

MIAMI BEACH

Item 2.
COMMITTEE MEMORANDUM

TO: Sustainability Resiliency Committee Meeting

FROM: Jimmy L. Morales, City Manager

DATE: September 26, 2018

SUBJECT: DISCUSSION ON THE CITYWIDE FLEET ASSESSMENT AND ESTABLISHED POLICIES FOR ENHANCING THE CITY'S FLEET. (ITEM C4 AH)

RESPONSIBLE DEPARTMENT:

Alyssia Berthoumieux, Sustainability Specialist

LEGISLATIVE TRACKING:

Item C4 AH - May 16, 2018 Sustainability and Resiliency Committee

SPONSORED:

Commissioner Michael Gongora

BACKGROUND:

At the City Commission meeting on June 6, 2018, the Mayor and City Commission referred a discussion to the Sustainability and Resiliency Committee (SRC) to discuss the citywide fleet assessment and established policies for enhancing the city's fleet.

Analysis

In collaboration with all city departments, the Environment & Sustainability (E&S) and Fleet Departments completed a fleet assessment using data from June 2015 through May 2016 with the goal of identifying ways of improving the efficiency of our fleet, while reducing greenhouse gas emissions. The fleet assessment is part of the city's resiliency strategy to reduce its impact on the environment by mitigating the effects of climate change.

In 2015, the City of Miami Beach joined the Global Covenant of Mayors for Climate & Energy (formerly known as the Compact of Mayors) pledging to reduce greenhouse gas (GHG) emissions, track progress towards GHG reduction goals and enhance the city's resiliency to climate change. As part of this pledge, the City has been annually compiling its community wide and government operations GHG emissions inventories with 2014 as the baseline. The City's fleet accounted for about 22% of its total greenhouse gas emissions for 2014 and 2015. In 2015, the City government operations' total emissions accounted for almost 3% of the community wide emissions. Fleet emissions were the largest emissions source for government operations after municipal facilities. Thus, the fleet is one of the City's main targets to reduce its GHG emissions for government operations.

In order to compile the data for the fleet assessment, the automatic vehicle locator (AVL) data for all departments was gathered for the period between June 30, 2015 and May 30, 2016. The AVL reports for each vehicle provided the miles traveled, the time the engine was turned on, and the idle time for that vehicle each day during the report period. The following was calculated for each vehicle: total miles

traveled during report period, average idling time, average miles traveled in a day, average miles traveled in a month, and lifetime fuel efficiency. Then, the data was organized by department and analyzed as a whole.

E&S and Fleet staff met with each department to understand their fleet operations, discuss their fleet usage behavior, and together identify opportunities to improve the efficiency of their fleet. Different alternatives and possible pilot programs were presented and discussed, including: Uber/Lyft business account, vehicle pool, car share program, bicycle program, electric vehicles (EVs), and hybrids. We received feedback from each department about the feasibility of these programs and compiled a list of these considerations in the Fleet Assessment (Attachment A).

Uber/Lyft Business account

Having an Uber/Lyft business could help departments reduce the number of vehicles in their fleet. A business account allows the account manager to restrict access to the account to certain employees and set geographic parameters for the areas where access to the account is permitted.

Most departments agreed using Uber/Lyft would be useful for trips to meetings, especially on occasions where parking is difficult. It would allow staff to take advantage of that time to continue working during their ride and would allow the other vehicles in their fleet to be used during the whole duration of their meeting. It could also help save time for staff and reduce stress. In all, it could help departments use their limited resources more efficiently. If a department elects to open an Uber/Lyft account and give away a vehicle, then they could see savings on fuel, maintenance and repair costs. The average maintenance, repair, and fuel expenses for a compact car in the City's fleet total to \$1,734 annually. That is equivalent to \$0.49 per mile driven, on average. This does not account for the cost of purchase of a compact car, about \$19,800 for a "fully loaded" Ford Focus[1]. When comparing the cost of a ride with Uber/Lyft to a trip using a City compact car, the price of driving a City compact car is significantly less expensive in most scenarios. When a trip would include parking, such as driving to a meeting at the Miami-Dade County, then the cost difference decreases. For example, the estimated cost of a round-trip with Uber/Lyft to the County is \$29.64 and the estimated cost of driving a city car (taking into consideration maintenance, repair, and fuel) adding parking costs is \$23.02. However, a deeper economic analysis would be needed in order to analyze these costs and cost savings for departments with Uber/Lyft accounts as well as for the collective compact vehicles in the city fleet.

Vehicle pool program

A vehicle pool is a way of assembling vehicles in a central location so that multiple departments may use them. This provides a way for individual departments to have fewer vehicles while still having access to some when all vehicles in their fleet are in use. The creation of the vehicle pool would be initiated by departments turning in their vehicle so that it could be assigned to the pool.

Many departments have expressed interest in joining a vehicle pool but only a couple of them were ready to give up a vehicle for the pool. Many mentioned they need to have vehicles on hand to respond to urgent calls. While no department uses their entire fleet on any given day throughout the analysis period, the average usage of compact vehicles across all departments was almost 70% during weekdays. Additionally, many vehicles hold special equipment that is essential for staff to perform daily operations. Since a central location is needed for vehicles to be pooled so that it is convenient for departments in different buildings to participate there is a limit to the number of vehicles that could be used in a vehicle pool and the combination of departments that could participate together. Furthermore, several departments have already transferred one or more vehicles from their fleet to another department in need.

Car Share program

A car share program would eliminate the number of vehicles the city owns and allow employees to

borrow them when needed to fulfill their responsibilities. However, there are no car share programs currently operating in the city. A car share company previously doing business in the city pulled out from the Miami Beach market once their economic model proved unsuccessful due to the increasing popularity of ridesharing apps.

Bicycle program

A number of departments, including Code, Parking and Police, incorporate bicycles into their fleet, especially during special events/periods with high traffic. After their fleet assessment interview, the Building Department initiated a bicycle program pilot. The pilot has been successful and this program is being extended to additional employees.

The bicycle program is an ideal fit for departments with inspectors that can carry all of their equipment on the bicycle. It is important to remember that bicycle use is weather-dependent so a back-up plan is required for days that are not appropriate for bike riding.

Electric Vehicles (EVs)

EVs do not emit any emissions when they are driven. Since most of our region's electricity is produced from natural gas, the emissions due to the electricity used to charge an EV are less than the emissions due to gasoline or diesel in an internal combustion engine (ICE) vehicle.

After the fleet assessment interview, in June 2017, the Parking Department purchased the city's first EV. On average, a standard Ford Focus in the Parking Department travelled 5,852 miles in the report time period. Consequently, the purchase of the Ford Focus Electric to replace one of their vehicles should reduce their emissions by 1.72 MT CO₂e annually. That is equivalent to the CO₂ sequestered by 44 tree seedlings grown for 10 years.

Other departments have expressed interest in purchasing EVs or Neighborhood Electric Vehicles (NEVs), which are smaller, low-speed, electric vehicles. Some of the considerations include the necessary charging station infrastructure and location for this infrastructure. Also, a factor that was brought up is the opportunity to purchase foreign vehicles that are more technologically advanced than domestically available vehicles. In addition, the allocation of funds would be essential for the transition to EVs. A Ford Focus costs approximately \$19,740, a Ford C-Max Hybrid costs approximately \$24,334; and a Ford Focus Electric costs approximately \$28,324.

Hybrid Vehicles

A hybrid vehicle has a traditional internal-combustion engine as well as an electric motor with a battery pack. A central feature of hybrids is regenerative braking which is a function that generates electricity when some of the vehicle's momentum is absorbed during braking or slowing down. There are currently 21 hybrids in the City's fleet, a mix of Ford C-max hybrids and Ford Fusion hybrids.

The process of "greening" our fleet will be a combination of right-sizing, establishing vehicle pool and bicycle programs, creating Uber/Lyft business accounts, and replacing Ford Focus vehicles with hybrids and/or EVs. As each department goes through the process of replacing their Ford Focus, it is recommended that they work with the Fleet Department to consider replacing it with a hybrid or EV, when feasible. This would encourage the city to transition to a less polluting fleet of low-emissions and no-emissions vehicles. It is crucial that funding is available to enable this transition.

While the fleet assessment was solely focused on identifying opportunities to use our city fleet more efficiently, many employees expressed their interest in commuting to work through more environmentally conscious means such as biking, carpooling, public transit, hybrid vehicles, and EVs if the city provided incentives.

The City has commissioned a comprehensive review of vehicle use by the Matrix Consulting Group (Matrix). As part of this process, each department will be developing an organizational chart for vehicles assigned to their department that associates vehicles to programs, functions, and staff and will provide additional information such as if the vehicles are tied to a pool versus a driver and reasons for low use. Matrix is evaluating the need for each and every vehicle, department by department. When that exercise is complete and a new baseline is developed, we can employ a more strategic approach to fleet purchases and performance.

Further analysis is needed to identify a suitable scenario for transition to low-/no-emissions vehicles and policy direction. This analysis would require examination of: financial strategy/platform used to replace vehicles, funding availability, and lifecycle of current compact vehicles and their projected replacement timeline. Additionally, the analysis should also consider how other cities are electrifying their fleet, such as the City of Coral Gables which purchased 20 EVs for its fleet in 2016 (and currently has 43 EVs in its fleet). The City of Coral Gables was able to use a lease to own program along with incentives from Nissan to help take advantage of tax incentives and lower the cost of the EVs. Nissan also provided the City of Coral Gables two fast charging stations for their large purchase of Nissan Leaf vehicles.

[1] The “fully loaded” price of the Ford Focus includes dealer warranty, extra keys, AVL system, emergency flashers, fuel management system, and graphics.

CONCLUSION:

The following is presented to the members of the Sustainability and Resiliency Committee for discussion and further direction. The Administration recommends the Committee to support an internal policy for the replacement of Ford Focus vehicles to hybrid and/or EV alternatives with allocation of funds for the transition. Additionally, it is recommended that the City explore different financial strategies to identify the most effective way to transition to low-/no-emissions vehicles and perform a fleet-wide analysis every five years to determine if there are any further opportunities to utilize current vehicles more efficiently. This analysis should also consider the number and types of vehicles that are projected to be replaced.

ATTACHMENTS:

Description	Type
□ Attachment A: Fleet Assessment Overview	Other

CITY OF MIAMI BEACH

FLEET ASSESSMENT

MIAMI BEACH
RISING
ABOVE



CITY FLEET

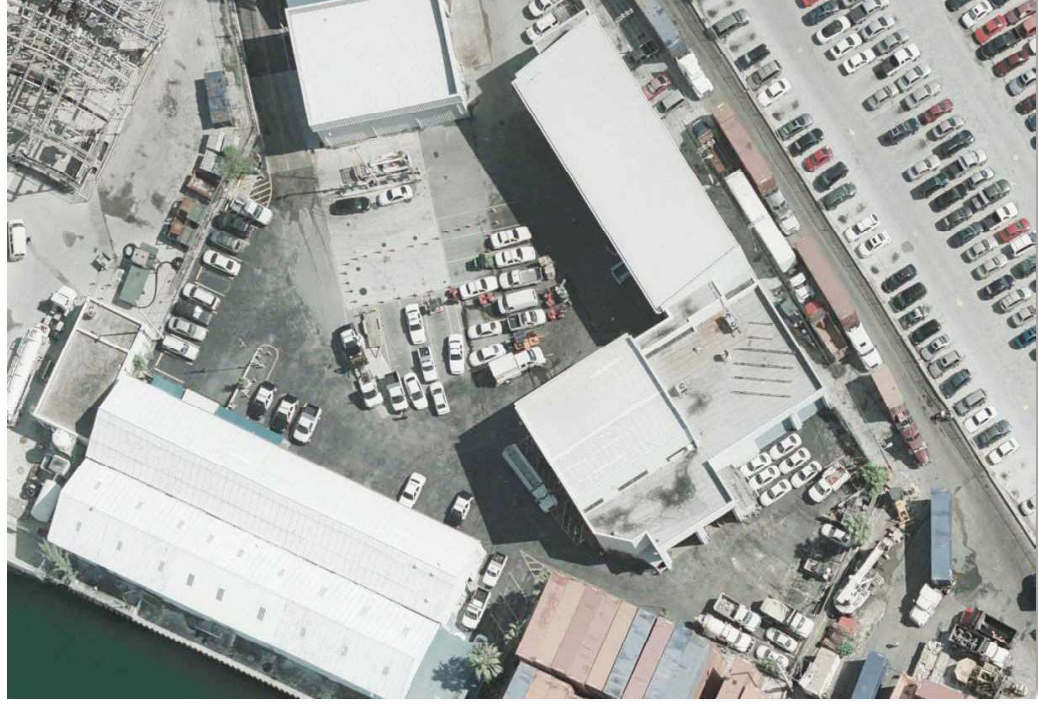
Compact cars are the most feasible to transition.



OBJECTIVES

 Improve efficiency of the City's fleet by identifying opportunities to **use our current fleet more efficiently** and creating **alternative options** for staff to make environmentally conscious decisions.

 **Reduce greenhouse gas emissions** to mitigate the effects of climate change.





METHODOLOGY

- ↓ Download Automatic Vehicle Location (AVL) data for each vehicle
- ↓ Group individual vehicle data into respective departments
- ↓ Compile and analyze AVL data for each department
- ↓ Analyze Fleet Management data of all active vehicles
- ↓ Research and analyze vehicle specifications
- ↓ Research alternative options and possible pilot programs
- ↓ Meet with each department to discuss data and opportunities

DATA ANALYSIS

- AVL data gathered included:
 - Daily miles travelled
 - Daily engine time on
 - Daily engine idle time
- Additional data gathered:
 - g CH₄/mi for each specific vehicle
 - g N₂O/mi for each specific vehicle
 - g CO₂/mi for each specific vehicle
- Data gathered from Fleet Management:
 - Vehicle acquisition date
 - Vehicle make, model, year
 - Lifetime miles travelled
 - Lifetime fuel gallons
- Information gathered from each department:
 - Function for each type of vehicle
 - Vehicle needs and operations for normal operations and special events
- Calculations and analysis:
 - Vehicle total miles travelled
 - Average daily miles travelled
 - Average monthly miles travelled
 - Vehicle lifetime fuel efficiency
 - Vehicle and department GHG emissions during analysis period
 - Average fuel efficiency for vehicle class in city fleet
 - Average daily department total vehicle usage
 - Average weekly department total vehicle usage
 - Vehicle and dept. average idling
 - GHG emissions equivalences

DATA OVERVIEW

- A short overview of the data analyzed was presented to each department in our interviews:
 - Range of miles travelled
 - Range of vehicle fuel efficiency
 - GHG emissions
 - Average idling
 - Average vehicle usage
- A graph of weekly average fleet usage in each department was also presented.
- All departments with Ford Focus vehicles in their fleet are included in this report.

