



**DOWNTOWN WEST**  
Transportation Planning Study

# 16TH STREET NW **BUS LANES PROJECT**



*Design Phase*

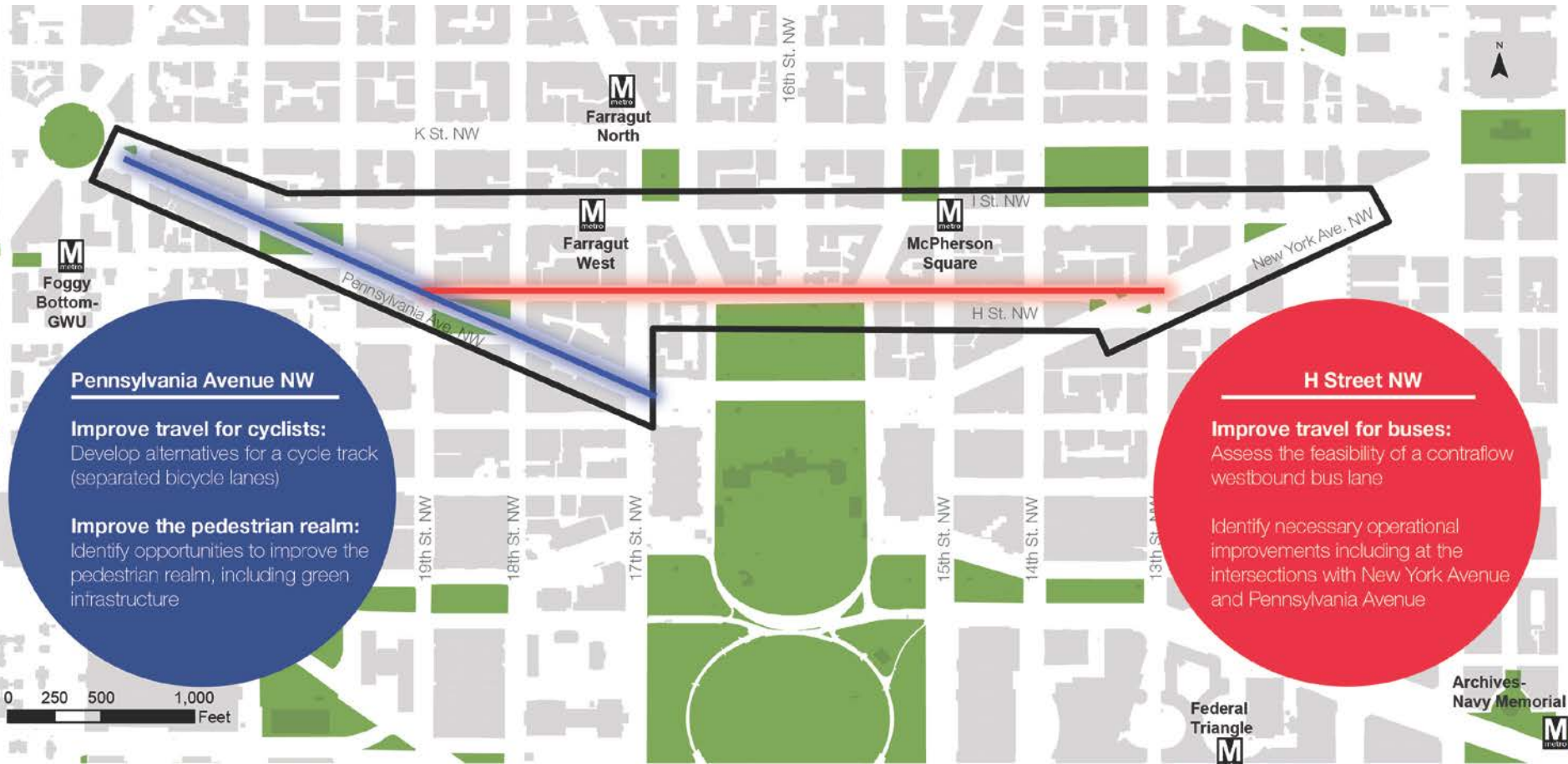
**DDOT Bus Priority Projects:  
H Street NW & 16<sup>th</sup> Street NW**

**October 24, 2017**

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# H STREET NW

# Study Area



# H/I Streets Bus Improvements Technical Report (2013)

## Optimized No-Build:

- Lowest cost solution with good benefits
- Lowest level of impacts to traffic and curb uses
- Turning restrictions enforcement needed to ensure benefits

Optimized No-Build: Traffic Signal Optimizations and Right-Turn Restrictions (2012)



## H Street Contra-Flow Bus-Only Lane:

- Medium cost solution with nearly all the possible benefits
- Benefits not contingent on enforcement

Alternative 2: Westbound Contra-Flow on H Street



## Concurrent Flow Bus-Only Lanes:

- Low cost solution with good benefits
- Turn and operating restrictions enforcement needed to ensure benefits

Alternative 1: Concurrent Flow on H and I Streets



## Contra-Flow Bus-Only Lane Couplet:

- Highest cost solution
- Marginal increase in benefits
- Turn restriction enforcement required for congestion management

Alternative 3: Contra-Flow on H and I Streets



Performance:

