MetroWest Regional School Fleet Electrification Study

Survey of Current School Bus Landscape

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Introduction

MAPC collected school bus data from 22 school districts in September-October 2023 by administering a survey. This data will help inform MAPC's study of school bus electrification pathways for these school districts, which commenced in November 2023 and will continue through summer 2024. This memo summarizes the findings from the survey that each school district completed and includes data on general characteristics of the school districts and current bus fleets, ownership models, bus depots, electric school bus programs, and interest in regional collaboration.

General Characteristics of the School Districts and Current Bus Fleets

The 22 school districts that are participating in this study are:

- Acton-Boxborough Regional School District
- Ashland Public Schools
- Concord Public Schools and Carlisle Regional District
- Dedham Public Schools
- Dover-Sherborn Public Schools
- Framingham Public Schools
- Harvard Public Schools
- Holliston Public Schools
- Hopkinton Public School District
- Lexington Public Schools
- Lincoln Public Schools
- Marlborough Public Schools
- Medfield Public Schools
- Millis Public Schools
- Natick Public Schools
- Needham Public Schools
- The Public Schools of Northborough and Southborough
- Wayland Public Schools
- Wellesley Public Schools
- Westborough Public Schools
- Weston Public Schools
- Westwood Public Schools

These 22 school districts are responsible for transporting over **51,000 students** to and from school. The number of students transported ranges from 400 to 5,200 and the average and mean are 2,332 and 1,836 students, respectively.

Approximately **640 school buses** operate across the 22 school districts. The majority of buses (89%) are large buses, which have a passenger capacity greater than 30. About 11% of the buses are small buses, with passenger capacity of less than 30. Figure 1 shows the overall breakdown of small and large buses.

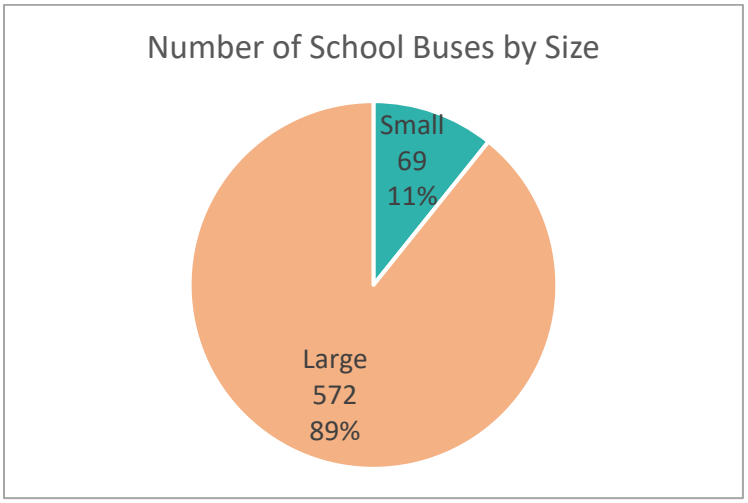

Figure 1. Number of School Buses by Size

The ratio of small to large buses differs across school districts. Most school districts utilize more large buses than small buses. Twelve school districts have no small buses, while the fleets of two school districts – Harvard and Wellesley – are comprised of 61% and 58% small buses, respectively. Figure 2 shows the number of buses each school district operates, broken down by small (blue) and large (orange) buses.

