SUMMARY

Arlington County, Virginia is a leader in using innovative technologies and practices to improve pedestrian safety. Arlington has a comprehensive pedestrian program called WALKArlington.

WALKArlington is a County-wide initiative to create a safe, inviting and enjoyable pedestrian environment throughout Arlington. The goal of the WALKArlington initiative is to facilitate more Arlingtonians to walk more often while reducing the number of pedestrian crashes and fatalities. WALKArlington strives to create exciting and interesting places where walking will be the preferred way to travel, not only because it is safe and convenient, but also because it is an enjoyable experience with things to see and do along the way. The WALKArlington initiative is multifaceted and includes:

- Aesthetic amenities; public art, streetscape furniture, wayfinding signs, etc.
- Education programs and Enforcement
- Infrastructure improvements; sidewalks, crosswalks and intersection crossings
- Integration with future planning studies and existing community programs

This submittal includes some of the various innovative technologies and practices employed by Arlington County to highlight pedestrian presence and improve safety through sound engineering, enforcement and education.
INTRODUCTION

At a size of only 26 square miles, Arlington County is one of the smallest counties in Virginia and the Nation. Unlike neighboring counties in Virginia and Maryland, Arlington County is essentially fully developed. Due to its proximity to the District of Columbia and the growth and expansion of the metropolitan region, Arlington County has become more and more urban in character.

Improving pedestrian safety and encouraging pedestrian activity has been a priority and is the basis for the Pedestrian Initiative called "WALKArlington" in Arlington County.

PROGRAMS AND PROJECTS

To meet the goals of the WALKArlington pedestrian initiative the Department of Public Works, Traffic Engineering Division developed and implemented several measures as part of a toolbox to highlight pedestrian activity and enhance pedestrian safety.

Following are some of the measures/projects implemented to meet the goals of WALKArlington:

- Fluorescent Yellow-Green Pedestrian Signs and U-Post Inserts
- Yield to Pedestrian Fine Signs
- Pedestrian Flashers
- Lighted Crosswalks
- Crosswalk Treatments (pavers, imprint, laddered crosswalks, etc)
- Pedestrian Signals at every Traffic Signal
  - Pedestrian Countdown Signals

FLUORESCENT YELLOW-GREEN PEDESTRIAN SIGNS AND U-POST INSERTS

To highlight pedestrian crossings and to provide advance warning to motorists of upcoming pedestrian crossing, Arlington County Department of Public Works Traffic Engineering Division instituted a sign change-out program to replace the traditional engineer grade yellow pedestrian crossing warning signs (W11 -12) with high-intensity (VIP Grade) fluorescent yellow-green pedestrian signs. These changes were also extended to school crossing signs. The higher intensity type signs provide excellent retro-reflectivity, and the fluorescent yellow-green color highlights pedestrian crossings. See Figures 1 and 2.

The sign change-out project began in July 2002. The Arlington County Board funded this initiative for $50,000. To date approximately 250 signs have been replaced.
Traffic Engineering Division

**Project Cost**
The cost to replace a sign with the upgraded higher intensity, fluorescent yellow-green pedestrian sign is approximately $120.

**Project Duration**
The project is currently in progress and began in July 2002. Priority was given to the highest pedestrian traffic and activity areas.

**Project Partners**
- Arlington County Department of Public Works – Traffic Engineering Division
- Arlington County Department of Public Works – Planning Division
- Arlington County Board
- Arlington County Schools
- Transportation Commission
- Pedestrian Advisory Committee
- Various Civic Associations
- Virginia Department of Transportation

In certain high pedestrian activity locations where the speed of traffic is greater than 30 mph, Arlington County employed the use of fluorescent yellow-green u-post inserts in addition to the signs to increase sign visibility and further highlight the pedestrian crosswalk. This type of treatment is used only at unsignalized/mid-block crossings. See Figure 3 for pictures. The cost for the U-Post inserts is approximately $20 each.

**Photographs**

![Fluorescent Yellow Green Pedestrian Crossing Sign](image1.png)

*Figure 1: Fluorescent Yellow Green Pedestrian Crossing Sign*
YIELD TO PEDESTRIAN FINE SIGNS

As part of the WALKArlington pedestrian initiative, the Arlington County Board approved a new ordinance that allowed the County Manager to designate certain crosswalks in the County where motorists who fail to yield the right of way to pedestrians can be fined from $100 to $500. The ordinance provided Arlington County Police a significant enforcement tool and was intended to make motorists more aware of their responsibility to yield the right of way to pedestrians at crosswalks. See Figure 4 for pictures.

To date, the Department of Public Works, Traffic Engineering Division has installed 200 signs notifying motorists of the need to yield and of the fine.

