



City of Gainesville Waste Collection Services Carbon Footprint

By understanding the environmental impacts of waste collection systems, the City of Gainesville can be better informed when implementing future services.

Currently, the City of Gainesville utilizes four service providers for waste collection services: Florida Express Environmental, Republic Services, Waste Pro, and WCA Waste Corporation. The standard for garbage and recycling vehicles is to use diesel fuel.

Through analysis of provided commercial and multi-family residential data, We Are Neutral calculated the City's waste collection services carbon footprint. Potential improvements were then taken into account to highlight carbon reduction possibilities.

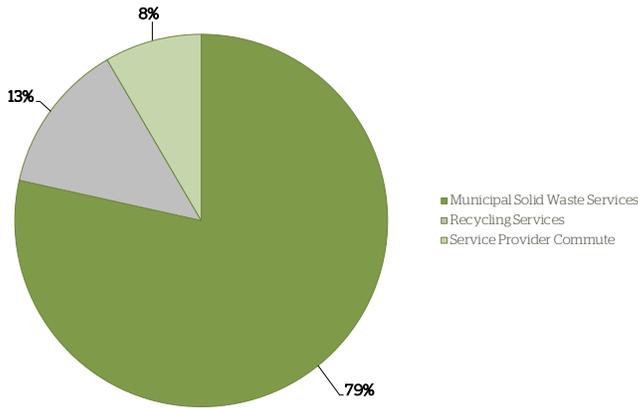
By implementing such practices, the City of Gainesville's waste collection services carbon footprint could be reduced by 11% - 55%.

Without these measures, the City's waste collection services for commercial and multi-family residential addresses emits about 2,060.76 metric tons of carbon emissions annually. To offset the carbon footprint of these services with We Are Neutral's local carbon reduction programs, it would cost \$30,911.40.

Annual Carbon Footprint of Waste Service As Is

Municipal Solid Waste Services:	= 1,617.20 tCO ₂ e
Recycling Services:	= 269.93 tCO ₂ e
Service Provider Commute:	= 173.63 tCO ₂ e

Total: = 2,060.76 tCO₂e



Emitting 2,060.76 tons of CO₂e per year is equivalent to:



445
passenger vehicles
on the road



78,287
incandescents
switched to LEDs



34,075
tree saplings
grown for 10 years

*Values sourced from the EPA's Greenhouse Gas Equivalencies Calculator

CNG Fleet Carbon Reductions

Compressed natural gas (CNG) is a more environmentally-friendly fuel source compared to traditional diesel and gasoline use. CNG is produced by compressing natural gas to less than 1% of its volume.

Heavy-duty alternative fuel trucks have been evaluated and compared to conventional fuel trucks around the United States since 1996. CNG trucks have proven to hold several advantages to diesel trucks, including having quieter systems.

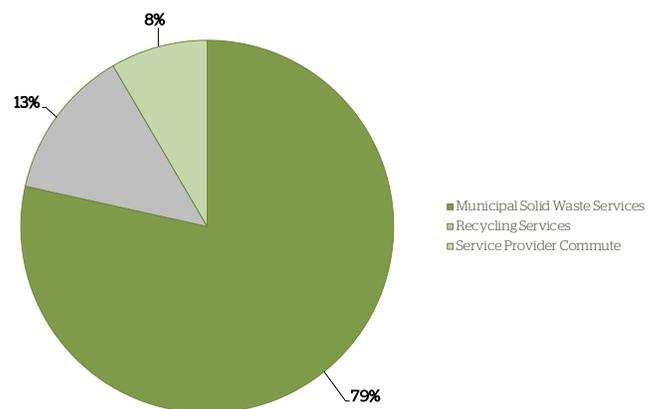
Conservatively, implementing a fleet of exclusively CNG-powered vehicle for the City of Gainesville's waste collection services could reduce the City's carbon footprint by 11%. Liberally, implementing a fleet of exclusively CNG-powered vehicle for the City of Gainesville's waste collection services could reduce the City's carbon footprint by 20%.

With this measure, the City's waste collection services for commercial and multi-family residential addresses would emit about 1,834.08 metric tons of carbon emissions annually. To offset the carbon footprint of these services with We Are Neutral's carbon reduction programs, it would cost \$27,511.20. (If the carbon savings of a CNG fleet ends up being 20%, the carbon footprint would be 1,648.61 tons and cost \$24,729.15 to offset.)

Annual Carbon Footprint of Waste Services with CNG Fleet

Municipal Solid Waste Services: = 1,439.31 tCO₂e
 Recycling Services: = 240.24 tCO₂e
 Service Provider Commute: = 154.53 tCO₂e

Total: = 1,834.08 tCO₂e



Saving 226.68 tons of CO₂e per year is equivalent to:



49
vehicles taken
off the road



8,611
incandescents
switched to LEDs



3,748
tree saplings
grown for 10 years

*Values sourced from the EPA's Greenhouse Gas Equivalencies Calculator

Multiple Carbon Reduction Measures

When considering life-cycle analyses, many case studies and scientific reports have found the carbon reducing benefits of CNG fuel to greatly exceed 11% and reach upwards of 20%, especially when vehicle drivers are properly trained on new truck technologies.

