



County of Fairfax, Virginia

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# Dolley Madison Boulevard Corridor Study

May 11, 2022

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Fairfax County Department of Transportation



# Agenda

- Background
- Existing Conditions and Initial Improvement Concepts
- Community Meeting Feedback/Survey Results
- Additional Improvements and New Scenarios
- Volume Considerations
- Traffic Analysis Results
- Study Summary and Findings
- Next Steps
- Questions and Answers

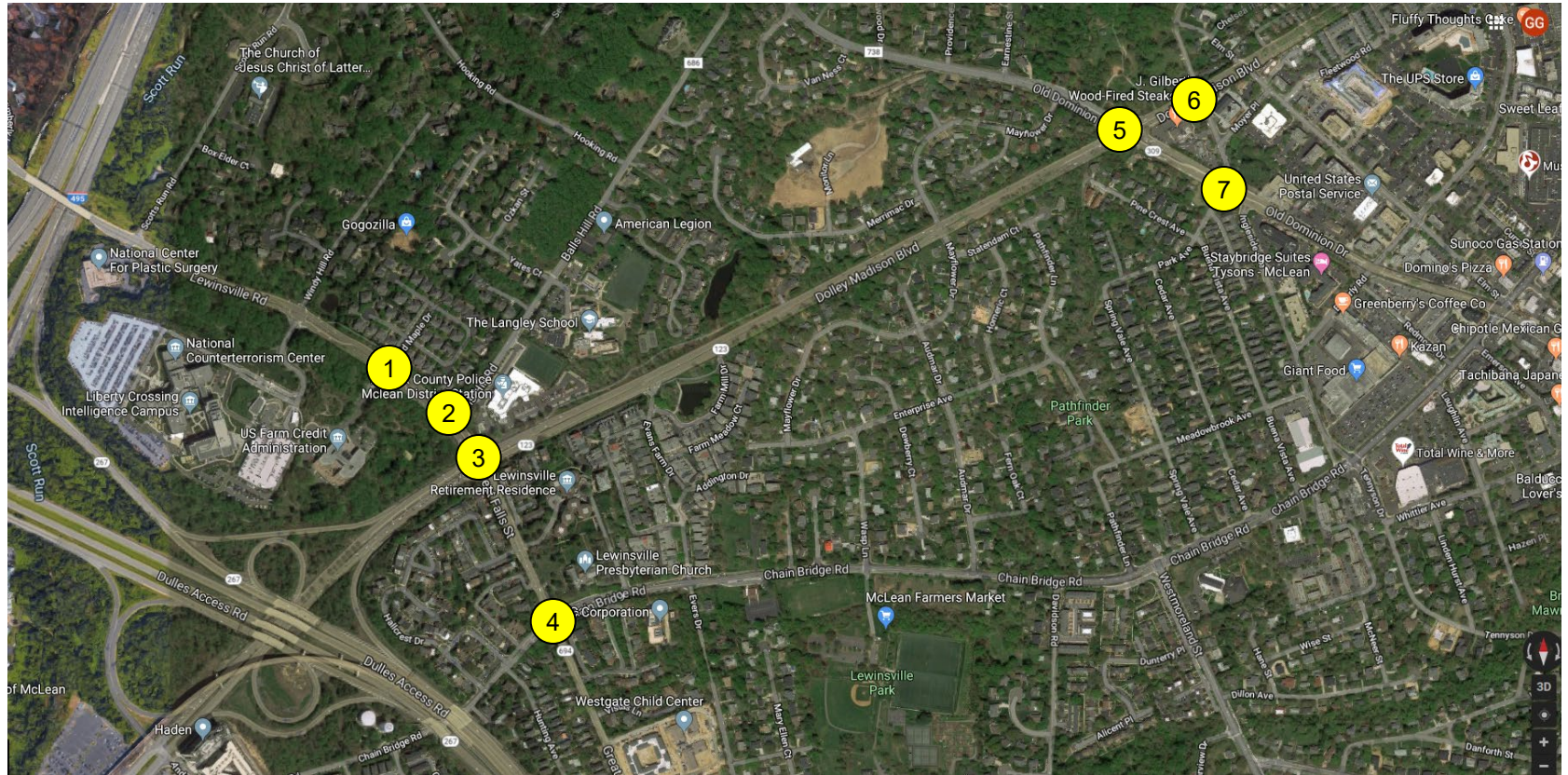


# What Was Presented at Last Community Meeting & Feedback





# Background





# Background(cont'd)

- Existing Conditions (2017)
- Short-term Improvements (2027)
- Long-term Interchange Improvements
- Evaluation Criteria
  - Delay and Level of Service
  - Queuing and Travel Time

| <b>Signalized Intersection Delay and LOS</b> |           |          |                  |
|--|-----------|----------|------------------|
| <b>A</b>                                     | ≤10 sec   | <b>D</b> | <b>35–55 sec</b> |
| <b>B</b>                                     | 10–20 sec | <b>E</b> | 55–80 sec        |
| <b>C</b>                                     | 20–35 sec | <b>F</b> | >80 sec          |