Best

Moderate

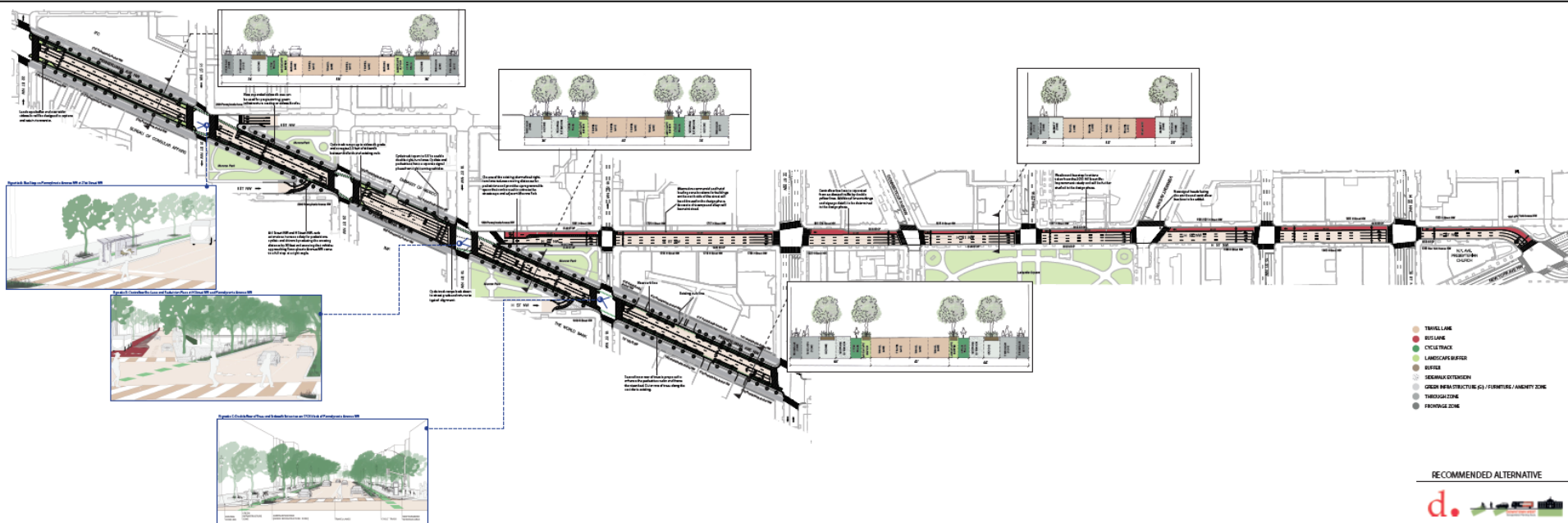
Least

# Existing Conditions

## H & I Streets NW

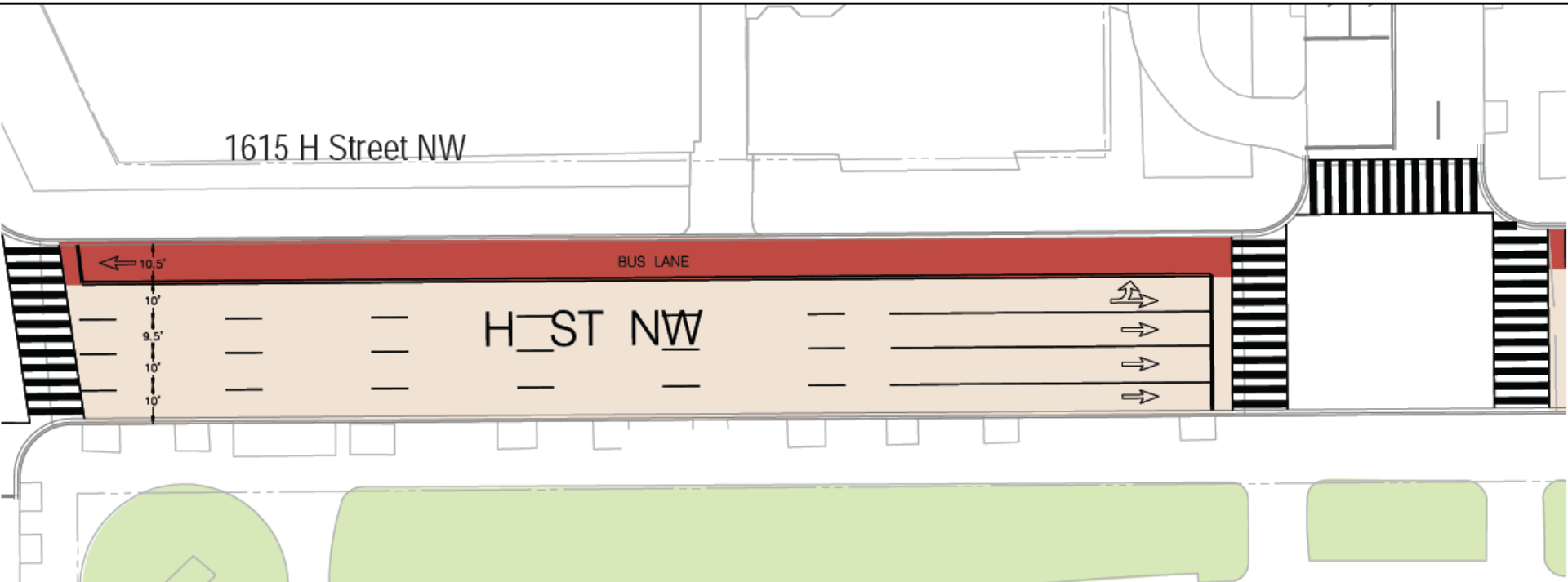
- H Street = 5 lanes eastbound
  - I Street = 4 lanes westbound
  - Very heavy bus volumes
    - Over 30 bus routes serving about 20% of daily Metrobus bus ridership (includes K Street)
    - I Street is more congested than H Street
    - I Street bus speeds average 3.6 MPH in the PM (15<sup>th</sup> to 17<sup>th</sup> Street)
- } Similar traffic volumes

