Docket Item # 1
BAR CASE # 2011-0264

BAR Meeting
October 19, 2011

ISSUE: New Construction for Bus Shelters

APPLICANT: Department of Transportation & Environmental Services, City of Alexandria

LOCATION: East side of the 300, 500, 800 and 1200 blocks of South Washington Street, the 200 and 500 blocks of North Washington Street , and the 1300 and 1600 blocks of East Abingdon Street

ZONE: Multiple zones

STAFF RECOMMENDATION:

1. That the Department of Transportation & Environmental Services staff work with BAR staff to determine acceptable locations for solar panels on the bus shelters and that where solar power is not feasible that the electric grid be the power source.

BOARD ACTION, October 5, 2011: Portion approved as amended and portion deferred for further study, by a roll call vote, 5-0.

CONDITIONS OF APPROVAL: Staff recommends approval with the following conditions:

1. That the end panels of each bus shelter remain clear glass and unobstructed;
2. That the any historical information be presented in a way that is consistent with the City's adopted Wayfinding program; and
3. That the electrical power source is brought back to the Board for restudy.

SPEAKERS

Pierre Holloman, Transportation & Environmental Services (T&ES) staff, spoke on behalf of the application and gave a brief presentation regarding the project.

Thomas Fitzgerald, resident at 311 S Pitt Street, spoke in opposition to the application altogether. Mr. Fitzgerald said the current bus shelters were fine and that the City should not spend the money to replace them.

Thomas Sheffner, Acting Park Planner for the National Park Service, spoke in support of the application, but felt there was a better alternative for the power source needed to run the real time information panel and lighting.

BOARD DISCUSSION

Mr. Fitzgerald inquired about the cost per shelter, which Mr. Holloman stated was $10,000 to $20,000 per shelter. Mr. Fitzgerald noted that the grant would not cover all of the costs. He asked if the number of solar panels could be reduced from three to two and Mr. Holloman stated that two panels in this design would not provide the needed 130 watts but that there were other options that

would provide the energy needed. Mr. Fitzgerald also inquired about whether the bus shelters outside of the historic district would include advertising space, as the DC shelters do. Mr. Holloman confirmed that none of the shelters in the City of Alexandria would have advertisements.

Mr. von Senden stated that he liked the new design of the shelters and commented that he would eventually like to see bus shelters located up and down Duke Street. In regards to the power source of the shelter, Mr. von Senden stated that he liked the photovoltaic option as it was less obtrusive. However, he commented that the photovoltaic panels would need to be south orientated meaning they would be angled on the shelters. While Mr. von Senden felt that most of the panels would blend in over time, he was concerned about the shade the buildings provide and the negative effect the shading would have on the solar collectors. Mr. von Senden stated that he was generally in favor of the project.

Mr. Smeallie felt that the color and new design and of the City of Alexandria Metrobus shelters were a much better design solution than the DC Metrobus shelters but was against any type of solar collectors on the tops of the shelters. He felt that the panels would not be reliable and would prefer to see a hard-wired system.

Mr. Carlin stated that he liked the simple design of the new shelters and that the straight clear glass panels on the new Alexandria model would be less prone to maintenance issues and would age better. He thought that a hardwired power source would be a better, but could also support a photovoltaic system if it was affordable.

Mr. von Senden understood Mr. Smeallie's concerns but stated that the reliability and efficiency of photovoltaic has greatly improved over the years.

Mr. Smeallie rebutted that the photovoltaic would not be worth the effort and that the bus shelters on Washington Street was not the place for solar panels. Mr. Smeallie made a motion to approve the demolition of the current bus shelters and the design of the new bus shelters, but to defer for restudy the power source of the new shelters. The motion includes approval of Staff recommendation one and two and deferral of Staff recommendation three.

The motion was seconded by Mr. Fitzgerald, which was approved by a roll call vote, 5-0.

REASON

The Board found the new bus shelters to be a great improvement to Washington Street and applauded the City for selecting a design that was compatible with the historic district. However, many members of the Board were concerned about the appearance of solar panels located on top of the shelters. They expressed concerns relating to cost, efficiency, reliability, and visual impact on the historic district. The Board found that the power source should be studied further, including looking at hard wired solutions.

STAFF RECOMMENDATION, October 5, 2011: Staff recommends approval with the following conditions:

1 That the end panels of each bus shelter remain clear glass and unobstructed;

4. That the any historical information be presented in a way that is consistent with the City's adopted Wayfinding program; and

5. That the Department of Transportation & Environmental Services staff work with BAR staff to determine acceptable locations for solar panels and remote solar poles so that they are appropriately sited and minimally obtrusive.

**EXPIRATION OF APPROVALS NOTE: In accordance with Sections 10-106(B) and 10-206(B) of the Zoning Ordinance, any official Board of Architectural Review approval will expire 12 months from the date of final approval if the work is not commenced and diligently and substantially pursued by the end of that 12-month period.

**BUILDING PERMIT NOTE: Most projects approved by the Board of Architectural Review require the issuance of one or more construction permits by Building and Fire Code Administration (including signs). The applicant is responsible for obtaining all necessary construction permits after receiving Board of Architectural Review approval. Contact Code Administration, Room 4200, City Hall, 703-746-4200 for further information.

Locations of Existing Bus Shelters to be Replaced

Update: At the October 5, 2011 hearing, the BAR approved a Permit to Demolish for the existing shelters and a Certificate of Appropriateness for the design of the new shelters. The BAR deferred action on the proposed three-panel solar power scheme for the bus shelters and requested that the applicant restudy power supply options. *New information and analysis is shown below in italics.*

I. ISSUE

In total, eight new bus shelters will be installed in the location of seven existing shelters and one shelter that was previously demolished as part of the Woodrow Wilson Bridge construction project and replaced with a small canopy. Six of the bus shelters are located at regular intervals along the east side of Washington Street and two are located on the east side of East Abingdon Drive. Removal and replacement of bus shelters in the historic districts require approval of a Permit to Demolish and Certificate of Appropriateness from the BAR according to the Zoning Ordinance and the *Design Guidelines*.

