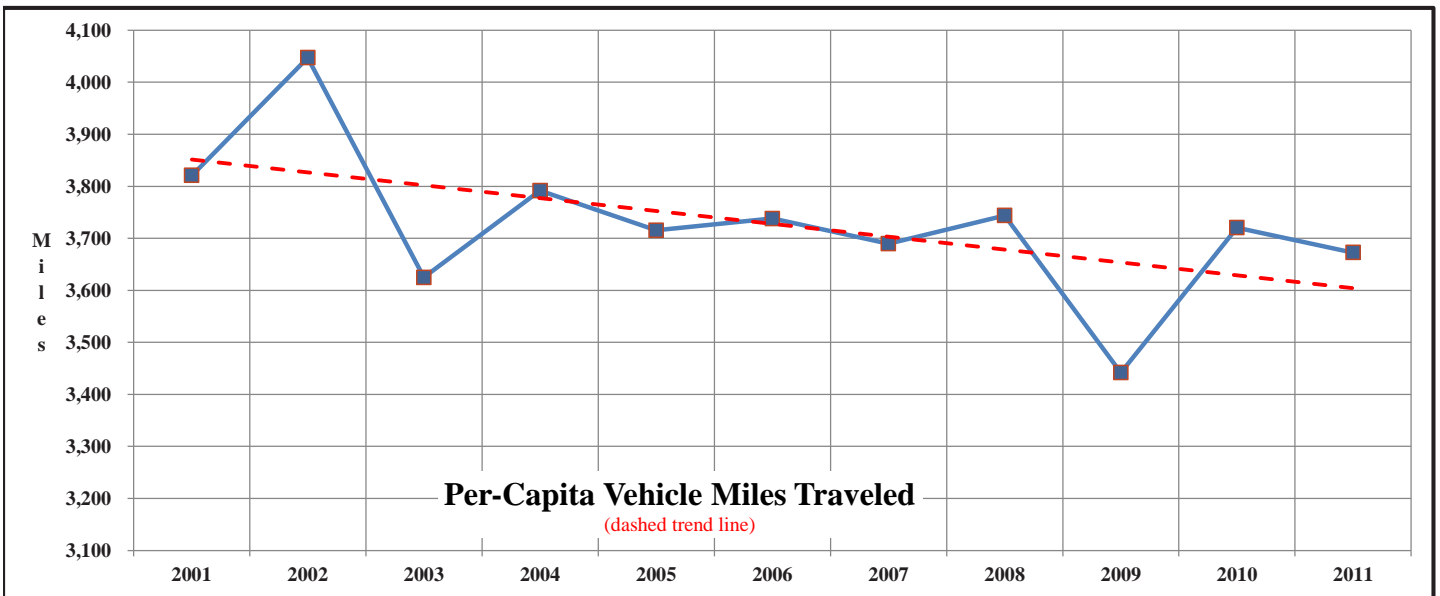
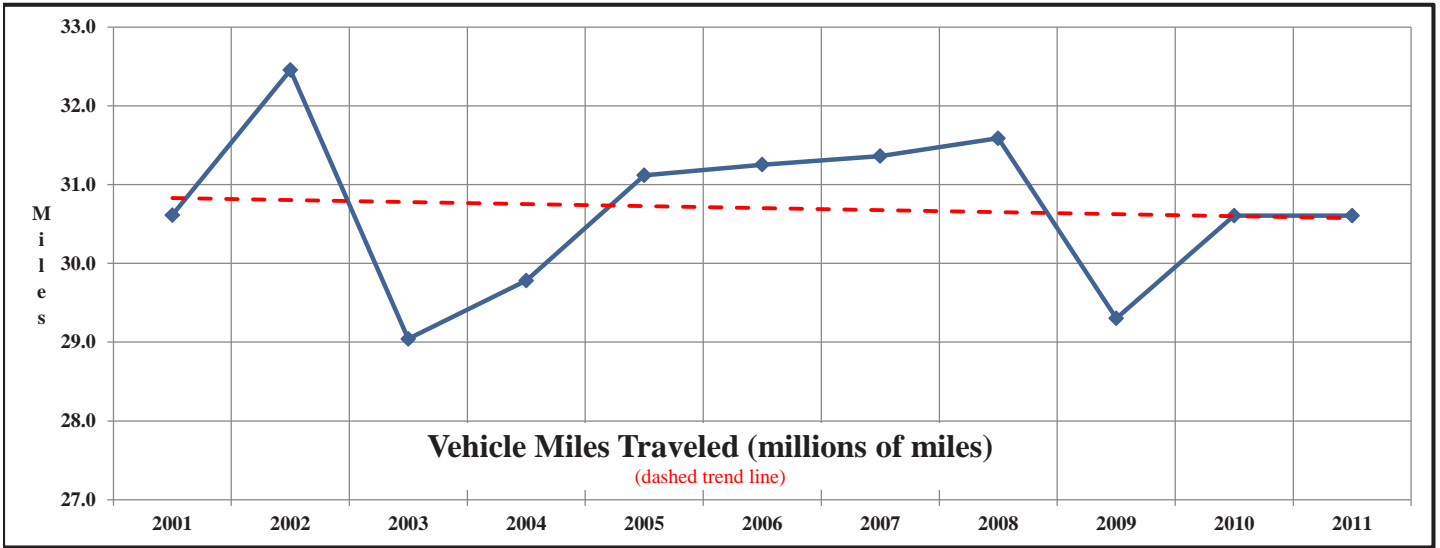
Seasonal Cooling and Heating Degree Days				
Updated: 11/12/12				
Year	HDD <sup>1,2</sup>	CDD <sup>1</sup>	Normalizing Factor <sup>3</sup>	
			HDD	CDD
2008	8,509	781	87%	128%
2009	8,001	719	93%	139%
2010	7,367	1,014	101%	99%
2011	7,565	1,023	98%	98%
2012			#DIV/0!	#DIV/0!
2020				
2030				
Base <sup>3</sup>	7,434	1,001	100%	100%
<b>Notes:</b>				
1	Heating degree days (HDD), are a measure of how much (in degrees), and for how long (in days), outside air temperature was lower than a specific base temperature (or balance point). They are used for calculations relating to the energy consumption required to heat buildings. Cooling degree days (CDD) are a measure of how much (in degrees), and for how long (in days), outside air temperature was higher than a specific base temperature. They are used for calculations relating to the energy consumption required to cool buildings. Source: Degree Days.net, Station ID: KMIC, <a href="http://www.degreedays.net">http://www.degreedays.net</a>			
2	Heating degree day data includes the winter months prior to the listed year.			
3	Because temperature has an effect on building energy consumption, this table allows the normalization of the building energy consumption data to better assess year-to-year consumption changes and trends. The "Base" figures, which are the 118-year averages of Heating Degree Days and Cooling Degree Days (HDD/CDD) for the Twin Cities, serve as the bases for calculating the "Normalizing Factor" for all cities participating in the Regional Indicators Initiative Project (source: <a href="http://climate.umn.edu/text/historical/mspcooldd.txt">http://climate.umn.edu/text/historical/mspcooldd.txt</a> ). For example, if the actual seasonal cooling degree day is 10% higher than the Base, the portion of electricity consumption attributable to air conditioning is decreased by 10% to be normalized. It is assumed that 25% of all electricity consumption is for air conditioning. The remaining 75% is unaffected. Similarly for heating, if the seasonal CDD figure is 10% higher than the Base, the portion of total natural gas consumption associated with heating (which is assumed to be 80%) is reduced by 10% for normalization.			

