DEPARTMENT OF TRANSPORTATION
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May 20, 2008

Regina McElroy
Director, Office of Transportation Operations
Federal Highway Administration
400 7th Street, SW
HOTO-l, Room 3408
Washington, DC 20590

Re: Request for Permission to Experiment
High intensity **A**ctivated cross**W**al**K** ("HAWK") Pedestrian Beacon Signal

Dear Ms. McElroy:

In accordance with the guidelines set forth in the Manual on Uniform Traffic Control Devices (MUTCD), the City of Alexandria formally requests Permission to Experiment with the HAWK ("High intensity Activated crosswalk") beacon signal to assist pedestrians in crossing major streets and roadways.

The following information outlines the project background and provides the information required in the MUTCD Section 1A.10, Interpretations, Experimentations, Changes and Interim Approvals.

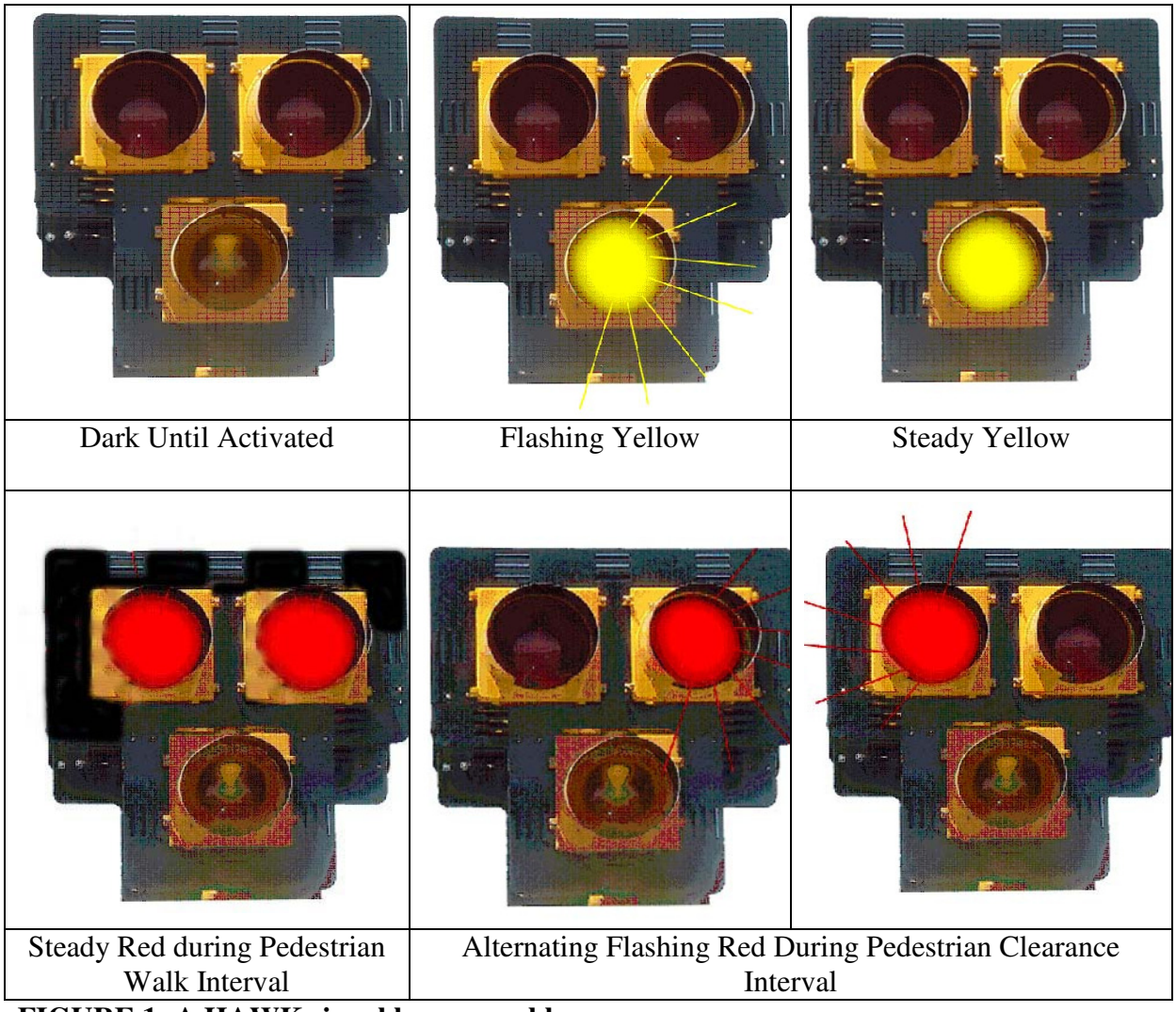
BACKGROUND
The City of Alexandria (population 135,000) is 15 square miles and is the most densely populated jurisdiction in the Commonwealth of Virginia. Alexandria is located on the west bank of the Potomac River, six miles below Washington, D.C. In 2007-08, the City completed a "Pedestrian and Bicycle Mobility Plan" which has been incorporated into the City's new "Transportation Master Plan," adopted by City Council on March 11, 2008. In both plans, the City outlines a strategy for improvements to pedestrian crossings – particularly at mid-block and uncontrolled locations – throughout the City. Many of these locations are on major urban thoroughfares that carry between 20,000 and 50,000 vehicles per day at speeds posted as 35 miles per hour. Although drivers in Virginia are required by law to yield to pedestrians, few actually do.