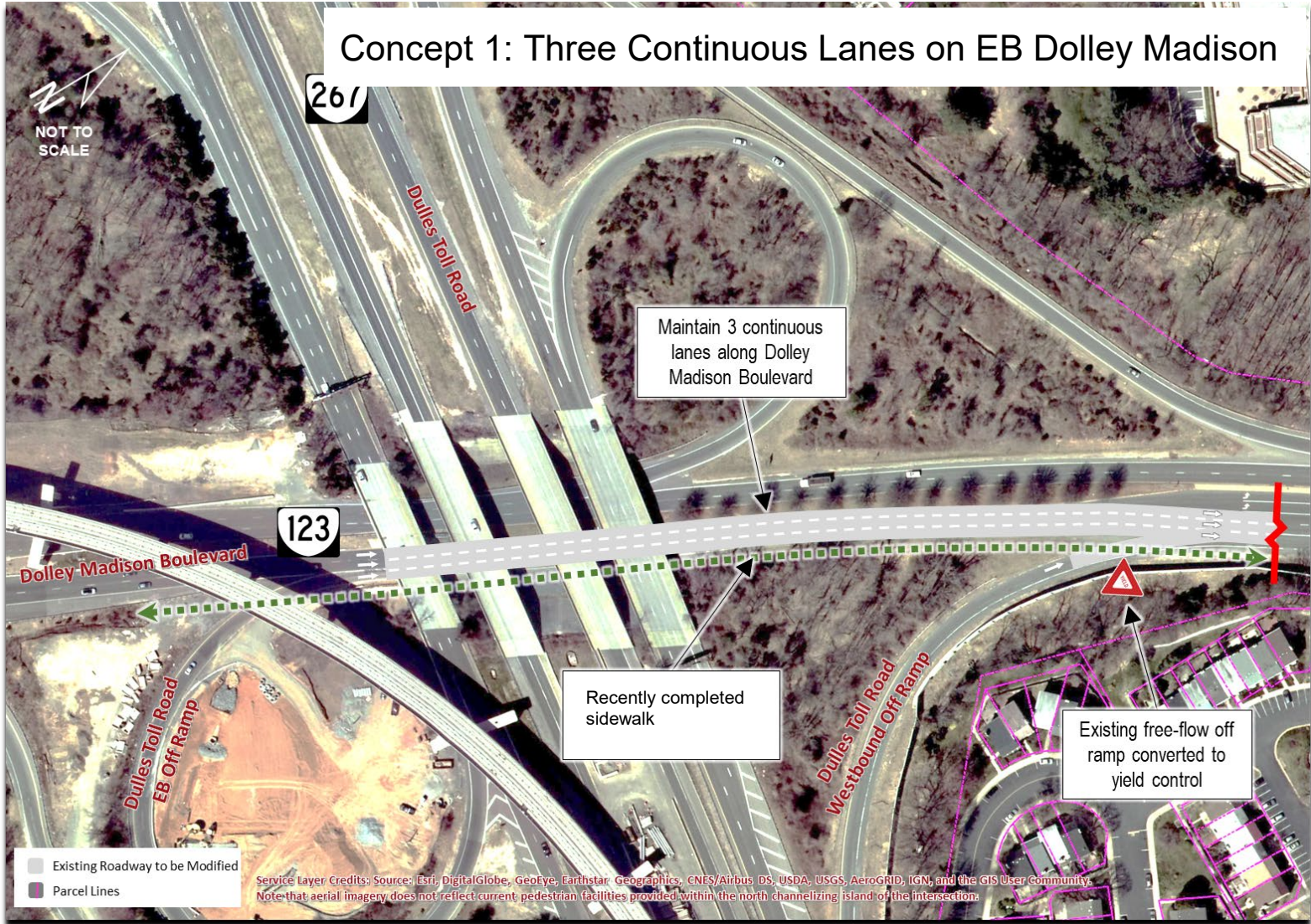


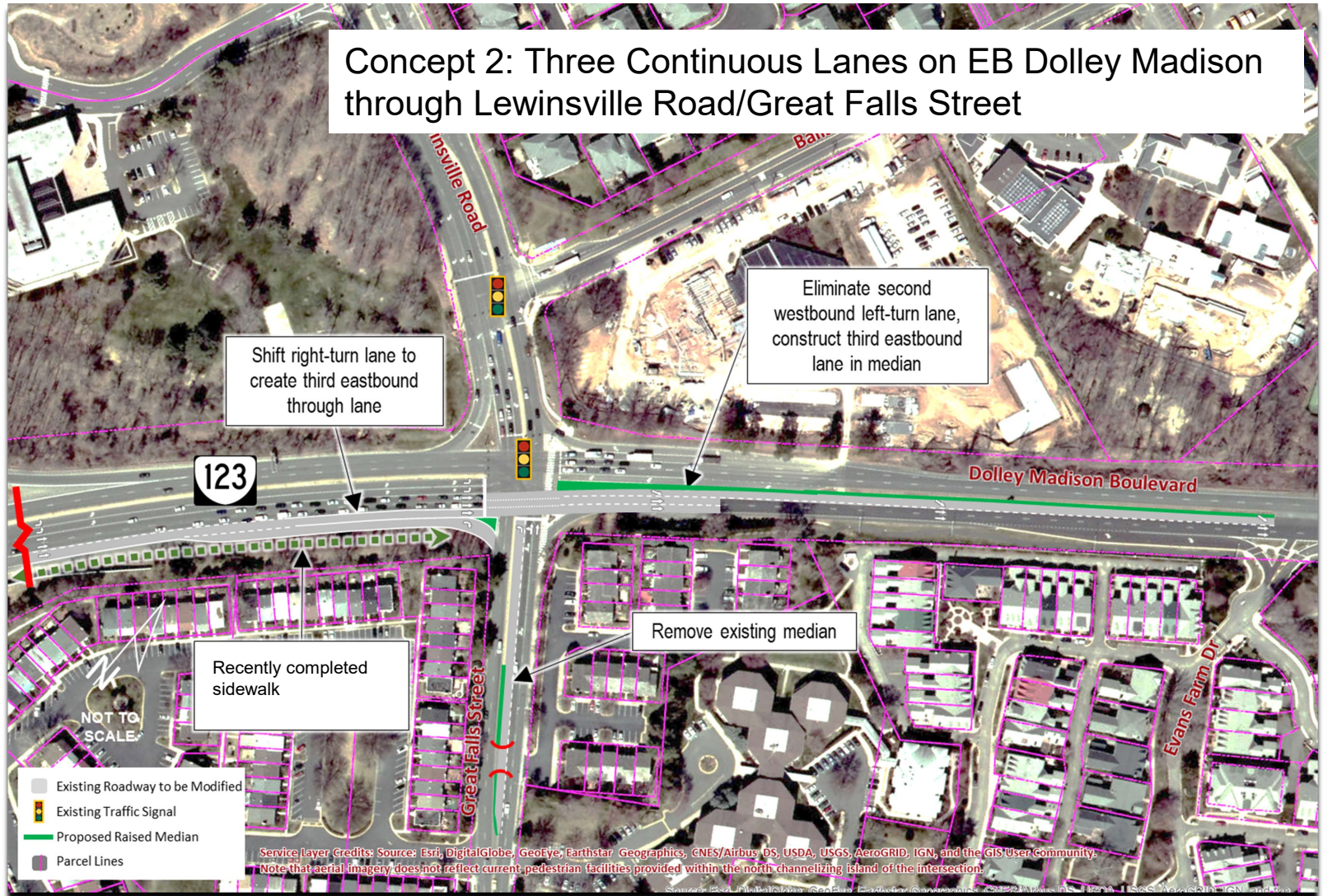
# Public Outreach

- Project Website
  - <https://www.fairfaxcounty.gov/transportation/study/dolley-madison-corridor>
- Public Meeting (June 13, 2019)
- Feedback on improvement concepts was collected via Online Survey, the website, and e-mail
  - 138 unique responses, includes 98 survey responses and e-mail feedback



### Concept 1: Three Continuous Lanes on EB Dolley Madison









# Concepts 1 and 2 Community Feedback

- 53% and 44% supporting, respectively

## ***Cited Positive Feedback***

- Increase capacity, help with eastbound traffic flow
- Avoid lane merge, reduce congestion and queuing around Dulles Toll Road

## ***Cited Negative Feedback***

- Remove median strips and trees





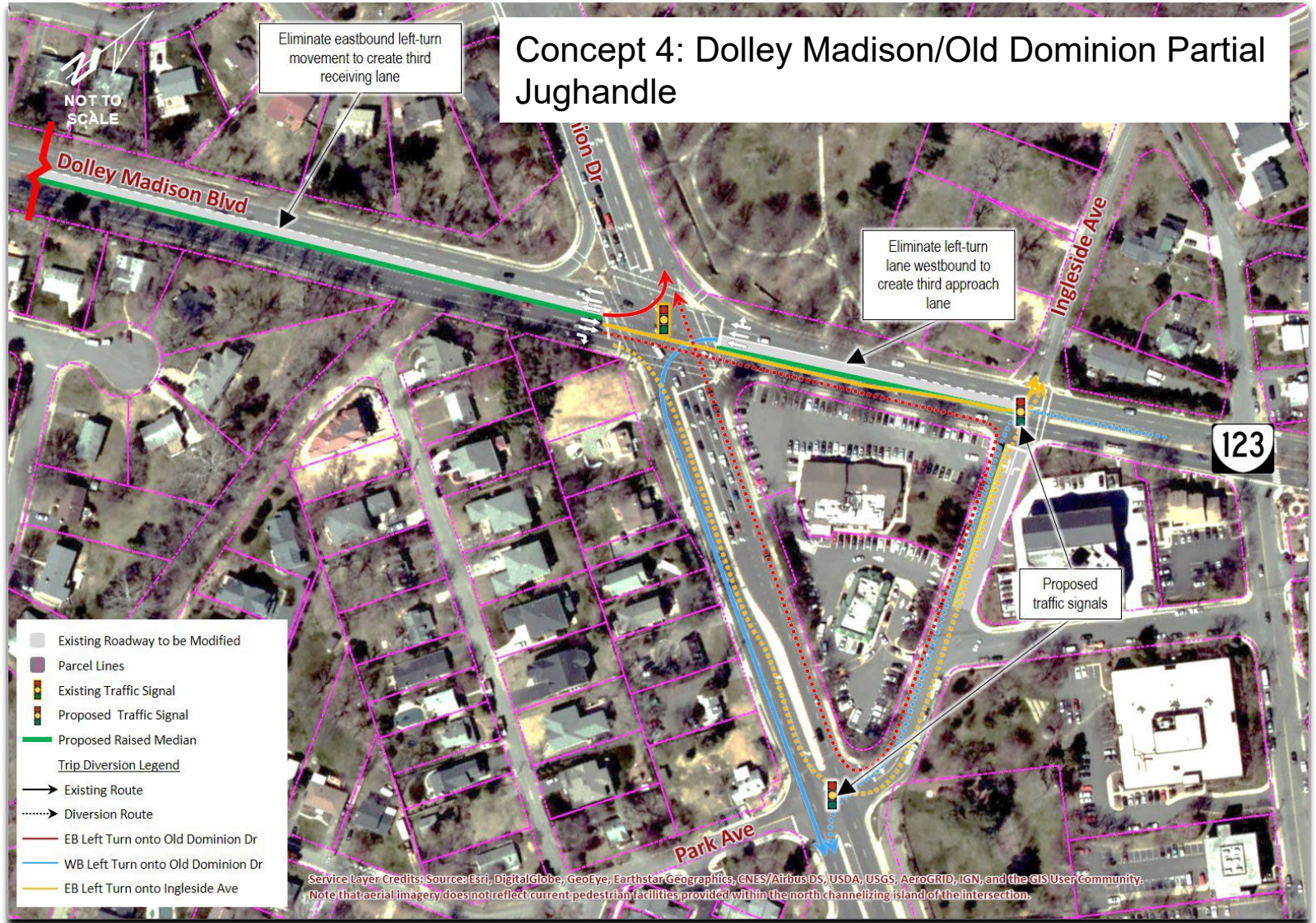
# Concept 3 Community Feedback

- Divided between proponents and opponents (38% supporting and 39% opposing)
- Relates to the fact there are two concepts included in one scenario
  - Support adding capacity on Lewinsville
  - Oppose the closure of Balls Hill left-turns and rerouting of traffic to u-turn at Old Maple Drive