# Regional Indicators Initiative

# City of St. Anthony

Vehicle Miles Traveled													
Updated: 11/19/12													
Roadway Classification	Miles of Roadway <sup>1</sup>	Annual Vehicle Miles Traveled <sup>1</sup>											
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Roads in Ramsey County:</b>													
County State Aid Highway (CSAH)	1.2	5,220,960	5,586,690	6,378,375	6,517,362	6,242,595	6,273,620	6,757,245	6,748,308	6,729,870	6,675,850		
Municipal State Aid Street (MSAS)	0.9				224,724	403,325	1,073,100	1,070,910	1,069,452	1,073,100	1,079,305		
Municipal Streets (MUN)	2.4	630,355	658,460	652,255	568,398	566,845	566,845	594,585	596,214	594,585	594,585		
<b>Roads in Hennepin County:</b>													
County State Aid Highway (CSAH)	3.2	13,309,725	14,241,570	10,138,605	10,359,630	12,362,185	12,423,870	11,892,795	12,032,250	9,765,575	11,069,355		
Municipal State Aid Street (MSAS)	5.3	7,985,835	8,344,995	8,298,275	8,462,286	7,904,805	7,375,920	7,274,085	7,359,894	7,383,950	7,428,115		
Municipal Streets (MUN)	15.7	3,466,040	3,622,260	3,574,080	3,649,386	3,639,415	3,540,135	3,770,815	3,781,146	3,757,310	3,757,310		
Total VMT	28.8	30,612,915	32,453,975	29,041,590	29,781,786	31,119,170	31,253,490	31,360,435	31,587,264	29,304,390	30,604,520	30,604,520	
Percent change from previous year			6%	-11%	2.5%	4.5%	0%	0.3%	0.7%	-7.2%	4.4%	0.0%	
GHG emission rate (tonnes/million VMT) <sup>2,3</sup>		482.2	484.2	481.0	481.5	474.0	486.4	480.9	475.5	468.0	460.6	460.0	
<b>GHG emissions (tonnes)</b>		<b>14,762</b>	<b>15,714</b>	<b>13,969</b>	<b>14,340</b>	<b>14,750</b>	<b>15,202</b>	<b>15,081</b>	<b>15,020</b>	<b>13,714</b>	<b>14,096</b>	<b>14,078</b>	
MMBtu per million VMT <sup>2</sup>							7,080	6,998	6,917	6,837	6,741	6,730	
MMBtu associated with VMT							221,275	219,460	218,489	200,354	206,305	205,968	
<b>Per-capita rates:</b>													
Population		8,012	8,019	8,012	7,855	8,376	8,361	8,500	8,437	8,514	8,226	8,333	8,152
Per-capita VMT		3,821	4,047	3,625	3,791	3,715	3,738	3,689	3,744	3,442	3,720	3,673	
Percent change from previous year			5.9%	-10.4%	4.6%	-2.0%	0.6%	-1.3%	1.5%	-8.1%	8.1%	-1.3%	
Per-capita GHG emissions (tonnes)		1.84	1.96	1.74	1.83	1.76	1.82	1.77	1.78	1.61	1.71	1.69	
Percent change from previous year			6.4%	-11.0%	4.7%	-3.5%	3.2%	-2.4%	0.3%	-9.5%	6.4%	-1.4%	
<b>Notes:</b>													
1	Source of data: Minnesota Department of Transportation (MNDOT), <a href="http://www.dot.state.mn.us/roadway/data/reports/vmt.html">http://www.dot.state.mn.us/roadway/data/reports/vmt.html</a> . Data for 2011 is not yet available. Per the advice of MNDOT staff, 2010 data is assumed to be stable for 2011 until actual 2011 data is available. Miles of roadway vary slightly over time as designations of roads change. Figures listed in 2008 mileages.												
2	The emission rates for 2006 to 2010 are from the City of Minneapolis Greenhouse Gas Inventories: A Geographic Inventory, City of Minneapolis, 5/11/12. To develop fuel consumption by type of fuel, the analysis used a combination of national fleet mix from the Clean Air Climate Protection (CACP) software from ICLEI--Local Governments for Sustainability (see: <a href="http://www.iclei.usa.org/action-center/tools/cacp-software">http://www.iclei.usa.org/action-center/tools/cacp-software</a> ) and national fleet average fuel economy assumptions from the Energy Information Administration's 2012 Annual Energy Outlook. Fuel consumption estimates account for Minnesota's requirement that all gasoline and diesel fuels sold in the state since 2006 include 10% and 5% ethanol respectively, and from 2001-2005 to account for the use of 10% ethanol in gasoline only (B5 diesel was introduced state-wide in late 2005). Emission rates from 2001 to 2005 are derived via linear regression analysis based on the actual data from 2006 to 2010 from the City of Minneapolis Greenhouse Gas Inventories and the GHG emission rate predicted by CACP software (which, as a national rate, is less accurate for Minnesota). The emission rate for 2011 is derived via linear regression using the 2001 to 2010 figures. The MMBtu per 100 million VMT rate for 2006 to 2010 is based on the projected fuel consumption by fuel type in the City of Minneapolis Greenhouse Gas Inventories, Table 2.6. using the kBTu per fuel type listed on the "Conversion Factors" spreadsheet in this Regional Indicators Initiative Project report. The MMBtu per 100 million VMT rate for 2001 to 2005 are derived via linear regression analysis based on the actual data from 2006 to 2010 from the City of Minneapolis Greenhouse Gas Inventories and the total VMT for those years.												
