



## Florida Department of Transportation Research

### Analysis of Movable Bus Stop Boarding and Alighting Areas

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Florida's transit ridership comprises persons from varying demographic backgrounds, including those with disabilities. An important goal for the Florida Department of Transportation (FDOT) and Florida transit agencies is to ensure that all transit stops are easily accessible for all riders, addressing issues such as the distance to nearby stops and ease of boarding/alighting (B/A). The Americans with Disabilities Act (ADA) specifies bus stop design that ensures accessibility, reducing the need for more expensive services, such as paratransit and preserving rider's independence.

Transportation agencies must comply with ADA when altering or creating stops. This well-intentioned requirement often places a burden on the agencies; cash-strapped agencies may have no option but to remove or relocate stops. Constructing the necessary sidewalks, B/A pads, and curbs can be expensive in itself, but maintenance of traffic (MOT) costs can add much to the bottom line. For smaller communities, these needs may challenge limited resources; in larger communities, the number of stops can cause compliance costs to soar.

To maximize available funds and satisfy ADA, the Florida Department of Transportation contracted with Florida International University researchers to study B/A pads that are movable and reusable. Such pads could be ADA compliant, make buses more accessible, preserve service areas, and give agencies time to prioritize bus stop installation.

First, the researchers surveyed many existing products that could serve in constructing B/A pads. Temporary but durable surfaces that could be adapted for transit pads have been developed for many uses, such as the embedded concrete rubber system designed for rail crossings or the Portapad system designed to create helicopter landing pads. Advantages of these alternatives included low construction and maintenance costs, high durability, reusability, and serviceability on unstable surfaces.



*A barely visible sign marks a highly inaccessible stop. But even the lawn between a sidewalk and curb can make a stop useless for some potential riders.*

Second, the researchers surveyed transit agencies nationwide about use of movable B/A pads. The survey focused on agency service area, number of stops, ADA compliance, budgets, route changes, and awareness or use of movable stop pads. Among the findings were that one-fifth of the 84 responding agencies had over 90% of stops ADA-compliant and none were using movable pads, though many used other movable stop fixtures.

Third, the researchers examined the properties of various movable B/A pad systems. Products were grouped according to primary material and evaluated for structural performance, long-term durability, adaptability, cost, and aesthetics.

Finally, the researchers recommended two designs as the most promising, Building Block and Telescopic. Both rely on bridge construction concepts and eliminate the need for MOT as well as soil excavation, filling, or compacting.

Movable pads could save construction costs, time, and labor costs. They could reduce or eliminate MOT costs and reduce impact on nearby businesses and residences. Most importantly, these pads could increase access and use of public transit.