

City of Cambridge

Fall 2022 Employee Commuting

Results from annual transportation monitoring

Summary

This report describes the results of Cambridge's annual transportation monitoring program. It includes projects regulated under the Parking and Transportation Demand Management (PTDM) Ordinance and Planning Board Special Permits.

In 2022, the City resumed transportation monitoring after a pause during the first two years of the Covid-19 pandemic. In usual years, we have two monitoring cycles – spring and fall. In 2022, we conducted monitoring in fall only, for roughly half of the properties in our program.

We expected and received 38 reports in fall 2022. The reports included information on commute programs required at the properties and a survey about how people traveled to the sites.

All projects receive monitoring response letters about their compliance status. The letters offer technical assistance to help projects reduce their SOV rates.

The mode share survey allows City staff to examine patterns in employee trips to work at reporting properties. In fall 2022, remote work was the most common mode (34% of workdays), followed by driving alone (31%), public transportation (20%), biking (6%), walking (6%), carpooling (2%), and micromobility like e-scooters (less than 1%). Because only fall monitoring properties reported in 2022, we cannot compare these results to past years.

We also compared remote work trips and traffic counts collected by Miovision cameras across Cambridge. Remote work was most common on Mondays and Fridays. Traffic was lower on Mondays but there was little difference between vehicle counts on Fridays and vehicle counts mid-week. We interpret this to mean that a larger share of Friday trips in Cambridge were non-work trips, which would reflect regional remote work trends.

Future reports will compare data to past years and provide information from the residential and patron surveys.

Transportation Monitoring Overview

The City of Cambridge requires properties to implement Transportation Demand Management (TDM) plans in two ways: through the Parking and Transportation Demand Management (PTDM) Ordinance and through conditions on Planning Board Special Permits. The City requires about 80 properties to submit a report on their sustainable transportation programs and the transportation patterns at their sites every year. If a property is required to do monitoring and reporting, they begin reporting approximately one year after the new or renovated facility is occupied.

Parking and Transportation Demand Management Ordinance

The [PTDM Ordinance](#), adopted in 1998, aims to reduce traffic congestion and greenhouse gas emissions and improve traffic safety. It does this by promoting walking, bicycling, public transit, and other sustainable modes.

A property triggers the Ordinance if it meets all of these criteria:

1. It is non-residential,
2. It creates any new parking or changes who can use existing parking, and
3. The total number of parking spaces at the site is 5-19 (Small Projects) or 20 or more (Large Projects).

The Ordinance requires these projects to create a PTDM plan, which must be approved by the City. Large Project PTDM plans must include a commitment to reduce the percentage of people traveling to the project by single-occupancy vehicle (SOV) and implement a range of transportation demand management measures. Large Projects must also monitor travel to the site and report on the status of the SOV commitment and TDM measures. Small Projects must implement at least three TDM measures, but there is no SOV commitment or annual monitoring.

A wide variety of measures have been implemented to meet PTDM SOV commitments. All PTDM plans include measures to promote walk, bike, transit, and carpool travel. However, the Ordinance allows property owners and employers to choose measures that are most appropriate for their site.

High-impact TDM measures include:

- Offering MBTA pass subsidies,
- Providing Bluebikes stations and offering annual memberships,
- Offering incentives for walking and biking,
- Charging people directly for parking, and
- Providing shuttle service to transit stations.

PTDM plans can also include supportive TDM measures that establish a culture of using sustainable transportation. Supportive measures include providing showers and changing facilities for people who walk or bike to work, reserved parking for carpools, and occasional parking for people who don't usually drive.

Planning Board Special Permits

The City also makes TDM agreements with property owners through the [Planning Board Special Permit process](#). When the City expects a project will have large transportation impacts, the permit conditions may include a TDM plan. Some Special Permit TDM properties have SOV commitments like Large PTDM Projects, and some do not.

Fall 2022 Monitoring Results

In 2022, the City resumed transportation monitoring after a pause during the first two years of the Covid-19 pandemic. In usual years, we have two monitoring cycles – spring and fall. In 2022, we conducted monitoring in fall only, for roughly half of the properties in our program.

