“

What gets measured gets improved.

Peter Drucker

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Baseline Assessment consists of:

Community Wide Emissions

- Community Wide Energy Use
- Community Wide Travel and Transport
- Community Wide Water
- Community Wide Solid Waste
- Community Wide Solid Waste

City Operations Emissions

- City Operations Buildings and Grounds
- City Operations Street Lights and Signals
- City Operations Vehicles
- City Operations Travel and Transport
- City Operations Water and Waste Water
- City Operations Solid Waste

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Community Wide Energy Use

Annual Greenhouse Gas equal to:

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Community Wide Energy Use

Annual Greenhouse Gas equal to:

270,111
Metric Tonnes

5,299,879,805
Cubic Feet of Atmosphere

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Community Wide Energy Use

Annual Greenhouse Gas equal to:

270,111
Metric Tonnes

5,299,879,805
Cubic Feet of Atmosphere

55.46%
Community Total

Volume Visualization

The graphic above represents the community wide volume of man-made GHG atmosphere produced annually by community wide building energy use - seen here from White Bear Lake and I-694 2.25 miles away. The volume of atmosphere is equal to a cube **1,744** feet on each face.

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Community Wide Travel and Transportation

Annual Greenhouse Gas equal to:

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Community Wide Travel and Transportation

Annual Greenhouse Gas equal to:

204,212
Metric Tonnes

4,006,867,749
Cubic Feet of Atmosphere

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Community Wide Travel and Transportation

Annual Greenhouse Gas equal to:

204,212
Metric Tonnes

4,006,867,749
Cubic Feet of Atmosphere

41.93%
Community Total

Volume Visualization

The graphic above represents the community wide volume of man-made GHG atmosphere produced annually by community transportation and travel - seen here from White Bear Lake and highway 36. The volume of atmosphere would cover all 268 lane-miles of streets within the City to a depth of over **258** feet.

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Community Wide Water Use

Annual Greenhouse Gas equal to:

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Community Wide Water Use

Annual Greenhouse Gas equal to:

1,285
Metric Tonnes

25,213,137
Cubic Feet of Atmosphere

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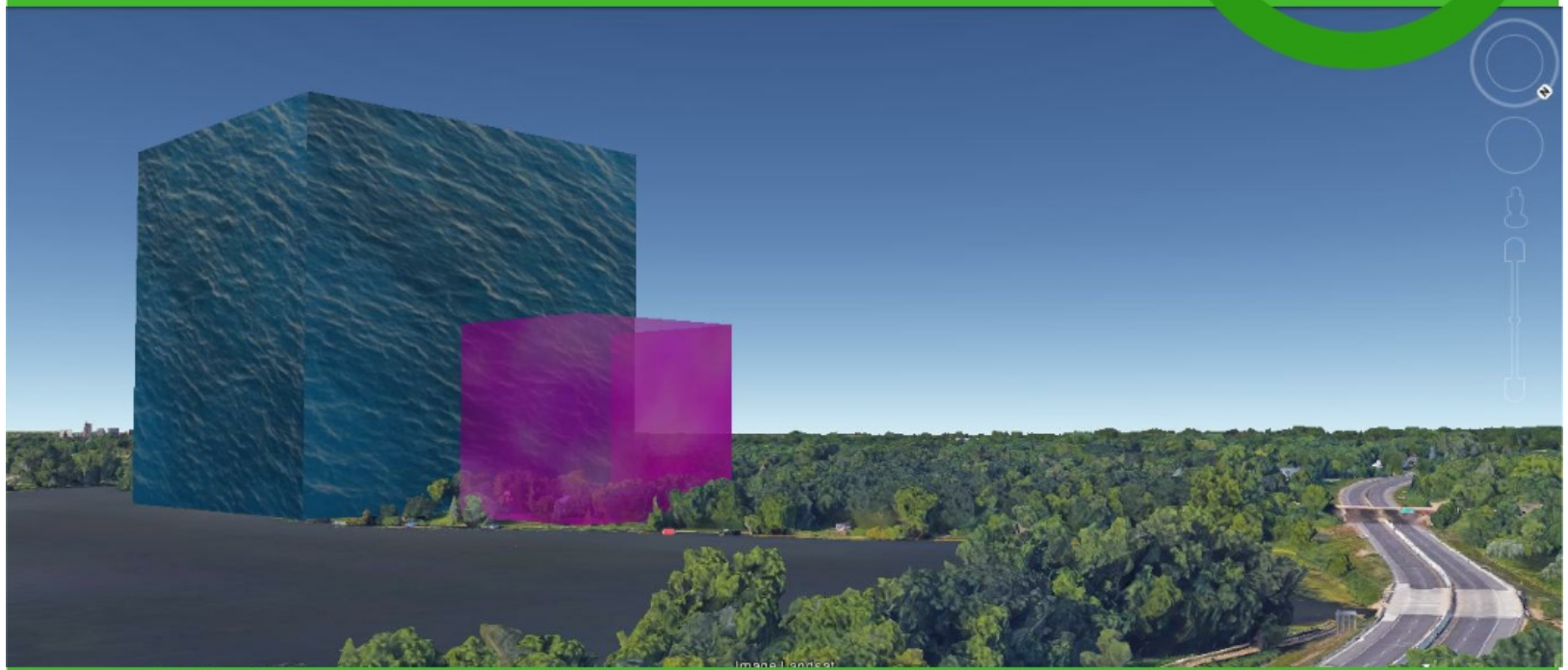
Community Wide Water Use

Annual Greenhouse Gas equal to:

1,285
Metric Tonnes

25,213,137
Cubic Feet of Atmosphere



0.26%
Community Total

Volume Visualization

The graphic above represents the community wide volume of water consumed (blue mass) and the associated man-made GHG atmosphere produced annually (purple mass) - seen here at Keller Lake near Highway 36.

