



CITY OF ANN ARBOR
GREEN FLEETS ANNUAL REPORT
FY19

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Section 1 - Summary

Fiscal Year 2019 was an active period as the City began implementing the new Green Fleets Policy. The Green Fleets Team was appointed and held their first meeting in August, 2018 to begin implementing the Policy.

With input from the City's Energy and Environmental Commissions, the Green Fleets Policy places a heavy emphasis on the following:

- Vehicle electrification opportunities when deemed feasible for purchase
- Continued fleet evaluation for right sizing vehicles and eliminating under-utilized vehicles
- Setting a 25 percent greenhouse gas (GHG) emissions reduction goal by 2025, consistent with the City's Climate Action Plan
- Steps to evaluate progress on the Policy and the re-establishment of the Green Fleets Team
- Promotion of alternatives to vehicle travel and use of devices and systems to optimize route planning.

FY19 activities were focused on appointing staff to the Green Fleets Team, reviewing vehicle purchase recommendations, establishing a baseline for the evaluation of future year's activities and progress on accomplishing the goals of the Policy. The electrification of the City's fleet was a major point of focus.

FY19 was the first year of activity for the Green Fleets Team and the initial results were positive. The City had slight reductions in fuel usage and greenhouse gas emissions, a decrease in overall fleet size and an increase in the percentage of PEV's in the fleet, all positive results based on the Measures of Success in the Green Fleets Policy.

Section 2 - Green Fleets Team

The Green Fleets Policy established a Green Fleets Team comprised of representatives of the four Service Areas (Public Services, Finance & Administrative Services, Safety Services, and Community Services) in addition to Fleet Services and the Office of Sustainability and Innovation (OSI).

The function of this Team is to develop and monitor policies, procedures and practices related to the purchase and use of City vehicles and fuel-using equipment to achieve the goals and objectives of the updated Policy. The Team will receive Fleet Service's inputs and report progress and findings to the City Administrator and the Energy and Environmental Commissions at least annually and as appropriate, including any proposed alterations to the Policy.

The Service Area Administrators completed appointments to the Team and the first meeting of the Green Fleets Team was held on August 20, 2018. The Green Fleets Team meets monthly.

The Team was active in the first year and worked directly with OSI and Fleet Services on many initiatives. Activities in FY19 included:

- All vehicles and equipment purchased by the City was reviewed and evaluated by the Team before purchasing decisions were made. Requesting departments are clearly aware of the process and putting much more effort up front into the review of EV, hybrid or green vehicle options.
- The review and waiver process for low use vehicles (Fleet Optimization) was a significant effort by the Team that took many meetings over a 4-5 month period.
- Educational efforts with OSI included vehicle demonstrations and driving opportunities for City staff of the all-electric Chevrolet Bolt and a variety of all-electric Tesla vehicles. The Tesla visit was coordinated with the Mayor's Green Fair for increased public exposure of EV's. Improving staff's comfort level with EV's will lessen the transition impact on the City's Fleet.
- Review of the Annual Report and recommendations of changes to the Green Fleets Policy.
- A review of the City's Motor Pool vehicles, usage, and opportunities to optimize its use. Alternatives to the Motor Pool were also reviewed.
- A field trip to evaluate vehicle usage by the City's Police Department, which allows the Team to better understand challenges and opportunities in transitioning this large segment of the City's Fleet.

Section 3 - Vehicle Inventory

The City tracks vehicles in a number of ways. The primary classifications are light duty vehicles and heavy equipment. Light duty vehicles typically include all passenger vehicles, vans, motorcycles, and pickup trucks (1 ton or less). Heavy equipment is everything else including dump trucks, solid waste vehicles, fire apparatus, riding mowers, loaders, air compressors, and other fuel burning specialized equipment.

Fleet inventory also includes many non-fuel burning assets such as trailers, plows and other equipment powered by PTO or hydraulic connections to the host vehicle. These non-fuel burning assets are not included in any inventory or vehicle/equipment counts provided in this report.

A. Inventory Adjustments

There are a number of City vehicles that are not in the City's Fleet Fund for replacement purposes. Many of these are older, single purpose vehicles are operated at a specific City facility (Water Treatment Plant, Wastewater Treatment Plant, Airport, Golf Courses, etc) and are not used on the road. The number of these vehicles continues to decline each year as they are replaced and then "bought" into the Fleet Fund.

During FY19, a concerted effort was made to identify these additional vehicles and add them to the inventory sections of the Green Fleets Annual Report. A total of 26 additional vehicles (2 light duty and 24 heavy equipment) were identified in FY19. Additionally, the City has transitioned 23 pieces of golf course equipment over to the Fleet Fund during the last three years (see details in Section 3.D). The light duty and heavy equipment inventory details for FY19 reflect the additional vehicles (not the golf course equipment) and the FY18 totals have been adjusted as well. As FY19 was the final transition year for golf course equipment, those adjustments will be made in the FY20 Annual Report.

B. Light Duty Vehicle Activity

The City began the fiscal year with 215 light duty vehicles in active service and finished the year with 211 light duty vehicles in service for a net reduction of four light vehicles during the fiscal year. The following vehicles were either put in service or removed from service during the fiscal year:

Put In Service

0030	Police – 2018 Chev Tahoe 4WD	0031	Police – 2018 Ford Utility
0032	Police – 2018 Ford Utility	0033	Police – 2018 Ford Utility
0034	Police – 2018 Ford Utility	0035	Police – 2018 Ford Utility
0102	Police – 2018 Sedan	0149	Police – 2018 Sedan
0167	Police – 2018 Sedan	0169	Police – 2018 CUV
0175	Police – 2018 Sedan	0206	Police – 2018 Pickup*
0506	Comm Stds – 2019 Chev Bolt EV	1062	Fire – 2018 Ford Explorer*
1063	Fire – 2019 Chev Silverado 2500 4WD	1104	Motor Pool – 2019 Chev Bolt EV
1265	Facilities – 2019 Ford F-350 4WD	6253	NAP – 2019 Ford F-250 4WD
6255	NAP – 2019 Ford F-250 4WD		

* Vehicles 0206 and 1062 replaced vehicles that were removed from service in late FY18.

Removed From Service

0085	Police – 2013 Ford Interceptor Sedan	0154	Police – 2012 Chev Impala
0155	Police – 2012 Chrysler 300	0156	Police – 2013 Ford Taurus

0157	Police – 2012 GMC Acadia	0159	Police – 2012 Ford Fusion
0343	Police – 2013 Chev Tahoe	0346	Police – 2014 Ford Interceptor Utility
0348	Police – 2014 Ford Interceptor Utility	0350	Police – 2014 Ford Interceptor Utility
0356	Police – 2017 Ford Interceptor Utility (accident)	0512	Comm Stds – 2013 Ford Focus
1050	Fire – 2005 Ford E-350	1052	Fire – 2008 GMC Sierra 2500 4WD
1053	Fire – 2013 Chev Equinox	1057	Fire – Ford Transit Connect Van
1103	Motor Pool – 2013 Ford Focus	1267	Facilities – 2008 Ford F-250 4WD
1268	Facilities – 2016 Ford Transit Van	6251	NAP – 2008 Ford F-250 4WD
6254	NAP – 2008 Ford F-250 4WD		

A complete list of light duty vehicles in service as of June 30, 2019 is included in *Attachment A*.

C. Heavy Equipment Activity

The City began the fiscal year with 163 pieces of heavy equipment in active service and finished the year with 159 pieces of heavy equipment in service. A replacement for one piece of equipment, which was removed from service in FY19, was put in service in FY20, which resulted in a net reduction of three pieces of heavy equipment during the fiscal year. The following pieces of heavy equipment were either put in service or removed from service during the fiscal year:

Put In Service

2503	Storm Water – 2018 Ford F-450 DRW Utility Truck
3815	Water Ops – 2018 Doosan Air Compressor
4613	Engineering – 2019 Freightliner/Challenger Aerial Platform Truck
4730	Streets – 2018 John Deere Motor Grader
6618	Storm Water – 2018 Freightliner/Terex Bucket Truck
6924	Parks – 2018 Zamboni (gasoline powered)*
6925	Parks – 2018 Zamboni (LPG powered)

6939	Storm Water - 2018 Vermeer Stump Cutter
8633	Solid Waste – 2019 Autocar/Labrie Side Load Refuse Truck**

* Vehicle 6924 replaced a vehicle that was removed from service in late FY18.

**Vehicle replaced by vehicle 8633 will be removed from service in FY20.

Removed From Service

1095	Fire – 1996 Emergency One Tower Unit
1888	Streets – 1999 Caterpillar Motor Grader
2508	Storm Water – 2009 Ford F-450 Dump Truck
2610	Sewage Ops – 2008 Ford F-550 Sewer Rodder Truck*
3813	Water Ops – 2004 Ingersol Rand Air Compressor
4612	Engineering – 2003 Ford F-550/Challenger Aerial Platform Truck
4749	Storm Water – 2011 Elgin Pelican Street Sweeper
6615	Storm Water – 2001 Chevrolet Bucket Truck
6617	Storm Water – 2002 GMC Bucket Truck
6935	Storm Water – 1996 Vermeer Stump Digger
8694	Solid Waste – 2007 Labrie Refuse Truck

*Replacement for 2610 was put in service in early FY20.

A complete list of heavy equipment in service as of June 30, 2019 is included in *Attachment B*.

D. Golf Equipment Added To Fleet

The equipment used to maintain the City's golf courses has historically not been in the City's Fleet Fund operations for repair, maintenance, replacement and asset counts. This equipment includes a variety of turf maintenance equipment, mowers and work carts. The golf courses currently lease the actual carts used by golfers so those vehicles are not part of this report. Starting in FY17, the golf courses began replacing equipment and transferring the new vehicles into the City's Fleet Fund operations. This is a three year transition that will increase the number of assets in the Fleet Fund since the equipment replaced was not included in previous Fleet counts. The following golf equipment was added to the Fleet Fund in FY17, FY18 and FY19:

FY17

6901	2017 Toro Workman GTX	6902	2017 Toro Groundmaster 7200
6903	2017 Toro Workman GTX	6904	2017 Toro Sand Pro 3040
6907	2017 Toro Groundmaster 3500D	6908	2017 Toro Groundmaster 3500D
6910	2017 Toro Reelmaster 5410D	6911	2017 Toro Workman HDX
6913	2017 Toro Groundmaster 3150-Q	6914	2017 Toro Groundmaster 4500D
6922	2017 Toro Groundmaster 3150-Q	6923	2017 Toro Reelmaster 5410D

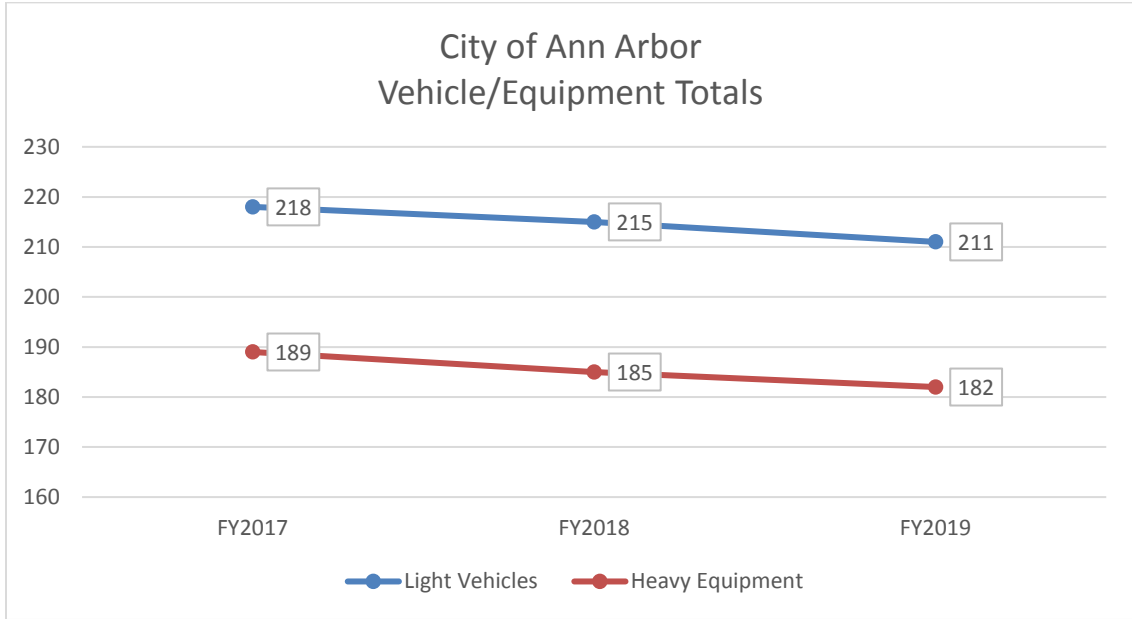
FY18

6712	2018 John Deere Z960M	6713	2018 Toro Workman GTX
6714	2018 Toro Workman GTX	6715	2018 Toro Greensmaster 3150-Q
6716	2018 Toro Multipro 1750	6718	2018 Buffalo Turbine Blower
6719	2018 Self-propelled Greens Roller	6720	2018 Toro Reelmaster 5410D

FY19

6721	2019 Toro Groundsmaster 4500	6722	2019 Toro Workman HDX
6723	2019 Toro Greensmaster Hybrid		

Vehicle/Equipment Inventory Totals (adjusted to include golf equipment)



Section 4 - Electrification of the Fleet

The Green Fleets Policy places a heavy emphasis on the purchase of plug-in electric vehicles (PEVs) when deemed feasible for purchase. An initial evaluation of emerging electric vehicle (EV) alternatives and life cycle costs estimates was completed as part of the development of the new Green Fleets Policy. Some of the takeaways of this 2017 assessment for EV conversions were as follows:

- Current funding mechanisms are not adequate to address the additional budgetary impacts of both EV purchase and charging infrastructure.
- Light duty pickup trucks and large vans, in addition to heavy equipment, do not currently have commercially available or viable alternatives. Opportunities to convert sedan vehicles will be the initial emphasis for electrification.

A. FY19 Status

The City had five plug-in electric vehicles at the end of FY18. These are small, specialized vehicles used at the Wastewater Treatment Plant and golf courses. The City had no over the road vehicles that were PEV at the beginning of FY19.

In FY19, the City made its first purchase of three commercially available all electric vehicles and two of these were in service by the end of the fiscal year. The third was placed in service in early FY20. FY19 was the start of a more aggressive effort by the City to convert fuel burning vehicles over to PEVs.

B. Electrification Opportunities

An assessment of electrification opportunities of all light duty vehicles in the City's fleet was undertaken in FY19. Some of the outcomes from that assessment are as follows:

- While the PEV market is rapidly evolving, the current commercially available and viable electrification opportunities lie primarily within the sedan, minivan and crossover/sport utility vehicle market segment for the City.
- Many of the City vehicles in this market segment are operated by the Police Department, which generally has a unique set of size, performance, functionality and safety requirements. There are currently only a few opportunities for PEV integration into the police fleet. Separately, the hybrid market for emergency response vehicles is evolving and the City ordered its first hybrid patrol car in FY19 with expected delivery in FY20. The Green Fleets Team will continue to work closely with the Police Department to match their operational needs with viable PEVs as they become available.
- The City has approximately 50 non-police light duty vehicles in the sedan, minivan and crossover/sport utility vehicle market segment. Over the next 5 years, if funding is available for vehicle conversions and charging infrastructure, 75% of those vehicles could be plug-in electric vehicles.
- The City is exploring the electrification of 14 Building Department vehicles for FY20 in addition to the assessment of other vehicles as part of the normal replacement schedule.

- The light duty pickup truck market appears primed to offer a number of new, all electric options over the next two years. This market may evolve quickly and provide additional viable electrification opportunities for the City.

C. Electrification Challenges

There are a number of challenges that must be considered by the City as it transitions to a higher mix of PEVs within the fleet.