While monitoring was paused, we updated our reporting process by designing a new cloud-based monitoring tool. This makes compliance simpler to manage and will allow us to create some standardized reports in the future.

2022 monitoring results cannot be directly compared to previous years because they include only the properties on the fall monitoring cycle. Future annual reports will include historic trends and additional analysis.

In fall 2022, we expected 24 Large PTDM Project reports and 14 Special Permit reports, about half of the properties in the program. We received all the expected reports. There were 13 Small Projects that did not require monitoring.

The fall 2022 reports covered 20,300 parking spaces, over 10 million square feet of commercial development and 16 million square feet of institutional (higher education) development. More than 32,000 employees (about one quarter of Cambridge workers), 7,000 students, and 2,000 residents work, study, and live at the properties that reported in fall 2022.

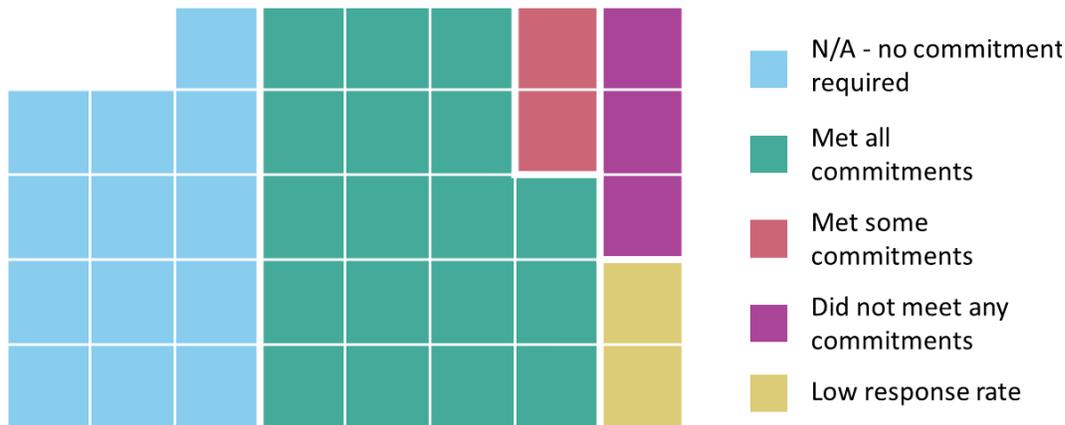
Large Project PTDM properties and some Special Permit TDM properties must include a travel-habit and mode share survey in their reports. The surveys help City staff:

- Check whether a project has met its SOV commitments (if applicable),
- Track transportation patterns and emerging trends, and
- Make educated guesses about travel patterns expected at future development sites.

SOV commitments are linked to a particular type of site user, like employees, students, residents, or patrons. Some properties have a single SOV commitment, and some have multiple commitments, depending on who is expected to visit the site. If a property has multiple commitments, they conduct one survey for each commitment type.

Figure 1 shows the 38 reporting projects' performance on their SOV commitments. Thirteen projects did not have any SOV commitments. There were 25 projects with commitments to a maximum SOV mode share ranging from 6% to 66%. Two projects did not achieve a high enough survey response rate to reliably determine whether they met their commitments. Eighteen met all their SOV commitments, two met at least some of their commitments, and three did not meet any of their commitments.

Figure 1. Fall 2022 Reporting Properties: SOV Commitment Performance



Data source: Fall 2022 Monitoring Reports

The three projects that did not meet any of their SOV commitments had an overabundance of parking or did not fully implement their required TDM measures. An excess of parking spaces leads to an imbalance in the employee- or patron-to-parking space ratio, which appears to confirm national research that having too much parking contributes to higher SOV rates.