Background

In 2008, the City received a $500,000 grant from the Federal Highway Administration to replace approximately 40 existing bus shelters throughout the City. The grant money covers the design and planning process as well as the installation of bus shelters that will serve residents and visitors alike. Transportation & Environmental Services Staff have collaborated with Planning & Zoning Staff to coordinate the project and select an appropriate and cost-effective design. In addition, the City has been working with the Virginia Department of Transportation (VDOT) and the National Park Service (NPS) throughout the planning process. Public meetings have also been held and suggestions were incorporated into the current design. Overall, the response to the current design has been positive. Initially, a prefabricated design was considered. However, after reviewing many options, it was decided that a prefabricated scheme was not appropriate for the City. All of the prefabricated options were either too modern or too Colonial Revival in nature. Creating a distinct design for Alexandria was also considered. As part of the planning process, City staff and the City's design consultant for the project looked at the newly installed bus shelters in the District of Columbia. Staff and the public found the design used in D.C. to be appropriate. Seeing the bus shelters in D.C., in highly visible locations adjacent to very historic buildings, revealed that this concept design was successful. The shelters in D.C. were designed and installed as part of a public/private partnership with Clear Channel, who continues to maintain the shelters in exchange for advertising. Although the design proposed for Alexandria is very similar to that used in D.C., Clear Channel is not involved with this proposal and no advertising is proposed within the historic districts in Alexandria.

Proposed Design

The proposed bus shelter design for Alexandria is not a direct copy of the bus shelters in D.C. The Alexandria model has a slightly different design and will be a black metal rather than silver. Additionally, the City's design consultant also improved upon some of the production details. There will be no advertising and the end panels will remain unobscured. Route maps and local historic interpretation information will be installed but they will be on the back panel only.

The proposed bus shelters measure approximately 8 feet by 15 feet and have a contemporary and minimalist modular design. The black metal frame will have clear glass panels on three sides and a translucent glass shed roof. A coordinating black metal bench will be located within the shelter. There will be small LED screens to provide route and real-time schedule information. The shelters

will have small solar panels affixed to the top of the shelter to power low-level lighting for safety and the small LED real time transit information screens. The proposed solar panels will have a swivel component to achieve optimal southern orientation. In some locations, due to the tree canopy or building shade, a small pole with a solar panel will need to be installed near the shelter. The end panels will remain clear and un-obscured. Two double sided panels with maps, transit information and historical background may be installed on the rear panel. The shelters will be constructed on the existing concrete pads. In some cases it may be necessary to install a new pad—in such cases the pad will be no more than 12 inches deep. The proposed shelters will be compliant with the Americans with Disabilities Act (ADA).

In response to concerns by several BAR members and the National Park Service regarding the use of three solar panels at each shelter, T&ES Staff prepared a matrix (see attached) illustrating why the three-panel solar option is the preferred power source. Most of the shelters within the City are currently not illuminated. However, the City, in response to input from the public stakeholders during the review process has included low-level ambient lighting in all shelters. Illumination was the most requested item the public wanted to have with the new shelters. Illumination provides better comfort in terms of safety for bus passengers; it allows the bus driver to more easily see if someone is waiting for a bus within a shelter, and it discourages people from sleeping inside shelters. The ADA currently does not require shelters to be illuminated. However, the next round of ADA will more than likely include illumination as a requirement if graphic information, such as bus schedules, maps and the like, is being displayed.

A power source is necessary to supply power for real-time transit LED illuminated display and low-level ambient lighting. The matrix prepared shows the following options for power:

- *Three separate panels attached to bus shelter(provides for illumination and real time-transit LED display)*
- *Small single panel on pole (not enough power for real-time transit LEDs, only for illumination)*
- *Larger single panel on pole (provides for illumination and real-time transit LEDs)*
- *Photovoltaic glass on roof of shelters (provides for illumination and real-time transit LEDs)*
- *Electric grid (provides for illumination and real-time transit LEDs)*
- *No power (no real-time transit display and ambient light provided by existing street lights)*

Bus Shelter Power Options

Source/Type	Direct Power Needed for Illumination and LED Display in W	Direct Power Generated By Source in W	Direct Life Expectency	Initial Capital Cost Per Source Per Shelter	Additonal Construction Cost	Direct Annual Maintenance Cost	Direct Annual Operation Cost	Battery Replacement Cost After 6 Years Per	Orientation	Reliability	Total 12 Year Approx. Cost Per Shelter
3 Separate Solar Panels (25"X25" each)	130W	162W	6 to 10 Years Before Battery Replacement	$1,000	$500	$100	$0	$500	Flexible	High	$3,200
Single Small Solar Panel on a Pole* (39"X26")	130W	80W	6 to 10 Years Before Battery Replacement	$2,500	$500 to $2500	$100	$0	$500	Flexible	High	$4,700 to $7,200
Single Larger Solar Panel on a Pole** (59" X 23")	130W	130W	6 to 10 Years Before Battery Replacement	$4,300	$500 to $2,500	$100	$0	$500	Flexible	High	$6,500 to $9,000
Photovoltaic Glass (all glass panels)***	130W	780W	Up to 6 Years Before Battery Replacement	$11,000	$0	$100	$0	$800	None	Medium	$13,000
Photovoltaic Glass (on roof)***	130W	150W	Up to 6 Years Before Battery Replacement	$5,000	$0	$100	$0	$500	None	Medium	$6,700
Electric Grid	130W	up to 200W Plus	Unlimited	$500	$5,500	$80	$300	$0	None	High	$11,100
No Illumination (using existing ambient light from streetlights/lamps)****	0W	0W	n/a	$0	$0	$0	$0	$0	None	n/a	$0

Single Small Solar Panel on a Pole* - can generate enough W to power low level illumination; however, not enough W to power LED real time bus information display - would require a larger solar panel.

Single Larger Solar Panel on a Pole** - larger size panel which can accomidate 130W

Photovoltaic Glass*** - generates 50% of the power per square foot that traditional panels, newer technology generates 70% of the power per square foot of traditional solar panels - newer technology by 3M is currently being tested - realiabilty has yet to be determined

No Illumination**** - no power source option, using existing streetlights/lamps to generate ambient light

Locations which have some existing ambient light from street lights/lamps:
1200 block of S Washington, 300 block of S Washington, 200 block of N Washington, 500 block of N Washington,

Initial Captial Cost Per Source Per Shelter - Actual Cost of the Source
Additional Construction Cost - Cost of Placing the Source onto the Shelter during Installation (PV Glass - already included in manufacturing of shelter)
Direct Annual Maintenance Cost - fixing wires, batteries, positioning & replacing low-level LED bulbs
Direct Annual Operation Cost - cost to operate the source / monthly - annual bills

II. HISTORY

The existing bus shelters are a standard Washington Metropolitan Area Transit Authority (WMATA) design made of Plexiglas with steel frames that were installed between 1974 and 1976.

III. ANALYSIS

The proposed bus shelters comply with Zoning Ordinance requirements however no signs or advertising, other than those governmental signs related to the City's Wayfinding program or transit information, are permitted.