- **Commercially Available Vehicles** – While the automotive industry has made significant progress in improving the number and options of commercially available PEVs in the United States, there are still limitations within many vehicle classes. The progress to date includes providing vehicles of different sizes, styles and battery range. The soon to be released all electric light duty pickup trucks are a good example of this progress. The use of ‘commercially available vehicles’ is important to the City as these vehicles typically have higher production runs, better warranty, a service infrastructure which includes local dealers to provide timely warranty service and parts availability. As the types and functionality of PEVs (especially in the pickup truck and van market) continue to expand, so will electrification opportunities for the City.
- **Electric Vehicle Bias** – Personal and organizational change can be difficult at times. The transition from fuel burning vehicles to electric vehicles is no different. Range anxiety, performance and vehicle size are a few of the concerns raised when discussing the transition to electric vehicles. Understanding and recognizing that many employees are hesitant about the transition to electric is important. Staff education, exposure and individual use of electric vehicles will be the primary tools to overcoming this obstacle. The integration of an electric Motor Pool vehicle in FY19 should help provide exposure to electric vehicles to a greater number of City staff members.
- **Funding** – This is the City’s most critical obstacle to electrification of the City’s fleet. There are three primary areas of increased expenditures that must be considered by the City to address this obstacle.
 - **Initial Purchase Price Gap** - The City’s purchase price of a PEV is nearly double that of a fuel burning vehicle in the small car class, which is the vehicle class with the greatest electrification opportunities for the City. The replacement costs paid by a Service Unit into Fleet Services was based on a significantly lower priced fuel burning vehicle and the purchase of a PEV creates an initial funding deficit that must be addressed by the purchasing Service Unit or other funding source. While this price gap is expected to decline, it creates an immediate impact to a Service Unit’s operating budget.
 - **Increased Replacement Costs** - The future replacement cost for the PEV, recovered incrementally from the purchasing Service Unit over the life of the vehicle, will be higher than the Service Unit has previously paid for a fuel burning vehicle. This increase will impact the Service Unit’s operating budget but should be significantly offset by lower operating expenses of the PEV.
 - **The cost of purchasing and installing charging infrastructure** will be handled as fueling infrastructure and paid for by Fleet Services in most cases. As an internal

service fund, Fleet Services will spread this increased cost over all fleet assets that will increase the cost to all Service Units.

Section 5 - Optimizing Fleet Size (Low Use Vehicles)

The Green Fleets Policy calls for light duty vehicles that use less than 200 gallons of fuel per year or are over seven years old to be targeted for elimination from the City's fleet. Heavy equipment over ten years old is also targeted for reduction. The Policy also allows for waivers from elimination if the Service Unit using these 'low use vehicles' can justify their need to the Green Fleets Team.

A. FY19 Dispositions (Based on FY18 Identifications)

The Green Fleets Team had concerns over how this section of the Policy is written and decided that in their first year (FY19) they would only focus on light duty vehicles that use less than 200 gallons per year. Information on these concerns is addressed in Policy Changes (section 6) later in this Annual Report.

Using FY18 fuel usage data, a list of 34 low use light duty vehicles was prepared and provided to the Green Fleets Team for disposition in FY19. The Green Fleets Team took the following actions in FY19 to review these low use vehicles.

- Notified the Unit Manager and Service Area Administrator of each vehicle within their purview that was identified as a low use vehicle and what fuel usage it had for the year.
- Required a written request for a waiver which must include the use of the vehicle, the user's justification for keeping the vehicle, other viable green options, and the use of private or pooled vehicles.
- A representative from each impacted Service Unit met with the Green Fleets Team to answer any questions and provide additional information and justification for the waiver.
- The Green Fleets Team determined which vehicles would be granted waivers for this year.

Of the 34 light vehicles identified as low use, three vehicles were designated for removal from the Fleet. Two of these reductions occurred in FY19 and one is scheduled for FY20.

B. FY19 Identifications (For Disposition in FY20)

In preparing for the review of FY19 fuel usage data and the determination of low use vehicles, Fleet Services used the same 200 gallon minimum usage as the determining factor for light duty vehicles but expanded that to include heavy equipment as well. Based on FY19 fuel usage data, a list of 43 light duty vehicles and 25 pieces of heavy equipment was prepared and provided to the Green Fleets Team for disposition in FY20.

Section 6 - Policy Changes

One of the responsibilities of the Green Fleets Team is to propose modifications to improve the Green Fleets Policy. To keep the Policy relevant, it should be a living document that is modified regularly to reflect changes in the City's goals and resources, organizational changes, updated to reflect changing technology and the data available to support decision making processes.

The revision to the Green Fleets Policy in 2018 was an update to the Policy adopted in 2000. The 2018 update was burdened by a number of legacy issues carried over from a nearly 20 year old document that do not reflect current process or technologies. These items were noted throughout FY19 as the Green Fleets Team began initiating the revised Policy and resulted in the proposed changes to the Green Fleets Policy as shown in Attachment C.

It is the intent of the Green Fleets Team to work with the staff liaison of the appropriate approving body to support these proposed modifications to the Policy.

Section 7 - Performance Measures

Section 3 of the Green Fleets Policy establishes the following three Measures of Success:

- 1) The reduction of carbon dioxide equivalent (CO₂e) and other emissions.
- 2) The decrease in annual total gallons of gasoline and diesel fuel used.
- 3) The decrease in total fleet size, with an increase in the percentage of electric and hybrid-electric vehicles replacing combustion-engine vehicles where opportunities exist and are deemed feasible.

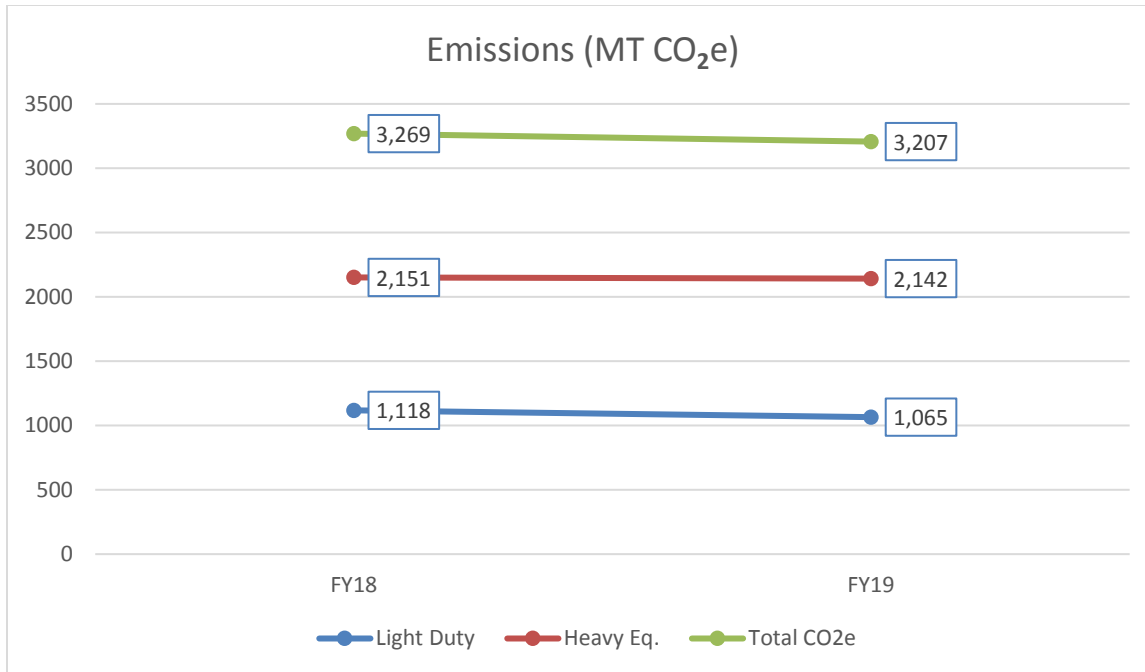
A. Reduction of Emissions

FY18 was established as the baseline year per Section 7 of the Green Fleets Policy. Fuel usage was collected for both light duty vehicles and heavy equipment for that year and, based on that data, CO₂e was calculated by the Office of Sustainability and Innovation. This information was provided in Attachments A and B of the FY18 Annual Report.

As detailed in Vehicle Inventory – Inventory Adjustments (section 3.A) of this document, the City adjusted the FY18 Fleet baseline data which added 26 additional vehicles (2 light and 24 heavy equipment) that were City owned vehicles but not part of the Fleet fund. Fuel usage and emission data was available for seven of these vehicles (heavy equipment). An additional 10 pieces of heavy equipment were listed in FY18 with no fuel or emission data but had full data for FY19. For each of these vehicles, an assumption was made that FY18 and FY19 data was the same and adjustments were made to the FY18 totals for fuel and emission data.

As emissions are calculated based on fuel usage, this number is expected to vary from year to year as the City's fuel consumption varies. Fuel consumption will vary based on a number of factors including the number of fuel consuming vehicles, usage, fuel efficiency, and weather conditions. A winter with more snowfall will have a greater impact on fuel usage compared to a light winter. Overall, a general downward trend will be the measure to indicate success of this metric.

In FY19, the City generated 1,065 metric tons of carbon dioxide equivalents (MTCO₂e) by light duty vehicles and 2,142 MTCO₂e by heavy equipment for a total of 3,207 MTCO₂e. This was a decrease of 62 MTCO₂e from FY18. Light duty vehicle emissions decreased 4.74% and heavy equipment decreased 0.42% for a combined 1.90% decrease in emissions from the previous year.



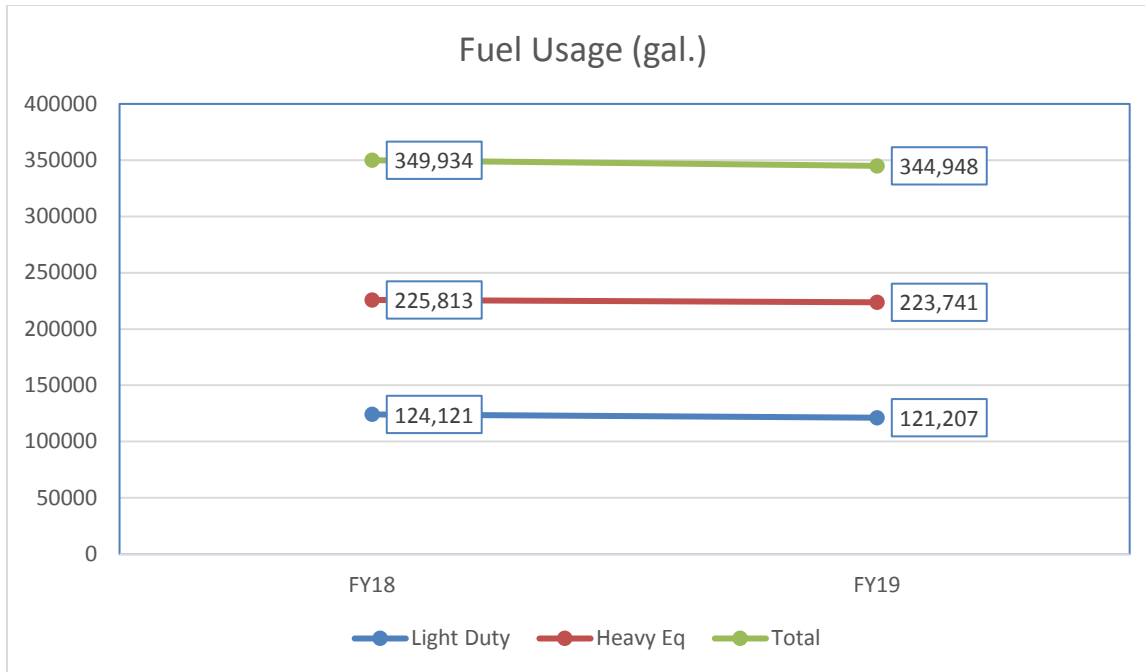
B. Reduction of Fuel Usage

FY18 was established as the baseline year per Section 7 of the Green Fleets Policy. Fuel usage was collected for both light duty vehicles and heavy equipment for that year. This information was provided in Attachments A and B of the FY18 Annual Report.

As detailed in Vehicle Inventory – Inventory Adjustments (section 3.A.) of this document, the City adjusted the FY18 Fleet baseline data which added 26 additional vehicles (2 light and 24 heavy equipment) that were City owned vehicles but not part of the Fleet fund. Fuel usage and emission data was available for seven of these vehicles (heavy equipment). An additional 10 pieces of heavy equipment were listed in FY18 with no fuel or emission data but had full data for FY19. For each of these vehicles, an assumption was made that FY18 and FY19 data was the same and adjustments were made to the FY18 totals for fuel and emission data.

It is expected that fuel usage will vary from year to year based on a number of factors including the number of fuel consuming vehicles, usage, fuel efficiency, and weather conditions. A winter with more snowfall will have a significant impact on fuel usage compared to a light winter. Overall, a general downward trend will be the measure to indicate success of this metric.

In FY19, light duty vehicles owned by the City used 121,207 gallons of fuel (gasoline and diesel combined) and heavy equipment used 223,741 gallons for a total of 344,948 gallons of fuel consumed. Light duty vehicle fuel usage decreased 2.35% from the previous year and heavy equipment decreased 0.92% for a combined 1.42% decrease to total fuel usage from FY18.

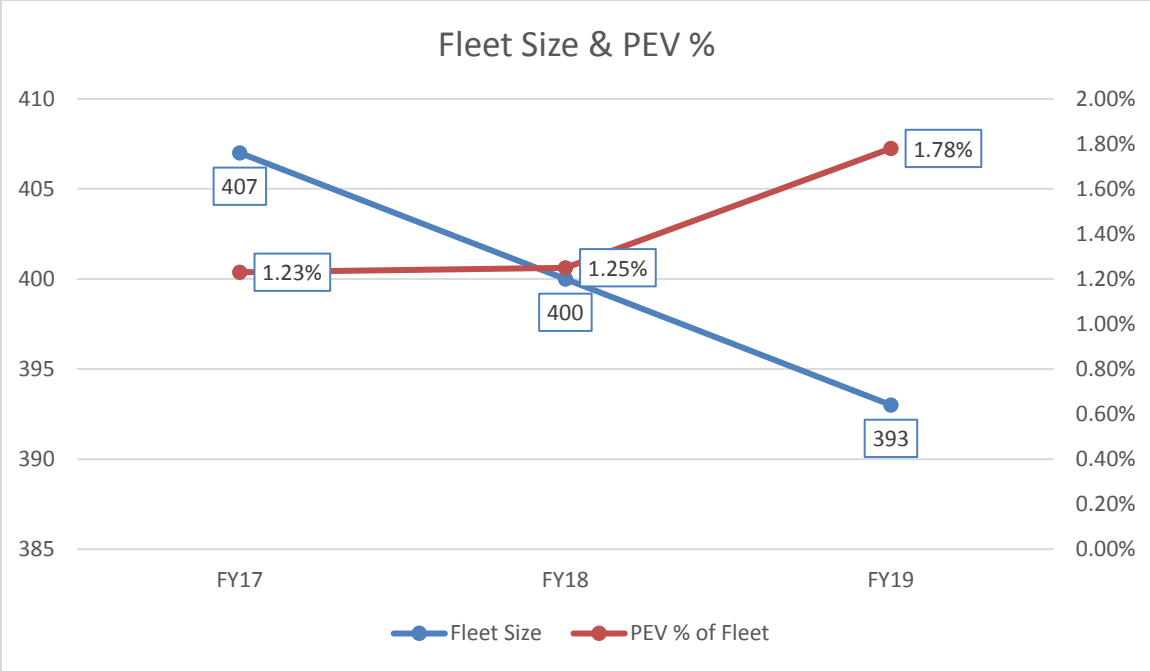


C. Reduction in Fleet Size/Increase in PEV as a Percentage of Fleet Size

This measure is comprised of two components that are not directly linked and either metric may increase or decrease independently of the other. FY18 was established as the baseline year per Section 7 of the Green Fleets Policy.

Fleet Size – This information is included in **Vehicle Inventory (section 3)** of the Annual Report. Fleet size was compiled for yearend FY17 and the City had 407 vehicles in inventory. At yearend FY18 that count was reduced to 400 vehicles and further reduced to 393 vehicles by yearend FY19. In a two year period, the City’s fleet size decreased by 3.44%.

