

## Transit Strategies

# BUS ON SHOULDER OPERATIONS



Bus service is usually slower than travel by car, in large part because it is stuck in the same traffic as car and it needs to stop to pick-up and drop-off passengers. With services that operate on highways, buses can be given a travel time advantage when they are allowed to use highway shoulders when traffic is congested. This approach is now being used in at least 14 states,<sup>1</sup> and more are now considering it. Bus on shoulder operation is a low-cost way to make highway transit service faster and more reliable.

### Bus on Shoulder Service in Minneapolis, MN



Bus on shoulder operations were first implemented in Minnesota more than 20 years ago. The state now has 300 miles of shoulders in use by buses today and cites a number of benefits to bus on shoulder operation, including:

- Shorter and more predictable and reliable transit travel times
- Fewer missed transfer connections
- Increased transit ridership
- Reduced driver overtime
- Decreased operating costs

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<sup>1</sup> Including California, Colorado, Delaware, Florida, Georgia, Kansas, Illinois, Maryland, Minnesota, New Jersey, North Carolina, Ohio, Virginia, and Washington.

Implementing bus on shoulder operations usually starts with policies put in place by state governments and departments of transportation that allow for buses to use shoulders. These policies have the following considerations:

- **Lane Width:** Buses are approximately 9.5 feet wide including mirrors, so operation in 9 or 10 foot shoulders may require overlapping into the rightmost lane. Implementing bus on shoulder policies on highways with wider shoulders, or widening existing shoulders to 12 feet or more, can allow for safer operation.
- **Speed:** Policies may outline speed limits or guidelines for bus on shoulder operation.
- **Operations:** Buses may be permitted on shoulders just during times of congestion, or any time. Stalled vehicles in emergency situations tend to have priority over bus operations.
- **Safety:** There are often perceived safety issues with shoulder operations, particularly with respect to the potential for conflict with stalled vehicles or vehicles entering or exiting the highway in front of the path of a shoulder-running bus. However, there has been only one injury-crash that has been attributed to shoulder-running buses in Minnesota since 1992 and measures can and should be taken to ensure maximum safety while operating.

## Examples of Bus on Shoulder Operations

### Minneapolis/Saint Paul, MN

*Metro Transit has been running bus on shoulder service for over 20 years.*

Many of Minnesota's shoulder-running operations were originally along freeways with 10-foot shoulders, which are barely wider than a bus. In these areas, buses are only permitted to operate in the right-hand shoulder of highways when main-lane traffic speeds fall below 35 mph and are

#### Bus on Shoulder Service in Minneapolis, MN



not permitted to operate more than 15 mph faster than the general traffic lanes. To better facilitate bus operations on highway shoulders, Metro Transit and the Minnesota Department of Transportation are widening highway shoulders throughout the Twin Cities area (to 12 feet where possible).

Bus on shoulder operations make service faster and, perhaps more importantly, provide reliable service. Bus services that used to frequently run late now usually run on schedule. In Minnesota's 20-plus year experience with this type of service, bus on shoulder operations have had a better safety record than other types of bus service.

## Research Triangle, NC

*North Carolina's Research Triangle has 60 miles of bus on shoulder operations.*

In North Carolina's Research Triangle, bus on shoulder operations are permitted on approximately 60 miles of highway that includes most of I-40 in Durham, Wake, and Johnston counties, and connecting highways. Buses are allowed to travel on these shoulders only when other lanes are travelling less than 35 MPH, and buses can travel up to 35 MPH as long as the bus stays within 15 MPH of general purpose travel speeds.

### Bus on Shoulder in North Carolina



Additionally, only authorized buses with trained drivers are permitted to drive on the shoulders. For safety considerations, cars and other vehicles using the shoulder in the case of an emergency takes precedence over bus on shoulder travel.

## Chicagoland, IL

*On I-55, bus on shoulder service has increased ridership by over 600%.*

As described by PACE, which operates bus on shoulder service in the Chicago area, "shoulder riding is one of the most affordable options for implementing rapid bus service on expressways and tollways because it is less expensive to modify shoulders than it is to construct new roadways or dedicated lanes. Bus service on bus-only shoulders has already proven incredibly successful in northeastern Illinois in increasing the reliability and attractiveness of public transportation."