DEPARTMENT: Building

Number of vehicles: 30

Vehicle	Make	Model	Year	Acquisition Date	Total Miles Travelled from 6/30/15-5/30/16	Average Daily Usage (mi)	Average Monthly Usage (mi)	Average MPG
4252	Ford	Focus	2008	5/12/2008	2,968	9.2	270	18.6
1628	Ford	Focus	2012	5/12/2012	1,782	5.3	162	12.1
1631	Ford	Focus	2012	5/17/2012	1,196	4.4	109	14.3
1644	Ford	Focus	2012	5/17/2012	963	6.4	85	13.6
1632	Ford	Focus	2012	5/17/2012	822	5.2	156	12.4
1630	Ford	Focus	2012	5/17/2012	525	15.6	478	12.4
1641	Ford	Focus	2012	5/17/2012	2,893	8.6	263	12.1
1632	Ford	Focus	2012	5/17/2012	3,031	9.0	276	11.1
1634	Ford	Focus	2012	5/18/2012	923	2.8	84	16.2
1635	Ford	Focus	2012	5/18/2012	4,646	14.4	422	15.9
1640	Ford	Focus	2012	5/18/2012	3,388	10.1	308	11.4
1637	Ford	Focus	2012	5/22/2012	9,687	31.6	967	29.4
1638	Ford	Focus	2012	5/22/2012	1,441	5.5	131	15.8
1639	Ford	Focus	2012	5/22/2012	4,511	13.4	410	15.7
1640	Ford	Focus	2012	5/22/2012	2,888	7.2	217	10.7
1643	Ford	Focus	2013	5/20/2012	268	1.4	29	13.8
13800	Ford	Focus	2014	8/17/2013	1,127	3.8	107	12.3
13801	Ford	Focus	2014	9/17/2013	3,086	9.2	281	12.2
14804	Ford	Focus	2014	9/01/2014	1,714	5.1	156	14.1
14802	Ford	Focus	2014	9/01/2014	1,397	5.1	127	14.0
14807	Ford	Focus	2014	9/01/2014	982	3.0	89	13.0
14808	Ford	Focus	2014	9/01/2014	2,616	7.8	238	12.7
14805	Ford	Focus	2014	9/01/2014	754	2.3	69	11.9
14806	Ford	Focus	2014	9/01/2014	481	4.8	44	11.7
14805	Ford	Focus	2014	9/01/2014	681	2.1	62	11.5
14801	Ford	Focus	2014	9/01/2014	662	2.4	60	12.1
14801	Ford	Focus	2013	7/02/2013	651	2.4	61	12.1
13801	Ford	Focus	2013	7/02/2013	651	2.4	63	15.8

Department Average Daily Usage (mi)	Vehicle Class	Average MPG
243	CAR COMPACT	14.7
Total Emissions from Department Vehicles		
22.75-MT CO ₂ e	Average Daily Department Total Vehicle Usage	Average idling
Department	Days	42%
100% of vehicle used	0% (0 of 336 days)	
380% of vehicle used	0.3% (1 of 336 days)	
<50% of vehicle used	34% (114 of 336 days)	

Data overview that was presented to the Building Department along with the information in the following slides.

DATA OVERVIEW BY DEPARTMENT

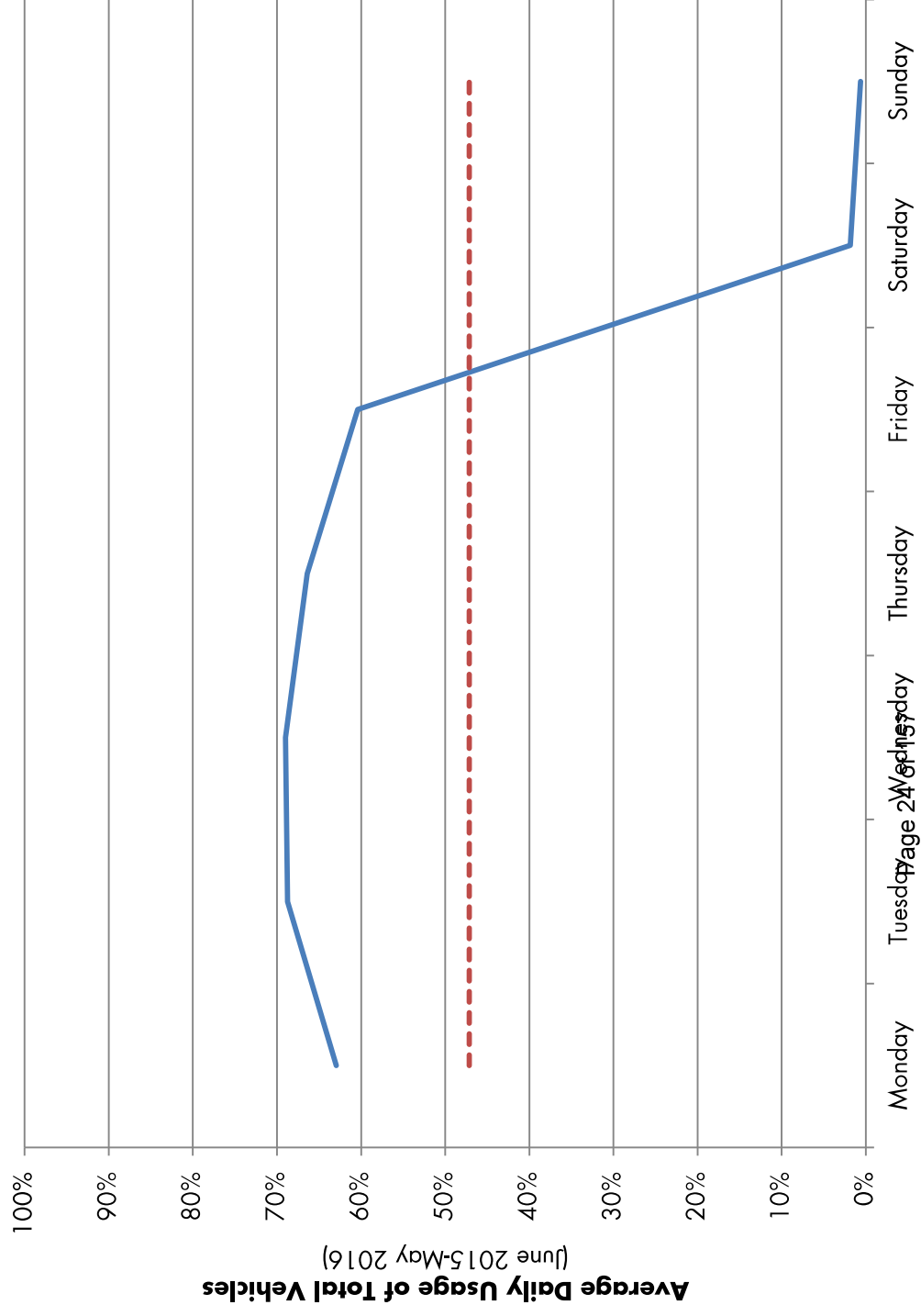
Building Department

6/30/15 – 5/30/2016

- High range of miles travelled: 2,968 – 10,632 miles
- Low range of miles travelled: 481 – 1,714 miles
- High range of fuel efficiency: 15.7 – 29.4 MPG
- Low range of fuel efficiency: 10.7 – 12.1 MPG
- Total emissions from department: 22.75 MT CO₂e
- Equivalent to: 583 tree seedlings grown for 10 years
- Average idling duration: 42%
- Average daily usage of department fleet: 47%

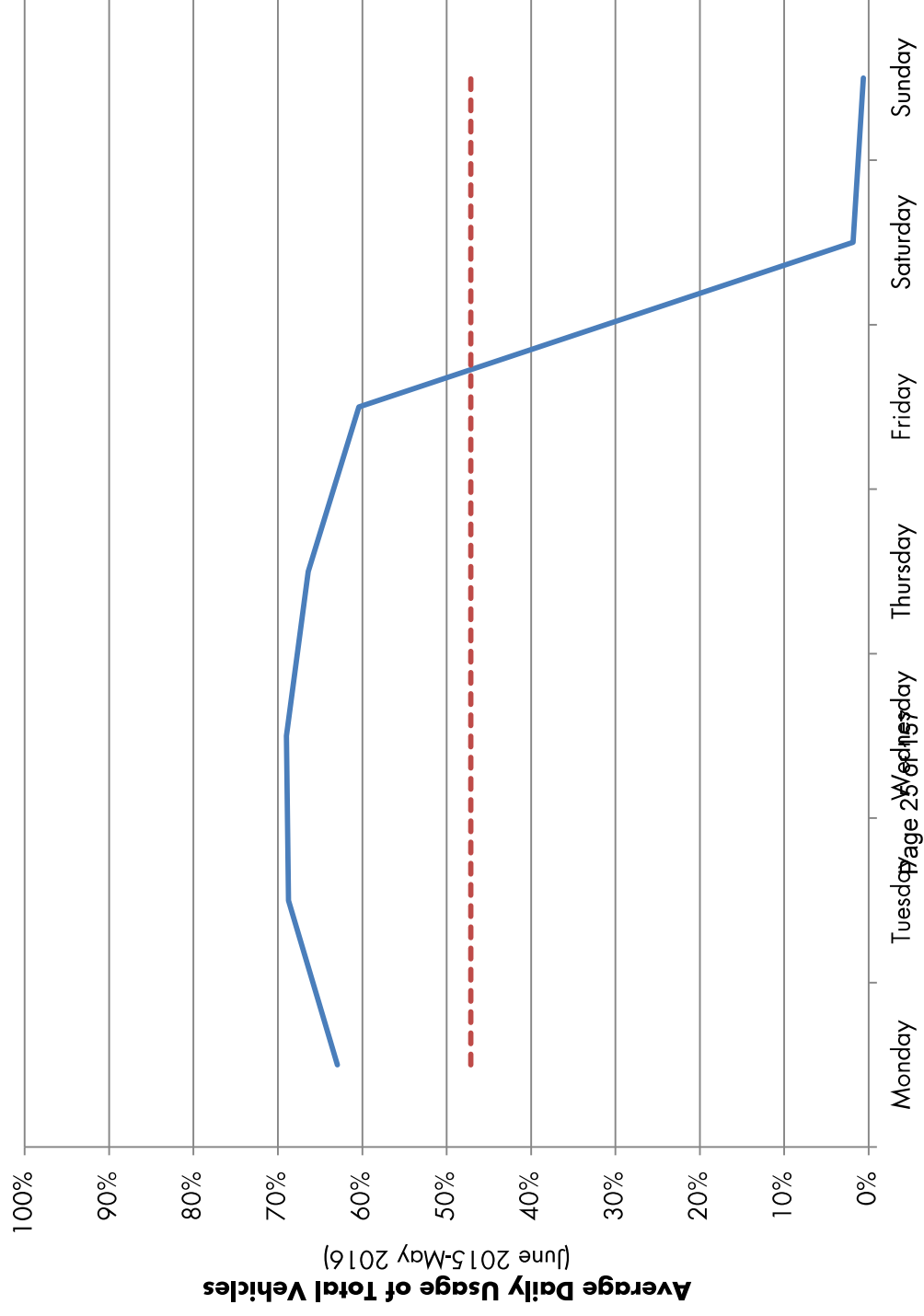
AVERAGE DAILY USAGE OF FLEET

Building Department: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

Building Department: Compact Cars*



* all vehicles in the Building Department fleet are compact cars.

DATA OVERVIEW BY DEPARTMENT

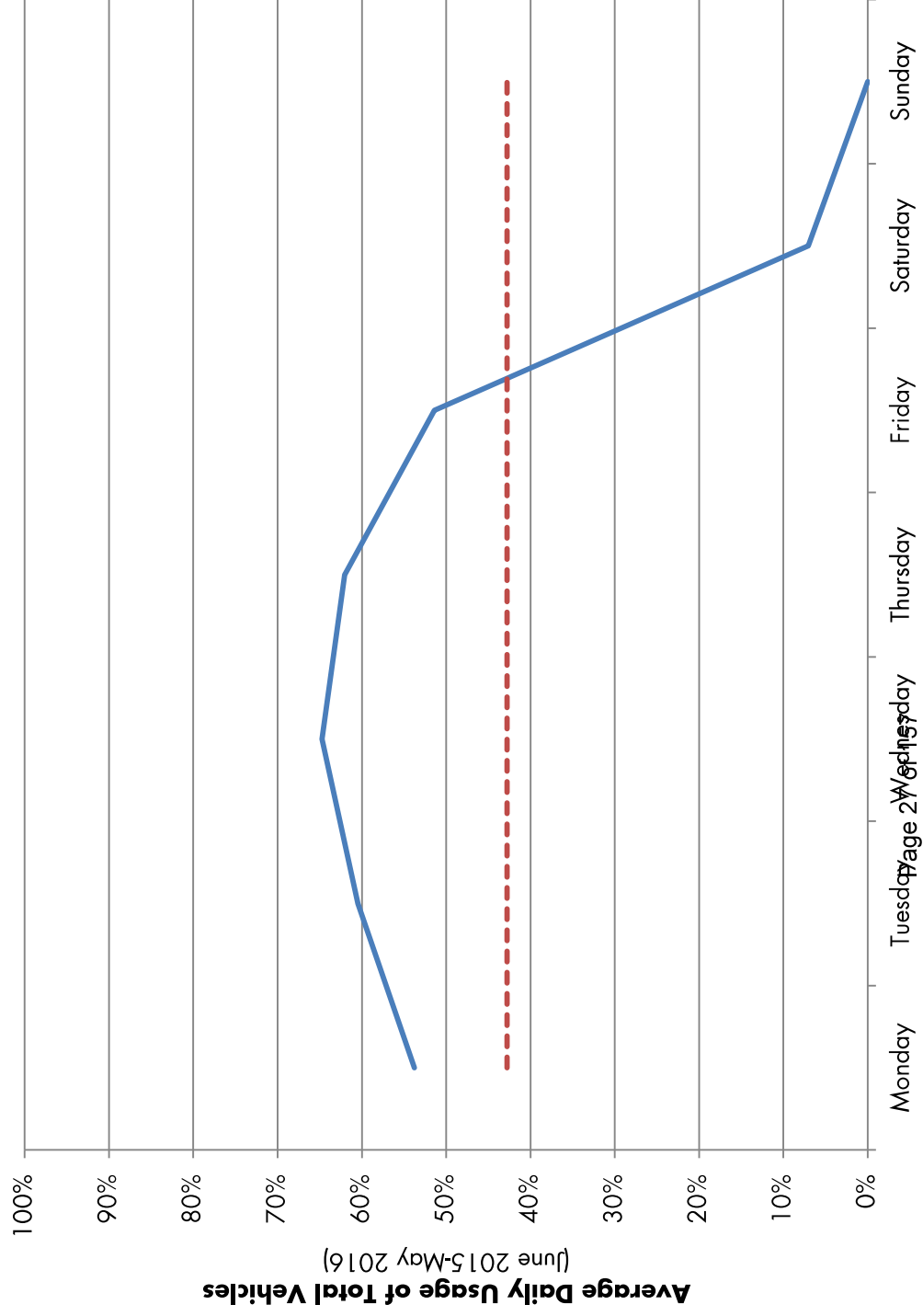
CIP Department

6/30/15 – 5/30/2016

- High range of miles travelled: 2,491 – 3,373 miles
- Low range of miles travelled: 521 – 695 miles
- High range of fuel efficiency: 14.7 – 15.0 MPG
- Low range of fuel efficiency: 6.8 – 9.2 MPG
- Total emissions from department: 4.7 MT CO₂e
- Equivalent to: 121 tree seedlings grown for 10 years
- Average idling duration: 43%
- Average daily usage of department fleet: 43%

