



## **APS Stratford Project** ***Transportation Analysis Overview***

BLPC #20

*February 22, 2016*



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



# 3. Key Takeaways



## Arrival Peak Hour

### *Both Site Plan and Alternate Site Plan*

- 5-Points—Need signal timing changes. Need to extend southbound left-turn lane on Military on approach to 5-Points. **NEW**
- Old Dominion & Lorcom—Need signal timing changes. Do not need second northbound thru lane. **NEW**

### *Site Plan*

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

### *Alternate Site Plan*

- 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**

## Site Plan vs. Alternate Site Plan

- TDG has no significant reservations about either the Site Plan or Alternate Site Plan from a transportation perspective.

**CONFIRMED**



## 2A. TIA Document



- Posted on APS website
- Includes:
  - 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

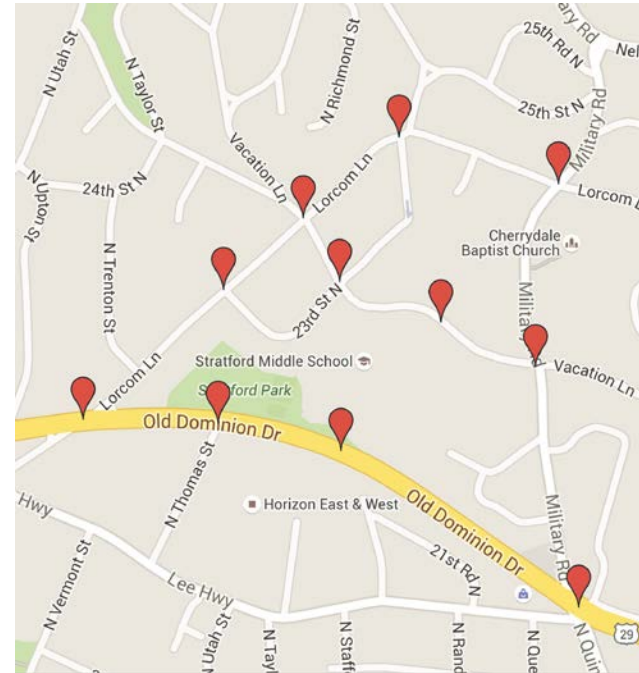


## What we analyzed ...

- 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).