# County of Fairfax, Virginia

## Concept 4: Dolley Madison/Old Dominion Partial Jughandle





# Concept 4 Community Feedback

- Received more opposition than support (14% supporting and 41% opposing)

## ***Concerns***

- Potential for rerouting traffic (particularly through neighborhoods)
- Concerns about increased traffic on Old Dominion Drive



## Concept 5: Exclusive Left-Turn Lanes at Lewinsville Road/Great Falls Street





# Concept 5 Community Feedback

- Generally strong support (48% supporting and only 27% opposing)

## ***Cited Positive Feedback***

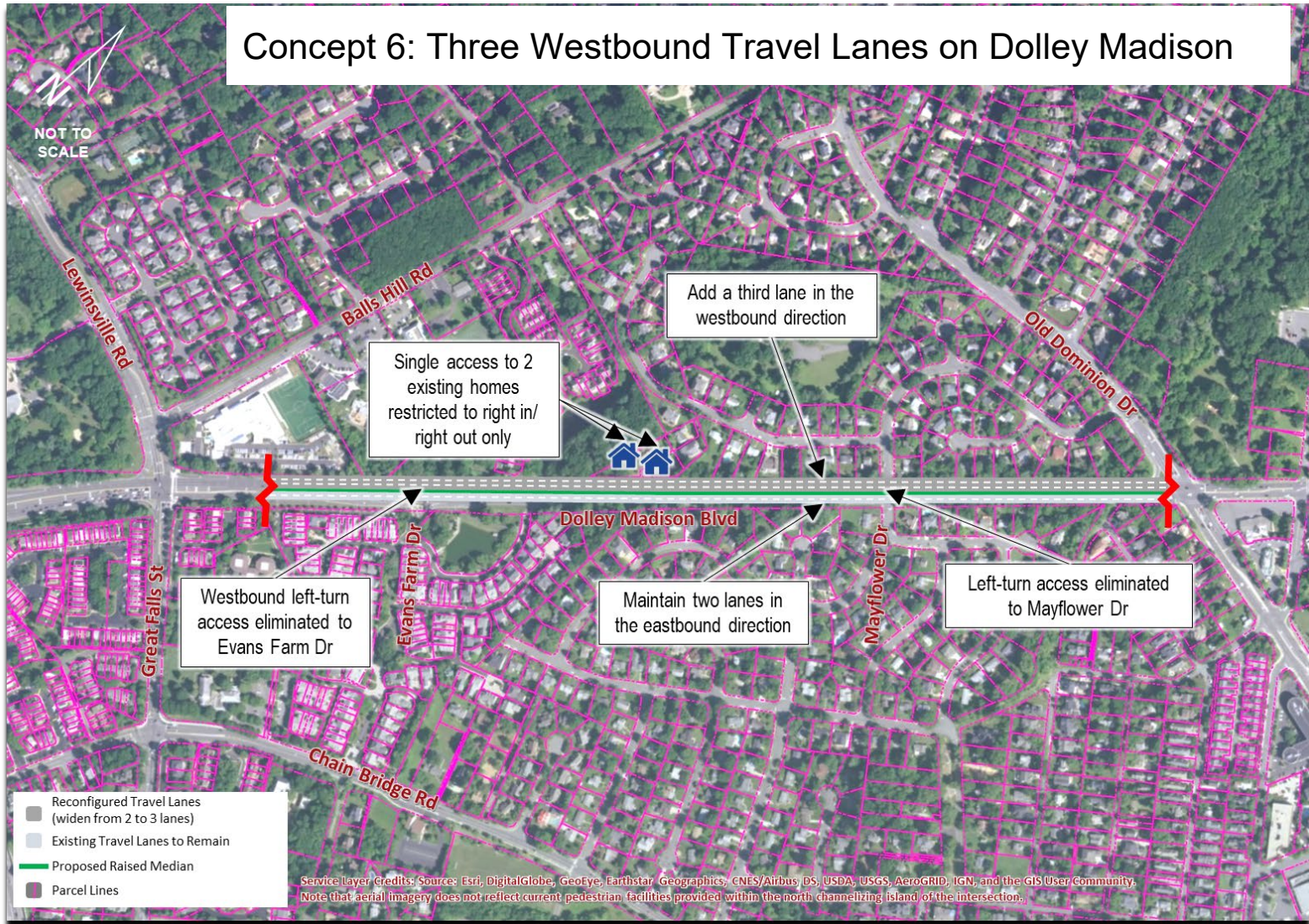
- Remove split phase allowing more efficient signal timing
- Add longer left-turn lanes on Great Falls Street to increase “stacking capacity”

## ***Cited Concerns***

- Need to provide access to apartments



## Concept 6: Three Westbound Travel Lanes on Dolley Madison







# Concept 6 Community Feedback

- Fairly strong opposition via the survey (34% opposed), but much stronger opposition via e-mail/website feedback

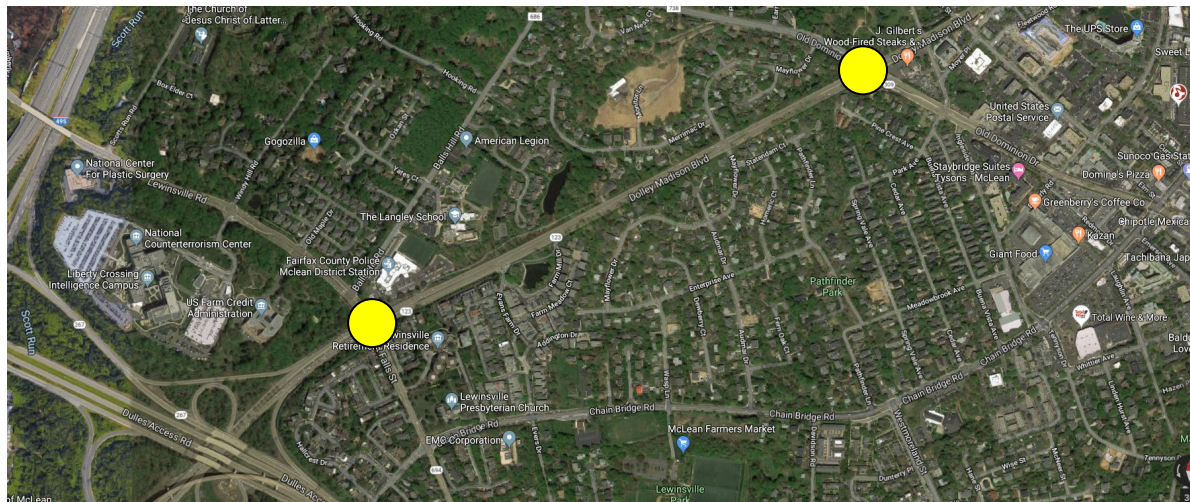
## **Concerns**

- Access (Evans Farm, Mayflower, Broyhill Estates, etc)
  - Communities lose full movement (left in/out) access to Dolley Madison, requiring u-turns at congested intersections or access to other roadways



# Interchange Improvement Concepts

- For comparison purposes, two long-term alternatives were developed to evaluate interchange at two locations:
  - Alternative 1 (Interchange at Lewinsville/Great Falls with No-Build at Old Dominion)
  - Alternative 2 (Interchanges at both locations)





# Interchange Concepts Community Feedback

- Community feedback was mixed (sample feedback)
  - Best solutions to solve the congestion issues, best to invest in the proper infrastructure
  - Interchanges are not the right choice for the community, negatively impact the nature and feel of the community
- Survey results were also mixed
  - Dolley Madison and Lewinsville/Great Falls interchange had support, Dolley Madison and Old Dominion did not