New Construction—Bus Shelters

Staff finds the proposed bus shelter design to be an appropriate design that is of its own time, compatible with the surrounding historic buildings and respective of the memorial character of the George Washington Memorial Parkway. The streamlined design allows the bus shelters to be highly functional yet visually unobtrusive. By maintaining the end panels as clear glass, the bus shelters do not draw attention to themselves, in the way that advertising or art does on the D.C. shelters. Staff also found it to be inappropriate for these shelters to have a phony Colonial design, as George Washington never took the bus through Alexandria, and Staff believes that a very simple, minimalist style is the most appropriate. The National Park Service strongly agreed, as it protects the memorial character of the Parkway. To ensure that future decisions do not visually block the Parkway or adjacent buildings, Staff recommends a condition of approval that the end panels remain clear and unobscured.

A small amount of electrical power is needed for low-level general illumination and real time transit information. However, because of the need for separate electrical transformers, metering and undergrounding requirements, *it is less desirable* to provide this power from the public utility grid. *The matrix of power options shows that the use of three solar panels on the shelter is the most economical option and is also very reliable. The next most economical and reliable source is the use of a single-panel mounted on an adjacent pole. While the use of the existing electric grid is one option, and more costly than the solar panel option, Staff is concerned about the presence of new electrical meters and separate transformers in the public right-of-way.*

Power Source	***Advantages***	***Disadvantages***
3 Single Panels on Shelter	Most economical High reliability Promotes Green Building Policies	Moderate visual impact
Single Small Panel on Pole	Economical High reliability Promotes Green Building Policies	Not enough power for real-time transit Moderate visual impact
Single Large Panel on Pole	Economical High reliability Promotes Green Building Policies	Substantial visual impact of 10sf panel on Parkway
Photovoltaic Glass	Expensive Medium reliability Promotes Green Building Policies	Minimal visual impact
Electric Grid	Expensive High reliability Limited visual impact	Does not promote Eco-City and Green Building policies

No Power	No cost No visual impact	Does not meet public's primary request for illumination Disservice to not provide real-time transit info to public

Staff continues to note that solar collectors provide a less expensive solution and support the City's green building policies. The *Design Guidelines* on solar collectors advise that they "be located on the most visually inconspicuous area of a structure consistent with the requirements of maximum access to the sun" and they "should be as small as possible." Due to the location of the bus shelters in the public right-of-way on Washington Street, it is difficult to make the solar collectors visually recede entirely. *However, when placed in context, although the solar panels will be visible, they will be within a streetscape that includes large buildings, trees, street lights, traffic signals, mail boxes and other elements of an urban corridor. Staff believes that their overall visual impact will be minimal.* Upon reviewing different schemes and noting that the most up-to-date technology will be used for the solar panels, Staff finds that the three small solar panels attached to the rear of the roof of each shelter are *most preferable with respect to size, visual impact and overall cost*. *Previously Staff noted that* where tree canopy or buildings shade the shelter, T&ES Staff should work with BAR Staff to determine the least visible placement of a new remote pole or co-location on an existing utility pole. *However, to meet the power needs for both illumination and real-time transit information, the panel would have to be nearly 5' by 2'. Staff finds the scale of such an option to be inappropriate for the Parkway and prefers the use of the electric grid in the locations where panels cannot be directly attached to the bus shelter.*

Staff recommends approval of the application with the conditions noted above. This project represents a good model of coordination between City Staff in the departments of Transportation & Environmental Services and Planning & Zoning to review and plan for future infrastructure improvements located in the historic districts.

STAFF

Catherine Miliaras, Historic Preservation Planner, Planning & Zoning
Al Cox, FAIA, Historic Preservation Manager, Planning & Zoning

IV. CITY DEPARTMENT COMMENTS

Legend: C - code requirement R - recommendation S - suggestion F- finding

Comments repeated from previous report.

Code Enforcement:

F-1 The review by Code Administration is a preliminary review only. Once the applicant has filed for a building permit, code requirements will be based upon the building permit plans. If there are any questions, the applicant may contact Thomas Sciulli, Plan Review Supervisor at thomas.sciulli@alexandriava.gov or 703-746-4190. (Code)

C-1 Demolition and building permits are required for this project. Five sets of *construction documents* construction, anchorage, and resistance to wind and snow loads shall accompany the permit application(s)

Transportation and Environmental Services:

RECOMMENDATIONS

R1. The building permit must be approved and issued prior to the issuance of any permit for demolition. (T&ES)

R2. Applicant shall be responsible for repairs to the adjacent city right-of-way if damaged during construction activity. (T&ES)

R3. All improvements to the city right-of-way such as curbing, sidewalk, driveway aprons, etc. must be city standard design. (T&ES)

R4. No permanent structure may be constructed over any existing private and/or public utility easements. It is the responsibility of the applicant to identify any and all existing easements on the plan. (T&ES)

R5. Conduit will be required for utilities placed underground. (T&ES)

CITY CODE REQUIREMENTS

C-1 The applicant shall comply with the City of Alexandria's Solid Waste Control, Title 5, and Chapter 1, which sets forth the requirements for the recycling of materials (Sec. 5-1-99). (T&ES)

C-2 The applicant shall comply with the City of Alexandria's Noise Control Code, Title 11, Chapter 5, which sets the maximum permissible noise level as measured at the property line. (T&ES)

C-4 All secondary utilities serving this site shall be placed underground. (Sec. 5-3-3) (T&ES)

C-5 Any work within or from the right-of-way requires a separate permit from T&ES. (Sec. 5-3-61), to include but not limited to: Excavations, Lane Closures and Sidewalk Closures. Please contact T&ES/C&I Permits Section at (703) 746-4035 for further information. (T&ES)

Alexandria Archaeology:
Archaeology Comments:

1. Call Alexandria Archaeology immediately (703-746-4399) if any buried structural remains (wall foundations, wells, privies, cisterns, etc.) or concentrations of artifacts are discovered during development. Work must cease in the area of the discovery until a City archaeologist comes to the site and records the finds. The language noted above shall be included on all final site plan sheets involving any ground disturbing activities. (Archaeology)

2. The applicant shall not allow any metal detection and/or artifact collection to be conducted on the property, unless authorized by Alexandria Archaeology. Failure to comply shall result in project delays. The language noted above shall be included on all final site plan sheets involving any ground disturbing activities. (Archaeology)

Findings:

F-1 This project has been deemed to be under the jurisdiction of Section 106 of the National Historic Preservation Act of 1966. The applicant will coordinate with the Virginia Department of Historic Resources and the federal agency involved in the project, as well as with Alexandria Archaeology.

National Park Service**:**
See attached letter.

