Takoma Park Laurel Avenue Traffic Study

TOOLE DESIGN

City of Takoma Park Council Meeting

June 12, 2024

Team Members

Hector Chang

Project Planner (PM)

Jim Sebastian, AICP
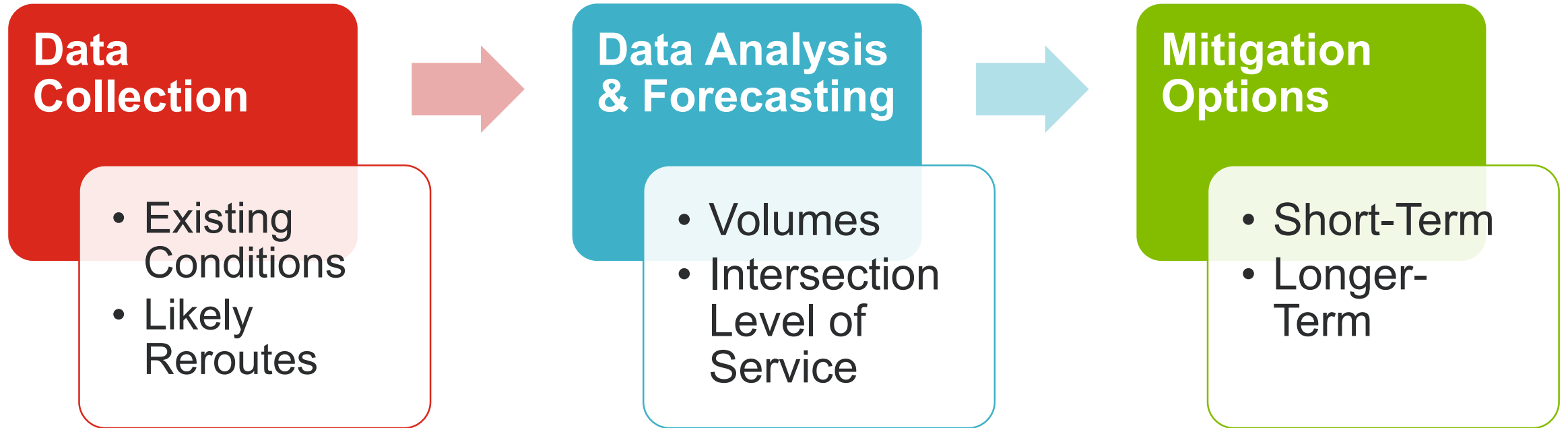
Senior Planner

Emily Koehle, PE

Traffic Analysis Lead

Barbara Mosier, PE, PTOE

Director of Traffic Engineering (former)

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Study Process

Data Collection

- Existing Conditions
- Likely Reroutes

Data Analysis & Forecasting

- Volumes
- Intersection Level of Service

Mitigation Options

- Short-Term
- Longer-Term

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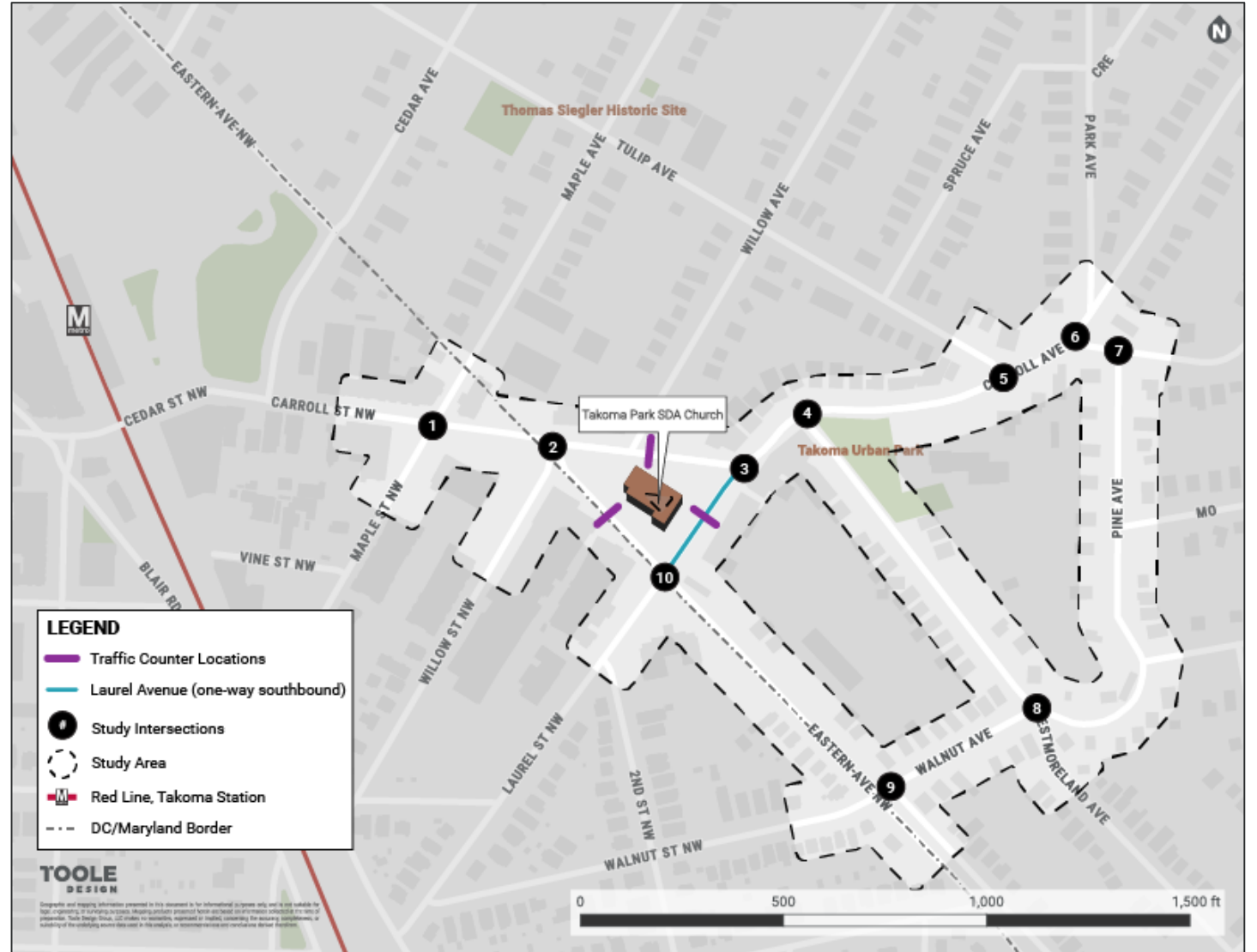# Data Collection