In 2011, following a change in Illinois State law, Pace implemented bus-on-shoulder service on the Stevenson Expressway/I-55 as a demonstration project. Since that time, Pace has expanded the

service along the I-55 corridor several times. In 2014, the Illinois General Assembly enacted legislation permanently allowing bus-on-shoulder service and expanding that permission to all the region's expressways and tollways.

## PACE Bus on Shoulder Service



Six routes currently use the I-55 shoulder. In the years since Pace first got approval to use the shoulder, bus ridership on that corridor has increased more than 600%, and on-time performance—which averaged less than 70%—is now over 90%. In 2018, bus-on-shoulder service was extended to the Edens Expressway/I-94.

Conditions for use of the freeway shoulder are:

- Buses can use the shoulder only when general traffic slows to less than 35 MPH.
- Buses cannot travel faster than 35 MPH while on the shoulder, and cannot travel more than 15 MPH faster than general traffic.
- If the shoulder has obstructions such as a stalled car or snow, the bus does not use the shoulder.

Pace also has service similar to bus-on-shoulder operations on the Jane Addams Tollway (I-90). That service, launched in 2017 by Pace and the Illinois Tollway operates in a "flex lane", which is even wider than a standard shoulder and allows buses to travel up to 50 MPH in the lane. Access to the flex lane is open to Pace buses during congested periods as defined by Illinois Tollway personnel, who monitor conditions 24 hours per day. Planning is underway for a second flex lane to be built on I-294.

## Potential Bus on Shoulder Service in Rhode Island

In 2017, RIPTA began investigating bus on shoulder operations for 15 routes that operate on highways and other limited access roads. As summarized below, the report found that this could be done on most existing freeways and limited access roads within existing pavement width or with

only minor changes.<sup>2</sup> Based on those findings, the roadway modifications that would be needed to implement this type of service would be a logical starting point for freeway bus service improvements. Storm drains and other infrastructure factors may also need to be retrofitted in order to safely accommodate continuous bus travel.

#### RIPTA Bus on Shoulder Study Preliminary Findings

| Roadway Segment/<br>RIPTA Routes   | Improvement Category                         | Level of<br>Congestion |
|--|--|------------------------|
| <b>I-95: Route 4 to Providence</b><br>8X Jefferson Boulevard Park-n-Ride<br>14 West Bay<br>62 URI<br>65X Wakefield Park-n-Ride<br>66 URI Galilee<br>95X Westerly Park-n-Ride | Fits within pavement – no shift needed       | High                   |
| <b>US 10: CS to Merge</b><br>9X Pascoag Park-n-Ride<br>10X North Scituate<br>21 Reservoir – Garden City<br>30 Arlington - Oaklawn  | Fits within pavement – shift needed          | Significant            |
| <b>US 6/10 Merge to Downtown</b><br>9X Pascoag Park-n-Ride<br>10X North Scituate<br>21 Reservoir – Garden City<br>30 Arlington - Oaklawn                                     | Fits within pavement – no shift needed       | Significant            |
| <b>RI 146</b><br>54 Lincoln - Woonsocket<br>59X North Smithfield – Lincoln Mall  | Fits within pavement – no shift needed       | Significant            |
| <b>I-295 (Route 6 to Route 44)</b><br>9X Pascoag Park-n-Ride   | Fits within pavement – no shift needed       | Moderate               |
| <b>RI 4 (Limited Access)</b><br>62 URI<br>65X Wakefield Park-n-Ride<br>66 URI Galilee  | Fits within pavement – shift needed          | Significant            |
| <b>RI 4 (Rt 1 to LA)</b><br>62 URI<br>65X Wakefield Park-n-Ride  | Requires minor widening – minor obstructions | Moderate               |
| <b>US 1: RI 108 to RI 4</b><br>65X Wakefield Park-n-Ride   | Requires minor widening – minor obstructions | Mild                   |

<sup>2</sup> Bus on Shoulder Feasibility Study, Presentation #1 – Preliminary Findings, March 28, 2017

In addition to the above routes, four other routes – 35 Rumford-Newport Avenue, 60 Providence-Newport, 61X Tiverton/East Bay Park-n-Ride, and 78 Beverage Hill Avenue-East Providence – operate on I-195 into Providence. Although bus on shoulder operation on I-195 was not evaluated, those four routes could also benefit from bus on shoulder operations. The following map presents a potential network of bus on shoulder operations for Rhode Island.

## Potential Bus on Shoulder Operations