Study Intersections

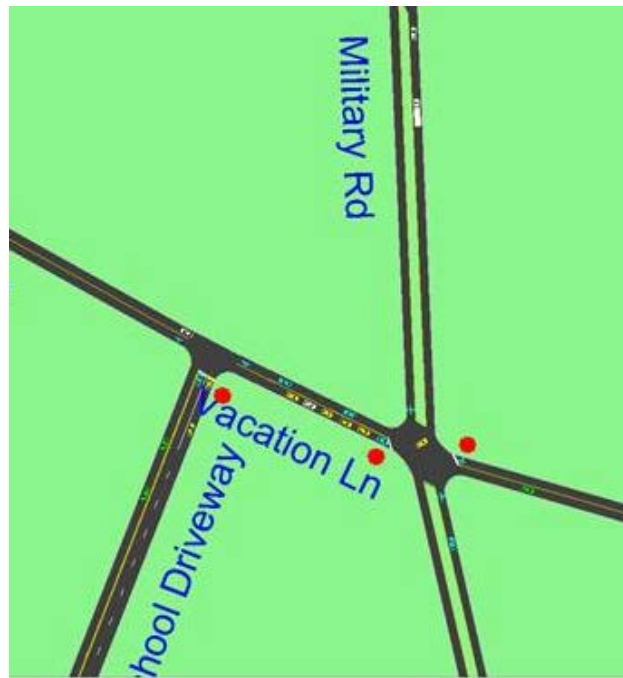


## 2B. TIA Analysis



### 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

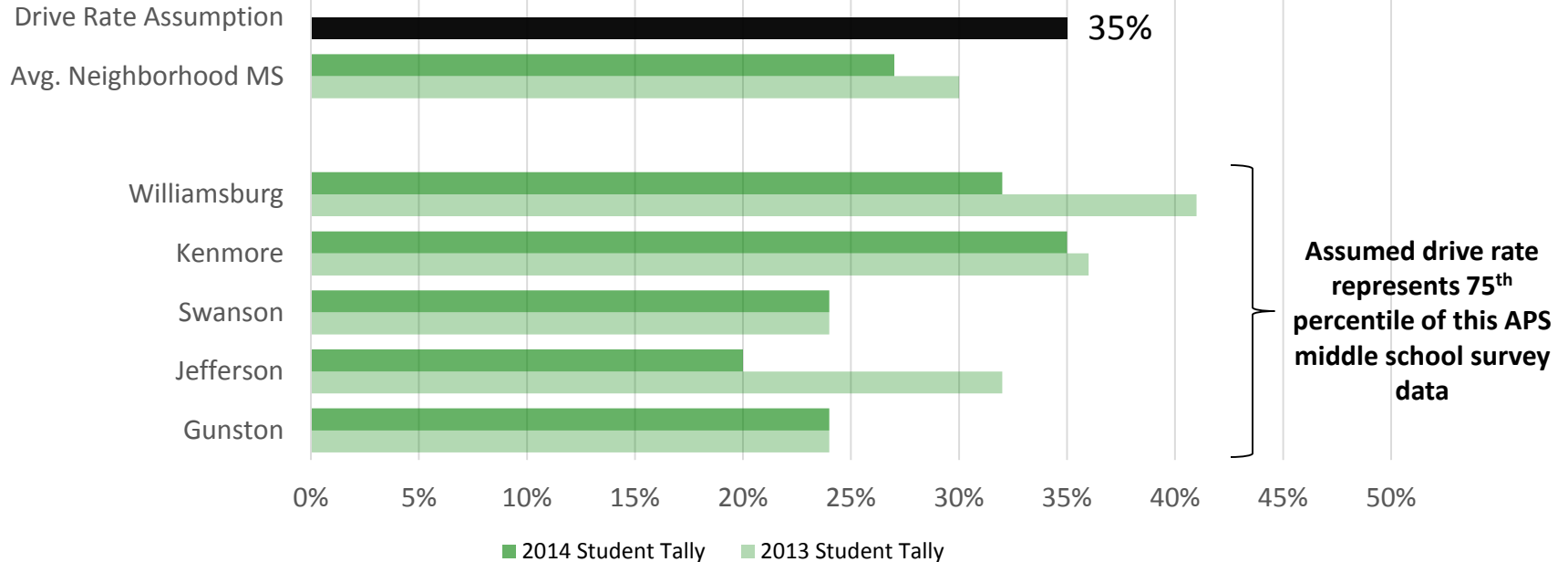
- 22% drive rate
- 505 trips
- Trip distribution
  - Inbound – Weighted slightly toward DC
  - Outbound – Generally evenly distributed
- 2019 analysis year