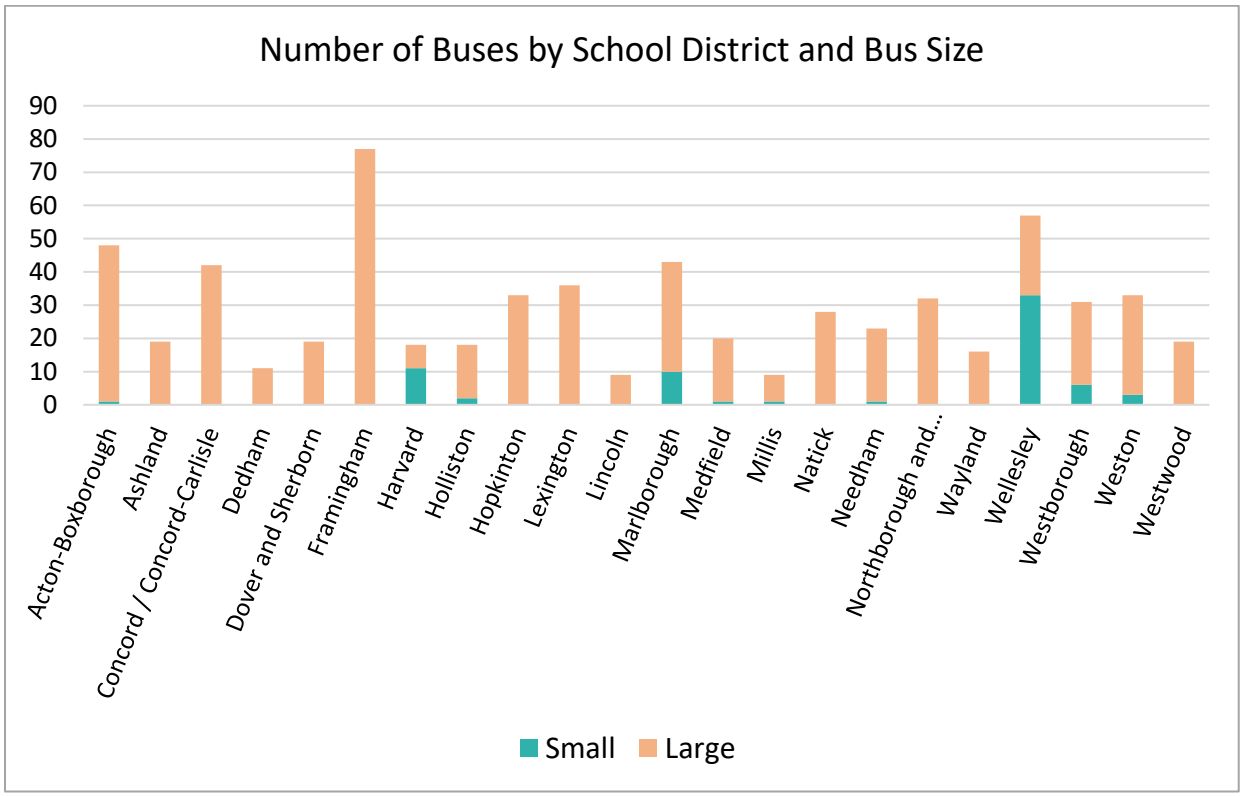

Figure 2. Number of Buses by School District and Bus Size

The school districts reported the average model year of the school bus fleets in two buckets: 2016-2020 and 2021-2023. Figure 3 illustrates that 32% of the buses have average model years falling between 2016 and 2020, while 45% have buses with model years between 2021-2023. The remaining 23% of school districts were unsure of the average model years.

