



# **King Street Bicycle Lanes and Pedestrian Improvements**

**City Council Public Hearing  
March 15, 2014**



## Issue:

Decision of the Director of Transportation and Environmental Services (T&ES) to remove parking on King Street from West Cedar Street to Highland Place in order to install bicycle lanes and associated pedestrian and bicycle improvements.

## Staff's Recommendation:

That City Council upholds the decision of the Director of T&ES to remove parking on King Street from West Cedar Street to Highland Place in order to install bicycle lanes and associated pedestrian and bicycle improvements.



# Presentation Outline

- 1) Adopted Plans
- 2) Proposed Plan
- 3) Plan is in accordance with design guidelines
- 4) Plan modified to respond to safety concerns voiced through detailed public outreach process
- 5) Extensive data collection and analyses



# Project Goals

- Provide direct bicycle access along King Street
- Provide facilities for pedestrians, cyclists and drivers
- Improve the safety and convenience of all street users
- Implement City Council adopted plans and policies

# Shared Concerns

- Speeding on King Street is a problem
  - 85<sup>th</sup> percentile speeds WB: 33mph
  - 85<sup>th</sup> percentile speeds EB: 35mph
- Pedestrian safety along King Street
  - Pedestrians on sidewalk are too close to fast moving vehicles
  - Cyclists riding on sidewalks





# Complete Streets

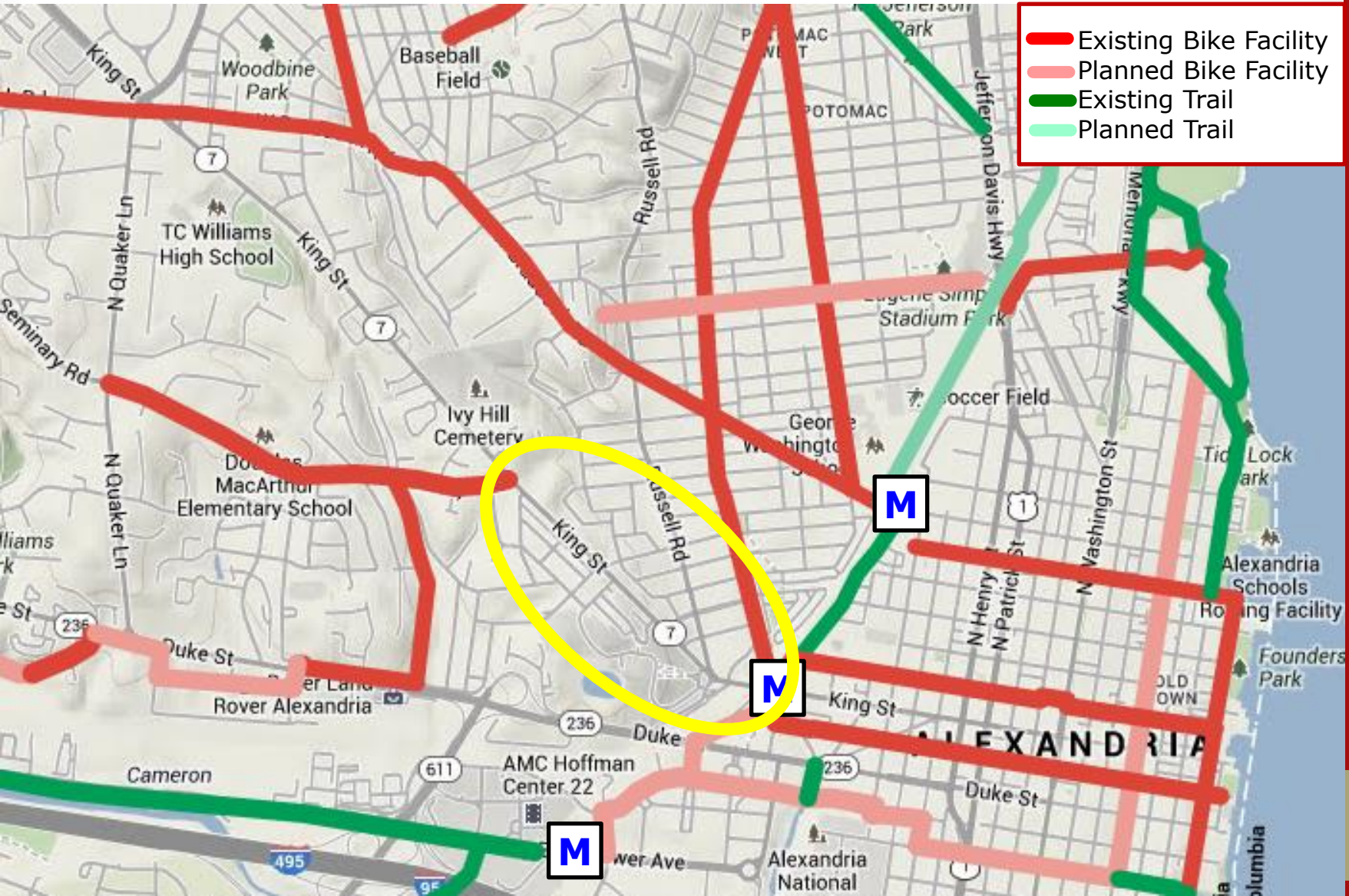
- **City Council Goal #3:** A multimodal transportation network that supports sustainable land use and provides internal mobility and regional connectivity for Alexandrians
- **Complete Streets Policy:** Alexandria shall incorporate Complete Streets infrastructure into existing public streets to improve the safety and convenience of users and construct and enhance the transportation network for all users
- **Transportation Master Plan:** Implement a citywide bikeway network to serve all users and trip types, provide end-of-trip facilities, improve bicycle/transit integration, implement encouragement programs and improve safety
- **Pedestrian and Bicycle Mobility Plan**