# Recommended Alternative



Roll map posted on project website:  
[downtownwestdc.com](http://downtownwestdc.com)

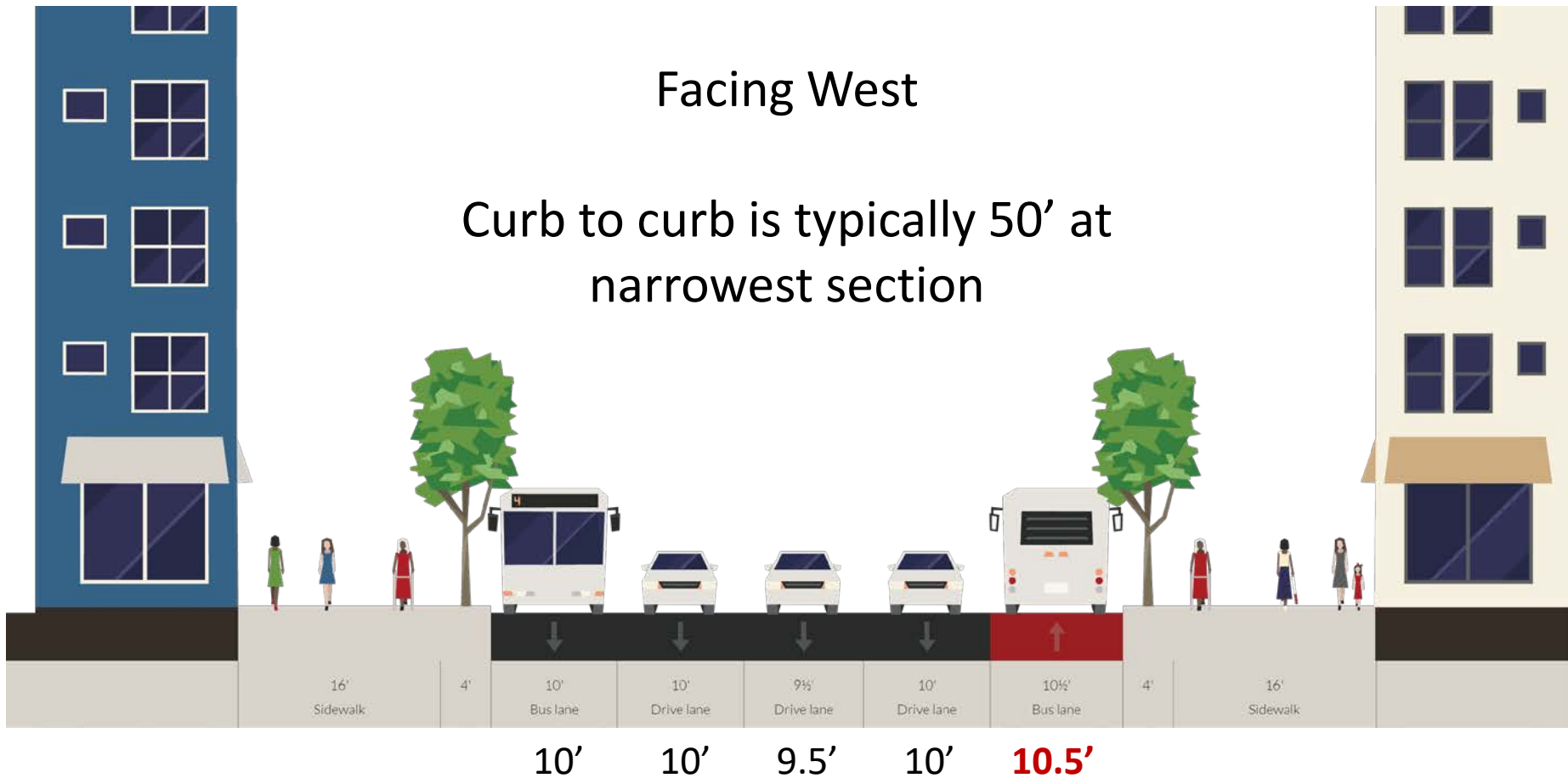
# H Street with Bus Lane: Representative Block



