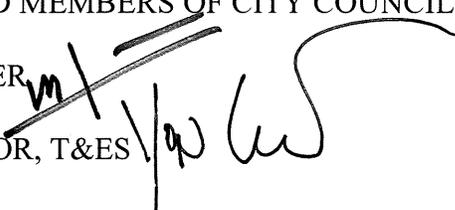


City of Alexandria, Virginia

MEMORANDUM

DATE: SEPTEMBER 22, 2017

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

THROUGH: MARK B. JINKS, CITY MANAGER 

FROM: YON LAMBERT, AICP, DIRECTOR, T&ES 

SUBJECT: KING STREET COMPLETE STREETS PROJECT POST IMPLEMENTATION EVALUATION

In June 2016, the Traffic and Parking Board voted to approve the King Street Complete Streets project which included a proposal to change the lane configuration of King Street, install “No Right Turn on Red” signs at southbound Kenwood Avenue at King Street, and reduce the speed limit from 35mph to 25mph on King Street between Chinquapin Drive and Melrose Street. The project was initiated in conjunction with the resurfacing of King Street from Janneys Lane to Radford Street, and was fully completed in October 2016. The purpose of this memorandum is to provide a one-year post-implementation update. Staff will also provide an oral update to the Traffic & Parking Board on Monday, September 25, 2017.

Executive Summary

When the project was voted upon by the Traffic & Parking Board (June 27, 2016), the Board approved the staff recommendation, requested staff perform evaluation and – if the project failed to meet the staff defined expectations in the project proposal presented to the Board – take remedial actions to correct. To comply with the motion, staff enlisted an external traffic engineering firm to perform an analysis of intersection level-of-service and travel time delays along the corridor.

Highlights include:

- **Zero reported traffic crashes** have occurred in the first year of implementation, compared to an annual average of seven crashes during the 10 years prior to this project.
- **Average vehicle speeds on the corridor have been reduced** by 18% between Chinquapin Drive and Melrose Street and 4% near T.C. Williams High School (between Radford Street and Chinquapin Drive).
- **Traffic delay at the intersection of King Street and Chinquapin Drive has increased** in the AM peak hour more than originally anticipated by staff but other intersections along the corridor have seen minimal or no additional changes to delay.
- Post-project studies indicate that **traffic diversion onto Scroggins Road has not appeared to increase** due to this project, which was an original concern from several residents.

Per the Traffic and Parking Board motion, staff in the last year has implemented **remedial actions** intended to reduce excessive travel time delays occurring at two intersections:

- 1- Signal timing modifications at the intersections of Chinquapin Drive and Kenwood Street in Fall 2016 to alleviate unexpected travel time delays that occurred in the weeks after T.C Williams High School was back in session
- 2- A protected left turn for westbound traffic on King Street at Kenwood Avenue was introduced for vehicles entering T.C. Williams High School in August 2017. This improvement is expected to substantially reduce potential conflicts between turning vehicles and pedestrians and other vehicles, and have the added benefit of reducing delays during arrival and dismissal

In conclusion, given the improvements to safety and vehicle speeds at the one-year update , and considering the remedial actions taken to balance expectations about traffic delay with the project goals, it is staff's position the project as implemented *is having the desired effect of improving safety for all street users while also reducing traffic crashes. This is consistent with the City's FY2017-2022 Strategic Plan and, therefore, no further remedial actions are warranted.*

Background/Project Goals

Traffic safety on King Street between Radford Street and Melrose Street has been a perennial issue. This section, which includes T.C. Williams High School, saw an annual average of seven crashes per year between 2006 and 2015. In response to neighborhood concerns of traffic safety, staff developed the King Street Complete Streets project with the following goals:

- Improve the safety and convenience for all street users
- Provide facilities for people who walk, bike, ride transit or drive cars
- Implement City Council adopted plans and policies

Based on these goals and extensive community input, staff made the recommendations (below) to the Traffic and Parking Board, at its June 27, 2016 public hearing. The Board approved staff's recommendation and requested that staff apply appropriate measures to evaluate the project to determine if there were unexpected changes to either public safety or traffic pattern or congestion changes. The project implemented the following changes:

- Recommended to the Director of T&ES to remove an eastbound travel lane on King Street between Chinquapin Drive and Janneys Lane and a westbound travel lane on King Street between Kenwood Avenue and Janneys Lane
- Recommended to the Director of T&ES to install "No Right Turn on Red" signs at southbound Kenwood Avenue at King Street
- Recommended to the City Manager to reduce the speed limit from 35mph to 25mph on King Street between Chinquapin Drive and Melrose Street

City staff's presentation and minutes from the public hearing of the Traffic and Parking Board are located on the [King Street Complete Streets project website](#). An email update was provided to City Council on June 28, 2016 regarding the Board's actions. This memorandum provides the

evaluation results, including vehicle volumes, speeds, travel time delays and crashes on King Street between Janneys Lane and Radford Street.

Summary of Improvements

The project included the following improvements:

- The removal of an eastbound travel lane between Chinquapin Drive and Kings Court
- The removal of a westbound travel lane between Kenwood Avenue and Janneys Lane
- The addition of left turn lanes at intersections and center turn lane along corridor
- Landscaped pedestrian refuge islands at seven crossings
- Three new crosswalks across King Street and four new crosswalks across side streets
- No right turn on red signage at southbound Kenwood Avenue at King Street
- A leading pedestrian interval for pedestrians crossing King Street at Kenwood Avenue
- Buffered bike lanes along the corridor
- Upgraded curb ramps, sidewalk maintenance and ADA compliant bus stops
- Reconfigured intersections at Scroggins Road, Melrose Street and Kenwood Avenue
- Speed limit reduction to 25mph on King Street between Chinquapin Drive and Melrose Street

In addition to meetings, presentations, surveys and other public input, the general public was notified prior to the changes with variable message boards, emails to civic associations, emails to the T.C Williams High School Parent Teacher Association, e-news, and social media. The majority of work was completed prior to the first day of school at T.C. Williams High School on September 6, 2016. Final roadway striping was completed in late October 2016.