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Existing Conditions

- Traffic counts

- Big Data model (Replica)
(cellphones and connected vehicles)

- Stakeholder group
(DDOT, MDOT SHA, Takoma Park PD & DPW)

  - Traffic impact studies

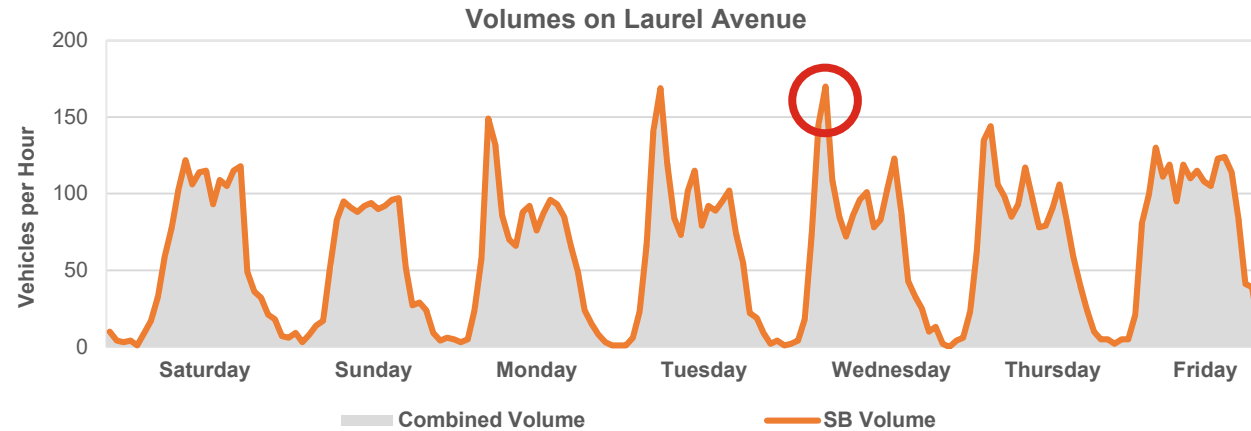 - Signal timing sheets

  - Field observations
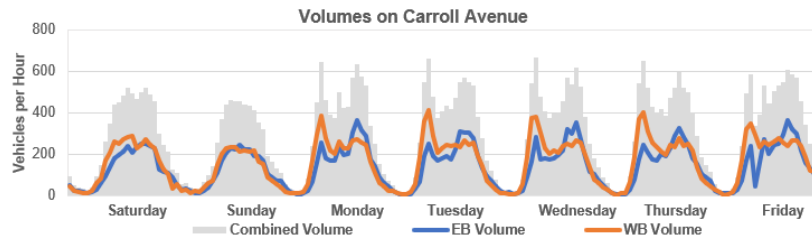
Traffic Counts

- Turning movement counts at 10 intersections
  - AM, PM, and Sunday peak
- 7-day volumes and speeds at 3 locations
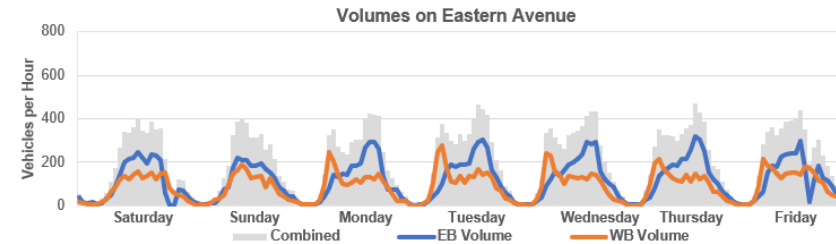 - Carroll, Eastern, and Laurel around Adventist Church

LEGEND
- Traffic Counter Locations
- Laurel Avenue (one-way southbound)
- Study Intersections
- Study Area
- Red Line, Takoma Station
- DC/Maryland Border

Speed and Volume Counts

Volumes on Laurel Avenue

Laurel Avenue: 1,562 Average Daily Traffic (weekday)

Volumes on Carroll Avenue

Carroll Ave: 7,601 ADT (weekday)

Volumes on Eastern Avenue

Eastern Avenue: 5,258 ADT (weekday)