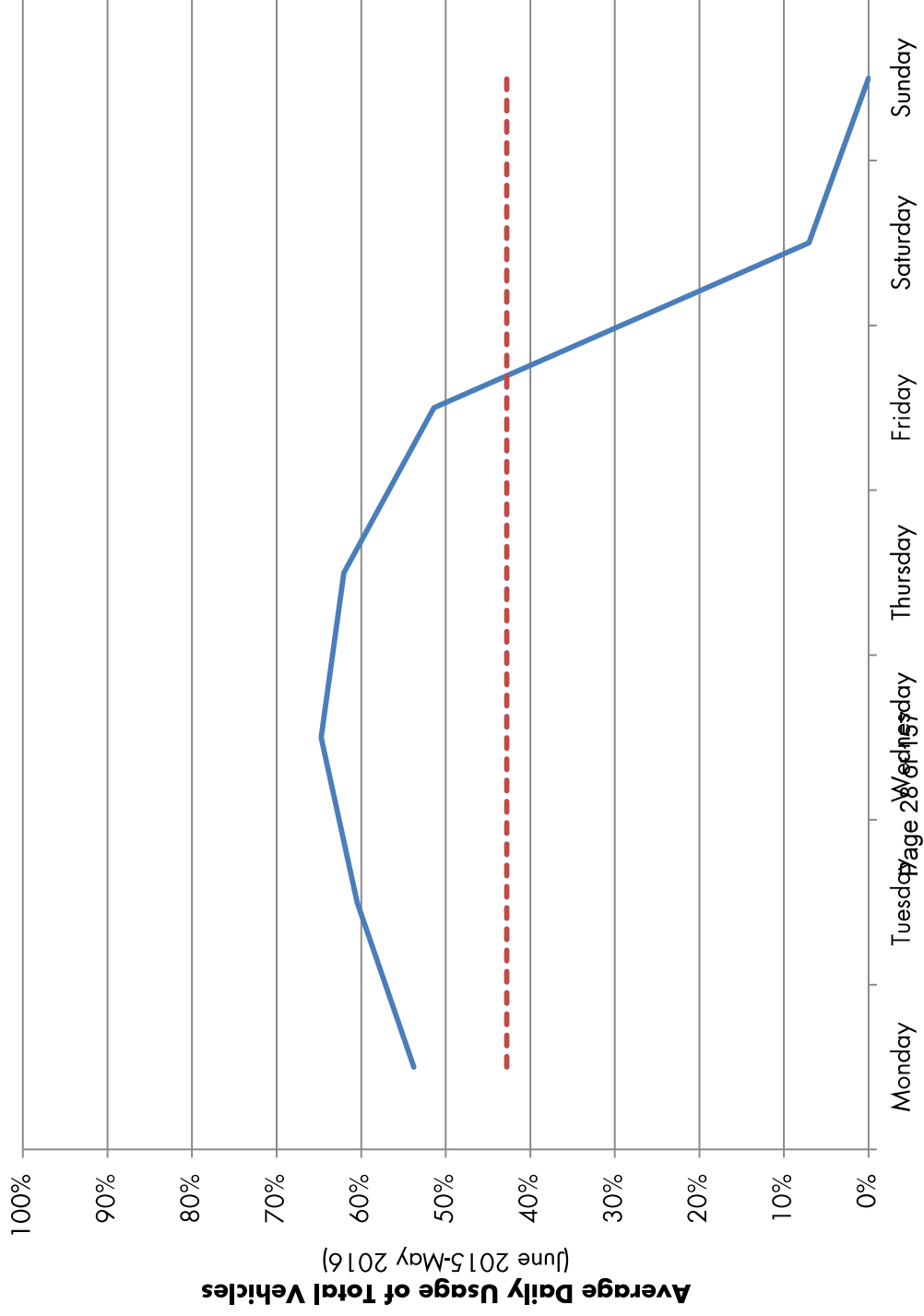
AVERAGE DAILY USAGE OF FLEET

CIP Department: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

CIP Department: Compact Cars*



* all vehicles in the CIP Department fleet are compact cars.

DATA OVERVIEW BY DEPARTMENT

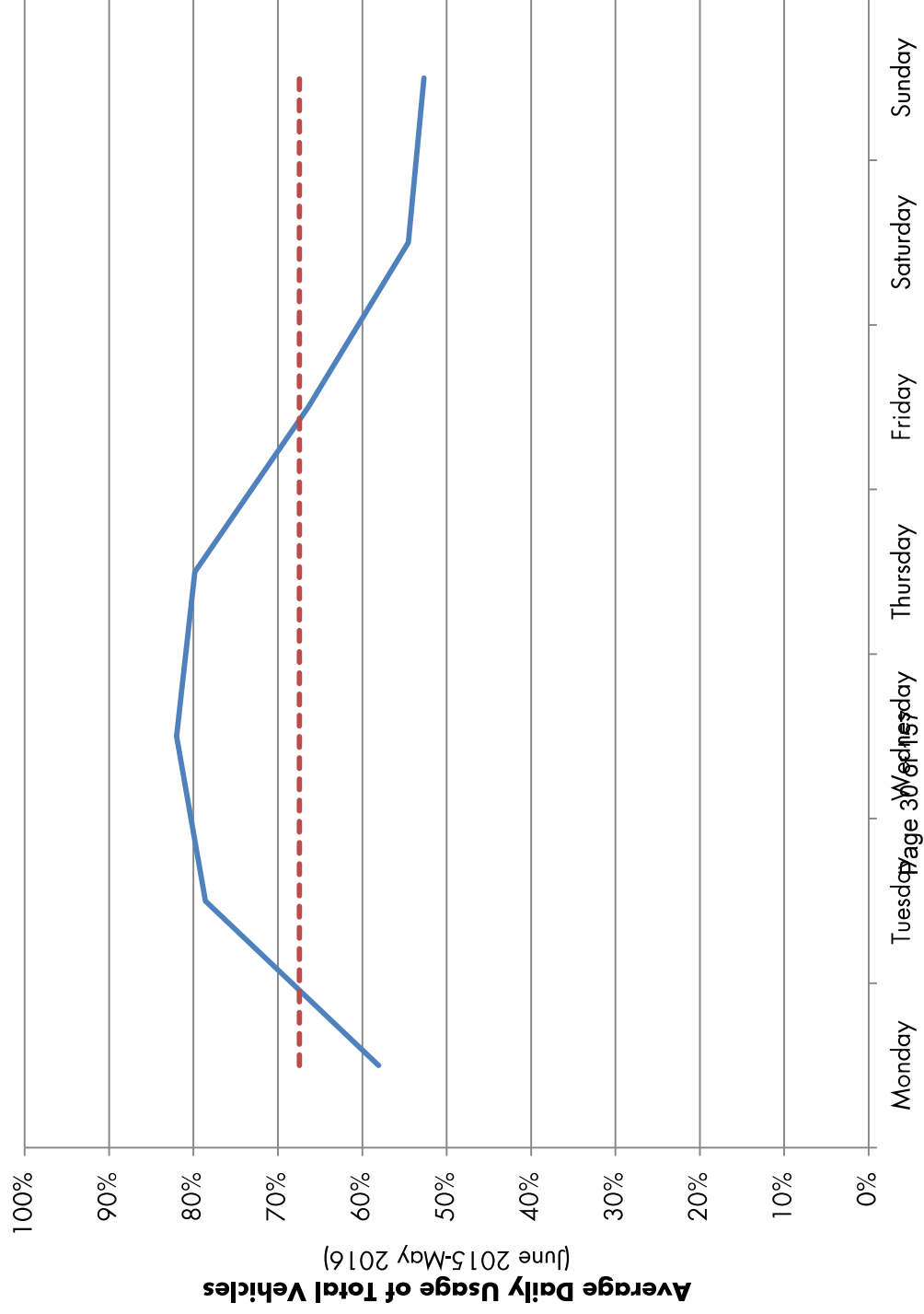
Code Compliance Department

6/30/15 – 5/30/2016

- High range of miles travelled: 5,518 – 12,177 miles
- Low range of miles travelled: 505 – 1,490 miles
- High range of fuel efficiency: 12.2 – 17.7 MPG
- Low range of fuel efficiency: 7.6 – 8.3 MPG
- Total emissions from department: 27.5 MT CO₂e
- Equivalent to: 705 tree seedlings grown for 10 years
- Average idling duration: 52%
- Average daily usage of department fleet: 67%

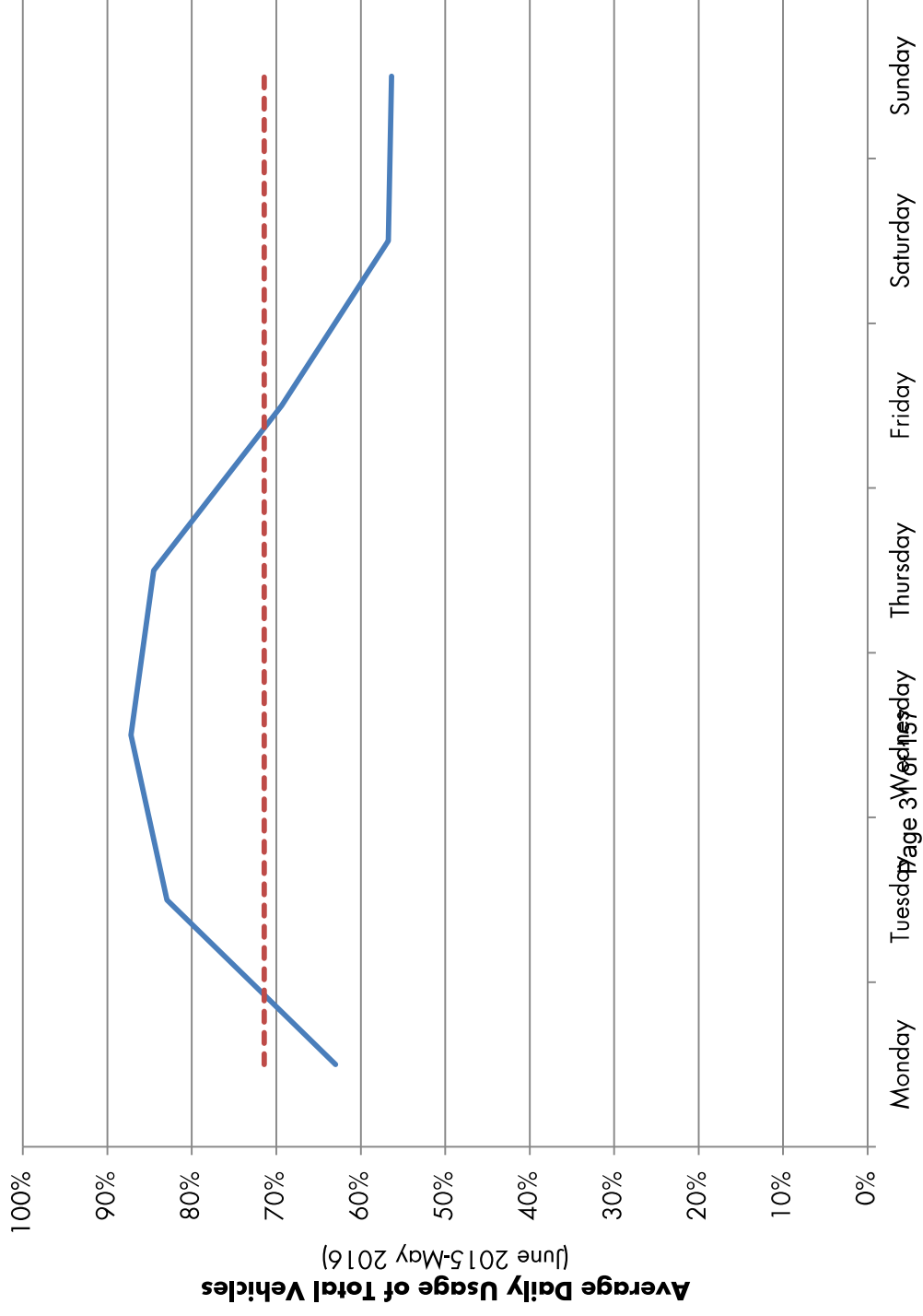
AVERAGE DAILY USAGE OF FLEET

Code Compliance Department: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

Code Compliance Department: Compact Cars



DATA OVERVIEW BY DEPARTMENT

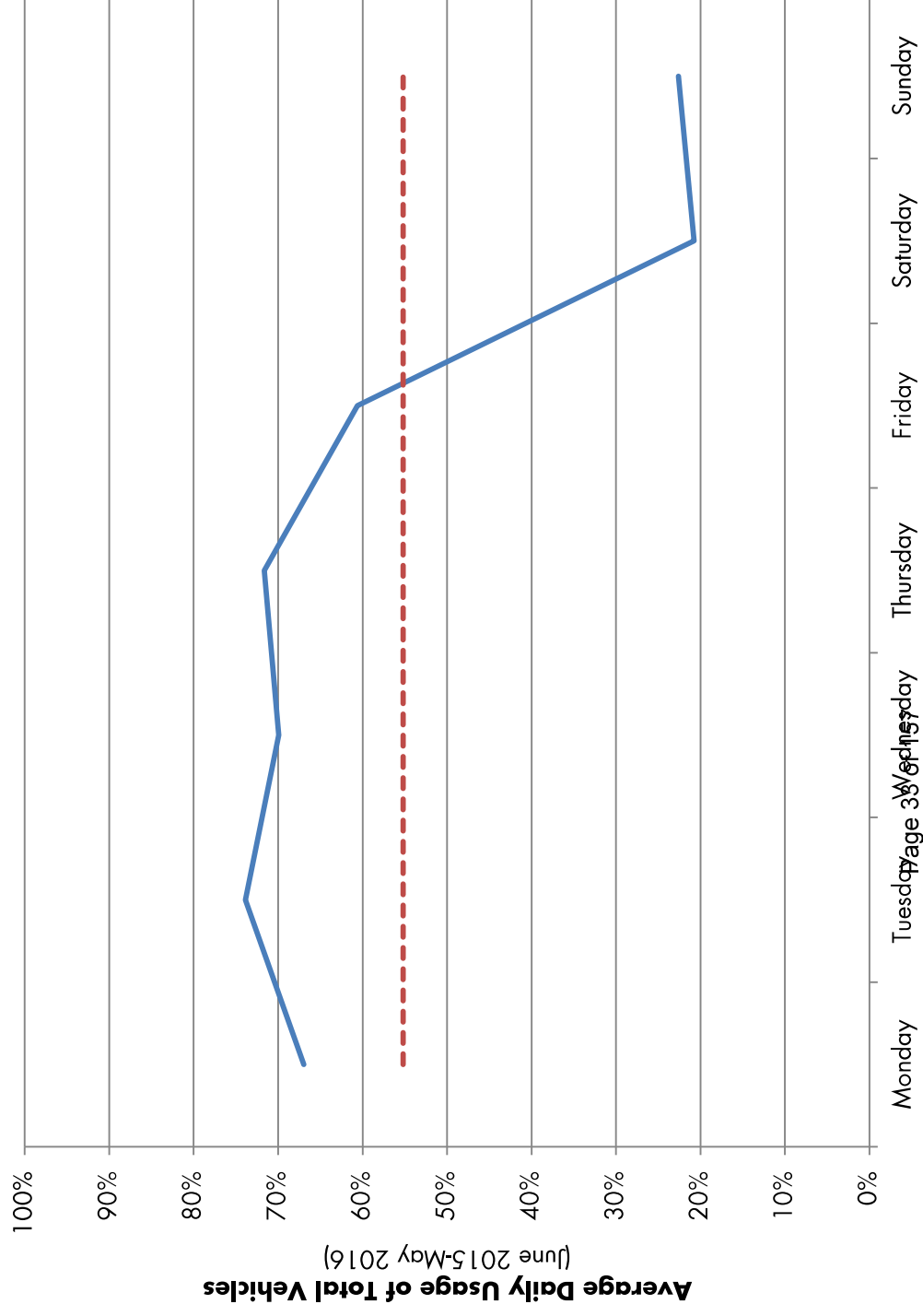
Fire Department

6/30/15 – 5/30/2016

- High range of miles travelled: 7,911 – 31,918 miles
- Low range of miles travelled: 13 – 2,808 miles
- High range of fuel efficiency: 18.9 – 31.3 MPG
- Low range of fuel efficiency: 6.4 – 13.1 MPG
- Total emissions from department: 84.85 MT CO₂e*
- Equivalent to: 2,176 tree seedlings grown for 10 years
- Average idling duration: 23%
- Average daily usage of department fleet: 55%