3	GHG emission rates for the national fleet decrease as older less-efficient vehicles are replaced by new, more efficient ones and, to a lesser degree, the production of "cleaner" fuels..												

Vehicle Miles Traveled Charts



Airport Share: Minneapolis Saint Paul International Airport								
Updated 8/14/12								
Category	2005	2006	2007	2008	2009	2010	2011	2012
<b>Minneapolis St. Paul International (MSP) Airport:</b> <sup>1,2</sup>								
Departing flight and airport CO <sub>2</sub> e emissions (tonnes)	4,295,573	4,008,781	3,808,471	3,262,233	2,802,477	2,515,685	2,418,816	
Aircraft operations <sup>2</sup>	532,239	475,668	452,972	450,044	432,395	437,075	436,506	
CO <sub>2</sub> e per operation (tonnes) <sup>1</sup>	8.1	8.4	8.4	7.2	6.5	5.8	5.5	
<b>City share of MSP Airport emissions</b> <sup>3</sup>								
Percent of city resident, home-based trips, as a percent of MSP total home-based trips	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	
City allocation of airport emissions (tonnes)	17,182	16,035	15,234	13,049	11,210	10,063	9,675	
<b>Notes:</b>								
1	The Metropolitan Airport Commission conducted a greenhouse gas baseline assessment for the Minneapolis St. Paul International (MSP) Airport for the years 2005, 2007, and 2009. (Refer to: <i>Greenhouse Gas Report: Metropolitan Airports Commission, December 2010</i> , <a href="http://www.msppairport.com/docs/about-msp/sustainability/MSP-2010-GHG-Report-Jan-2011.aspx">http://www.msppairport.com/docs/about-msp/sustainability/MSP-2010-GHG-Report-Jan-2011.aspx</a> .) The greenhouse gas inventory prepared for the City of Minneapolis ( <i>City of Minneapolis Greenhouse Gas Inventories: A Geographic Inventory</i> , City of Minneapolis, 5/11/12) used linear regression to estimate GHG emissions for 2006, 2008, and 2010. The GHG emissions per aircraft operation for 2011 is derived using linear regression based on the 2005 to 2010 data. The 2011 estimate of GHG emissions is the result of the per-operation emission rate times the 2011 total aircraft operations.							
2	Source for MSP Airport aircraft operations for 2006 to 2011: <a href="http://www.msppairport.com/about-msp/statistics.aspx">http://www.msppairport.com/about-msp/statistics.aspx</a> .							
3	Consistent with the ICLEI Community Protocol, the city's share of the MSP Airport's total emissions were assumed to be equal to the percent of home-based vehicle trips associated with the city that had either an origin or destination at the Airport. The Metropolitan Council calculated the "percent of city resident, home-based trips, as a percent of MSP total home-based trips" for 2010. The Airport's total home-based trips equaled 51,506. The city's share of vehicle trips was assumed to be relatively stable and therefore used for all study years.							

Solid Waste Management and Wastewater Treatment					
Updated: 1/8/13					
Solid Waste Management <sup>1</sup>					
	2008	2009	2010	2011	2012
<b>Ramsey County <sup>2</sup></b>					
Population (thousands)	517.4	517.7	508.6	521.8	523.2
Processing/disposal methods: <sup>3</sup>					
MSW processed at Ramsey/Washington RDF facility (thousands of tons) <sup>9</sup>	175.0	187.5	183.1	210.5	
Processed as a % of total MSW managed	27%	30%	30%	34%	
Total recycled (thousands of tons)	297.8	289.7	294.1	297.9	
Recycled as a % of total MSW managed	45%	46%	48%	48%	
Land disposal of MSW (thousands of tons)	185.9	146.1	139.5	115.40	
Land disposal as a % of total MSW managed	28%	23%	23%	18%	
Total MSW managed <sup>3</sup>	658.7	623.2	616.6	623.8	
Per-capita MSW managed	1.27	1.20	1.21	1.20	
<b>Methane recovery calculation: <sup>4</sup></b>					
Land disposal of MSW (thousands of tons)	185.9	146.1	139.5	115.4	
Unprocessed MSW to landfills without methane recovery (thousands of tons) <sup>5</sup>	114.6	89.3	62.0	47.8	