# H Street with Bus Lane: Cross Section

Facing West

Curb to curb is typically 50' at  
narrowest section



Note: lane widths pending further measurement in the design phase



# Bus Routes Modeled on H Street Bus Lane

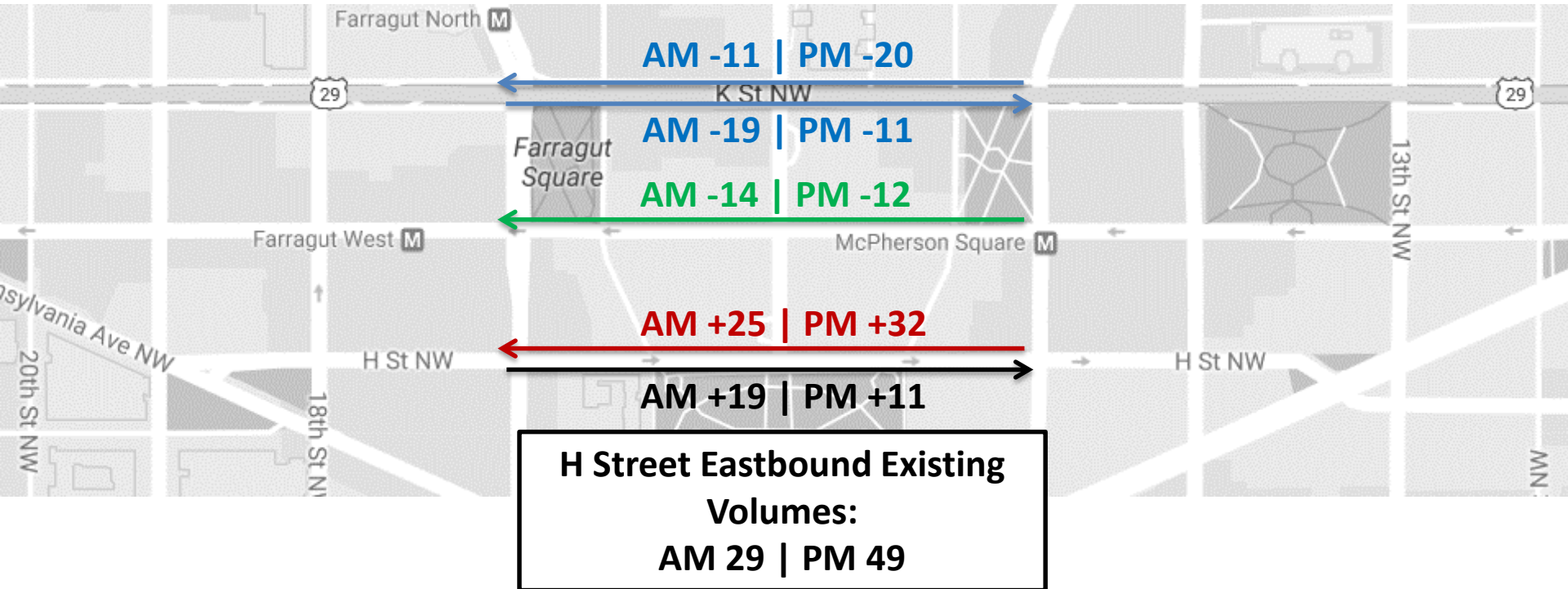
1. 32, 33, 36, 30N, 30S, 37
2. X2
3. D6, D6/ East
4. 80
5. 16Y
6. 3Y

Full routing analysis would be done in next project phase.