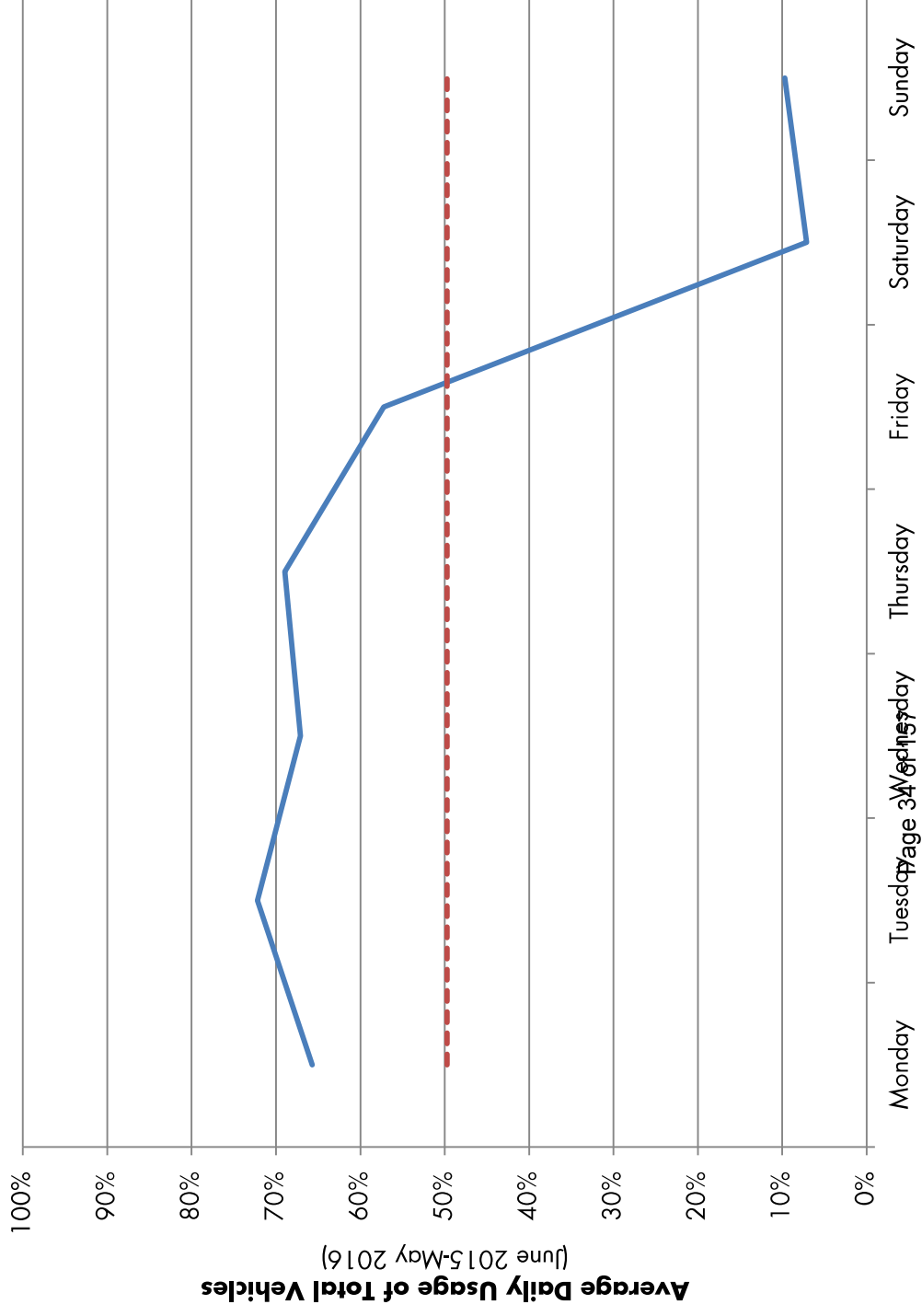
AVERAGE DAILY USAGE OF FLEET

Fire Department: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

Fire Department: Compact Cars



DATA OVERVIEW BY DEPARTMENT

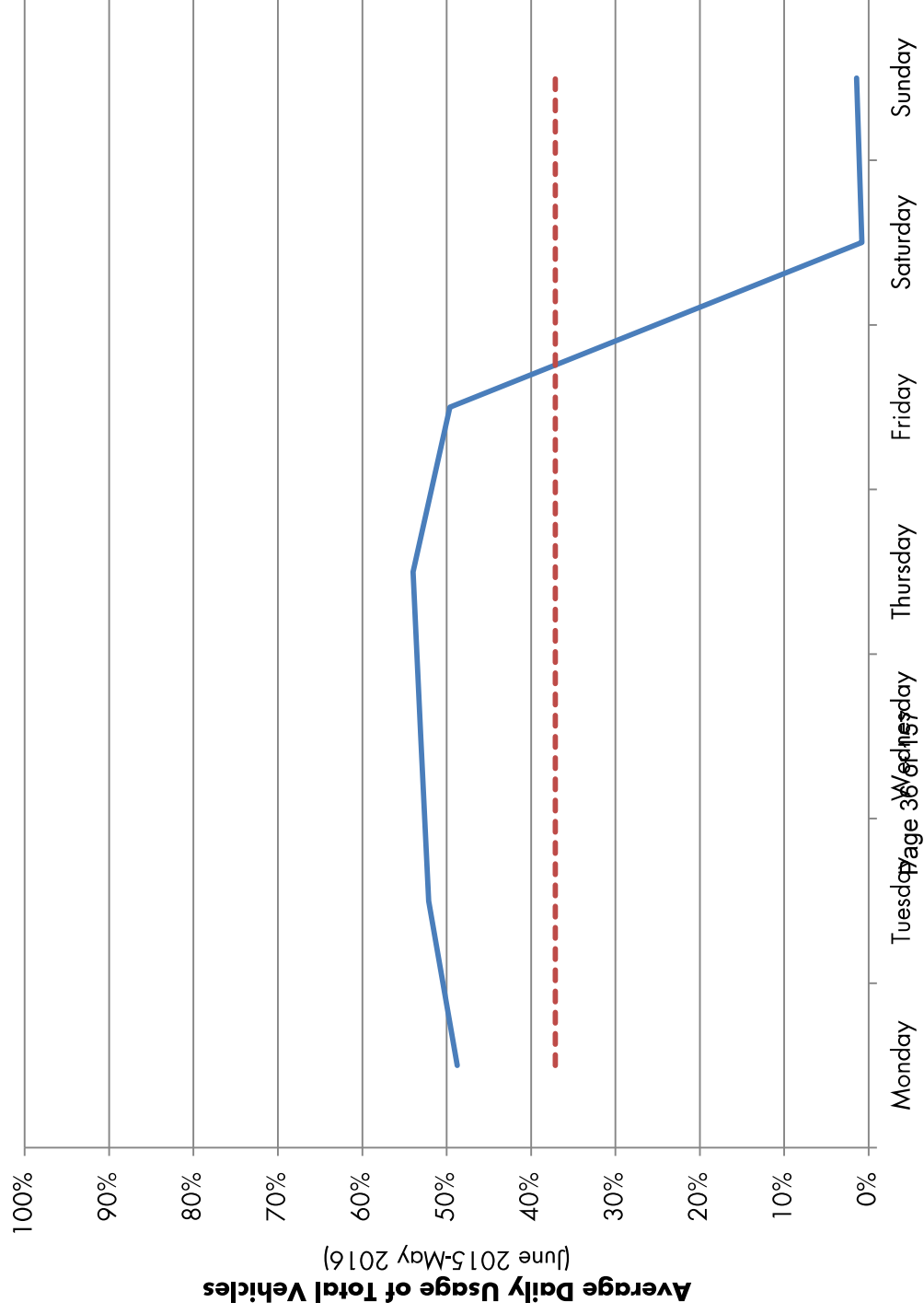
IT Department

6/30/15 – 5/30/2016

- High range of miles travelled: 935 – 1,396 miles
- Low range of miles travelled: 160 – 213 miles
- High range of fuel efficiency: 14.1 – 23.3 MPG
- Low range of fuel efficiency: 10.5 – 11.4 MPG
- Total emissions from department: 2.59 MT CO₂e
- Equivalent to: 66 tree seedlings grown for 10 years
- Average idling duration: 29%
- Average daily usage of department fleet: 37%

