Freeport Streetlight Analysis

Prepared for the Town of Freeport and Freeport Sustainability Advisory Board
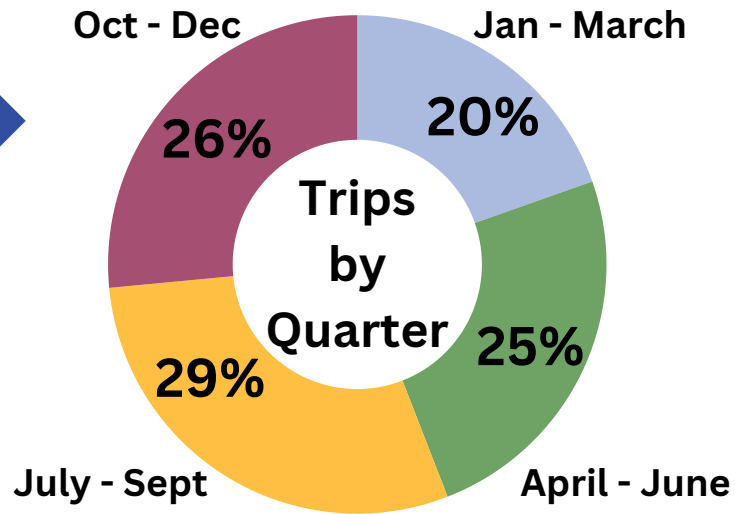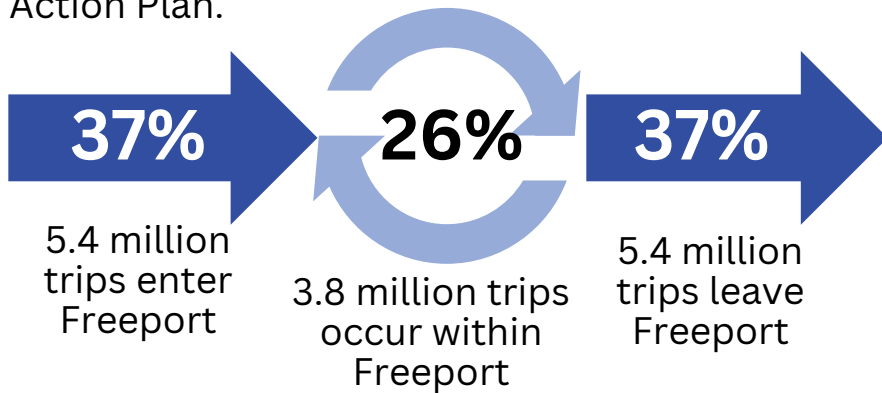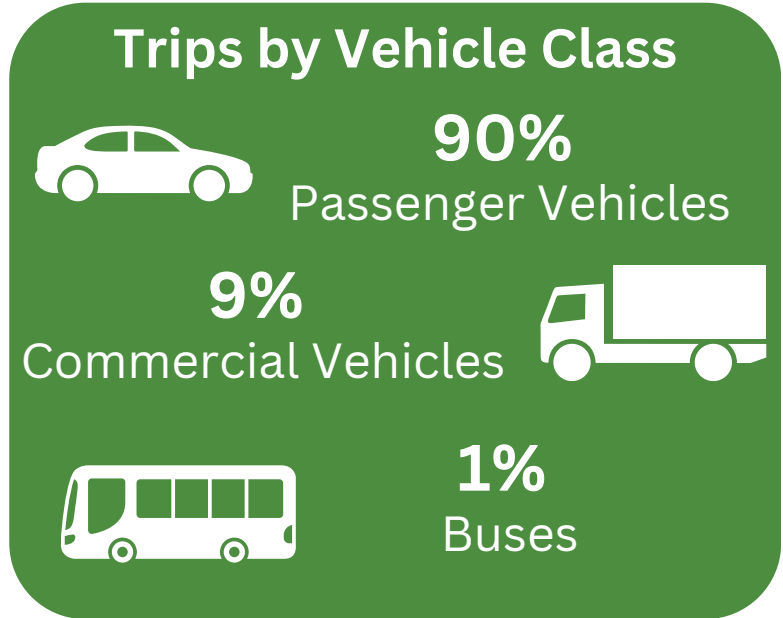
December 1, 2023

Prepared by:

GPCOG
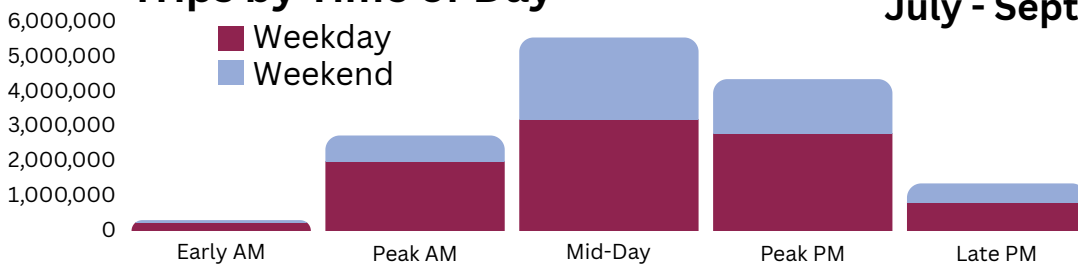
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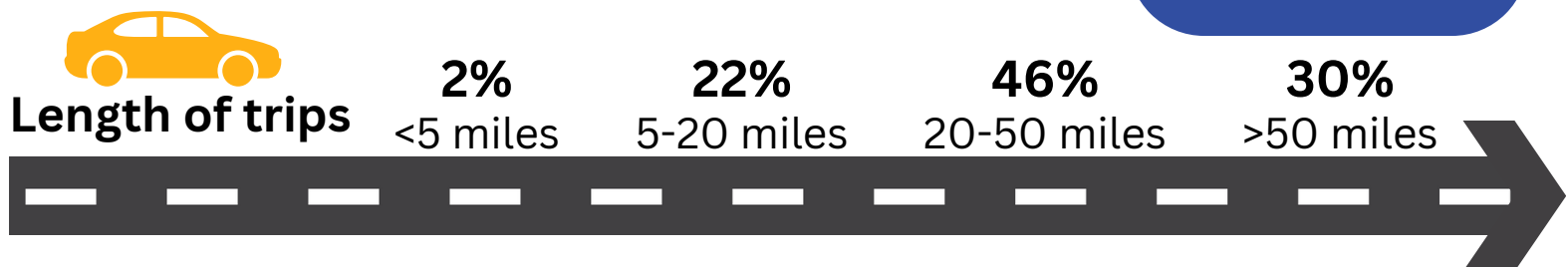COUNCIL OF GOVERNMENTS

Freeport Traffic Analysis

The Town of Freeport and Freeport Sustainability Advisory Board requested additional traffic analysis to supplement their 2019 Greenhouse Gas Inventory to better understand the traffic patterns and volumes coming into, leaving, or taking place within the boundary of the town. Using StreetLight Data, a transportation analytics modeling software, the analysis looked at traffic movements from 2019 to supplement the 2019 Greenhouse Gas Inventory completed as part of the Climate Action Plan.

