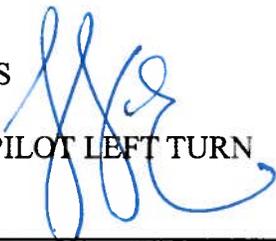


*City of Alexandria, Virginia*

---

**MEMORANDUM**

**DATE:** JUNE 24, 2013  
**TO:** TRAFFIC AND PARKING BOARD  
**FROM:** RICHARD J. BAIER, DIRECTOR, T&ES  
**SUBJECT:** KING STREET AND UNION STREET PILOT LEFT TURN RESTRICTIONS



---

**EXECUTIVE SUMMARY:** Following the implementation of pilot left turn restrictions and subsequent data collection, staff is recommending the suspension of the pilot restrictions at King and Union Streets. Field observations have shown a high incidence of violations of the posted turn restrictions, despite several educational and enforcement measures taken to make motorists aware of the restrictions and encourage compliance. Staff believes the violation rate will continue at an unacceptable level. The high violation rate undermines the goal of reducing pedestrian, vehicle, and bicycle conflicts, and may actually make the intersection more unsafe by creating the expectation from pedestrians that cars will not be making left turns, while significant numbers of vehicles are continuing to violate the restriction and make left turns.

**BACKGROUND:** Consistent with the approved 2012 Waterfront Small Area Plan, a comprehensive transportation study was conducted to study vehicular and pedestrian impacts along the Union Street corridor. The goals of the study included identifying alternatives that are aligned with Complete Streets principles, including balancing roadway space and intersections to prioritize vulnerable users. The recommendations of the Union Street Corridor Study were considered by the Waterfront Commission and the Traffic and Parking Board and approved by the City Council at its December 15, 2012 meeting and included piloting left turn restrictions at the intersection of King and Union Streets; these restrictions were implemented on Wednesday, April 24, 2013.

The following left turns were prohibited as part of the pilot:

- Eastbound King Street left turn onto northbound Union Street
- Northbound Union Street left turn onto westbound King Street
- Westbound King Street left turn onto southbound Union Street

As the unit block of King Street is one-way westbound, the southbound left turn movement is already prohibited.

The installation of the turn restriction signs coincided with public outreach to inform citizens of the turn restrictions. This public outreach included information on the City’s website, large portable message signs a block in advance of the turn restrictions warning of the restrictions, and orange flags next to the turn restriction signs to draw attention to the new restriction signage. The variable message boards were left in place approximately three weeks after implementation of the turn restrictions. Each approach was signed with a minimum of two turn restriction signs to ensure the restrictions were optimally signed.

Traffic Counts / Traffic Data: Traffic counts were conducted at the intersection of King Street and Union Street before the turn restriction was implemented and after the turn restriction was in place for approximately one month. Before data was collected on Saturday, March 30, 2013, and after data was collected on Saturday, June 1, 2013. The following table shows the vehicular traffic volumes for a two-hour evening peak period before and after the turn restrictions were implemented:

Table 1: King and Union Vehicle Volumes – Saturday Evening Peak Hours

Saturday Volumes (4-6 PM)	Eastbound		Northbound		Westbound			Southbound		Totals
	Left	Right	Left	Thru	Left	Thru	Right	Thru	Right	
Before Turn Restriction Implementation	204	157	106	250	17	64	25	172	111	1106
After Turn Restriction Implementation	109	238	52	221	4	65	57	178	85	1009
% Reduction in Left Turns	47%		51%		76%			N/A		
% of Approach Vehicles Violating Turn Restriction	31%		19%		3%			N/A		

NOTE: Highlighted numbers denote left turn violations

Data Analysis: The traffic count data shows significant reductions in the number of left turns being made at the intersection, with a 47% reduction in left turns for the eastbound King Street approach, a 51% reduction for the northbound Union Street approach, and a 76% reduction in left turns for the westbound King Street approach.

Despite these significant reductions, the overall violation rate remains unacceptably high for the eastbound King Street approach and the northbound Union Street approach. For the eastbound King Street approach, 31% of vehicles approaching the intersection violate the restriction signage. On the northbound Union Street approach, 19% of vehicles approaching the intersection violate the restriction signage.

Staff believes there are several reasons for the high violation rates at the intersection:

- *Limitations in Enforcement Resources* – The challenge with enforcement is multifaceted. First is the practical limitation in the number of hours the Police can dedicate to enforcement. While intense short-term targeted enforcement is possible and has been conducted, the targeted enforcement has been only marginally effective in reducing the violation rate. Secondly, even when the targeted enforcement was underway, the Police did not have enough resources to cite the majority of the traffic violators at the intersection. There were simply too many violators (over 80 violations per hour during peak hours) to effectively stop the majority of drivers violating the turn restrictions. Finally, there are no ideal locations where drivers can safely pull off the road on Union Street or on King Street. As such, stopped drivers often stop in the road on both Union Street and King Street, creating additional congestion in an already congested area.
- *Lack of a Viable Alternative Route for Eastbound King Street Traffic* – For eastbound King Street traffic desiring to travel to the north, there is not a good alternate route to travel north once drivers have reached the intersection. Any legal alternate route forces drivers to initially travel to the south instead of to the north, and the shortest available alternate route adds four blocks to a trip. Ideally, vehicles heading eastbound on King Street would turn left to head north prior to reaching Union Street at Lee Street or at Fairfax Street, however, there are a substantial number of tourists and visitors from other jurisdictions, particularly during weekday evenings and weekends, who may not be familiar with the area and may not be aware of the need to turn in advance of the intersection.
- *Sign Clutter at the Intersection* – There are a significant number of signs other than the turn restriction signs at the intersection. These signs include one-way and do not enter signs due to the one-way nature of the unit block of King Street, as well as the required stop signs for each approach. In addition, the presence of parked cars on King Street and Union Street make optimal sign placement challenging, particularly when trying to place two signs on the same signpost.

**CONCLUSION:** Despite the recommendation meeting the goals of the Union Street Corridor Study and vigorous public education and enforcement efforts, the left turn violation rates at the intersection of King Street and Union Street remain unacceptably high. While additional efforts, including additional advance signage and additional targeted enforcement could be undertaken in an effort to reduce the violations, staff feels the violations are likely to continue to occur at an unacceptably high level. Staff therefore recommends removal of the pilot left turn restrictions.