# Existing & Planned Bicycle Network

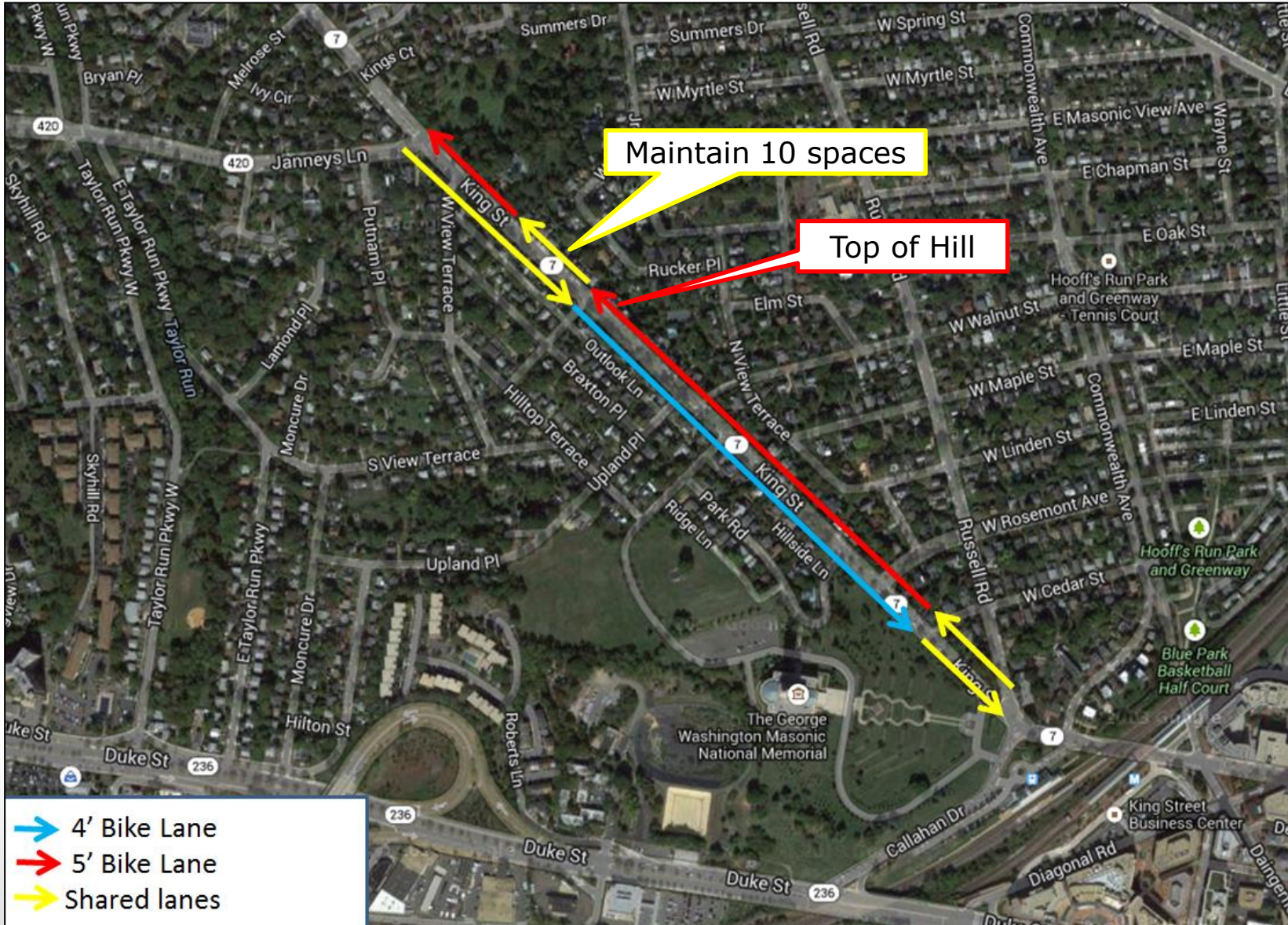