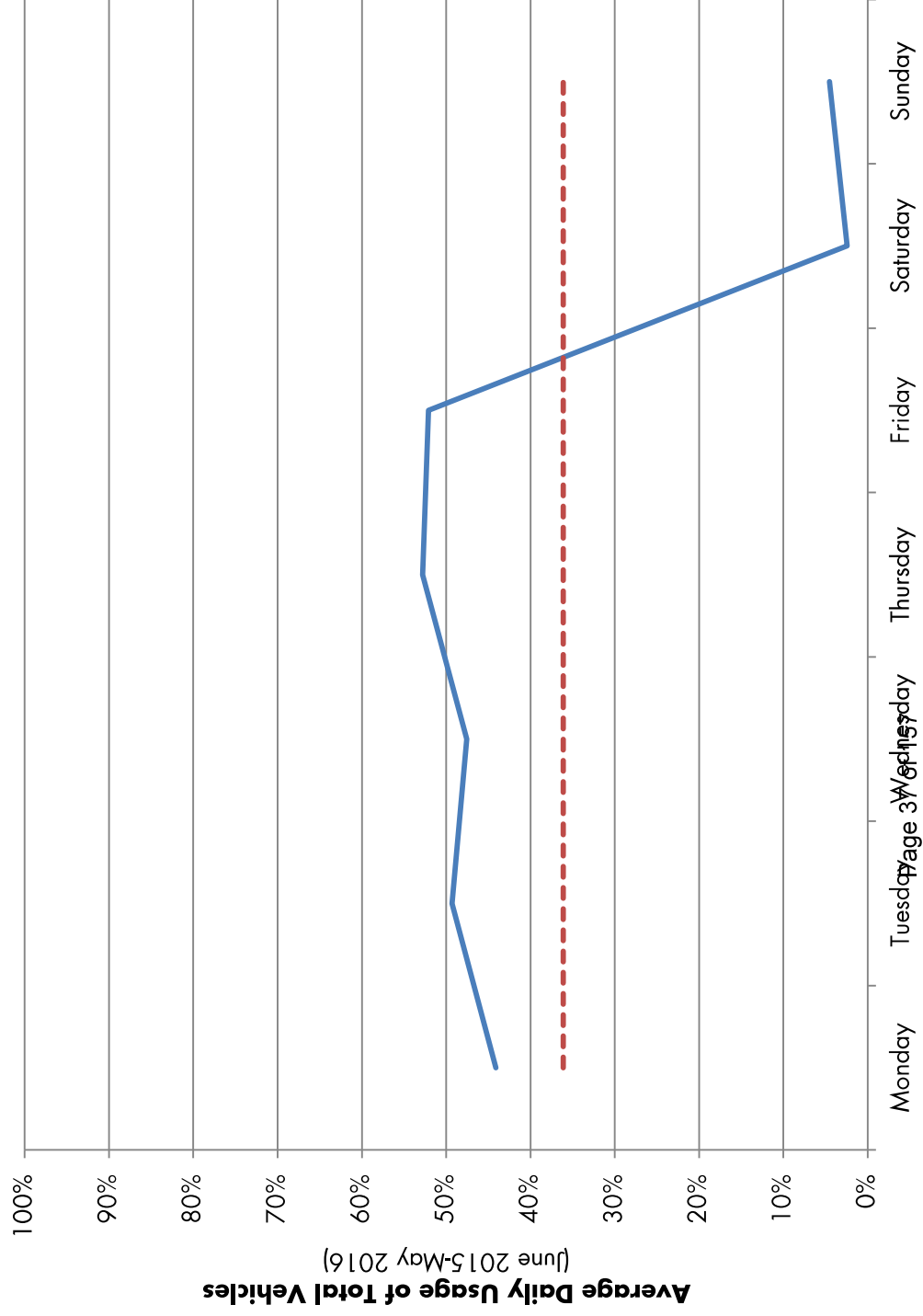
AVERAGE DAILY USAGE OF FLEET

IT Department: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

IT Department: Compact Cars



DATA OVERVIEW BY DEPARTMENT

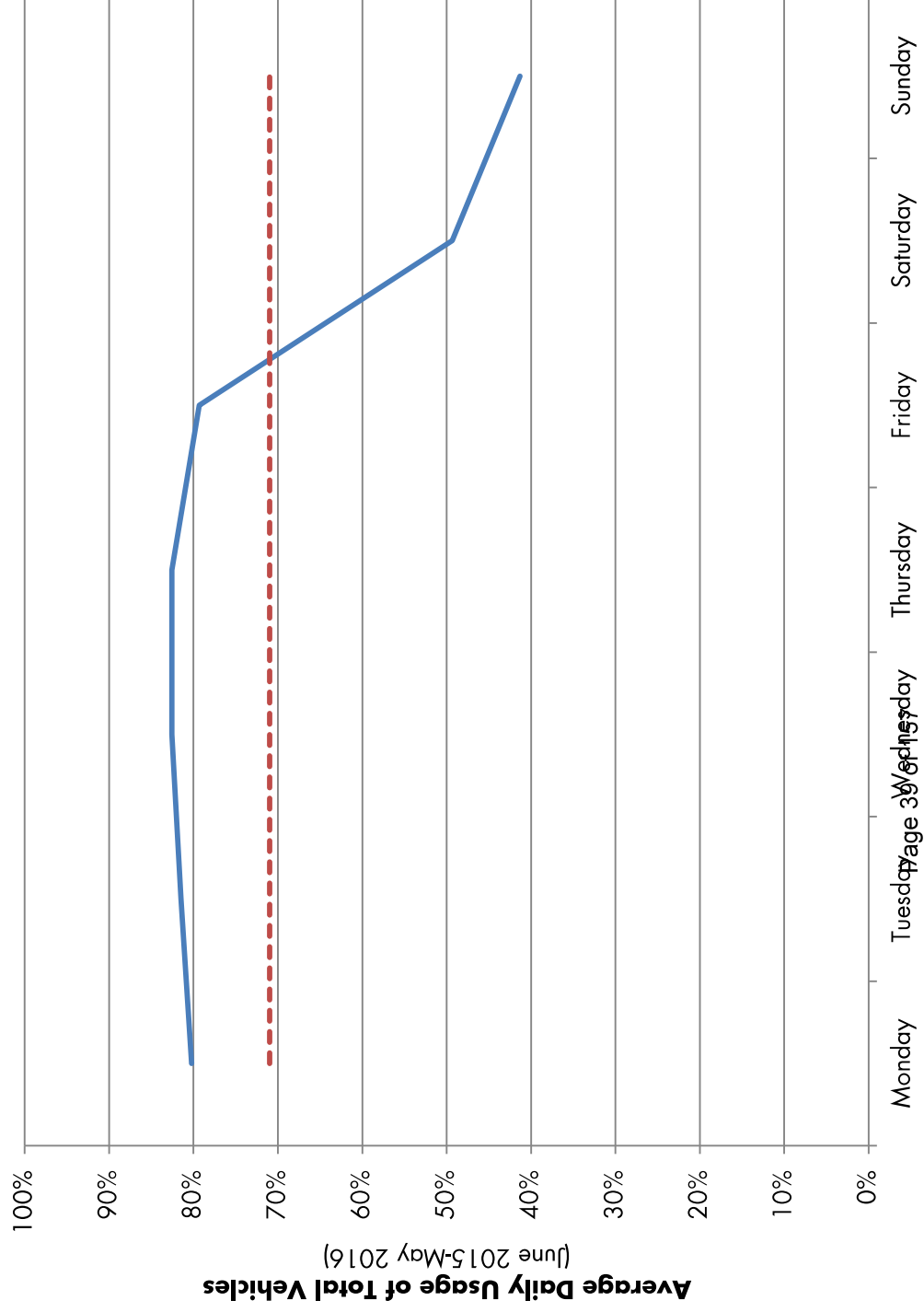
Parking Department

6/30/15 – 5/30/2016

- High range of miles travelled: 8,539 – 11,431 miles
- Low range of miles travelled: 302 – 3,201 miles
- High range of fuel efficiency: 11.2 – 20.4 MPG
- Low range of fuel efficiency: 3.6 – 8.6 MPG
- Total emissions from department: 108.32 MT CO₂e*
- Equivalent to: 2,807 tree seedlings grown for 10 years
- Average idling duration: 41%
- Average daily usage of department fleet: 71%

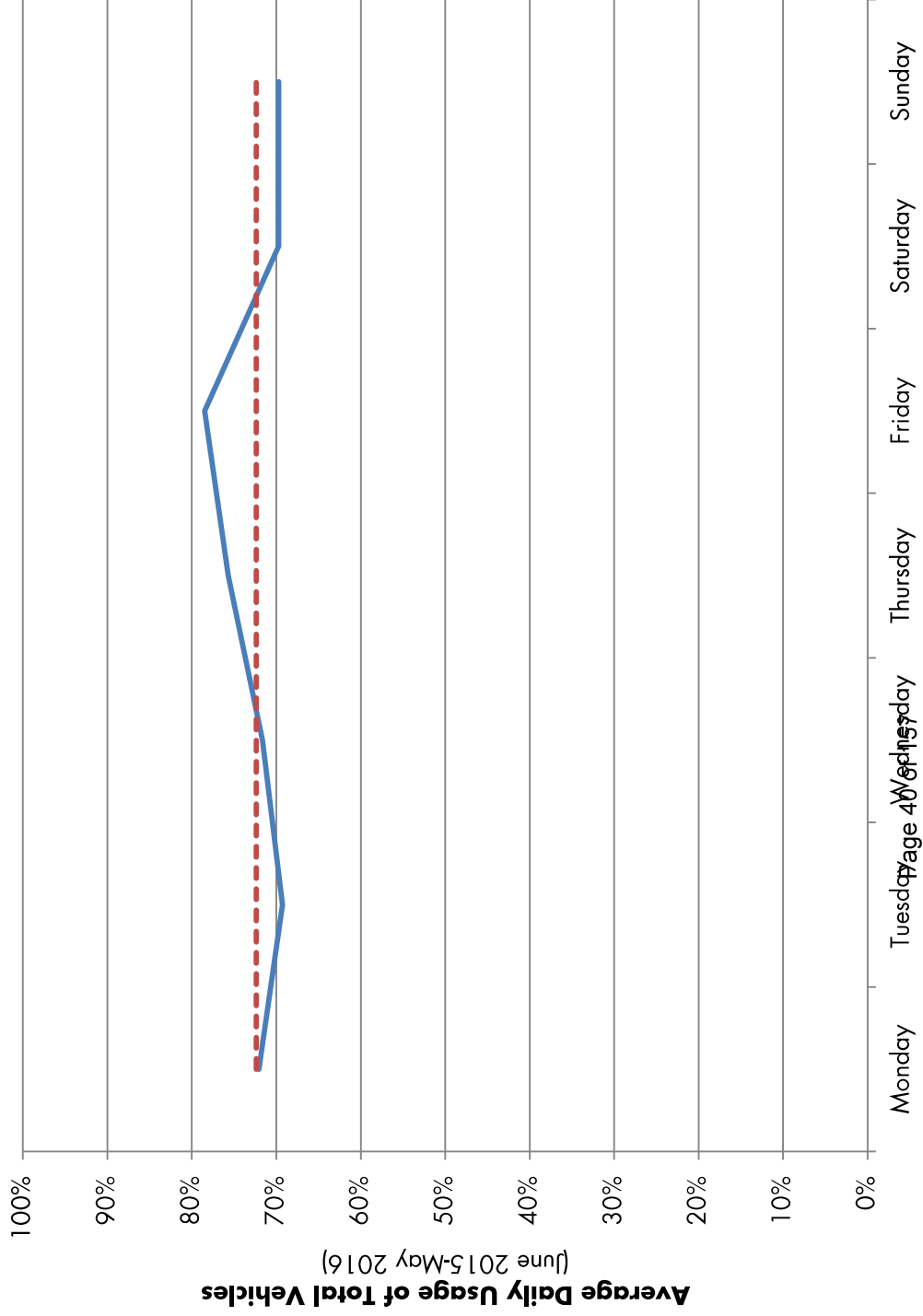
AVERAGE DAILY USAGE OF FLEET

Parking Department: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

Parking Department: Compact Cars



DATA OVERVIEW BY DEPARTMENT

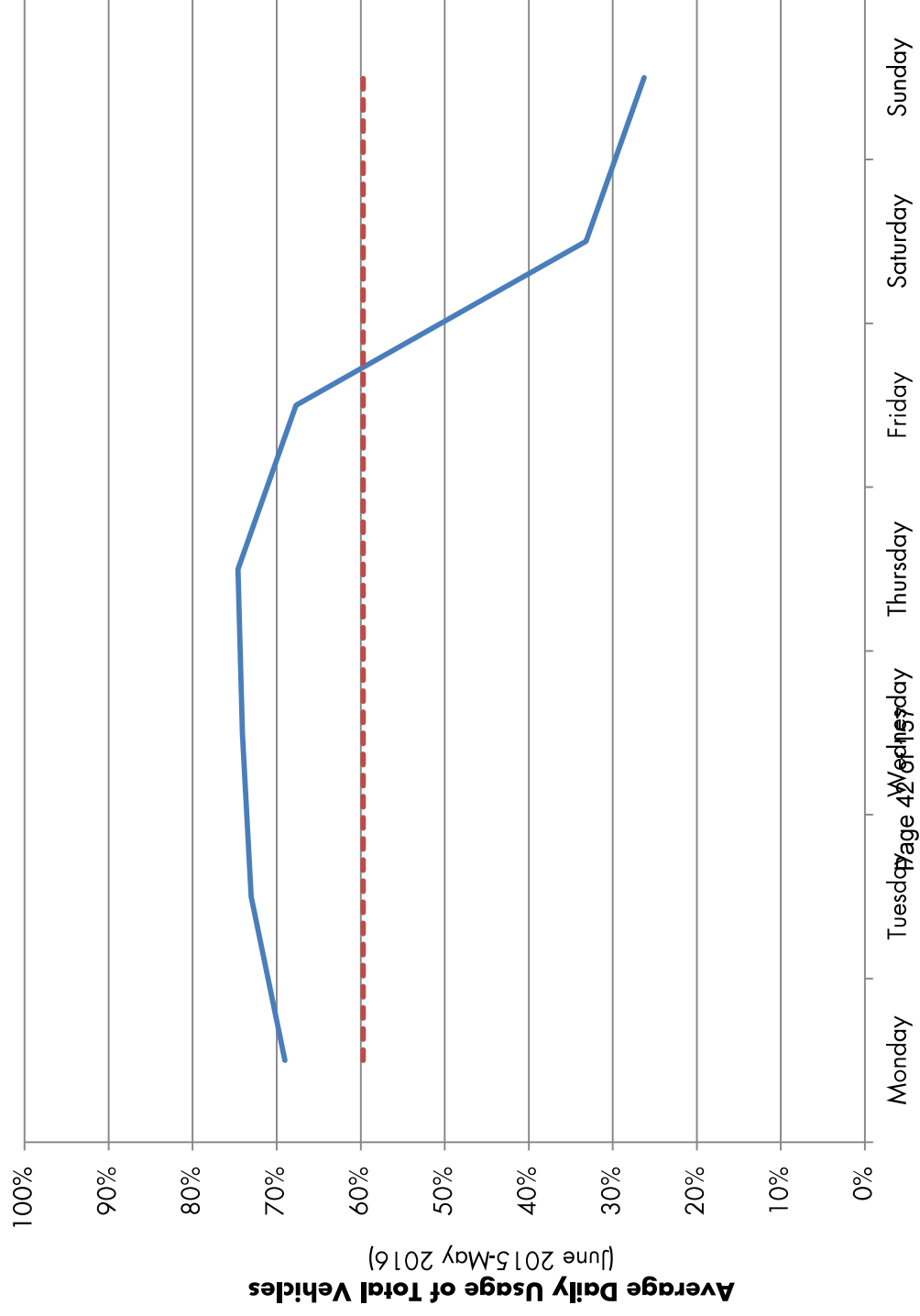
Parks and Recreation Department

6/30/15 – 5/30/2016

- High range of miles travelled: 3,877 – 8,331 miles
- Low range of miles travelled: 19 – 370 miles
- High range of fuel efficiency: 15.5 – 32.7 MPG
- Low range of fuel efficiency: 2.3 – 4.3 MPG
- Total emissions from department: 71.14 MT CO₂e
- Equivalent to: 1,824 tree seedlings grown for 10 years
- Average idling duration: 43%
- Average daily usage of department fleet: 60%