V. IMAGES

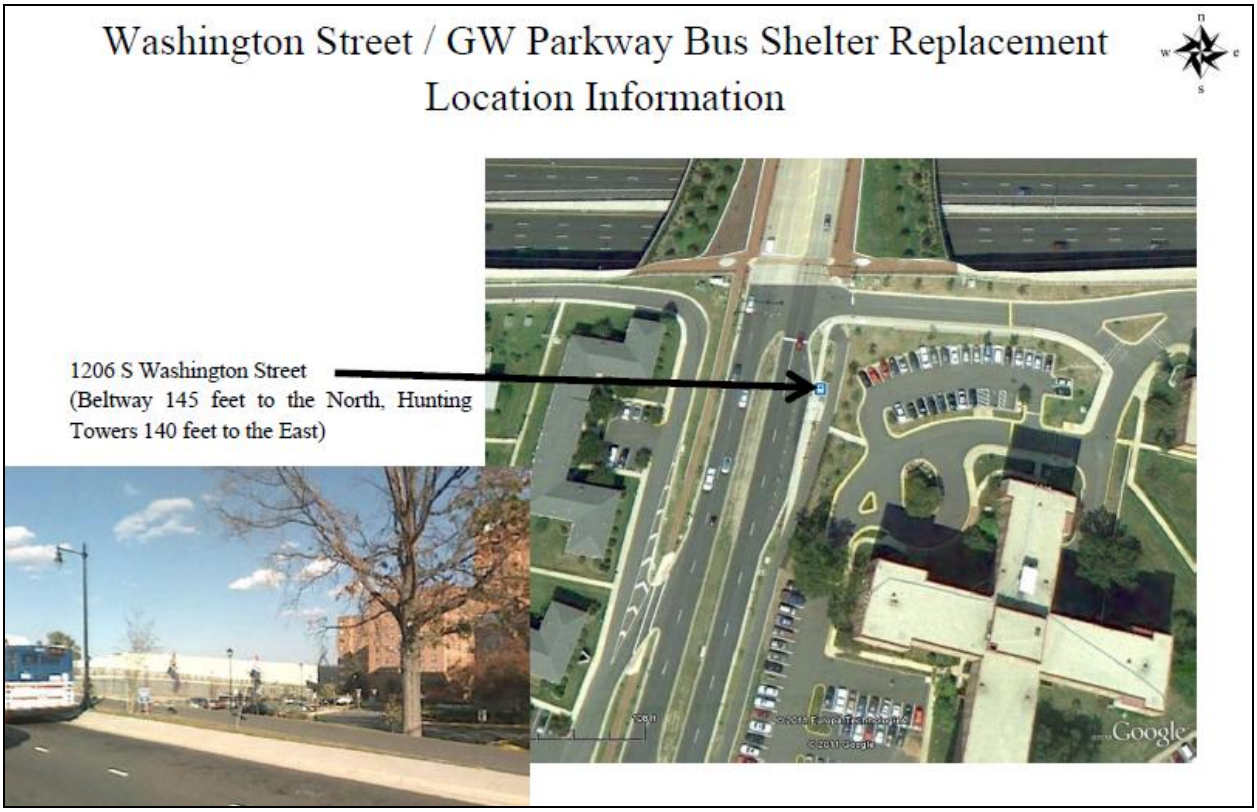

Figure 1. Location of shelter on 1200 block of South Washington Street.

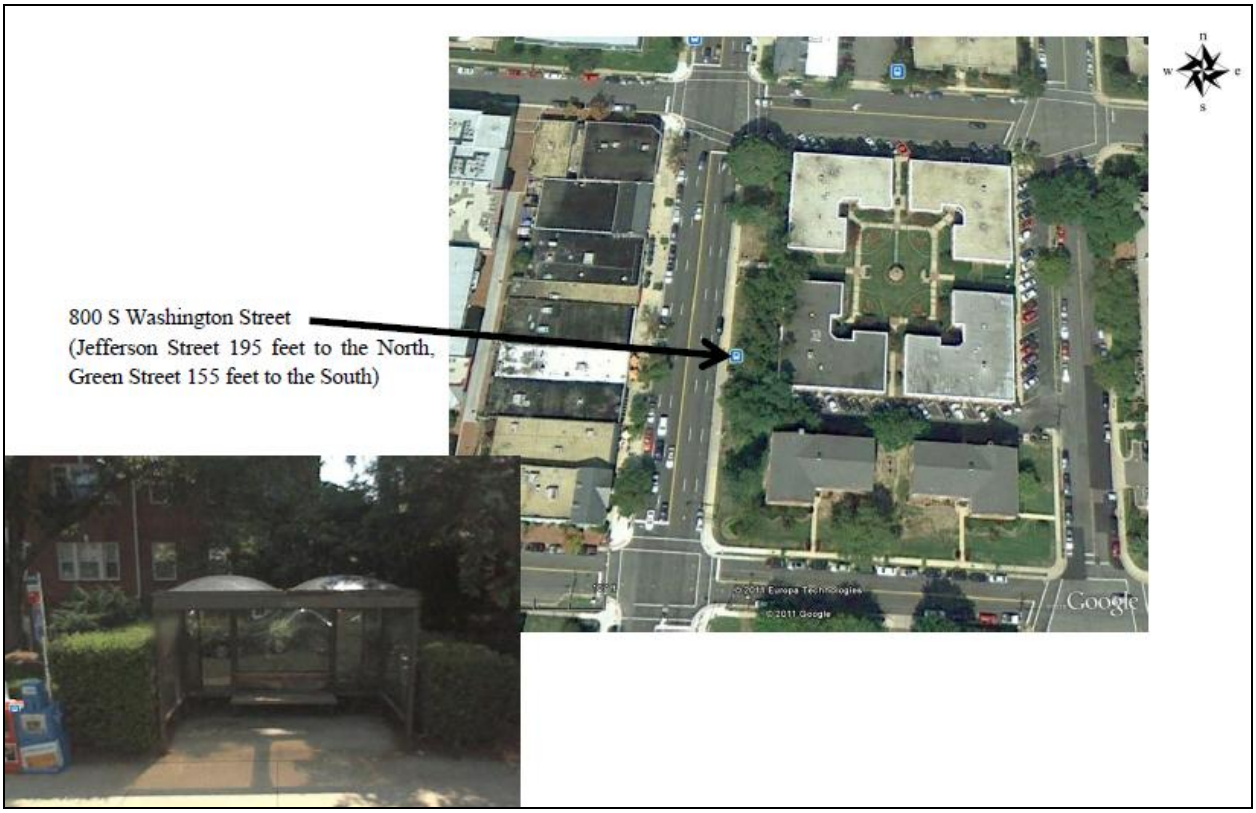

Figure 2. Location of shelter on 800 block of South Washington Street.