# 2C. TIA Assumptions



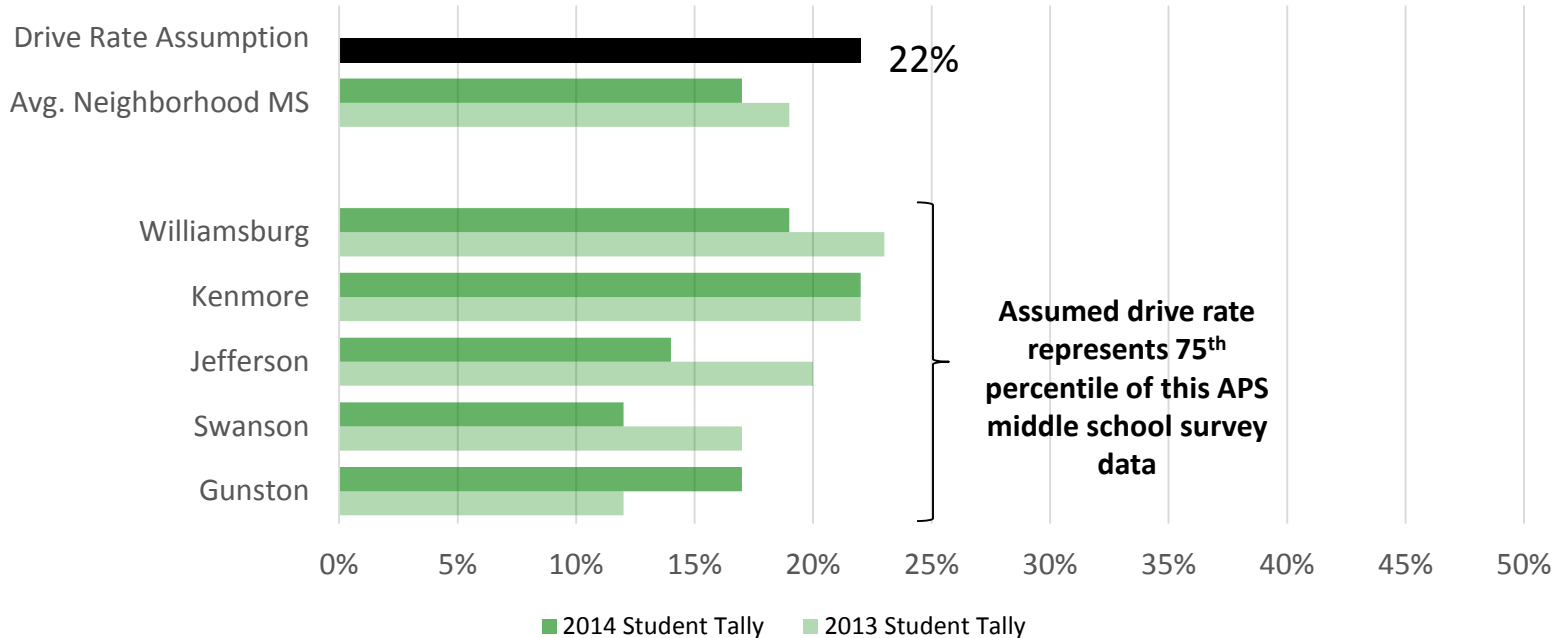
## Assumed AM Drive Rate vs. Drive Rate at Other APS Neighborhood Middle Schools



## 2C. TIA Assumptions



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



## 2C. TIA Assumptions



### Trip Generation

|                   | AM Peak Hour Trips | PM Peak Hour Trips |
|-------------------|--------------------|--------------------|
| Student Drop Offs | 706                | 438                |
| Staff             | 62                 | 31                 |
| Visitors          | 10                 | 10                 |
| Buses             | 26                 | 26                 |
| <b>TOTAL</b>      | <b>804</b>         | <b>505</b>         |



# 2D. TIA Results—Key

Level of  
Service Codes

|            |
|------------|
| LOS A or B |
| LOS C or D |
| LOS E or F |
| N/A        |

Scenario  
Codes

| Existing  | No Build            |
|-----------|---------------------|
| E         | NB                  |
| SP        | ASP                 |
| Site Plan | Alternate Site Plan |