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Emissions associated with water use within City of Maplewood equal:

25 Cubic Inches of man-made atmosphere for every gallon of water pumped.
(Figure to scale)

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Community Wide Solid Waste

Annual Greenhouse Gas equal to:

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Community Wide Solid Waste

Annual Greenhouse Gas equal to:

8,654
Metric Tonnes

169,801,155
Cubic Feet of Atmosphere

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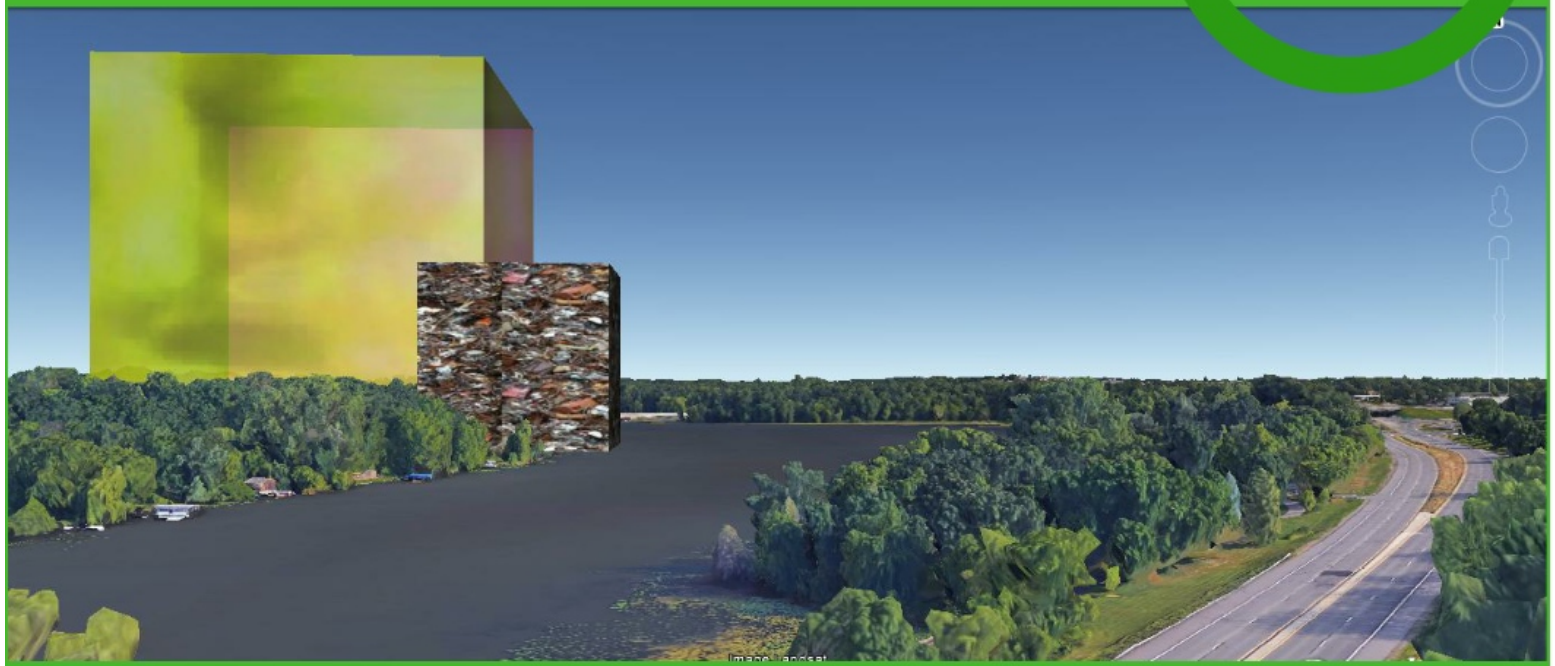
Community Wide Solid Waste

Annual Greenhouse Gas equal to:

8,654
Metric Tonnes

169,801,155
Cubic Feet of Atmosphere

1.78%
Community Total



Volume Visualization

The graphic above represents the community wide volume of municipal solid waste generated and the associated man-made GHG atmosphere produced annually (yellow mass) - seen here at Keller Lake near Highway 36. The emissions would fill a volume of atmosphere equal to a cube **554** feet per face

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Community Wide Waste Water

Annual Greenhouse Gas equal to:

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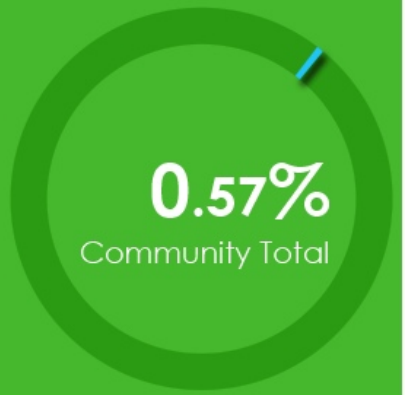
Community Wide Waste Water

Annual Greenhouse Gas equal to:

2,759
Metric Tonnes

54,134,664
Cubic Feet of Atmosphere



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Community Wide Waste Water

Annual Greenhouse Gas equal to:

2,759
Metric Tonnes

54,134,664
Cubic Feet of Atmosphere

0.57%
Community Total

Volume Visualization

The City of Maplewood produces 1,350,600,000 gallons of wastewater annually. This volume of waste water is enough to fill Keller Lake over **8x**

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Community Wide Total

Annual Greenhouse Gas equal to:

487,021
Metric Tonnes

9,555,896,509
Cubic Feet of Atmosphere

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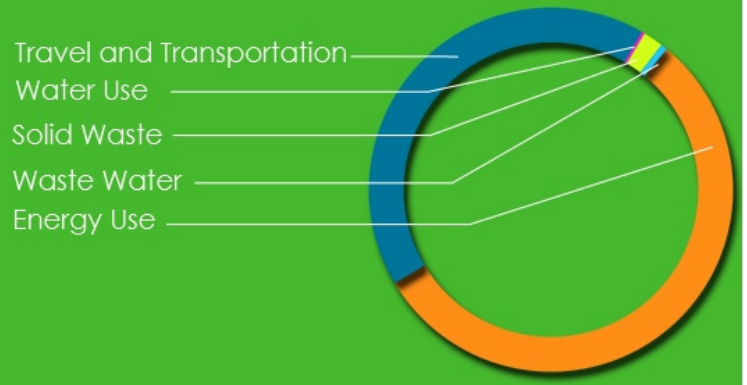
Community Wide Total

Annual Greenhouse Gas equal to:

487,021
Metric Tonnes

9,555,896,509
Cubic Feet of Atmosphere



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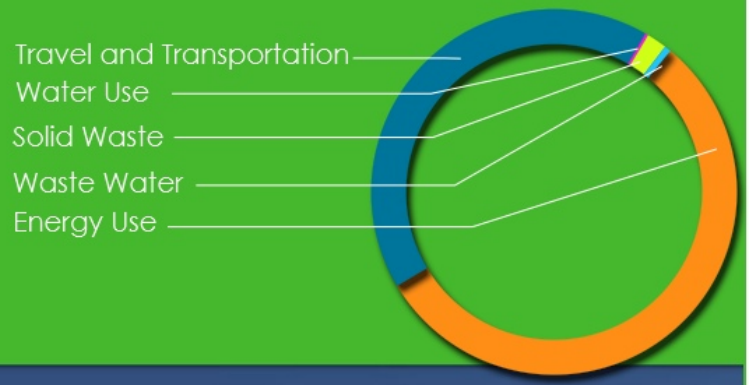
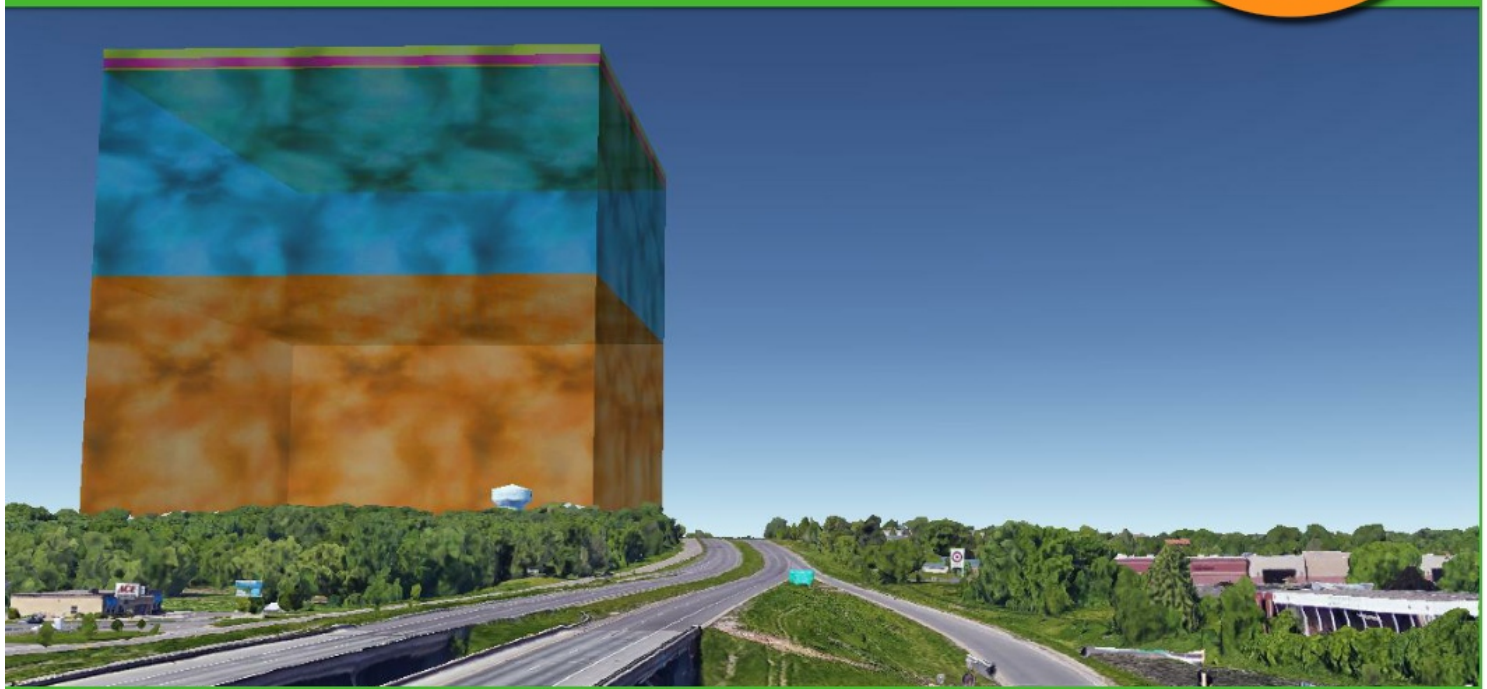
Community Wide Total