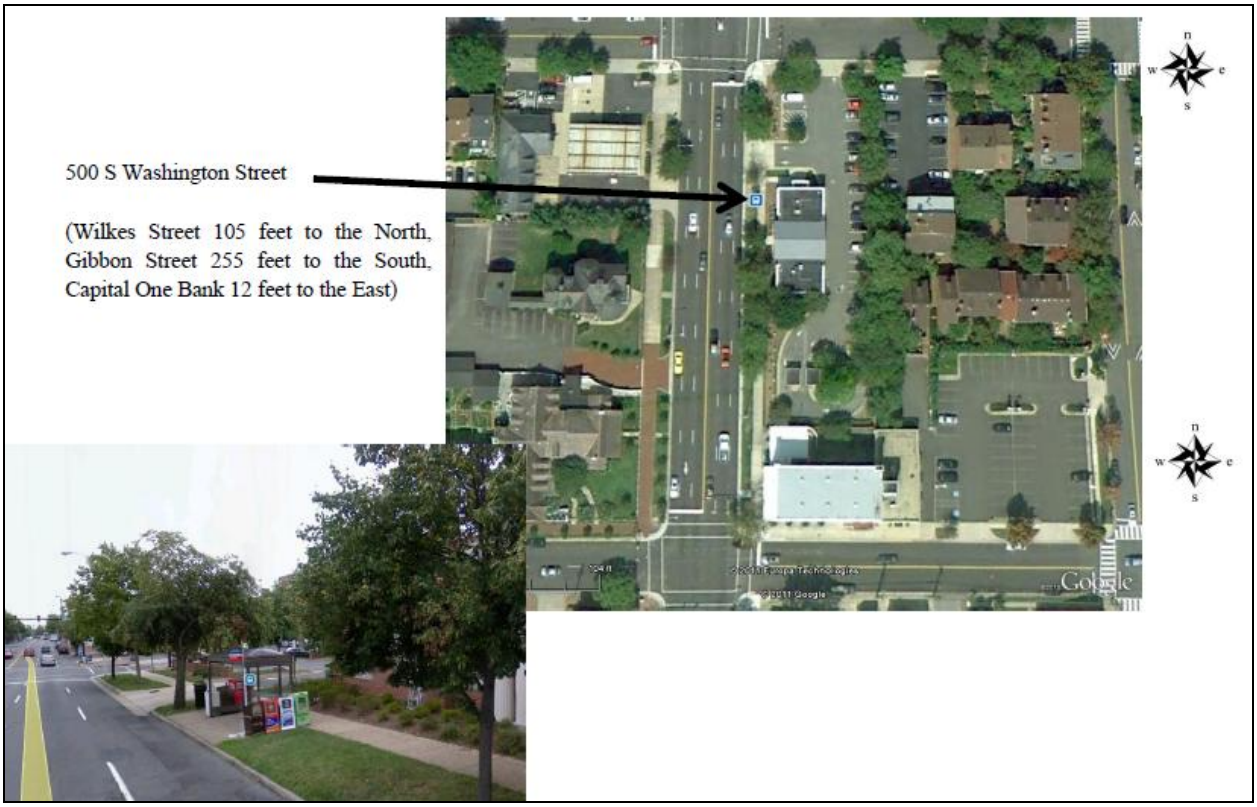

Figure 3. Location of shelter on 500 block of South Washington Street.

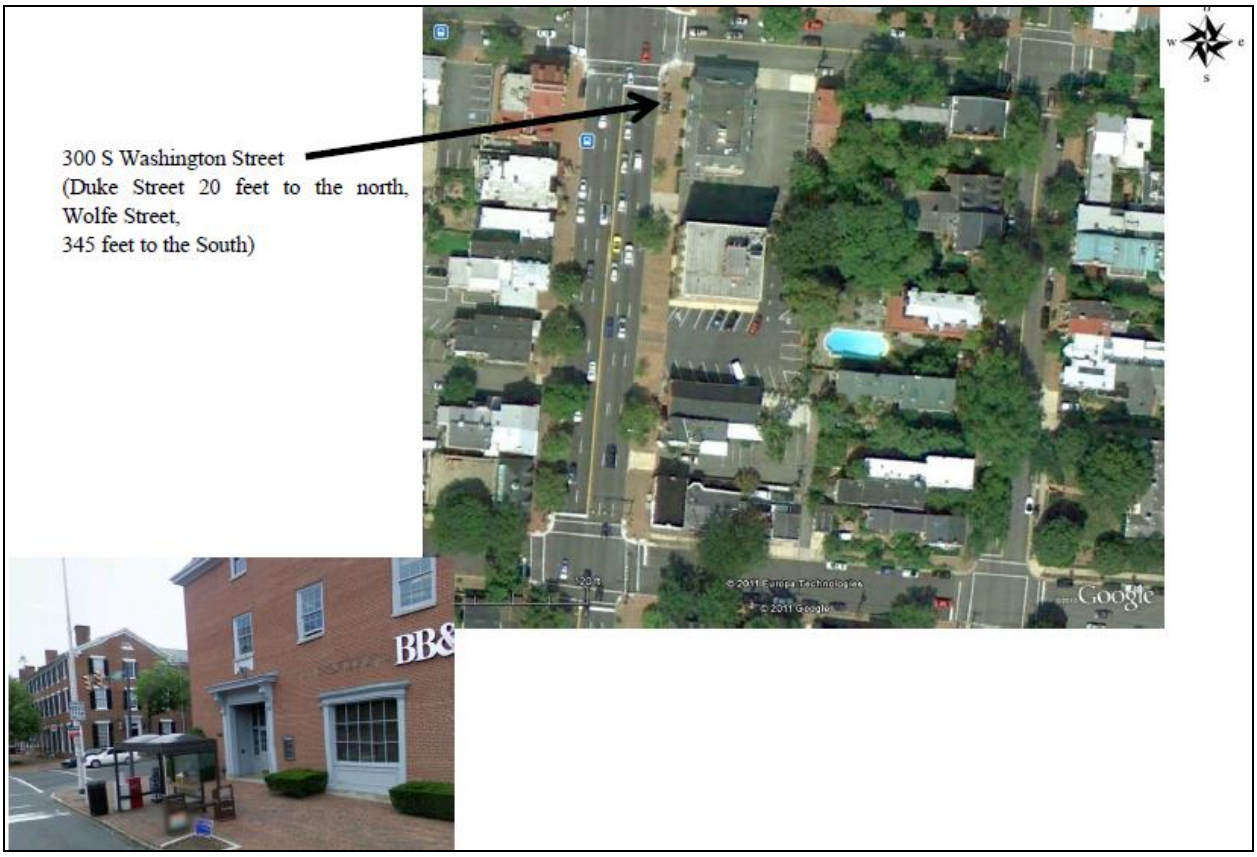

Figure 4. Location of shelter on 300 block of South Washington Street.