Project Cost:
The installed cost for a Yield to Pedestrian Fine Sign is approximately $110.
Traffic Engineering Division

Project Partners:
- Arlington County Department of Public Works – Traffic Engineering Division
- Arlington County Police Department
- Arlington County Board
- Transportation Commission
- Pedestrian Advisory Committee

Photographs

Figure 4: Yield to Pedestrian Fine Signs

SOLAR PEDESTRIAN FLASHERS

To address the needs of pedestrian safety and to highlight mid-block pedestrian crossings to motorists Arlington County staff employed the use of solar pedestrian warning flashers. Currently, Arlington County has three locations with solar pedestrian warning flashers. There are two triggers used to activate these flashers. They are:

a) **Time-of-day based trigger**
   The time-of-day based trigger is used at locations where there is predictable and recurring pedestrian traffic during certain hours of the day. As an example Arlington County has deployed a solar, time-of-day based trigger, pedestrian warning flasher close to Ballston and Virginia Square Metro stops on Wilson Boulevard at Oakland Street. This crosswalk is heavily used during the AM and PM Peak hours and the noon lunch time peak.

b) **Passive detection based trigger**
   The passive, detection based trigger is used at locations where pedestrian traffic peaks sporadically during the course of the day. Arlington County has deployed one such solar flashing system. Pedestrian detection is done using passive microwave detectors which in turn activate the flashers. For this particular deployment due to
cost constraints, wireless radio technology was used to activate the flashers once a signal was received from the pedestrian detector.

Arlington County has not yet evaluated the benefits of this type of pedestrian warning system.

Project Cost:
The complete cost including installation for a solar based pedestrian warning system is approximately $10,000.

Project Partners:
- Arlington County Department of Public Works – Traffic Engineering Division
- Arlington County Police Department
- Arlington County Board
- Virginia Department of Transportation

Photographs

Figure 5: Solar Pedestrian Warning Flasher

LIGHTED/FLASHING CROSSWALK

Highlighting pedestrian crossing and pedestrian presence to motorists can help improve pedestrian safety at mid-block crossings. To address a unique need for a high pedestrian traffic, mid-block crosswalk at the Ballston Mall in Arlington County, staff installed an in-road flashing light system. The system consists of Light Emitting Diode (LED) lights embedded in the pavement and a passive laser-based detection system. The passive detection is housed in bollards at either end of the crosswalk and in the median refuge. When a pedestrian cuts through the laser beam, the flashing amber colored LED lights are activated for the appropriate direction of traffic. See attached pictures.
Project Cost:
The entire project including installation cost approximately $20,000.

Project Partners:
- Arlington County Department of Public Works – Traffic Engineering Division
- Arlington County Police Department
- Arlington County Board
- Transportation Commission
- Pedestrian Advisory Committee

Photographs

Figure 6: In-Road LED Pedestrian Crossing Flashers

CROSSWALK TREATMENTS

One of the objectives and goals of the WALKArlington pedestrian initiative is to highlight pedestrian crossings for both pedestrians and motorists. Arlington County employs several crosswalk treatments to highlight marked crosswalks. They include:
- Concrete Pavers
- Asphalt Imprints
- Thermoplastic Imprints
- Laddered Crosswalks

The pictures below show some of the types of treatments used in Arlington County.
Arlington County operates and maintains 241 traffic signals. To improve pedestrian safety at these signalized intersections the County has installed pedestrian signals on all approaches at approximately 95% of traffic signal locations. In addition, Arlington County has deployed two mid-block pedestrian push-button activated traffic signals that stop traffic on a main street to allow safe pedestrian crossings.

To provide pedestrians with additional information on crossing times, Arlington County began a test project that uses countdown pedestrian signals. To date, approximately 50 intersections have been outfitted with countdown pedestrian signals. Arlington County is working with the Federal Highway Administration (FHWA) to serve as a test bed to
evaluate the effectiveness of this technology. Additionally, all of the countdown pedestrian signals installed are larger in size (16 inch) and use Light Emitting Diode (LED) technology to save on electricity costs associated with traffic signals.

Finally, Arlington County recently (summer 2002) installed its first traffic signal purely based on the pedestrian traffic warrant. The signal was installed on Wilson Boulevard at North Uhle Street and employs several of the pedestrians safety features highlighted in this document, such as fluorescent yellow-green pedestrian signs, yield to pedestrian fine signs, LED countdown signals and high visibility thermoplastic laddered crosswalks.

Project Cost:
Each pedestrian countdown device costs approximately $800 (installed cost).
Total cost for the pedestrian traffic signal (Wilson Blvd at Uhle St) was approximately $120,000.

Project Partners:
- Arlington County Department of Public Works – Traffic Engineering Division
- Arlington County Police Department
- Arlington County Board
- Transportation Commission
- Pedestrian Advisory Committee
- Federal Highway Administration
- Virginia Department of Transportation

Photographs

Figure 8: LED Pedestrian Countdown Signal and Signs

ITE Pedestrian Project Award Application