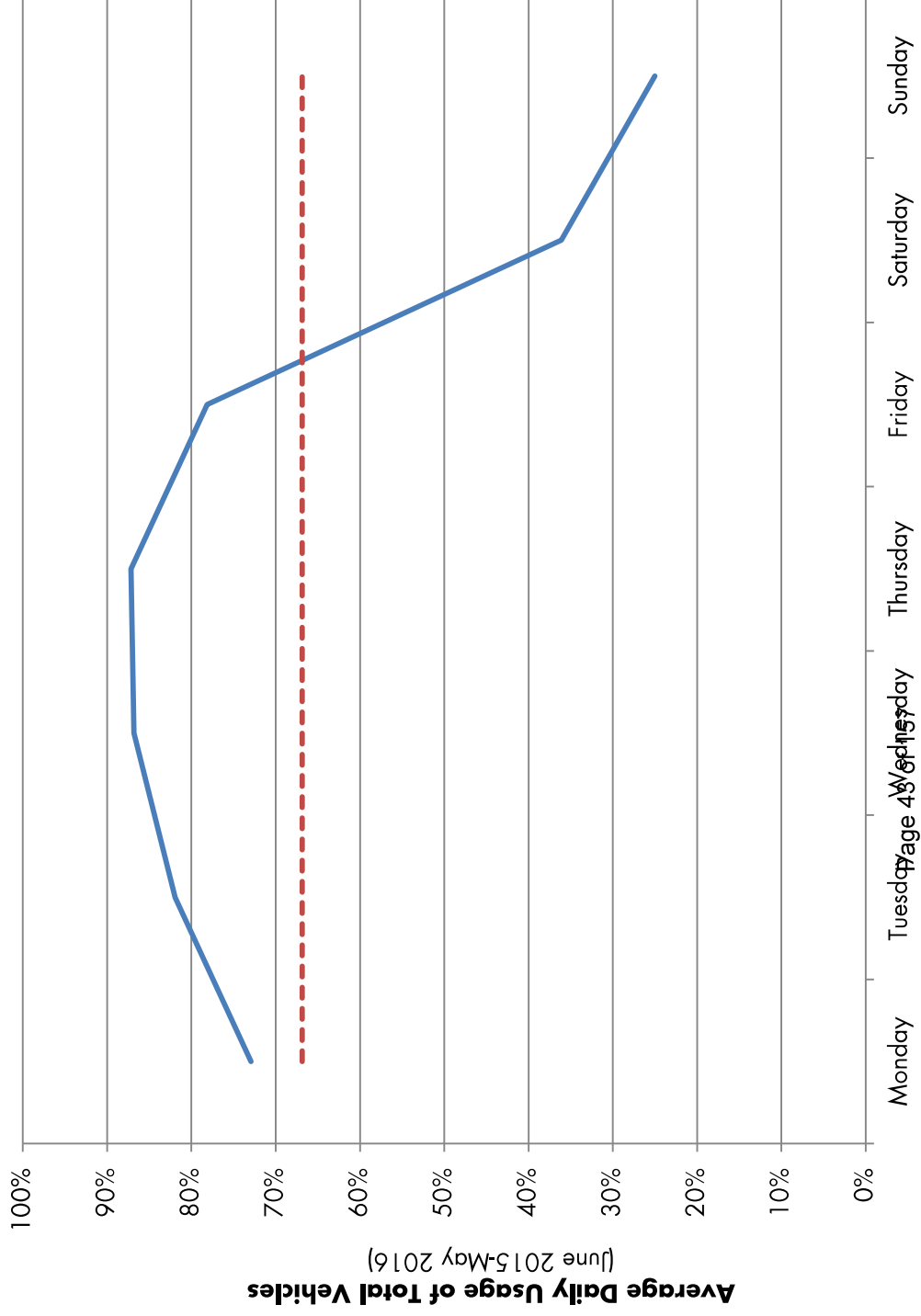
AVERAGE DAILY USAGE OF FLEET

Parks and Recreation: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

Parks and Recreation: Compact Cars



DATA OVERVIEW BY DEPARTMENT

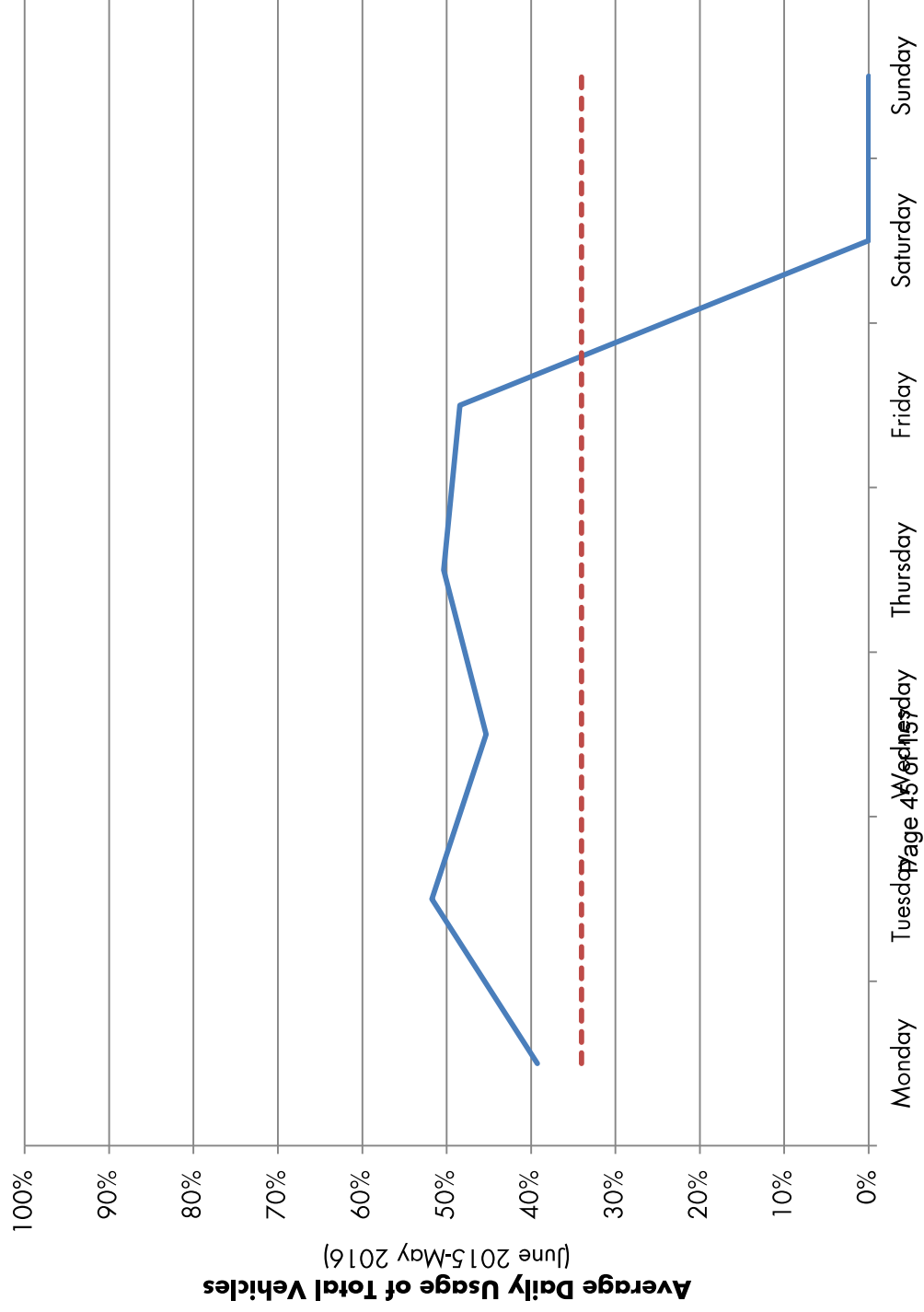
Planning Department

6/30/15 – 5/30/2016

- Range of miles travelled: 594 – 1,774 miles
- Range of fuel efficiency: 2.5 – 7.1 MPG
- Total emissions from department: 1.25 MT CO₂e
- Equivalent to: 32 tree seedlings grown for 10 years
- Average idling duration: 31%
- Average daily usage of department fleet: 34%

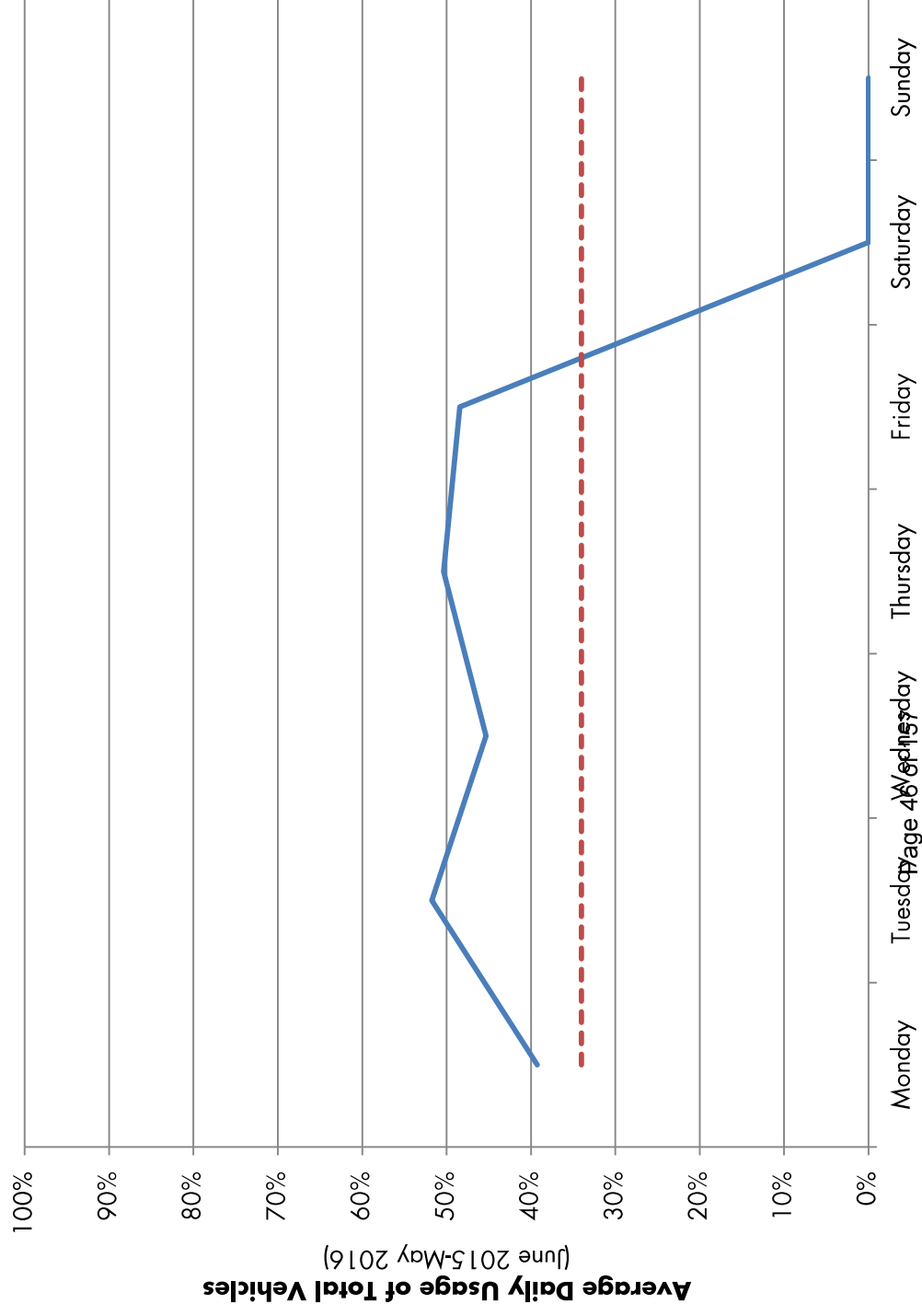
AVERAGE DAILY USAGE OF FLEET

Planning Department: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

Planning Department: Compact Cars*



* all vehicles in the Planning Department fleet are compact cars.

DATA OVERVIEW BY DEPARTMENT

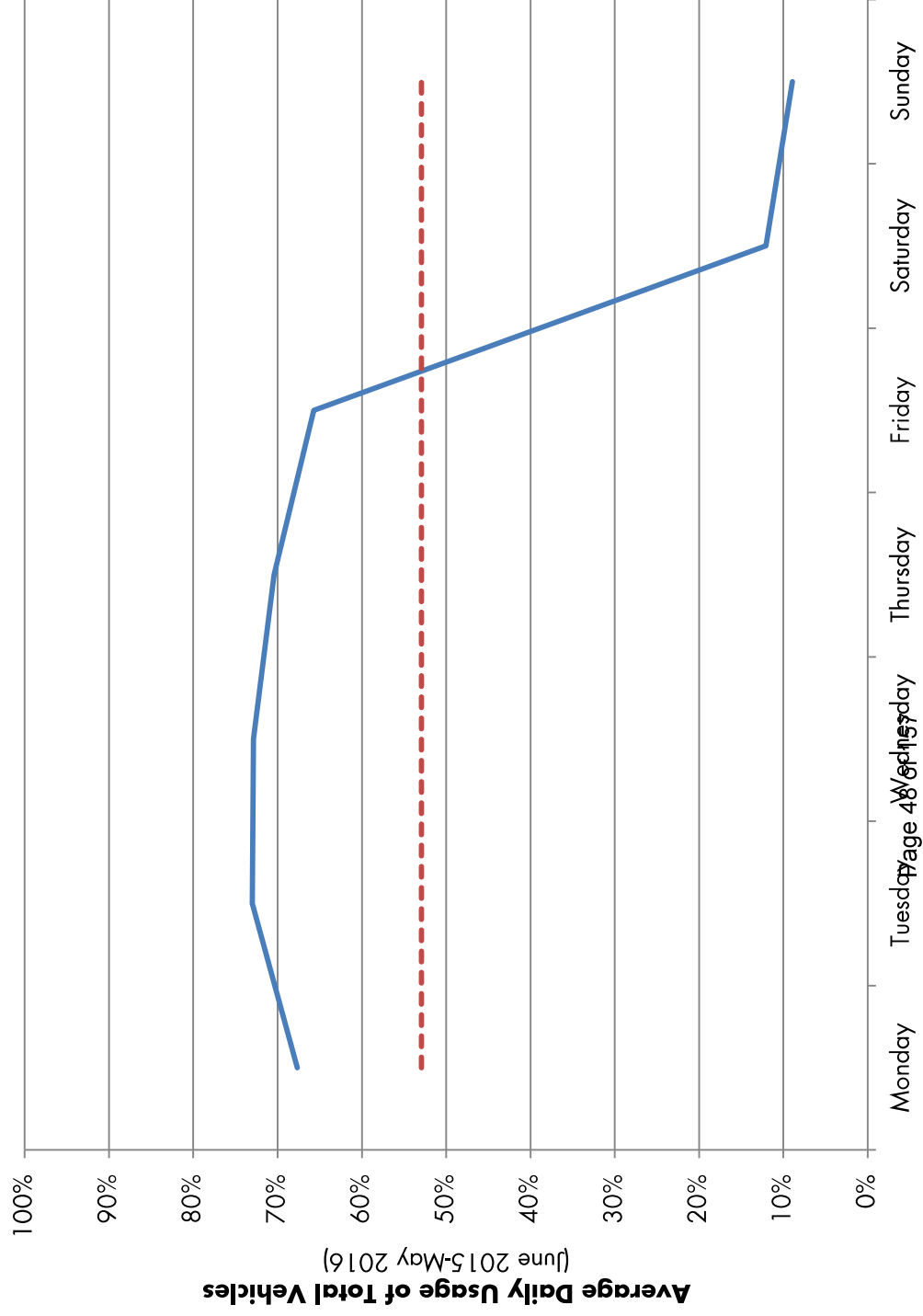
Property Management

6/30/15 – 5/30/2016

- High range of miles travelled: 3,351 – 8,438 miles
- Low range of miles travelled: 37 – 709 miles
- High range of fuel efficiency: 11.0 – 22.4 MPG
- Low range of fuel efficiency: 2.7 – 5.5 MPG
- Total emissions from department: *38.64 MT CO₂e
- Equivalent to: 1,001 tree seedlings grown for 10 years
- Average idling duration: 42%
- Average daily usage of department fleet: 44%