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Turning Movement Counts

Big Data: Origins and Destinations

Laurel Ave Traffic Routing

% of Weekday Trips via 6900 Laurel Ave

- 0% - 1%
- 1% - 10%
- 10% - 25%
- 25% - 50%
- 50% - 100%
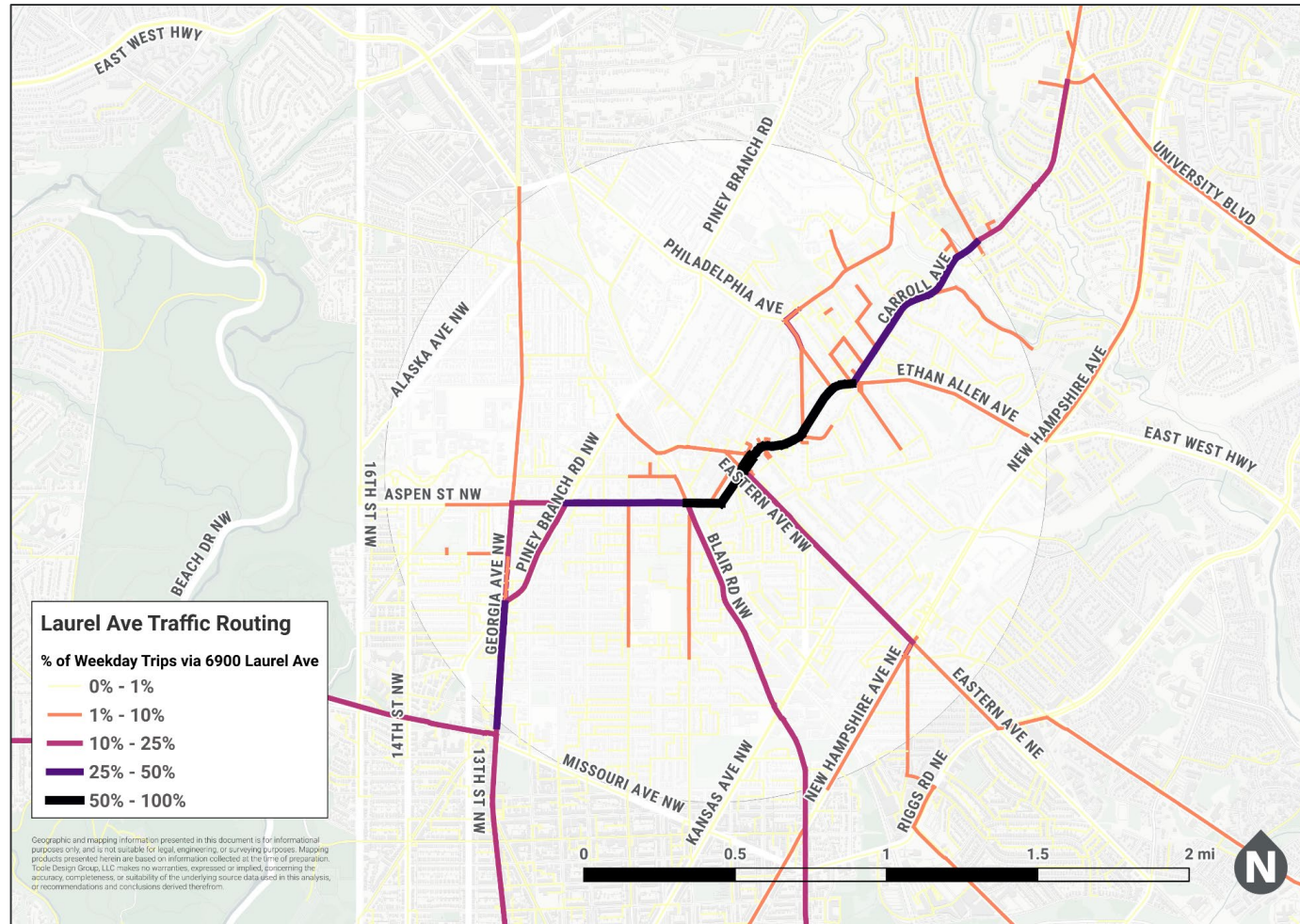
Big Data: Origins and Destinations
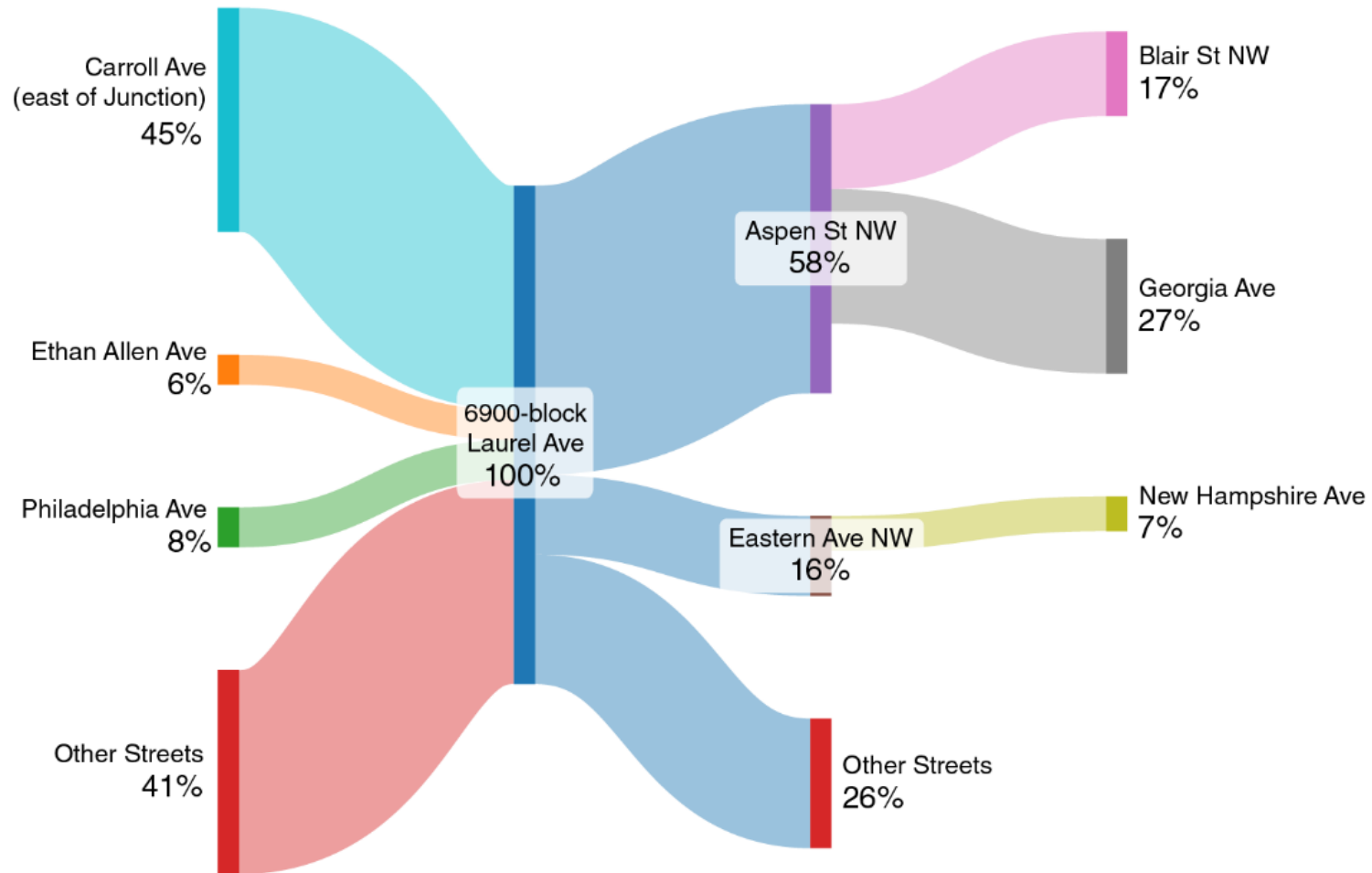
From Turning Movement Counts:

Nearby Developments

Takoma Metro Station Redevelopment
440 dwelling units · 17,650 sq.ft. retail

218 Cedar Street NW
36 dwelling units · 9,000 sq.ft. office

325 Vine Street NW
159 dwelling units

6896 Laurel Street NW
353 dwelling units

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Active Developments
(approved or under construction)
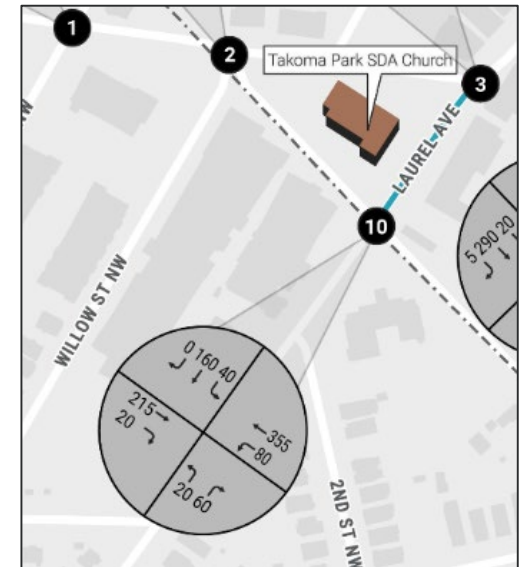
- 988 new dwelling units

- 297 new AM vehicle trips

- 10% of vehicle trips expected to travel within study area

(based on Takoma Metro Station Redevelopment Comprehensive Transportation Review)

