Stratford School BLPC Access Recommendations

Arlington County Board Discussion

May 14, 2016
The BLPC strongly supports (9-0) the “high road” driveway to support pedestrian safety at Stratford

Our work included:

▪ **Broad Community Input**
  – BLPC represented at least 7 civic associations, included experts on environment, school construction, historic preservation.
  – Our 23 meetings included detailed deliberation, onsite visits and observations, direct interviews with current and future users of the school.
  – We heard public comment at every meeting and kept communities, elected officials, staff and PFRC updated throughout.

▪ **All Options Considered** Considered 9+ different layouts. Looked at other school set ups. Read extensively about encouraging students to walk and supporting pedestrian safety.

▪ **Tradeoffs Carefully Considered** (Safety, Instruction, Environment, Open Space, Trees, Cost, Community Impact, History, Aesthetics)

▪ **Embedded in Design Choices** The West location for the addition was a significant compromise to support historic priorities. Without the driveway, the new “heart of school” and community amenities is accessible only from the loading dock entrance. Most BLPC members did not support West without the driveway.

▪ **Collaborating on Lessons Learned** We continue to work with APS and County leaders to revise the BLPC and PFRC process for future projects. Proactive, full traffic and safety analysis should be part of site selection and the very earliest stages of design.
Contents

- Background
  - BLPC Recommendations
  - Considerations
History: Stratford topography, access and safety have been a challenge from the start

1950s
Controversial Site conversion from summer camp to neighborhood school site.

1990s
Community request new access point/driveway during Stratford addition.

2000s
Music addition - pedestrian safety improvements & traffic calming measures requested. Speed bumps added.

2014
Community requests complete traffic and access analysis before site selection. All designs show a connection to Old Dominion.

2015
BLPC and PFRC convened. Historic and instructional needs require West. BLPC, PFRC recommend driveway. School Board votes for driveway.

2016
PFRC recommends against driveway. Stratford Transportation Open House.

SOURCE: Source
History: Stratford BLPC was established in February 2015. Members and advisors come from a wide geographic area and diverse skillsets.

- **Deep expertise.** Sustainability experts, historic preservation experts, educators, engineers, parents, and school construction/master plan experts

- **Many neighborhoods.** Cherrydale, Donaldson Run, Lyon Village, Maywood, Old Dominion, Waverly Hills, Woodmont and beyond

- **Many schools.** Glebe, Key, Science Focus, Taylor, Swanson, Williamsburg

- **Diverse experience.** Long-time residents and brand-new residents; retired, single, new parents, etc.; bikers, bus-riders, walkers, drivers

- **Deeply engaged.** Met 23 times, plus attended countless on-site tours and observations, commission, Civic Federation, Civic Association and School Board meetings and kept the community informed throughout. Grappled, studied, considered.
History: In 2015 BLPC evaluated 9 access options, balancing safety, historic, environmental, recreational, instructional and budget needs

Access options considered:

- Do nothing
- Vacation lane changes only
- Connect 22nd St to Old Dominion
- Connect 23rd St to Old Dominion
- Low Road – connect Vacation Ln to Old Dominion south of the field
- High Road – connect Vacation Ln to Old Dominion north of the field
- In/Out to Old Dominion (several options)

At concept design the "high road" was recommended by the BLPC, PFRC, APS and design team, and approved by the School Board in November 2015. Due to:

- **Safety** concerns of combining increased car traffic, bikes, pedestrians and buses on the short winding stretch of Vacation

- **Design** - "heart of school" addition located to the West (driven by need to preserve the south facade for civil rights history reasons)

- **VDOT** – Preferred one way, out only, mid-block on Old Dominion, with full traffic light

Options A-D

OPTION A

OPTION C

OPTION B

OPTION D

SOURCE: Source
Options E-H
Option I
Contents

- Background
- **BLPC Recommendations**
- Considerations
After much deliberation and study, the Stratford BLPC recommended (9-0) an on-site driveway for three critical safety reasons

Safety Benefits of Stratford Driveway

1. Reduced Risk of Pedestrian/Cyclist Injury or Fatalities

2. Universal Design and Accessibility

3. Better Fire/Emergency Access

SOURCE: BLPC Letter to School Board, 11/16/15 (Concept Design Clarifications)
Safety Benefit #1: Reduced Risk of Pedestrian/Cyclist Injury or Fatalities

• Separating pedestrian and vehicular traffic is a standard goal for school transportation planning, and will help to make Statford a safer and walker-friendly

• Stratford is surrounded by three major, high speed commuter routes (30-45 mph)
  - Slowing traffic on Old Dominion is critical, today more than 15% of cars travel over 45 mph

• Pedestrian fatality rates are 5% at 20 mph; 40% at 30 mph; 80% at 40 mph
  - More accidents occur at higher speeds since drivers do not see pedestrians in time to stop.
  - At Stratford the surrounding hilly and winding roads have limited visibility and posted speed limits of 25 to 35 mph, with higher speeds occurring routinely.