A. Problem Statement

Many locations in Alexandria that provide important pedestrian access to transit or safe routes to schools are on major urban thoroughfares at midblock or otherwise uncontrolled locations. Historically, these locations have failed to meet the MUTCD warrants for full traffic signals. While the City of Alexandria has employed a number of different crosswalk treatments at midblock locations – including in-pavement lights, flashing beacons and crosswalk flags – staff believes that the HAWK beacon signal may provide a better alternative in certain locations. The HAWK may be particularly appropriate in locations where uncontrolled crossings currently exist, pedestrian volume is moderate to high but the crossing would still not likely meet warrant studies for a full traffic signal.

B. Description of Device, Deviation from MUTCD and Improvement Over Standard

The HAWK beacon as used primarily in Tucson, Az. is pedestrian activated. Vehicular traffic on the major streets would be controlled by a signal head with three signal sections. (See Figure 1.)



Dark Until Activated	Flashing Yellow	Steady Yellow
Steady Red during Pedestrian Walk Interval	Alternating Flashing Red During Pedestrian Clearance Interval	

FIGURE 1: A HAWK signal lens assembly.

The HAWK signal indications are dark and the pedestrian signal displays a solid DON'T WALK until the pedestrian activates the device (see Figure 2 below). When the pedestrian push button is pressed, the signal will flash yellow for several seconds then change to solid yellow for the standard ITE calculated length of time (between 3 and 6 seconds). The two red indications illuminate and the pedestrian signal displays a WALK indication. At the end of the WALK phase, the red signals toggle back-and-forth, corresponding with the pedestrian signal FLASHING DON'T WALK phase. This "wig-wag" indication means that drivers may proceed after stopping, if safe. The HAWK signal then goes dark and the pedestrian signal returns to solid DON'T WALK until activated by another pedestrian.

FIGURE 2: HAWK signal lens assembly and pedestrian phasing sequence.

The main deviation from the MUTCD is that the beacon signal remains dark until activated. If the device is considered a beacon, then it is allowable by MUTCD to be dark. MUTCD notes that full traffic signals (red-yellow-green) must remain on at all times. The other derivation is the use of the alternating red indication. Typically, the alternating flashing is reserved for warnings at draw bridges, emergency beacons and railroad signals.

The primary improvement of a HAWK beacon over a standard signal may be that it is dark until it is activated. The flashing yellow is intended to capture a driver's attention when a continually flashing signal often becomes part of the scenery in fairly short order. The HAWK is only activated when needed by pedestrians, reducing the likelihood of misunderstanding between drivers' and pedestrians' intents.

C. Illustration of Use

Figure 1 and Figure 2 (above) shows the signal lens and pedestrian phasing sequence for the HAWK signal. Figure 3 (below) is an installation in Tucson, Az. The City of Alexandria proposes to use primarily mast arm installation, pending availability of funds. Many of Alexandria's newer traffic signals are mounted on mast arms.

Figure 3: A mast-arm installation of a HAWK signal in Tucson, Az.

D. Supporting Data for Use of Device

The Texas Transportation Institute, funded by the Transit Cooperative Research Program (TCRP D-08) and the National Cooperative Highway Research Program (NCHRP 3-71), conducted a study to evaluate the safety of pedestrians using various crossing treatments. The HAWK signal received 97% motorist compliance, one of the two highest of all the evaluated treatments. Both the NCHRP and Road Safety Audit (RSA) studies support placing the HAWK beacon signal in the MUTCD.

E. Patent

The HAWK beacon signal is not a patented device. It can be constructed by any jurisdiction or transportation agency using signal heads, mounting equipment and traffic controllers supplied by any number of qualified manufacturers.