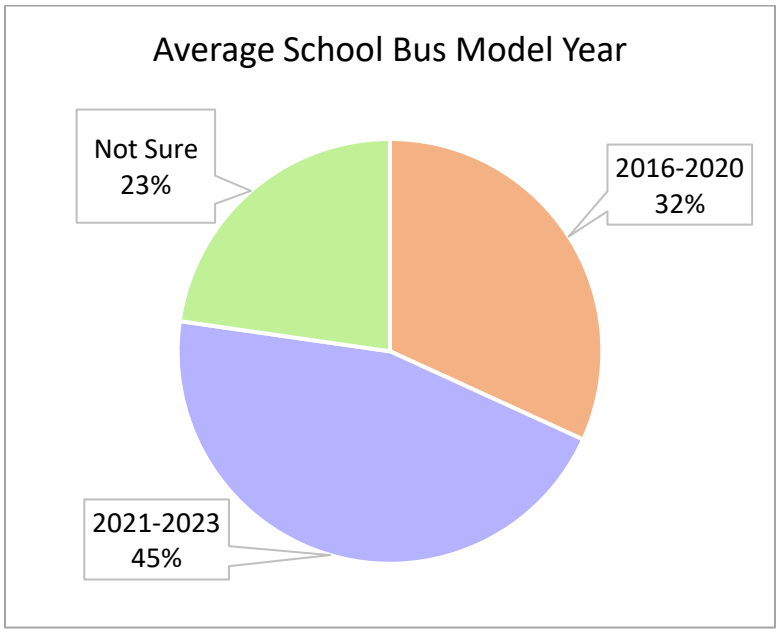

Figure 3. Average School Bus Model Years Across School Districts

School Bus Ownership Models

The models of ownership and operation of school buses vary across school districts. MAPC categorizes school bus ownership models as follows:

1. Own: The School District/Municipality obtains buses through a direct upfront purchase and owns, operates, and maintains the vehicles.
2. Lease: The School District/Municipality obtains buses through a commercial lease and operates and maintains the vehicles.
3. Third-Party Vendor: The School District/Municipality contracts with a third-party school bus provider who owns, operates, and maintains the vehicles.

As Figure 4 shows, **the vast majority of the 22 school districts (73%, or 16 school districts) exclusively contract with third-party vendors.** Only 2 school districts (9%) own all their buses, 1 school district (5%) leases their buses, 1 school district (5%) has a lease-to-own model, and 2 school districts (10%) have hybrid models in which they own some of their buses and contract with a third-party vendor to provide the remaining buses.

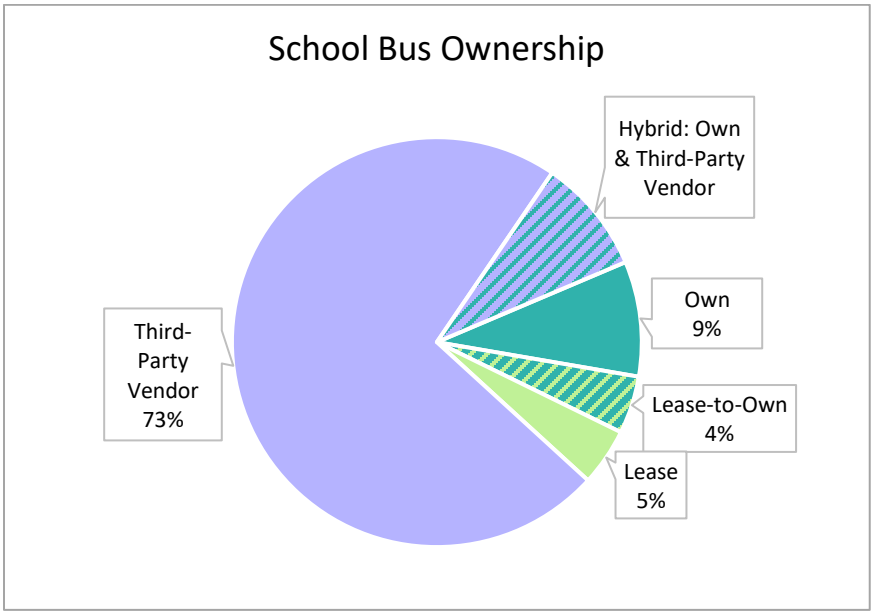

Figure 4. School Bus Ownership Models Across School Districts

Figure 5 shows a map of the study area, with the municipalities shaded according to the school district's school bus ownership model.