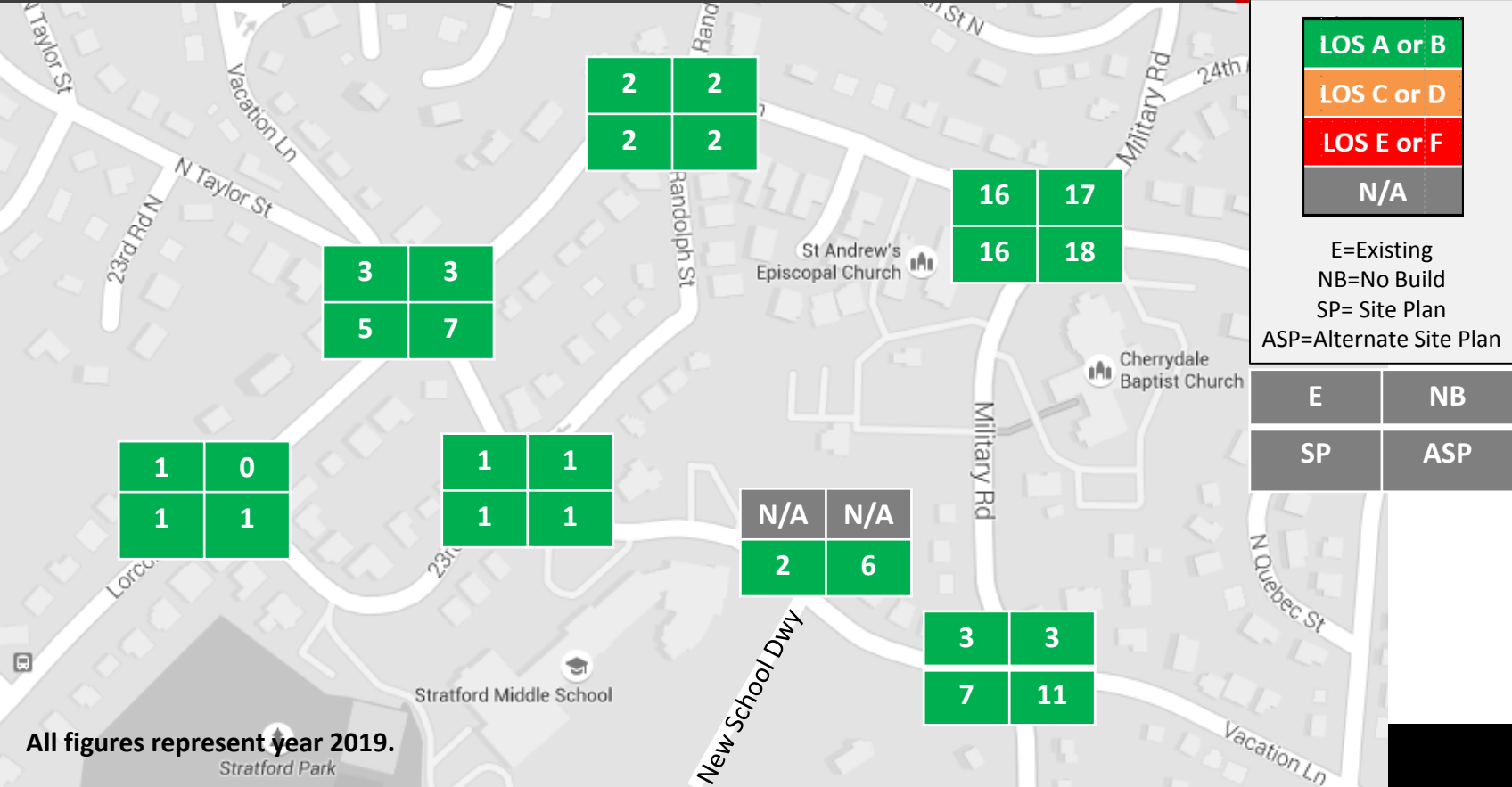
Site Plan



Alternate Site Plan

# 2E. TIA Results – AM

Average Delay per Vehicle (unit: Seconds)