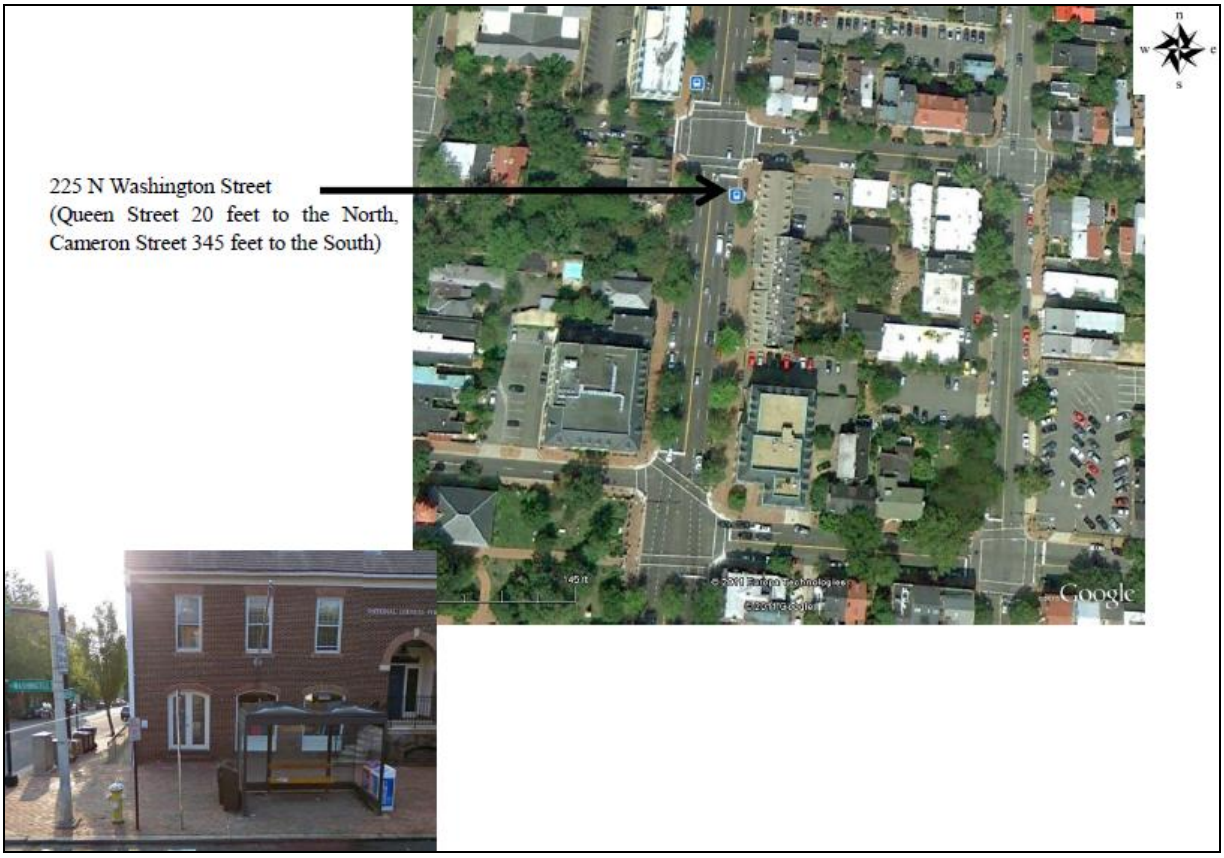

Figure 5. Location of shelter on 200 block of North Washington Street.

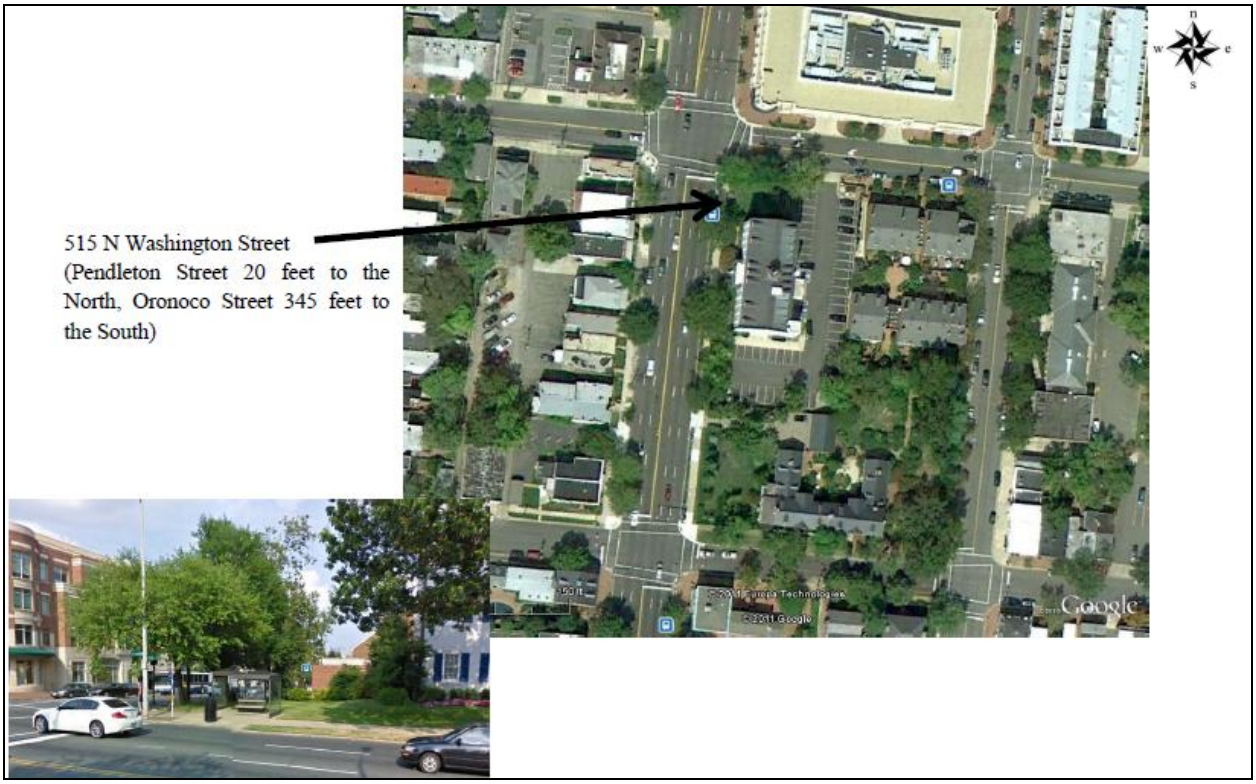

Figure 6. Location of shelter on 500 block of North Washington Street.

