



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Monica Tibbits-Nutt, MPO Chair | Secretary and CEO, Massachusetts Department of Transportation
Tegin Leigh Teich, Executive Director, MPO Staff

TECHNICAL MEMORANDUM

DATE: September 19, 2024
TO: Boston Region Metropolitan Planning Organization
FROM: Samuel Taylor, Boston Region MPO Staff
RE: Congestion Mitigation and Air Quality Performance Targets

By October 1, 2024, the Boston Region Metropolitan Planning Organization (MPO) will file a Congestion Mitigation and Air Quality (CMAQ) Mid-Period Report to the Federal Highway Administration (FHWA), as required by FHWA regulations. As part of the report, the MPO will report progress on three performance targets applying to the Boston, MA-NH Urbanized Area (UZA), which were adopted in October 2022 for the full 2022-25 CMAQ Performance Plan. With the submission of the Mid-Performance Period Report, MPOs have the opportunity to adjust targets made back in 2022 to account for deviations in actual performance from the targets set at the beginning of the performance period.

There are three metrics with four-year performance targets, as outlined below: emissions reductions of carbon monoxide, peak hour of excessive delay (PHED) per capita, and non-single-occupancy-vehicle (non-SOV) travel to work. The third performance target, percentage of non-SOV travel to work, will almost certainly be achieved by a significant margin. We project 42.6 percent of commuter trips will be non-SOV travel in the 2021-25 American Community Survey (ACS) five-year average. Boston Region MPO staff recommends the board approve an increase in the four-year target percentage of non-SOV travel in the UZA **from 39.8 percent to 42.6 percent** in September 2024. More information about each of the three targets is below.

Civil Rights, nondiscrimination, and accessibility information is on the last page.

1 METRICS

1.1 Emissions Reductions of Carbon Monoxide

Four-year target for 2022-25: Reduction of 0.354 kilograms (kg) of carbon monoxide per day

This performance target was set to account for carbon monoxide emissions reduction efforts in accordance with the maintenance plan established to address an area of nonattainment for carbon monoxide from 2002. The limited maintenance status period of 20 years expired in April 2022, after the start of the 2022-25 CMAQ reporting period.

This performance target should remain unchanged, as only one CMAQ-funded project, the NewMO Microtransit Service in Newton, is being applied toward carbon monoxide reductions and that project will not result in exceeding the target for carbon monoxide reductions (0.053kg/day).

1.2 Peak Hour of Excessive Delay (PHED) Per Capita

Four-year target for 2022-25: 22.0 hours of annual hours of PHED per capita

PHED is a measure of regional congestion during peak commuting times on the National Highway System (NHS). This performance target should remain unchanged. MPO staff calculations show that the PHED decreased from 18.0 hours in 2021 to 14.8 hours in 2022. While the most recent year for actual performance is well below the target, given the elastic nature of PHED performance, Boston Region MPO staff do not expect that actual performance will greatly exceed the four-year target, and staff recommend leaving the target of 22.0 hours as-is.

1.3 Non-Single-Occupancy-Vehicle (non-SOV) Travel to Work

Four-year target for 2022-25: 39.8 percent

Non-SOV travel to work is a measure of the percentage of workers who commute to work using an SOV, which helps assess how well the region is performing at limiting congestion and emissions produced during work commutes.