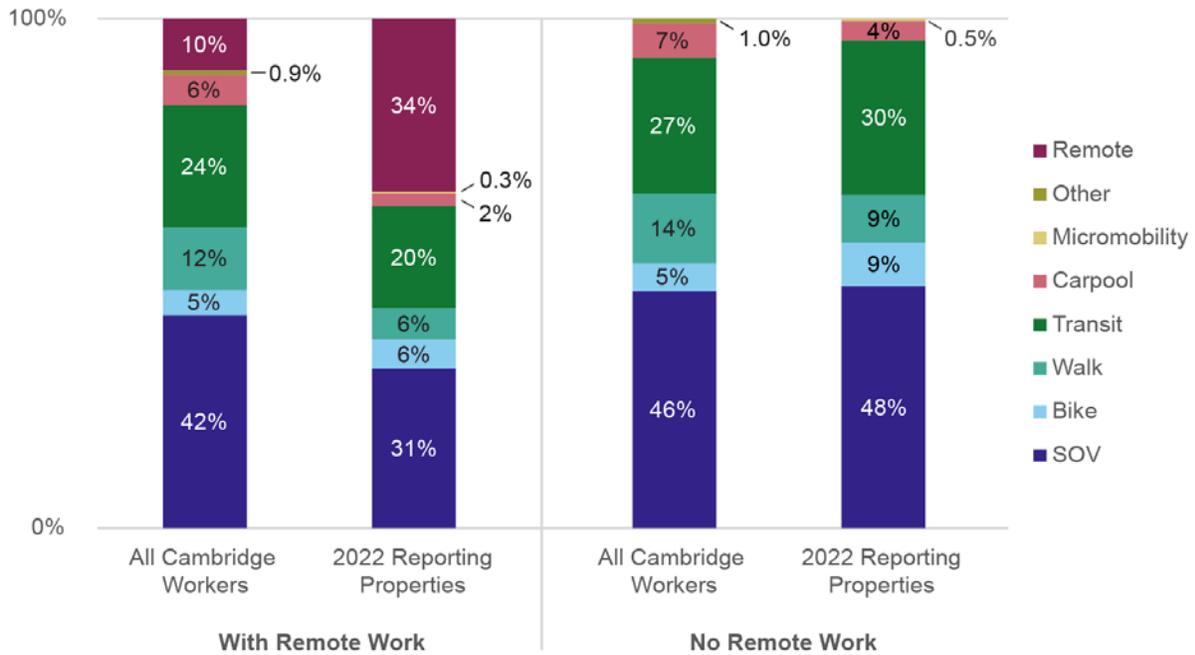
All projects receive monitoring response letters about their compliance status. The letters offer technical assistance to non-compliant projects. In some cases when a property has implemented all its required TDM elements and still does not achieve desired SOV levels, staff engages owners to develop additional reasonable TDM measures. So far, the City has not needed to exercise any enforcement provisions in the PTDM or Zoning Ordinances.

Figure 2 shows the commute mode share across all employee surveys (13,301 responses) compared to all Cambridge workers, as reported in the Census Bureau’s 2017-2021 American Community Survey (ACS). Comparisons should be made cautiously because the surveys ask slightly different questions about travel to work. The 2022 transportation monitoring survey asks respondents how they traveled *each day of the week*. The ACS asks how respondents *typically* traveled to work during the survey week.

One notable difference between the two data sets is the share of remote workers, which was much higher (34%) at 2022 reporting properties than Cambridge overall (10%). This might reflect a recent shift to more remote work, since the ACS 5-year estimate includes several pre-Covid years. Or it might reflect a real difference between reporting properties and all Cambridge jobs. However, the difference might be due to differences in the survey questions. Someone who worked remotely only two days during a 5-day week would not choose “remote” on the ACS survey, but the PTDM survey would capture those trips.

Removing remote workdays produces a much more similar mode split across the surveys.