Trips by Vehicle Class

90% Passenger Vehicles

9% Commercial Vehicles

1% Buses

37%
5.4 million trips enter Freeport

26%
3.8 million trips occur within Freeport

37%
5.4 million trips leave Freeport

Trips by Quarter

- Oct - Dec **26%**
- Jan - March **20%**
- April - June **25%**
- July - Sept **29%**

Trips by Time of Day

- Weekday
- Weekend

	Early AM	Peak AM	Mid-Day	Peak PM	Late PM

Y-axis: 0 to 6,000,000

22% of people employed in Freeport commute 25 miles or more

Length of trips

- **2%** <5 miles
- **22%** 5-20 miles
- **46%** 20-50 miles
- **30%** >50 miles

To provide a comparison of changes over time, traffic patterns for 2022 were also analyzed. However, since results were similar across all metrics for both years, the 2019 results are presented here as it aligns with the GHG inventory year.

Contents

Introduction

The Town of Freeport and Freeport Sustainability Advisory Board (FSAB) requested additional traffic analysis to supplement their 2019 Greenhouse Gas Inventory. This would allow the town to better understand the traffic patterns and volumes coming into, leaving, or taking place within the boundary of the town. To conduct this analysis, the Greater Portland Council of Governments (GPCOG) used StreetLight Data, a transportation analytics modeling software. This proprietary data software uses a range of metrics to collect and analyze traffic movements which allows us to assess movements into, out of, or within town boundaries. To read more about the methodology and data used, visit the Streetlight website.

The following pages present the results of the analysis based on monthly data for each of the years and provides a high-level summary of Freeport's traffic patterns as modeled by Streetlight. As with any modeling software, it is important to note that this is a model with several assumptions and estimations built in.

Years analyzed: For this report, GPCOG looked at two years: 2019 and 2022. These years were chosen because 2019 aligns with the Greenhouse Gas Inventory completed for the town, and 2022 is the most recent complete year available to assess current travel patterns.

2019 and 2022 Streetlight Methodology Differences: Streetlight used two different data collection methodologies between 2019 and 2022. In 2019, Streetlight used location-based services, primarily in the form of smart phones, to track trips and specifically vehicle miles traveled (VMT), and the resulting emissions. However, in 2022, the software began to use connected vehicle data rather than location-based services. Connected vehicle data are those cars that have internet connectivity and onboard sensors. In addition, to aid in the calculation of VMT, and therefore emission, Streetlight relies on the vehicle type by year provided by the Federal Highway Administration (FHWA)[1]. Unfortunately, FHWA has not yet released their 2022 data, so 2021 VMT calculations use 2021 FHWA vehicle type data. Due to these differences, comparing 2019 to 2022 should be done with caution. It is anticipated that Streetlight will continue to use connected vehicle data in the future.

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[1] https://www.fhwa.dot.gov/policyinformation/statistics/2021/vm1.cfm

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Summary of Results

- There is a higher number of trips within, coming into, and leaving Freeport in the summer than in the winter.
- Although the total number of trips increases in the summer, the distribution of intratown, incoming, and outgoing trips to Freeport remains relatively consistent throughout the year without a large seasonal variation. Showing that the drivers of vehicle miles traveled are varied and balanced across sectors.
- Passenger vehicles make up the largest portion of trips in Freeport.
- While commercial vehicles represent approximately 10% of Freeport's traffic volumes, they make up approximately 27% of Freeport's emissions.
- Commuting plays a large factor in Freeport's traffic, with a number of residents commuting to jobs outside of Freeport and a large number of Freeport's workforce commuting in from neighboring communities.
- It is not possible to draw conclusions about the type of trips within Freeport and to which sector they can be contributed.
- Comparing 2022 and 2019 results should be done with caution due to differences in Streetlight's methodology between the years. Overall, 2019 and 2022 showed very similar travel patterns. However, 2022 had a higher number of trips but lower VMT. This is due to lower passenger vehicle VMT. Conversely, commercial vehicle VMT increased in 2022 compared to 2019. In 2022, Freeport also say an increase in the proportion of trips that occurred entirely within town boundaries.

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Monthly Analysis

As anticipated, there are higher traffic volumes in the summer compared to the winter. August had the highest number of trips while February had the least number of trips. This seasonal variation is consistent with regional and national trends due to increased travel for residents and non-residents and larger summer employment. 2022 shows a higher number of trips but lower VMT.

The reduction in VMT could be due to differences in vehicle emissions, but also largely due to changes in Streetlight's collection methodology (see introduction); therefore, it is not an equal comparison of numbers. However, the distribution of trips and VMT across both years were similar.

Table 1: Total trips and total VMT for 2019 (left) and 2022 (right) broken down by month. Analysis shows more trips in July and August than January and February in both. 2022 shows a higher number of trips but lower VMT. The reduction in VMT could be due to differences in vehicle emissions, but also largely due to changes in Streetlight's collection methodology (see introduction).

2019				
Month	Total Trips		Total VMT	
	# of Trips	% of Trips	# of VMT	% of VMT
January	984,157	6.7%	8,589,725	6.1%
February	858,480	5.9%	7,441,179	5.3%
March	1,028,766	7.0%	9,315,342	6.7%
April	1,034,130	7.0%	9,490,464	6.8%
May	1,247,564	8.5%	11,356,582	8.1%
June	1,313,880	9.0%	11,866,088	8.5%
July	1,484,125	10.1%	15,506,589	11.1%
August	1,507,437	10.3%	16,490,090	11.8%
September	1,318,830	9.0%	12,716,853	9.1%
October	1,340,471	9.1%	12,930,855	9.3%
November	1,244,220	8.5%	11,771,916	8.4%
December	1,308,758	8.9%	12,298,906	8.8%
Total	14,670,818	-	139,774,589	-

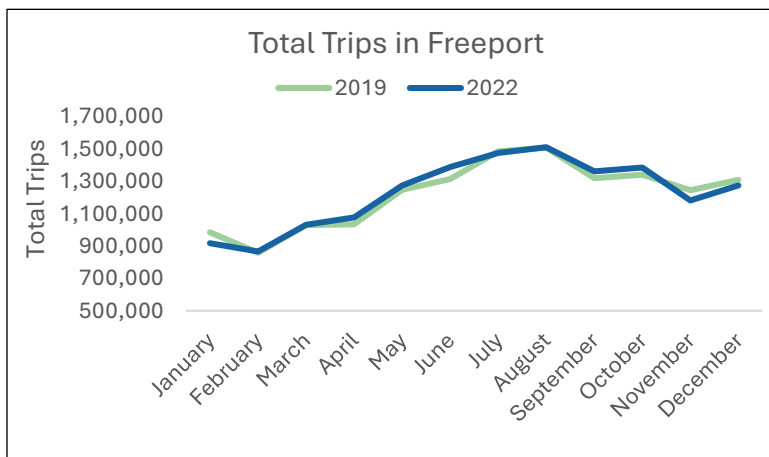| 2022				
Month	Total Trips		Total VMT	
	# of Trips	% of Trips	# of VMT	% of VMT
January	917,290	6.2%	7,147,270	5.6%
February	866,040	5.9%	6,931,196	5.5%
March	1,031,184	7.0%	8,125,970	6.4%
April	1,076,310	7.3%	8,782,403	6.9%
May	1,274,162	8.6%	10,437,351	8.2%
June	1,387,860	9.4%	11,877,438	9.4%
July	1,474,701	10.0%	13,777,104	10.9%
August	1,510,289	10.2%	13,893,709	10.9%
September	1,360,740	9.2%	12,162,965	9.6%
October	1,384,677	9.4%	12,842,734	10.1%
November	1,181,130	8.0%	10,007,136	7.9%
December	1,274,534	8.6%	10,938,397	8.6%
Total	14,738,917	-	126,923,671	-

