APS Stratford Project
Transportation Analysis Overview

PFRC #9
February 17, 2016
Outline

1. Key Takeaways
2. TIA
   A. Document
   B. Analysis
   C. Assumptions
   D. Results—Key
   E. Results—AM
   F. Results—PM
3. Key Takeaways
1. Key Takeaways

Arrival Peak Hour

*Both Site Plan (Road) and Alternate Site Plan (No Road)*

- 5-Points—Need signal timing changes. **NEW**
- Old Dominion & Lorcom—Need signal timing changes. Do not need second northbound thru lane. **NEW**

*Site Plan (Road)*

- Drop-off/Pick-Up driveway at Old Dominion—2 exit lanes needed. **CONFIRMED**

*Alternate Site Plan (No Road)*

- 5-Points--Need to extend southbound left-turn lane on Military on approach to 5-Points. **NEW**
- Drop-off/Pick-up driveway at Vacation—2 exit lanes needed. **NEW**
1. Key Takeaways

Dismissal peak hour

- Minimal impacts to vehicle operations. **CONFIRMED**

Old Dominion Signal Warrants

*Site Plan (Road)*

- Full signal at new driveway exit meets warrants. **CONFIRMED**

*Alternate Site Plan (No Road)*

- Pedestrian Hybrid Beacon (HAWK) meets warrants. **CONFIRMED**
2A. TIA Document

- Draft to VDOT and County by end of week.
- Will include:
  - Background information
  - Analysis of existing conditions
  - Trip generation
  - Site traffic distribution and assignment
  - Analysis of future conditions without development
  - Analysis of future conditions with development
  - Conclusions
  - Appendices
2B. TIA Analysis

What we analyzed …

• Vehicular delay—all study intersections
• Level of Service (LOS)—all study intersections
• Queueing—all study intersections and Vacation Lane

Analysis tools

• SimTraffic used for unsignalized intersections.
• Synchro used for signalized intersections (including 5-Points).
How TIA analysis differs from previous analysis...

• Includes future year of 2019 (previously 2021) based on VDOT requirements
• Refined analysis of 5-points
• Revised trip distribution
• Analyzed impact of pedestrian crossings
• Included HAWK in Alternate Site Plan Analysis

Example of SimTraffic simulation
2C. TIA Assumptions

**Arrival**
- 35% drive rate
- 804 trips
- Trip distribution
  - Inbound – Generally evenly distributed
  - Outbound – Weighted slightly towards DC
- 2019 analysis year

**Dismissal**
- 22% drive rate
- 505 trips
- Trip distribution
  - Inbound – Weighted slightly toward DC
  - Outbound – Generally evenly distributed
- 2019 analysis year
2C. TIA Assumptions

Assumed AM Drive Rate vs. Drive Rate at Other APS Neighborhood Middle Schools

Drive Rate Assumption  Avg. Neighborhood MS
Williamsburg
Kenmore
Swanson
Jefferson
Gunston

Assumed drive rate represents 75th percentile of this APS middle school survey data

0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50%

2014 Student Tally  2013 Student Tally
2C. TIA Assumptions

Assumed PM Drive Rate vs. Drive Rate at Other APS Neighborhood Middle Schools

Drive Rate Assumption
Avg. Neighborhood MS
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Jefferson
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Assumed drive rate represents 75th percentile of this APS middle school survey data

2014 Student Tally  2013 Student Tally
### Trip Generation

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<tr>
<th></th>
<th>AM Peak Hour Trips</th>
<th>PM Peak Hour Trips</th>
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<tbody>
<tr>
<td>Student Drop Offs</td>
<td>706</td>
<td>438</td>
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<tr>
<td>Staff</td>
<td>62</td>
<td>31</td>
</tr>
<tr>
<td>Visitors</td>
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<tr>
<td>Buses</td>
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<td><strong>TOTAL</strong></td>
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### Level of Service Codes

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### Scenario Codes

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<tr>
<td>SP</td>
<td>ASP</td>
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**Site Plan**

**Alternate Site Plan**
2E. TIA Results – AM
Average Delay per Vehicle (unit: Seconds)

All figures represent year 2019.
2E. TIA Results – AM

Average Delay per Vehicle (unit: Seconds)

All figures represent year 2019.
2E. TIA Results—AM

Average Queue

Peak Queue

N

50' 0' 100' 200'

Site Plan

Alternate Site Plan
2E. TIA Results—AM

Average Queue

Peak Queue

Site Plan

Alternate Site Plan
2F. TIA Results – PM

Average Delay per Vehicle (unit: Seconds)

All figures represent year 2019.

LOS A or B
LOS C or D
LOS E or F
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E=Existing
NB=No Build
SP=Site Plan
ASP=Alternate Site Plan

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Questions?