# AM Peak Hour LOS and Delay Table

| Int. # | Intersection                           | Existing        | 2027 No-Build    | 2027 Short-Term Build | 2027 Interchange Alt. 1 | 2027 Interchange Alt. 2 |
|--------|--|-----------------|------------------|-----------------------|-------------------------|-------------------------|
| 1.     | Lewinsville/Old Maple*                 | N/A             | 7.1 (A)          | 2.5 (A)               | 2.5 (A)                 | 3.0 (A)                 |
| 2.     | Lewinsville/Balls Hill                 | 34.6 (C)        | 37.8 (D)         | 4.6 (A)               | 2.6 (A)                 | 2.7 (A)                 |
| 3.     | Dolley Madison/Great Falls/Lewinsville | <b>80.6 (F)</b> | <b>110.7 (F)</b> | <b>72.8 (E)</b>       | 35.0 (C)                | 38.7 (D)                |
| 4.     | Great Falls/Chain Bridge               | 31.8 (C)        | <b>71.9 (E)</b>  | <b>61.0 (E)</b>       | <b>68.7 (E)</b>         | <b>67.1 (E)</b>         |
| 5.     | Dolley Madison/Old Dominion            | 36.3 (D)        | 43.8 (D)         | 42.2 (D)              | <b>57.8 (E)</b>         | 52.4 (D)                |
| 6.     | Dolley Madison/Ingleside               | 1.9 (A)         | 2.9 (A)          | 10.1 (B)              | 2.4 (A)                 | 1.9 (A)                 |
| 7.     | Ingleside/Old Dominion                 | 1.2 (A)         | 1.4 (A)          | 7.8 (A)               | 1.2 (A)                 | 1.2 (A)                 |

\* Lewinsville/Old Maple was not initially part of this analysis, but because a concept required changes to the intersection, it was added for analysis under the proposed concepts.



# PM Peak Hour LOS and Delay Table

| Int. # | Intersection                           | Existing  | 2027 No-Build | 2027 Short-Term Build | 2027 Short-Term Build Alt.** | 2027 Interchange Alt. 1 | 2027 Interchange Alt. 2 |
|--------|--|-----------|---------------|-----------------------|------------------------------|-------------------------|-------------------------|
| 1.     | Lewinsville/Old Maple*                 | N/A       | 143.1 (F)     | 15.2 (B)              | 16.3 (B)                     | 28.7 (C)                | 15.8 (B)                |
| 2.     | Lewinsville/Balls Hill                 | 63.2 (E)  | 55.0 (D)      | 12.3 (B)              | 15.0 (B)                     | 2.8 (A)                 | 2.5 (A)                 |
| 3.     | Dolley Madison/Great Falls/Lewinsville | 112.7 (F) | 180.3 (F)     | 138.6 (F)             | 93.6 (F)                     | 66.6 (E)                | 56.3 (E)                |
| 4.     | Great Falls/Chain Bridge               | 52.5 (D)  | 105.6 (F)     | 107.0 (F)             | 108.4 (F)                    | 132.4 (F)               | 140.3 (F)               |
| 5.     | Dolley Madison/Old Dominion            | 42.9 (D)  | 62.1 (E)      | 83.6 (F)              | 39.6 (D)                     | 100.8 (F)               | 30.7 (C)                |
| 6.     | Dolley Madison/Ingleside               | 11.3 (B)  | 233.5 (F)     | 102.6 (F)             | 14.6 (B)                     | 81.0 (F)                | 1.9 (A)                 |
| 7.     | Ingleside/Old Dominion                 | 2.4 (A)   | 214.2 (F)     | 241.5 (F)             | 12.9 (B)                     | 2.9 (A)                 | 2.0 (A)                 |

- Lewinsville/Old Maple was not initially part of this analysis, but because a concept required changes to the intersection, it was added for analysis under the proposed concepts.
- \*Short-Term Build Alt. includes Concept 6 with 3 lanes Westbound on Dolley Madison



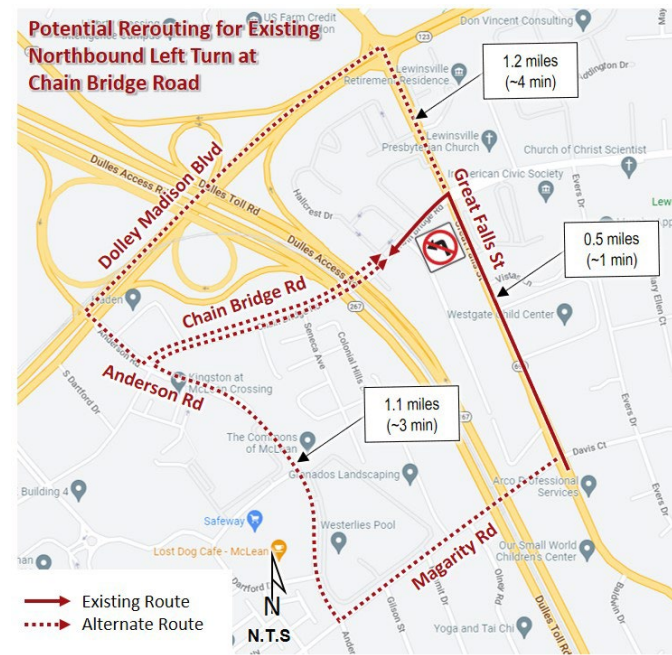
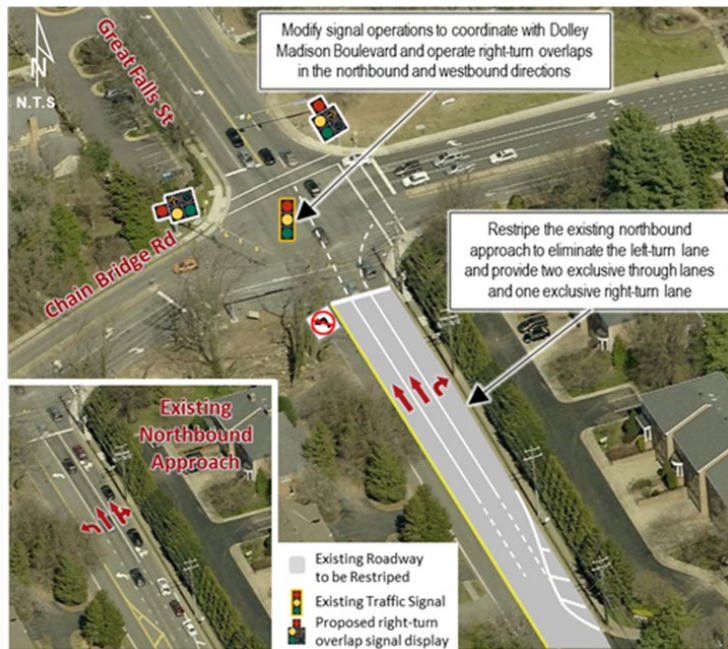
# New Information – Project Progress and Latest Status





# Great Falls/Chain Bridge Mitigation

- Coordinated signal operations
- Right-turn overlaps
- Northbound approach restriping and left turn restriction





# Additional Concepts

- Concept 7
  - Option lane on westbound Dolley Madison at the split to the Dulles Toll Road (DTR)
  - Help downstream traffic distribution to DTR and Tysons







# Additional Concepts (cont'd)

- Concept 8
  - Extend the westbound through lane at Great Falls St/Lewinsville Rd
  - Get extra storage space to help the queuing condition