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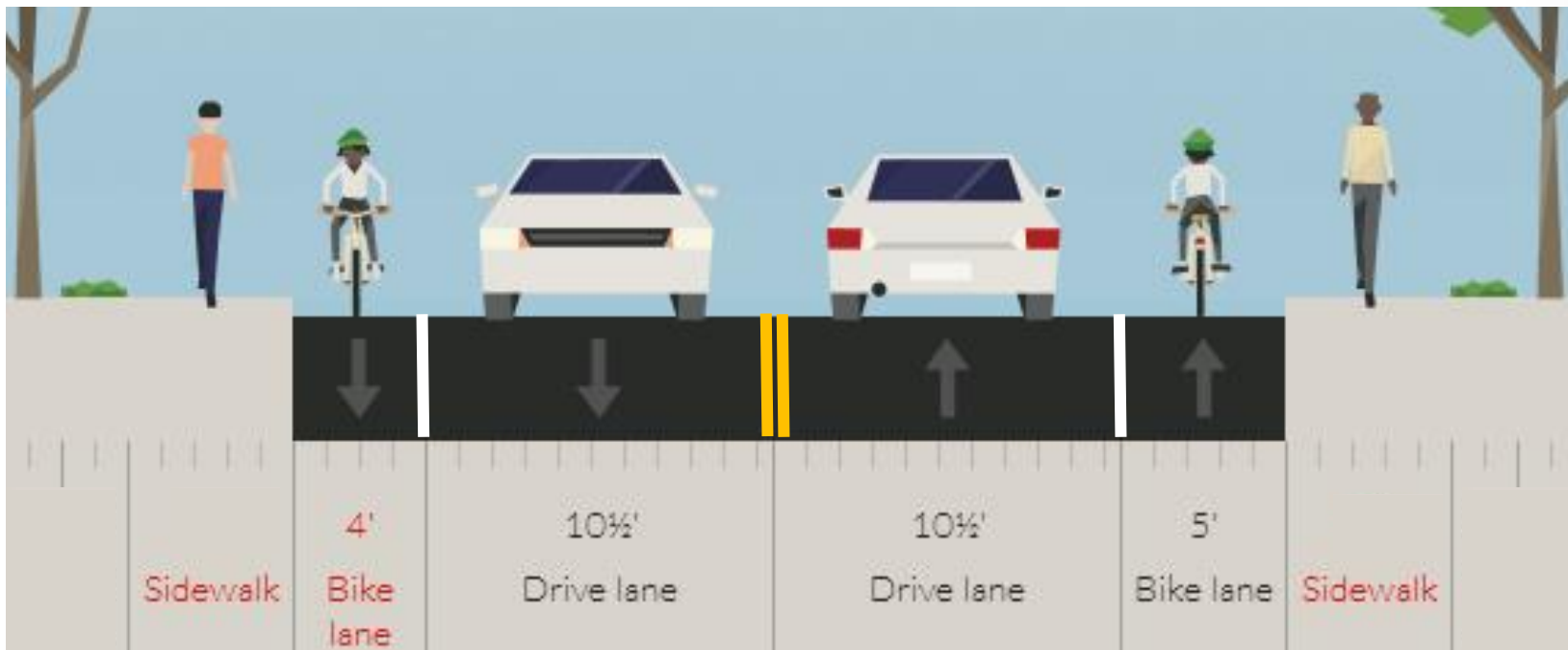
# Proposed Plan