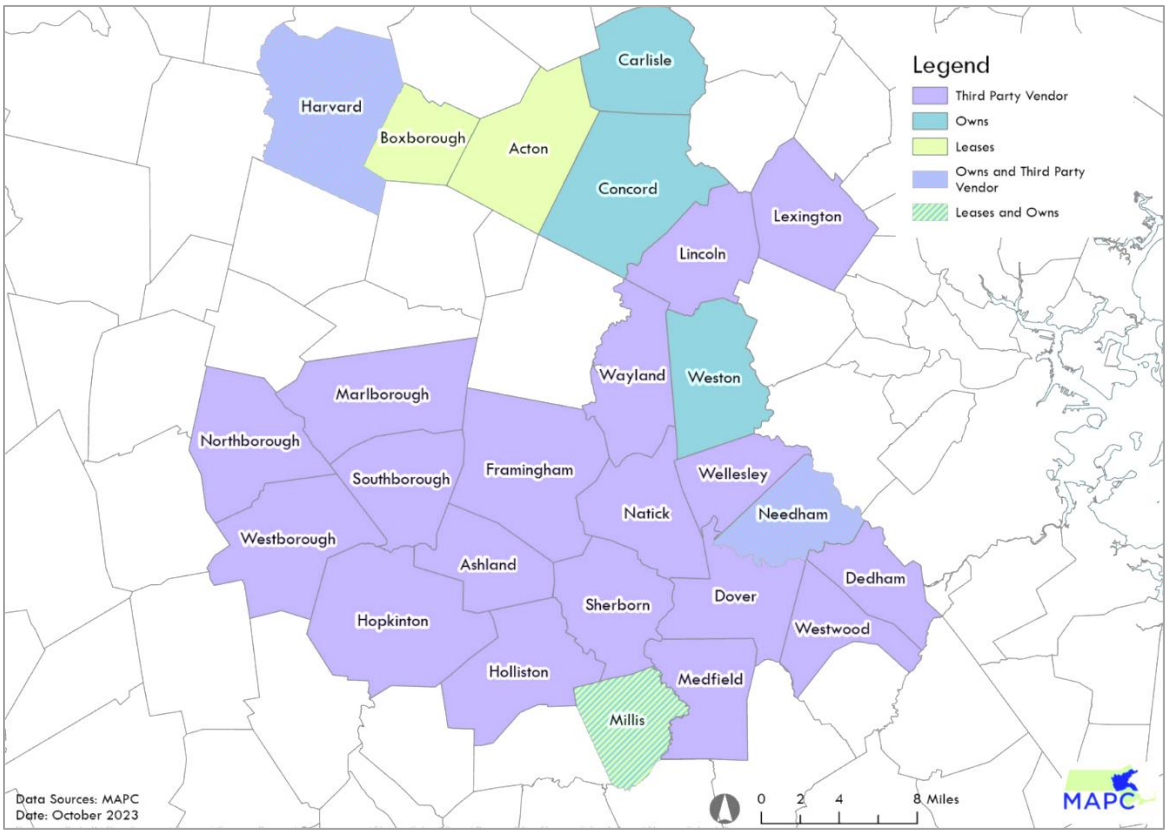

Figure 5. Map of School Bus Ownership Models Across the Study Area

In total, 18 school districts contract with third-party vendors to provide school buses. These 18 school districts contract with **16 different vendors**. The largest vendor is Michael J. Connolly and Sons, which owns and operates over 150 school buses across Ashland, Dedham, Dover & Sherborn, Hopkinton, Medfield, Natick, Needham, and Westwood school districts. The second largest vendor is NRT Bus,[1] which operates about 140 buses across Framingham, Northborough & Southborough, and Westborough school districts. The remaining buses are operated by 14 different vendors: AA Transportation, C&W Transportation, CASE, Dee Bus, Doherty's Garage, Eastern Bus, First Student, JSC Transportation, Local Motion, Nice Ride, North Reading Transport, PN Transportation, Ride Rite, and W.T. Holmes Transportation.

School Bus Depots

Nearly all the buses are stored in open-air parking lots. The ownership of these parking lots differs across school districts; some lots are owned by the municipalities and others are owned by the bus vendors or other private landowners. Figure 6 shows the number of school districts in which the land is owned by the municipality, a private entity, a mix of the two, or unknown.