PEV as a Percentage of Fleet Size – Plug-in electric vehicles (PEVs) include both all electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs). Additional information is available in **Electrification of the Fleet (section 4)** of this document. Vehicle data was compiled for yearend FY17 and 1.23% of City vehicles were PEV. This increased to 1.25% at yearend FY18 and further increased to 1.78% by yearend FY19.



Attachment A
Light Duty Vehicle Inventory Detail

Green Fleet Information for FY 2019 - Light Duty

7.a.1			7.a.2	7.a.3	7.a.4	7.a.5	7.a.6	7.a.7				7.a.8		7.a.9	7.a.10
Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Estimated MPG (City) (1)	Fuel Type	Average Cost per Gallon	Average Cost per Mile	Estimated Annual Miles Driven per Year (2)	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (3)	Estimated Emissions per Mile	Carbon Dioxide Emissions (kg)	
0030	2018 Chevrolet Tahoe 4x4	Police Dept	15	Gasoline	\$ 1.38	\$ 0.17	15,563	1,917	16.83	\$ 2,646	2,464	28.13%	1.082	16,833	
0031	2018 Ford Police Interceptor Utility AWD	Police Dept	16	Gasoline	\$ 1.37	\$ 0.17	18,562	2,308	20.26	\$ 3,160	3,652	41.69%	1.092	20,264	
0032	2018 Ford Police Interceptor Utility AWD	Police Dept	16	Gasoline	\$ 1.52	\$ 0.20	9,639	1,268	11.13	\$ 1,923	1,950	22.26%	1.155	11,132	
0033	2018 Ford Police Interceptor Utility AWD	Police Dept	16	Gasoline	\$ 1.54	\$ 0.19	13,456	1,650	14.49	\$ 2,543	2,527	28.85%	1.077	14,490	
0034	2018 Ford Police Interceptor Utility AWD	Police Dept	16	Gasoline	\$ 1.91	\$ 0.25	6,152	809	7.10	\$ 1,545	1,150	13.13%	1.154	7,101	
0035	2018 Ford Police Interceptor Utility AWD	Police Dept	16	Gasoline	\$ 1.95	\$ 0.94	872	422	3.71	\$ 822	668	7.63%	4.253	3,709	
0084	2013 Ford Interceptor Sedan	Police Dept	18	Gasoline	\$ 1.55	\$ 0.15	16,206	1,514	13.29	\$ 2,350	2,381	27.18%	0.820	13,291	
0086	2013 Ford Interceptor Sedan	Police Dept	18	Gasoline	\$ 2.75	\$ 0.16	14,556	857	7.52	\$ 2,357	1,296	14.79%	0.517	7,522	
0087	2014 Ford Interceptor Sedan	Police Dept	18	Gasoline	\$ 1.87	\$ 0.16	15,147	1,323	11.61	\$ 2,479	2,070	23.63%	0.767	11,612	
0088	2014 Ford Interceptor Sedan	Police Dept	18	Gasoline	\$ 1.60	\$ 0.18	9,596	1,063	9.33	\$ 1,697	1,242	14.18%	0.973	9,333	
0089	2014 Ford Interceptor Sedan	Police Dept	18	Gasoline	\$ 2.13	\$ 0.21	3,964	385	3.38	\$ 822	650	7.42%	0.853	3,380	
0090	2014 Ford Interceptor Sedan	Police Dept	18	Gasoline	\$ 1.36	\$ 0.25	8,468	1,575	13.83	\$ 2,137	2,378	27.15%	1.633	13,825	
0091	2014 Ford Interceptor Sedan	Police Dept	18	Gasoline	\$ 1.36	\$ 0.13	20,607	2,016	17.70	\$ 2,734	3,104	35.43%	0.859	17,701	
0101	2016 CUV	Police Dept	22	Gasoline	\$ 1.27	\$ 0.07	7,632	430	3.77	\$ 546	374	4.27%	0.494	3,772	
0102	2018 Sedan	Police Dept	21	Gasoline	\$ 1.34	\$ 0.07	4,362	230	2.02	\$ 307	236	2.69%	0.462	2,015	
0149	2018 Sedan	Police Dept	19	Gasoline	\$ 1.27	\$ 0.09	4,167	290	2.55	\$ 368	325	3.71%	0.611	2,546	
0150	2017 CUV	Police Dept	16	Gasoline	\$ 1.38	\$ 0.14	3,117	308	2.70	\$ 426	293	3.34%	0.867	2,702	
0152	2011 CUV	Community Standards	17	Gasoline	\$ 1.28	\$ 0.17	1,338	182	1.60	\$ 232	186	2.12%	1.193	1,597	
0158	2013 SUV	Police Dept	17	Gasoline	\$ 1.00	\$ 0.00	8,395	18	0.16	\$ 18	10	0.11%	0.019	158	
0160	2013 SUV	Police Dept	17	Gasoline	\$ 1.41	\$ 0.17	1,990	239	2.10	\$ 337	209	2.39%	1.056	2,102	

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Estimated MPG (City) (1)	Fuel Type	Average Cost per Gallon	Average Cost per Mile	Estimated Annual Miles Driven per Year (2)	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (3)	Estimated Emissions per Mile	Carbon Dioxide Emissions (kg)
0161	2014 SUV	Police Dept	22	Gasoline	\$ 1.34	\$ 0.07	7,397	365	3.21	\$ 488	321	3.66%	0.434	3,207
0162	2014 Sedan	Police Dept	19	Gasoline	\$ 1.24	\$ 0.00	21,466	34	0.30	\$ 42	108	1.23%	0.014	297
0163	2015 Sedan	Police Dept	19	Gasoline	\$ 1.28	\$ 0.13	2,504	258	2.26	\$ 330	261	2.98%	0.904	2,263
0164	2015 Sedan	Police Dept	17	Gasoline	\$ 1.32	\$ 0.15	2,792	326	2.86	\$ 430	342	3.90%	1.025	2,861
0165	2016 Sedan	Police Dept	17	Gasoline	\$ 1.26	\$ 0.13	3,373	338	2.97	\$ 426	317	3.62%	0.880	2,970
0166	2017 CUV	Police Dept	17	Gasoline	\$ 1.19	\$ 0.05	6,446	284	2.49	\$ 338	263	3.00%	0.386	2,491
0167	2018 Sedan	Police Dept	18	Gasoline	\$ 1.19	\$ 0.05	1,566	60	0.53	\$ 72	32	0.37%	0.338	530
0169	2018 CUV	Police Dept	17	Gasoline	\$ 1.58	\$ 0.00	9,442	8	0.07	\$ 12	-	0.00%	0.007	67
0175	2018 Sedan	Police Dept	19	Gasoline	\$ 1.31	\$ 0.07	1,455	82	0.72	\$ 108	62	0.71%	0.497	723
0203	2008 Pickup	Police Dept	15	Gasoline	\$ 1.40	\$ 0.16	422	49	0.43	\$ 69	37	0.42%	1.022	431
0206	2018 Pickup	Police Dept	18	Gasoline	\$ 1.33	\$ 0.05	21,359	723	6.35	\$ 963	717	8.18%	0.297	6,348
0260	2015 BMW R1200 RT-P Motorcycle	Motorcycle Unit	44	Gasoline	\$ 1.93	\$ 0.05	3,511	94	0.82	\$ 181	-	0.00%	0.235	824
0261	2015 BMW R1200 RT-P Motorcycle	Motorcycle Unit	44	Gasoline	\$ 1.92	\$ 0.05	3,215	80	0.70	\$ 153	-	0.00%	0.217	699
0262	2015 BMW R1200 RT-P Motorcycle	Motorcycle Unit	44	Gasoline	\$ 1.92	\$ 0.03	3,774	53	0.46	\$ 101	-	0.00%	0.122	461
0263	2015 BMW R1200 RT-P Motorcycle	Motorcycle Unit	44	Gasoline	\$ 1.93	\$ 0.03	2,996	47	0.41	\$ 90	-	0.00%	0.136	408
0264	2006 BMW Motorcycle	Police - Training	44	Gasoline	\$ -	\$ -	-	-	-	\$ -	-	0.00%	-	-
0265	2006 BMW Motorcycle	Police - Training	44	Gasoline	\$ -	\$ -	-	-	-	\$ -	-	0.00%	-	-
0311	2016 Ford Transit Van 250	Police Dept	15	Gasoline	\$ 1.34	\$ 0.11	127	10	0.09	\$ 14	-	0.00%	0.720	91
0312	2016 Dodge Grand Caravan	Police Dept	17	Gasoline	\$ 1.37	\$ 0.04	7,145	190	1.67	\$ 260	241	2.75%	0.234	1,672
0313	2017 Dodge Grand Caravan	Police Dept	17	Gasoline	\$ 1.18	\$ 0.05	5,721	251	2.21	\$ 297	276	3.15%	0.386	2,208
0324	2016 Ford Transit T-250	Police Dept	15	Gasoline	\$ 1.29	\$ 0.18	5,088	694	6.10	\$ 893	705	8.05%	1.198	6,097
0338	2013 Ford Interceptor Utility	Police Dept	16	Gasoline	\$ 1.07	\$ 0.17	3,121	483	4.24	\$ 518	659	7.52%	1.360	4,244

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0339	2013 Ford Expedition XL 4X4	Police Dept	13	Gasoline	\$ 1.09	\$ 0.09	9,168	791	6.94	\$ 866	744	8.49%	0.757	6,944
0340	2013 Chevrolet Tahoe 4X2 LS	Police Dept	15	Gasoline	\$ 1.20	\$ 0.16	3,502	467	4.10	\$ 562	521	5.95%	1.170	4,098
0341	2013 Chevrolet Tahoe 4X2 LS	Police Dept	15	Gasoline	\$ 1.39	\$ 0.18	1,335	178	1.56	\$ 246	210	2.40%	1.168	1,559
0342	2013 Chevrolet Tahoe 4X2 LS	Police Dept	15	Gasoline	\$ 1.24	\$ 0.17	2,490	332	2.92	\$ 412	353	4.03%	1.171	2,915
0345	2014 Ford Interceptor Utility	Police Dept	16	Gasoline	\$ 1.33	\$ 0.14	15,282	1,572	13.80	\$ 2,094	2,345	26.77%	0.903	13,805
0347	2014 Ford Interceptor Utility	Police Dept	16	Gasoline	\$ 1.29	\$ 0.16	1,152	144	1.26	\$ 186	175	2.00%	1.098	1,264
0349	2014 Ford Interceptor Utility	Police Dept	16	Gasoline	\$ 1.31	\$ 0.15	14,344	1,586	13.93	\$ 2,081	2,472	28.22%	0.971	13,926
0352	2014 Ford Interceptor Utility	Police Dept	16	Gasoline	\$ 1.23	\$ 0.10	24,805	2,082	18.28	\$ 2,561	3,176	36.26%	0.737	18,283
0353	2014 Ford Interceptor Utility	Police Dept	16	Gasoline	\$ 1.17	\$ 0.08	13,891	966	8.48	\$ 1,134	1,906	21.76%	0.610	8,479
0354	2014 Ford Interceptor Utility	Police Dept	16	Gasoline	\$ 1.24	\$ 0.13	12,329	1,305	11.46	\$ 1,619	1,945	22.20%	0.929	11,458
0355	2017 Ford Police Interceptor	Police Dept	16	Gasoline	\$ 1.26	\$ 0.16	24,608	3,044	26.73	\$ 3,832	4,844	55.30%	1.086	26,730
0357	2017 Ford Police Interceptor	Police Dept	16	Gasoline	\$ 1.29	\$ 0.15	21,962	2,544	22.34	\$ 3,277	4,217	48.14%	1.017	22,339
0358	2017 Chevrolet Tahoe 4WD	Police Dept	15	Gasoline	\$ 1.29	\$ 0.17	19,173	2,530	22.21	\$ 3,263	3,316	37.85%	1.158	22,212
0359	2017 Chevrolet Tahoe 4WD	Police Dept	15	Gasoline	\$ 1.27	\$ 0.16	20,538	2,622	23.03	\$ 3,343	3,493	39.87%	1.121	23,025
0360	2017 Chevrolet Tahoe 4WD	Police Dept	15	Gasoline	\$ 1.30	\$ 0.17	18,348	2,392	21.00	\$ 3,118	3,103	35.42%	1.145	21,004
0361	2017 Chevrolet Tahoe 4WD	Police Dept	15	Gasoline	\$ 1.32	\$ 0.18	20,732	2,837	24.91	\$ 3,757	3,492	39.86%	1.202	24,911
0362	2017 Chevrolet PP Tahoe	Police Dept	15	Gasoline	\$ 1.29	\$ 0.15	7,559	903	7.93	\$ 1,166	1,013	11.56%	1.049	7,929
0506	2019 Chevrolet Bolt	Community Standards	128	Electric	\$ -	\$ -	515	-	0.32	\$ -	-	0.00%	0.624	321
0513	2013 Ford Focus SE	Community Standards	27	Gasoline	\$ 1.30	\$ 0.09	4,697	327	2.87	\$ 426	750	8.56%	0.612	2,872
0514	2013 Ford Focus SE	Community Standards	27	Gasoline	\$ 1.27	\$ 0.13	1,960	208	1.83	\$ 263	494	5.64%	0.931	1,825
0515	2015 Ford Focus SE	Community Standards	27	Gasoline	\$ 1.32	\$ 0.13	2,314	223	1.96	\$ 295	510	5.82%	0.847	1,960
0516	2015 Ford Focus SE	Community Standards	27	Gasoline	\$ 1.38	\$ 0.11	1,835	140	1.23	\$ 194	289	3.30%	0.671	1,232

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0517	2015 Ford Focus SE	Community Standards	27	Gasoline	\$ 1.23	\$ 0.10	5,621	444	3.89	\$ 545	992	11.32%	0.693	3,895
0518	2015 Ford Focus SE	Community Standards	27	Gasoline	\$ 1.34	\$ 0.11	5,329	448	3.93	\$ 599	1,079	12.32%	0.737	3,929
0519	2018 Chevrolet Cruze LS	Community Standards	29	Gasoline	\$ 1.35	\$ 0.08	4,438	271	2.38	\$ 366	558	6.37%	0.536	2,378
0522	2016 Chevrolet Colorado	Community Standards	18	Gasoline	\$ 1.37	\$ 0.17	1,627	200	1.76	\$ 273	310	3.54%	1.079	1,756
0523	2016 Chevrolet Colorado	Community Standards	18	Gasoline	\$ 1.29	\$ 0.18	4,931	683	6.00	\$ 883	1,076	12.28%	1.216	5,997
1015	2007 SUV	Police Dept	14	Gasoline	\$ -	\$ -	966	36	0.32	\$ -	11	0.13%	0.331	320
1017	2016 Ford Fusion	Fire Dept	22	Gasoline	\$ 1.15	\$ 0.05	2,022	92	0.81	\$ 106	59	0.67%	0.399	807
1018	2017 Ford Fusion	Fire Dept	22	Gasoline	\$ 1.30	\$ 0.06	4,247	193	1.69	\$ 251	194	2.21%	0.399	1,695
1019	2017 GMC 2500 HD P/U 4x4	Fire Dept	15	Gasoline	\$ 1.27	\$ 0.08	7,419	495	4.34	\$ 630	256	2.92%	0.585	4,343
1049	2005 GMC Sierra 2500 4X4	Fire Dept	15	Diesel	\$ 1.43	\$ 0.10	367	24	0.25	\$ 35	12	0.14%	0.681	250
1054	2013 Chevrolet Silverado 2500 4X4	Fire Dept	15	Gasoline	\$ 1.31	\$ 0.09	11,336	756	6.64	\$ 988	560	6.39%	0.585	6,635
1055	2014 GMC Sierra 2500 4X4	Fire Dept	15	Gasoline	\$ 1.29	\$ 0.09	15,224	1,015	8.91	\$ 1,311	819	9.35%	0.585	8,911
1056	2016 Chevrolet Equinox AWD	Fire Dept	20	Gasoline	\$ 1.24	\$ 0.06	9,332	467	4.10	\$ 579	359	4.10%	0.439	4,097
1058	2016 Chevrolet Equinox AWD	Fire Dept	20	Gasoline	\$ 1.30	\$ 0.07	12,645	632	5.55	\$ 825	420	4.79%	0.439	5,551
1059	2017 Chevrolet Equinox AWD	Fire Dept	20	Gasoline	\$ 1.42	\$ 0.07	2,846	142	1.25	\$ 202	146	1.67%	0.439	1,249
1060	2017 Chevrolet Equinox AWD	Fire Dept	20	Gasoline	\$ 1.25	\$ 0.06	5,137	257	2.26	\$ 320	229	2.61%	0.439	2,255
1061	2017 Chevrolet Equinox	Fire Dept	20	Gasoline	\$ 1.30	\$ 0.06	3,070	154	1.35	\$ 199	153	1.75%	0.439	1,348
1062	2018 Ford Explorer	Fire Dept	17	Gasoline	\$ 1.43	\$ 0.08	12,393	664	5.83	\$ 951	409	4.67%	0.471	5,832
1063	2019 Chevrolet 2500 HD 4x4	Fire Dept	15	Gasoline	\$ 1.84	\$ 0.18	1,547	153	1.35	\$ 282	43	0.49%	0.870	1,346
1101	2013 Ford Focus SE	Fleet - Pool Car	27	Gasoline	\$ 1.36	\$ 0.05	3,303	122	1.07	\$ 166	144	1.64%	0.325	1,074
1102	2013 Ford Focus SE	Fleet - Pool Car	27	Gasoline	\$ 1.27	\$ 0.05	3,508	130	1.14	\$ 165	152	1.74%	0.325	1,141
1104	2019 Chevrolet Bolt	Fleet - Pool Car	128	Electric	\$ -	\$ -	962	-	0.60	\$ -	-	0.00%	0.624	600

