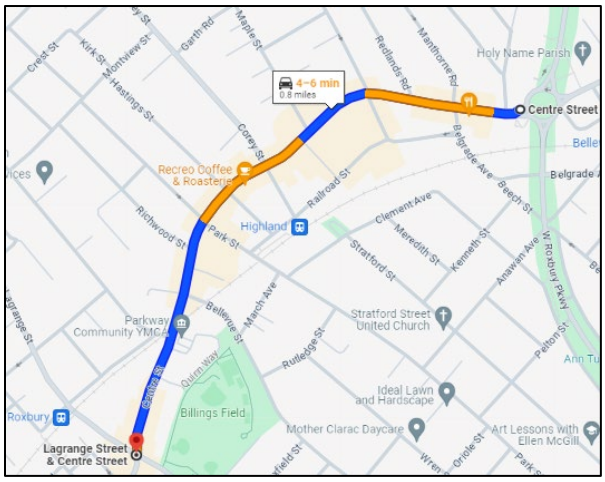
Road Diet on Centre Street – West Roxbury, MA

Site and Treatment Description



Centre Street between Lagrange St. and West Roxbury Parkway is a minor arterial that had four lanes and carried about 15,000 vehicles per day. At the same it is West Roxbury's main business district, and thus has frequent pedestrian crossings. Speeding was widely recognized as a problem (speed limit is 25 mph). At unsignalized intersections, crossing pedestrians faced the double threat hazard, in which a car stopping in the outside lane can block the view between the pedestrian and the inside lane, from which a car may arrive at speed just as the pedestrian steps past the stopped car. Traffic flow was chaotic, with vehicles racing from one red light to the next, and because there were no left turn lanes (with one exception), the inside lane was often blocked by a car waiting to turn left.

A series of pedestrian crashes including a fatality in 2019 created an impetus to improve crossing safety and reduce speeding. In 2023, this 0.8 mile stretch of Centre Street was reconfigured to have one through lane per direction plus a central zone marked variously as a two-way turn lane, a left turn lane, and hatched out. Parking lanes were shifted away from the curbs to allow for protected bike lanes, with all but 7 of the 171 parking places along Centre Street preserved. Changing to one through lane per direction eliminated the double threat hazard and was expected to greatly reduce speeding because passing would no longer be possible, and drivers would have to slow to the speed of the car ahead of them.

Before. Source: Google

After. Source: City of Boston

To maintain traffic capacity despite elimination of one lane in each direction, traffic signals were retimed to have pedestrians crossing concurrently with the side street instead of during an exclusive phase; the narrower roadway reduced turn speeds and crossing distances sufficiently to make concurrent crossings safe. (One intersection with especially heavy turn volumes still maintains an exclusive pedestrian phase.) Left turn pockets were provided at all signalized intersections, and a two-way turn lane was provided wherever there are unsignalized side streets and driveways, so that through lanes would no longer be blocked by cars waiting to turn left.

Before-After Speed, Travel Time, and Volume

Measurements taken north of Lagrange Street show that with the road diet, speed fell dramatically. Median speed dropped from 29 to 23 mph. The fraction of vehicles exceeding the 25 mph speed limit fell from 82% to 26%, and the fraction driving 30 mph or faster fell from 44% to 6%. Before, each day saw 220 vehicles per day driving 40 mph or faster; after, fewer than 20.

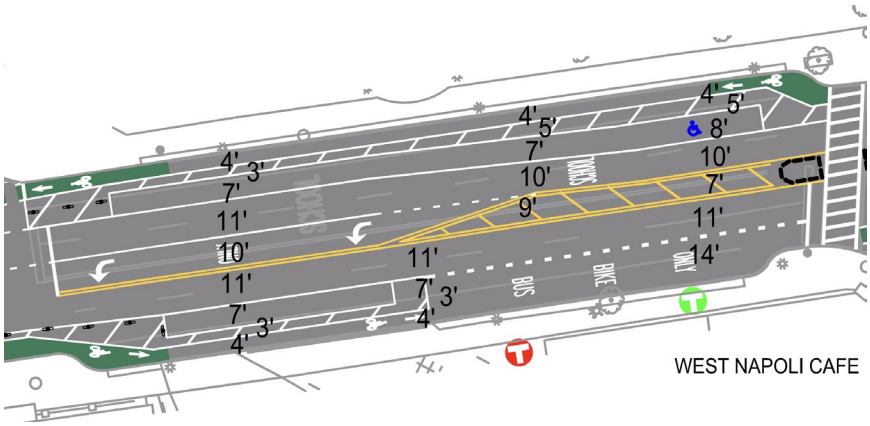
Because of concerns that the lane reduction might lead to congestion that diverts traffic onto side streets, travel time was monitored as well. Driving time from one end of the corridor to the other, about 3.5 minutes before the change, rose on average by less than a minute; in the peak hour, by less than two minutes.