• In 2013, 15,000 children were injured while walking or bicycling in the U.S.; 288 were killed.

• Middle schoolars are the most at risk for pedestrian accidents
  - “Unintentional pedestrian injuries are the fifth leading cause of injury-related death in the United States for children ages 5 to 19. Teenagers are now at greatest risk. Teens have a death rate twice that of younger children and account for half of all child pedestrian deaths.”

“At existing schools, increased traffic speed and volume may make parents more reluctant to have their children walk. ... This can create a vicious cycle where parents driving their children to school create such a vehicular hazard outside the school that other parents are afraid to let their own children walk.”

Safety Benefit #2: Universal Design & Accessibility

• The new addition will serve as the main gathering space for the school: the site of arrivals, dining, gymnasium, locker rooms, library, community restrooms and many classrooms.

• The West location was the only option that met both historic and instructional needs.

• Every student and visitor, regardless of mobility, should be able to use this “heart of school”.

• The recommended driveway enables students and community members with limited mobility to enter the building alongside their peers, rather than through a steep, trash/service entry at the back of the building.
Safety Benefit #3: Better Fire/Emergency Access

• **Virginia and international building codes require improved fire lane access**
  - This surface needs to be engineered to support fire trucks, all-weather accessible (fully plowed during snow events) and at least 20 feet wide, within 30 feet of the building.

• **The proposed driveway provides most of this access, while also adding an extra egress to the site**
  - To preserve the historic courtyard and reduce costs, this stretch of the building could be accessed from a small extension of the current fire lane/bus loop

• **Today fire and ambulances usually respond to the building in the bus loop and work their way through the building to the location of the emergency.**
  - During a BLPC meeting, an ambulance responding to a medical emergency in the gym parked in the bus circle and traveled the length of the building to locate the patient.
  - With the West addition, this will be even longer trip

• **In the only major emergency response at the Stratford site in recent memory, police responded on foot and evacuating the site was very difficult**
  - Responding to a “melee” at a school dance in the 1990s, State police lined Old Dominion and “ran down the hill”; County police lined Vacation and 23rd St.
  - Evacuating the site proved very difficult, since all vehicle access routes were blocked.
Contents

- Background
- BLPC Recommendations
  - Considerations
Almost every concern was mitigated; replacing trees remains a priority

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<thead>
<tr>
<th>Feasibility</th>
<th>THEN</th>
<th>NOW</th>
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<tbody>
<tr>
<td></td>
<td>✗ VDOT won’t allow Old. Dom</td>
<td>✓ VDOT OK with 7 of 9 options</td>
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<tr>
<td></td>
<td>✗ Too steep, won’t work</td>
<td>✓ Best option follows existing footpath grade</td>
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<tr>
<td>Cost</td>
<td>✗ $3-5M, or more if VDOT requires widening of Old Dominion</td>
<td>✓ $0.2M incremental cost</td>
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<td></td>
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<td>✓ Much higher cost/disruption later</td>
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<td>✓ Increases flexibility for future uses</td>
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<tr>
<td>History</td>
<td>✗ Interrupts historic viewshed</td>
<td>✓ Enables West building site, best compromise</td>
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<td></td>
<td></td>
<td>✓ Follows, highlights historic path</td>
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<td></td>
<td></td>
<td>✓ Preserves historic courtyard</td>
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<tr>
<td>Environment</td>
<td>✗ Asphalt is bad. Impermeable surface, stormwater impact</td>
<td>✓ Mitigations: permeable surface, minimal addl grading (&lt;5%), replant/maintain trees</td>
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<td></td>
<td>✓ Protect as many trees as possible</td>
<td></td>
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<tr>
<td>Parks &amp; Recreation</td>
<td>✗ Ruins park amenities and sledding</td>
<td>✓ Keeps sledding hill, restores open space</td>
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<td></td>
<td></td>
<td>✓ Improved visibility, access to park amenities</td>
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<tr>
<td>Safety &amp; Transportation</td>
<td>✗ Traffic bottlenecks at 5pts?</td>
<td>✓ Reduces Old Dom speed, keeps cars straight at 5 Pts, less chaos on Military/Vac./Lorcom</td>
</tr>
<tr>
<td></td>
<td>✗ Won’t everyone walk, ala 1950s?</td>
<td>✓ Pedestrian safety encourages walking: reduced cut through traffic, left turns</td>
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<td></td>
<td>✗ Build it and they will come</td>
<td>✓ Improves emergency response, bike routes</td>
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<tr>
<td></td>
<td>✗ Neighborhood streets can handle</td>
<td>✓ Full traffic light, not HAWK</td>
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<td></td>
<td>2-3x more concentrated traffic</td>
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<td></td>
<td>✗ Bikers should use sidewalks</td>
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Environment: Driveway impact is mitigated; some trees are impacted