Percent of unprocessed MSW landfilled in landfills with methane recovery	38%	39%	56%	59%	
Methane recovery factor <sup>6</sup>	29%	29%	42%	44%	
<b>Hennepin County <sup>2</sup></b>					
Population (thousands)	1,169.2	1,169.0	1,152.4	1,181.0	1,187.2
MSW processed at resource recovery facilities (thousands of tons):	487.4	429.1	352.1	412.7	
Hennepin Energy Resources Center (mass burn incinerator)	349.0	338.3	351.6	412.7	
Elk River and Ramsey/Washington (Newport) refuse derived fuel (RDF) facilities	138.4	90.7	0.4		
Processed via combustion as a % of total MSW managed	34%	25%	21%	31%	
Total recycled (thousands of tons)	597.0	573.0	564.2	572.6	
Recycled as a % of total MSW managed	41%	34%	34%	43%	
Land disposal of MSW (thousands of tons)	366.8	693.4	766.1	349.4	
Land disposal as a % of total MSW managed	25%	41%	46%	26%	
Total MSW managed	1,451.2	1,695.5	1,682.3	1,334.8	
Per-capita MSW managed	1.24	1.45	1.46	1.13	
<b>Methane recovery calculation: <sup>4</sup></b>					
Land disposal of MSW (thousands of tons)	366.8	693.4	766.1	349.4	
Unprocessed MSW to landfills without methane recovery (thousands of tons) <sup>5</sup>	97.5	46.1	5.9	3.7	
Percent of unprocessed MSW landfilled in landfills with methane recovery	73%	93%	99%	99%	
Methane recovery factor <sup>6</sup>	55%	70%	74%	74%	
<b>St. Anthony <sup>7</sup></b>					
Population	8,437	8,514	8,226	8,333	8,152
Portion in Ramsey County	38%	38%	37%	33%	33%
Portion in Hennepin County	62%	62%	63%	67%	67%
Estimated total MSW managed	10,574	11,555	11,248	9,598	-
Per-capita MSW managed	1.25	1.36	1.37	1.15	-
Processing/disposal methods:					
Estimated MSW processed via combustion	3,269	3,132	2,722	3,058	-
Elk River and Newport refuse derived fuel facilities	1,242	1,184	1,016	1,010	-
Hennepin Energy Resources Center	2,027	1,949	1,706	2,047	-
Estimated processed as a % of MSW managed	31%	27%	24%	32%	#DIV/0!
Estimated MSW recycled	4,514	4,459	4,366	4,271	-
Estimated recycled as a % of MSW managed	43%	39%	39%	45%	#DIV/0!
Estimated land disposal of MSW	2,791	3,963	4,160	2,269	-
Estimated land disposal as a % of MSW managed	26%	34%	37%	24%	#DIV/0!
<b>GHG emission estimates (tonnes) <sup>8</sup></b>					
GHG emissions from combusting MSW <sup>9</sup>					
Elk River and Newport refuse derived fuel facilities					
Fossil	477	454	367	389	-
Biogenic	812	767	611	537	-
Hennepin Energy Resources Center					
Fossil	778	748	616	788	-
Biogenic	1,326	1,262	1,027	1,088	-
Total GHG emissions from combusting MSW	1,255	1,203	984	1,177	-
Weighted methane recovery factor <sup>6</sup>	45%	55%	62%	64%	0%
GHG emission rate for landfilling (tonnes per ton landfilled) <sup>9</sup>	0.536	0.443	0.369	0.349	0.976
GHG emissions from landfilling MSW	1,497	1,758	1,535	793	-
Total estimated GHG emissions	2,752	2,960	2,519	1,970	-
Per-capita GHG emissions	0.33	0.35	0.31	0.24	-
<b>GHG value of electricity produced by RDF combustion (tonnes) <sup>11</sup></b>					
Metro Wastewater Treatment Plant (tonnes of CO <sub>2</sub> e) <sup>12</sup>	1,177	955	784	924	-
<b>Fossil Emissions</b>					
Scope 2	120,234	115,241	99,124		
Scope 1	82,569	79,388	81,295		
Total Fossil Emissions	202,803	194,629	180,419	208,968	
Biogenic Emissions	137,302	129,735	163,565		
Total emissions from the Metro Wastewater Treatment Plant (tonnes)	340,105	324,364	343,984	208,968	
Percent of fossil emissions attributable to the City	0.31%	0.30%	0.31%	0.35%	
<b>Emissions attributable to the City</b>					
	635	583	561	724	
<b>Notes:</b>					
1	Municipal solid waste (MSW) in U.S. tons unless otherwise noted. Greenhouse gas (GHG) emissions are in metric tonnes.				
2	Data for 2008 to 2010 from MPCA SCORE reports: <a href="http://www.pca.state.mn.us/index.php/data/score/recycling-and-solid-waste-data.html">http://www.pca.state.mn.us/index.php/data/score/recycling-and-solid-waste-data.html</a> . 2011 data from County Certification report.				