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1206	2016 Dodge Grand Carava	Fleet - Pool Car	17	Gasoline	\$ 1.35	\$ 0.08	8,413	495	4.34	\$ 668	381	4.35%	0.516	4,345
1251	2009 Ford Escape 4X2 XLS	Comm. Television Network	22	Gasoline	\$ 1.29	\$ 0.06	4,209	191	1.68	\$ 246	174	1.99%	0.399	1,680
1252	2012 Ford Transit Connect	Comm. Television Network	15	Gasoline	\$ 1.36	\$ 0.09	684	46	0.40	\$ 62	46	0.53%	0.585	400
1264	2006 Ford F-250 4X4 Pick Up	Facility Operations	13	Gasoline	\$ 1.18	\$ 0.09	4,682	360	3.16	\$ 424	156	1.78%	0.675	3,162
1265	2019 Ford F-350 4x4	Facility Operations	12	Gasoline	\$ 1.75	\$ 0.11	587	36	0.31	\$ 62	16	0.18%	0.531	312
1269	2016 FORD F-250 4x4	Facility Operations	14	Gasoline	\$ 1.19	\$ 0.09	9,098	650	5.71	\$ 776	342	3.90%	0.627	5,706
1600	2009 Ford F-350 Ext Cab 4X4	Fleet Service Truck	12	Gasoline	\$ 1.33	\$ 0.11	3,708	309	2.71	\$ 411	159	1.82%	0.732	2,713
1610	1998 Ford Econoline Cut Away	Comm. Television Network	13	Diesel	\$ 1.40	\$ 0.11	680	52	0.53	\$ 73	9	0.10%	0.785	534
2248	2013 Ford F-150 Ext Cab	Public Works-Sewer - Revolving Equipment	15	Gasoline	\$ 1.39	\$ 0.09	6,432	429	3.76	\$ 597	482	5.50%	0.585	3,765
2250	2007 Ford Freestar	Sewage - Waste Water Treatment Plant	16	Gasoline	\$ 1.30	\$ 0.08	1,901	119	1.04	\$ 154	92	1.05%	0.549	1,043
2280	2017 Ford F-250 4x2	Public Works - Sewer - Revolving Equipment	14	Gasoline	\$ 1.28	\$ 0.09	12,710	908	7.97	\$ 1,164	988	11.28%	0.627	7,971
2291	2009 Ford F-350 4X4 Pickup	Sewage - Waste Water Treatment Plant	12	Gasoline	\$ 1.12	\$ 0.09	2,870	239	2.10	\$ 269	179	2.04%	0.732	2,100
2293	2009 Ford F-250 2WD	Sewage - Waste Water Treatment Plant	14	Gasoline	\$ 1.42	\$ 0.10	2,353	168	1.48	\$ 238	114	1.30%	0.627	1,475
2294	2016 Ford F-250 4X4	Public Works-Sewer - Maintenance	13	Gasoline	\$ 1.38	\$ 0.11	8,425	648	5.69	\$ 896	542	6.19%	0.675	5,690
2295	2016 Ford F-250 4X4 Ext Cab	Sewage - Waste Water Treatment Plant	13	Gasoline	\$ 1.33	\$ 0.10	7,215	555	4.87	\$ 737	534	6.10%	0.675	4,873
2296	2016 Ford F-250 4X4	Public Works-Sewer - Maintenance	13	Gasoline	\$ 1.29	\$ 0.10	11,104	854	7.50	\$ 1,102	800	9.13%	0.675	7,500
2297	2015 GMC Sierra 1500 4X2	Public Works-Storm Water – Revolving Eq	15	Gasoline	\$ 1.28	\$ 0.09	18,292	1,219	10.71	\$ 1,558	537	6.13%	0.585	10,707
2298	2015 GMC Sierra 1500 4X2	Public Works-Sewer - Maintenance	15	Gasoline	\$ 1.28	\$ 0.09	16,800	1,120	9.83	\$ 1,438	648	7.40%	0.585	9,834
2299	2017 Ford F-350 4x2	Public Works-Storm Water - Revolving Eq	13	Gasoline	\$ 1.33	\$ 0.10	9,679	745	6.54	\$ 987	674	7.69%	0.675	6,537
3166	2009 Ford Focus	Water - Water Treatment Plant	27	Gasoline	\$ -	\$ -	-	-	-	\$ -	-	0.00%	-	-
3204	2013 Ford F-350 SRW 4X4	Water - Water Treatment Plant	12	Gasoline	\$ 1.24	\$ 0.10	3,600	300	2.63	\$ 373	223	2.55%	0.732	2,634
3226	2013 Chevrolet Express 2500	Public Works-Water - Revolving Equipment	11	Gasoline	\$ 1.27	\$ 0.12	18,082	1,644	14.43	\$ 2,089	1,578	18.01%	0.798	14,433

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3227	2013 Chevrolet Express 2500	Public Works-Water - Revolving Equipment	11	Gasoline	\$ 1.46	\$ 0.13	13,353	1,214	10.66	\$ 1,773	1,072	12.24%	0.798	10,658
3250	2009 Dodge Grand Caravan	Water - Systems Planning - Admin	17	Gasoline	\$ 1.30	\$ 0.08	2,220	131	1.15	\$ 170	92	1.05%	0.516	1,147
3251	2016 Chevrolet Colorado	Storm Water - Systems Planning	18	Gasoline	\$ 1.36	\$ 0.08	1,968	109	0.96	\$ 149	107	1.22%	0.488	960
3252	2016 Chevrolet Equinox AWD	Public Works-Water	20	Gasoline	\$ 1.27	\$ 0.06	5,176	259	2.27	\$ 329	224	2.56%	0.439	2,272
3260	2015 GMC Sierra 1500 4X2	Public Works-Water - Operations	15	Gasoline	\$ 1.33	\$ 0.09	15,762	1,051	9.23	\$ 1,401	670	7.65%	0.585	9,226
3261	2015 GMC Sierra 1500 4X2	Public Works-Water - Operations	15	Gasoline	\$ 1.31	\$ 0.09	9,501	633	5.56	\$ 827	407	4.65%	0.585	5,561
3262	2015 Chevrolet Equinox AWD	Water - Water Treatment Plant	20	Gasoline	\$ 1.31	\$ 0.07	6,680	334	2.93	\$ 437	509	5.81%	0.439	2,933
3270	2017 Ford F-250 Superduty 4x4	Water - Water Treatment Plant	13	Gasoline	\$ 1.27	\$ 0.10	6,589	507	4.45	\$ 642	309	3.53%	0.675	4,450
3282	2013 Ford F-150 Ext Cab	Public Works-Sewer	15	Gasoline	\$ 1.24	\$ 0.08	14,352	957	8.40	\$ 1,188	1,001	11.43%	0.585	8,401
3283	2014 Ford F250 4X4 Utility Box	Water - Water Treatment Plant	13	Gasoline	\$ 1.33	\$ 0.10	5,412	416	3.66	\$ 554	223	2.55%	0.675	3,655
3288	2016 Chevrolet Colorado	Public Works - Water - Inspections	18	Gasoline	\$ 1.30	\$ 0.07	28,491	1,583	13.90	\$ 2,055	1,725	19.69%	0.488	13,897
3290	2017 Chevrolet Silverado 1500 4X4	Water - Water Treatment Plant	16	Gasoline	\$ 1.26	\$ 0.08	5,660	354	3.11	\$ 445	312	3.56%	0.549	3,106
3294	2016 Ford F-350 w/ Utility Bod	Public Works - Water - Revolving Equipment	13	Gasoline	\$ 1.43	\$ 0.11	3,148	242	2.13	\$ 346	215	2.45%	0.675	2,126
3295	2015 GMC Sierra 3500 4x4	Public Works - Water - Operations	15	Gasoline	\$ 1.30	\$ 0.09	17,136	1,142	10.03	\$ 1,489	1,136	12.97%	0.585	10,030
3296	2016 Ford F-250 4X2	Public Works - Water - Operations	14	Gasoline	\$ 1.34	\$ 0.10	8,903	636	5.58	\$ 854	828	9.45%	0.627	5,584
3297	2016 Ford F-250 4X2	Public Works - Water - Operations	14	Gasoline	\$ 1.29	\$ 0.09	8,567	612	5.37	\$ 791	614	7.01%	0.627	5,373
3298	2016 Ford F-250 4X4	Water - Water Treatment Plant	13	Gasoline	\$ 1.35	\$ 0.10	5,327	410	3.60	\$ 553	249	2.84%	0.675	3,598
3299	2016 Ford F-250 4X2	Public Works - Water - Operations	14	Gasoline	\$ 1.40	\$ 0.10	6,485	463	4.07	\$ 650	430	4.91%	0.627	4,067
3611	2015 GMC Sierra 3500 DRW	Public Works - Water - Revolving Equipment	14	Gasoline	\$ 1.30	\$ 0.09	4,787	342	3.00	\$ 446	280	3.20%	0.627	3,002
4240	2009 Dodge Grand Caravan	Engineering - Radio - Systems Maint.	17	Gasoline	\$ 1.25	\$ 0.07	4,451	262	2.30	\$ 326	239	2.73%	0.516	2,299
4241	2013 Ram C/V Tradesman Van	Engineering - Major Street - ROW Maint.	17	Gasoline	\$ 1.35	\$ 0.08	10,228	602	5.28	\$ 813	912	10.41%	0.516	5,283
4242	2014 Ford F-150 XL	Public Works - Major Street - Traffic Control	15	Gasoline	\$ 1.33	\$ 0.09	13,111	874	7.67	\$ 1,162	452	5.16%	0.585	7,674

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4248	2017 Ford F-250 4x2	Engineering - Major Street - Traffic Control	14	Gasoline	\$ 1.28	\$ 0.09	10,958	783	6.87	\$ 1,005	748	8.54%	0.627	6,872
4261	2016 Ford Transit Cargo Van	Engineering - Major Street - ROW Maint.	15	Gasoline	\$ 1.36	\$ 0.09	8,734	582	5.11	\$ 792	610	6.96%	0.585	5,112
4270	2016 Ford F-250 4X4	Public Works-Major Street - ROW Maint.	13	Gasoline	\$ 1.28	\$ 0.10	15,563	1,197	10.51	\$ 1,535	1,715	19.58%	0.675	10,511
4271	2016 Ford F-250 4X2	Engineering - Major Street - Traffic Control	14	Gasoline	\$ 1.28	\$ 0.09	8,917	637	5.59	\$ 816	654	7.47%	0.627	5,593
4281	2017 Ford F-150 4x2	Safety	15	Gasoline	\$ 1.32	\$ 0.09	3,190	213	1.87	\$ 280	183	2.09%	0.585	1,867
5114	2011 Ford Fusion SE	Construction Code - Building & Rental	22	Gasoline	\$ 1.28	\$ 0.06	5,667	258	2.26	\$ 331	312	3.56%	0.399	2,262
5115	2016 Chevrolet Equinox LS	Construction Code - Building & Rental	22	Gasoline	\$ 1.35	\$ 0.06	9,993	454	3.99	\$ 614	659	7.52%	0.399	3,988
5116	2016 Chevrolet Equinox	Construction Code - Building & Rental	22	Gasoline	\$ 1.29	\$ 0.06	11,126	506	4.44	\$ 654	689	7.87%	0.399	4,440
5117	2016 Ford Focus	General - Building & Rental	27	Gasoline	\$ 1.31	\$ 0.05	4,502	167	1.46	\$ 219	273	3.12%	0.325	1,464
5118	2017 Chevrolet Equinox	General - Building & Rental	20	Gasoline	\$ 1.30	\$ 0.06	6,036	302	2.65	\$ 391	355	4.05%	0.439	2,650
5119	2017 Chevrolet Equinox	Construction Code - Building & Rental	20	Gasoline	\$ 1.26	\$ 0.06	2,073	104	0.91	\$ 131	94	1.07%	0.439	910
5225	2013 Chevrolet Equinox LS	Construction Code - Building & Rental	22	Gasoline	\$ 1.37	\$ 0.06	10,555	480	4.21	\$ 655	700	7.99%	0.399	4,212
5226	2013 Chevrolet Equinox LS	Construction Code - Building & Rental	22	Gasoline	\$ 1.38	\$ 0.06	3,186	145	1.27	\$ 200	141	1.61%	0.399	1,271
5227	2013 Chevrolet Equinox LS	Construction Code - Building & Rental	22	Gasoline	\$ 1.25	\$ 0.06	10,311	469	4.12	\$ 588	605	6.91%	0.399	4,115
5228	2015 Chevrolet Equinox AWD	Construction Code - Building & Rental	20	Gasoline	\$ 1.26	\$ 0.06	5,961	298	2.62	\$ 377	418	4.77%	0.439	2,617
5229	2015 Chevrolet Equinox AWD	Construction Code - Building & Rental	20	Gasoline	\$ 1.30	\$ 0.06	10,266	513	4.51	\$ 665	687	7.84%	0.439	4,507
5230	2015 Chevrolet Equinox AWD	General - Building & Rental	20	Gasoline	\$ 1.30	\$ 0.07	7,812	391	3.43	\$ 509	531	6.06%	0.439	3,430
5231	2015 Chevrolet Equinox AWD	Construction Code - Building & Rental	20	Gasoline	\$ 1.30	\$ 0.06	9,987	499	4.38	\$ 648	757	8.64%	0.439	4,384
5232	2015 Chevrolet Equinox AWD	Construction Code - Building & Rental	20	Gasoline	\$ 1.29	\$ 0.06	8,973	449	3.94	\$ 578	801	9.14%	0.439	3,939
5233	2015 Chevrolet Equinox AWD	Construction Code - Building & Rental	20	Gasoline	\$ 1.35	\$ 0.07	8,502	425	3.73	\$ 575	532	6.07%	0.439	3,732
5234	2015 Chevrolet Equinox AWD	General - Building & Rental	20	Gasoline	\$ 1.25	\$ 0.06	5,565	278	2.44	\$ 349	319	3.64%	0.439	2,443
5235	2015 Chevrolet Equinox AWD	General - Building & Rental	20	Gasoline	\$ 1.32	\$ 0.07	7,092	355	3.11	\$ 469	436	4.98%	0.439	3,113