- The connection to Old Dominion is a small fraction of the site work
  - Connection from fire lane to Old Dominion is about 200 ft long and follows the contour of the existing walkway.
  - Total site work cost is $8.15M. Driveway connection is ~2% of this cost

- The field moves in both cases, disrupting trees
  - Moves south to accommodate required fire lane
  - Moves west (and shortened considerably) for expanded parking lot and retaining wall at the end of the field
  - If no driveway, parking lot expands further south, disrupting more trees and removing all buffer from adjacent home

- BLPC recommends 100% of the driveway, fire lane and connector to Old Dominion be a light colored permeable surface

- The expanded parking lot, retaining wall and widened Vacation Lane have more impact on stream, stormwater and recreation space than driveway

- Driveway scenario likely reduces emissions by 5 – 10%
Environment: Driveway connection is <2% of site work proposed

Schematic Design Cost Estimate

<table>
<thead>
<tr>
<th>PROJECT COST ($ MILLIONS)</th>
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<tbody>
<tr>
<td>SITE WORK (DRIVEWAY OPTION)</td>
<td>$ 8.15</td>
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<tr>
<td>ADDITION (40,000 SF)</td>
<td>$ 20.14</td>
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<td>RENOVATION</td>
<td>$ 7.12</td>
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<tr>
<td>APS STAFF</td>
<td>$ 0.55</td>
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<tr>
<td>TOTAL PROJECT COST</td>
<td>$ 35.96</td>
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<tr>
<td>COMMEMORATIVE</td>
<td>$ 0.25</td>
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<td>$ 36.21</td>
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<table>
<thead>
<tr>
<th>PROJECT FUNDING ($ MILLIONS)</th>
<th>APS</th>
<th>COUNTY</th>
<th>TOTAL</th>
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<tr>
<td>BONDS</td>
<td>$ 30.95</td>
<td>$ 0.00</td>
<td>$ 30.95</td>
</tr>
<tr>
<td>OTHER</td>
<td>$ 0.80</td>
<td>$ 0.00</td>
<td>$ 0.80</td>
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<tr>
<td>JOINT FUND</td>
<td>$ 2.11</td>
<td>$ 2.11</td>
<td>$ 4.21</td>
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<tr>
<td>TOTAL FUNDING</td>
<td>$ 33.86</td>
<td>$ 2.11</td>
<td>$ 35.96</td>
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Note: Funding chart does not include commemorative budget.

~$0.2M Driveway Connection, ~2%
Environment/Park: Field moves south (with related tree impact) and sledding hill retained in both options

Site Plan Comparison

Remove portion of fire access
Vacation Lane is widened in protected stream area
Modify fire access materials and extent
Increase parking lot size
Expanded parking lot and retaining wall shorten field
Tree impact from field moving south in both
Remove portion of driveway and site work

SOURCE: Source

SOURCE: Source
Environment: Impervious area can be zero in both cases; grading is a small piece of total

Environmental Impacts

<table>
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<tr>
<th>Impact</th>
<th>Driveway</th>
<th>Non-Driveway</th>
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<tbody>
<tr>
<td>Impervious Area (Pavement)</td>
<td>20,000 SF</td>
<td>6,000 SF</td>
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<tr>
<td>Open Space* (Total on Site**)</td>
<td>277,000 SF</td>
<td>291,000 SF</td>
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<tr>
<td>Sitework- Cut and Fill</td>
<td>12,000 CY</td>
<td>8,000 CY</td>
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<tr>
<td>Sitework- Grading</td>
<td>22,000 SF</td>
<td>6,000 SF</td>
</tr>
<tr>
<td>Trees Removed (Total on Site**)</td>
<td>166</td>
<td>112</td>
</tr>
<tr>
<td>Tree Replacement Calculation</td>
<td>211</td>
<td>126</td>
</tr>
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</table>

*Includes Walkways/Sidewalks
**APS + DPR Property

Note: A non-driveway option has not been engineered; these numbers are approximations provided by APS Staff.

QEA- PFRC 03.16.2016; DPR Staff; APS Staff
Environment: Much of the area has to be regraded in both scenarios

- In no-driveway scenario, the walkway from Old Dominion must be ADA-compliant, necessitating some grading of the hill.