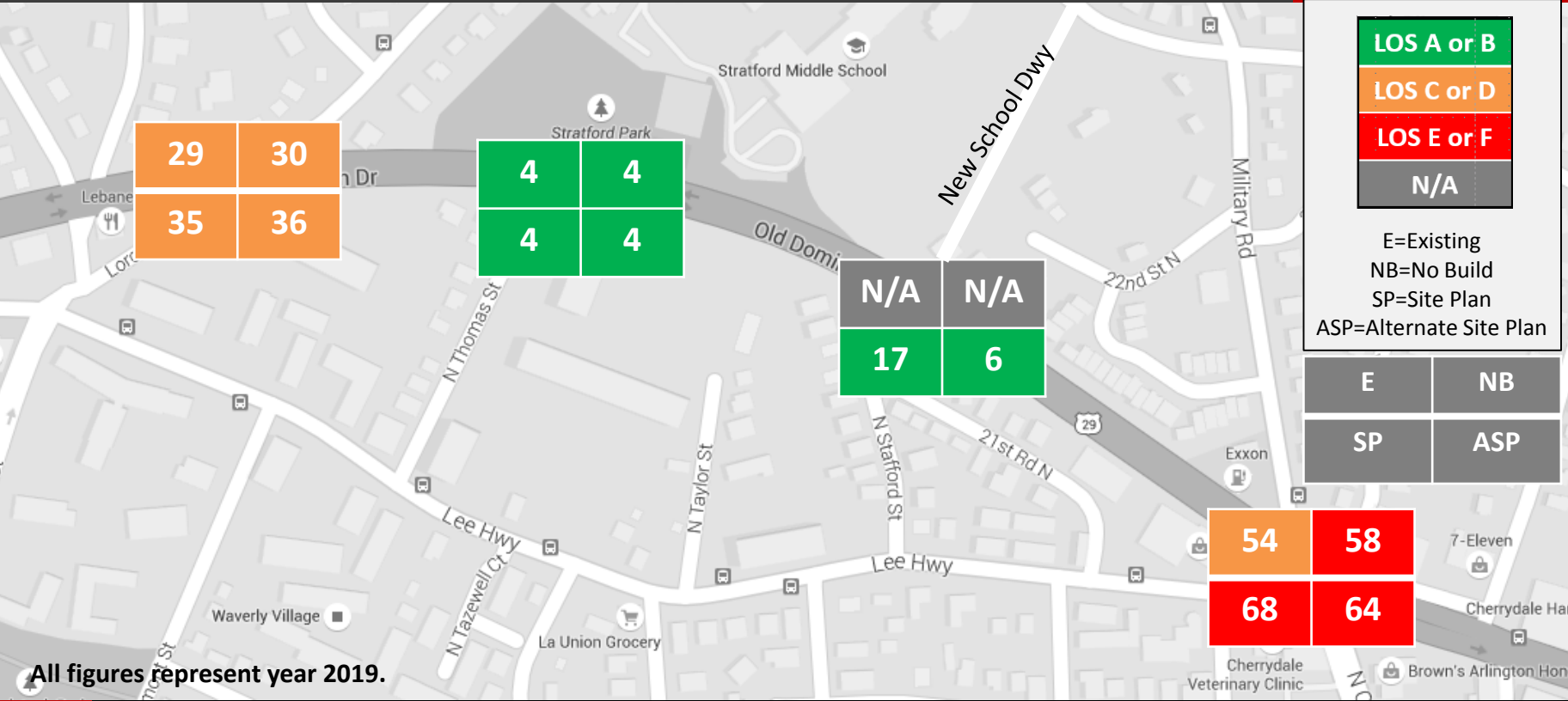


All figures represent year 2019.

Stratford Park

# 2E. TIA Results – AM

## Average Delay per Vehicle (unit: Seconds)



All figures represent year 2019.