# Peak Bus Volumes

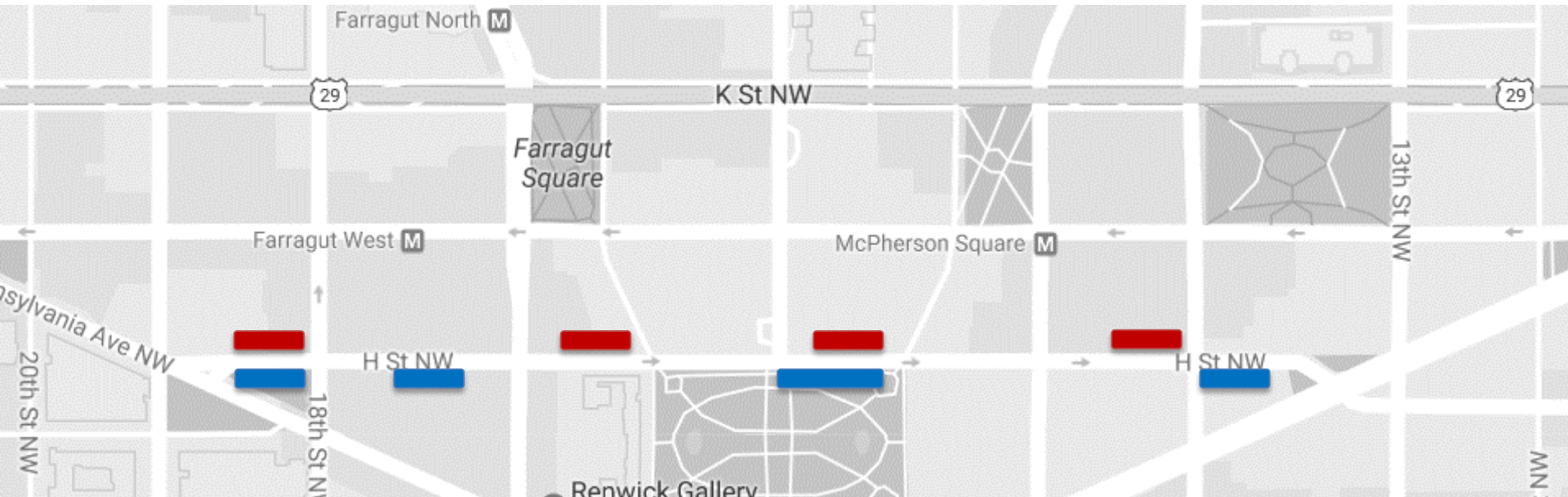
AM: 8:00 – 9:00 AM

PM: 5:00 – 6:00 PM



Counts are estimates based on WMATA's published schedules

# Bus Stops



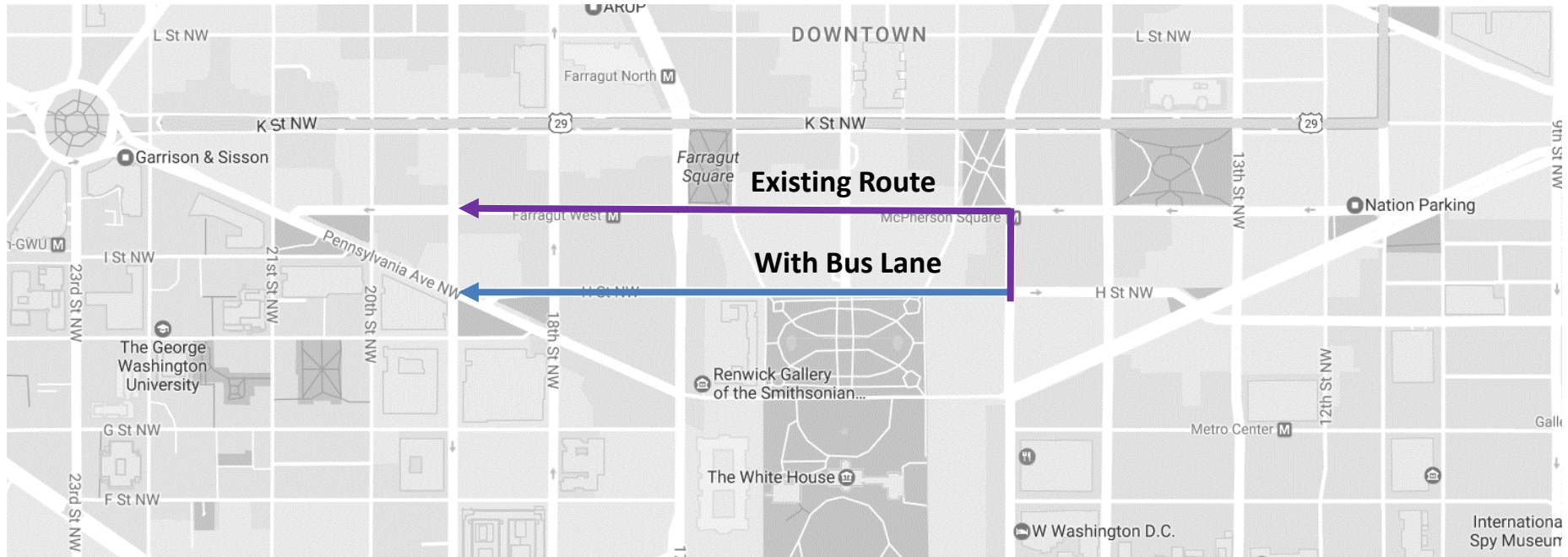
Westbound stops (proposed in 2013 Study)

Eastbound stops (existing)

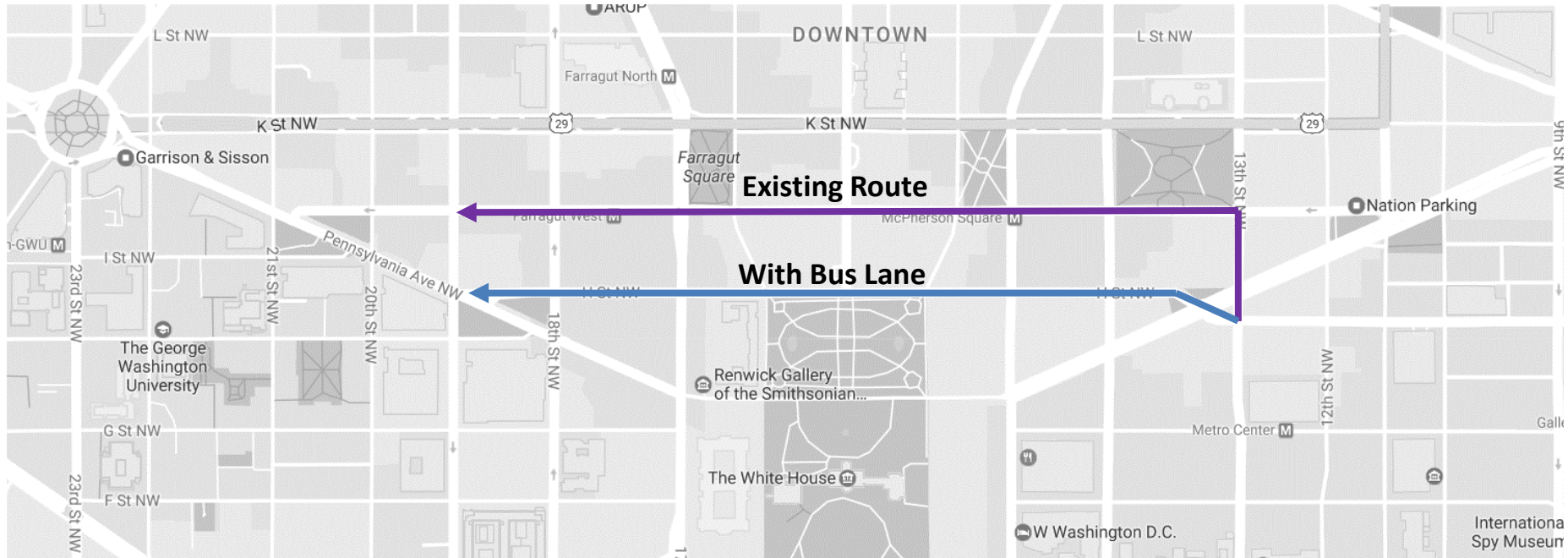
# Bus Travel Time Results: Buses Using the Bus Lane

2040 Travel Times	AM		PM	
	No Build	Build	No Build	Build
H Street Westbound (30s) 15 <sup>th</sup> to 19 <sup>th</sup> Street	6.7 min (5.4 MPH)	-34% -2.3 min (7.2 MPH)	8.4 min (4.3 MPH)	-44% -3.7 min (6.7 MPH)
H Street Westbound (37) 13 <sup>th</sup> to 19 <sup>th</sup> Street	N/A	N/A	13.1 min (3.9 MPH)	-49% -6.4 min (6.6 MPH)