3	Based on the MPCA website: The SCORE Report (from the Governor's Select Committee on Recycling and the Environment) is an annual examination of Minnesota waste management programs and data, as well as providing detailed data by county. The figures are gathered through a formal survey of county solid waste officers. Ambitious goals for recycling and waste reduction were set for Minnesota counties and have typically been met, if not exceeded.				
4	To estimate the GHG emissions from landfilled waste, methane recovery must be accounted for because methane is the primary GHG emission from landfills.				
5	All waste landfilled in Minnesota went to landfills with methane recovery plus waste that went to the Central Disposal facility in Iowa. The remaining waste went to landfills in Wisconsin that do not have methane recovery.				
6	Staff from the MPCA recommended using a 75% methane recovery rate for unprocessed MSW in a landfill with methane recovery. The "Methane recovery factor" is derived by multiplying the percent of the total landfilled waste that is deposited in landfills with methane recovery times the MPCA average recovery rate of 75% for methane. The rate for the City is weighted according to the City's share of the two counties' population.				
7	To generate estimates of City waste amounts by waste management method, per-capita generation rates for the two counties are used and weighted according to the City's share of each county's population.				
8	When estimating total recycling, the SCORE reports show a 5% credit for composting waste in the County. Waste collected for composting is not counted in the MSW totals. It is not a factor for estimating GHG emissions because proper composting of organic materials generates a net zero amount of GHG emissions.				
9	It is assumed that the city's waste will be sent to the closest processing facility. For MSW combustion, only the fossil-based emissions are counted for the purposes of carbon baseline assessments per the ICLEI Community Protocol (Appendix E, p. 15). The fossil-based emissions also include all of the CH <sub>4</sub> and N <sub>2</sub> O emissions. Also refer to the explanatory footnotes dealing with the combustion of MSW in the Conversion Factors spreadsheet.				
10	The Clean Air Climate Protection (CACP) software, developed by ICLEI-Local Governments for Sustainability, estimates the GHG emissions resulting from landfilling of the MSW collected for processing. The software incorporates the waste composition percentages from the 2000 MPCA waste composition study and calculates the GHG emissions based on the following: $y = -976.3x + 976.3$ where $y$ =GHG emissions and $x$ =Methane Recovery Factor.				
11	The HERC facility has two byproducts, electricity which is sold to Xcel Energy, and steam, which is sold to Target Field, NRG (district energy), and the Hennepin Energy Center (district energy). Consistent with the ICLEI Community Protocol, the GHG emissions associated with these byproducts are not treated as "negative" emissions in the calculation of the GHG emission rate. They are disclosed here for informational purposes. The footnotes for Table 5 in the Conversion Factors spreadsheet contain additional information.				
12	The emission rate for 2011 is an average of the known rates for 2008 to 2010. Total emissions for 2011 are based on this assumption. Source: Metropolitan Council Environmental Services, Linda Henning, Special Projects Manager.				



<b>Community Solid Waste: Waste Composition</b>			
Updated: 6/24/10			
<b>CACP Category <sup>5</sup></b>	<b>2000 MPCA Study <sub>1</sub></b>	<b>2005 Iowa Study <sub>2</sub></b>	<b>Change</b>
Paper products	34.2%	33.0%	-1.2%
Food waste <sup>3</sup>	12.9%	13.0%	0.1%
Plant debris	2.9%	3.1%	0.2%
Wood/textiles <sup>4</sup>	11.4%	12.9%	1.5%
All other waste	38.6%	38.0%	-0.6%
Total	100.0%	100.0%	
<b>Notes:</b>			
(1) Source: Final Report, <i>Statewide MSW Composition Study: A Study of Discards in the State of Minnesota</i> , Solid Waste Management Coordinating Board, Minnesota Pollution Control Agency, March 2000.			