Traffic volume fell by 10% on weekdays and 5% on Saturdays. There was no reported increase in traffic on neighborhood streets. To test whether the change made local streets attractive for cut-through traffic, a query was set up to ask Waze every 5-minutes the recommended route from one end of the corridor to the other. Before the changes, Waze recommended following Centre Street the whole way 99.7% of the time; after, 96.7% of the time. Thus, according to Waze, staying on Centre Street is still overwhelmingly the fastest route.

Before-After measurement results have been published on the City's website. A presentation explaining the project, including Before-After results, can be downloaded with this link.

Design Specs and Cost

This project was implemented using only "quick-build" materials: striping, flex posts, and signs, along with traffic signal timing changes. No curbs were moved; the carriageway was made effectively narrower by shifting parking lanes away from the curb, with protected bike lanes installed between curb and the parking lane, as shown in the sketch below.



New layout of a typical block

Support Story

In 2017, in the wake of a serious pedestrian injury in 2015, a Northeastern University team published a study showed that Centre Street could carry all of its traffic with one through lane per direction with little additional delay with reconfigured traffic signals, while making pedestrian crossings far safer. While City transportation planners were sympathetic, the City at the time had only a small traffic calming program focused on local streets that was already stretched beyond its capacity.

After a pedestrian fatality in 2019, the family of the victim urged adopting the road diet design and found strong public sympathy and support. The City mobilized, preparing a design and traffic analysis that confirmed that with a road diet, travel time would increase little while safety improved dramatically. However, within 6 months, while general public support remained strong, opposition was organized around two main themes. First, business owners decried the loss in parking – even though the project removed only 7 of the 171 parking spaces on Centre Street, and there is ample off-street parking throughout the corridor. Second, some residents feared that the road diet would create congestion that would divert traffic onto neighborhood streets, in spite of traffic analysis results to the contrary and the plain fact that the local street network offers no good cut-through route. Furthermore, the City had promised to monitor cut-through traffic and take remedies (e.g., one-way or turn restrictions) if any problem developed.

Due to the continuing controversy, several elected officials withheld support for the change, and ultimately the mayor tabled it. Then in 2023, a child was hit by a car when crossing Centre Street. (Fortunately, the injury was minor.) By then, a new city councilor who favored the project and a new mayor were in place; the mayor decided to move forward with the project in spite of continuing opposition. The City invited feedback on how to improve the design, based on which several small changes were made both before and after construction. To further reduce the incentive for cut-through traffic, the City also

prioritized the neighborhoods on either side of Centre Street for speed hump installation as part of its *Safety Surge* program.

As of 6 months after the changes, public satisfaction with changes appears to be strong and growing, with many skeptics expressing surprise at how orderly the street now operates. No reports of increased traffic on neighborhood streets have been received.

Other Lessons

This case confirms the general principle that where a 4-lane road lacks left turn lanes, reducing it to one through lane per direction plus left turn lanes can often yield the same, or nearly the same, traffic capacity.

Political leadership proved to be vital for traffic safety in a political context in which local interests, even when they are in the minority, can often veto any change through pressure on elected officials. The decision in the fall of 2019 to table the project resulted in four more years of speeding and dangerous crossings and a substantial number of crashes and injuries that could have been avoided. Without strong leadership from a newly elected mayor, the existing conditions on Centre Street may have continued indefinitely.

While getting widespread local support for projects is desirable, achieving public consensus on some projects is impossible, and waiting for consensus simply protects the status quo. Some people will not give up their opposition to losses in parking (no matter how small) or traffic capacity in spite of professional analysis and promised mitigation. Often, the only thing that can convince them is to make the change, perhaps as a reversible pilot, and let it prove itself.

To many people, the most visible aspect of the project is the addition of protected bike lanes, even though they were only a secondary aspect of the project. One often hears criticism that the bike lanes aren't used much. In its public communications, the City has kept the focus on the primary aspects of the project: how much lane reduction has reduced speed and how much safer pedestrian crossings have become.

Further Plans

Boston has converted several other 4-lane roads to one lane per direction in the last three years, including Tremont Street (South End), part of Huntington Avenue, and American Legion Highway. In the next few years, more such projects are planned, including Cummins Highway, where a serious speeding problem will be addressed by rebuilding it with one through lane per direction.