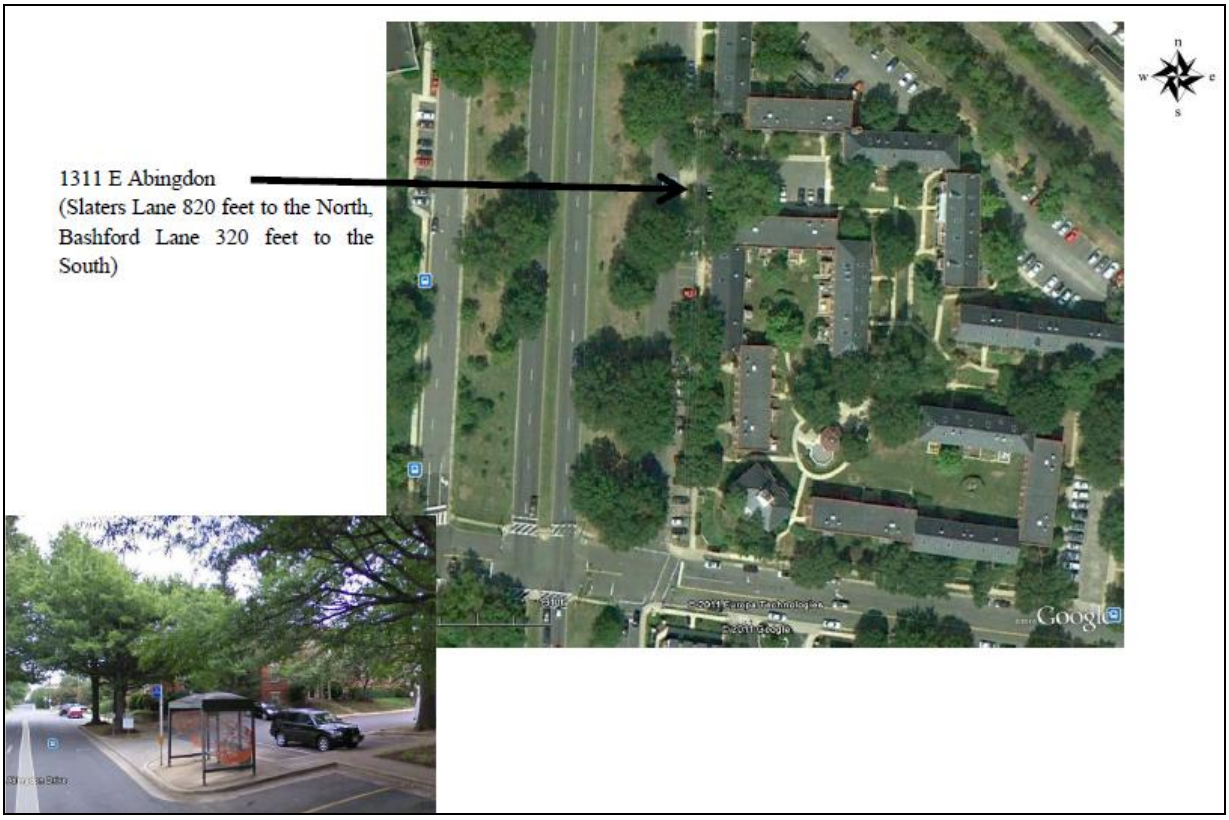

Figure 7. Location of shelter on 1300 block of East Abingdon Drive.

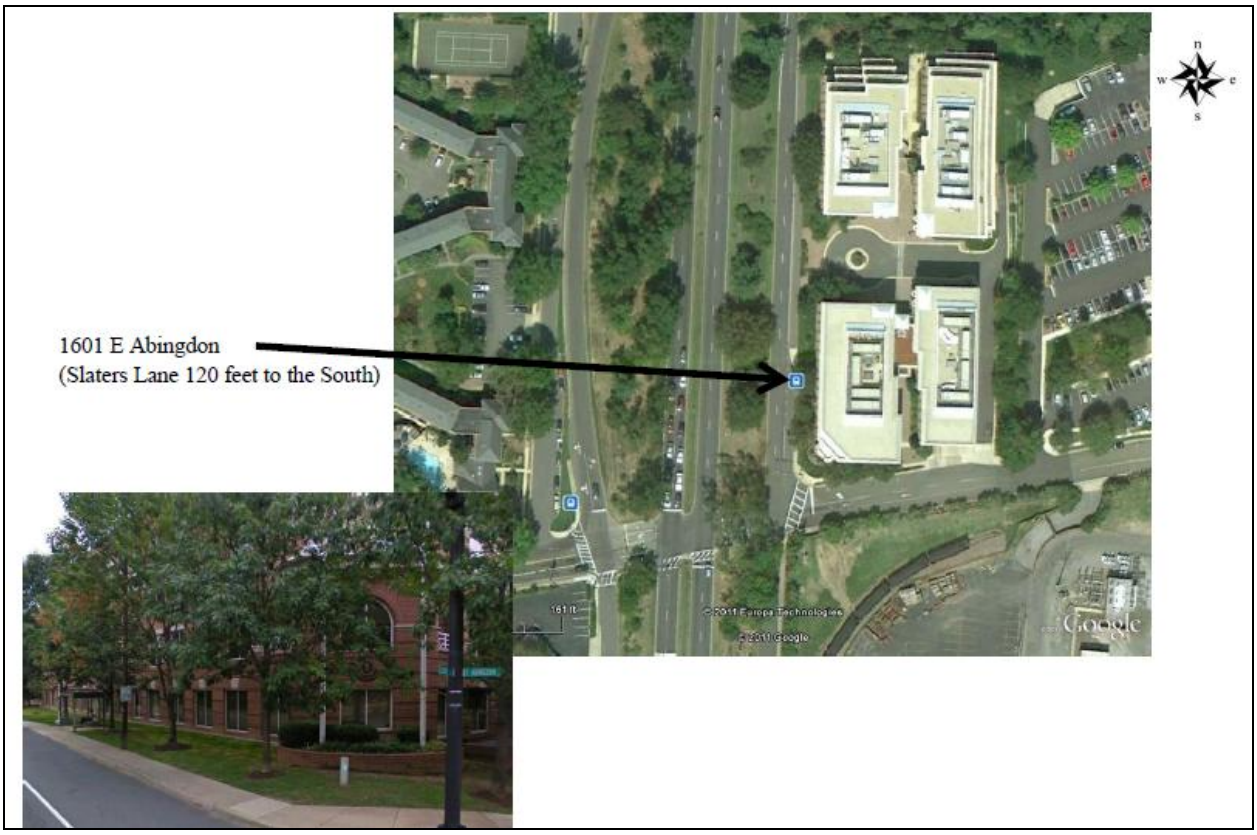

Figure 8. Location of shelter on 1600 block of East Abingdon Drive.