- 4' Bike Lane
- 5' Bike Lane
- Shared lanes

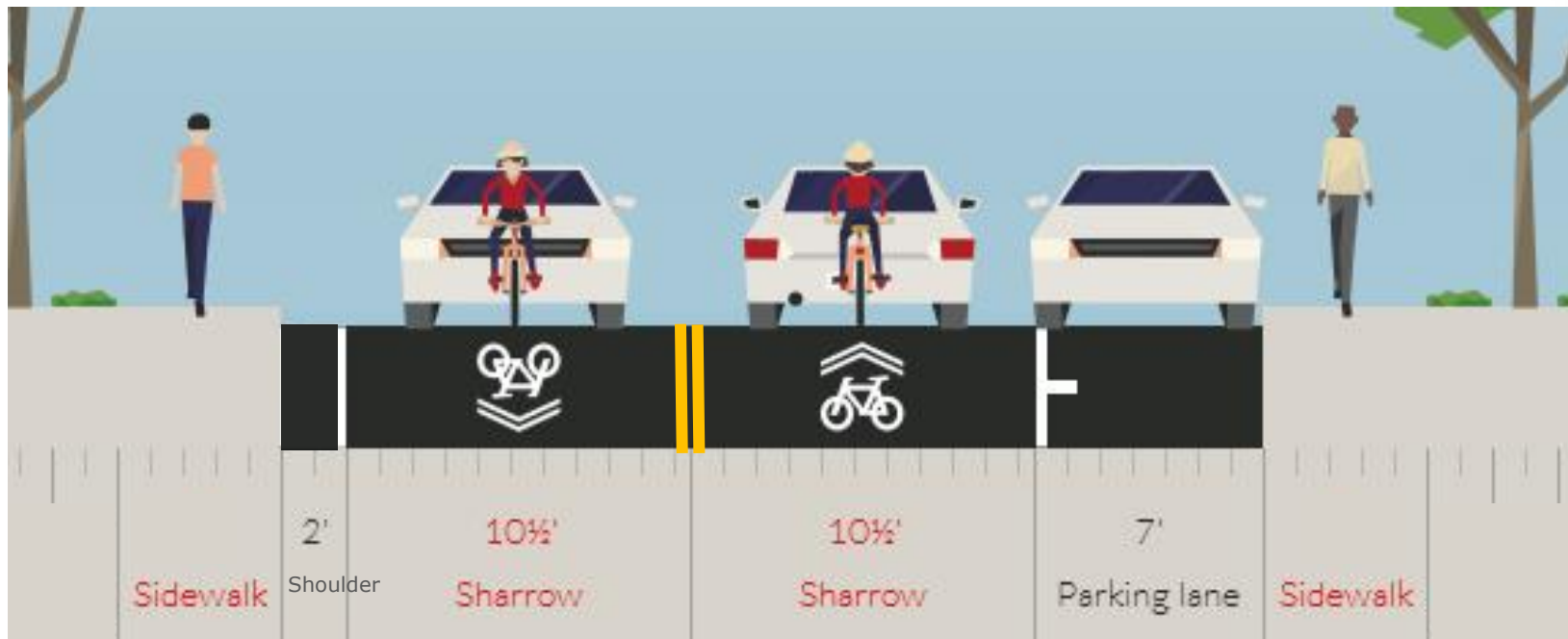


# King Street: West Cedar Street to Highland Place



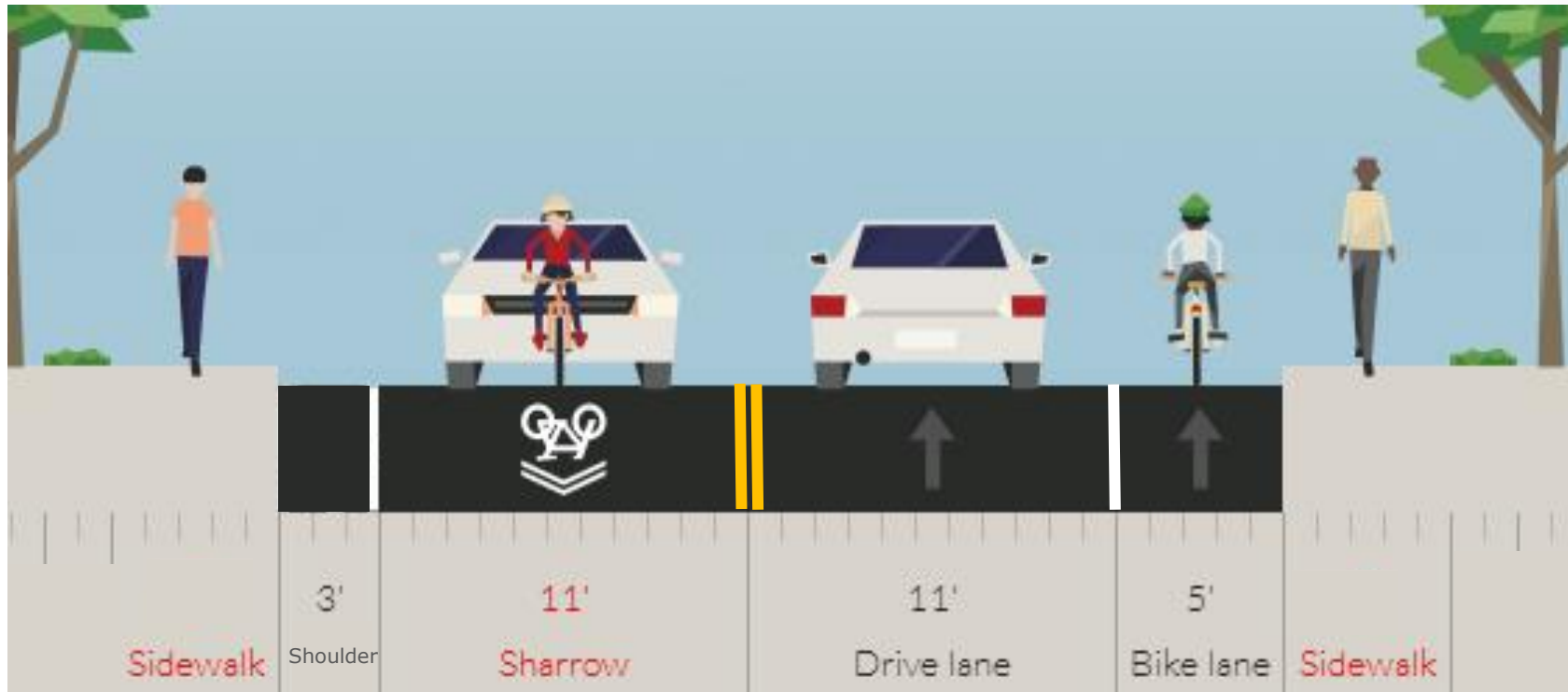
- Provide bike lanes in both directions from W Cedar Street to Highland Place
- Remove parking from W Cedar Street to Highland Place (27 Spaces)
- Maintain parking from Highland St to Janney's Lane
- Maintain 2 westbound lanes approaching Janney's Lane
- Maintain 2 eastbound lanes approaching Callahan Drive/Russell Road