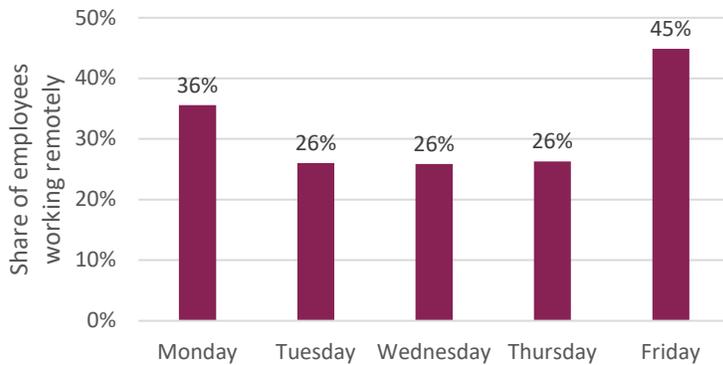
Figure 2. Employee Travel to Work at 2022 Reporting Properties and Cambridge Overall



Data sources: American Community Survey 5-year estimate, 2017-2021 (All Cambridge Workers), and 2022 transportation monitoring survey (2022 Reporting Properties). The ACS does not ask about micromobility trips, and the 2022 transportation monitoring survey does not have an "Other" category.

Because the 2022 transportation monitoring survey captures daily variation, we can examine remote work patterns over the course of the week. Figure 3 shows how many employees reported working remotely each day of the week. Remote work was more common on Mondays (36% of workers) and Fridays (45% of workers) than mid-week (26% of workers Tuesday through Thursday). If people working remotely on Monday and Friday would have otherwise traveled to work by the same mode that they took mid-week, then about half of remote workdays replaced an SOV trip to work.

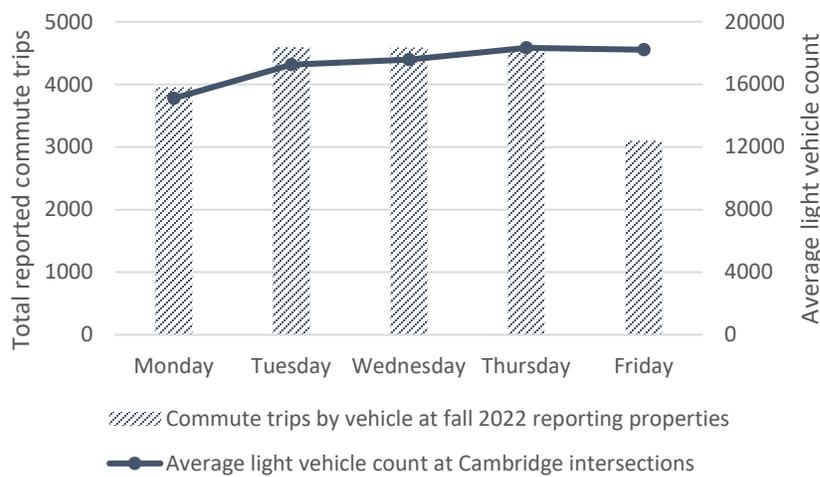
Figure 3. Share of employees working remotely at 2022 reporting properties by day of the week



Data source: 2022 transportation monitoring survey.

Figure 4 compares vehicle counts at Cambridge intersections to reported commute trips by day of the week. Miovision cameras count vehicles at 16 intersections across Cambridge. [Miovision Traffic Data](#) is available on Cambridge’s Open Data Portal. The line graph in the figure shows the average counts by day of the week during the survey period (September 1 through October 31, 2022). During the work week, average vehicle counts at intersections were lowest on Mondays and increased through the week, with a small decrease on Fridays. According to the 2022 transportation monitoring survey results, SOV and carpool trips were lower on Mondays and much lower on Fridays than mid-week. If the fall 2022 reporting properties reflect regional telework trends, then a larger share of Friday trips in Cambridge were non-work trips.

Figure 4. Comparison of intersection traffic and reported vehicle commute trips by day of the week, September through October, 2022



Data sources: 2022 transportation monitoring survey and Miovision traffic cameras, 9/1/22 through 10/31/22.

Future reports

The spring 2023 monitoring cycle is complete, and we expect to receive reports from all properties this year. With a full year of survey data available for our next report, we will compare 2023 mode share to previous years and provide summary information from the residential and patron surveys.

For more information or questions about transportation monitoring, contact the Cambridge PTDM Planner, Ryan McKinnon at rmckinnon@cambridgema.gov or 617-349-7240.