Annual Greenhouse Gas equal to:

487,021
Metric Tonnes

9,555,896,509
Cubic Feet of Atmosphere





Volume Visualization

The graphic above represents the community wide volume of man-made GHG atmosphere produced annually by the City of Maplewood emissions totals. - seen here from McKnight and Minnesota 36 1.5 miles away. The volume of atmosphere is equal to a cube **2,122** feet on each face.

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Forest acres needed to sequester Maplewood Community Wide Greenhouse gas Emissions:

399,197 Acres

Total land within City: 97,420 Acres

Maplewood Tree Cover: 35% (est)

Emissions reduction required for community to sequester its own emissions:

91.5%

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City Operations
Buildings and Grounds
Annual Greenhouse Gas equal to:

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City Operations
Buildings and Grounds

Annual Greenhouse Gas equal to:

3,503.30
Metric Tonnes

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City Operations
Buildings and Grounds

Annual Greenhouse Gas equal to:

3,503.30 Metric Tonnes

63,738,624 Cubic Feet of Man-Made Atmosphere

Volume Visualization

The graphic above illustrates the annual emissions associated with building operations for City owned facilities. These emissions represent an average volume of man-made atmosphere equal to a mass over **287'** high for each of the 11 buildings included.

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City Operations
Streetlights and Signals

Annual Greenhouse Gas equal to:

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City Operations
Streetlights and Signals

Annual Greenhouse Gas equal to:

403.62
Metric Tonnes

7,919,
Cubic Feet of Man-Made Atmosphere

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City Operations
Streetlights and Signals

Annual Greenhouse Gas equal to:

403.62
Metric Tonnes

7,919,
Cubic Feet of Man-Made Atmosphere

Operations of City of Maplewood streetlights and signals produces a volume of greenhouse gas equal to:

522
Cubic Feet of man-made Atmosphere annually For every family in Maplewood
(Figure to scale)

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City Operations
City Vehicles

Annual Greenhouse Gas equal to:

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City Operations
City Vehicles

Annual Greenhouse Gas equal to:

899.60
Metric Tonnes

17,651,067
Cubic Feet of Man-Made Atmosphere

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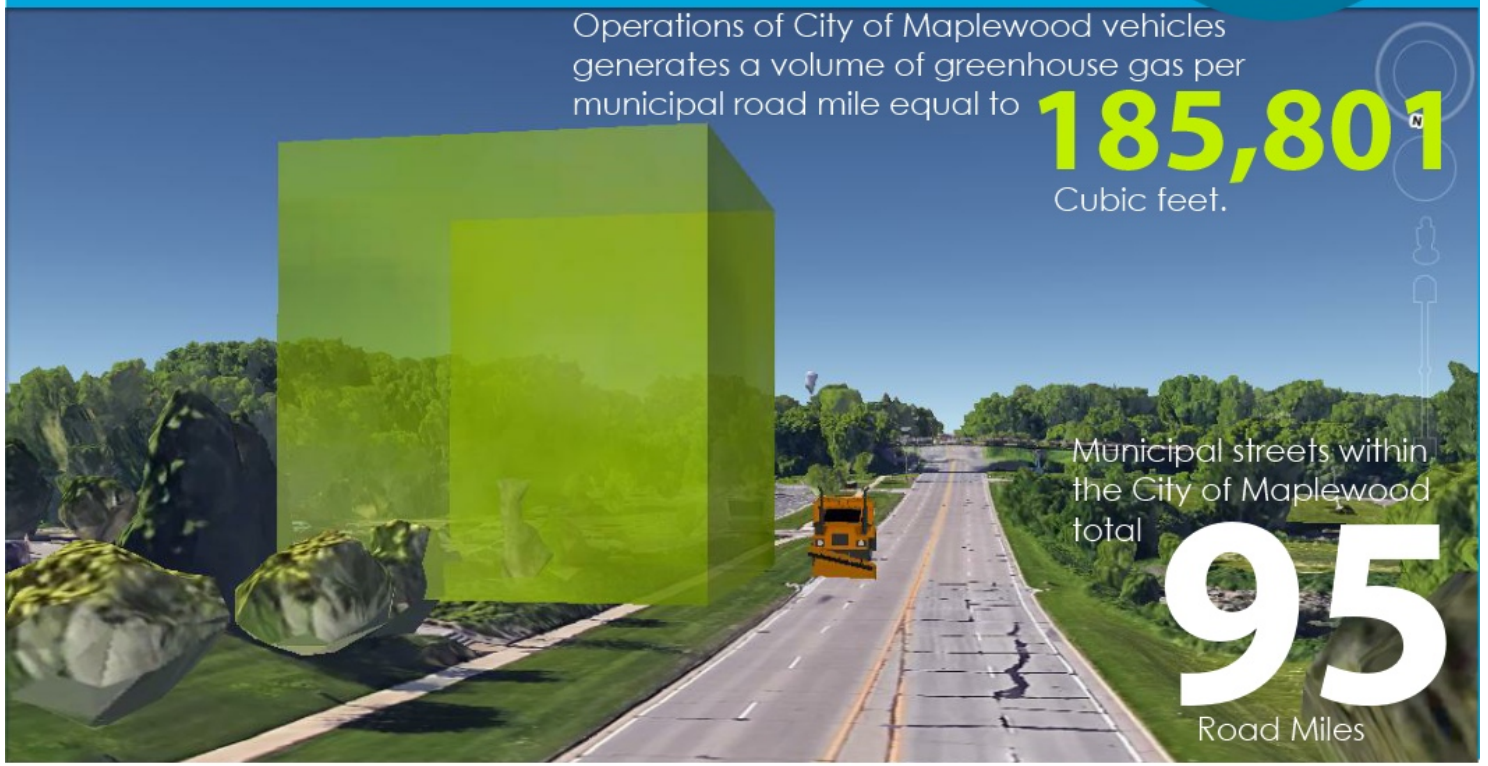
City Operations
City Vehicles

Annual Greenhouse Gas equal to:

899.60
Metric Tonnes

17,651,067
Cubic Feet of Man-Made Atmosphere



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How can GHG emissions weigh more than the fuel we burn

According to the US EPA:

The amount of carbon dioxide (CO2) that is produced from burning a fuel weighs more than the amount of the fuel itself, because during complete combustion, each carbon atom in the fuel combines with two oxygen atoms in the air to make CO2. The addition of two oxygen atoms to each carbon atom forms CO2, which has an atomic weight of 44—roughly 3.6667 times the atomic weight of the carbon, which is 12.

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City Operations
Employee Transportation
Annual Greenhouse Gas equal to:

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City Operations
Employee Transportation

Annual Greenhouse Gas equal to:

410.34
Metric Tonnes

8,051,359
Cubic Feet of Man-Made Atmosphere

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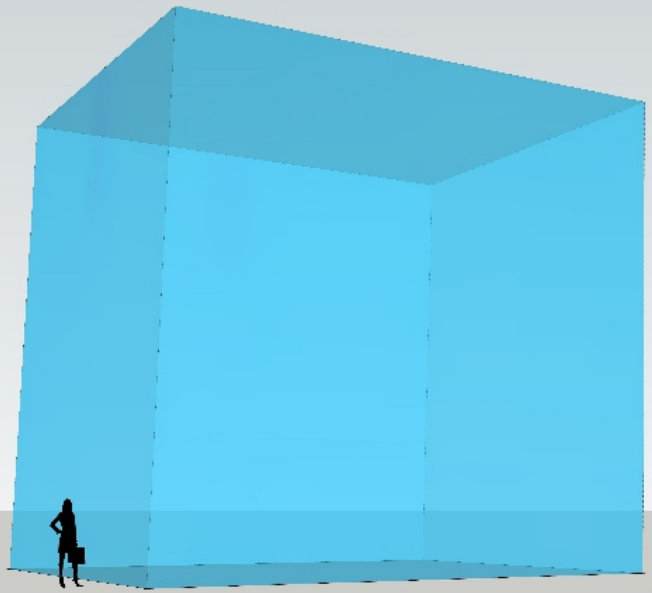
City Operations
Employee Transportation

Annual Greenhouse Gas equal to:

410.34
Metric Tonnes

8,051,359
Cubic Feet of Man-Made Atmosphere



7.79%
City Operations Total

Emissions associated with employee commute
And business travel total

48,796

Cubic Feet of man-made atmosphere per City employee (Figure to scale)