# King Street: Highland Place to East of West View Terrace



- Provide shared bike lanes where parking exists between Highland Place & Janney's Lane
- Maintain 10 existing parking spaces
- Provide a shoulder along southern sidewalk

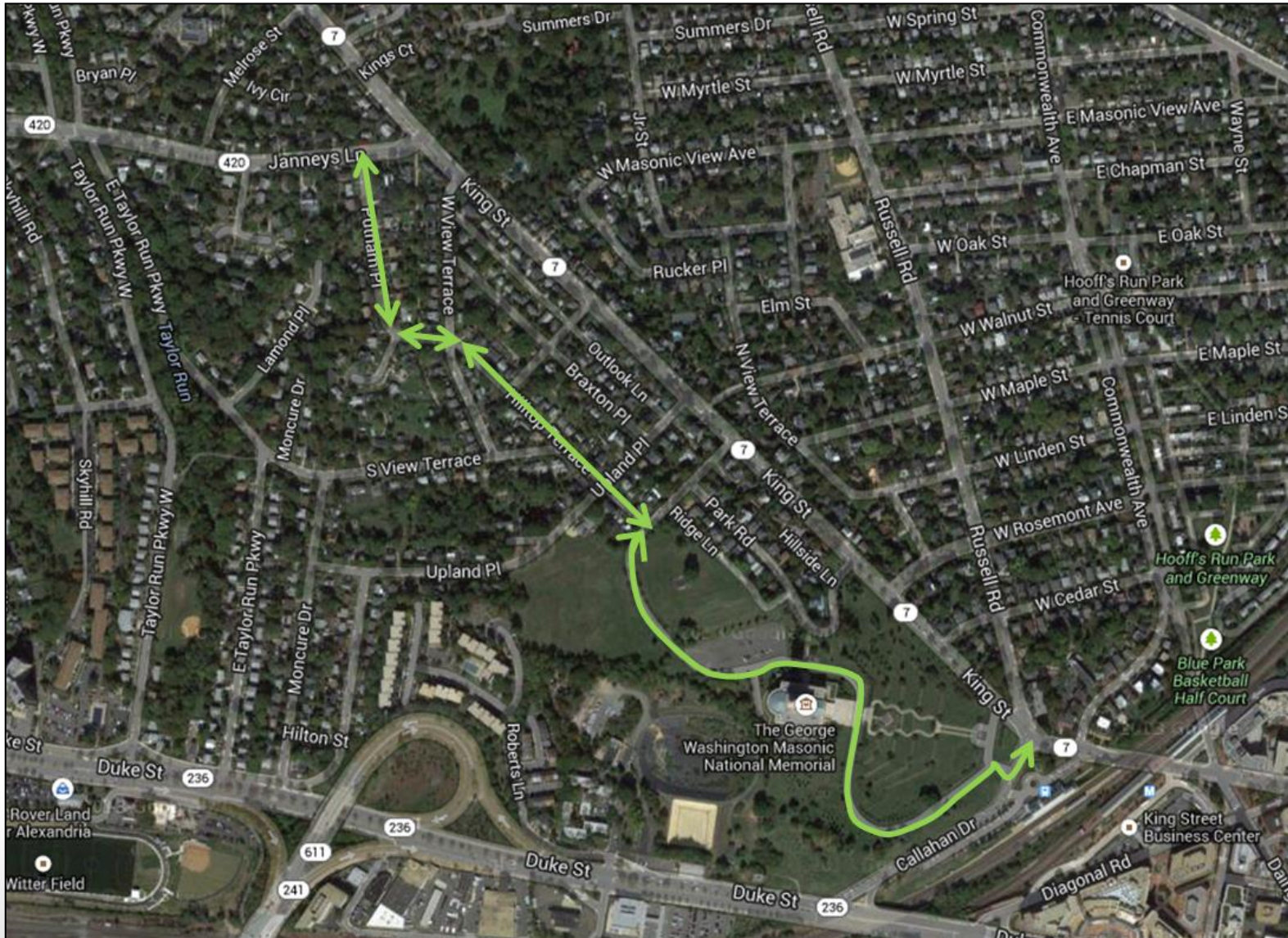
# King Street: West View Terrace to Janney's Lane



