

**Greenhouse Gas Reduction  
Initiative  
City of Wichita**

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# Local Benefits to Reducing Greenhouse Gases

- Potential to reduce operating costs
  - Energy conservation
  - Fleet maintenance
  - Recycling of materials
  - Waste reduction
- Public health improvements
  - Reduce respiratory diseases, such as bronchitis and asthma
  - **Co-benefit of criteria pollutant emissions reduction**
  - Improved air quality with reduced urban smog

## Cities have a *significant* role to play in addressing climate change.

### Examples:

- Local governments can help meet air quality standards for currently regulated pollutants by reducing their greenhouse gas emissions (co-benefits).
- Municipal facilities offer significant opportunities for cost-effective greenhouse gas reduction efforts that can trim expenses while helping the environment.
- Local governments have regulatory authority over many direct and indirect sources of greenhouse gas emissions such as:
  - defining land-use, zoning, and transportation policy
  - operating landfills
  - monitoring air quality
  - passing and enforcing building codes
  - defining procurement policies
  - regulating parking.
- Cities may be vulnerable to the potential impacts of climate change and thus have a stake in efforts to reduce greenhouse gas emissions.

# The Greenhouse Effect



Some solar radiation is reflected by the earth and the atmosphere

Solar radiation passes through the clear atmosphere



Most radiation is absorbed by the earth's surface and warms it

Some of the infrared radiation passes through the atmosphere, and some is absorbed and re-emitted in all directions by greenhouse gas molecules. The effect of this is to warm the earth's surface and the lower atmosphere.



Infrared radiation is emitted from the earth's surface

# City of Wichita Environmental Health Department

## Air Quality Program Projects

- Air pollution source annual inspections
- Air monitoring network
- Air Quality Improvement Task Force list of current projects
- o Identify air quality issues when developing transportation plans to reduce vehicle miles traveled and include in various planning documents including the comprehensive plan
- o Develop a community awareness and education program.
- o Encourage acquisition of more environmental friendly buses and transit system, promoting use of alternative fuels and electric or hybrid vehicles.
- o Continued enforcement of local ordinances on visible emissions from vehicles
- o Continued development of Wichita Intelligent Transportation System
- o Gas cap replacement program to reduce vapor emissions from vehicles
- o Explore the use of alternative fuels for government vehicle fleets
- o Explore the use of hybrid vehicles for government fleets
- o City of Wichita Pilot Project - Underground Storage Tank Retrofit for Phase I vapor recovery
- o Support of rail corridor improvements that enhance traffic flow
- o Voluntary vehicle emissions testing program
- o Reinstate Pollution Prevention Program for voluntary emission reductions at area small businesses, thus helping identify areas for emission reductions at their facilities
- o Voluntary use of Phase I vapor recovery by local businesses
- o Continued encouragement of establishing biking and hiking paths and their use
- o Promote electric & mulching lawn mowers & "No-Spill" gas cans.
- o Van pooling by commuters
- o Car pooling

# Develop a Local Emissions Inventory for City of Wichita (government operations only)

- Base year 2006 - (first inventory)
  - Major source was electricity usage
- Inventory completed for 2007
  - Energy usage increased by 8%
- Inventory nearly final for 2008
  - Will show additional increase in energy usage
- Bright spot - City captures methane from landfill and sells to nearby alcohol plant as fuel - emissions avoided are greater than total City GHG emissions from all other sources.

Table 2 - GREENHOUSE GAS BUILDUP BY SOURCE								2007	2006	Change
2007								CO2E	CO2E	
FILE: GHGoverall07R (Transit diesel-gas corrected)	All Non-Airport	Airport	Avg Miles	Total Miles	Avg mpg	Annual gallons	CO2E multiplier	kg	kg	
TRANSPORTATION	gallons	gallons			EPA 2005	Total	kg/gal			
Service Vehicles-gasoline	765,908	28,594				794,502	8.81	6,999,563	5,655,487	23.8%
Service Vehicles-diesel	614,837	19,878				634,715	10.10	6,410,622	4,816,256	33.1%
Service Vehicles- propane	4,274					4,274	5.76	24,618	152,640	-83.9%
Wichita Transit-gasoline	104,766					104,766	8.81	922,988	936,334	-1.4%
Wichita Transit-diesel	421,932					421,932	10.10	4,261,513	4,261,917	0.0%
(Pax = Passenger)	Pax Miles	Pax Miles					kg/paxmile			
Business Air Travel	677,829	66,440		744,269			0.34	253,051	204,627	23.7%
							kg/gal			
Business Rental Cars	621	2,013		2,634	19.7	134	8.81	1,178	692	70.2%
Business Personal Cars	128,850	6,901		135,751	19.7	6,891	8.81	60,709	32,844	84.8%
Sub-Total Transportation								18,934,242	16,060,797	17.9%
ELECTRICITY (Westar)	mwh	mwh				mwh	kg/mwh			
(See sheet 2 for CO2E multiplier)	156,299	9,492				165,791	921.2	152,726,669	141,384,170	8.0%
NATURAL GAS	All Non-Airport mcf	Airport mcf		Total mcf			kg/mcf CH4			
Heating	59,038	27,949		86,987			54.6	4,749,490	3,945,206	20.4%
PROPANE			gallons				kg/gal			
Golf & Century II			1,170				5.76	6,739	17,107	-60.6%
OTHER					pounds	kg	kg/kg HFC			
Industrial Gases	(HFC-134a)				300	136	1,300	176,871	176,871	0.0%
Sub-Total Gases								4,933,100	4,139,184	19.2%
TOTAL WITHOUT COMMUTE								176,594,012	161,584,151	9.3%
EMPLOYEE COMMUTE	Employees	Annual Days	Average miles	Annual miles	EPA 2005 mpg	gallons	kg/gallon			Change
Non-Airport	3,219	240	20.4628	15,808,764	19.7	802,475	8.81	7,069,808	6,342,915	11.5%
Airport	111	240	21.1539	563,539	19.7	28,606	8.81	252,019	254,225	-0.9%
TOTAL COMMUTE	3,330	240	20.4859	16,372,303		831,081		7,321,827	6,597,140	11.0%
GRAND TOTAL INCLUDING COMMUTE								183,915,839	168,181,291	9.4%

LANDFILL		mcf	kg CO2E/mcf CH4	kg CH4/mcf CH4	kg CH4	kg/kg CH4	CO2E kg	2006
Methane	If Released	14,728		19.1	281,305	21	5,907,401	(Not in 2007 report)
	Flared	14,728	54.6				804,149	
	Net Avoided						5,103,252	kg CO2E
	To Ethanol	779,632		19.1	14,890,971	21	312,710,395	32,670,397
TOTAL CO2E AVOIDED BY FLARING AND ETHANOL PLANT USE							317,813,647	32,670,397

The Health, Environmental,  
& Economic Effects of Air  
Pollution Reduce  
the Quality of Life  
for All Of Us