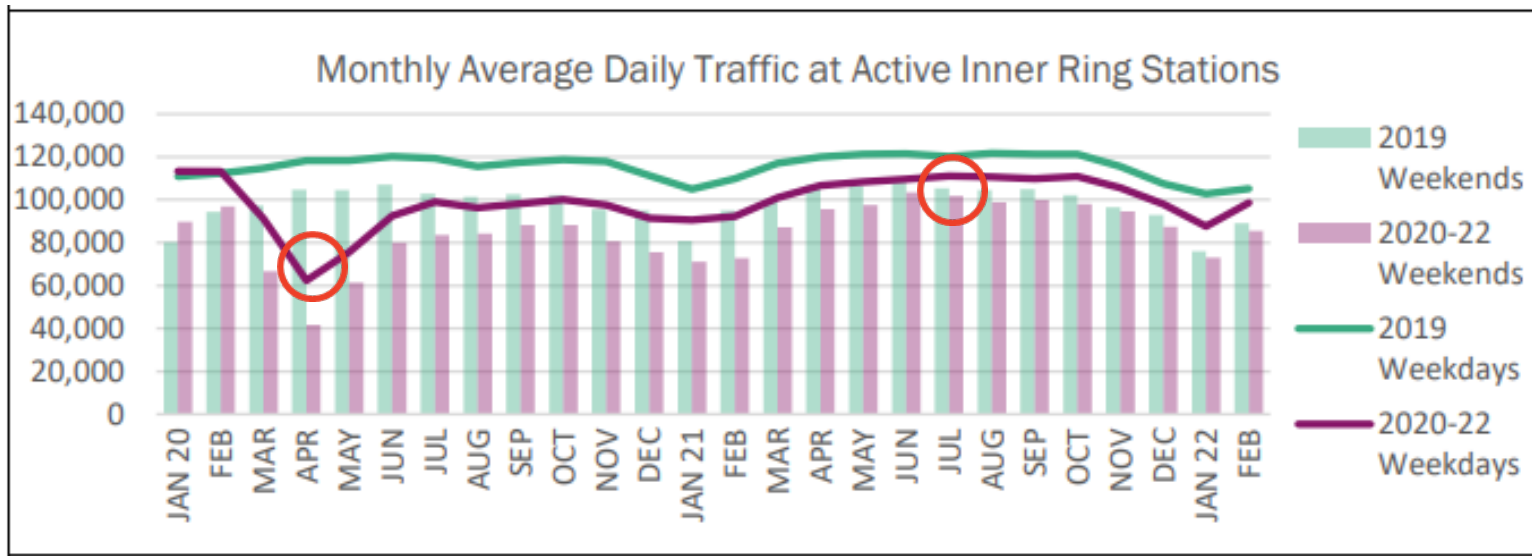
# Scenario Comparison

| Concept | Concept Elements  | Community Preferred | Staff Preferred |
|---------|---|---------------------|-----------------|
| 1       | 3 Lanes EB through 267 Interchange  | ✓                   | ✓               |
| 2       | 3 Lanes EB through Lewinsville/Great Falls Intersection                   | ✓                   | ✓               |
| 3       | Restricted Lefts from Balls Hill  | ✗                   | ✓               |
| 3a      | Increased Capacity on Lewinsville   | ✓                   | ✓               |
| 4       | Jug Handle at Old Dominion  | ✗                   | ✗               |
| 4b      | Modified Jug Handle at Old Dominion                                       | ✗                   | ✓               |
| 5       | Exclusive Left-Turn Lanes at Lewinsville/Great Falls Intersection         | ✓                   | ✓               |
| 6       | 3 lanes WB between Old Dominion and Lewinsville/Great Falls Intersections | ✗                   | ✗               |
| 7       | WB Option Lane at On-ramp to 267 WB                                       | ✗                   | ✓               |
| 8       | Extend Rightmost WB Through Lane at Lewinsville/Great Falls               | ✗                   | ✓               |
| N/A     | Great Falls/Chain Bridge Mitigation                                       | ✓                   | ✓               |



# Additional Volume Considerations

- Major Factors
  - Pandemic impact
  - Additional network connectivity





# Additional Volume Considerations (cont'd)

- A New Volume Scenario
  - Remove background traffic growth
  - Include development-related trips only





# AM Peak Hour LOS and Delay Table (Revised Volume)

| Int. # | Intersection                           | Existing | No-Build | Community Preferred | Staff Preferred |
|--------|--|----------|----------|---------------------|-----------------|
| 1.     | Lewinsville/Old Maple*                 | N/A      | 4.1 (A)  | 2.4 (A)             | 4 (A)           |
| 2.     | Lewinsville/Balls Hill                 | 34.6 (D) | 19.6 (B) | 10.7 (B)            | 3.9 (A)         |
| 3.     | Dolley Madison/Great Falls/Lewinsville | 80.6 (F) | 84.3 (F) | 62.6 (E)            | 51.9 (D)        |
| 4.     | Great Falls/Chain Bridge               | 31.8 (C) | 32.3 (C) | 32.5 (C)            | 21.9 (C)        |
| 5.     | Dolley Madison/Old Dominion            | 36.3 (D) | 38.2 (D) | 42.2 (D)            | 37.3 (D)        |
| 6.     | Dolley Madison/Ingleside               | 1.9 (A)  | 2 (A)    | 2.1 (A)             | 2.6 (A)         |
| 7.     | Ingleside/Old Dominion                 | 1.2 (A)  | 1.1 (A)  | 1.1 (A)             | 6.9 (A)         |

\* Lewinsville/Old Maple was not initially part of this analysis, but because a concept required changes to the intersection, it was added for analysis under the proposed concepts.



## PM Peak Hour LOS and Delay Table (Revised Volume)

| Int. # | Intersection                           | Existing  | No-Build  | Community Preferred | Staff Preferred |
|--------|--|-----------|-----------|---------------------|-----------------|
| 1.     | Lewinsville/Old Maple*                 | N/A       | 88.6 (F)  | 4.4 (A)             | 8.2 (A)         |
| 2.     | Lewinsville/Balls Hill                 | 63.2 (E)  | 51.6 (D)  | 16.6 (B)            | 7.3 (A)         |
| 3.     | Dolley Madison/Great Falls/Lewinsville | 112.7 (F) | 156.5 (F) | 99.9 (F)            | 48.5 (D)        |
| 4.     | Great Falls/Chain Bridge               | 52.5 (D)  | 85.5 (F)  | 34.3 (C)            | 34.8 (C)        |
| 5.     | Dolley Madison/Old Dominion            | 42.9 (D)  | 54.3 (D)  | 61.8 (E)            | 38.2 (C)        |
| 6.     | Dolley Madison/Ingleside               | 11.3 (B)  | 91.9 (F)  | 33.2 (C)            | 10.2 (B)        |
| 7.     | Ingleside/Old Dominion                 | 2.4 (A)   | 34.6 (C)  | 8.8 (A)             | 9 (A)           |

\* Lewinsville/Old Maple was not initially part of this analysis, but because a concept required changes to the intersection, it was added for analysis under the proposed concepts.



# AM Peak Queue Comparison (Avg)

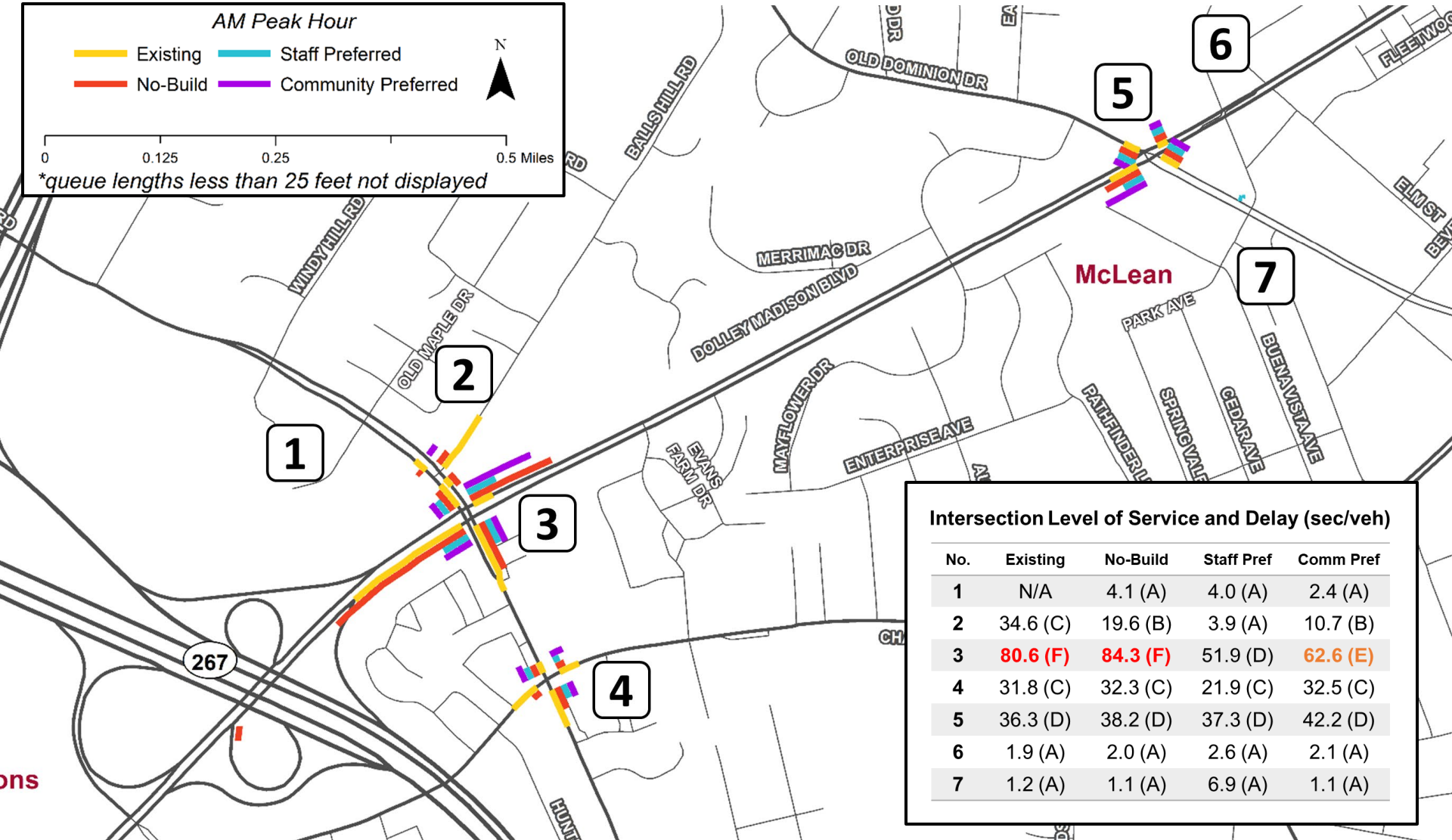
AM Peak Hour

- Existing
- Staff Preferred
- No-Build
- Community Preferred



0 0.125 0.25 0.5 Miles

\*queue lengths less than 25 feet not displayed



Intersection Level of Service and Delay (sec/veh)