# Bus Travel Time Results: 30s (Westbound)



# Bus Travel Time Results: 37 (Westbound, PM only)



# Bus Travel Time Results: Buses Not Using the Bus Lane

2040 Travel Times	AM		PM	
	No Build	Build	No Build	Build
Buses remaining on I Street Westbound 11 <sup>th</sup> to 21 <sup>st</sup> Street	17.0 min (3.5 MPH)	-15% -2.5 min (4.1 MPH)	18.4 min (3.3 MPH)	-17% -3.1 min (3.9 MPH)
Buses on H Street Eastbound 19 <sup>th</sup> to 13 <sup>th</sup> Street	7.4 min (5.7 MPH)	+2% (+0.1 min) (5.6 MPH)	7.9 min (5.4 MPH)	-1% -0.1 min (5.4 MPH)

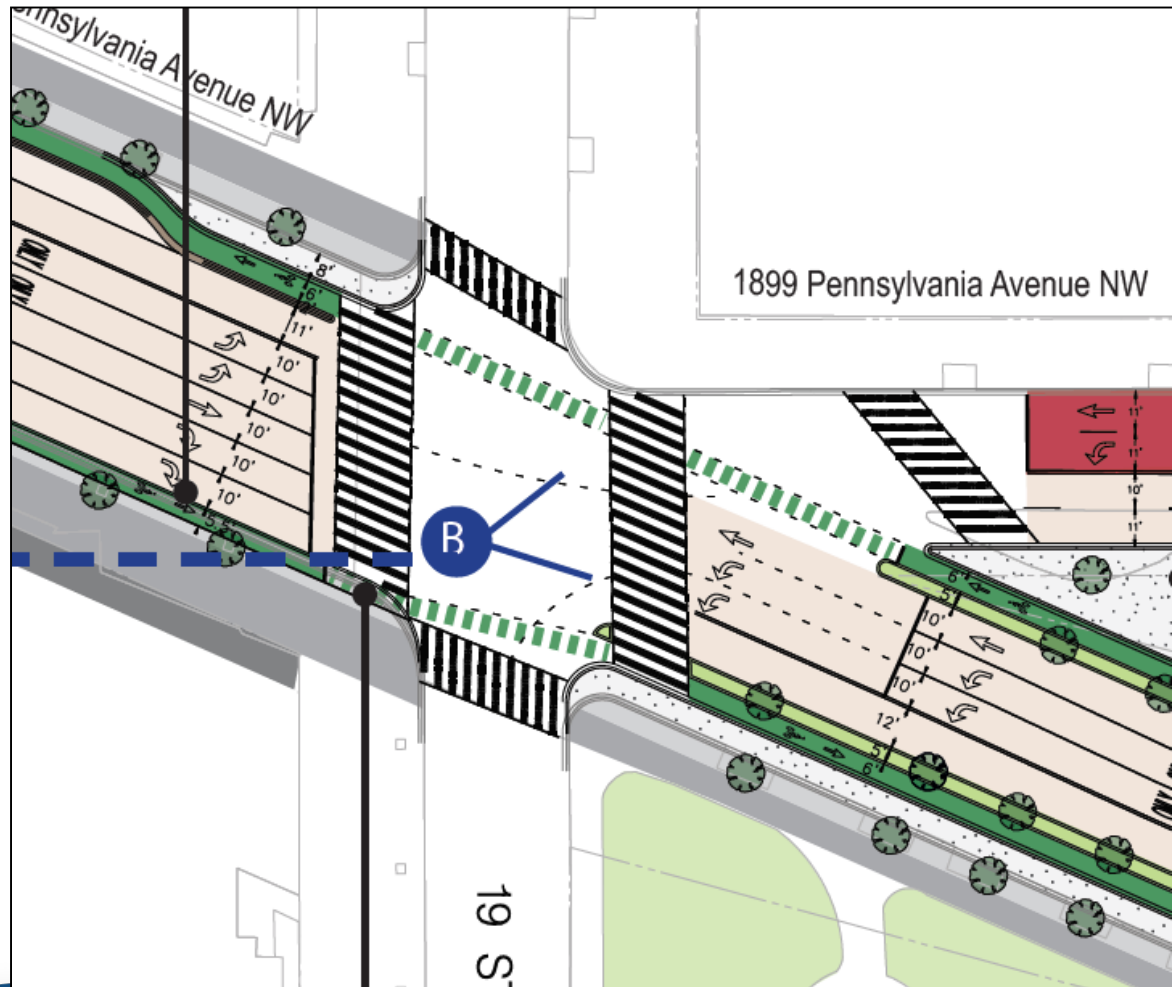
# H Street: Benefits for Bus Riders

- 49,000+ daily riders on routes shifted to H Street bus lane would benefit from approx. 30% - 50% faster travel times
- 40,000+ daily riders on routes remaining on I Street would benefit from approx. 15% faster travel times



# Penn Ave./19<sup>th</sup> St./H St.

- Bus phase for left turning buses from H Street bus lane
- Separate phases for eastbound dual right turns and bikes/pedestrians crossing 19<sup>th</sup> Street
- Separate phases result in more delay
  - More analysis will be done as part of the preliminary engineering phase



# H Street Next Steps: Preliminary Engineering

- Additional analysis needed including:
  - Alternative loading and access solutions for north side properties
  - Which bus routes use the bus lane
  - Number and location of bus stops
  - Roadway width confirmation
  - Operational considerations and safety
- Public and stakeholder engagement