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Estimated MPG (City) (1)	Fuel Type	Average Cost per Gallon	Average Cost per Mile	Estimated Annual Miles Driven per Year (2)	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (3)	Estimated Emissions per Mile	Carbon Dioxide Emissions (kg)
5236	2017 Chevrolet Equinox	General - Building & Rental	20	Gasoline	\$ 1.28	\$ 0.06	7,703	385	3.38	\$ 492	561	6.40%	0.439	3,382
5237	2017 Chevrolet Equinox	Construction Code - Building & Rental	20	Gasoline	\$ 1.31	\$ 0.07	8,591	430	3.77	\$ 564	541	6.18%	0.439	3,772
5238	2017 Chevrolet Equinox	Construction Code - Building & Rental	20	Gasoline	\$ 1.34	\$ 0.07	9,850	492	4.32	\$ 659	706	8.06%	0.439	4,324
6202	2011 Ford Ranger Pickup	Parks & Recreation - Planning & Develop	19	Gasoline	\$ 1.25	\$ 0.07	1,473	78	0.68	\$ 97	77	0.88%	0.462	681
6205	2013 Ford F-250 Crew Cab 4X4	General-Parks & Recreation-Leslie Golf	13	Gasoline	\$ -	\$ -	-	-	-	\$ -	-	0.00%	-	-
6206	2016 Ford F-250 4x4	General-Parks & Recreation - Veteran's	14	Gasoline	\$ 1.27	\$ 0.09	11,988	856	7.52	\$ 1,085	658	7.51%	0.627	7,518
6218	2017 Chevrolet Express 3500	General-Parks & Recreation - Argo	11	Gasoline	\$ 1.33	\$ 0.12	3,119	284	2.49	\$ 376	166	1.89%	0.798	2,490
6219	2016 Dodge Grand Caravan	Parks & Recreation - NAP	17	Gasoline	\$ 1.34	\$ 0.08	6,550	385	3.38	\$ 517	339	3.87%	0.516	3,383
6220	2011 Chevrolet Express 15 Pass	General - Parks & Recreation - Argo	11	Gasoline	\$ 1.12	\$ 0.10	3,146	286	2.51	\$ 321	230	2.63%	0.798	2,511
6221	2013 GMC Savana 3500 Ext WB	General - Parks & Recreation - Argo	11	Gasoline	\$ 1.17	\$ 0.11	2,297	209	1.83	\$ 245	183	2.09%	0.798	1,833
6222	2013 GMC Savana 3500 Ext WB	General - Parks & Recreation - Argo	11	Gasoline	\$ 1.27	\$ 0.12	3,541	322	2.83	\$ 409	248	2.83%	0.798	2,826
6223	2013 GMC Savana 3500 Ext WB	General - Parks & Recreation - Argo	11	Gasoline	\$ 1.30	\$ 0.12	2,220	202	1.77	\$ 263	196	2.24%	0.798	1,772
6224	2014 GMC Savana 15 Pass Van	General - Parks & Recreation - Argo	11	Gasoline	\$ 1.23	\$ 0.11	2,106	191	1.68	\$ 235	194	2.21%	0.798	1,681
6225	2014 GMC Savana 15 Pass Van	General - Parks & Recreation - Argo	11	Gasoline	\$ 1.07	\$ 0.10	1,555	141	1.24	\$ 151	191	2.18%	0.798	1,241
6226	2016 Ford Transit Wagon	General - Parks & Recreation - Argo	15	Gasoline	\$ 1.15	\$ 0.08	4,300	287	2.52	\$ 329	329	3.76%	0.585	2,517
6230	2018 RAM Promaster City	Parks & Recreation - Parks & Forestry	21	Gasoline	\$ 1.33	\$ 0.06	16,971	808	7.10	\$ 1,076	2,453	28.00%	0.418	7,096
6235	2018 Chevrolet 3500 Van	General - Parks & Recreation - Argo	11	Gasoline	\$ 1.56	\$ 0.10	1,088	67	0.59	\$ 105	40	0.46%	0.543	591
6240	2016 GMC Sierra PU	Parks & Recreation - Parks & Forestry	15	Gasoline	\$ 1.20	\$ 0.08	8,585	572	5.03	\$ 687	474	5.41%	0.585	5,025
6241	2016 GMC Sierra PU	Public Works-Storm Water-Forestry Ops	15	Gasoline	\$ 1.19	\$ 0.08	8,640	576	5.06	\$ 687	1,189	13.57%	0.585	5,057
6252	2016 Ford F-250 4X2	Parks & Recreation - NAP	14	Gasoline	\$ 1.20	\$ 0.09	4,373	312	2.74	\$ 374	203	2.32%	0.627	2,743
6253	2019 Ford F-250 4x4	Parks & Recreation - NAP	13	Gasoline	\$ 1.77	\$ 0.14	3,140	242	2.12	\$ 428	122	1.39%	0.675	2,121
6255	2019 Ford F-250 4x4	Parks & Recreation - NAP	13	Gasoline	\$ 1.80	\$ 0.14	2,992	230	2.02	\$ 414	138	1.58%	0.675	2,021

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Estimated MPG (City) (1)	Fuel Type	Average Cost per Gallon	Average Cost per Mile	Estimated Annual Miles Driven per Year (2)	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (3)	Estimated Emissions per Mile	Carbon Dioxide Emissions (kg)
6260	2013 Ford F-350 w/Utility Body	Parks & Recreation - Parks & Forestry	13	Gasoline	\$ 1.29	\$ 0.10	14,592	1,122	9.86	\$ 1,447	717	8.18%	0.675	9,855
6261	2016 Ford F-250 4X2	Parks & Recreation - Athletic Field/Courts	14	Gasoline	\$ 1.36	\$ 0.10	11,051	789	6.93	\$ 1,072	422	4.82%	0.627	6,931
6262	2016 Ford F-250 4X2	Parks & Recreation - Parks & Forestry	14	Gasoline	\$ 1.31	\$ 0.09	14,469	1,033	9.07	\$ 1,357	812	9.27%	0.627	9,074
6263	2016 Ford F-250 4X4	Parks & Recreation - Parks & Forestry	13	Gasoline	\$ 1.29	\$ 0.10	17,390	1,338	11.74	\$ 1,729	864	9.86%	0.675	11,745
6264	2016 Ford F-250 4X4	Parks & Recreation - Parks & Forestry	13	Gasoline	\$ 1.35	\$ 0.10	10,942	842	7.39	\$ 1,136	686	7.83%	0.675	7,390
6265	2016 Ford F-250 Crew Cab 4X2	Parks & Recreation - Athletic Field/Courts	14	Gasoline	\$ 1.30	\$ 0.09	17,471	1,248	10.96	\$ 1,625	1,483	16.93%	0.627	10,957
6266	2016 Ford F-250 4X4	Public Works-Storm Water	13	Gasoline	\$ 1.20	\$ 0.09	7,735	595	5.22	\$ 713	863	9.85%	0.675	5,224
6267	2016 Ford F-250 4X4	Parks & Recreation - Parks & Forestry	13	Gasoline	\$ 1.26	\$ 0.10	9,790	753	6.61	\$ 947	546	6.23%	0.675	6,612
6268	2016 Ford F-250 4X4	Parks & Recreation - Parks & Forestry	13	Gasoline	\$ 1.27	\$ 0.10	19,093	1,469	12.90	\$ 1,870	1,159	13.23%	0.675	12,895
6274	2017 Ford F-150 4x2 Pickup	Parks & Recreation - Recreation Facilities	15	Gasoline	\$ 1.39	\$ 0.09	2,934	196	1.72	\$ 272	169	1.93%	0.585	1,717
6280	2018 Ford F-250	Parks & Recreation - Parks & Forestry	13	Gasoline	\$ 1.36	\$ 0.10	9,600	738	6.48	\$ 1,006	531	6.06%	0.675	6,484
6281	2016 Ford F-250 4x4	Parks & Recreation - Athletic Field/ Courts	14	Gasoline	\$ 1.49	\$ 0.11	12,306	879	7.72	\$ 1,311	676	7.72%	0.627	7,718
6289	2016 Ford F-250 4x4	Parks & Recreation - Parks & Forestry	14	Gasoline	\$ 1.31	\$ 0.09	18,102	1,293	11.35	\$ 1,688	948	10.82%	0.627	11,353
6295	2013 GMC Sierra 2500 4X4	Public Works-Storm Water-Forestry Ops	15	Gasoline	\$ 1.27	\$ 0.08	9,507	634	5.56	\$ 806	640	7.31%	0.585	5,565
6296	2013 GMC Sierra 2500 4X4	Parks & Recreation - Parks & Forestry	15	Gasoline	\$ 1.26	\$ 0.08	12,744	850	7.46	\$ 1,067	554	6.32%	0.585	7,460
6297	2013 GMC Sierra 2500 4X4	Parks & Recreation - Parks & Forestry	15	Gasoline	\$ 1.25	\$ 0.08	7,443	496	4.36	\$ 620	365	4.17%	0.585	4,357
6298	2013 GMC Sierra 2500 4X4	Parks & Recreation - Parks & Forestry	15	Gasoline	\$ 1.29	\$ 0.09	10,348	690	6.06	\$ 890	602	6.87%	0.585	6,057
6299	2013 Ford F-150 Ext Cab	Parks & Recreation - Recreation Facilities	15	Gasoline	\$ 1.21	\$ 0.08	2,717	181	1.59	\$ 219	137	1.56%	0.585	1,591
6526	2007 GMC 3500HD 3 Yard Dump	Parks Maint. - Parks & Recreation - NAP	14	Diesel	\$ 1.63	\$ 0.12	2,519	180	1.84	\$ 293	59	0.67%	0.729	1,837
7205	2010 Ford F-350 SRW 4X4	Airport - Grounds	12	Gasoline	\$ 1.14	\$ 0.10	1,177	98	0.86	\$ 112	102	1.16%	0.732	861
7206	2014 Ford F-250 4X4	Airport - Grounds	13	Gasoline	\$ 1.17	\$ 0.09	4,627	356	3.13	\$ 417	565	6.45%	0.675	3,125
8251	2017 Chevrolet Colorado 4WD	Public Works-Solid Waste- Administration	17	Gasoline	\$ 1.34	\$ 0.08	2,914	171	1.50	\$ 229	160	1.83%	0.516	1,505

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Estimated MPG (City) (1)	Fuel Type	Average Cost per Gallon	Average Cost per Mile	Estimated Annual Miles Driven per Year (2)	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (3)	Estimated Emissions per Mile	Carbon Dioxide Emissions (kg)
8270	2015 GMC Sierra 1500 4X2	Public Works-Solid Waste- Administration	15	Gasoline	\$ 1.28	\$ 0.09	10,345	690	6.06	\$ 885	760	8.68%	0.585	6,055
8271	2016 GMC Sierra PU	Public Works-Storm Water - Forestry Ops	15	Gasoline	\$ 1.25	\$ 0.08	5,217	348	3.05	\$ 434	432	4.93%	0.585	3,054
9223	2018 Chevrolet Colorado	Project Management - Engineering	18	Gasoline	\$ 1.39	\$ 0.08	4,641	258	2.26	\$ 358	238	2.72%	0.488	2,264
9224	2016 Chevrolet Equinox	Project Management - Engineering	22	Gasoline	\$ 1.57	\$ 0.07	2,767	126	1.10	\$ 198	140	1.60%	0.399	1,104
9237	2017 Chevrolet Express Van	Public Works-Major Street - Engineering	11	Gasoline	\$ 1.30	\$ 0.12	1,317	120	1.05	\$ 156	58	0.66%	0.798	1,051
9250	2013 Chevrolet Express 2500	Project Management - Engineering	11	Gasoline	\$ 1.45	\$ 0.13	4,725	430	3.77	\$ 623	358	4.09%	0.798	3,771
9251	2013 Chevrolet Express 2500	Proj Mgt-Engineering - Private Dev.	11	Gasoline	\$ 1.41	\$ 0.13	6,185	562	4.94	\$ 794	144	1.64%	0.798	4,937
9252	2013 Chevrolet Express 2500	Project Management - Engineering	11	Gasoline	\$ 1.32	\$ 0.12	1,965	179	1.57	\$ 235	137	1.56%	0.798	1,569
9253	2013 Chevrolet Express 2500	Proj Mgt - Engineering - Private Dev.	11	Gasoline	\$ 1.34	\$ 0.12	6,996	636	5.58	\$ 850	596	6.80%	0.798	5,584
9254	2013 Chevrolet Express 2500	Project Management - Engineering	11	Gasoline	\$ 1.28	\$ 0.12	4,143	377	3.31	\$ 484	466	5.32%	0.798	3,307
9255	2013 Chevrolet Express 2500	Proj Mgt - Engineering - Private Dev.	11	Gasoline	\$ 1.34	\$ 0.12	4,686	426	3.74	\$ 572	452	5.16%	0.798	3,740
9256	2016 Ford Transit Cargo Van	Project Management - Engineering	15	Gasoline	\$ 1.32	\$ 0.09	10,728	715	6.28	\$ 944	787	8.98%	0.585	6,280
9257	2016 Ford Transit Cargo Van	Public Works-Major Street - Engin Services	15	Gasoline	\$ 1.36	\$ 0.09	10,013	668	5.86	\$ 907	930	10.62%	0.585	5,861
9258	2016 Ford Transit Van	Project Management - Engineering	15	Gasoline	\$ 1.39	\$ 0.09	4,415	294	2.58	\$ 410	331	3.78%	0.585	2,584
9259	2016 Ford Transit Van	Project Management - Engineering	15	Gasoline	\$ 1.30	\$ 0.09	8,215	548	4.81	\$ 712	1,176	13.42%	0.585	4,808
TOTALS	211 Vehicles							121,207	1,065.49					1,065,488

Notes: (1) The City does not track MPG so estimates are from EPA (City driving) estimates where available. The EPA does not provide mileage information for vehicles above 1/2 ton pickups so estimates for most trucks and vans are from other sources or estimates based on engine size/type. (2) Estimated annual miles driven is calculated from gallons of fuel used x estimated MPG. This number will not accurately reflect actual City usage. Most police vehicles have their annual miles tracked separately and those more accurate mileage numbers are shaded gray where available. (3) The "8760" factor used in calculating vehicle utilization is the total number of hours in one year (365 x 24 = 8760).