Reroute Assumptions

EXAMPLE: Carroll Avenue to Aspen St NW

- Based on:
  - Distance and travel time
  - Google Maps, Apple Maps, etc.
  - City staff and local knowledge
  - Engineering judgement
- Assumes all traffic moving through study area continues to move through study area
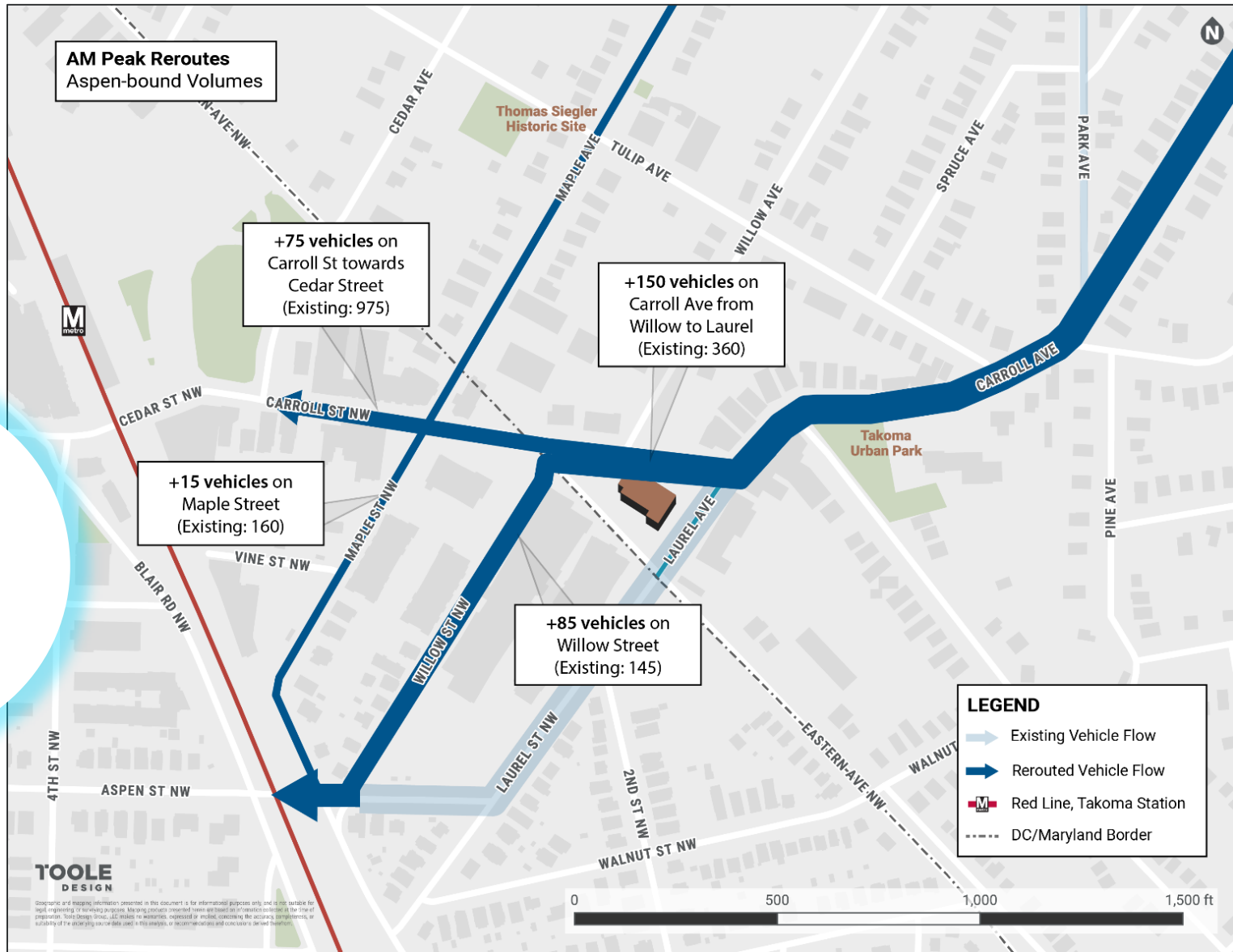
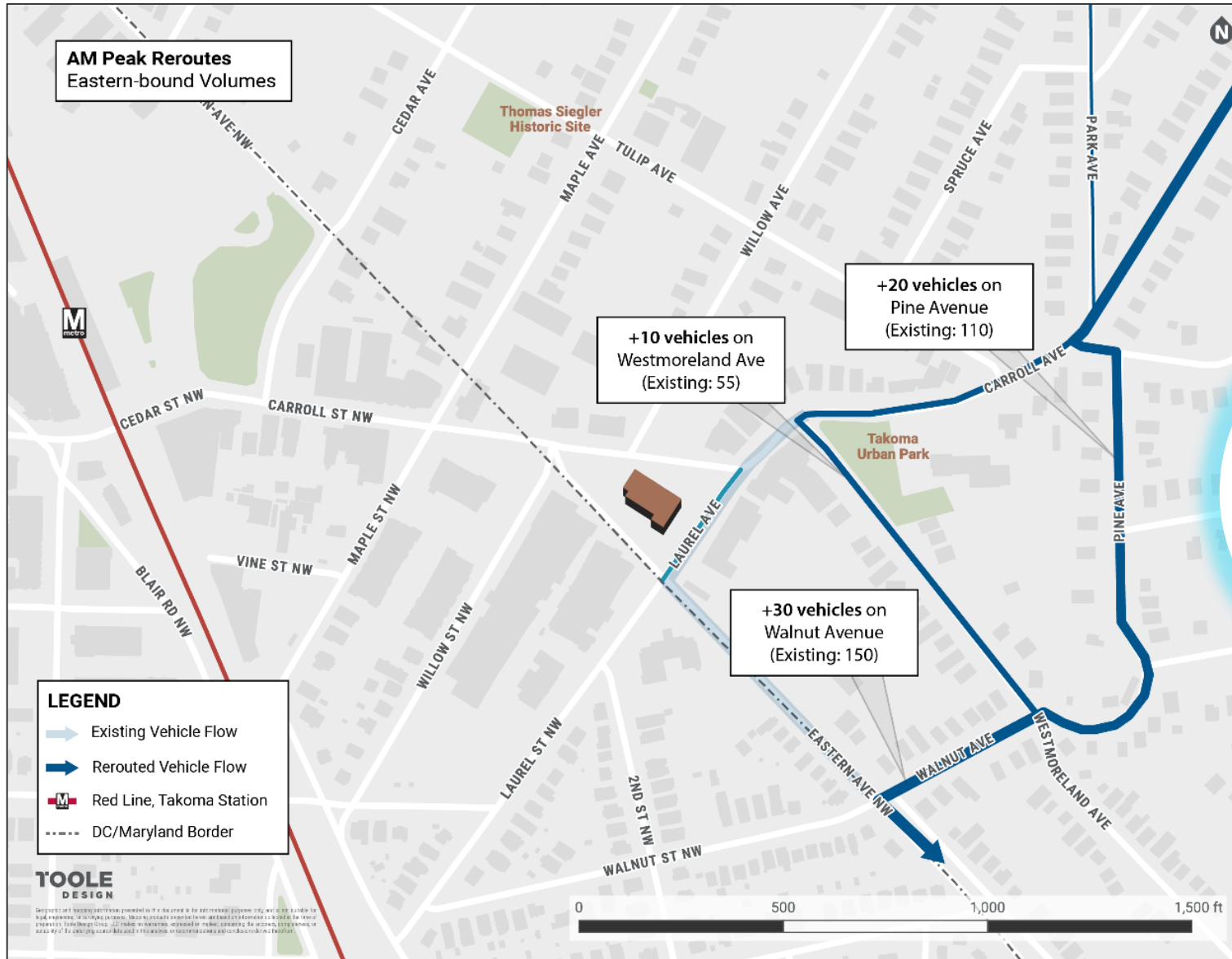# Data Analysis and Forecasting Results

Forecasted Changes in AM Peak Volumes

AM Peak Reroutes
Aspen-bound Volumes

14% overall increase (on streets to the west)

+75 vehicles on Carroll St towards Cedar Street (Existing: 975)

+150 vehicles on Carroll Ave from Willow to Laurel (Existing: 360)

+15 vehicles on Maple Street (Existing: 160)

+85 vehicles on Willow Street (Existing: 145)

Thomas Siegler Historic Site

Takoma Urban Park

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— Existing Vehicle Flow
— Rerouted Vehicle Flow
Ⓜ Red Line, Takoma Station
--- DC/Maryland Border