Figure 1: Total trips in Freeport for 2019 (green) and 2022 (blue). Analysis shows that more trips are taken during the summer than the winter.
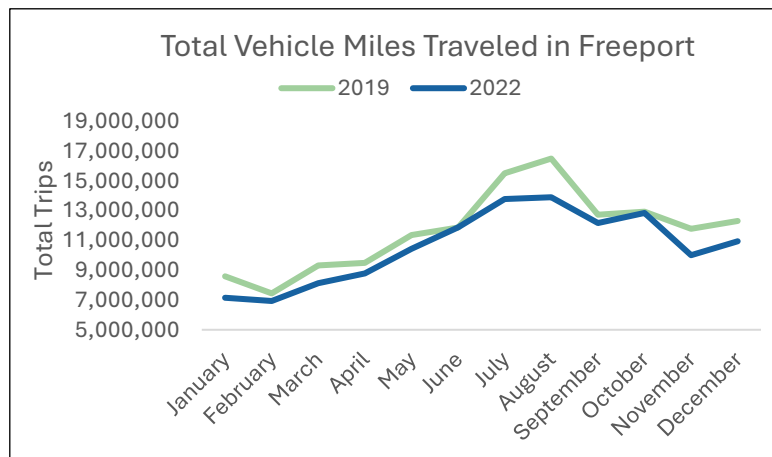

Figure 2: Vehicle Miles Traveled (VMT) in Freeport for 2019 (green) and 2022 (blue). Analysis shows that VMT is higher during the summer months. This corresponds with the higher number of trips taken at this same time.

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Significantly more trips were taken during the highest two traveled months (July/August) compared to the two lowest traveled months (January/February) for both 2019 and 2022. The total trip difference and percentage difference is very similar when comparing 2019 to 2022.

When looking at the trip analysis by quarter, rather than month, Q3 (July-September) accounted for almost 30% of total yearly trips while Q1 (January - March) accounted for only 20% of total trips. The seasonal patterns are reflective of traditional travel patterns with more residents and non-residents traveling during the summer months, and increased employment rates within the town.

Table 2: Comparison of total trips between the lowest two months (January and February) and the highest two months (July and August) for 2019 (left) and 2022 (right). Analysis shows more trips are taken during the summer.

2019	January/February	July/August
Total Trips	1,842,637	2,991,562
Percent of yearly trips	12.6%	20.4%
Difference	1,148,925 less trips in Jan/Feb compared to July/August	

2022	January/February	July/August
Total Trips	1,783,330	2,984,900
Percent of yearly trips	12.1%	20.3%
Difference	1,201,660 less trips in Jan/Feb compared to July/August	

Table 3: Comparison of total trips by quarter for 2019 (left) and 2022 (right). Analysis shows more trips are taken during Q3 (July thru September) compared to Q1 (January – March). This is reflective of season travel patterns.

2019		
Quarter	# of Trips	% of Trips
Q1 (Jan - March)	2,871,403	19.6%
Q2 (April - June)	3,595,574	24.5%
Q3 (July - Sept)	4,310,392	29.4%
Q4 (Oct - Dec)	3,893,449	26.5%
Total Trips	14,670,818	

2022		
Quarter	# of Trips	% of Trips
Q1 (Jan - March)	2,814,514	19.6%
Q2 (April - June)	3,738,332	24.5%
Q3 (July - Sept)	4,345,730	29.4%
Q4 (Oct - Dec)	3,840,341	26.5%
Total Trips	14,738,917	

2019 Percentage of Trips by Quarter
Total Trips: 14,451,091

- Q1 (Jan - March): 19.6%
- Q2 (April - June): 24.5%
- Q3 (July - Sept): 29.4%
- Q4 (Oct - Dec): 26.5%

2022 Percentage of Trips by Quarter
Total Trips: 14,738,917

- Q1 (Jan - March): 19.1%
- Q2 (April - June): 25.4%
- Q3 (July - Sept): 29.5%
- Q4 (Oct - Dec): 26.1%

Figure 3: Percentage of trips in Freeport broken down by quarter for 2019. Q3 made up the largest proportion of trips while Q1 was the lowest proportion of trips. This is consistent with seasonal travel patterns.
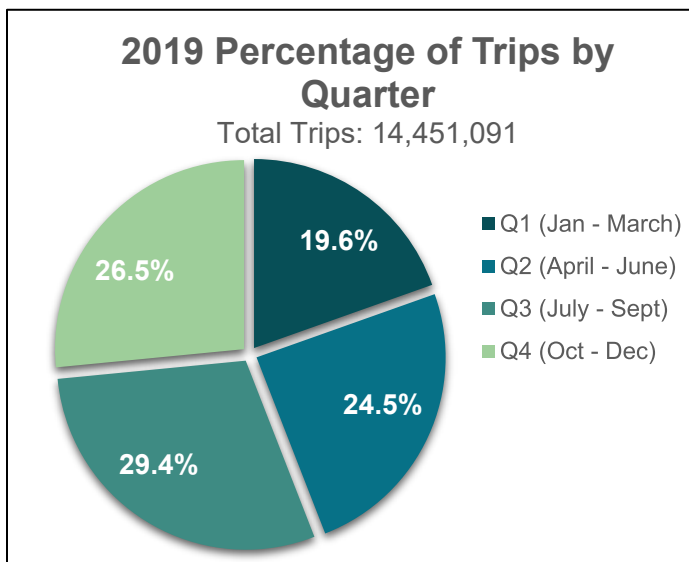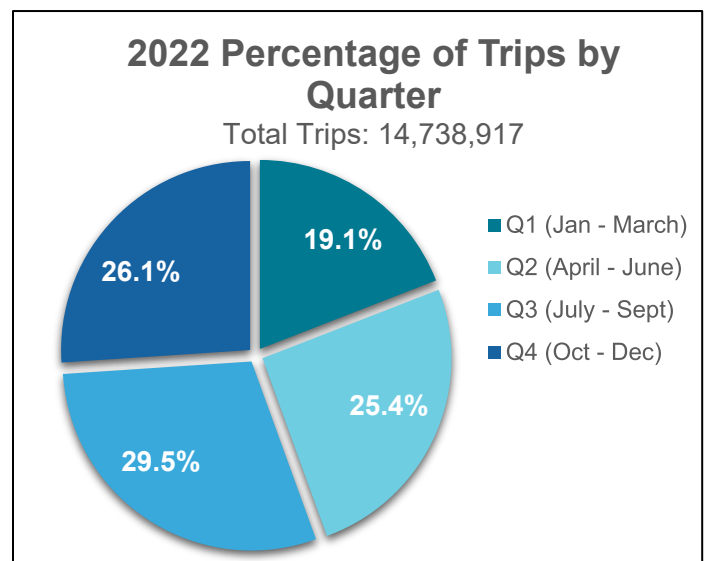
Figure 4: Percentage of trips in Freeport broken down by quarter for 2022. Q3 made up the largest proportion of trips while Q1 was the lowest proportion of trips. This is consistent with seasonal travel patterns.