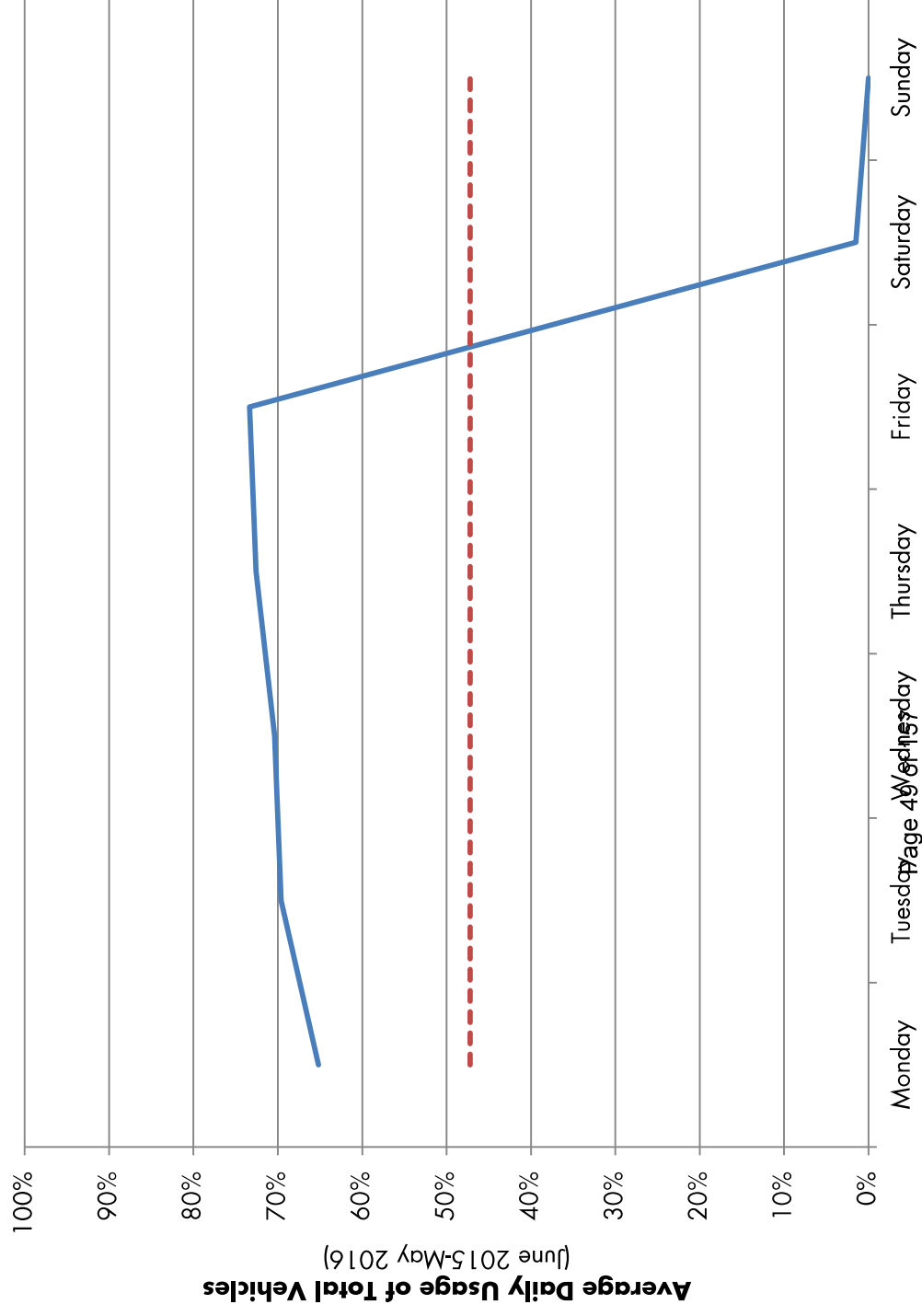
AVERAGE DAILY USAGE OF FLEET

Property Management: Whole Fleet



AVERAGE DAILY USAGE OF FLEET

Property Management: Compact Cars



DATA OVERVIEW BY DEPARTMENT

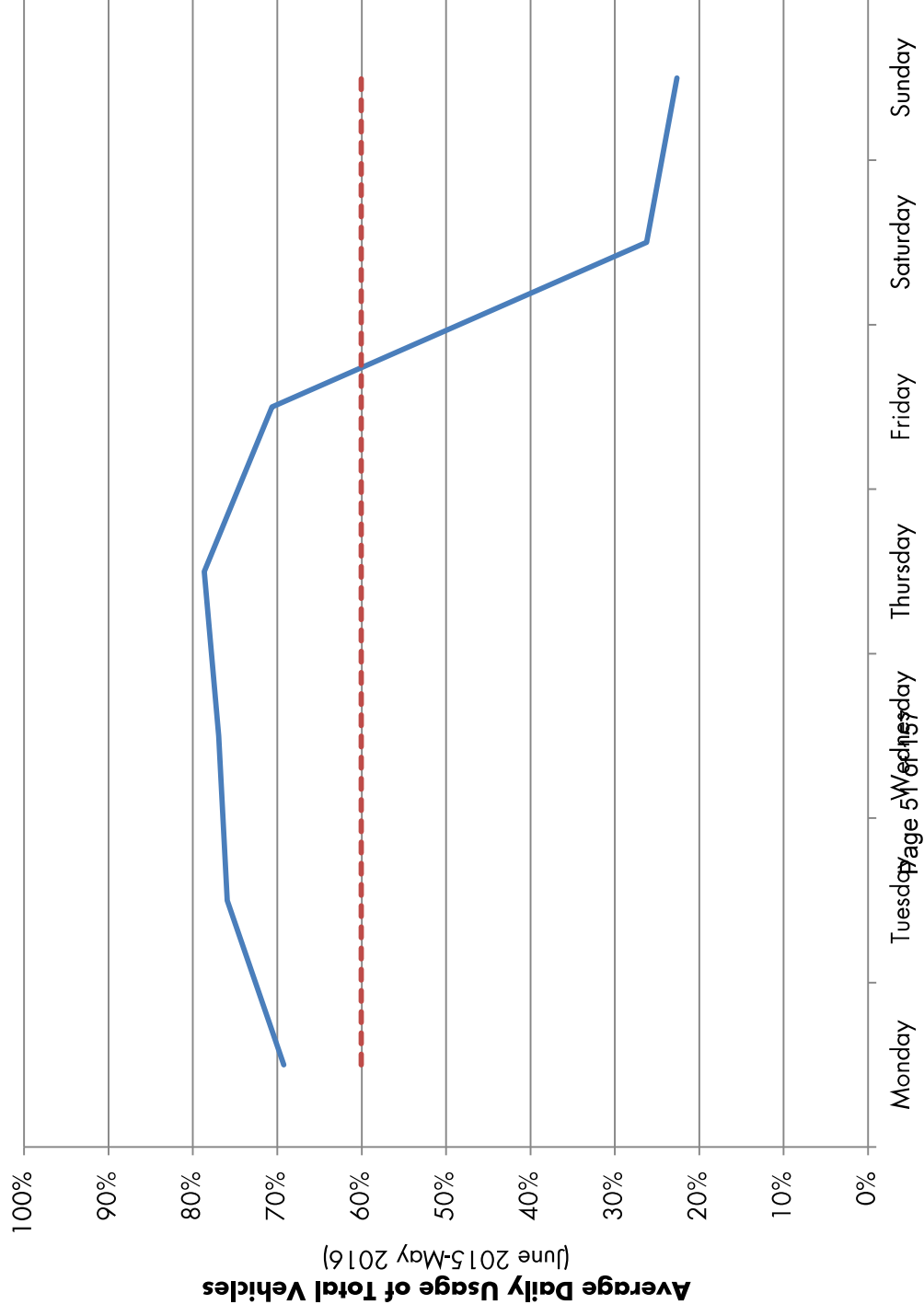
Public Works

6/30/15 – 5/30/2016

- High range of miles travelled: 4,063 – 13,861 miles
- Low range of miles travelled: 31 – 3,535 miles
- High range of fuel efficiency: 23.5 – 12.3 MPG
- Low range of fuel efficiency: 2.0 – 5.0 MPG
- Total emissions from department: 202.95 MT CO₂e*
- Equivalent to: 5,260 tree seedlings grown for 10 years
- Average idling duration: 53%
- Average daily usage of department fleet: 60%

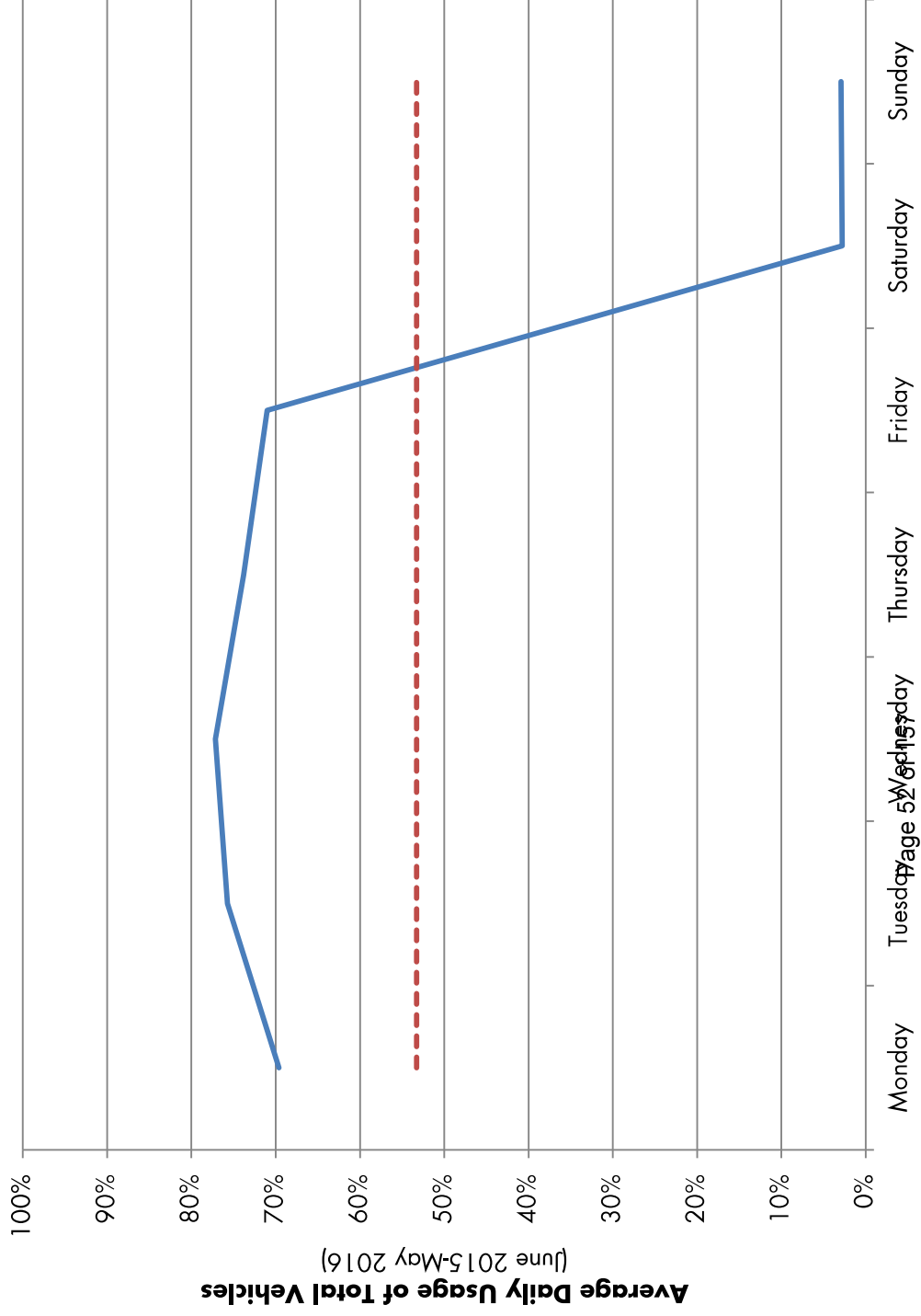
AVERAGE DAILY USAGE OF FLEET

Public Works Department: Whole Fleet



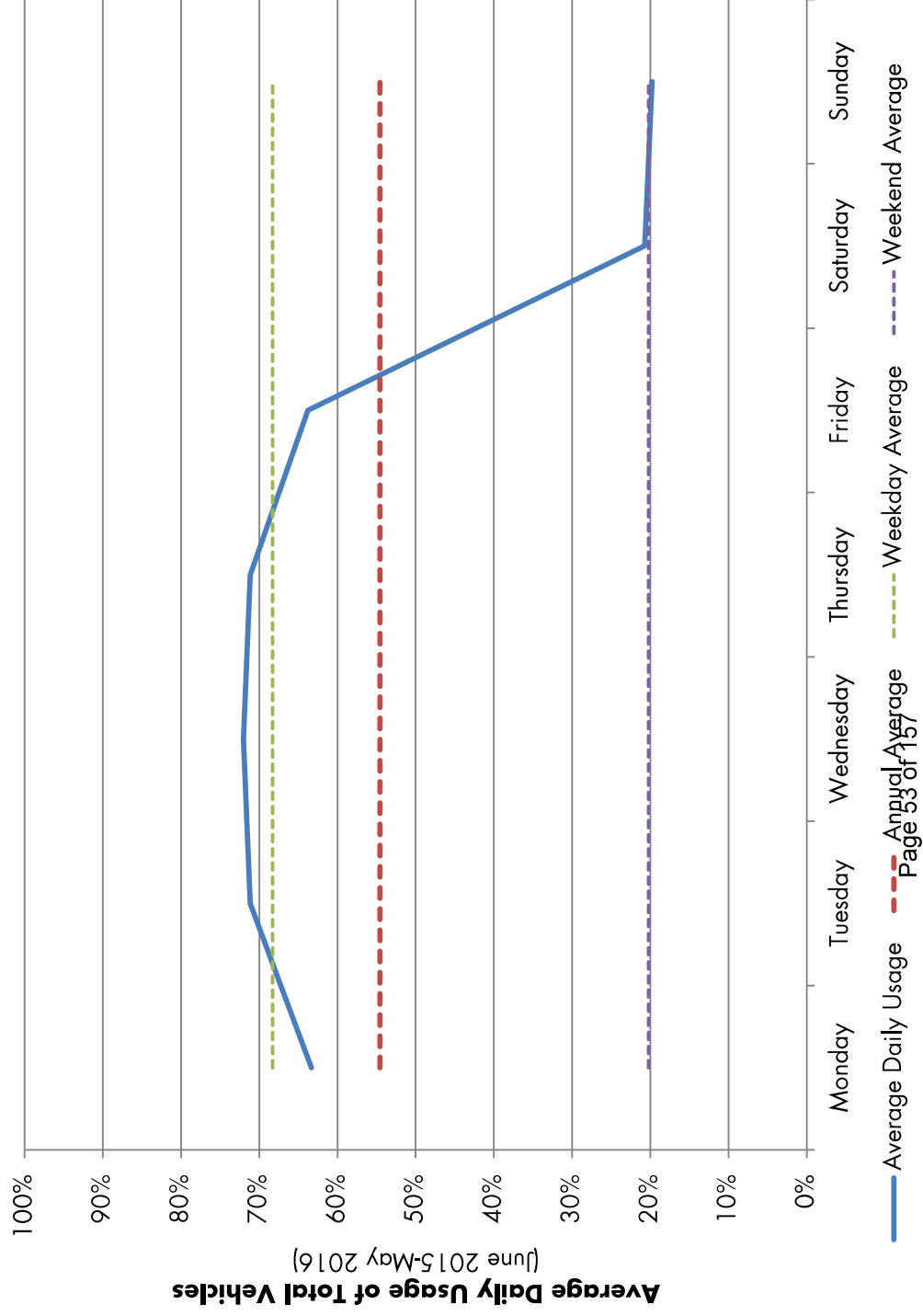
AVERAGE DAILY USAGE OF FLEET

Public Works Department: Compact Cars



AVERAGE DAILY USAGE OF FLEET

City Fleet: Compact Cars






ALTERNATIVES

- Possible alternatives that have been discussed with each department:
 - Uber/Lyft business account
 - Vehicle pool
 - Car share program
 - Bicycle program
 - Electric vehicles
 - Hybrids
 - Neighborhood/Ultra-compact electric vehicles



CONSIDERATIONS

-  Storm preparation and recovery:
 - Each department must outline their hurricane preparation procedures, including vehicles to be used
 - The types and amount of vehicles used for storm recovery depends on the extent and type of impact
-  Flooding & construction:
 - Certain types of vehicles are not suitable to drive through flooded streets or construction sites
-  Evolving technology:
 - Technology will increase number and types of vehicles with alternative fuel available on the market over time
 - Many technological advances worldwide; some foreign vehicles have no domestic equivalent

CONSIDERATIONS



Charging network:

- Before purchasing an EV, must determine where/when they will be charged
 - EVs need about 4-6 hours to completely charge a depleted battery in Level 2 charging stations
- There is **a charge** of \$0.39/kWh (for Blink members) and \$0.49/kWh (for non-members) when charging EVs **using the Blink (level 2) stations**
- Currently 4 garages are equipped with 2 Blink (level 2) charging stations each and there are 3 upcoming installations for **public use**:
 - 12th Street Parking Garage
 - 13th Street Parking Garage
 - City Hall Parking Garage
 - 42nd Street Parking Garage



Parking spot reserved for EV charging in City Hall Garage.