0   500   1,000   1,500 ft

Forecasted Changes in AM Peak Volumes – Aspen-bound

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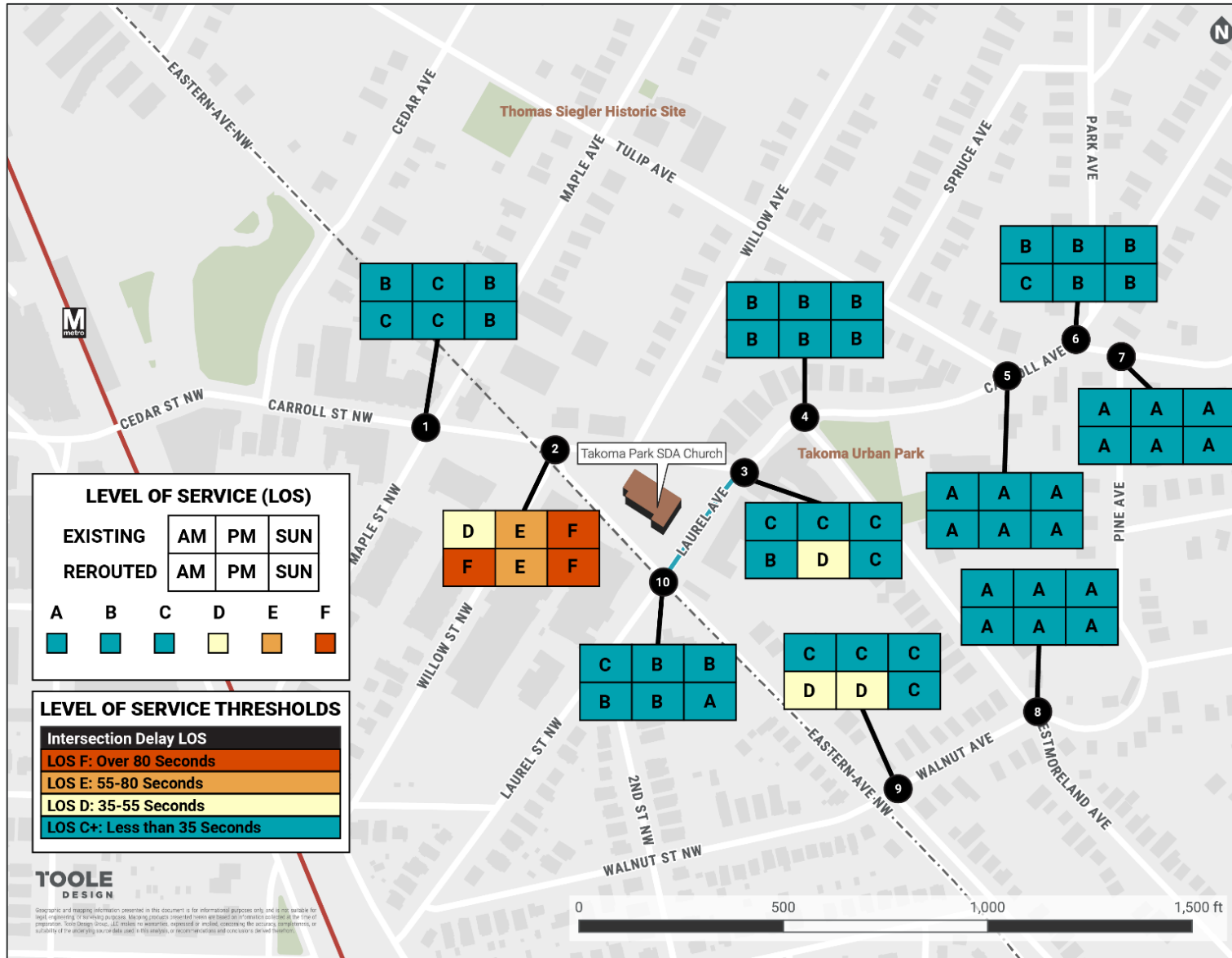**Forecasted Changes in AM Peak Volumes** – Eastern-bound

Level of Service (LOS)

Level of Service measures the **total average delay for vehicles** moving through an intersection. Each intersection is assigned an LOS rating:

| A | B | C | D | E | F |

Less than 35 seconds

35 to 55 seconds

55 to 80 seconds

More than 80 seconds
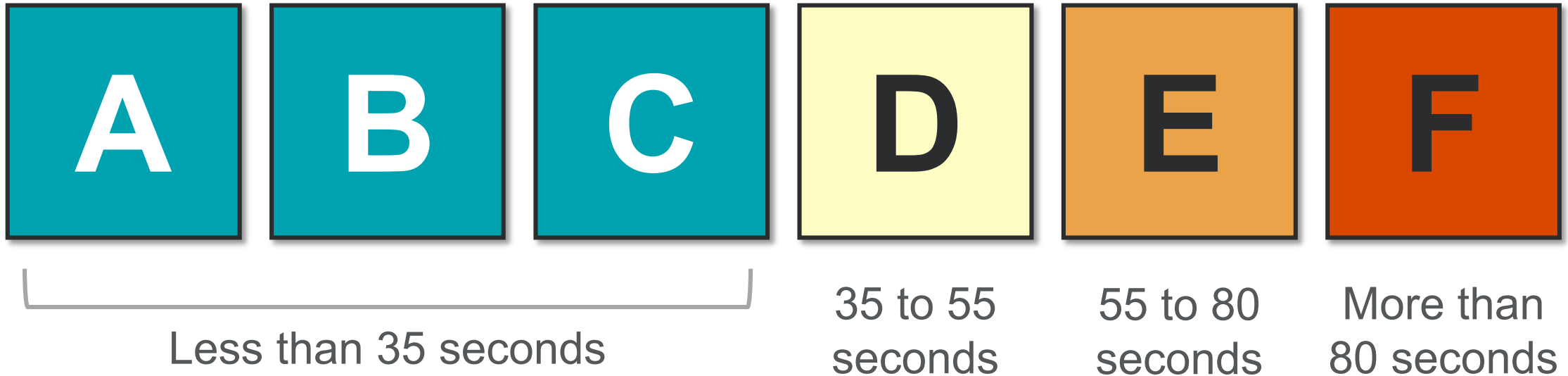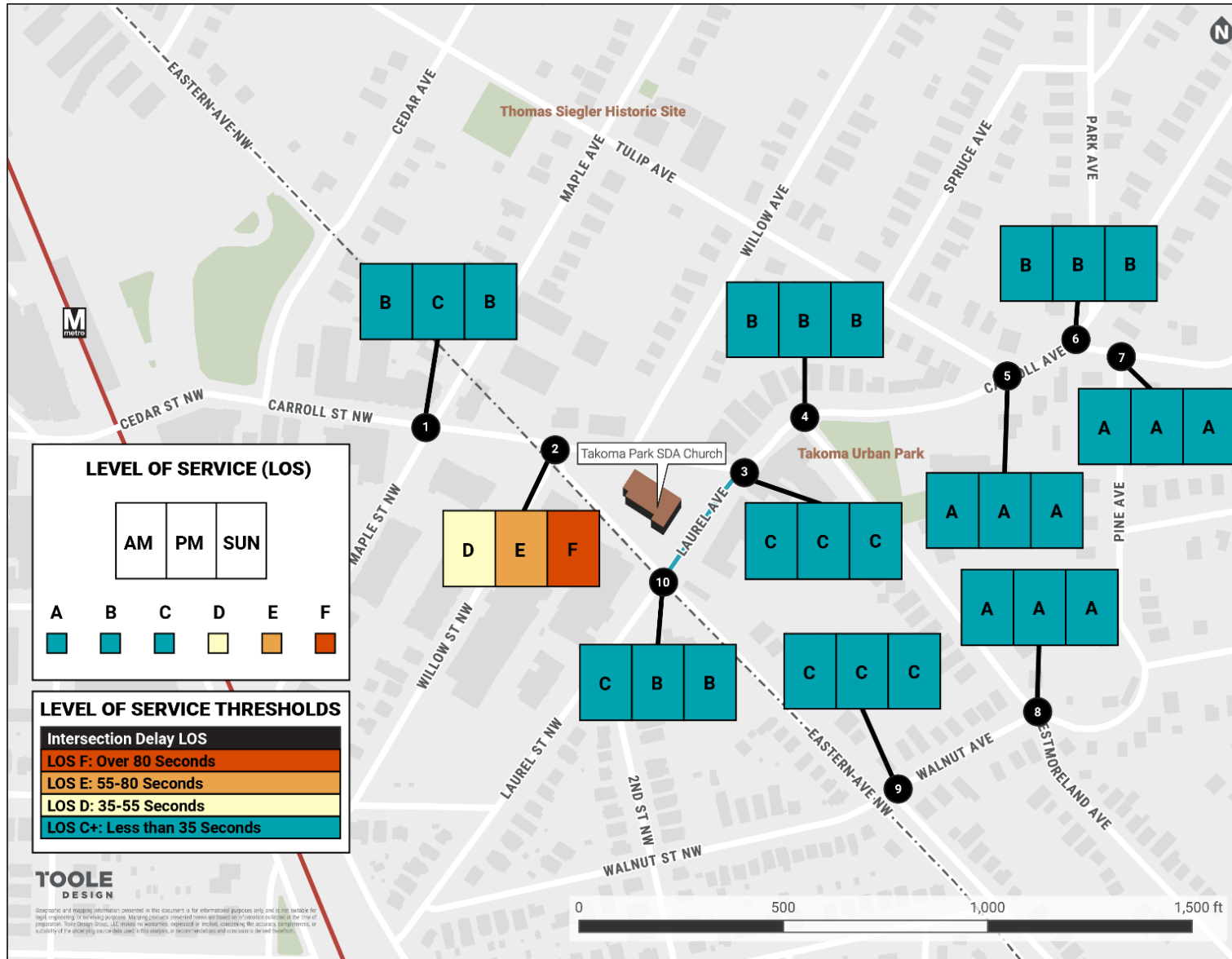
Intersection Level of Service – Existing Condition