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Vehicle Class

Passenger vehicles account for approximately 90% of Vehicle Miles Traveled (VMT) in Freeport for both 2019 and 2022, with light duty vehicles making up the largest proportion. The difference in overall VMT reduction from 2019 to 2022 is due to passenger vehicles. Between 2019 and 2022, bus traveled decreased slightly while there was a modest increase in commercial vehicle VMT. However, as mentioned earlier, caution should be taken when directly comparing total VMT between the two years due to Streetlight methodology differences. One thing to note is that the proportion of VMT between all the classes remained similar between both years.

While the tables below breakdown vehicle type by month, the analysis is only representative of yearly changes in vehicle type. Streetlight modeling uses yearly vehicle registration to estimate vehicle types. Since registration is updated on a yearly basis, Streetlight will estimate the same percentage of vehicle types for every month. Therefore, the breakdown in vehicle class by month will always be the same across the year rather than showing minor variations so looking at the monthly breakdown is no different than looking at the total year.

Table 4: Breakdown of VMT in Freeport in 2019 (top) and 2022 (bottom) by vehicle class. Passenger vehicles made up the largest percentage of VMT for both years followed by commercial vehicles.

2019		
Vehicle Class	VMT	% of VMT
Passenger Vehicles	**126,146,213**	**90.2%**
Motorcycle	843,677	0.6%
Light Duty Vehicle	125,302,536	89.6%
Commercial Vehicles	**12,857,890**	**9.2%**
Single Unit Trucks	5,345,659	3.8%
Combination Trucks	7,512,231	5.4%
Buses	**770,485**	**0.6%**
Total VMT	**139,774,589**	

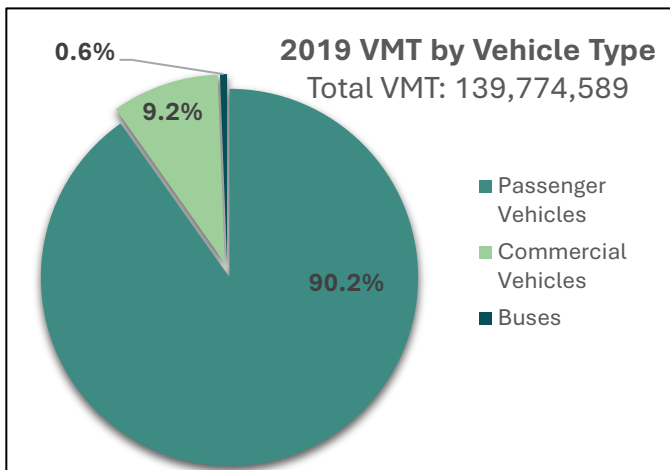| 2022		
Vehicle Class	VMT	% of VMT
Passenger Vehicles	**113,007,814**	**89.0%**
Motorcycle	797,818	0.6%
Light Duty Vehicle	112,209,996	88.4%
Commercial Vehicles	**13,237,076**	**10.4%**
Single Unit Trucks	5,330,198	4.2%
Combination Trucks	7,906,878	6.2%
Buses	**678,780**	**0.5%**
Total VMT	**126,923,671**	

Figure 5: Breakdown of VMT in Freeport in 2019 by vehicle class. Passenger vehicles made up approximately 90% of total VMT followed by commercial vehicles.
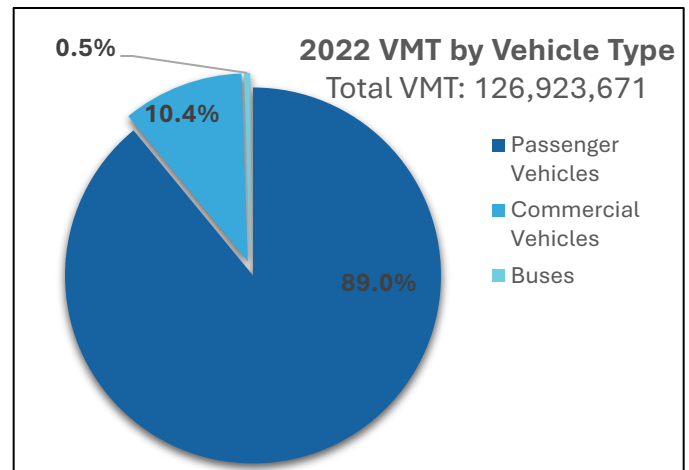

Figure 6: Breakdown of VMT in Freeport in 2022 by vehicle class. Passenger vehicles made up approximately 90% of total VMT followed by commercial vehicles.

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Table 5: Vehicle Miles Traveled (VMT) per month broken down by vehicle class for Freeport in 2019 (top) and 2022 (bottom). Passenger vehicles, and specifically light duty vehicles, make up the largest percentage of VMT, approximately 90%, in the town for both 2019 and 2022.

2019							
Month	Total VMT	Total Passenger Vehicle VMT	Motorcycle VMT	Light Duty Vehicle VMT	Total Commercial Vehicle VMT	Single Unit Trucks VMT	Combination Trucks VMT	Buses VMT
January	8,589,725	7,752,205	51,847	7,700,358	790,170	328,513	461,658	52,315
February	7,441,179	6,715,645	44,915	6,670,731	684,515	284,587	399,929	62,601
March	9,315,342	8,407,073	56,227	8,350,845	856,920	356,264	500,656	65,410
April	9,490,464	8,565,120	57,284	8,507,836	873,030	362,961	510,068	85,478
May	11,356,582	10,249,286	68,548	10,180,738	1,044,694	434,331	610,363	90,899
June	11,866,088	10,709,114	71,624	10,637,491	1,091,564	453,817	637,747	70,100
July	15,506,589	13,994,657	93,598	13,901,060	1,426,454	593,047	833,407	71,279
August	16,490,090	14,882,265	99,534	14,782,731	1,516,926	630,661	886,265	64,891
September	12,716,853	11,476,928	76,759	11,400,169	1,169,826	486,354	683,471	67,796
October	12,930,855	11,670,064	78,050	11,592,013	1,189,512	494,539	694,973	47,972
November	11,771,916	10,624,124	71,055	10,553,069	1,082,901	450,215	632,685	42,483
December	12,298,906	11,099,732	74,236	11,025,496	1,131,379	470,370	661,009	34,710
Total	139,774,589	126,146,213	843,677	125,302,536	12,857,890	5,345,659	7,512,231	755,934
Percentage		90.2%	0.6%	89.6%	9.2%	3.8%	5.4%	0.6%

