The Recommended Alternative is a combination of improvements from each of the three alternatives, refined based on public and stakeholder input. Implementation of the Recommended Alternative has been broken down into three phases: (1) less than 18 months, (2) 2 to 4 years, and (3) 4 or more years. DDOT and WMATA are both leading elements of the implementation and will coordinate with other agencies, including the Metropolitan Police Department and Department of Public Works. DDOT anticipates that the bus lanes will be open and operational in 2 to 4 years, coinciding with the start of off-board fare payment and all-door boarding.

### IMPROVEMENT

<table>
<thead>
<tr>
<th>Physical Improvements</th>
<th>Recommended Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus stop consolidation: - 2 southbound locations (Newport, Lament, and V Streets) - 5 northbound locations (L, Q, V, Lament, and Newton Streets)</td>
<td>✓</td>
</tr>
<tr>
<td>Far-side bus stop expansion: 2 southbound locations (Hasten and M Streets)</td>
<td>✓</td>
</tr>
<tr>
<td>Relocate southbound Spring Place bus stop north to Spring Road to improve pedestrian safety</td>
<td>✓</td>
</tr>
<tr>
<td>Upgrade stops to WMATA zone lengths</td>
<td>✓</td>
</tr>
<tr>
<td>Bus lanes</td>
<td>Full length, extended peak period peak direction: 7 - 10 AM southbound 4 - 7:30 PM northbound</td>
</tr>
<tr>
<td>Extension of center reserve lane from Arkansas Avenue to K Street</td>
<td>✓</td>
</tr>
<tr>
<td>Install five-lane W Street to O Street and K Street to H Street</td>
<td>✓</td>
</tr>
<tr>
<td>Intersection reconfiguration at Harvard/Columbia/Mount Pleasant</td>
<td>Future Project</td>
</tr>
</tbody>
</table>

### TRANSIT SERVICE IMPROVEMENTS (Any service changes would require a future public involvement process led by WMATA)

- Headway-based service
- Increase limited stop service (may include converting some local bus trips to limited stops)
- Transition to simpler patterns
- Running and recovery time added to schedule
- Fleet mix upgraded with low floor and articulated buses
- Off-board fare payment: All buses, all stops
- All-door boarding: All buses, all stops

### TRAFFIC OPERATIONS IMPROVEMENTS

- Transit signal priority (TSP) at 18 locations configured for headway-based service
- Peak period parking restrictions extended to 7 - 10 AM (from 9:30 AM) and 4 - 7:30 PM (from 6:30 PM)
- No parking from Arkansas Avenue to M Street during AM and PM peak periods
- Pedestrian safety improvements, including at Arkansas Avenue, Sacred Heart Way, and Mount Pleasant Street
- Bus stop amenity and access improvements
- Automated enforcement
- Enforcement of driving and parking in bus lanes
- PM peak period southbound left turn restriction at W Street |

### QUESTIONS OR COMMENTS?

Contact Megan Kanagy at megan.kanagy@dc.gov or visit our website at bit.ly/16thStreetBus

---

January 21, 2016

### STUDY OVERVIEW

The 16th Street NW Transit Priority Planning Study (the Study) seeks to improve transit performance and reliability with the study area: 16th Street NW between H Street and Arkansas Avenue. The 16th Street line currently serves more than 20,000 bus riders each weekday, making it one of the highest in the region for ridership; more than half of the people traveling on 16th Street in the peak are bus riders.

However, the line suffers from reliability issues and overcrowding, resulting in bus bunching, pass-bys, and slow travel speeds. Motorists also experience significant queuing during rush hours. In addition, 16th Street often serves as a barrier between neighborhoods. Pedestrian crossings are difficult, especially at several complex intersections, and east-west connectivity is limited for vehicles.

### GOALS AND OBJECTIVES

Based on input from the public at the outset of the Study, the following goals and objectives were developed:

#### GOALS

- Improve travel for persons using public transit;
- Develop alternatives based on public and stakeholder input; and
- Evaluate alternatives in terms of their benefits to transit users, possible impacts on users of other transportation modes, and safety.

#### OBJECTIVES

- Improve transit service reliability and travel times by identifying and addressing sources of potential issues (e.g., traffic congestion, signal timing, passenger boarding delays, bus capacity, number and location of bus stops, and/or parking enforcement);
- Prioritize transit while maintaining operations for those traveling by other modes;
- Improve passenger comfort and safety (e.g., overcrowding, street crossings, and bus stop amenities);
- Accommodate current unmet passenger demand for public transit service; and
- Develop an implementation plan that includes cost estimates.

The 16th Street line consists of the S1, S2, and S4 local routes and the S9 MetroExtra limited stop route.
Buses are typically moving only about half of the total trip time. The remaining half is split between dwell time and time spent waiting at traffic signals. Buses arrive already bunched to the study area and buses are bunched throughout the day, reflecting the existing conditions along the corridor, including transit service, traffic operations, safety, and pedestrian access. DDOT identified the following key issues regarding transit travel times and reliability:

- Buses are typically moving only about half of the total trip time. The remaining half is split between dwell time and time spent waiting at traffic signals.
- Buses arrive already bunched to the study area and buses are bunched throughout the day.
- The travel speed slowdown in the AM and PM peak extends past the peak periods. Midday and early night speeds are slow too, in part because of off-peak parking along the corridor.
- The time per passenger to board the S9 route, which uses low-floor buses, is lower than for the local routes. The S4 is the most crowded route, but maximum loads are high on all routes, which contributes to longer dwell times and pass-bys.