Figure 9. Proposed bus shelter with solar panels.

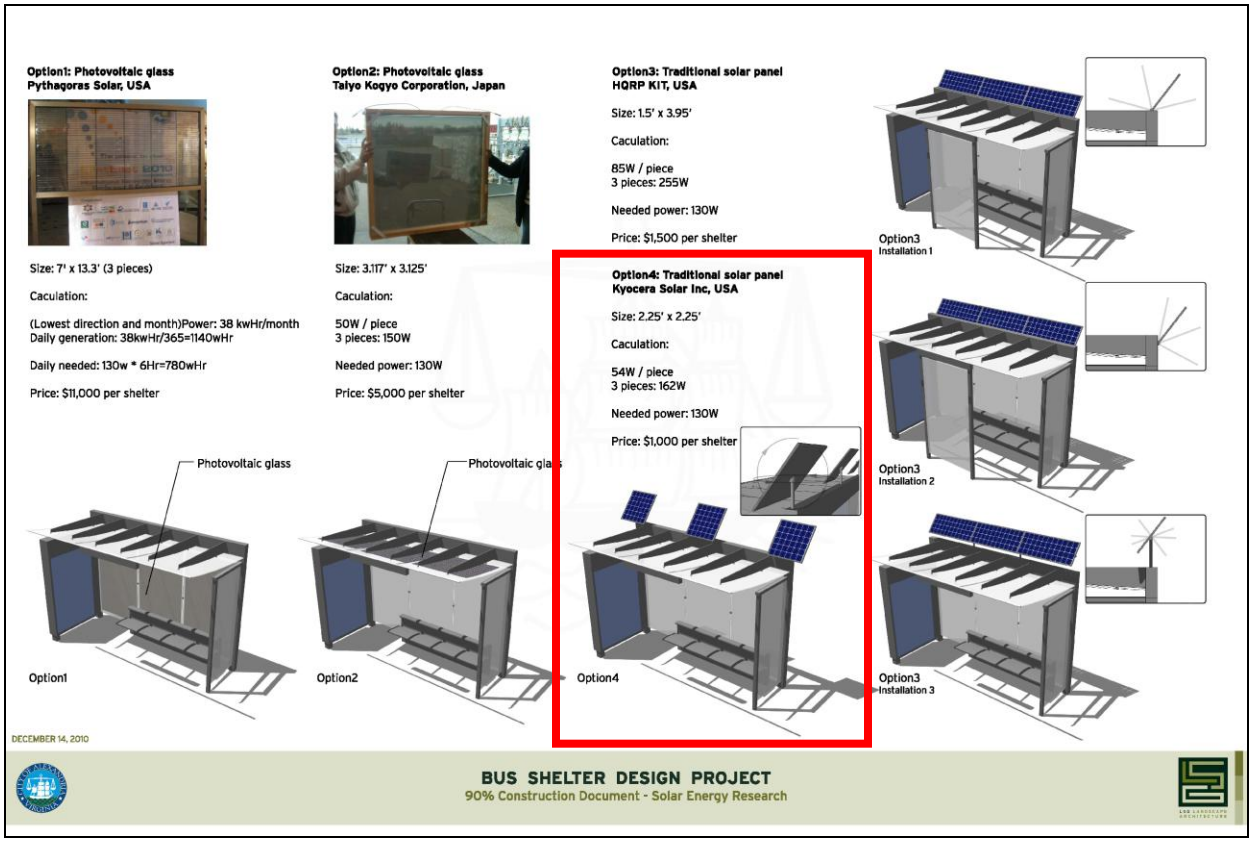

Figure 10. Solar Energy Research and Options with preferred option in red.

United States Department of the Interior

NATIONAL PARK SERVICE
George Washington Memorial Parkway
c/o Turkey Run Park
McLean, Virginia 22101

IN REPLY REFER TO
L3000R (GWMP)

September 29, 2011

City of Alexandria Board of Architectural Review
Old and Historic Alexandria District
Mr. Thomas Hulfish, III, Chairman
301 King Street, Room 2100
Alexandria, VA 22314

RE: BAR 2011-0263 / BAR 2011-0264, Demolition and replacement of Metrobus shelters

Dear Mr. Hulfish:

Alexandria Department of Planning and Zoning staff has requested comments from National Park Service (NPS), George Washington Memorial Parkway (GWMP) on the above cases coming before the City of Alexandria Board of Architectural Review, Old and Historic Alexandria District (BAR) on October 5, 2011. We have provided verbal feedback to city staff on August 9, 2011. This letter will confirm our position regarding new bus shelters on Washington Street.

We are committed to working with the BAR to maintain the spirit of our 1929 Agreement to keep the "dignity, purpose and memorial character" of the Mount Vernon Memorial Highway/Washington Street as it passes through Alexandria. We applaud the sleek, minimalist design proposed for the bus shelters, which should not present an adverse impact to the larger setting of Mount Vernon Memorial Highway/Washington Street.

Regarding signage for the shelters, we would request that it be limited to that required to provide transportation information. We would prefer to see this signage confined to the rear panel of the shelter versus the side panels, so as to present less of a visual intrusion to those travelling the Mount Vernon Memorial Highway/Washington Street.

Our biggest concern is in regard to solar panels. As presented to us in the August meeting, the more cost-effective solar panels rise above the roofline of the shelters. We feel this throws off the sleek design of the shelters and makes them more of a visual impact to travelers on Washington Street. If the photovoltaic glass options are not viable for these shelters, we would prefer for the City to pursue wired options to power all shelters on Washington Street. We would presume, given the amount of utilities in the area, that this would be a straight-forward procedure.

Finally, we know the current board shares our mutual concern to limit advertising and signage along Washington Street. We would like to state, for the record, that should future actions by the city move to place advertising, billboards, or other material of that nature on these bus shelters, we will vigorously oppose such actions.

If you have any questions regarding these comments, please contact Park Ranger Ben Helwig at 703-289-2515.

We appreciate the Board of Architectural Review and the Department of Planning and Zoning's attempts to contact us and abide by the terms of the 1929 Agreement. Please continue to keep us informed of future actions in the Washington Street corridor. We look forward to continuing a good relationship with the City of Alexandria.

Sincerely,

DP Marshall

Dottie P. Marshall
Superintendent, George Washington Memorial Parkway