D. Duration and Locations of Experiment

The City of Alexandria proposes an initial installation of a HAWK beacon signal at the intersection of North Van Dorn and Maris Avenue. This "T" intersection is challenging for pedestrians wishing to cross North Van Dorn, a multi-lane arterial roadway with a posted speed limit of 35 mph and an ADT of 32,000 vehicles. Pedestrians wishing to cross North Van Dorn to access or depart southbound DASH and Washington Area Metropolitan Transit Authority (WMATA) buses must traverse four travel lanes (two in

each direction, approximately 46 feet) using an uncontrolled crosswalk with no median refuge. In addition, traffic traveling northbound on Van Dorn is reaching the crest of a rise that creates sight distance problems. The intersection is illuminated by only one overheard streetlight on the southwest corner.

In previous years, the pedestrian volume at this intersection was low. However, on December 31, 2007, the neighboring 378-unit condominium complex, Parkside at Alexandria, ceased operations of a shuttle service. This led to an increase in pedestrian use at transit stops on Van Dorn Street. A city study and contact with transit providers (Alexandria Transit Company/DASH and WMATA) provided estimates of 20 to 30 pedestrian crossings per hour during both AM and PM peak.

The City of Alexandria proposes to evaluate and experiment with the HAWK signal at this location and, potentially, up to twelve (12) other locations citywide for a period of five (5) years. The initial installation of the HAWK signal is expected to be funded through the City's existing CIP accounts. However, a period of five (5) years will allow adequate time to secure additional funding, evaluate "before" locations citywide and collect crash data for a complete 3-year "after" period. The potential Alexandria locations are identified in **Appendix A**. The locations are all located on City of Alexandria-maintained streets. If permission to experiment is granted, the City expects the first installation to take place in early fall of 2008.

G. Evaluation Plan

The City of Alexandria will evaluate all locations where HAWK beacon signals are installed and at least five (5) alternative locations with similar conditions that receive no treatment. These alternative locations will be considered control sites and will be used to determine the effectiveness of the HAWK beacon signal. All data described below includes provisions for data collection at both treatment and control locations.

Before Data

- Vehicular and pedestrian crash analysis for 5 years prior to implementation
- Pedestrian volumes and gap analysis for AM and PM peak, as well as midday volumes if warranted
- Average daily vehicular volumes
- Speed Study

Implementation of HAWK beacon signal

- Public outreach and safety campaign through City press releases, events and media outlets both prior to installation and for at least 6 weeks after installation
- MUTCD compliant signage at HAWK locations
- ADA compliant crossings, to include Accessible Pedestrian Signals (APS)
- Countdown pedestrian signals
- Staff monitoring opening day for vehicular and pedestrian compliance

After Data

- Crash analysis for 1 year and 3 years after implementation
- Pedestrian volumes for AM and PM peaks for 1 year and 3 years afterward, as well as midday volumes if warranted
- Vehicle & pedestrian compliance with HAWK beacon signal after 6 months, 1 year and 3 years after implementation

H. Agreement to Restore

In the event that safety becomes a concern and is attributable to the HAWK signal, the City of Alexandria is willing to terminate the experimentation and restore the site to its original condition.

I. Progress Reports

The City of Alexandria agrees to provide annual progress reports during the course of the experiment and will provide a final report following the conclusion of the experiment.

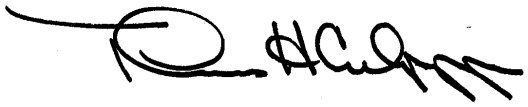
J. Project Management

The City of Alexandria is responsible for all project management, administration, funding and implementation. The project manager will be:

Mr. Ravindra Raut
Traffic Systems Engineer, City of Alexandria
Dept. of Transportation & Environmental Services, Transportation Division
3200 Colvin St.
Alexandria, Va. 22314

Thank you for considering this request. Please do not hesitate to contact us if you need additional information to process this request. We look forward to hearing from you.

Sincerely,



Thomas H. Culpepper, PhD, P.E.
Deputy Director

cc: William D. Euille, Mayor of Alexandria
Richard J. Baier, Director, T&ES
Bob Garbacz, City Traffic Engineer
Yon Lambert, City Bicycle and Pedestrian Coordinator
Scott Wainwright, FHWA Office of Transportation Operations

Appendix A- Potential HAWK Signal Locations

1. Van Dorn at Maris Ave
2. Eisenhower Avenue at Cameron Run Regional Park (midblock location)
3. Eisenhower Avenue at US Army Material Command (midblock location)
4. Potomac Avenue between Swann and Custis
5. Beauregard Avenue at Quantrell Road
6. Braddock Road at N Early Street
7. Ballenger Avenue at Howard Street
8. West Glebe Road at Florence Drive
9. King Street at Tuckahoe Court
10. King Street at Melrose Street
11. Janney's Lane at Taylor Run Parkway
12. Seminary Road at Fort Williams Pkwy
13. Beauregard Avenue at Roanoke Avenue