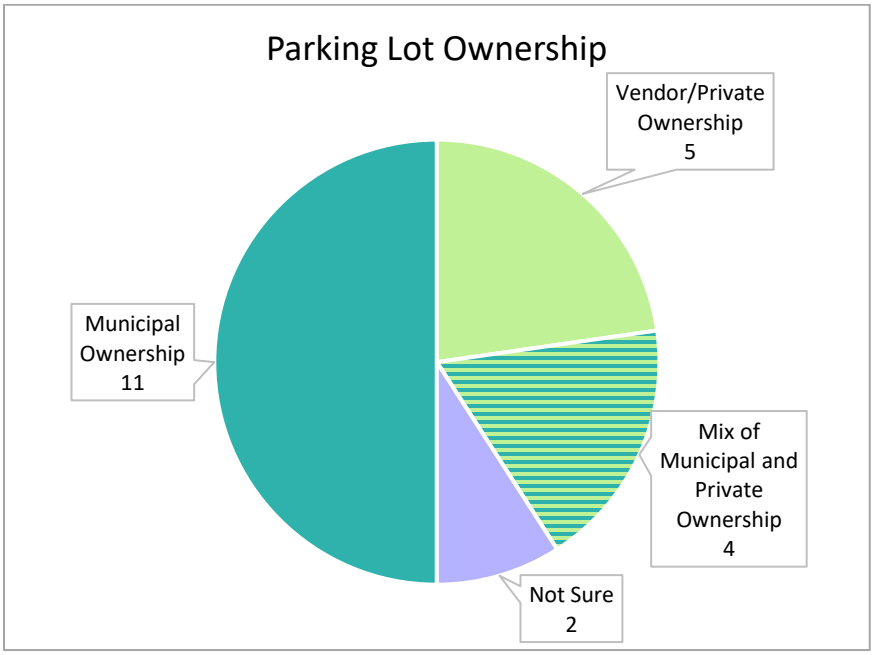

Figure 6. Parking Lot Ownership by School District

Some bus depots are located near the schools, while others are located in different municipalities. MAPC did not collect the exact locations of the depots and school bus routes but will look to collect and evaluate this information as the study progresses.

[1] NRT Bus is owned by Beacon Mobility

Electric School Bus Programs Pursued to Date

There are currently several fleet assessment and funding programs that school districts can apply for to help plan and pay for electric school buses. As of October 2023, only one school district (Weston) plans to conduct a full fleet assessment. Six school districts (Acton-Boxborough, Concord-Carlisle, Medfield, Millis, Needham, and Weston) have applied for a rebate, grant, or technical assistance. Three school districts applied for the EPA's Clean School Bus Rebate and Grant Program, but no districts in the study have yet received a rebate or grant.[2]

As of October 2023, Concord was the only town within the study area that owns electric school buses. They have three electric school buses, which were funded by a combination of State, VW grant, and local funds.

More than half of the municipalities have Climate Action Plans (CAP) or Net Zero Plans (NZAP) and several more are currently in the process of developing a CAP/NZAP. The following municipalities specifically include transitioning to electric school buses in their CAP/NZAP: Acton, Ashland, Concord, Harvard, Lincoln, Medfield, Natick, Sherborn, Wellesley, Westborough, and Weston.

Interest in Regional Collaboration

Many school districts are interested in and open to some form of regional collaboration on school bus electrification. The details of what that regional collaboration would look like are currently undefined but could involve sharing electric charging infrastructure or electric school buses.

Despite some willingness to explore these ideas, most school districts expressed concern about the feasibility of regional collaboration. The most common concern was that school buses are all needed at the same time, so sharing the buses themselves would be logistically impossible unless school times changed. Some school districts noted that regional collaboration is not within their purview, as they currently do not own their school buses and do not plan to in the future. Other concerns include how costs would be shared, whether state and federal procurement laws would allow such arrangements, and uncertainty about getting buy-in from the school committee and community.

Conclusion and Next Steps

Through this survey, many school districts expressed enthusiasm about and commitment to electrifying their school buses. In the next steps of this project, MAPC will work with the school districts to both collect and share more information about school bus electrification. By the end of this study, MAPC, in partnership with the school districts, will create a school bus electrification 'roadmap' that will enable the school districts to plan for and pursue ongoing and future electrification efforts.

[2] As of the writing of this memo, the 2023 Clean School Bus Grant awards have not been announced.