

16TH STREET NW TRANSIT PRIORITY



Planning Study

Citizens Advisory Group Meeting No. 4

December 15, 2015



Agenda

1. Project Overview

- Timeline
- Fall Public Outreach

2. Alternatives Analysis & Draft Preferred Alternative

3. Next Steps

Purpose of Tonight's Meeting

- Provide feedback on the Draft Preferred Alternative.
 - Are there any improvements that should be added?
 - Are there any improvements that should be removed?

PROJECT OVERVIEW

Study Area

Primary Study Area

- 16th Street NW from H Street to Arkansas Avenue

Secondary Study Area

- Bounded by 14th Street, 18th Street, Taylor Street and H Street



Goals



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

Objectives

- Improve transit reliability and travel times
- Prioritize transit while maintaining multi-modal operations
- Improve passenger comfort and safety
- Accommodate unmet demand
- Develop an implementation plan

Citizens Advisory Group

- Purpose:
 - Advise DDOT in between larger public engagement events
 - Help to expand the dialogue and reach of the planning process
- Thank you for your participation!

Project Timeline

January 2015

January 2016



Fall Meetings and Events

- September 30: Citizens Advisory Group Meeting
- October: Four “pop-up” style events along the corridor
 - 500 flyers or rack cards distributed
 - Nearly 80 surveys completed
- Presentations at 4A, 4C, 1C, and 2B ANC October meetings
- Public comments received through October 21
 - Approximately 150 comments received via email

What We Heard



What We Heard

- Large support for bus lanes and off-board fare payment for all buses
- Some concern about S1 truncation and Arkansas Avenue deadhead
- Mixed or few comments on other improvements

Refinement of the Alternatives

- S1 truncation at Farragut Square removed from Alternative 1
- Arkansas Avenue deadhead service removed from Alternative 1
- Left-turn restriction northbound at Mt. Pleasant Street removed from Alternative 3

ALTERNATIVES ANALYSIS & DRAFT PREFERRED ALTERNATIVE

Review of Alternatives

- Alternative 1: Service Focus
- Alternative 2: Infrastructure Focus
- Alternative 3: Mixed Service and Infrastructure

Analysis

- Multi-modal VISSIM model
- Transit dwell and travel time estimations
- Verification of physical space needs and feasibility - ongoing
- Capital and operating cost estimates and implementation strategy - ongoing

Level of Service (LOS)

- **LOS A:** Free flow
- **LOS B:** Stable flow (slight delays)
- **LOS C:** Stable flow (acceptable delays, speed limit is maintained)
- **LOS D:** Approaching unstable flow (speeds slightly decrease, occasionally wait through more than one signal cycle)
- **LOS E:** Unstable flow (operating at capacity, vehicles rarely reach speed limit, disruptions cause shock waves to traffic upstream)
- **LOS F:** Forced flow (constant traffic jam)

NEXT STEPS

Next Steps

- January 21: Final Public Meeting
 - Washington, DC Jewish Community Center
 - 3:30 PM – 8:00 PM
 - Presentations at 4:00 PM and 7:00 PM

Stay Connected

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Project Website

bit.ly/16thStreetBus



FINAL ALTERNATIVES COMPARISON

IMPROVEMENT		ALTERNATIVE 1 Service Focus	ALTERNATIVE 2 Infrastructure Focus	ALTERNATIVE 3 Mixed Service and Infrastructure	DRAFT PREFERRED ALTERNATIVE
PHYSICAL IMPROVEMENTS					
BASE IMPROVEMENTS	Bus stop removal/consolidation: - 4 southbound locations (Newton, Lamont, V Streets, and Riggs Place) - 5 northbound locations (L, Q, V, Lamont and Newton Streets)	✓	✓	✓	✓
	Far-side bus stop expansion: 2 southbound locations (Harvard and M Streets)	✓	✓	✓	✓
	Relocate southbound Spring Place bus stop north to Spring Road to improve pedestrian safety	✓	✓	✓	?
	Upgrade bus stops to WMATA zone lengths	✓	✓	✓	✓
ADDITIONAL IMPROVEMENTS	Bus lanes		Full length, both directions 7:00 am - 10:00 pm	Full length, extended peak period peak direction: - 7:00 am - 10:00 am southbound - 4:00 pm - 7:30 pm northbound	Full length, extended peak period peak direction: - 7:00 am - 10:00 am southbound - 4:00 pm - 7:30 pm northbound
	Extension of reversible lane to O Street NW		✓	✓	✓ Add fifth lane south of W Street NW
	Queue jump lanes	✓			
	Intersection reconfiguration at Harvard/Columbia/Mount Pleasant		✓		Future Project
TRANSIT SERVICE IMPROVEMENTS (Any proposed service changes would require a future public involvement process led by WMATA)					
BASE IMPROVEMENTS	Headway-based service	✓	✓	✓	✓
	S2 Route patterns reduced	✓	✓	✓	✓
	S1 and S2 service eliminated along 14th Street between Northern Bus Garage and 16th Street	✓	✓	✓	✓
	Running and recovery time added to schedule	✓	✓	✓	✓
	Fleet mix upgraded with low-floor and articulated buses	✓	✓	✓	✓
ADDITIONAL IMPROVEMENTS	Off-board fare payment	All buses, all stops	SmarTrip Card top off only	S9 buses and stops only	All buses, all stops
	All-door boarding	All buses, all stops		S9 buses and stops only	All buses, all stops
	S1 converted to limited stop service using current S9 stops	✓			✓
	S2/S4 service patterns truncated in downtown to McPherson Square Metro	✓			✓
	Deadhead service relocated to Arkansas Avenue from Missouri Avenue	✓			
TRAFFIC OPERATIONS IMPROVEMENTS					
BASE IMPROVEMENTS	Transit signal priority (TSP) at 15 planned locations and five additional locations configured for headway-based service	✓	✓	✓	✓
	Peak period parking restrictions extended to 7:00 - 10:00 am (from 9:30 am) and 4:00 - 7:30 pm (from 6:30 pm)	✓	✓	✓	✓
	Southbound reversible lane extended to 7:00 - 10:00 am (from 9:30 am)	✓	✓	✓	✓
	Pedestrian safety improvements, including at Arkansas Avenue, Sacred Heart Way, and Harvard/Columbia/Mount Pleasant	✓	✓	✓	✓
	Bus stop amenity and access improvements	✓	✓	✓	✓
	Correct parking restrictions northbound between L and M Streets to prohibit PM peak parking	✓	✓	✓	✓
	Work with downtown hotels on taxi and loading zone relocation	✓	✓	✓	✓
ADDITIONAL IMPROVEMENTS	Automated enforcement on buses	Enforcement of peak hour restrictions	Enforcement of bus lanes		Enforcement of driving and parking in bus lanes
	Dedicated towing		Pilot program with potential extension	✓	
	Remove midday parking	✓	✓		
	Left-turn restriction southbound at Irving Street	✓		✓	✓
	Left-turn restriction northbound at Mount Pleasant Street	✓			?
	Southbound left turn lane separation and advance signage at W Street	✓			
Peak hour signal timing extended for north-south traffic through midday (pending further analysis as part of the ongoing citywide Traffic Signal Optimization effort)				✓	