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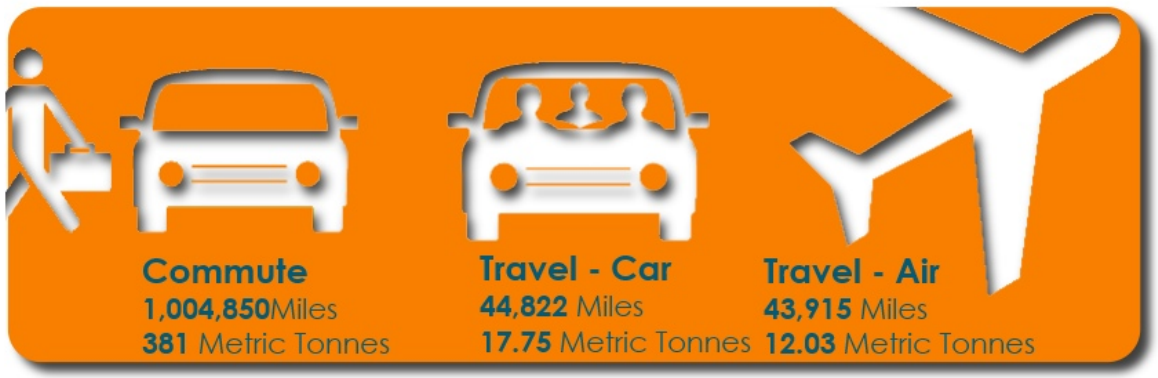
City Operations
Employee Transportation

Annual Greenhouse Gas equal to:

410.34 Metric Tonnes

8,051,359 Cubic Feet of Man-Made Atmosphere

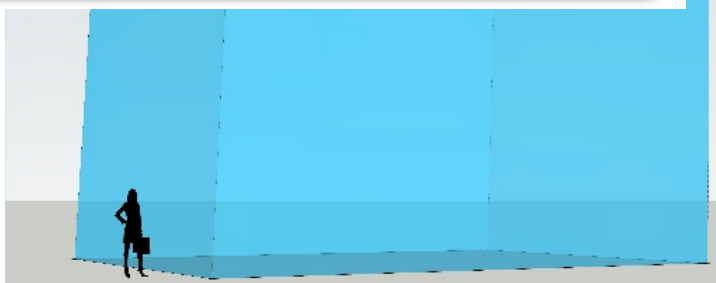
7.79% City Operations Total



Emissions associated with employee commute And business travel total

48,796

Cubic Feet of man-made atmosphere per City employee (Figure to scale)



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City Operations
Water and Wastewater

Annual Greenhouse Gas equal to:

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City Operations
Water and Wastewater

Annual Greenhouse Gas equal to:

43.73
Metric Tonnes

858,075
Cubic Feet of Man-Made Atmosphere

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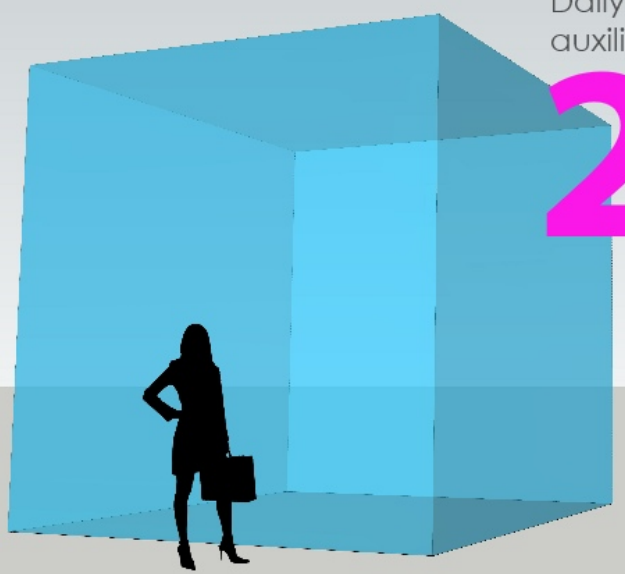
City Operations
Water and Wastewater

Annual Greenhouse Gas equal to:

43.73
Metric Tonnes

858,075
Cubic Feet of Man-Made Atmosphere



Daily emissions associated with Maplewood's auxiliary Waste Water infrastructure total:

2,351

Cubic Feet of man-made atmosphere
(Figure to scale)

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City Operations
Solid Waste

Annual Greenhouse Gas equal to:

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City Operations
Solid Waste

Annual Greenhouse Gas equal to:

6.82
Metric Tonnes

133,813
Cubic Feet of Man-Made Atmosphere

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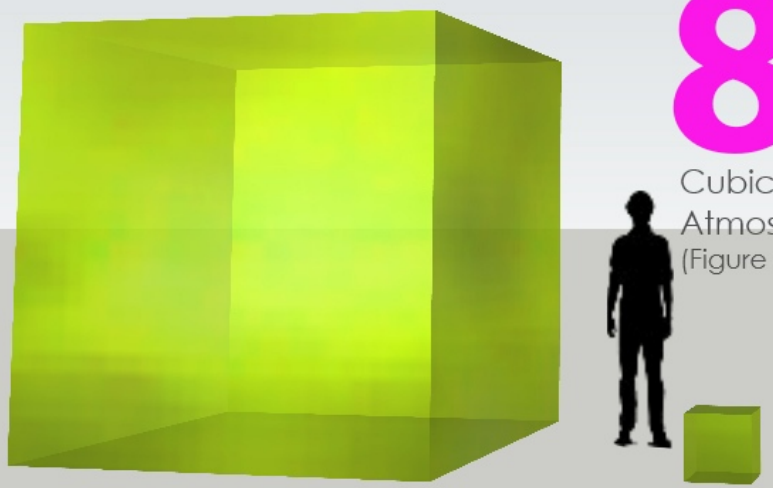
City Operations
Solid Waste