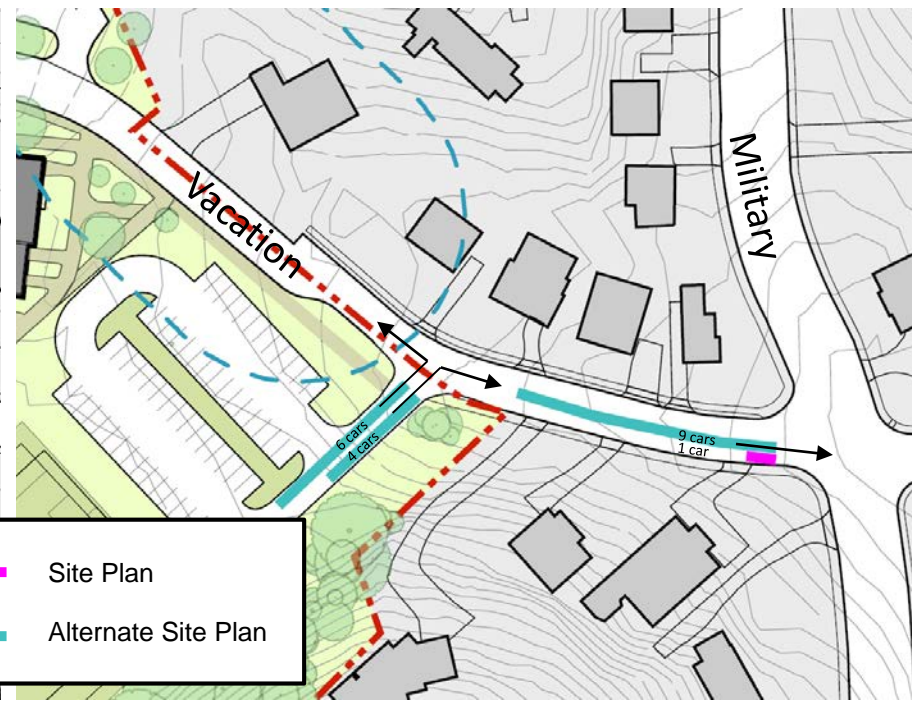
# 2E. TIA Results—AM



Average Queue



Peak Queue





# 2E. TIA Results—AM




Average Queue





Peak Queue





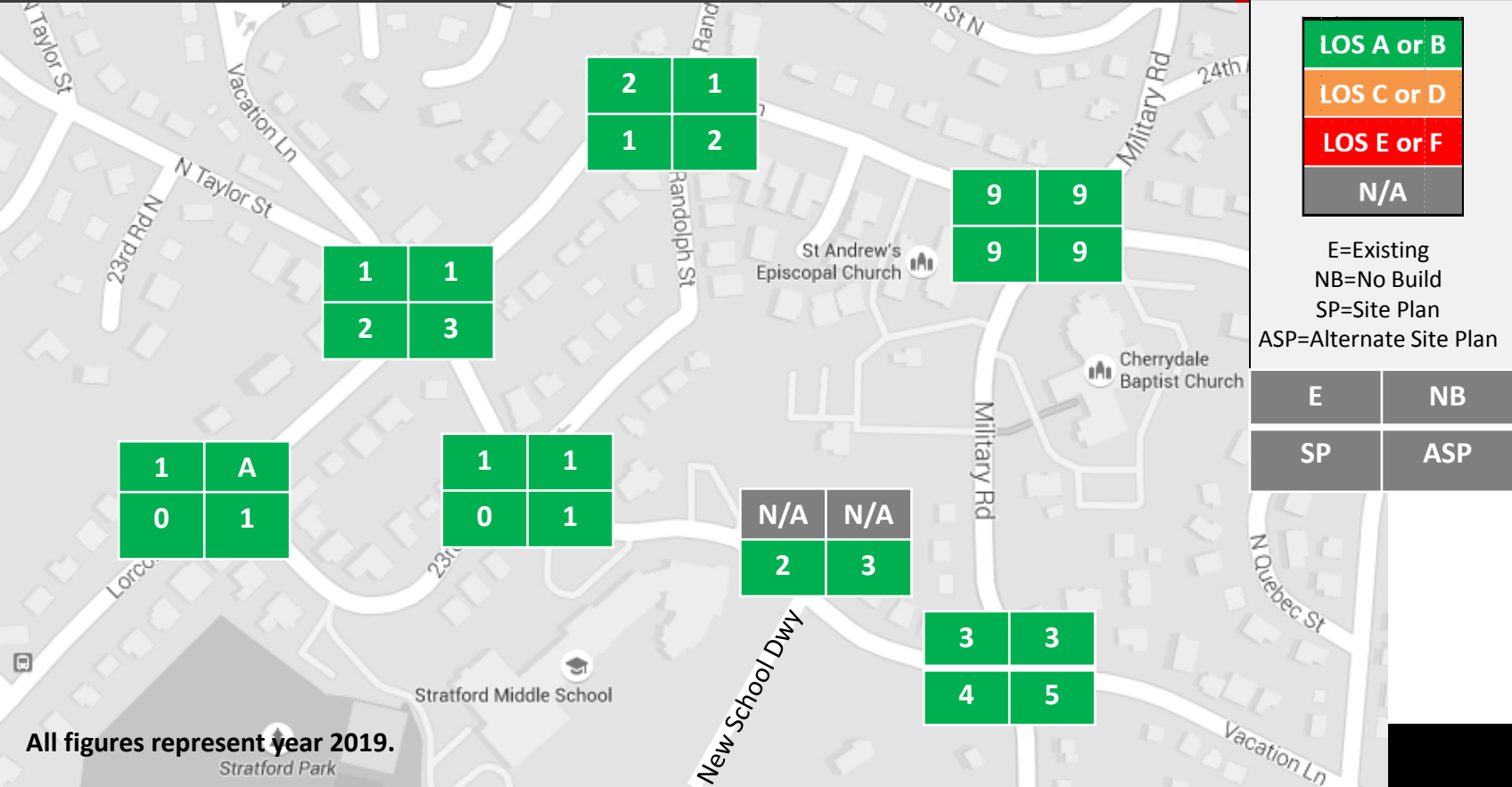
50' 0' 100' 200'