2022							
Month	Total VMT	Total Passenger Vehicle VMT	Motorcycle VMT	Light Duty Vehicle VMT	Total Commercial Vehicle VMT	Single Unit Trucks VMT	Combination Trucks VMT	Buses VMT
January	7,147,270	6,363,646	44,926	6,318,720	745,400	300,152	445,249	38,223
February	6,931,196	6,171,262	43,568	6,127,694	722,866	291,078	431,788	37,068
March	8,125,970	7,235,042	51,078	7,183,963	847,471	341,253	506,218	43,457
April	8,782,403	7,819,504	55,205	7,764,299	915,931	368,820	547,111	46,968
May	10,437,351	9,293,005	65,607	9,227,397	1,088,528	438,320	650,209	55,818
June	11,877,438	10,575,201	74,659	10,500,542	1,238,717	498,797	739,921	63,520
July	13,777,104	12,266,588	86,600	12,179,988	1,436,837	578,574	858,263	73,679
August	13,893,709	12,370,408	87,333	12,283,075	1,448,998	583,471	865,527	74,303
September	12,162,965	10,829,422	76,454	10,752,968	1,268,495	510,787	757,708	65,047
October	12,842,734	11,434,662	80,727	11,353,935	1,339,390	539,335	800,055	68,682
November	10,007,136	8,909,958	62,903	8,847,055	1,043,661	420,253	623,408	53,518
December	10,938,397	9,739,115	68,757	9,670,359	1,140,783	459,361	681,422	58,498
Total	126,923,671	113,007,814	797,818	112,209,996	13,237,076	5,330,198	7,906,878	678,780
Percentage		89.0%	0.6%	88.4%	10.4%	4.2%	6.2%	0.5%

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Emissions

Like overall VMT, passenger vehicles contribute the largest portion to transportation emissions in Freeport in both 2019 and 2022. However, emissions from commercial vehicles make up **a larger percentage than their proportion of VMT** because medium and heavy-duty vehicles are less efficient and use more polluting fuel types. The percentage of commercial vehicles was higher in 2022 compared to 2019. However, this is a result of the increase in commercial VMT, and as mentioned, should be cautioned against drawing conclusions due to methodology differences between the years.

Table 1: Vehicle class definitions (Source: FHWA)

Passenger Vehicles	
Motorcycle	All two or three-wheeled motorized vehicles. Typical vehicles in this category have saddle type seats and are steered by handlebars rather than steering wheels. This category includes motorcycles, motor scooters, mopeds, motor-powered bicycles, and three-wheel motorcycles
Light Duty Vehicle	All sedans, coupes, and station wagons manufactured primarily for the purpose of carrying passengers and including those passenger cars pulling recreational or other light trailers. All two-axle, four-tire, vehicles, other than passenger cars. Included in this classification are pickups, panels, vans, and other vehicles such as campers, motor homes, ambulances, hearses, carryalls, and minibuses.
Commercial Vehicles	
Single Unit Trucks	Truck tractor units traveling without a trailer. All vehicles on a single frame including trucks, camping and recreational vehicles, motor homes, etc., with two to four axles.
Combination Trucks	All five or more axle vehicles consisting of two or more units, one of which is a tractor or straight truck power unit.
Buses	
Buses	All vehicles manufactured as traditional passenger-carrying buses with two axles and six tires or three or more axles. This category includes only traditional buses (including school buses) functioning as passenger-carrying vehicles.

Table 6: Breakdown of emissions in Freeport in 2019 (top) and 2022 (bottom) by vehicle class. Passenger vehicles made up the largest percentage of emissions for both years followed by commercial vehicles.

2019		
Vehicle Class	MT CO₂e	%
Passenger Vehicles Emissions	**48,978**	**70.6%**
Motorcycle Emissions	**165**	0.2%
Light Duty Vehicle Emissions	48,813	70.3%
Commercial Vehicles Emissions	**19,396**	**27.9%**
Single Unit Trucks Emissions	6,818	9.8%
Combination Trucks Emissions	12,579	18.1%
Buses Emissions	**1,040**	**1.5%**
Total Emissions	**69,415**	

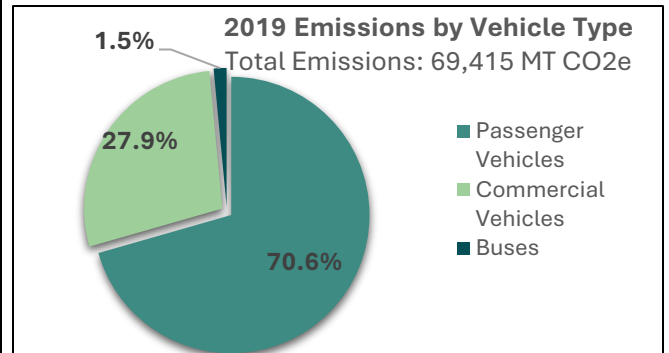| 2022		
Vehicle Class	MT CO₂e	%
Passenger Vehicles Emissions	**43,287**	**67.3%**
Motorcycle Emissions	159	0.2%
Light Duty Vehicle Emissions	43,127	67.1%
Commercial Vehicles Emissions	**20,109**	**31.3%**
Single Unit Trucks Emissions	6,851	10.7%
Combination Trucks Emissions	13,259	20.6%
Buses Emissions	**913**	**1.4%**
Total Emissions	**64,310**	

Figure 7: Percentage of emissions by vehicle class for 2019
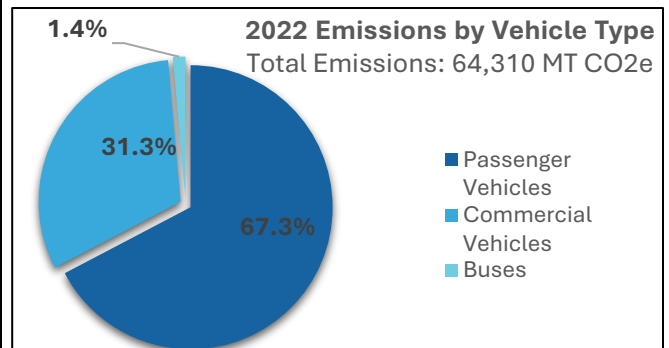
Figure 8: Percentage of emissions by vehicle class for 2022

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Table 7: Emissions (MT CO₂e) per month broken down by vehicle class for Freeport in 2019 (top) and 2022 (bottom). Passenger vehicles, and specifically light duty vehicles, make up the largest percentage of emissions, approximately 70%, in the town for both 2019 and 2022. Commercial vehicles make up a larger percentage of emissions compared to their proportion of VMT.