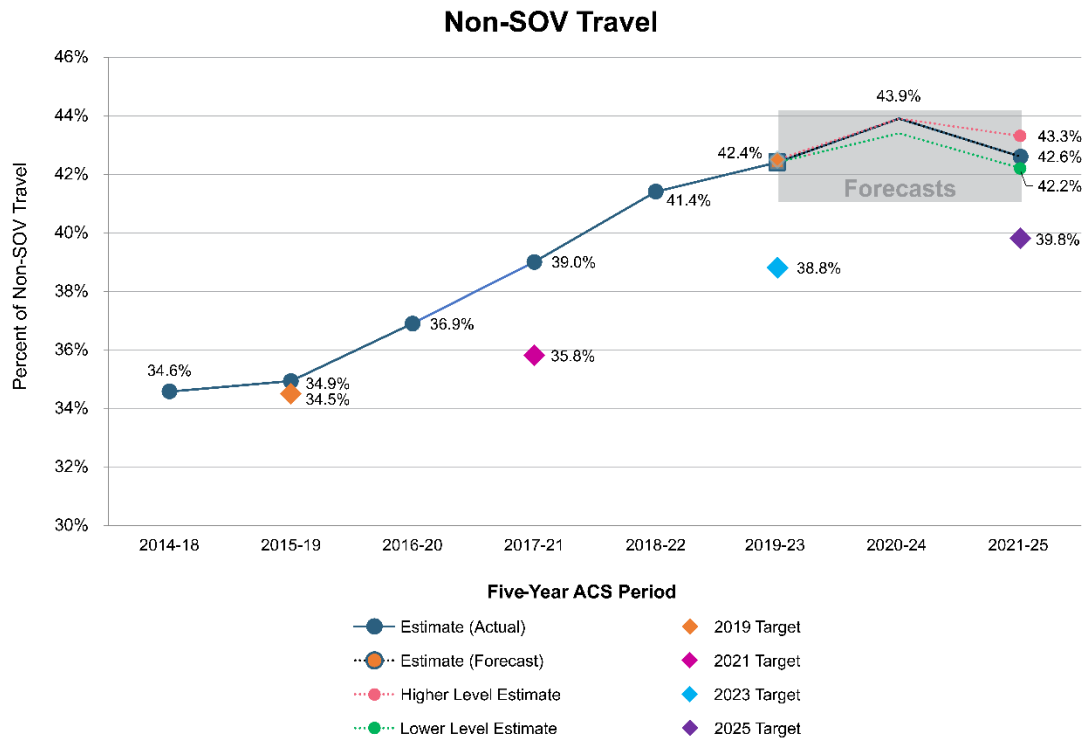
Actual performance is almost certain to exceed the four-year target. The most recent five-year ACS estimate was 41.4 percent for 2018-22. In August 2024, Boston Region MPO staff estimated that the performance for 2021-25, the same period for which the four-year target is set, will land between 42.2 percent and

43.3 percent with a middle estimate of 42.6 percent. Staff used both actual one-year ACS estimates and projections to estimate the 2021-25 five-year ACS performance. Actual ACS regional estimates for 2021 and 2022 are greater than the target, at 45.8 percent and 44.0 percent, respectively. Staff projects a leveling off of non-SOV travel due to trends showing a return toward pre-pandemic travel patterns by assuming decreases in annual non-SOV travel for 2023, 2024, and 2025 of 1.8 percentage points, 1.35 percentage points, and 0.9 percentage points, respectively based on recent ACS trends. The return toward pre-pandemic levels of non-SOV travel can help explain the decrease in non-SOV travel projections between 2020-24 and 2021-25 after spikes in 2020 and 2021.

The lower, middle, and upper projections for 2021-25 performance are two to three percentages points higher than the target, which was set two years ago with limited knowledge about pandemic-related travel patterns in the Boston UZA. Since “worked from home” is a mode of transportation option in the ACS, and that percentage has greatly increased, the increase in non-SOV travel to work is a result of the increase in remote work. For example, the 2015-19 ACS estimates that 5.0 percent of the population in the UZA worked from home, while 16.2 percent worked from home in the 2018-22 ACS estimate.

Boston Region MPO staff recommends the board approve an increase in the four-year target percentage of non-SOV travel in the UZA, **from 39.8 percent to 42.6 percent** in September 2024. Table 1 shows past performance, targets, and forecast projections.

Figure 1
Non-SOV Travel to Work Performance Targets and Projections



ACS = American Community Survey. SOV = single-occupancy vehicle.

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Boston, MA 02116

Phone: 857.702.3700

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