Annual Greenhouse Gas equal to:

6.82
Metric Tonnes

133,813
Cubic Feet of Man-Made Atmosphere

Annual emissions associated with solid waste generated at Maplewood facilities totals:



811
Cubic Feet of man-made Atmosphere per employee
(Figure to scale)

1.9
Cubic Feet per pound of solid waste (Figure to scale)

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City Operations Total

Annual Greenhouse Gas equal to:

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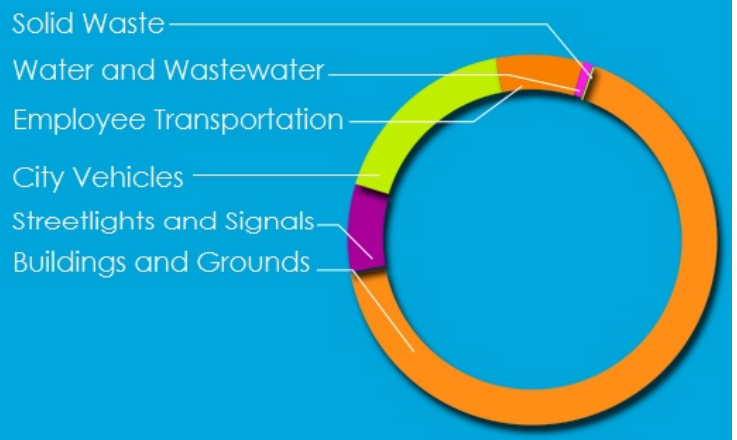
City Operations Total

Annual Greenhouse Gas equal to:

5,267.41 Metric Tonnes

103,352,455 Cubic Feet of Man-Made Atmosphere



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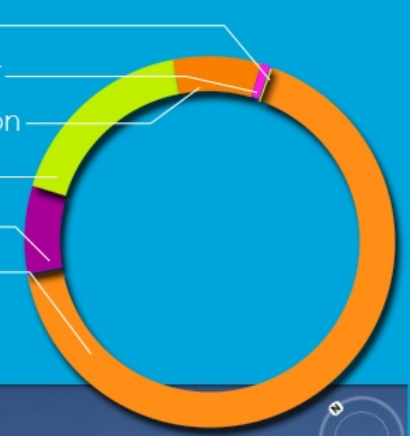
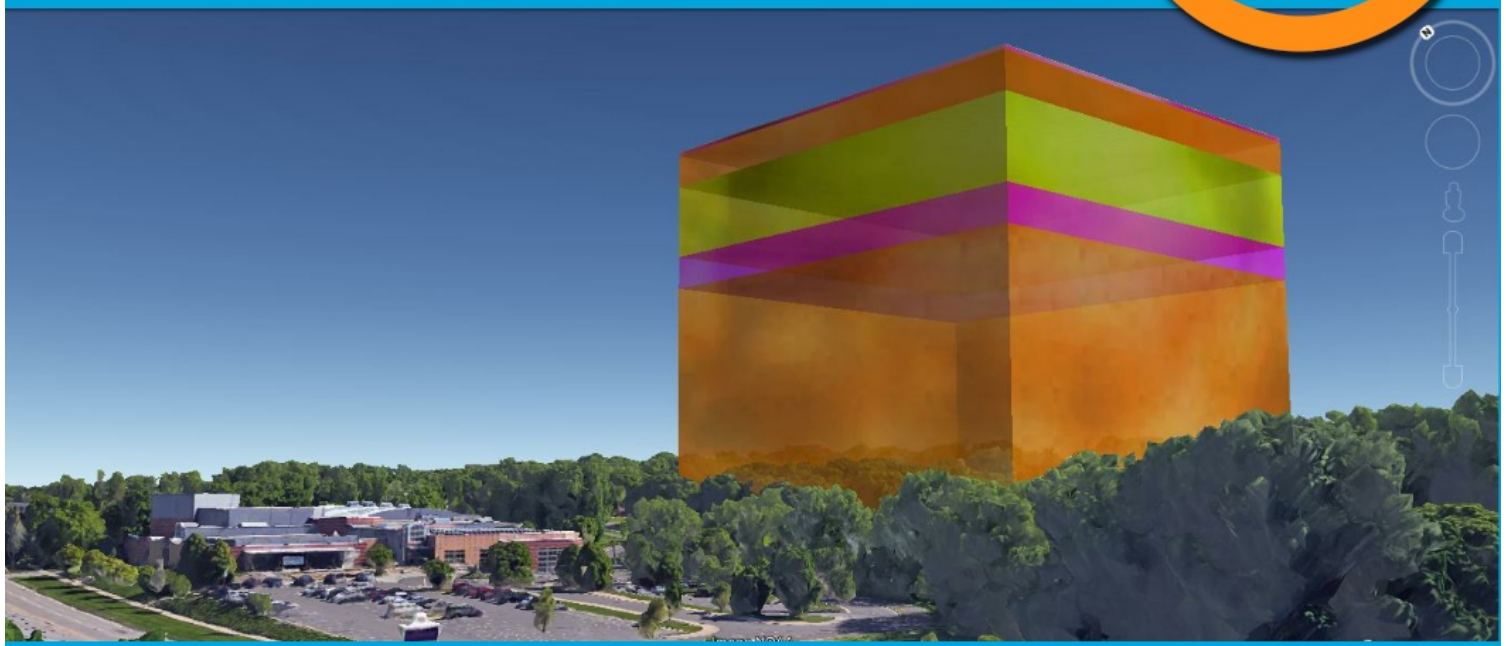
City Operations Total