Attachment B
Heavy Equipment Inventory Detail

Green Fleet Information for FY 2019 - Heavy Duty

7.a.1			7.a.3	7.a.7	7.a.8			
Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Fuel Type	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (1)
0300	2006 Ford E450 Chassis	Fire Dept.	Diesel	93	0.9495	\$ 120	40	0.46%
0301	2006 GMC C5500	Police Dept	Diesel	143	1.4600	\$ 208	146	1.67%
1042	1999 Emergency One Engine	Fire Dept	Diesel	385	3.9309	\$ 523	220	2.51%
1070	2005 Spartan VA41M-2142 Engine	Fire Dept	Diesel	956	9.7608	\$ 1,338	485	5.54%
1071	2005 Spartan VA41M-2142 Engine	Fire Dept	Diesel	2,053	20.9611	\$ 2,794	858	9.79%
1072	2006 Spartan VA42G-2142	Fire Dept	Diesel	123	1.2558	\$ 173	-	0.00%
1073	2011 Crimson Metro Star Engine	Fire Dept	Diesel	1,998	20.3996	\$ 2,609	806	9.20%
1074	2011 Crimson Metro Star Engine	Fire Dept	Diesel	2,441	24.9226	\$ 3,353	901	10.29%
1080	2013 Sutphen SPH 100 Tower	Fire Dept	Diesel	2,219	22.6560	\$ 3,117	689	7.87%
1085	2016 Quint Fire Apparatus	Fire Dept	Diesel	423	4.3188	\$ 617	1,080	12.33%
1801	2016 Doosan P185 Air Compressor	Major St-Signal Install/ Rebuild	Diesel	43	0.4390	\$ 59	16	0.18%
1901	1970 Moline 1901 Tug	Fleet Services	Propane	-	-	\$ -	-	0.00%
1903	2004 Clark C25C Forklift	Fleet Services	Propane	-	-	\$ -	-	0.00%
2503	2018 Ford F-450	Storm Water-Revolving Eq	Gasoline	258	2.2652	\$ 502	146	1.67%
2504	2017 Ford F-450 4x4	Water Ops - Revolving Eq	Gasoline	950	8.3410	\$ 1,266	283	3.23%
2505	2017 Ford F-450 4x4	Storm Water - Revolving Eq	Gasoline	606	5.3207	\$ 807	297	3.39%
2520	2018 Western Star 4700 Tandem Axle	Water - Operations	Diesel	1,411	14.4063	\$ 1,804	588	6.71%
2521	2018 Western Star 4700 Single Axle	Sewer - Operations	Diesel	1,070	10.9247	\$ 1,351	482	5.50%
2560	2018 Western Star 4700	Water - Operations	Diesel	1,258	12.8442	\$ 1,593	538	6.14%
2561	2018 Western Star 4700	Water - Operations	Diesel	1,062	10.8430	\$ 1,443	438	5.00%
2616	2017 Ford F-450 4x2 Box Truck	Sewer-Televise Coll. System	Gasoline	1,866	16.3835	\$ 2,443	1,249	14.26%
2620	2012 Kenworth T440 Vactor	Sewer - Jetting	Diesel	3,189	32.5597	\$ 4,506	1,078	12.31%
2621	2015 Freightliner 114SD Vactor	Water - Maint. on Mains	Diesel	3,217	32.8456	\$ 4,387	888	10.14%
2622	2017 Freightliner FL 114 SD	Storm Water - Jetting	Diesel	4,002	40.8604	\$ 5,521	1,366	15.59%
2774	2016 John Deere Backhoe 310SL HL	Storm Water-Revolving Eq	Diesel	490	5.0029	\$ 717	271	3.09%
2780	2015 John Deere 333E Tractor	Sewer - Revolving Eq	Diesel	152	1.5519	\$ 244	79	0.90%
2818	2003 Ingersol Rand P185WJD	Sewer - Operations	Diesel	-	-	\$ -	-	0.00%

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Fuel Type	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (1)
2819	2009 Ingersoll Rand XP185WJD	Storm Water-Revolving Eq	Diesel	58	0.5922	\$ 89	42	0.48%
2851	2009 Yanmar SV100-1 Excavator	Sewer-Revolving Eq	Diesel	555	5.6666	\$ 816	429	4.90%
2854	2014 John Deere 135G Excavator	Water-Revolving Eq	Diesel	151	1.5417	\$ 195	77	0.88%
2910	2003 John Deere Gator	Sewer-WWTP Operations	Gasoline	-	-	\$ -	-	0.00%
2911	2012 E Z Go/Cushm 800 Electric	Sewer-WWTP Operations	Electric	-	-	\$ -	-	0.00%
2912	2014 EZ Go 250 Terrain Cart	Sewer-WWTP Operations	Electric	-	-	\$ -	-	0.00%
2915	2006 John Deere Gator TS	Sewer-WWTP Operations	Gasoline	-	-	\$ -	-	0.00%
2919	2008 E Z Go 800 Electric	Sewer-WWTP Operations	Electric	-	-	\$ -	-	0.00%
2920	1997 Komatsu FD40ZT-5 Forklift	Sewer-WWTP Operations	Diesel	-	-	\$ -	-	0.00%
2927	1988 Kalmar KC 30 Forklift	Sewer-WWTP Operations	Propane	-	-	\$ -	-	0.00%
2928	2017 Polaris Ranger EV	Sewer-WWTP Operations	Electric	-	-	\$ -	-	0.00%
2942	1994 Utilities Sewer Jet	Sewer-Operations	Gasoline	-	-	\$ -	-	0.00%
3285	2017 Ford F-450 4x4	Water-Operations	Gasoline	1,799	15.7952	\$ 2,378	1,291	14.74%
3550	2013 Freightler 108SD 5yd Dump	Storm Water-Revolving Eq	Diesel	994	10.1487	\$ 1,287	437	4.99%
3551	2013 Freightler 108SD 5yd Dump	Storm Water-Revolving Eq	Diesel	1,092	11.1493	\$ 1,201	436	4.98%
3776	2003 Case 580 Super M Backhoe	Sewer-WWTP Operations	Diesel	14	0.1429	\$ -	-	0.00%
3777	2006 John Deere 624J Loader	Water-Operations	Diesel	846	8.6377	\$ 1,119	344	3.93%
3778	2016 John Deere Mini Excavator 60G	Water-Operations	Diesel	201	2.0522	\$ 259	243	2.77%
3779	2016 John Deere Backhoe 310SL HL	Water-Operations	Diesel	600	6.1260	\$ 826	311	3.55%
3802	2018 Doosan Air Compressor	Water-Operations	Diesel	35	0.3574	\$ 49	-	0.00%
3815	2018 Doosan Air Compressor	Water-Operations	Diesel	-	-	\$ -	-	0.00%
3921	2016 Ventrac 4500Z Tractor	Water-Operations	Gasoline	-	-	\$ -	-	0.00%
3953	2005 Caterpillar Fork Truck P5000	Water-Operations	Propane	-	-	\$ -	-	0.00%
4500	2017 Ford F-450 4x2	Major St-Salting/Plowing	Gasoline	1,218	10.6940	\$ 1,739	845	9.65%
4505	2013 Ford F-450 With Dump Body	Major St-Signal Install/ Rebuild	Gasoline	605	5.3119	\$ 780	448	5.11%
4506	2016 Ford F-450 Dump	Local St-Road Maint.	Diesel	1,729	17.6531	\$ 2,488	1,508	17.21%
4550	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,342	13.7018	\$ 1,584	510	5.82%
4551	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,757	17.9390	\$ 2,234	658	7.51%
4552	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,584	16.1726	\$ 3,383	628	7.17%
4553	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,574	16.0705	\$ 1,729	610	6.96%

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Fuel Type	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (1)
4554	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,276	13.0280	\$ 1,417	463	5.29%
4555	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,730	17.6633	\$ 2,007	618	7.05%
4556	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,785	18.2249	\$ 2,319	678	7.74%
4557	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,768	18.0513	\$ 2,100	686	7.83%
4558	2013 Freightliner 108SD Dump	Major St-Salting/Plowing	Diesel	1,349	13.7733	\$ 1,527	554	6.32%
4559	2016 Freightliner 108SD Dump	Local St-Salting/Plowing	Diesel	2,309	23.5749	\$ 2,803	1,055	12.04%
4594	2018 Western Star 4700 Tandem Axle	Local Street - Sweeping	Diesel	1,808	18.4597	\$ 2,045	516	5.89%
4595	2018 Western Star Tandem Dump	Major Street - Sweeping	Diesel	2,024	20.6650	\$ 2,296	664	7.58%
4599	2016 Freightliner 108SD Tandem	Local Street - Sweeping	Diesel	2,461	25.1268	\$ 3,189	1,035	11.82%
4604	2018 Freightliner M2-106	Major St-Signal Install/ Rebuild	Diesel	834	8.5151	\$ 1,105	864	9.86%
4613	2020 Freightliner M2-106	Major St-Signal Install/ Rebuild	Diesel	158	1.6132	\$ 297	-	0.00%
4616	2009 IHC 4300 Bucket Truck Electric Hybrid	Major St-Signal Install/ Rebuild	Diesel	983	10.0364	\$ 1,407	577	6.59%
4617	2011 Ford F-750 Electric Hybri	Major St-Signal Install/ Rebuild	Diesel	1,992	20.3383	\$ 2,712	1,170	13.36%
4644	2018 Freightliner Digger Derrick	Major St-Signal Sys. Control	Diesel	391	3.9921	\$ 488	255	2.91%
4730	2018 John Deere 622G Grader	Local St - Local Grading	Diesel	502	5.1254	\$ 985	171	1.95%
4740	2012 Elgin Pelican Sweeper P Series	Local Street - Sweeping	Diesel	2,050	20.9305	\$ 2,597	1,162	13.26%
4741	2015 Elgin Pelican Sweeper-NP	Local Street - Sweeping	Diesel	1,897	19.3684	\$ 2,505	925	10.56%
4751	2015 Elgin Whirlwind Sweeper	Storm Water - Sweeping	Diesel	1,636	16.7036	\$ 2,449	493	5.63%
4755	2016 Elgin Pelican Sweeper	Storm Water - Sweeping	Diesel	2,639	26.9442	\$ 3,417	1,022	11.67%
4774	2016 John Deere 544K	Major St -Sweeping	Diesel	1,196	12.2112	\$ 1,650	481	5.49%
4783	2017 John Deere 35G Compact Excavator	Major St-Signal Install/ Rebuild	Diesel	86	0.8781	\$ 115	-	0.00%
4804	2018 Western Star 4900 Semi Tractor	Local St - Local Grading	Diesel	702	7.1674	\$ 956	239	2.73%
4864	2016 Cat Roller	Local St - ROW Maint.	Diesel	12	0.1225	\$ 20	-	0.00%
4884	1998 Wirtgen Asphalt Mill	Local St - ROW Maint.	Diesel	8	0.0817	\$ 10	-	0.00%
4888	2016 Leeboy Paver 8500D	Local St - ROW Maint.	Diesel	21	0.2144	\$ 27	12	0.14%
4905	2016 Spaulding Crack Sealer	Local St - ROW Maint.	Diesel	96	0.9802	\$ 191	-	0.00%
4913	2004 Clark C25C Forklift	Major St -Sweeping	Propane	-	-	\$ -	-	0.00%
6312	2014 Par Kan RD31-06YD Refuse Pickup	Solid Waste - Park Refuse	Diesel	-	-	\$ -	-	0.00%
6527	2013 Ford F-450 With Dump Body	Parks - Snow Eq	Gasoline	789	6.9274	\$ 989	408	4.66%
6528	2016 Ford F-450 Dump	Storm Water-Tree Removal	Diesel	548	5.5951	\$ 699	454	5.18%

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Fuel Type	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (1)
6600	2016 Bobcat Toolcat 5600T	Parks - Maintenance	Diesel	369	3.7675	\$ 466	31	0.35%
6601	2018 Western Star 4700 Single Axle	Storm Water-Tree Removal	Diesel	1,587	16.2033	\$ 2,041	1,350	15.41%
6602	2018 Western Star 4700 Single Axle	Storm Water-Tree Removal	Diesel	1,205	12.3031	\$ 1,583	712	8.13%
6608	2018 Western Star 4700 Tandem Dump	Storm Water-Tree Removal	Diesel	1,385	14.1409	\$ 1,869	820	9.36%
6616	2018 Freightliner M2-106	Storm Water-Tree Removal	Diesel	1,113	11.3637	\$ 1,685	3,971	45.33%
6618	2018 Freightliner M2-106	Storm Water-Tree Removal	Diesel	745	7.6065	\$ 1,118	1,827	20.86%
6624	2014 Hino 195 Refuse Truck w/Hol-Mac RL-8	Solid Waste - Park Refuse	Diesel	1,955	19.9606	\$ 2,565	1,975	22.55%
6712	2018 John Deere Z960M	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6713	2018 Toro Workman GTX	HHGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6714	2018 Toro Workman GTX	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6715	2018 Toro Greensmaster 3150-Q	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6716	2018 Toro Multi-Pro 1750	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6718	2018 Buffalo Blower	HHGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6719	2018 Self-Propelled Greens Roller	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6720	2018 Toro Reelmaster 5410-D	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6721	2019 Toro Groundsmaster 4500-D	LPGC Maintenance	Diesel	-	-	\$ -	-	0.00%
6722	2019 Toro Workman HDX	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6723	2019 Toro Greensmaster Triflex Hybrid	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6770	2015 Bobcat MT 55 Mini Loader	Parks - Playground Maint	Diesel	7	0.0715	\$ 13	5	0.06%
6783	2004 John Deere 5320 Tractor	Parks - Snow Eq	Diesel	37	0.3778	\$ 70	38	0.43%
6784	2004 John Deere 5320 Tractor	Parks - Snow Eq	Diesel	125	1.2763	\$ -	89	1.02%
6785	2004 John Deere 5320 Tractor	Parks - Snow Eq	Diesel	180	1.8378	\$ 262	145	1.66%
6793	2017 Trackless Tractor MT7	Parks - Snow Eq	Diesel	231	2.3585	\$ 268	140	1.60%
6801	2016 Toro #7210 Mower	Parks - Maintenance	Diesel	166	1.6949	\$ 265	167	1.91%
6802	2016 Toro #7210 Mower	Parks - Maintenance	Diesel	324	3.3080	\$ 427	231	2.64%
6842	2011 Billy Goat Leaf Vac	Parks - Maintenance	Gasoline	9	0.0790	\$ 10	7	0.08%
6855	1998 Club Turf	HHGC Maintenance	Electric	-	-	\$ -	-	0.00%
6860	2014 Kubota	Parks - Maintenance	Diesel	53	0.5411	\$ 97	34	0.39%
6868	2007 Billy Goat BC2402H Brush	Parks - Maintenance	Gasoline	-	-	\$ -	-	0.00%
6880	2014 Toro 72" mower	Parks - Maintenance	Diesel	298	3.0426	\$ 424	250	2.85%

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Fuel Type	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (1)
6881	2014 Toro 72" mower	Parks - Maintenance	Diesel	243	2.4810	\$ 309	213	2.43%
6882	2015 John Deere 1580 4WD Mower	Parks - Maintenance	Diesel	162	1.6540	\$ 248	142	1.62%
6883	2015 John Deere 1580 4WD Mower	Parks - Maintenance	Diesel	134	1.3681	\$ 179	119	1.36%
6884	2015 John Deere 1580 4WD Mower	Parks - Maintenance	Diesel	236	2.4096	\$ 310	200	2.28%
6886	2017 John Deere tractor	Parks - Maintenance	Diesel	-	-	\$ -	106	1.21%
6890	2013 Toro 5040 Sandpro	Parks - Maintenance	Gasoline	138	1.2116	\$ 181	-	0.00%
6897	2016 Toro 5910	Parks - Maintenance	Diesel	1,078	11.0064	\$ 1,501	515	5.88%
6898	2016 Toro #5910	Parks - Maintenance	Diesel	908	9.2707	\$ 1,280	531	6.06%
6899	2016 Toro #5910	Parks - Maintenance	Diesel	1,253	12.7931	\$ 1,738	556	6.35%
6901	2017 Toro Workman GTX	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6902	2017 Toro Groundsmaster 7200	HHGC Maintenance	Diesel	-	-	\$ -	-	0.00%
6903	2017 Toro Workman GTX	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6904	2017 Toro Sand Pro 3040	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6907	2017 Toro Groundsmaster 3500D	LPGC Maintenance	Diesel	-	-	\$ -	-	0.00%
6908	2017 Toro Groundsmaster 3500D	LPGC Maintenance	Diesel	-	-	\$ -	-	0.00%
6910	2017 Toro Reelmaster 5410D	HHGC Maintenance	Diesel	-	-	\$ -	-	0.00%
6911	2017 Toro Workman HDX	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6913	2017 Toro Groundsmaster 3150-Q	LPGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6914	2017 Toro Groundmaster 4500D	HHGC Maintenance	Diesel	-	-	\$ -	-	0.00%
6916	2001 Bandit 90W Chipper	Parks - Maintenance	Gasoline	138	1.2116	\$ 185	177	2.02%
6920	2008 Zamboni model 545 LPG	Parks - Veterans Ice Arena	Propane	-	-	\$ -	-	0.00%
6922	2017 Toro Groundmaster 3150-Q	HHGC Maintenance	Gasoline	-	-	\$ -	-	0.00%
6923	2017 Toro Reelmaster 5410D	LPGC Maintenance	Diesel	-	-	\$ -	-	0.00%
6924	2018 Zamboni	Parks - Buhr Ice Arena	Gasoline	-	-	\$ -	-	0.00%
6925	2018 Zamboni	Parks - Veterans Ice Arena	Propane	-	-	\$ -	-	0.00%
6928	2016 Bandit Chipper 1990	Storm Water-Tree Removal	Diesel	888	9.0665	\$ 1,194	475	5.42%
6939	2018 Vermeer Stump Cutter	Storm Water-Tree Removal	Diesel	32	0.3267	\$ 64	15	0.17%
6993	2003 John Deere Gator	Parks - Maintenance	Diesel	15	0.1532	\$ 26	40	0.46%
7600	1984 Unimog1200 Sweeper	Airport - Grounds	Diesel	-	-	\$ -	-	0.00%
7626	1988 Spartan/Sweepster S3100B	Airport - Grounds	Diesel	-	-	\$ -	-	0.00%

Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Fuel Type	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization (engine hrs / 8760) (1)
7700	2015 John Deere 524K Loader	Airport - Grounds	Diesel	-	-	\$ -	-	0.00%
7773	1999 Massey-Ferguson Tractor 281	Airport - Grounds	Diesel	-	-	\$ -	-	0.00%
7778	2009 Toro 5910 16' Mower	Airport - Grounds	Diesel	-	-	\$ -	-	0.00%
7973	1996 Toro Grounds 300 Mower	Airport - Grounds	Diesel	-	-	\$ -	-	0.00%
8517	2013 Mack MRU 603 Refuse Truck w/ CNG	Solid Waste-Front Load-Commercial	CNG	4,397	0.2374	\$ 8,202	-	0.00%
8518	2013 Mack MRU 603 Refuse Truck w/ CNG	Solid Waste-Front Load-Commercial	CNG	3,409	0.1841	\$ 6,716	-	0.00%
8519	2013 Mack MRU 603 Refuse Truck w/ CNG	Solid Waste-Commercial Recycling	CNG	6,039	0.3261	\$ 10,650	-	0.00%
8532	2017 MACK LR 613 Refuse Truck	Solid Waste-Read Load-Commercial	Diesel	3,514	35.8779	\$ 4,749	2,051	23.41%
8630	2017 Mack LR613 Refuse Truck	Solid Waste-Res. Collection	Diesel	6,383	65.1704	\$ 8,575	1,894	21.62%
8631	2017 Mack LR613 Refuse Truck	Solid Waste-Res. Collection	Diesel	6,728	68.6929	\$ 9,149	1,818	20.75%
8632	2017 Mack LR613 Refuse Truck	Solid Waste-Res. Collection	Diesel	5,546	56.6247	\$ 7,356	1,564	17.85%
8633	2019 Autocar Labrie Refuse Truck	Solid Waste-Res. Collection	Diesel	-	-	\$ -	-	0.00%
8640	2012 Mack/Labrie Refuse Truck Helping Hand	Solid Waste-Res. Collection	Diesel	6,642	67.8148	\$ 9,210	1,706	19.47%
8641	2014 Mack LEU613 Refuse Truck	Solid Waste-Res. Collection	Diesel	6,050	61.7705	\$ 8,472	1,577	18.00%
8642	2014 Mack LEU613 Refuse Truck	Solid Waste-Res. Collection	Diesel	5,276	53.8680	\$ 7,147	1,686	19.25%
8643	2014 Mack LEU613 Refuse Truck	Solid Waste-Res. Collection	Diesel	5,291	54.0211	\$ 7,221	1,383	15.79%
8644	2014 Mack LEU613 Refuse Truck	Solid Waste-Res. Collection	Diesel	5,479	55.9406	\$ 7,275	1,436	16.39%
8645	2014 Mack LEU613 Refuse Truck	Solid Waste-Res. Collection	Diesel	7,212	73.6345	\$ 9,756	1,809	20.65%
8646	2014 Mack LEU613 Refuse Truck	Solid Waste-Res. Collection	Diesel	5,646	57.6457	\$ 7,134	1,696	19.36%
8652	2016 Lodal EVOT28-U300	Solid Waste-Commercial Recycling	Diesel	3,653	37.2971	\$ 4,698	1,732	19.77%
8689	2014 Mack LEU613 Refuse Truck	Solid Waste-Single Family Recycling	Diesel	5,764	58.8504	\$ 7,664	1,675	19.12%
8690	2014 Mack LEU613 Refuse Truck	Solid Waste-Single Family Recycling	Diesel	5,142	52.4998	\$ 7,157	1,629	18.60%
8691	2014 Mack LEU613 Refuse Truck	Solid Waste-Single Family Recycling	Diesel	4,484	45.7816	\$ 6,053	1,593	18.18%
8692	2014 Mack LEU613 Refuse Truck	Solid Waste-Single Family Recycling	Diesel	5,281	53.9190	\$ 7,101	1,833	20.92%
8693	2007 Labrie Expert-Comingle	Solid Waste-Single Family Recycling	Diesel	2,686	27.4241	\$ 3,909	594	6.78%
8695	2010 Peterbilt Refuse Truck 320 Hydr Hybrid	Solid Waste-Single Family Recycling	Diesel	6,437	65.7218	\$ 8,622	1,824	20.82%
8696	2010 Peterbilt Refuse Truck 320 Hydr Hybrid	Solid Waste-Single Family Recycling	Diesel	6,546	66.8347	\$ 8,857	1,747	19.94%
8697	2010 Peterbilt Refuse Truck 320 Hydr Hybrid	Solid Waste-Single Family Recycling	Diesel	5,844	59.6672	\$ 8,141	1,405	16.04%
8698	2010 Peterbilt Refuse Truck 320 Hydr Hybrid	Solid Waste-Single Family Recycling	Diesel	5,532	56.4817	\$ 7,737	1,630	18.61%
Vehicle #	Year, Make, Model, Drive Train (all vehicles are auto transmission)	Primary Use	Fuel Type	FY 19 Fuel Usage (Gallons)	GHG Emissions (MTCO2e)	FY 19 Fuel Cost	FY 19 Engine Hours Used	Vehicle Utilization

								(engine hrs / 8760) (1)
8920	2015 John Deere 1580 4WD Mower	Solid Waste - Landfill	Diesel	134	1.3681	\$ 193	124	1.42%
8972	Volvo Loader L70F	RAA - MRF Operations	Diesel	-	-	\$ -	-	0.00%
8973	John Deere 270D Excavator	RAA - MRF Operations	Diesel	-	-	\$ -	-	0.00%
8974	Clark Fork Lift	RAA - MRF Operations	Diesel	-	-	\$ -	-	0.00%
8975	Clark Fork Truck	RAA - MRF Operations	Diesel	-	-	\$ -	-	0.00%
2610	Carryover (sold in FY19, replaced FY20)				10.6700			
TOTALS	182 VEHICLES			223,741	2,142.48			

Note: (1) The "8760" factor used in calculating vehicle utilization is the total number of hours in one year (365 x 24 = 8760).

Attachment C
Proposed Changes to the Green Fleets Policy

CITY OF ANN ARBOR - GREEN FLEETS POLICY

Green Fleets Policy Background and Update

Ann Arbor City Council adopted a resolution on August 21, 2000 requesting that the City Administrator develop a "Green Fleets" policy for Council approval that reduces both fuel use and emissions of the municipal operations through more intelligent use and purchase of vehicles and fuel-using equipment. The Green Fleets policy was prepared to stimulate programmatic efforts to reduce the impact of fossil fuel use on public health, the environment, and cost of City operations. In June of 2017 City Council passed a resolution updating the Green Fleets Policy, emphasizing vehicle/equipment electrification.

Existing City programs have already contributed to the goals of the Green Fleets policy. On October 20, 1997, Ann Arbor became a member of the Cities for Climate Protection program, a coalition of over 500 local governments worldwide that promote community-based initiatives to reduce global warming emissions. In April 1999, the City of Ann Arbor, along with a coalition of local fleets and fuel providers, became a designated member of the US Department of Energy's Clean Cities Program. This allows local participation in the distribution of federal funds for the purchase of alternative fuel vehicles and the establishment of alternate fuel infrastructure. These Clean Cities vehicle and fuel initiatives continue to improve local air quality and reduce greenhouse gas emissions, protecting public health and enhancing the quality of life in member cities and surrounding areas. Ann Arbor also adopted a Climate Action Plan in 2012 to community reduce greenhouse gas (GHG) emissions 25% by 2025 and 90% by 2050; the updated Green Fleets Policy is expected to enable municipal efforts to reach these targets.

This updated policy, beginning in calendar year 2018, helps the City purchase the most cost-effective, least polluting, and fuel-efficient vehicles and fuel using equipment possible that still meet the operational requirements of the intended use. To accomplish this objective, life cycle cost, fuel type, and fuel efficiency standards are to be considered in procurement decisions. The Green Fleets review process also includes "right-sizing" fleets by reducing vehicle size and eliminating old and underused vehicles and equipment. It will be important to continue to benchmark against best practices and lessons from peer communities and institutions as the policy evolves and is updated in the future.

The Mission

This updated Green Fleets policy directs all Service Units that own/operate vehicles and fuel-using equipment to decrease carbon dioxide equivalent (CO₂e) emissions, achieving a fleet-wide 25 percent reduction by 2025, from a baseline year of ~~FY18-2017~~, in furtherance of Ann Arbor's Climate Action Plan. By 2026, the policy targets will be revisited and updated.

1 Goals

- 1.a The goal of all City Service Units shall be to eliminate unnecessary vehicles and purchase and use the most cost-effective and lowest emission vehicle or equipment possible, while still meeting operational requirements. Fleet assets shall be utilized in a manner that supports City operations through environmentally responsible fleet management.
- 1.b Focus of replacements of fleet vehicles will be primarily toward all-electric and secondarily hybrid-electric technologies, consistent with Resolution R-17-237. Contracted services with third party fleets (e.g., solid waste collection) shall also demonstrate compliance with this policy (e.g., procurement shall be with third party closest to fully complying with this policy).

2 Objectives

- 2.a Optimize the fleet size - eliminate unused or underused vehicles and equipment through continuous review and evaluation of vehicle utilization and redundancy. Respective Service Unit Administrators should work with the Green Fleets Team (see Section 4) to accomplish this based on the policy (other triggering events such as vehicle condition inspections should also inform this process)
- 2.b Increase the fleet average fuel economy for each Service Unit - use miles per gallon (mpg) and fuel type (e.g., electric) critical purchase criteria
- 2.c Minimize vehicle miles traveled (VMT) - route optimization, trip elimination, shared utilization, vehicle tracking technology solutions (e.g., telematics)
- 2.d Reduce vehicle size, weight, and other factors affecting fuel use when appropriate
- 2.e Reduce emissions of carbon dioxide (CO₂), carbon monoxide (CO), nitrous oxide (NO_x), volatile organic compound (VOCs), particulate matter (PM) and other greenhouse gasses through elimination of fossil fuel combustion
- 2.f Increase the use of alternative fuel vehicles and equipment, with a focus on increasing the use of all-electric vehicles.

3 Measures of Success

- 3.a The primary measure of the City's success in implementing the updated Green Fleet Policy is the reduction of carbon dioxide equivalent (CO₂e) and other

emissions.

- 3.b The secondary measure of the City's success in implementing the updated Green Fleet Policy is the decrease in ~~total fleet size~~ annual total gallons of gasoline and diesel fuel used.
- 3.c A third measure of the City's success in implementing the updated Green Fleet Policy is a ~~n decrease in total fleet size, with~~ increase in the percentage of electric and hybrid-electric vehicles replacing combustion-engine vehicles where opportunities exist and are deemed feasible.

Commented [KM1]: CO2e is calculated directly from fuel usage so both measures are statistically linked.

Commented [KM2]: The third measure is actually two separate measures so they were split up.

4 Green Fleets Team

- 4.a This Team will include, but not be limited to, one representative from the listed Units or Service Areas to be appointed by the respective Service Area Administrator:

- 4.a.1 Public Services (~~Systems Planning, Fleet Services, Public Works~~)
- 4.a.2 Finance & Administrative Services
- 4.a.3 Safety Services
- 4.a.4 Community Services

4.a.5 City Administration (Fleet Services & Office of Sustainability and Innovation)

Commented [KM3]: Reflect organizational changes.

- 4.b The function of this Team shall be to develop and monitor policies, procedures and practices related to the purchase and use of City vehicles and fuel-using equipment to achieve the goals and objectives of the updated Policy. The Team will receive Fleet Service's inputs and report progress and findings to the City Administrator and the Energy and Environmental Commissions at least annually and as appropriate, including any proposed alterations to the policy.

5 Funding

- 5.a The purchase of Policy-compliant vehicles and equipment with better fuel economy or lower emissions may be more expensive in initial years. A "Green Incentive" shall be put in place that allows the purchase of said vehicles and equipment ~~if their price is within 20 percent including Incentive, of the lowest bid for that vehicle or equipment class. The 20 percent funding Incentive shall serve as a guideline, but not as a limit, to determine the vehicle recommendation and written justification to the Green Fleet Team.~~ The Team will be responsible for reviewing the vehicle recommendation from the Unit and either approving such or offering commentary/resolution.
- 5.b Funding from outside sources such as State and Federal grants shall be pursued to assist in the purchase of Policy-compliant vehicles, including alternative fuel vehicles and fueling facilities.

Commented [KM4]: A 20% limit does not reflect the cost associated with addressing the emphasis of the Policy on purchasing PEVs. Section 5 of the Policy will be reviewed by the GF Team in FY20 for possible additional modifications.

- 5.c Lifecycle costs should be used to determine total savings of vehicles. A vehicle replacement depreciation process must also address and fairly accommodate potential higher upfront purchase costs necessary to meet the policy's mission.
- 5.d Budgetary mechanisms that fund this premium must be developed and refined to ensure equitable means for all Service Units to accomplish the policy's directives. These processes will be recommended and modified as appropriate by the Green Fleets Team and provided to the City Administrator and/or relevant decision-makers.

Commented [KM5]: Potential funding mechanisms for purchasing PEVs or "greener" vehicles will be reviewed in FY20 by the GF Team.

6 Fleet Inventory

- 6.a The City shall create and maintain a complete inventory of the vehicles in its fleet, by Service Unit/department. This inventory should include not only the type and number of fleet vehicles, but also each vehicle's intended use, and the amount and types of fuel used, the costs associated with their use, and the resulting pollution. This inventory is critical if goals are to be set and success measured for the fleet.

7 Baseline for Evaluation of Effectiveness

- 7.a The original baseline year for determining the effectiveness of the Green Fleets program was FY~~2002-2003~~. This updated policy establishes a new baseline year of FY~~2017-2018~~. Fleet Services shall develop a FY~~2017-2018~~ fleet baseline to facilitate the evaluation of annual Green Fleets Plans. Baseline information should to the extent possible include:

- 7.a.1 Vehicle number, year, make, model, drive train (2- or 4- wheel drive), transmission type, and primary use
- 7.a.2 Miles per gallon per vehicle (light duty only) -- actual if possible, published EPA rating or estimates if actual not available;
- 7.a.3 Type(s) of fuel used;
- 7.a.4 Average cost per gallon (or gallon equivalent) of fuel(s);
- 7.a.5 Average fuel cost per mile (light duty only), if available;
- 7.a.6 Annual miles driven per vehicle per fuel type (light duty only), if available;
- 7.a.7 Total fuel~~(s)~~ consumption per vehicle per year;
- 7.a.8 Vehicle ~~function and~~ utilization (e.g., hours of use divided by total hours) ~~with commentary on continued need or alternatives;~~
- 7.a.9 ~~Estimated emissions per mile for each pollutant by vehicle type/class (defined in 1 above) based on EPA tailpipe standards for carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM); and~~

Commented [KM6]: EPA ratings are not available for pick-ups larger than ½ ton.

- ~~7.a.10~~ Carbon dioxide (CO2) calculations based on gallons (or equivalent) of fuel consumed.

Commented [KM7]: Make 7.a consistent with section 13 Annual Reporting requirements, available data, and emission calculations from OSI.

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- 7.b ~~Systems Planning Unit/The Office of Sustainability and Innovation Office~~ shall assist the Green Fleets Team with items 7.a.9 and 7.a.10 for the Green Fleets Team.
- 7.c Fleet Services shall be responsible for providing this baseline data in a reliable and verifiable manner to the Green Fleets Team.

8 Green Fleets Strategies To Be Employed By the City

8.a Optimizing Fleet Size

8.a.1 The vehicles targeted for a reduction in fleet size shall include ~~the following:~~

~~8.a.1.i both Light duty vehicles and heavy equipment assets (passenger cars, light duty pick-up trucks and vans)~~ that use less than 200 gallons per year.

~~8.a.1.ii Light duty vehicles over 7 years old or heavy duty (>8,500 lbs) trucks over 10 years old.~~

8.a.2 Vehicles in this these category will be earmarked for removal from the City fleet through the annual vehicle auction. It is anticipated that these vehicles will be removed over a number of years to reduce the impact to the fleet. The determination of which vehicles are to be eliminated shall be at the discretion of the fleet manager and Unit heads, who currently are being asked to justify vehicle usage. These vehicles will be eliminated with agreement from the Green Fleets Team.

8.a.2.i Flexibility is necessary to allow exemptions when warranted.