(2) Iowa Statewide Waste Characterization Study, Iowa Department of Natural Resources, February 2006, <a href="http://www.iowadnr.gov/waste/sw/files/wastechar05.pdf">http://www.iowadnr.gov/waste/sw/files/wastechar05.pdf</a>			
(3) Includes diapers			
(4) Includes "other organic material"			
(5) CACP refers to the Clean Air Climate Protection software developed by ICLEI--Local Governments for Sustainability. The 2000 waste composition study by the MPCA is the most recent study of its kind in Minnesota. Since the more recent 2005 Iowa waste composition study did not vary more than 1.5% from the older Minnesota study, the MPCA study was used to estimate GHG emissions.			

<b>Population, Households, and Jobs</b>										
Updated: 2/1/13										
Year	City Portion in Ramsey County			City Portion in Hennepin County			City Total			Ramsey County Population
	Population	% of City	Households	Population	% of City	Households	Population	Households	Jobs	
1970	2,353	25%	867	6,886	75%	1,887	9,239	2,754		476,255
1980	2,362	30%	1,110	5,619	70%	1,935	7,981	3,045		459,784
1990	2,449	32%	1,245	5,278	68%	2,208	7,727	3,453		485,765
2000	2,348	29%	1,295	5,664	71%	2,402	8,012	3,697		511,035
2001	2,350	29%	1,297	5,662	71%	2,401	8,012	3,698		512,462
2002	2,519	31%	1,297	5,500	69%	2,398	8,019	3,695		514,748
2003	2,512	31%	1,297	5,500	69%	2,398	8,012	3,695		515,274
2004	2,430	31%	1,245	5,425	69%	2,377	7,855	3,622		515,411
2005	2,962	35%	1,534	5,414	65%	2,401	8,376	3,935		515,258
2006	3,070	37%	1,603	5,291	63%	2,340	8,361	3,943		515,059
2007	3,256	38%	1,715	5,244	62%	2,330	8,500	4,045		517,074
2008	3,205	38%	1,762	5,232	62%	2,317	8,437	4,079	2,989	517,398
2009	3,217	38%	1,797	5,297	62%	2,339	8,514	4,136	3,003	517,748
2010	3,070	37%	1,638	5,156	63%	2,210	8,226	3,848	2,984	508,640
2011	3,140	33%	1,659	5,193	67%	2,222	8,333	3,881	3,145	521,832
2012	2,694	33%		5,459	67%		8,152	4,062	3,253	523,239
2020							7,600	7,600	5,000	
2030							7,600	7,600	5,150	

**Notes:**

1970 to 2012 data:	Source for population and household data: Metropolitan Council of the Twin Cities: <a href="http://stats.metc.state.mn.us/data_download/DD_start.asp">http://stats.metc.state.mn.us/data_download/DD_start.asp</a> estimates are forecasts based on actual historical data.
2008 to 2012 jobs data	Source: North American Industry Classification System (NAICS) and the Quarterly Census of Employment Wages (QCEW): ( <a href="http://www.positivelyminnesota.com/apps/lmi/qcew/ResultsDisp.aspx">http://www.positivelyminnesota.com/apps/lmi/qcew/ResultsDisp.aspx</a> ). Data is from "Total of All Ownerships" and "Total, All Industries." because it tends to be the least affected by seasonal fluctuation. The annual data was not chosen because it is an average of the four quarters a optimal comparison purposes.
2020 & 2030 forecasts	Source: Metropolitan Council of the Twin Cities: <a href="http://stats.metc.state.mn.us/data_download/DD_start.aspx">http://stats.metc.state.mn.us/data_download/DD_start.aspx</a> .

Precipitation and Potable Water Distribution							
Updated: 1/31/13							
Precipitation <sup>1</sup>			Potable Water Distribution (gallons) <sup>2</sup>				
Period	Zip Code	Inches	Residential	Commercial	Institutional	C & I Subtotal	Total
2008	55418	24.48	232,425,677	59,466,903	15,545,673	75,012,576	307,438,253
2009		25.44	230,170,631	58,479,608	19,035,170	77,514,778	307,685,409
2010		36.93	198,618,344	49,462,942	11,768,577	61,231,519	259,849,863
2011		32.93	203,827,957	50,810,471	13,894,223	64,704,694	268,532,651
2012							
2020							
2030							
<b>Notes:</b>							
1	Source: <a href="http://climate.umn.edu/wetlands/wetlands.asp">http://climate.umn.edu/wetlands/wetlands.asp</a>						