ALTERNATIVES

Three alternatives were created to directly address the issues identified through data analysis and public input. Each includes a combination of infrastructure, transit service, and traffic operations improvements. DDOT used these alternatives to test which types and combinations of improvements would best address the Study’s goals and objectives.

DATA COLLECTION AND ANALYSIS

In spring and summer 2015, DDOT undertook extensive data collection and analysis to better understand the existing conditions along the corridor, including transit service, traffic operations, safety, and pedestrian access. DDOT identified the following key issues regarding transit travel times and reliability:

- Buses are typically moving only about half of the total trip time. The remaining half is split between dwell time and time spent waiting at traffic signals.
- Buses arrive already bunched to the study area and buses are bunched throughout the day.
- The travel speed slowdown in the AM and PM peak extends past the peak periods. Midday and early night speeds are slow too, in part because of off-peak parking along the corridor.
- The time per passenger to board the S9 route, which uses low-floor buses, is lower than for the local routes. The S4 is the most crowded route, but maximum loads are high on all routes, which contributes to longer dwell times and pass-bys.
The objectives of the 16th Street Transit Priority Study include improving transit service reliability and travel times, while also improving overall passenger comfort and safety. Bus stop consolidation is one way to improve overall bus travel times, as the buses spend less time at bus stops. Currently average bus travel speeds, including time spent at bus stops, are below 10 mph for much of the day along 16th Street NW.

WHICH STOPS ARE PROPOSED FOR CONSOLIDATION?

There are currently 16 southbound bus stops and 18 northbound bus stops within the 2.7-mile study corridor, which averages to about a stop every 1/6th of a mile. As part of the Recommended Alternative, DDOT is proposing to consolidate three southbound stops and five northbound stops, which would average to about a stop every 1/5th of a mile. The stops proposed for consolidation are:

**SOUTHBOUND**
- Newton Street
- Lamont Street
- V Street

**NORTHBOUND**
- Newton Street
- Lamont Street
- V Street
- Q Street
- L Street

These stops were selected for two reasons:
1. They are generally located within one block of an adjacent stop; and
2. They are not S9 MetroExtra service stops (S9 stops are located at major cross streets and are classified as enhanced stops under WMATA’s guidelines, indicating a higher level of customer amenities).

**WHAT ARE THE BENEFITS OF CONSOLIDATION?**

With the consolidation of these stops, DDOT conservatively estimates travel time savings of 1 to 1.5 minutes per bus trip. This is about 15 to 25% of the total travel time savings estimated under the Recommended Alternative for the S1, S2, and S4 routes. Bus stop consolidations will also enable DDOT to allow other curbside uses, such as parking or loading zones, which are not possible today because of the bus stops.

**WHAT ARE THE IMPACTS OF CONSOLIDATION?**

DDOT recognizes that bus stop consolidation will increase the distance that some pedestrians need to walk in order to access the bus. In addition, many of the adjacent stops are already crowded with people waiting for the bus. To address these concerns, DDOT will work to improve access to the adjacent bus stops and will install additional shelters, expand waiting areas, and improve pedestrian safety at the stops. These improvements will be in place before a stop is consolidated.

Please inform DDOT if there are additional bus stop or safety improvements that would assist pedestrians in accessing the next closest bus stop by emailing Megan Kanagy at megan.kanagy@dc.gov.
Improvements Proposed
Adjacent Stops
Approximate Distance Between
Approximate Distance to Closest

Install second shelter at M Street.

Install second shelter at I Street.

Install second shelter at Park Road.

Install shelter at Crescent Place.

Install second shelter at U Street.

Install shelter at Irving Street.

Install shelter at Park Road.

Install second shelter at Park Road.

Install shelter at Newsom Street.

Install second shelter at P Street.

Install shelter at M Street

Approximate Distance Between

Approximate Distance to Closest

Install shelter at Crescent Place.

Install second shelter at Park Road.

Install shelter at Newsom Street.

Install shelter at Park Road.

Install second shelter at Park Road.

Install shelter at Newsom Street.

Install second shelter at P Street.

Install shelter at M Street.
January 21, 2016

SPRING PLACE BUS STOP RELOCATION

As part of the 16th Street NW Transit Priority Planning Study, DDOT evaluated several options to improve pedestrian safety at 16th Street and Spring Place. Currently, the southbound bus stop is near the intersection of Spring Place, which is an unsignalized intersection and does not have a marked crosswalk across 16th Street. The northbound stop is near Spring Road, which is signalized and has a marked crosswalk across 16th Street. Pedestrians trying to access the southbound bus stop sometimes cross 16th Street at Spring Place, rather than using the marked crosswalk at Spring Road.

Unfortunately, this situation cannot be improved simply by striping a crosswalk across 16th Street at Spring Place. Doing so would create an even more unsafe situation than exists today. Based on a rigorous body of safety research, uncontrolled marked crosswalks (crosswalks without a traffic signal) on multi-lane, high volume arterial streets, like 16th Street, create a significantly higher probability of a pedestrian being struck compared with leaving it unmarked.

Given that simply striping a crosswalk at Spring Place would be unsafe, three additional options were examined, as shown below.