# 16<sup>TH</sup> STREET NW

# Study Area

- Goal is to improve travel times and reliability for over 20,000 daily riders
  - Bus bunching
  - Slow travel speeds
  - Pass-bys



# Project Timeline

We are here



Transit Priority  
Planning Study

Environmental  
Documentation  
  
Developing  
Roadway  
Layouts

30%  
Design  
Plans

65%  
Design  
Plans

100%  
Design  
Plans

Project  
Implementation

Public Meetings

# Planning Study Recommended Alternative

## RECOMMENDED ALTERNATIVE

IMPROVEMENT	RECOMMENDED ALTERNATIVE
<b>PHYSICAL IMPROVEMENTS</b>	
Bus stop consolidation: - 3 southbound locations (Newton, Lamont, and V Streets) - 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 stops to WMATA zone lengths	✓
Bus lanes	Full length, extended peak period peak direction: 7:00 am - 10:00 am southbound 4:00 pm - 7:30 pm northbound
Extension of center reversible lane from Arkansas Avenue to K Street	✓
Install fifth lane W Street to O Street and K Street to H Street	✓
Intersection reconfiguration at Harvard/Columbia/Mount Pleasant	Future Project
<b>TRANSIT SERVICE IMPROVEMENTS (Any service changes would require a future public involvement process led by WMATA)</b>	
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
<b>TRAFFIC OPERATIONS IMPROVEMENTS</b>	
Transit signal priority (TSP) at 18 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). 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	✓

### QUICK STATS

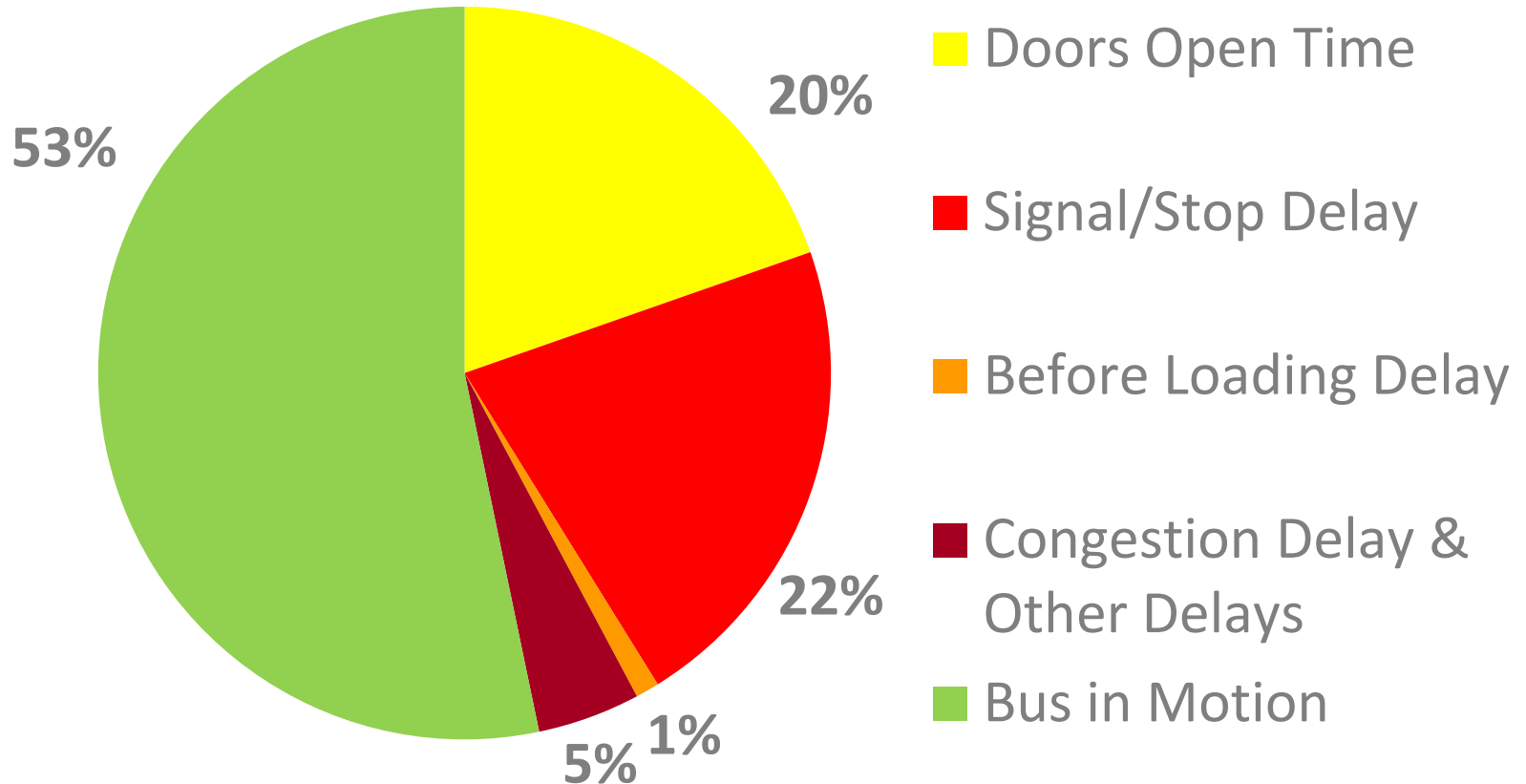
BUS ROUTE	TRAVEL TIME CHANGES
S1/S2/S4	5.9 min savings (Both AM Peak Southbound and PM Peak Northbound)
S9	3.7 min savings (AM Peak Southbound) 4.6 min savings (PM Peak Northbound)