Travel Time Savings Summary

NOTE: Actual bus travel time savings may differ from below and total savings are anticipated to be less than the sum of individual improvements. The savings below are provided for comparison of alternatives.

ESTIMATED TIME SAVINGS PER IMPROVEMENT

IMPROVEMENT	SAVINGS (min)
Bus Stop Removal/Consolidation	1.0 - 1.3
Bus Lanes	2.4 - 2.7
Queue Jump Lanes	< 0.1
Intersection Reconfiguration at Harvard/Columbia/Mt. Pleasant	0.1 - 0.3
Fleet Mix Upgraded with Low-Floor and Articulated Buses	0.5 - 0.6
Off-Board Fare Payment	1.7 - 2.0 (S1, S2, S4) 1.0 - 1.7 (S9)
SmarTrip Card Top-Off	0.3 - 0.5
All-Door Boarding	0.8 - 0.9 (S1, S2, S4) 0.4 - 0.7 (S9)
S1 Converted to Limited Stop Service	2.6
Remove Midday Parking	1.7 - 1.9

ESTIMATED TOTAL TRAVEL TIME SAVINGS PER TRIP

ROUTE	SOUTHBOUND AM PEAK (min)			NORTHBOUND PM PEAK (min)		
	S1	S2/S4	S9	S1	S2/S4	S9
Existing	23.6	24.9	21.6	16.7*	21.0	18.0
Alternative 1	7.0	4.4	1.4	6.9	4.3	2.5
Alternative 2	4.9	5.2	2.9	4.8	4.9	2.9
Alternative 3	4.0	4.2	3.7	4.3	4.4	4.9

*Low value due to small sample size. Actual value is likely similar to the S2/S4 existing travel time.

ESTIMATED DWELL TIMES

ROUTE	SOUTHBOUND (min)		NORTHBOUND (min)	
	S1/S2/S4	S9	S1/S2/S4	S9
Existing	5.0	2.7	4.9	3.2
Alternative 1	2.9	1.6	3.0	2.1
Alternative 2	3.8	2.5	3.6	3.0
Alternative 3	4.0	1.6	3.9	2.1

ESTIMATED CHANGE IN VEHICLE TRAVEL TIME

ALTERNATIVE	SOUTHBOUND AM PEAK (min)	NORTHBOUND AM PEAK (min)	NORTHBOUND PM PEAK (min)	SOUTHBOUND PM PEAK (min)
Alternative 1	(-4.6)	(-0.1)	(-0.7)	(-3.5)
Alternative 2	8.2	25.7	10.1	31.3
Alternative 3	1.2	12.4	5.1	8.0

INTERSECTIONS & APPROACHES WITH LOS E/F

INTERSECTIONS	AM-PEAK OVERALL	AM-PEAK SB	AM-PEAK NB	PM-PEAK OVERALL	PM-PEAK SB	PM-PEAK NB	MIDDAY OVERALL	MIDDAY SB	MIDDAY NB
EXISTING CONDITIONS									
I Street					•				
L Street						•			
W Street		•							
Irving Street			•						
Total	0	1	1	0	1	1	0	0	0
ALTERNATIVE 1									
Total	0	0	0	0	0	0	0	0	0
ALTERNATIVE 2									
I Street								•	
K Street						•			
M Street						•			
R Street			•						
S Street			•						
T Street			•						
U Street and New Hampshire Avenue			•						•
V Street			•						
W Street	•		•						
Crescent Place		•			•				
Euclid Street	•	•		•	•				
Fuller Street	•	•	•	•	•				
Harvard Street	•			•	•	•			
Mt. Pleasant Street				•					
Irving Street				•		•			
Lamont Street			•	•	•	•			
Park Road				•	•				
Monroe Street				•	•				
Newton Street				•	•				
Oak Street		•			•				
Spring Road					•				
Arkansas Avenue	•	•		•	•				
Total	5	5	8	10	11	5	0	1	1
ALTERNATIVE 3									
I Street					•				
M Street									
P Street			•						
Q Street			•						
U Street and New Hampshire Avenue			•						
W Street				•					
Crescent Place					•				
Euclid Street					•				
Fuller Street					•				
Harvard Street			•						
Total	0	0	4	1	5	0	0	0	0

Seeking to improve with addition of center reversible lane.

Examining options for improving operations at W