- Provide WB bike lane and EB shared lane
- Provide a 1'-3' shoulder along southern sidewalk
- Install bike box for cyclists making turns onto Janney's lane



# Masonic Temple







# Design Guidelines

There is no place in the plan where the design is below the minimum design guidelines

	Sidewalk Widths*	Bike Lanes**	Roadway Width***	Travel Lanes****
Minimum	39"	4'	24'	10'
King Street Plan	45" – 84"	4' - 5'	30'	10.5'

\*Americans with Disabilities (ADA) guidelines

\*\*American Association of State Highway Transportation Officials (AASHTO) & National Association of City Transportation Officials (NACTO)

\*\*\*City of Alexandria: Sec. 5-8-161 Standards; enforcement.

(a) The following standards apply to parking spaces located on public streets, **to the travel way available to vehicular traffic on public streets** and to sidewalks adjacent to public streets:

(3) **Travel way on two-way streets, with parallel or perpendicular parking, shall be a minimum width of 24 feet.**

\*\*\*AASHTO

*"The recommended width of a bike lane is 5 feet from the face of a curb or guardrail to the bike lane stripe."*

*"If the joint is not smooth, 4 feet of rideable surface should be provided."*

- AASHTO. Guide for the Development of Bicycle Facilities.



# Safety

- In a reduced-speed urban environment, the effects of reduced lane width are different. On such facilities, the risk of lane-departure crashes is less. The design objective is often how to best distribute limited cross-sectional width to maximize safety for a wide variety of roadway users. Narrower lane widths may be chosen to manage or reduce speed and shorten crossing distances for pedestrians. Lane widths may be adjusted to incorporate other cross-sectional elements, such as medians for access control, bike lanes, on-street parking, transit stops, and landscaping. The adopted ranges for lane width in the urban, low-speed environment normally provide adequate flexibility to achieve a desirable urban cross section without a design exception.