Blink charging station in City Hall Parking Garage.

CONSIDERATIONS



Car pool program:

- Many vehicles hold special equipment
- Although some vehicles are not always used, they are on standby for “emergency” calls
- Vehicles that need repairs and/or maintenance are out of order for some time, limiting a department’s fleet
- Need a central location to store vehicles
- Some departments are already sharing vehicles



Uber/Lyft business account:

- Ability to restrict access to certain staff and locations
- Potentially reduce number of vehicles in fleet
- Cost vs. benefits



Bicycle program:

- Only feasible for certain operations
- Weather-dependent

HIGHLIGHTS

 In FY 17/18, the **Parking Department** purchased the **first EV** in the City's fleet

 **Bicycle pilot program** with **Building Department**.

 **Several departments** have already **transferred one or more** lower usage/surplus **vehicles** from their **fleet to another department** in need.



Building Department employee, Michael Schaad, after completing bicycle training with PD.

FINDINGS

- 👍 More than **96% of staff vehicles** (excluding Police and Fire first responder units) are compact vehicles with **“Above Average” Green Score** according to the ACEEE GreenerCars Rating:
 - Including 21 hybrid vehicles
 - Compact vehicles are mainly Ford Focus

- ⚡ High fleet **usage periods** during the week **differ between departments.**

- 🚗 **Savings and reduction in emissions** from driving a hybrid compared to current compact car **increases the more a hybrid is driven.**

VEHICLE REPLACEMENT PROCESS



Criteria:

- Review the replacement cycle for the vehicle class
- History of costs for maintenance and repair
- Vehicle condition
- Validation of the operational needs and vehicle specifications with the user department



Fleet Management works with client department using replacement criteria and funding availability. Must prioritize which vehicles are going to be replaced.



Vehicle and equipment quotes are received, reviewed, and approved by client department and Fleet Management.



Vehicles are purchased.

RIDESHARING COST COMPARISON

# of Rides	Total Distance Travelled (miles)	Ridesharing App	City Vehicle
2	5	\$13.90	\$2.45
3		\$20.32	\$2.45
4		\$26.34	\$2.45
2	10	\$20.07	\$4.90
3		\$25.82	\$4.90
4		\$28.53	\$4.90
2	15	\$26.80	\$7.35
3		\$31.42	\$7.35
4		\$38.05	\$7.35
2	~20	\$29.64	\$23.02

Uncaptured benefits of ridesharing:

- time savings
- ability to work during the ride: answer emails, take calls...
- reduced stress

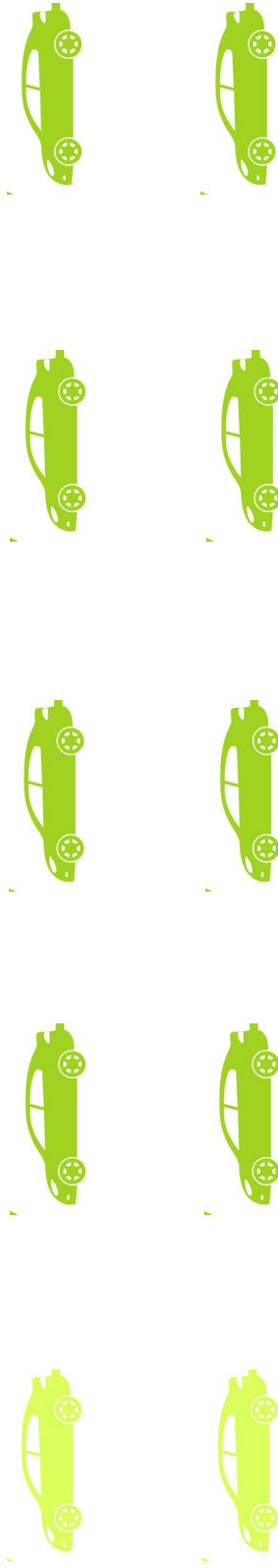
The table shows an estimate of the cost of using a ridesharing app (Uber/Lyft) compared to driving a city compact car to travel a certain distance over varying number of trips.

VEHICLE COSTS COMPARISON

VEHICLE MODEL	APPROXIMATE PRICE City Contract Pricing	FUEL EFFICIENCY EPA Rating
Ford Focus (compact)	\$19,740	28 MPG
Ford C-Max Hybrid (compact)	\$24,334	40 MPG
Ford Fusion Hybrid (midsize)	\$25,999	42 MPG
Ford Focus Electric (compact)	\$28,324	107 MPGe

POSSIBLE VEHICLE REPLACEMENT SCENARIO

- As departments replace their Ford Focus vehicles, it is recommended that they consider hybrids and/or EVs as possible replacements. Funding allocation for fleet will be essential for this transition.
- The following slides present an example of a transition of a 20 % replacement of their Ford Focus vehicles to hybrids or EVs and the potential reduction in GHG emissions.



BUILDING DEPARTMENT

Current Fleet
28 vehicles

1 Hybrid
Ford C-Max Hybrid

27 Compact Cars
Ford Focus

Potential Fleet Hybrids Replace 20%

6 Hybrids
Ford C-Max Hybrid



22 Compact Cars
Ford Focus

Potential Fleet EVs Replace 20%

5 EVs
Ford Focus Electric

1 Hybrid
Ford C-Max Hybrid

22 Compact Cars
Ford Focus

	2.94 MT CO ₂ e	11.29 MT CO ₂ e
	3.5 acres of U.S. forests in one year	12,352 lbs of coal

CIP DEPARTMENT

Current Fleet
10 vehicles

10 Compact Cars
Ford Focus

Potential Fleet
Hybrids Replace 20%



2 Hybrids
Ford Fusion Hybrid

8 Compact Cars
Ford Focus

Potential Fleet
EVs Replace 20%

2 EVs
Ford Focus Electric

8 Compact Cars
Ford Focus

	0.45 MT CO ₂ e	1.73 MT CO ₂ e
	0.53 acres of U.S. forests in one year	1,893 lbs of coal

CODE COMPLIANCE DEPARTMENT

Current Fleet
43 vehicles

2 Hybrids
Ford Fusion Hybrid

19 Compact Cars
Ford Focus

+SUVs, trucks, ATVs

Potential Fleet Hybrids Replace 20%

6 Hybrids
Ford Fusion Hybrid

15 Compact Cars
Ford Focus

+SUVs, trucks, ATVs



Potential Fleet EVs Replace 20%

4 EVs
Ford Focus Electric

2 Hybrids
Ford Fusion Hybrid

15 Compact Cars
Ford Focus

+SUVs, trucks, ATVs

	<p>0.45 MT CO₂e</p>	<p>1.73 MT CO₂e</p>
	<p>0.53 acres of U.S. forests in one year</p> <p>Page 66 of 157</p>	<p>1,893 lbs of coal</p>

FIRE DEPARTMENT

Current Fleet
79 vehicles

2 Hybrids
Ford Fusion Hybrid

20 Compact Cars
Ford Focus

+SUVs, trucks, boat...

Potential Fleet Hybrids Replace 20%

6 Hybrids
Ford Fusion Hybrid

16 Compact Cars
Ford Focus

+SUVs, trucks, boat...



Potential Fleet EVs Replace 20%

4 EVs
Ford Focus Electric

2 Hybrids
Ford Fusion Hybrid

16 Compact Cars
Ford Focus

+SUVs, trucks, boat...

	<p>3.56 MT CO₂e</p>	<p>13.5 MT CO₂e</p>
	<p>4.2 acres of U.S. forests in one year</p> <p>Page 67 of 157</p>	<p>14,770 lbs of coal</p>

IT DEPARTMENT

Current Fleet
11 vehicles

2 Compact Cars
Ford Focus

+SUV, vans

Potential Fleet Hybrids Replace 50%

1 Hybrids
Ford C-Max Hybrid

1 Compact Cars
Ford Focus



+SUV, vans

Potential Fleet EVs Replace 50%

1 EV
Ford Focus Electric

1 Compact Cars
Ford Focus

+SUV, vans

	<p>0.09 MT CO₂e</p>	<p>0.34 MT CO₂e</p>
	<p>0.11 acres of U.S. forests in one year</p> <p>Page 68 of 157</p>	<p>372 lbs of coal</p>

PARKS AND RECREATION DEPARTMENT

Current Fleet
93 vehicles

1 Hybrid
Ford C-Max Hybrid

5 Compact Cars
Ford Focus

+trucks, busses, vans...

Potential Fleet Hybrids Replace 20%

2 Hybrids
Ford C-Max Hybrid

4 Compact Cars
Ford Focus

+trucks, busses, vans...



Potential Fleet EVs Replace 20%

1 EV
Ford Focus Electric

1 Hybrid
Ford C-Max Hybrid

4 Compact Cars
Ford Focus

+trucks, busses, vans...



	<p>0.31 MT CO₂e</p>	<p>1.18 MT CO₂e</p>
	<p>0.37 acres of U.S. forests in one year</p> <p>Page 69 of 157</p>	<p>1,291 lbs of coal</p>

PLANNING DEPARTMENT

Current Fleet
4 vehicles
4 Compact Cars
Ford Focus

Potential Fleet
Hybrids Replace 25%
1 Hybrid
Ford C-Max Hybrid
3 Compact Cars
Ford Focus

Potential Fleet
EVs Replace 25%
1 EV
Ford Focus Electric
3 Compact Cars
Ford Focus

	0.14 MT CO ₂ e	0.52 MT CO ₂ e
	0.17 acres of U.S. forests in one year Page 70 of 157	569 lbs of coal

PROPERTY MANAGEMENT DEPARTMENT

Current Fleet
47 vehicles

2 Hybrids
Ford C-Max Hybrid

3 Compact Cars
Ford Focus

+trucks, vans, SUV...

Potential Fleet Hybrids Replace 33%

3 Hybrids
Ford C-Max Hybrid

2 Compact Cars
Ford Focus

+trucks, vans, SUV...



Potential Fleet EVs Replace 33%

1 EV
Ford Focus Electric

2 Hybrids
Ford C-Max Hybrid

2 Compact Cars
Ford Focus

+trucks, vans, SUV...

	<p>0.14 MT CO₂e</p>	<p>0.59 MT CO₂e</p>
	<p>0.17 acres of U.S. forests in one year</p> <p>Page 71 of 157</p>	<p>646 lbs of coal</p>

PUBLIC WORKS DEPARTMENT

Current Fleet
237 vehicles

15 Compact Cars
Ford Focus

+trucks, SUVs...

Potential Fleet Hybrids Replace 20%

3 Hybrids
Ford C-Max Hybrid

12 Compact Cars
Ford Focus



+trucks, SUVs...

Potential Fleet EVs Replace 20%

3 EVs
Ford Focus Electric

12 Compact Cars
Ford Focus

+trucks, SUVs...

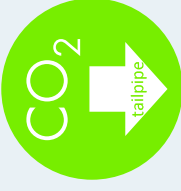

	<p>1.44 MT CO₂e</p>	<p>5.64 MT CO₂e</p>
	<p>1.7 acres of U.S. forests in one year</p> <p>Page 72 of 157</p>	<p>6,171 lbs of coal</p>

PARKING DEPARTMENT

<p>Current Fleet 87 vehicles</p> <p>1 EV Ford Focus Electric</p> <p>1 Hybrid Ford C-Max Hybrid</p> <p>14 Compact Cars Ford Focus</p> <p>+SUVs, trucks, vans...</p>

<p>Potential Fleet Hybrids Replace 20%</p> <p>1 EV Ford Focus Electric</p> <p>4 Hybrids Ford C-Max Hybrid</p> <p>11 Compact Cars Ford Focus</p> <p>+SUVs, trucks, vans...</p>
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<p>Potential Fleet EVs Replace 20%</p> <p>4 EVs Ford Focus Electric</p> <p>1 Hybrid Ford C-Max Hybrid</p> <p>11 Compact Cars Ford Focus</p> <p>+SUVs, trucks, vans...</p>
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	1.72 MT CO ₂ e	8.00 MT CO ₂ e
	2 acres of U.S. forests in one year	8,753 lbs of coal



VEHICLE UTILIZATION STUDY



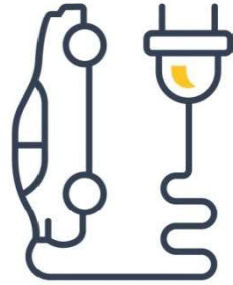
The City has commissioned a comprehensive vehicle utilization and rightsizing study by the Matrix Consulting Group. The goal of this study is to identify the optimal size of our fleet.

INCENTIVES FOR EMPLOYEES

 Many employees are interested in commuting to work through more environmentally conscious means.


 More efficient modes of transportation include:


- ◇ Biking
- ◇ Carpooling
- ◇ Public Transit
- ◇ Hybrid vehicles
- ◇ EVs



RECOMMENDATIONS

 During the vehicle replacement process for Ford Focus vehicles, it is recommended that hybrid vehicles and EVs are considered as options, when suitable and when funding is available.

 It is recommended that a fleet-wide analysis be performed every 5 years to determine if any new opportunities are present to utilize current vehicles more efficiently. This analysis should consider the number and types of vehicles that are projected to be replaced.

 Further analysis is needed to identify a suitable scenario for transition to low-/no-emissions vehicles and policy direction. This analysis would require examination of: financial strategy/platform used to replace vehicles, funding availability, and lifecycle of current compact vehicles and their projected replacement timeline.

RECOMMENDATIONS



It is recommended that departments are provided the option of opening a Uber/Lyft business account.



It is recommended that employees are trained to participate in a bicycle program



It is recommended that the City implement an incentive program for employees that commute to work using more environmentally conscious modes of transportation.

GLOSSARY

Automatic Vehicle Location (AVL): a system that transmits vehicles' location and can gather additional data about the vehicles.

Electric Vehicle (EV): a type of vehicle that use electricity stored in a battery pack as power instead of gasoline or diesel. EVs do not emit any tailpipe emissions.

Greenhouse Gas (GHG): gases that trap heat in the atmosphere.

Hybrid: a type of vehicle that is powered by both an internal combustion engine and one or more electric motors that use electricity stored in a battery pack.

Internal Combustion Engine (ICE) vehicle: a type of vehicle powered by the burning of a fossil fuel in the engine which converts the chemical energy into mechanical energy.