2019							
Month	Total emissions (MT CO2e)	Total Passenger Emissions (MT CO2e)	Motorcycle Emissions (MT CO2e)	Light Duty Vehicle Emissions (MT CO2e)	Total Commercial Emissions (MT CO2e)	Single Unit Truck Emissions (MT CO2e)	Combination Truck Emissions (MT CO2e)	Total Bus Emissions (MT CO2e)
January	4,348	3,068	10	3,058	1,215	427	788	65
February	3,767	2,658	9	2,649	1,052	370	683	56
March	4,715	3,327	11	3,316	1,318	463	854	71
April	4,804	3,390	11	3,378	1,342	472	871	72
May	5,748	4,056	14	4,042	1,606	565	1,042	86
June	6,006	4,238	14	4,224	1,678	590	1,088	90
July	7,849	5,538	19	5,520	2,193	771	1,422	118
August	8,347	5,890	20	5,870	2,332	820	1,513	125
September	6,437	4,542	15	4,527	1,799	632	1,166	96
October	6,545	4,618	16	4,603	1,829	643	1,186	98
November	5,959	4,204	14	4,190	1,665	585	1,080	89
December	6,225	4,393	15	4,378	1,740	611	1,128	93
Total	**70,751**	**49,921**	**169**	**49,753**	**19,770**	**6,949**	**12,821**	**1,060**
Percent		**70.6%**	**0.2%**	**70.3%**	**27.9%**	**9.8%**	**18.1%**	**1.5%**

2022							
Month	Total emissions (MT CO2e)	Total Passenger Emissions (MT CO2e)	Motorcycle Emissions (MT CO2e)	Light Duty Vehicle Emissions (MT CO2e)	Total Commercial Emissions (MT CO2e)	Single Unit Truck Emissions (MT CO2e)	Combination Truck Emissions (MT CO2e)	Total Bus Emissions (MT CO2e)
January	3,621	2,438	9	2,429	1,132	386	747	51
February	3,512	2,364	9	2,355	1,098	374	724	50
March	4,117	2,771	10	2,761	1,287	439	849	58
April	4,450	2,995	11	2,984	1,391	474	917	63
May	5,288	3,560	13	3,547	1,654	563	1,090	75
June	6,018	4,051	15	4,036	1,882	641	1,241	85
July	6,981	4,699	17	4,681	2,183	744	1,439	99
August	7,040	4,738	17	4,721	2,201	750	1,451	100
September	6,163	4,148	15	4,133	1,927	657	1,271	88
October	6,507	4,380	16	4,364	2,035	693	1,342	92
November	5,070	3,413	13	3,400	1,586	540	1,045	72
December	5,542	3,730	14	3,717	1,733	590	1,143	79
Total	**64,310**	**43,287**	**159**	**43,127**	**20,109**	**6,851**	**13,259**	**913**
Percent		**67.3%**	**0.2%**	**67.1%**	**31.3%**	**10.7%**	**20.6%**	**1.4%**

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Difference in emission analysis between 2019 GHG Inventory and 2019 Streetlight Analysis:

The 2019 GHG Greenhouse Gas Inventory presented total transportation emissions of 76,619 MT CO_2e. However, the percentage breakdown between passenger vehicles, commercial vehicles, buses were similar. There is a roughly 10% difference between the emissions in this analysis and the figures presented in the Freeport GHG Inventory for several reasons:

1. The 2019 Greenhouse Gas Inventory follows best practice in the SMPDC methodology to assess the complete transportation emissions. This methodology uses Cumberland County vehicle registration as a proxy for the town. However, since this analysis was looking at monthly breakdown and specific trip analysis, we used Freeport specific registrations. This resulted in a higher percentage of passenger vehicles and a lower percentage of commercial vehicles. See more information below.
2. Conducting the analysis at the monthly scale presents greater "noise" or estimation in the modeling. The emissions, VMT, and trips are calculated as the sum of the monthly totals and the finer the scale of analysis, the greater the estimation. While this report provides insight into the traffic patterns across Freeport, we recommend relying on the 2019 GHG Inventory for emissions analysis.
3. Although very minor, the baseline inventory also includes marine vessels.

Commercial vehicles:

Freeport has a lower percentage of registered commercial vehicles than Cumberland County. Specifically, in Cumberland County combination trucks – trucks with one or more attached trailers— account for 0.93% of vehicles but in Freeport they account for only 0.51%. This suggests that many of the businesses in Freeport use commercial vehicles that are registered outside of Freeport, and potentially Cumberland County. However, these trips are still accounted for in terms of total trips for Freeport.

Origin-Destination

The analysis found that trips which occur entirely within Freeport make up a lower percentage than trips that only start or end in Freeport. In 2022, the percentage of internal trips increased compared to 2019. Streetlight is unable, however, to specify the intent of the trips. That means there is no way to confirm whether those coming to or from Freeport are residents, visitors, employees, town staff, or others who may be coming/leaving for any given reason. Interestingly, the distribution of trips by origin remains relatively consistent across the year for both 2019 and 2022, meaning that the proportion of trips taken within Freeport is the same in the winter and summer. Despite the increase in overall trips in the summer, there is not a significant increase in the proportion of trips to/from Freeport during that time.
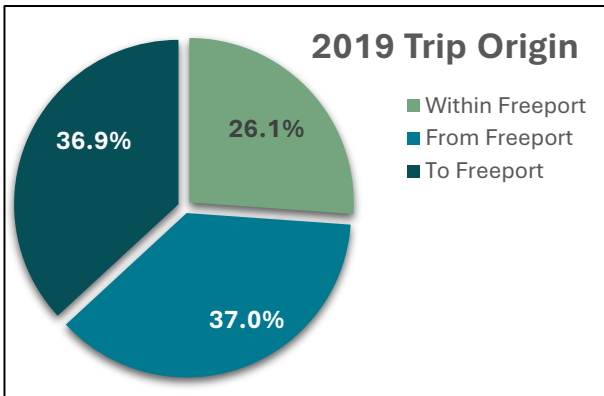
Table 8: Breakdown of trips in Freeport in 2019 (top) and 2022 (bottom) by origin and destination. Trips within Freeport start and end within the town boundaries while trips from Freeport start in the town but end outside of the town, and vice versa for trips coming to Freeport.

2019				
Month	**Total Trips**	**Within Freeport**	**From Freeport**	**To Freeport**
January	984,157	238,266	374,201	371,690
February	858,480	246,792	306,572	305,116
March	1,028,766	257,424	386,539	384,803
April	1,034,130	261,090	386,100	386,940
May	1,247,564	326,678	458,583	462,303
June	1,313,880	368,850	473,130	471,900
July	1,484,125	395,281	546,592	542,252
August	1,507,437	374,294	568,230	564,913
September	1,318,830	362,880	481,320	474,630
October	1,340,471	352,997	493,861	493,613
November	1,244,220	319,860	462,840	461,520
December	1,308,758	327,794	492,187	488,777
Totals	**14,670,818**	**3,832,206**	**5,430,155**	**5,408,457**

2022				
Month	**Total Trips**	**Within Freeport**	**From Freeport**	**To Freeport**
January	917,290	264,492	327,546	325,252
February	866,040	245,784	309,540	310,716
March	1,031,184	292,640	369,241	369,303
April	1,076,310	304,080	387,660	384,570
May	1,274,162	361,522	456,506	456,134
June	1,387,860	404,010	492,870	490,980
July	1,474,701	419,461	527,248	527,992
August	1,510,289	448,632	531,464	530,193
September	1,360,740	400,440	479,700	480,600
October	1,384,677	366,730	510,322	507,625
November	1,181,130	322,800	429,840	428,490
December	1,274,534	337,218	469,123	468,193
Totals	**14,738,917**	**4,167,809**	**5,291,060**	**5,280,048**

2019 Trip Origin

- Within Freeport
- From Freeport
- To Freeport

36.9% / 26.1% / 37.0%

Figure9: Percentage of trips based on origin and destination for 2019.