Data Collection Results

Since safety was the primary public concern, one of the main goals was to improve safety and convenience for all street users. In Spring 2017, staff collected data on speeds, vehicle volumes and vehicle crash data between Radford Street and Janneys Lane on King Street. In September 2017, a traffic analysis of the intersection level-of-service and travel time delays along the corridor was completed. City staff plans to present these findings as a staff update to the Traffic & Parking Board at their meeting scheduled on September 25, 2017. A summary of the evaluation results is shown on the tables below and on the [project website](#).

In the one year that the majority of the Complete Street improvements have been in place (September 1, 2016 and August 31, 2017), there were no traffic crashes reported in this section of King Street as shown on Table 1. Before the Complete Streets improvements, this section of King Street had seen an average of 7 crashes annually between 2006 and 2015. This preliminary result indicates the project has greatly improved safety and met an original goal of the project.

Table 1: King Street Crash History

Reported Crashes (Annual average*)			
Segment	Before	After	Percent Change
King St., between Janneys Ln. and Radford St.	7.0	0	-100%
* After data is total number of crashes in the 12 month period between 9/1/2016 and 8/31/2017.			

In general, vehicle speeds are the main contributing factor of severity and fatality in traffic crashes according to the National Highway Traffic Safety Administration¹. For example, a crash at 25 mph is less likely to result in death and serious injury compared to a similar crash at 35 mph and above. Therefore, one strategy to improve safety was to redesign the street to encourage greater driver compliance with the posted 25 mph speed limit on the section of King Street between Chinquapin Drive and Radford Street, near T.C. Williams High School, and the newly posted 25 mph speed limits between Chinquapin Drive and Melrose Street. Data collection results showed that this project was successful in lowering speeds: the average 85th percentile speed on King Street decreased 18 percent between Chinquapin Drive and Melrose Street (43.3 mph to 35.6 mph) as shown on Table 2. The average 85th percentile speed on King Street decreased by 4 percent between Radford Street and Chinquapin Drive (33.8 mph to 32.4 mph). It should be noted, however, that average 85th percentile speeds still exceeds the new posted speed limit of 25 mph by over 10 mph between Chinquapin Drive and Melrose Street and 7 mph between Radford St and Chinquapin Drive.

Table 2: King Street Vehicle Speeds

Vehicle Speeds						
Segment	Before		After		Difference	
	Speed Limit (mph)	Avg. 85th % Speed (mph)	Speed Limit (mph)	Avg. 85th % Speed (mph)	Avg. 85th % Speed (mph)	Avg. 85th % Speed (%)
King St., between Albany Ave. and Hermitage Ct.	35	43.3	25	35.6	-7.7	-17.8%
King St., between Radford St. and Chinquapin Dr.	25	33.8	25	32.4	-1.4	-4.1%

Based on the analysis provided by an independent traffic engineering firm, there were minor impacts to traffic conditions resulting from the Complete Streets improvements. Traffic delay at the intersection of King Street and Chinquapin Drive has increased slightly more in the AM peak hour (32 seconds of additional delay) than originally anticipated by staff (22 seconds of additional delay) but other intersections along the corridor have seen minimal or no additional changes to delay. While there were some increases in the individual approach delays, overall

¹ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811090>

intersections operate at a reasonable level-of-service and delay after implementation. In addition, City staff implemented traffic signal timing modifications in Fall 2016 to alleviate unexpected travel time delays that occurred at the intersections of Chinquapin Drive and Kenwood Street in the weeks after T.C Williams High School was back in session. These modifications significantly reduced excessive travel time delays that were occurring at these two intersections.

In terms of volume, traffic volumes increased slightly on King Street since previous counts were taken in 2015. On Scroggins Road (the street most likely to experience any traffic diversion as the result of delays along King Street) data collection efforts show no significant increases to vehicle speeds and traffic volumes.

Nearby Projects

There are several completed and planned transportation projects occurring in and adjacent to this section of King Street. In August 2017, the City upgraded signal detection and pedestrian countdown signals at the intersection of King Street, Quaker Lane, and Braddock Road as part of a Capital Improvement Program project. In addition, a protected left turn for westbound traffic on King Street at Kenwood Avenue was introduced for vehicles entering T.C. Williams High School in August 2017. This improvement is expected to substantially reduce potential conflicts between turning vehicles and pedestrians and other vehicles, and have the added benefit of reducing delays during arrival and dismissal. Lastly, a set of speed cushions will be installed on Scroggins Road, between King Street and Braddock Road. Traffic counts collected prior to project implementation indicated excessive speeding was an issue on Scroggins Road and staff had previously identified Scroggins as a candidate for traffic calming improvements. In addition, a 450' long sidewalk will be installed on sections of Scroggins Road where it is currently missing. Speed cushions are expected to be installed in late Fall 2017 and construction of the new sidewalk will occur in Spring 2018.

Next Steps

Staff will continue to monitor and evaluate conditions on King Street, as well as adjacent neighborhoods and will provide updates to the Traffic & Parking Board as deemed necessary. In addition, T&ES staff and ACPS staff is developing a district wide transportation management program to reduce the number and percentage of single occupancy driving to and from schools, therefore reducing traffic congestion and making streets safer for all roadway users.

cc: Traffic and Parking Board
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Raymond Hayhurst, Acting Complete Streets Program Manager, T&ES