Annual Greenhouse Gas equal to:

5,267.41 Metric Tonnes

103,352,455 Cubic Feet of Man-Made Atmosphere





Volume Visualization

The graphic above represents the volume of man-made GHG atmosphere produced annually by the City of Maplewood operations, broken down by category, shown in scale with Maplewood Community Center.

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City Operations	Metric Tonnes		
Maplewood:	**5,267** Total	**32** /staff	**48**/Facility sf
Elk River:	**5,922** Total	**49** /staff	**43**/Facility SF
Edina:	**24,939** Total	**50** /staff	
Bloomington:	**17,974** Total	**58** /staff	
Falcon Heights:	**397** Total	**24** /staff	

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Recommendations
(partial)

Engage a consultant to develop a GHG Reduction goal and action plan.

Maintain and update Community Wide and City Operations GHG inventory annually tracking progress against goals.

Engage a consultant for a Facility Assessment, Energy Audit, and energy efficiency action plan for the City Hall/Police, Fire Station 7, and Community Center facilities

Explore the feasibility of additional renewable energy generation on one or more City facility

Explore potential of an Alternative Energy TIF district for redevelopment of target sites within City

Engage a consultant to develop a sidewalk, bike lane, bike trail, tree and pollinator corridor and connectivity study

Implement employee green-commuter incentives such as buss passes, insurance premium reductions for walking/biking to work, etc.

Engage a consultant to work with City to conduct a community climate risk assessment and mitigation plan.

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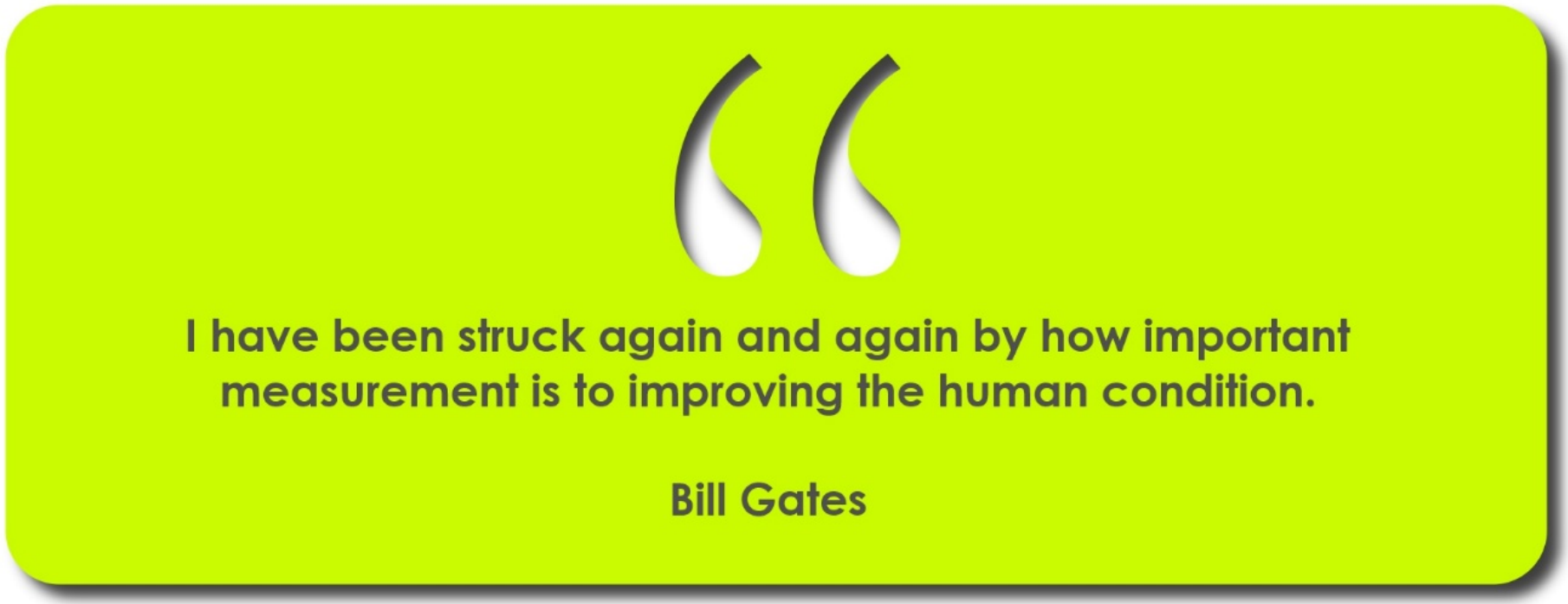

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