Site Plan  
Alternate Site Plan

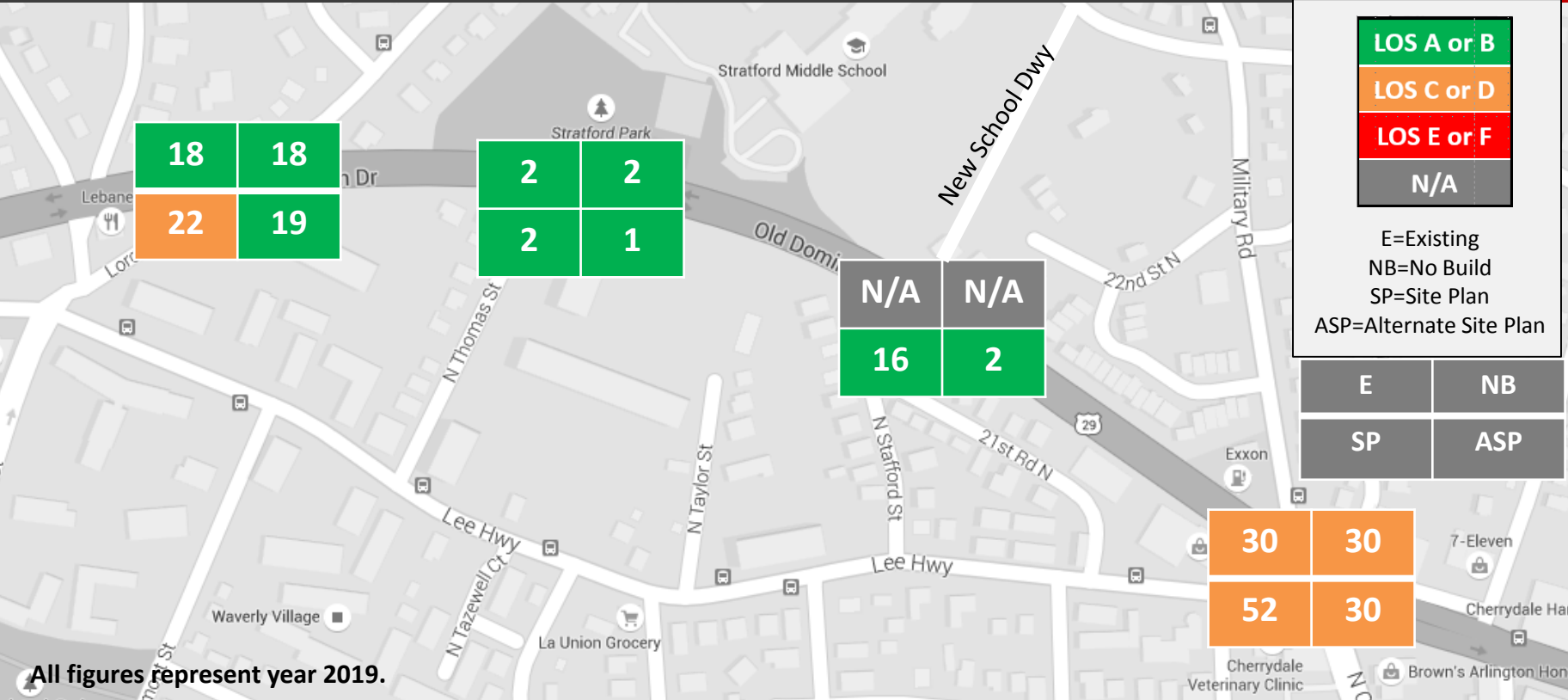
# 2F. TIA Results – PM

## Average Delay per Vehicle (unit: Seconds)



# 2F. TIA Results – PM

## Average Delay per Vehicle (unit: Seconds)



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# Questions?