2022 Trip Origin

- Within Freeport
- From Freeport
- To Freeport

35.8% / 28.3% / 35.9%
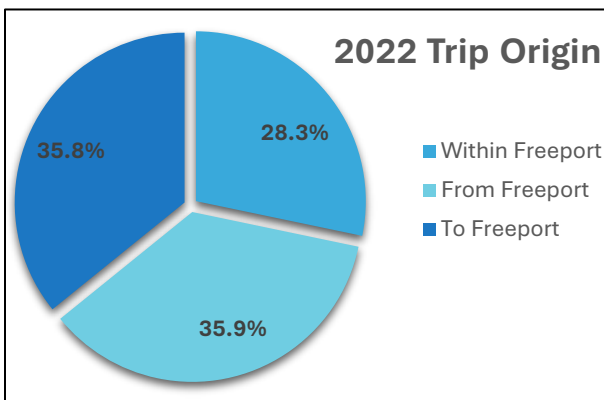
Figure10: Percentage of trips based on origin and destination for 2022.

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Trip Length

Trip length across the year remained relatively consistent with the largest percentage of trips lasting between 20 and 50 miles. It is important to note that this analysis cannot distinguish whether these trips were internal or external to Freeport. For example, if someone was traveling from Shaw's on Lower Main Street to Wolfe's Neck Park, that trip takes 6 miles. Similarly, if someone was traveling from LL Bean to Bradbury State Park in Pownal, that trip also takes 6 miles. One trip takes place entirely within Freeport while the other leaves the town boundary; however, both trips would be counted under the "Trips between 5 and 20 miles."
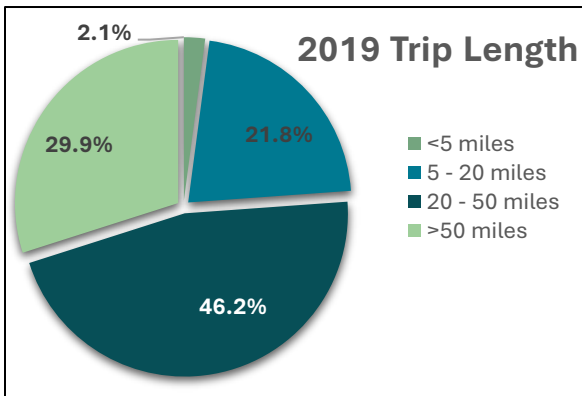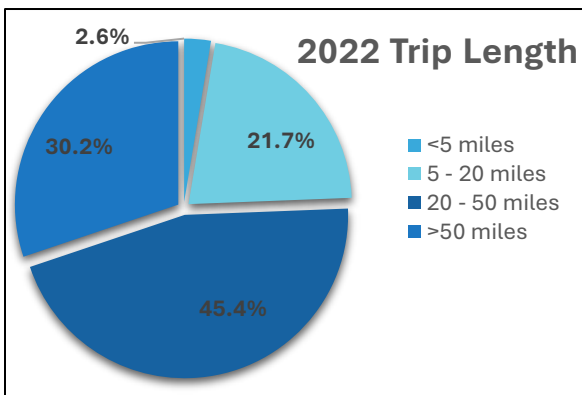
Table 8: Percentage of trips by length of trip for 2019 (top) and 2022 (bottom). Most trips within the analysis were between 20 and 50 miles.

Month	2019			
	% of Trips less than 5 miles	% of Trips between 5 and 20 miles	% of Trips between 20 and 50 miles	% of Trips greater than 50 miles
April	1.9%	21.9%	44.9%	31.3%
May	19.1%	28.3%	28.1%	24.5%
June	1.9%	23.4%	42.5%	32.2%
July	2.1%	22.1%	44.7%	31.0%
August	1.9%	21.2%	45.8%	31.0%
September	2.5%	28.1%	39.9%	29.4%
October	2.1%	20.2%	46.2%	31.5%
November	2.1%	19.7%	48.0%	30.2%
December	2.0%	20.2%	48.7%	29.1%
January	2.0%	21.6%	47.9%	28.5%
February	2.1%	21.6%	47.2%	29.2%
March	2.1%	21.2%	47.4%	29.4%
Totals	**2.1%**	**21.8%**	**46.2%**	**29.9%**

Month	2022			
	% of Trips less than 5 miles	% of Trips between 5 and 20 miles	% of Trips between 20 and 50 miles	% of Trips greater than 50 miles
April	2.3%	22.0%	43.9%	31.8%
May	2.4%	22.1%	43.6%	31.9%
June	2.5%	22.6%	43.9%	31.0%
July	2.6%	22.2%	44.0%	31.2%
August	2.5%	22.6%	43.5%	31.4%
September	2.6%	21.6%	45.9%	29.9%
October	2.5%	21.2%	47.3%	29.0%
November	2.6%	21.6%	46.1%	29.7%
December	2.8%	21.5%	45.1%	30.6%
January	2.6%	21.3%	45.6%	30.4%
February	2.8%	22.0%	45.7%	29.6%
March	2.7%	21.6%	45.9%	29.8%
Totals	**2.6%**	**21.7%**	**45.4%**	**30.2%**

Figure11: Percentage of trips by length of trip in 2019.

Figure12: Percentage of trips by length of trip in 2022.

Table 9: Approximate location someone could reach if they started on Route 1 in downtown Freeport and drove straight along I-295 either north or south. This attempts to approximate the furthest someone may drive from within a category. However, as mentioned earlier someone could also drive for multiple miles all within the Town of Freeport.

Distance	North	South
5 miles	**Exit 28 – Brunswick**	**Exit 17 - Yarmouth**
20 miles	**Exit 43 – Richmond**	**Exit 3 – Portland (Jetport)**
50 miles	**I-95 - Waterville**	**I-95 – Wells**

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Employment

There are many reasons people come and go to Freeport. Visitors from around the region, and from out of state come to Freeport as an economic center and tourist destination. Freeport residents also commute in and out of town for jobs around the region. Similarly, many employees who work in Freeport do not live in town and must commute in. To supplement the traffic analysis, GPCOG looked at employee commuting. We used OnTheMap produced by the U.S. Census Bureau. The most recent data available was 2020, however, to align best with the Streetlight analysis we looked at 2019 data for the information below.

Most residents who commute out of Freeport and employees who come into Freeport commute between 10 to 24 miles. However, overall employees who work in Freeport commute further and from a greater variety of locations than Freeport residents who commute out.