- **Federal Highway Administration**

Lane width (ft)	Reduction in Free-Flow Speed (mi/h)
12	0.0
11	1.9
10	6.6

Source: Highway Capacity Manual



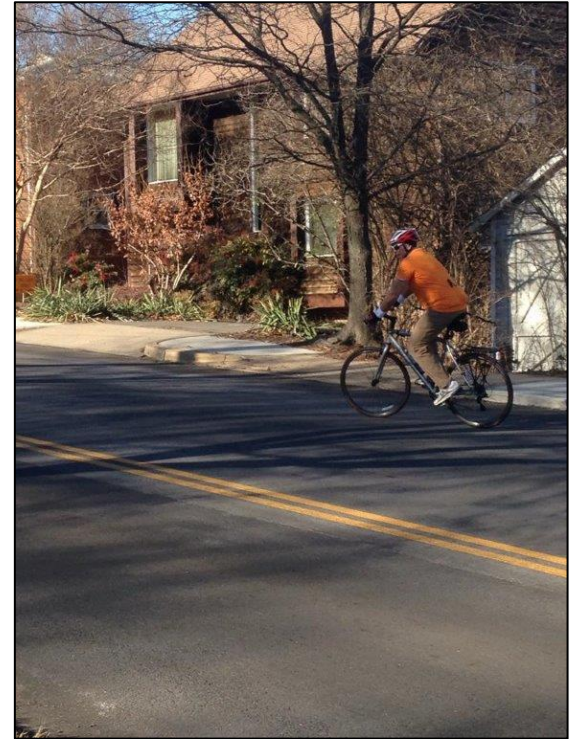
# Safety



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# Safety







# Safety Studies

- Growing evidence to suggest that cities with higher bicycling rates also have better road safety records (<http://files.meetup.com/1468133/Evidence%20on%20Why%20Bike-Friendly.pdf>)
- A bicycle lane was not present on the cyclist's side of the roadway in 97.2 percent of all accidents
  - Cyclist in bicycle lane = 2.2% of all crashes
  - Cyclist in through lane = 68.2% of all crashes
  - Cyclist in an accident while on sidewalk 16% of all crashes([http://www.utexas.edu/research/ctr/pdf\\_reports/0\\_5157\\_1.pdf](http://www.utexas.edu/research/ctr/pdf_reports/0_5157_1.pdf))
- Installation of bicycle lanes did not lead to an increase in crashes, despite the probable increase in the number of bicyclists (<http://www.ncbi.nlm.nih.gov/pubmed/22095351>)



# Public Process

- Taylor Run Civic Association: 6.12.13
- Bicycle & Pedestrian Advisory Committee: 8.19.13 and 10.21.13
- Traffic & Parking Board: 7.22.13
- Neighborhood Flyer: 9.12.13
- Public Meeting #1: 9.18.13
- Public Meeting #2: 10.30.13
- Environmental Policy Commission: 11.04.13
- Parks and Recreation Commission: 11.21.13
- Traffic & Parking Board: 11.25.13 – Deferred a recommendation
- Taylor Run Civic Association 1.16.14
- Taylor Run Civic Association 2.19.14
- Traffic and Parking Board 2.24.14 – Recommendation
- City Council 3.15.14



# Concepts Considered

- Bike lanes from W Cedar Street to Janney's Lane
  - Removes all parking on King Street between W. Cedar Street and Janney's Lane
- Climbing Lane on north side of King Street, from W. Cedar Street to Janney's Lane
  - Parking still has to be removed
  - Pedestrians on the south side of King Street walking very close to moving vehicles, keeps existing condition
  - Does not provide eastbound route for cyclists, does not separate roadway users
- Part-time bike lane
  - Does not meet design guideline criteria, not a standard practice
  - Requires extensive enforcement
  - Safety concerns
- Sharrows
  - Does not reduce speeds
  - Does not separate users on the roadway with large speed differential between cyclists and motor vehicles



# Concerns Voiced and City Response

Comments/Concerns	Response
Difficult to cross at Upland Pl.	Installing rapid flashing beacon
Cyclists won't want to share lanes	Provide alternate signed route through neighborhood
Turning onto Janney's Ln. is difficult for cyclists	Provide bike box at Janney's intersection
Need more accessible crossings at Highland	Looking into feasibility of installing pedestrian signals and push buttons
People run the light at Highland	Requested APD patrol
Visitor parking	Added 3 spaces across King at Park and Carlisle and maintained parking at Highland
2500 Block has short driveways	Maintain existing parking
Emergency vehicle access	Road is the same width – cars can pull to the side to let EV pass as they do now
Need more data	City collected new speed & volume counts





# Concerns Voiced and City Response

Comments/Concerns	City Response
Vehicles are speeding and causing unsafe environment	Measured vehicle speeds and added additional traffic calming to plan
2500 block has short driveways and highest parking utilization	Studied parking and modified plan to maintain parking in this section
Deliveries/drop off/carpool	“No Parking signs” not “No Standing” – Provided wider lane on north side
Moving vans	Permits can be obtained
Backing into/out of driveway	Provided wider bike lane on the north side of the street
Backing into/out of driveway	Provided wider bike lane on the north side of the street
Sidewalks are too narrow	Providing bike lane will keep cyclists off sidewalks & added shoulder will improve safety for pedestrians
Too much speeding on King Street	Narrowed travel lanes to decrease speed & will install speed board if desired & feasible

# Modifications to Original Plan Based on Community Input

- Maintained parking west of Highland Place where parking utilization was highest
- Widened westbound bike lane and narrowed eastbound bike lane to provide for more visibility on the north side of the street for entering & exiting driveways and loading & unloading
- Added 3 additional parking spaces on Park and Carlisle
- Provided bicycle box on King Street at Janney's Lane



# Modifications to Original Plan Based on Community Input

- Shoulder on roadway along south sidewalk between Janney's Lane and Highland Place for pedestrian safety
- Rapid flashing beacon and High visibility crosswalk at Upland Place to provide safer crossing
- Pedestrian countdown signals with push buttons on King Street at Highland Place
- New crosswalks at Park Place, Carlisle Drive, West Cedar Street & West View Terrace
- Speed board between Highland Place and Upland Place (if feasible)