GENERAL VEHICLES	TRAVEL TIME CHANGES
AM Peak Period	Remains the same (Southbound) Lengthens by 1.5 min (Northbound)
PM Peak Period	Lengthens by 1.9 min (Southbound) Lengthens by 2.0 min (Northbound)

# Average Bus Operations

(Source: On-Board Data Collection)

Overall Peak Period Peak Direction Averages



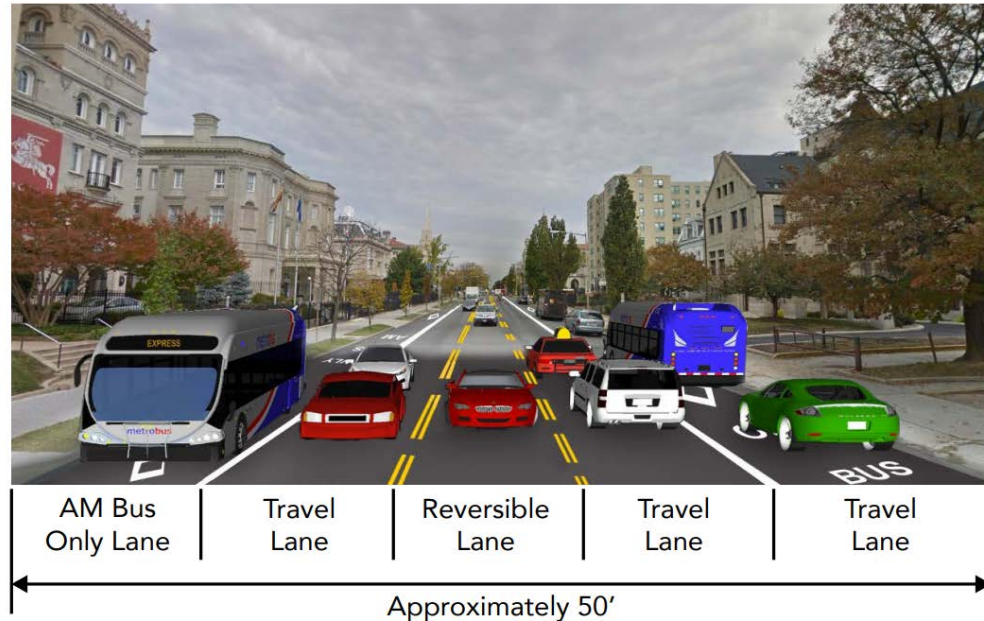
Note: Congestion also impacts the time the bus is in motion

# Design & Implementation

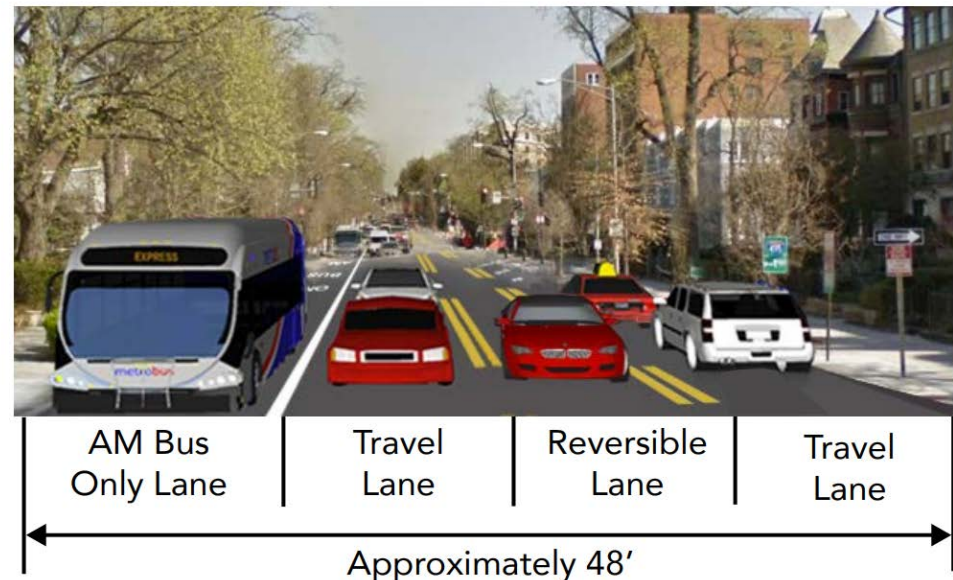
- Moving from concept plan to 30% design
  - Survey
  - Reversible lane operations

How do we fit peak hour peak direction bus lanes safely into existing roadway?

AM Peak - North of U Street NW



AM Peak - South of U Street NW





# Design & Implementation

- Currently undergoing Section 106 process
  - Overhead lane control signs for reversible lane options in historic viewshed



# Ongoing Work

- Camera enforcement
- Off-board fare collection
  - Mobile ticketing option
- Transit Signal Priority
  - Currently schedule-based for S9
  - Planning Study recommended headway-based for all routes

# Service Improvements

- Starting in June 2017
  - More limited-stop S9 service
  - New midday and Saturday limited-stop S9 service
  - Service patterns simplified
  - Reliability has improved



# Thank you!

Questions? Comments?

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H Street: [downtownwestdc.com/](https://downtownwestdc.com/)

16<sup>th</sup> Street: [16thstreetnwbus.com/](https://16thstreetnwbus.com/)