Switching to one-service provider would reduce the varying driver commutes into the City and would allow for greater route optimization. The four current service providers are responsible for waste collection services in all areas of the City of Gainesville.

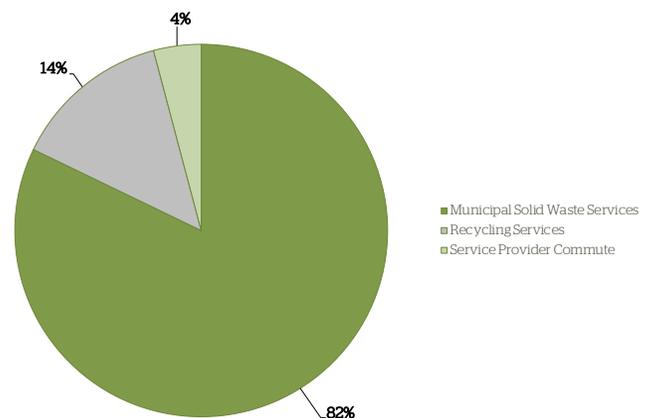
When taking a less conservative approach when evaluating potential CNG carbon reductions and combining it with a fleet exclusively from one service provider and route optimization measures, the City of Gainesville's waste collection services carbon footprint could be reduced by 33%.

With these measures, the City's waste collection services for commercial and multi-family residential addresses would emit about 1,377.73 metric tons of carbon emissions annually. To offset the carbon footprint of these services with We Are Neutral's carbon reduction programs, it would cost \$20,665.95.

Annual Carbon Footprint of Waste Services with Multiple Carbon Reduction Measures

Municipal Solid Waste Services: = 1,132.04 tCO₂e
 Recycling Services: = 188.95 tCO₂e
 Service Provider Commute: = 56.74 tCO₂e

Total: = 1,377.73 tCO₂e



Saving 683.03 tons of CO₂e per year is equivalent to:



148
vehicles taken
off the road



25,948
incandescents
switched to LEDs



11,294
tree saplings
grown for 10 years

*Values sourced from the EPA's Greenhouse Gas Equivalencies Calculator

Electric Fleet Carbon Reductions

The consistent stopping, starting, and idling of waste collection service vehicles makes internal combustion engines inefficient. To address this problem, a singular service provider could switch to an all electric fleet.

Electric vehicles have zero tailpipe emissions. Instead, carbon emissions come from the electricity needed to charge their batteries. The greenhouse gases associated with charging electric refuse vehicles in Gainesville would depend on Gainesville Regional Utilities' energy portfolio and efficiency rates.

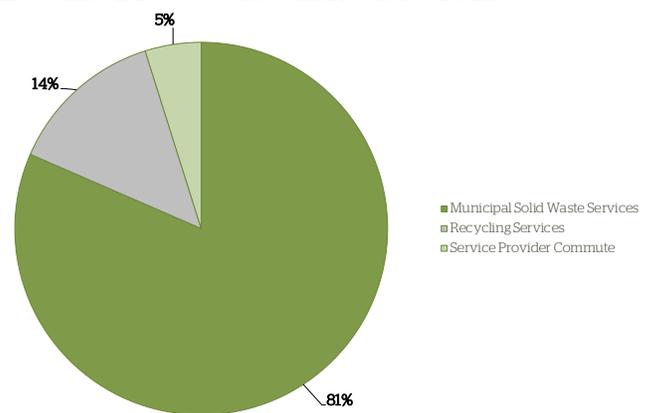
By implementing an electric fleet exclusively from one service provider which uses route optimization measures, the City of Gainesville's waste collection services carbon footprint could be reduced by 55%.

With these measures, the City's waste collection services for commercial and multi-family residential addresses would emit about 892.62 metric tons of carbon emissions annually. To offset the carbon footprint of these services with We Are Neutral's carbon reduction programs, it would cost \$13,389.30.

Annual Carbon Footprint of Waste Services with Electric Fleet Carbon Reductions

Municipal Solid Waste Services: = 727.74 tCO₂e
 Recycling Services: = 121.47 tCO₂e
 Service Provider Commute: = 43.41 tCO₂e

Total: = 892.62 tCO₂e



Saving 1,168.14 tons of CO₂e per year is equivalent to:



252
vehicles taken
off the road



44,377
incandescents
switched to LEDs



19,315
tree saplings
grown for 10 years

*Values sourced from the EPA's Greenhouse Gas Equivalencies Calculator