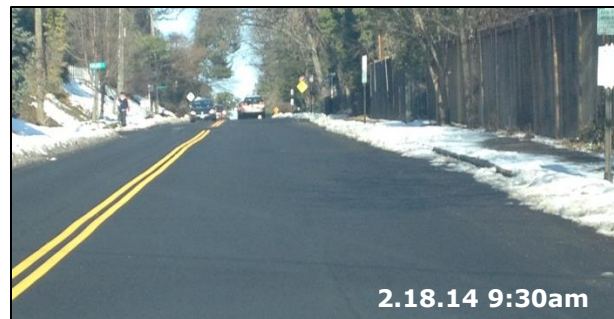
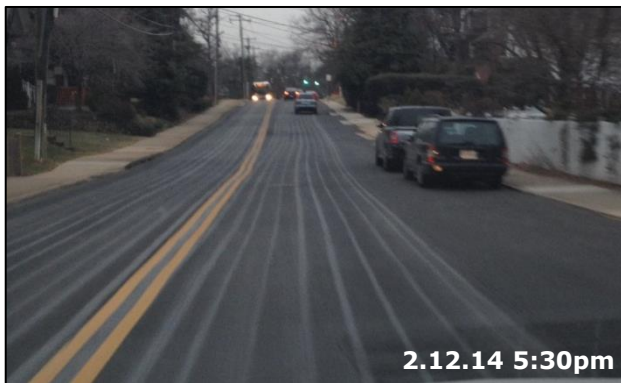
# Data Collection

Type of Data	Results
Eastbound Volumes – Daily Total	6,238 vpd
Eastbound Volumes – Peak Hour	493 vph
Westbound Volumes – Daily Total	6,500 vpd
Westbound Volumes – Peak Hour	600 vph
King Street Daily Total	12,738 vpd
Bicycle Volumes (peak hour)	11.5 cyclist
Eastbound 85 <sup>th</sup> Percentile Speed	35.4 mph
Westbound 85 <sup>th</sup> Percentile Speed	32.7 mph
Bicycle & Pedestrian Crashes (5 year)	1 ped crash
Vehicular Crashes (5 year)	30 crashes
Average vehicles parked: Russell to Highland 2013	1.07 vehicles
Average vehicles parked: Russell to Highland 2014	1.5 vehicles





# Recent Parking Surveys





# Parking Data Collection

King Street Parking Survey						
Date	Day	Time	Russell to Carlisle (20)	Carlisle to Highland (7)	Highland to Janneys (10)	Total
3/27/2013	Wednesday	8:00 PM	0	2	4	6
3/28/2013	Thursday	9:30 AM	0	0	1	1
4/2/2013	Tuesday	8:45 AM	0	1	1	2
4/4/2013	Thursday	1:45pm	0	2	0	2
4/4/2013	Thursday	7:30pm	1	4	0	5
4/4/2013	Thursday	9:00pm	0	0	2	2
4/5/2013	Friday	6:45am	0	0	3	3
4/12/2013	Friday	7:45am	1	0	1	2
4/15/2013	Monday	9:45 PM	0	0	1	1
4/21/2013	Sunday	2:30 PM	2	0	2	4
4/29/2013	Monday	7:15 PM	0	0	0	0
4/29/2013	Monday	9:00 PM	0	0	0	0
6/11/2013	Tuesday	6:45PM	0	1	3	4
6/11/2013	Tuesday	9:30PM	0	1	1	2
<b>AVERAGE (Russell to Janney's)</b>			<b>0.29</b>	<b>0.79</b>	<b>1.36</b>	<b>2.43</b>
1/9/2014	Thursday	11:45AM	2	0	4	6
1/10/2014	Friday	9:00AM	0	0	2	2
2/3/2014	Monday	8:00AM	1	2	3	6
2/12/2014	Wednesday	1:00PM	0	1	1	2
2/12/2014	Wednesday	5:30PM	0	3	3	6
2/18/2014	Tuesday	9:30AM	0	0	5	5
<b>AVERAGE (Russell to Janney's)</b>			<b>0.35</b>	<b>0.85</b>	<b>1.85</b>	<b>3.05</b>





210 N View Tr

2211

2209

2207

lose 1 space

Add 2 Spaces

Park Rd





17 Spaces against  
the Fence with N  
View Terrace  
Addresses







6 spaces in front of 1 residence

3 spaces in front of 1 residence

Add 1 Space





# Project Goals

- Provide direct bicycle access along King Street
- Provide facilities for pedestrians, cyclists and drivers
- Improve the safety and convenience of all street users
- Implement City Council adopted plans and policies



# Questions/Comments ?

For more information visit

<http://alexandriava.gov/localmotion/info/default.aspx?id=74320>