| No. | Existing        | No-Build        | Staff Pref | Comm Pref       |
|-----|-----------------|-----------------|------------|-----------------|
| 1   | N/A             | 4.1 (A)         | 4.0 (A)    | 2.4 (A)         |
| 2   | 34.6 (C)        | 19.6 (B)        | 3.9 (A)    | 10.7 (B)        |
| 3   | <b>80.6 (F)</b> | <b>84.3 (F)</b> | 51.9 (D)   | <b>62.6 (E)</b> |
| 4   | 31.8 (C)        | 32.3 (C)        | 21.9 (C)   | 32.5 (C)        |
| 5   | 36.3 (D)        | 38.2 (D)        | 37.3 (D)   | 42.2 (D)        |
| 6   | 1.9 (A)         | 2.0 (A)         | 2.6 (A)    | 2.1 (A)         |
| 7   | 1.2 (A)         | 1.1 (A)         | 6.9 (A)    | 1.1 (A)         |



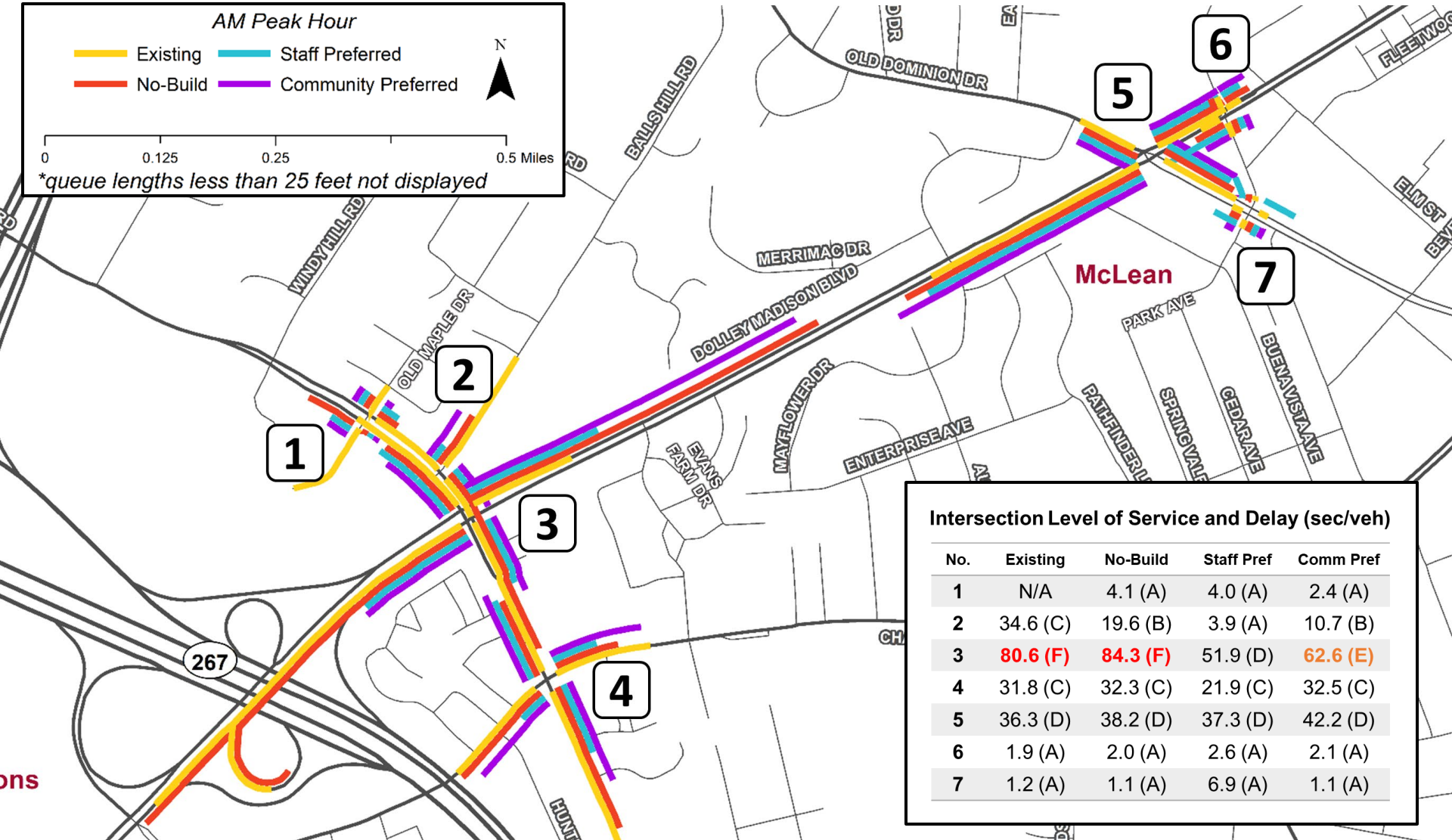
# AM Peak Queue Comparison (Max)

**AM Peak Hour**

Existing (Yellow) Staff Preferred (Cyan)  
 No-Build (Red) Community Preferred (Purple)

0 0.125 0.25 0.5 Miles

\*queue lengths less than 25 feet not displayed



**Intersection Level of Service and Delay (sec/veh)**

| No. | Existing        | No-Build        | Staff Pref | Comm Pref       |
|-----|-----------------|-----------------|------------|-----------------|
| 1   | N/A             | 4.1 (A)         | 4.0 (A)    | 2.4 (A)         |
| 2   | 34.6 (C)        | 19.6 (B)        | 3.9 (A)    | 10.7 (B)        |
| 3   | <b>80.6 (F)</b> | <b>84.3 (F)</b> | 51.9 (D)   | <b>62.6 (E)</b> |
| 4   | 31.8 (C)        | 32.3 (C)        | 21.9 (C)   | 32.5 (C)        |
| 5   | 36.3 (D)        | 38.2 (D)        | 37.3 (D)   | 42.2 (D)        |
| 6   | 1.9 (A)         | 2.0 (A)         | 2.6 (A)    | 2.1 (A)         |
| 7   | 1.2 (A)         | 1.1 (A)         | 6.9 (A)    | 1.1 (A)         |