Table 10: Commuting length for residents who live in Freeport and those who are employed in Freeport.

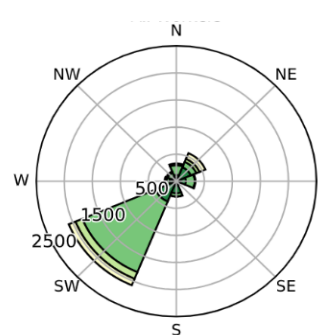| Commute Distance	Home – Freeport residents		Work – Employed in Freeport	
	#	%	#	%
<10 miles	1,461	36.0%	2,102	29.7%
10 to 24 miles	2,055	50.6%	3,412	48.2%
25 to 50 miles	240	5.9%	908	12.8%
>50 miles	307	7.6%	654	9.2%
Total Jobs	4,063		7,076	

Distance/Direction for commute of employees who work in Freeport in 2019
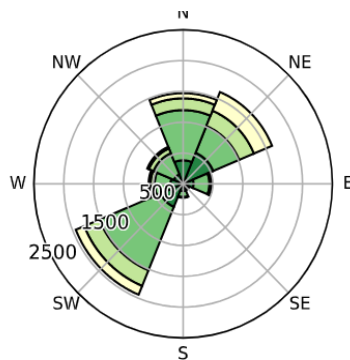
Top locations where people live who are employed in Freeport:

1. Portland
2. Brunswick
3. Lewiston
4. Auburn
5. South Portland

Figure13: Distance and direction for commute of employees who work in Freeport. The largest percentage of employees commute from the Portland.

Distance/Direction for commute of Freeport residents in 2019

Top locations where people who live in Freeport are employed:

1. Portland
2. Freeport
3. Brunswick
4. South Portland
5. Lewiston

Figure14: Distance and direction for commute of residents of Freeport. The largest percentage of Freeport residents who commute outside of town go to work in Portland.

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Trip Time

Streetlight can breakdown trips by the time of day. As part of this analysis, weekdays are specified as Monday – Thursday and weekends are classified as Saturday and Sunday. Weekends have a lower percentage of trips occurring in the early and peak AM and a higher percentage of mid-day trips. This is unsurprising given commuting patterns during the week. There is not a significant difference in trip time by intertown, ingoing, or outgoing trips. When looking at the time of trips by month, June – August had a higher percentage of late PM trips while January – March had a higher percentage of early AM trips. Weekends have a higher percentage of trips occurring mid-day.

Table 11: Trips in Freeport based on time of day, trip origin-destination, and weekend or weekday for 2019 (top) and 2022 (bottom).

2019 Trips	0: All Day (12am-12am)	1: Early AM (12am-6am)		2: Peak AM (6am-10am)		3: Mid-Day (10am-3pm)		4: Peak PM (3pm-7pm)		5: Late PM (7pm-12am)	
All Trips, All Days	14,670,818	323,938	2.2%	2,833,024	19.3%	5,553,356	37.9%	4,466,685	30.4%	1,437,763	9.8%
Intratown Trips, All Days	3,832,206	57,718	1.5%	778,630	20.3%	1,480,607	38.6%	1,132,154	29.5%	382,603	10.0%
Outgoing Trips, All Days	5,430,155	86,159	1.6%	842,012	15.5%	1,999,431	36.8%	1,847,303	34.0%	627,710	11.6%
Incoming Trips, All Days	5,408,457	180,061	3.3%	1,212,382	22.4%	2,073,318	38.3%	1,487,228	27.5%	427,450	7.9%
All Trips, Weekdays	9,110,719	235,519	2.6%	1,991,519	21.9%	3,219,278	35.3%	2,812,193	30.9%	822,749	9.0%
Intratown Trips, Weekdays	2,473,431	39,486	1.6%	548,878	22.2%	932,173	37.7%	730,610	29.5%	222,208	9.0%
Outgoing Trips, Weekdays	3,325,331	58,213	1.8%	592,781	17.8%	1,157,530	34.8%	1,160,046	34.9%	341,756	10.3%
Incoming Trips, Weekdays	3,311,958	137,820	4.2%	849,860	25.7%	1,129,575	34.1%	921,538	27.8%	258,785	7.8%
All Trips, Weekends	5,293,857	75,225	1.4%	754,634	14.3%	2,347,474	44.3%	1,556,329	29.4%	544,259	10.3%
Intratown Trips, Weekends	1,277,316	201,823	15.8%	541,564	42.4%	541,564	42.4%	376,884	29.5%	139,804	10.9%
Outgoing Trips, Weekends	2,015,749	24,620	1.2%	222,926	11.1%	844,469	41.9%	663,885	32.9%	252,140	12.5%
Incoming Trips, Weekends	2,000,792	33,528	1.7%	329,885	16.5%	961,441	48.1%	515,560	25.8%	152,316	7.6%
2022 Trips	**0: All Day (12am-12am)**	**1: Early AM (12am-6am)**		**2: Peak AM (6am-10am)**		**3: Mid-Day (10am-3pm)**		**4: Peak PM (3pm-7pm)**		**5: Late PM (7pm-12am)**	
All Trips, All Days	14,738,917	328,440	2.2%	2,939,986	19.9%	6,013,551	40.8%	4,377,578	29.7%	1,021,585	6.9%
Intratown Trips, All Days	4,167,809	49,651	1.2%	767,378	18.4%	1,722,153	41.3%	1,306,901	31.4%	321,936	7.7%
Outgoing Trips, All Days	5,291,060	105,780	2.0%	1,012,360	19.1%	2,083,185	39.4%	1,672,831	31.6%	387,812	7.3%
Incoming Trips, All Days	5,280,048	173,009	3.3%	1,160,248	22.0%	2,208,213	41.8%	1,397,846	26.5%	311,837	5.9%
All Trips, Weekdays	9,894,786	263,579	2.7%	2,154,095	21.8%	3,781,643	38.2%	3,026,144	30.6%	638,104	6.4%
Intratown Trips, Weekdays	2,827,550	35,777	1.3%	547,892	19.4%	1,121,901	39.7%	912,073	32.3%	210,333	7.4%
Outgoing Trips, Weekdays	3,537,894	84,121	2.4%	759,257	21.5%	1,306,222	36.9%	1,136,319	32.1%	236,213	6.7%
Incoming Trips, Weekdays	3,529,341	143,682	4.1%	846,945	24.0%	1,353,521	38.4%	977,752	27.7%	191,558	5.4%
All Trips, Weekends	4,607,138	57,842	1.3%	714,955	15.5%	2,175,630	47.2%	1,294,463	28.1%	348,233	7.6%
Intratown Trips, Weekends	1,260,481	13,462	1.1%	199,804	15.9%	573,057	45.5%	372,181	29.5%	101,815	8.1%
Outgoing Trips, Weekends	1,674,407	18,556	1.1%	231,674	13.8%	758,165	45.3%	520,179	31.1%	137,683	8.2%
Incoming Trips, Weekends	1,672,250	25,824	1.5%	283,478	17.0%	844,407	50.5%	402,103	24.0%	108,735	6.5%