- The Cut-Fill difference is very small, appears to be less than 1000 CY difference – less than a bag of mulch in a typical garden bed

- In addition, the field is shifting for fire lane in both options, so most tree damage is unavoidable
Safety: Driveway increases safety day-to-day, and in an emergency

- **With the driveway, cars and buses can be largely separated**
  - E.g., buses on upper Vacation Lane, cars on lower Vacation Lane

- **Fewer unsafe left turns.**
  - Unsignalized left hand turns are the worst for pedestrian safety
  - Driveway reduces high concentrations of left turns to/from Vacation at Military, school parking lots and Lorcom Lane, at pedestrian hubs

- **Less chaos on feeder streets encourages walking and biking**
  - Driveway enables more orderly traffic flows
  - Parents and students will feel more comfortable walking, steady behavior change over time is more likely

- **More traditional pedestrian signal at Old Dominion**
  - Full traffic light, not flashing red pedestrian “HAWK”, can be timed with other lights to maximize traffic flow efficiency

- **Emergency response flexibility.**
  - Additional egress enables faster evacuation

- **Improved air quality - reduced emissions from less idling**

SOURCE: BLPC Meeting #1-23 discussion
Safety: Total pedestrian conflicts are much higher than shown. Stop lights, left turns matter a lot for safety

- **More than twice these trips are expected:**
  - Outbound and Inbound trips occur within minutes, consider both!
  - *More* inbound trips in am (staff, buses, cars)

- **Signalized pedestrian/car conflicts are safer,** more controlled (all three Old Dominion intersections, none of the others)
  - Within 1 block of the school there are 10 intersections without a signal and 3 with, plus about 20 driveway curb cuts

- **Many more conflicts than are shown:**
  - In all scenarios all inbound trips use Vacation and these trips will be 2-3x more in total and more concentrated in time than today.
  - Within 1 block of the school there are 3 with signals and 10 without
  - Without the driveway, we more than double pedestrian conflicts at these the 10 unsignalized intersections

SOURCE: County Staff presentation (5/14/16), summary analysis
Safety: The driveway helps make Old Dominion feel more walkable

View From Old Dominion

Full traffic signal is same cost as HAWK flashing signal, but more familiar to drivers
Safety: Pedestrian safety is critical on all streets leading to Stratford

“On a per-mile basis, walking is more dangerous than driving, flying, or riding a bus or train .... We found that most fatalities — 69 percent — occur on neighborhood streets.”

“Approximately 25 percent of the traffic fatalities in the Washington area are pedestrians and bicyclists, with nearly 90 deaths per year,”

“In just the past week alone, two young people have been struck and seriously injured [in Arlington]— while crossing in marked crosswalks ... In both instances, nearby residents complained that drivers were chronically ignoring crossing pedestrians, driving too fast and driving while distracted — and that police enforcement is virtually non-existent.”

““Our Walk/Bike to School Day, scheduled for tomorrow, is cancelled due to a forecast of rain. While we hesitate to cancel the event, our first priority is the safety of our students.””
Safety: We all want to keep kids safe

“Teen Struck By Car in Ballston” (in crosswalk)[1]

“Man Struck By SUV in Clarendon” (in crosswalk)[8]

“River Road Crash Kills Three, Leaves Fourth Seriously Injured - Victims appeared to be headed to Walt Whitman High School, where teenagers in the car attended”[9]

“Bicyclist Survives After Dump Truck Rolls Over His Head” (in a crosswalk)[7]

“Pedestrian Struck in Front of Barrett Elementary School”[5]
Safety/Risk: Keeping the driveway in the design is an efficient use of resources and prudent risk management for Arlington County and APS

- **Allows the site to be more flexible in the future.**
  - Preserves the option to add more school, recreation or other civic uses later

- **Is cost-efficient:**
  - Low incremental cost since almost all is serves as the needed fire lane
  - Far, far less expensive than adding it later, reducing $ risk for County.

- **Mitigates future risk**
  - If a pedestrian accident occurs that could have been prevented by designing more orderly traffic flows at the school

*Also, we can learn from this process (and that on other recent school projects) and establish a systematic way to ensure proactive traffic analysis on all future sites, to make site selection and building siting are in sync with safety.*
Safety/Risk: Similar challenges at every future school project

• Ensure safe and convenient pick-up and drop-off
• Ensure adequate consideration is given to neighborhood impacts and parking
• Enhance the safety of existing pedestrian walkways and bikeways

Key Transportation Challenges from TJWG and Staff Input

SOURCE: S. Arlington Elementary School, 4/20/16 mtg
Recap: Stratford BLPC Recommends the driveway

“The BLPC strongly supports (9 for, 0 against) [the driveway] investment to reduce neighborhood traffic, slow speeding on Old Dominion and improve pedestrian safety all around the school.”

“In addition, we recommend both immediate and long-term transportation demand management and traffic law enforcement to maximize pedestrian safety and minimize car trips for this school site. This includes incentives for staff transit/carpooling, expanded bike rack locations, three crossing guards, time-limited vehicle restrictions on Vacation and 23rd St, curb bump outs, raised crosswalks, all-way stops (at 23rd/Vacation, Vacation/school parking lot), remote drop offs and flashing school zone speed/safety signage.”
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SOURCE: BLPC Meetings #1-22