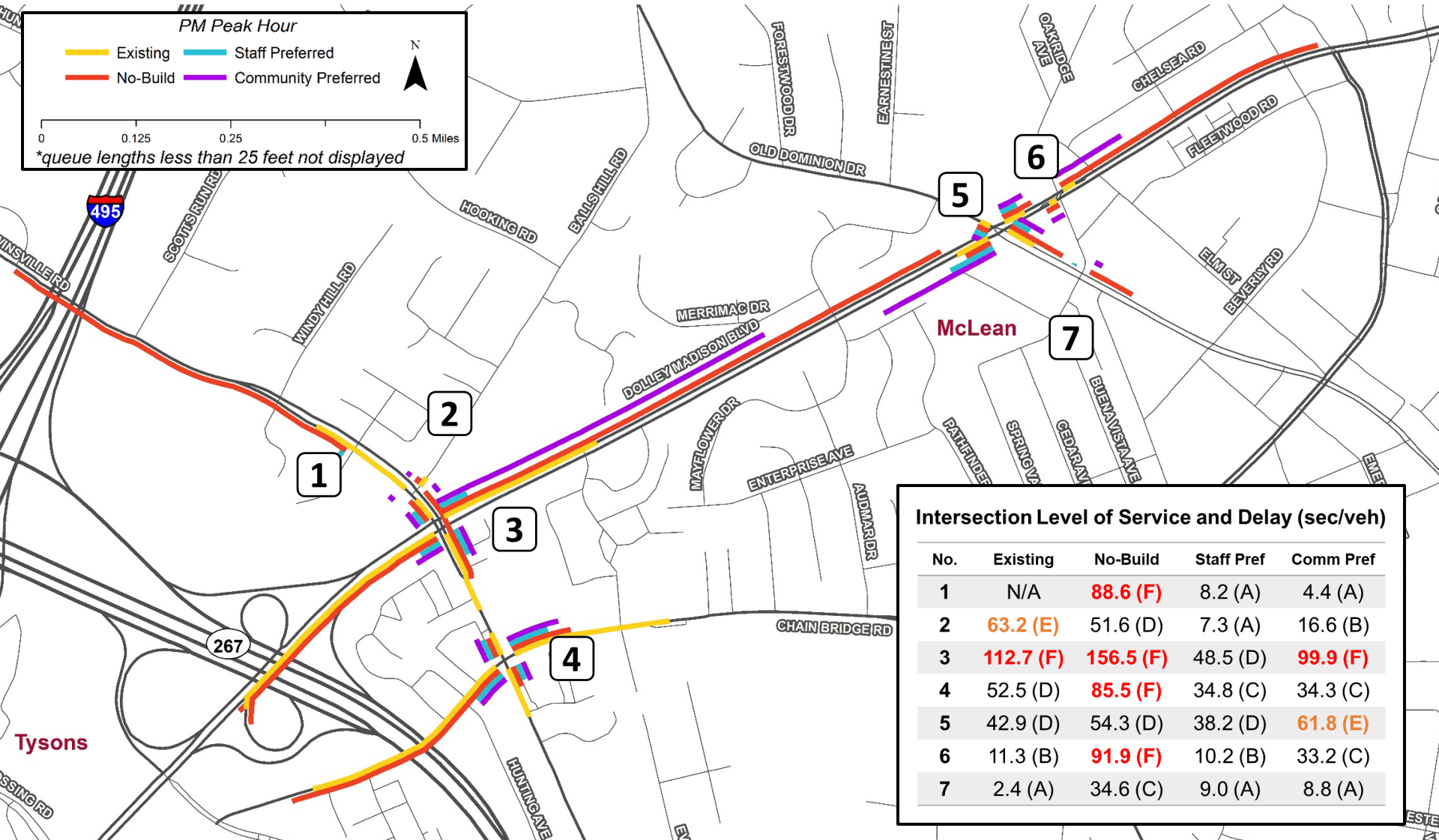
# PM Peak Queue Comparison (Avg)

**PM Peak Hour**

- █ Existing
- █ Staff Preferred
- █ No-Build
- █ Community Preferred

0 0.125 0.25 0.5 Miles

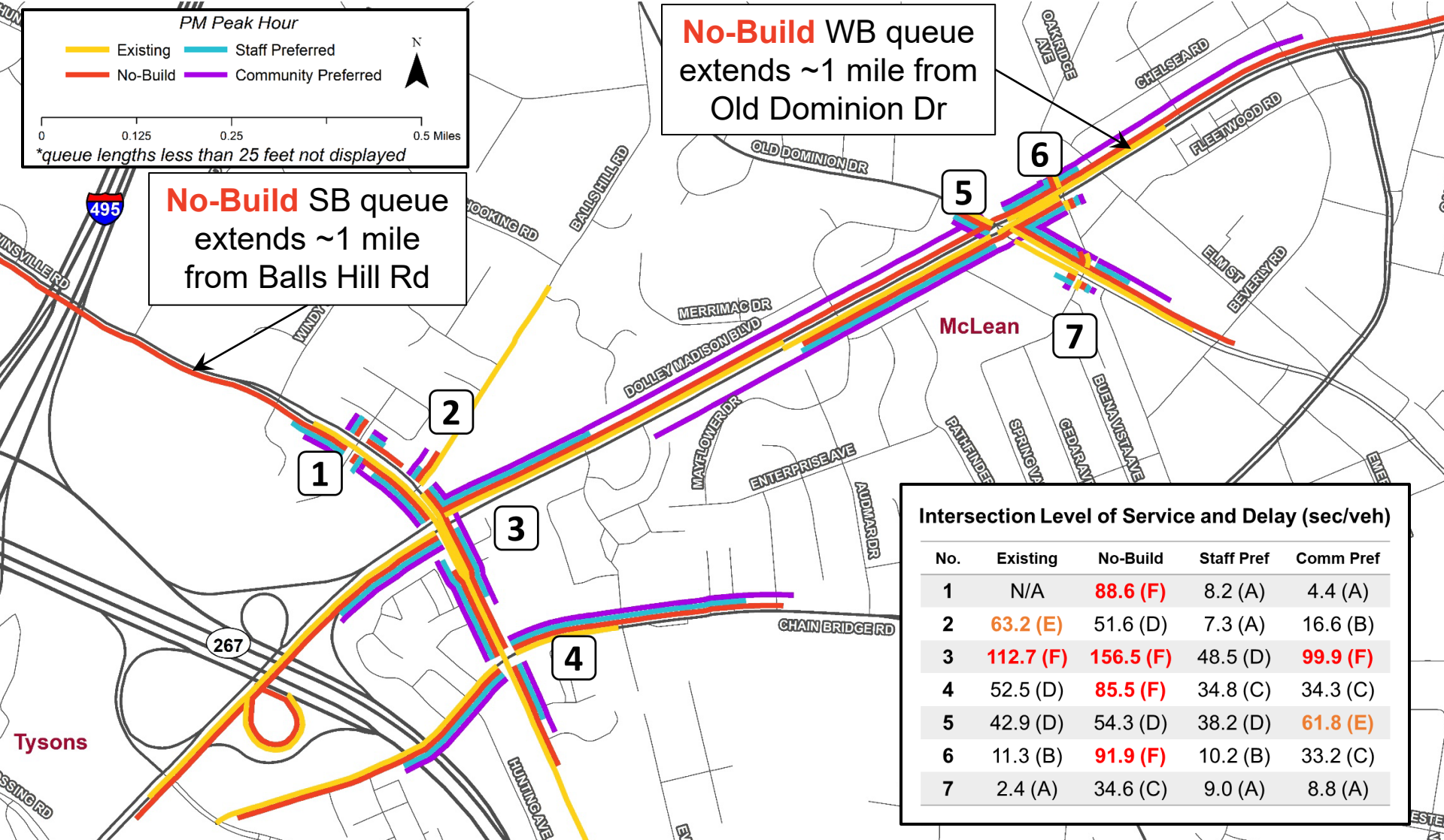
\*queue lengths less than 25 feet not displayed



| Intersection Level of Service and Delay (sec/veh) |           |           |            |           |
|---|-----------|-----------|------------|-----------|
| No.   | Existing  | No-Build  | Staff Pref | Comm Pref |
| 1   | N/A       | 88.6 (F)  | 8.2 (A)    | 4.4 (A)   |
| 2   | 63.2 (E)  | 51.6 (D)  | 7.3 (A)    | 16.6 (B)  |
| 3   | 112.7 (F) | 156.5 (F) | 48.5 (D)   | 99.9 (F)  |
| 4   | 52.5 (D)  | 85.5 (F)  | 34.8 (C)   | 34.3 (C)  |
| 5   | 42.9 (D)  | 54.3 (D)  | 38.2 (D)   | 61.8 (E)  |
| 6   | 11.3 (B)  | 91.9 (F)  | 10.2 (B)   | 33.2 (C)  |
| 7   | 2.4 (A)   | 34.6 (C)  | 9.0 (A)    | 8.8 (A)   |