8.a.3 No vehicle will be purchased to replace the removed vehicle. It shall be removed from the fleet database, and the miles normally traveled by the removed vehicle will be distributed to other transportation modes.

8.a.4 Specialized function or low use vehicles may be exempted from removal if the purchasing Service Unit can justify retention ~~and the Green Fleets Team approves this justification. The Green Fleets Team will notify Unit Managers and Service Area Administrators of any low use vehicles under their purview. Service Area Administrators shall be prepared to justify retention of these vehicles as requested by the City Administrator. Justification for exemptions must be presented in writing to the Team. It is expected that there will be exceptions with regard to some emergency services vehicles because of special uses. However, there still may be viable green vehicle/equipment options to support some emergency needs and functions. It shall be the policy of the City to purchase or lease emergency response vehicles that comply with the requirements of this section to the extent that the purchase or lease~~

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Commented [KM8]: Eliminate age related removals and focus on vehicle usage statistics.

Commented [KM9]: Update the "low-use" vehicle process as adopted by the GF Team. The process in the Policy, used in FY19, was problematic in many ways.

~~of such vehicles does not unacceptably reduce the ability to provide safe, quality services.~~

8.b Green Vehicle Purchasing ~~Increase Average Fuel Economy~~

8.b.1 ~~The Green Fleets Team must review and approve the purchase or lease of any new fuel consuming vehicle other than an all-electric vehicle. When purchasing new vehicles, fuel efficiency targets (miles per gallon or mpg) shall be determined for each of four vehicle classes. Targets slightly above the average fuel economy for each vehicle class should be the minimum attained. For model year 2016 the targets would have been:~~

VEHICLE CLASS*	MPG TARGET**
Compact Cars	34
Midsize and Full-Size Cars	27
Minivans/Mini-pickups	21
2X4 Trucks	21
Passenger/Cargo Vans	14
4X4 Trucks	18

* Vehicle class is based on EPA categories for combined cargo and passenger volume in the Model Year 2016 Fuel Economy Guide. This table is meant to be illustrative and needs to change with updates based on year of purchase activity

8.b.2 ~~In addition to the Green Fleets Team, the Manager of the Office of Sustainability and Innovation, or their designee, must approve the purchase or lease of any new fuel consuming vehicle other than an all-electric vehicle. MPG targets shall be reviewed annually by the Green Fleets Team and modified based on vehicles available for that model year.~~

8.b.3 ~~The Manager of the Office of Sustainability and Innovation, or their designee, shall integrate their review and approval process with that of the Green Fleets Team to the greatest extent possible. Vehicle purchase requests shall be reviewed and minimum fuel economy targets will be employed when possible. Managers are encouraged to purchase the most fuel efficient vehicle available that can meet the operational needs of the Unit.~~

8.b.4 ~~The City Administrator shall have the final determination on a vehicle purchase or lease if the Green Fleets Team and the Manager of the Office of Sustainability and Innovation are unable to agree on a purchase or lease request. Request for exemptions to the fuel economy targets in vehicle procurements shall be submitted in writing to the Green Fleets Team and exemptions awarded if the Team feels there is sufficient justification. Vehicle purchase without such an exemption is not allowed.~~

Commented [KM10]: The role of the GF Team, as directed by the City Administrator, in the purchasing of City vehicle was not included in the Policy. 8.b also integrates the approval of the OSI Manager into the GF Team process to help streamline the overall vehicle purchase process for the City.

Commented [KM11]: Fleet and OSI have not been able to replicate this outdated information. With all vehicle purchases required to receive GF Team approval, this detail is no longer needed.

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8.c Minimize Vehicle Miles Traveled (VMT)

8.c.1 For vehicles that operate on fixed routes, such as solid waste pick-up, route optimization should be employed by the Service Unit. In general, all routes should be planned to optimize the route and trips chained together to reduce required travel time and distance. VMT optimization shall also be managed by each Service Unit; vehicle/equipment purchase should be avoided through practices such as centralized meetings, teleconferencing, use of alternate transportation modes (e.g., buses, bicycles, electric scooters), and carpools and combined-purpose trips. Employees should be reimbursed for the use of alternate transportation modes. The deployment of telematic vehicle devices or similar technology that monitors and optimizes routes and analyzes patterns and potential adjustments to best meet this policy's aims should be strongly considered.

8.d Reduce Vehicle Size

8.d.1 Encourage the selection of vehicles of a smaller class size whenever possible to achieve increased miles per gallon. Requests for new vehicle purchases must be supplemented with written justification addressing the need for a specific model and type. Fleet Services shall work with the Unit and vehicle operators to determine whether a proposed vehicle could be downsized and still complete its required function. For example, whenever possible, full-size trucks and vans should be downsized to light duty vehicles, four-wheel drives replaced with two-wheel drives, and large gasoline/diesel engines replaced with smaller electric engines.

8.e Reduce Vehicle Emissions of Greenhouse Gases

8.e.1 Combusting one gallon of gasoline (fossil fuel) produces approximately 20 pounds of CO₂. Increasing fuel economy reduces the amount of fuel required to travel the same distance, and consequently reduces the amount of CO₂ produced by City operations.

8.e.2 Vehicles shall not be left idling for more than 5 minutes in a 60 minute period unless a running engine is necessary to protect public safety, to prevent harm to contents of the vehicle, run auxiliary equipment in performance of a job, or to maintain health of occupants while performing duties, or is exempt per Ann Arbor's Idling Reduction Ordinance, Chapter 72. Vehicles are not to be left idling to warm up a vehicle.

8.f Reduce health-threatening emissions of carbon monoxide (CO), nitrous oxides (NO_x), volatile organic compounds (VOCs), and particulate matter (PM)

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8.f.1 The City and each Service Unit shall attempt to obtain the "cleanest" vehicles possible as measured by available emissions certification standards.

8.f.2 Emissions targets shall be reviewed by the Green Fleets Team and modified if cleaner vehicles become available. For example, some ultra-low emission vehicles (ULEV) are available in California but are not sold in Michigan today. When they are distributed nationwide the City may have more purchase options. Technology trends in the last decade and beyond have vastly improved CO, NOX, VOCs and PM emissions in vehicles, so the necessity to continue focus on these sources will need to be monitored and adapted to the extent variation among fleet options can even substantially be differentiated.

8.g Increase Use of Alternate Fuel Vehicles and Equipment

8.g.1 All-electric, primarily, and Plug-in Hybrid-electric vehicles, secondarily and when an all-electric option is not available, shall be the preferred option for light duty vehicle replacements; the Service Unit should singularly or jointly consider solar-powered charging options as they become available and feasible.

8.g.2 Fleet Services shall provide a list of alternate fuel vehicles to the Green Fleets Team to evaluate incremental progress of the policy.

8.g.3 Both internal budgets and external grants would be eligible to cover the anticipated premiums for an alternate fuel version of a fleet vehicle or piece of motorized equipment.

8.g.4 Gasoline alternative fuels (such as low-sulfur diesel, compressed natural gas, ethanol and biodiesel) shall be considered when feasible if an electric alternative is not available and any negative environmental impacts from such fuels do not negate benefits. The latest scientific consensus on the environmental advantages or disadvantages of such fuels should be factored into decision-making.

9 Fuel-using Equipment

9.a City Units shall purchase or lease portable or stationary fuel-using equipment that is powered by alternate fuels if available and within the 20 percent green incentive, including rebates. If an alternate fuel option is not available, strong consideration shall be given to purchasing the most fuel efficient, cleanest, fuel-combusting equipment.

10 Exemptions

10.a The Green Fleets Team may grant an exemption from the requirements of

Commented [KM12]: This section will be reviewed by the GF Team in FY20 for possible modification.

this Policy to a City Service Unit requesting an exemption under the following circumstances:

10.a.1 Where the requesting Service Unit demonstrates that no model of motor vehicle or motorized equipment is available which will comply with the requirements of this Policy and still meet the specifications of the Service Unit for its intended purpose.

10.a.2 Where the requesting Service Unit demonstrates to the satisfaction of the Team each of the following:

10.a.2.1 That the cost of the vehicle or motorized equipment that complies with the requirements of this Policy is more than 20 percent higher than the cost of an equivalent vehicle or motorized equipment powered by gasoline or diesel fuel; and

10.a.2.2 That the Service Unit has attempted to apply for, but failed to receive, grant funding for the purchase or lease of the vehicle or motorized equipment that complies with the requirements of this Policy from sources other than the City's General Fund; and

10.a.2.3 That the amortized cost differential cannot be recovered over the operating life of the vehicle or motorized equipment that complies with the requirements of this Policy through a reduction in fuel, maintenance, and other costs incurred during the operating life of such vehicle or equipment.

10.a.3 Where the requesting Service Unit demonstrates to the satisfaction of the Team that the use of a vehicle or motorized equipment that complies with the requirements of this Policy would significantly disrupt Service Unit operations due to the lack of reliability, adequate fueling, and/or maintenance facilities for that motor vehicle or motorized equipment.

10.b In the case that the Team grants an exemption, the requesting Unit shall purchase or lease the model of motor vehicle or motorized equipment that will meet Service Unit specifications and has the highest fuel efficiency and lowest available emissions ratings available within the 20 percent Green Incentive purchase price.

11 Vehicle Maintenance

11.a All vehicles shall be inspected at least once per year.

11.b Ecologically sound products, such as coolants and specialized oils, shall be used where available, ~~when cost effective~~, and when they do not void ~~the vehicle or equipment manufacturer's warranty~~ as verified by the manufacturer of the vehicle or equipment.

- 11.c Re-~~capped~~~~readed~~ tires shall be purchased for large-wheeled or slow-moving vehicles.

12 Reducing Other Environmental Impacts

- 12.a In addition to tailpipe emissions, motorized vehicles and equipment may have other negative environmental impacts that can occur in their production, operation, and eventual disposal. Radiator fluids and other substances used in vehicles or equipment can have harmful consequences for the environment. Of particular concern are persistent, bioaccumulative, and toxic materials (PBTs), such as mercury, lead and arsenic, which can be released at the end of the service life. When opportunities are identified, Service Units and City/fleet management should attempt to reduce the production, operation and end-of-life environmental impacts of the vehicles/equipment it purchases.

13 Annual Reporting

- 13.a Fleet Services shall provide an annual report by September 1st to the Green Fleets Team for the prior fiscal year providing information to demonstrate how well each Service Unit's fleet is in compliance with the Green Fleets Policy as well as any recommended upgrades to the Policy.
- 13.b This report shall include an updated inventory of all vehicles and fuel using equipment as well as a list of vehicles/equipment purchased and vehicles and equipment removed from the City fleet in the prior fiscal year.
- 13.c In addition, the report shall contain or summarize the following:

- 13.c.1 ~~Vehicle number, year, make, model, drive train (2 or 4 wheel drive), transmission type, and primary use; A list of Vehicles classes by year; a similar list for all fuel-combusting equipment~~
- 13.c.2 ~~Miles per gallon per vehicle (light duty only) – actual if possible, published EPA ratings or estimates if actual not available; Make and model~~
- 13.c.3 ~~Type(s) of fuel used; Drive train (2-wheel drive or 4-wheel drive)~~
- 13.c.4 ~~Average cost per gallon (or gallon equivalent) of fuel(s); City vehicle number and VIN number~~
- 13.c.5 ~~Average fuel cost per mile (light duty only), if available; Type of fuel used~~
- 13.c.6 ~~Annual miles driven per vehicle, per fuel type (light duty only), if available;~~
- 13.c.7 ~~Total fuel consumption per vehicle per year; Annual fuel consumption and cost per vehicle~~
- 13.c.8 ~~Vehicle utilization (e.g., hours of use divided by total hours); Annual~~

Commented [KM13]: Revise 13.c to make consistent with section 7.a, available data, emissions calculations from OSI.

~~13.c.9~~ ~~maintenance costs~~
~~Carbon Dioxide (CO2) calculations based on gallons (or equivalent) of fuel consumed. Vehicle function and utilization (hours)~~

~~13.c.10~~ ~~Estimated emissions per mile for each pollutant by vehicle type/class (defined in 1 above) based on EPA tailpipe standards for the following:~~

- ~~• Carbon Dioxide (CO2) per gallons (or equivalent) consumed.~~

13.d Fleet Services shall be responsible for providing these data in a reliable and verifiable manner. These data will be submitted to the Team in conjunction with an annual Green Fleets plan for evaluating approaching replacement opportunities.

13.e Annual Reports shall be reviewed by the Green Fleets Team and the City Administrator and shall be used to determine program effectiveness and to target under-utilized vehicles for removal, working in concert with each Service Unit.

13.f The annual Green Fleets plan shall be developed using any/all of the options listed above plus any other alternatives deemed appropriate to achieve the goals of the Plan. These strategies allow considerable margin for the creative development of a plan that will have greatest potential to green each Service Unit's (and City's) fleet.

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Definitions

Commented [KM14]: Various updates to reflect proposed changes in policy.

- "Alternate Fuel" means any fuel other than gasoline, diesel, and other substantially petroleum-based fuels that are less polluting than gasoline or diesel fuel. Alternate Fuel shall include, but is not limited to, natural gas, propane, ethanol (E-85), biodiesel (20 percent blend or above) and electricity.
- "All-electric Vehicle" ~~or BEV (Battery-only Electric Vehicle),~~ is a vehicle operating exclusively on a battery charge and does not possess or require an internal combustion engine.
- "Alternate Fuel Vehicle" means any motor vehicle powered by alternate fuels.
- "Bi-Fuel Vehicle" means any motor vehicle designed to operate on two distinct fuels, one of which is an alternative fuel. These vehicles do not run on a mixture of fuels.
- "City Service Unit" means any organizational Unit that provides services to the City of Ann Arbor.
- ~~"Compact Car" means a light duty vehicle with total interior volume between 100 and 109 cubic feet.~~
- "Fuel Burning Equipment" means any implement powered by an internal combustion engine.
- "Heavy Equipment" is a Fleet asset category which includes Heavy Duty Vehicles, motorized on and off road equipment, and other fuel burning assets that are not included in the Light Duty category.
- "Heavy Duty Vehicle" means any motor vehicle, licensed for use on roadways, having a manufacturer's gross vehicle weight rating greater than 8,500 pounds.
- "Hybrid Vehicle" or "Hybrid-electric Vehicle" means a motor vehicle that draws propulsion energy from onboard sources of stored energy that are both an internal combustion/heat engine that runs on combustible fuel, and a rechargeable energy storage system.
- ~~"Large Car" means a light duty vehicle with total interior volume of 120 or more cubic feet.~~
- "Light Duty" is a Fleet asset category which includes Light Duty Vehicles, motorcycles, full-size vans and pick-up trucks with one ton of payload or less.
- "Light Duty Vehicle" is any vehicle with a gross vehicle weight of less than or equal to 8,500 pounds. Light duty vehicles include passenger cars, light duty trucks, sport utility vehicles (SUV), minivans and pick-up trucks. ~~Light duty vehicles are currently subject to Tier 1 emissions standards under the Clean Air Act Amendments of 1990.~~

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- ~~"Light-Duty Truck" means any motor vehicle, with a manufacturer's gross vehicle weight rating of 8,500 pounds or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.~~
- ~~"Midsize Car" means a light duty vehicle with total interior volume between 110 and 119 cubic feet.~~
- "Motor Vehicle" means a vehicle powered by energy from a motor, as opposed to a vehicle powered by human effort.
- "NOx" means oxides of nitrogen.
- "Particulate Matter (PM)" means solid or liquid particles of soot, dust, smoke, fumes, aerosols or other airborne material.
- ~~"Passenger Vehicle" means any motor vehicle designed primarily for transportation of persons and having a design capacity of twelve persons or less.~~
- "Plug-in Hybrid Electric Vehicle" or PHEV means an electric vehicle whose battery can be recharged by by plugging it into an external source of electric power, as well as by its on-board engine or generator.
- ~~"Tier 1" means emissions standards enacted by 1990 amendments to the Clean Air Act that required a 40 percent reduction in emissions from the 1981 standard by 1994. Tier 1 light-duty standards apply to all light duty vehicles, permitting higher acceptable emissions levels for heavier light duty vehicles like trucks.~~