# PM Peak Queue Comparison (Max)

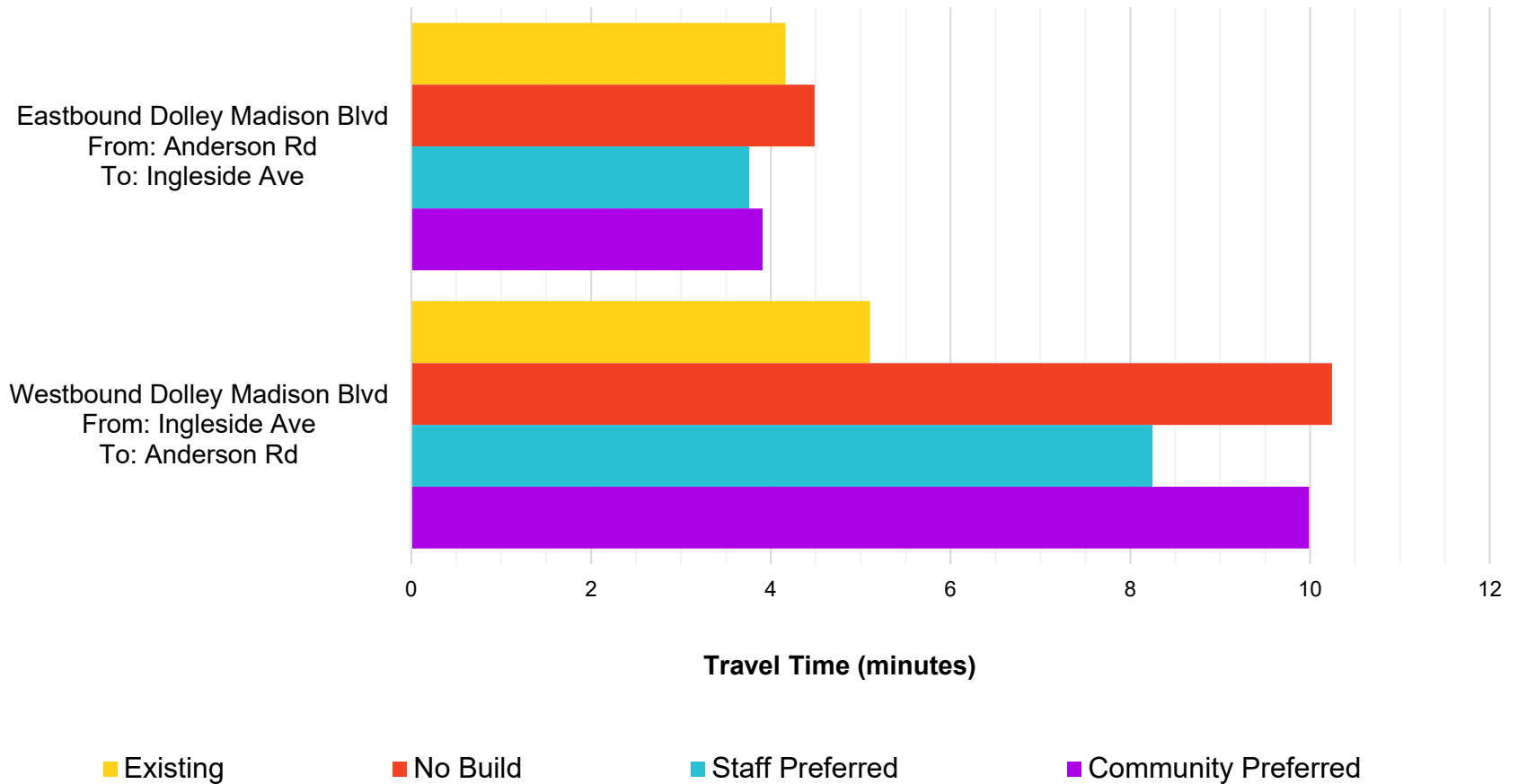


**Intersection Level of Service and Delay (sec/veh)**

| No. | Existing  | No-Build  | Staff Pref | Comm Pref |
|-----|-----------|-----------|------------|-----------|
| 1   | N/A       | 88.6 (F)  | 8.2 (A)    | 4.4 (A)   |
| 2   | 63.2 (E)  | 51.6 (D)  | 7.3 (A)    | 16.6 (B)  |
| 3   | 112.7 (F) | 156.5 (F) | 48.5 (D)   | 99.9 (F)  |
| 4   | 52.5 (D)  | 85.5 (F)  | 34.8 (C)   | 34.3 (C)  |
| 5   | 42.9 (D)  | 54.3 (D)  | 38.2 (D)   | 61.8 (E)  |
| 6   | 11.3 (B)  | 91.9 (F)  | 10.2 (B)   | 33.2 (C)  |
| 7   | 2.4 (A)   | 34.6 (C)  | 9.0 (A)    | 8.8 (A)   |

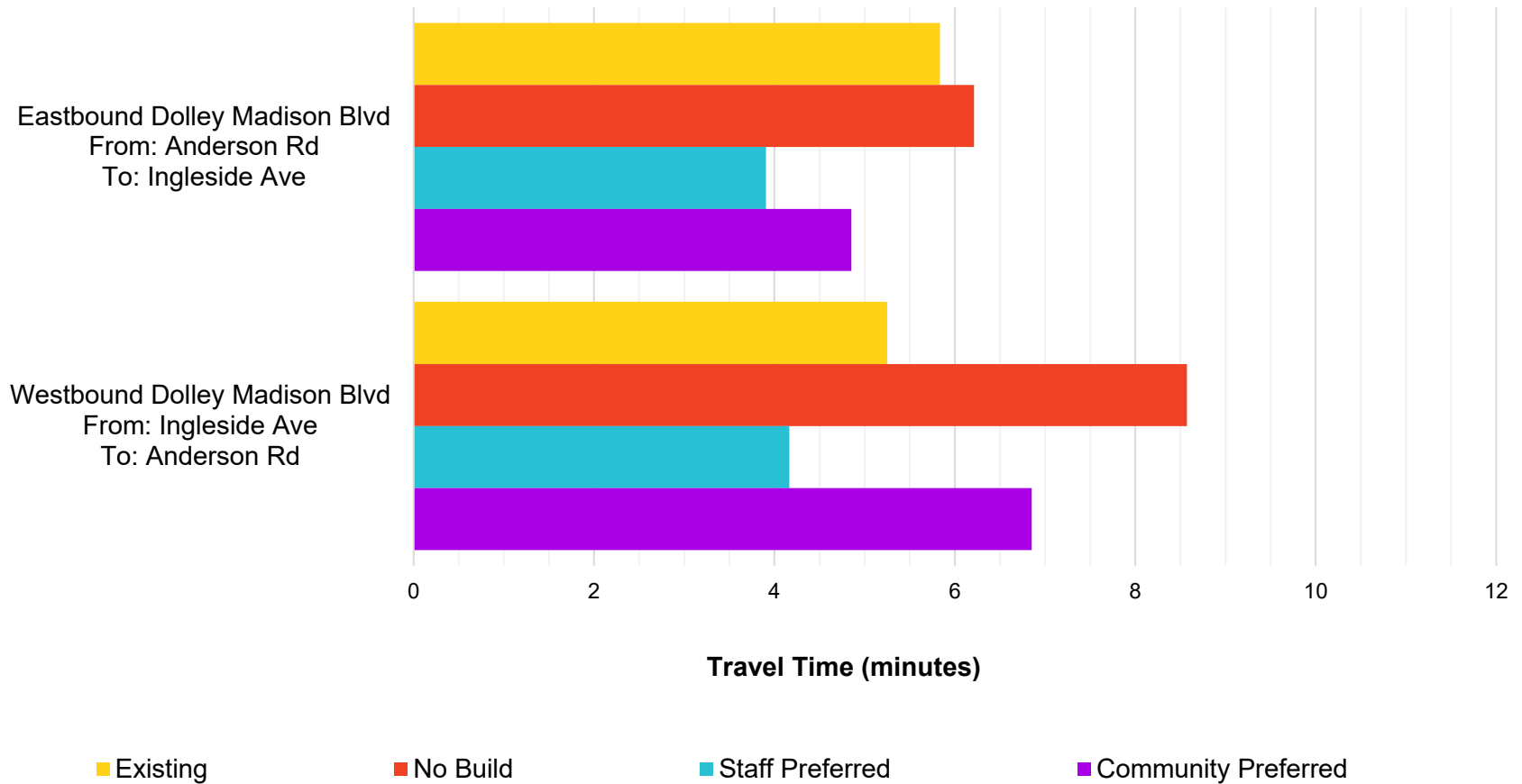


## AM Peak Travel Time Comparison





## PM Peak Travel Time Comparison





# Study Summary and Findings

- Short-term improvements were identified to address traffic conditions along Dolley Madison Blvd.
- Short-term improvements can mitigate traffic conditions with a post-pandemic traffic volume scenario.
- Both the Staff Preferred and the Community Preferred scenarios perform better than the No Build scenario.
- Major capital infrastructure projects can be considered for long-term.



## Next Steps

- Prioritize and recommend improvements
- Finalize study and report
- Conduct feasibility study and develop conceptual design
- Identify funding to move project forward



# Questions?

Visit Our Webpage – Please Provide Feedback

<https://www.fairfaxcounty.gov/transportation/study/dolley-madison-corridor>

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