Intersection Level of Service – Existing vs. Rerouted Conditions without Mitigation
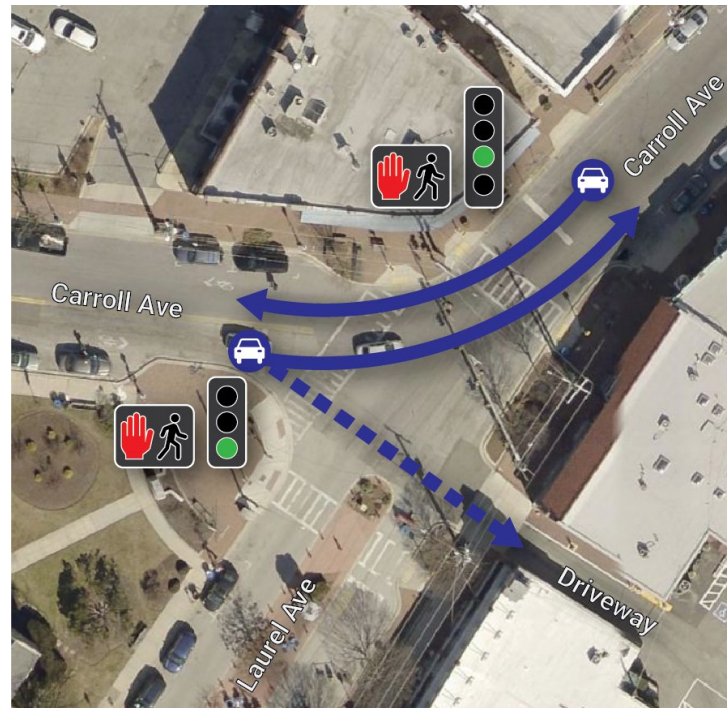
Mitigation Options
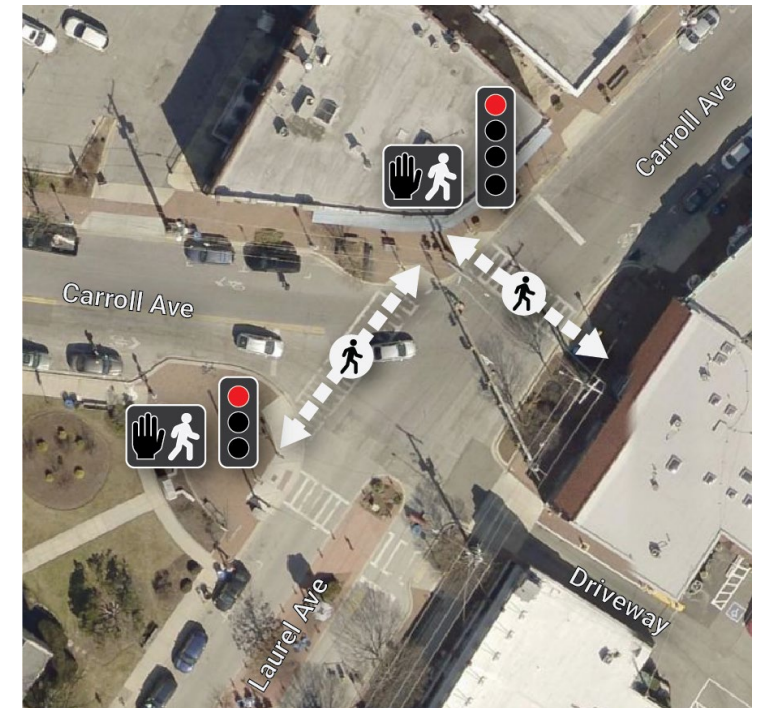
Short-Term: Signal Timing Optimization

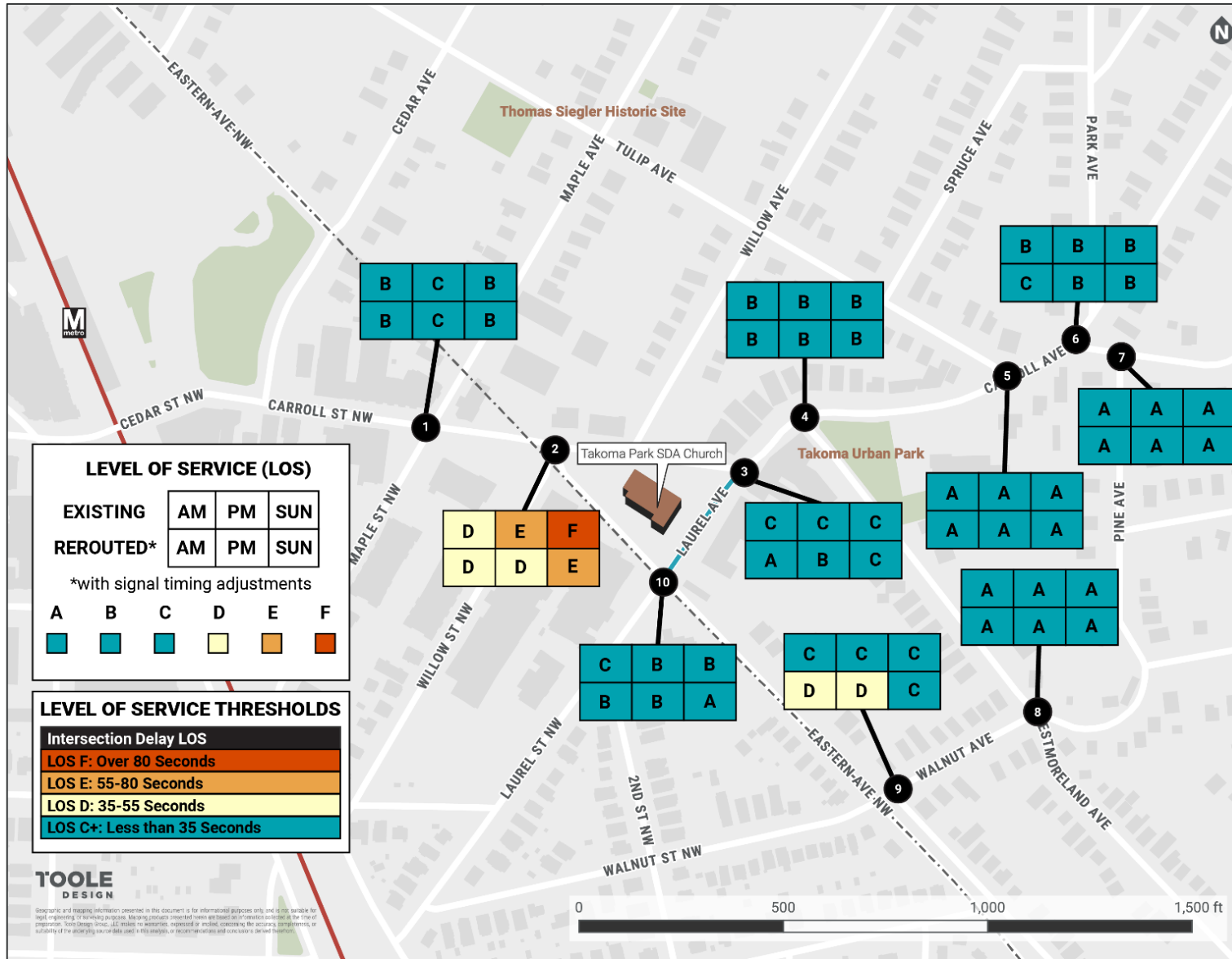**EXAMPLE:** Intersection #3 – Carroll Avenue at Laurel Avenue
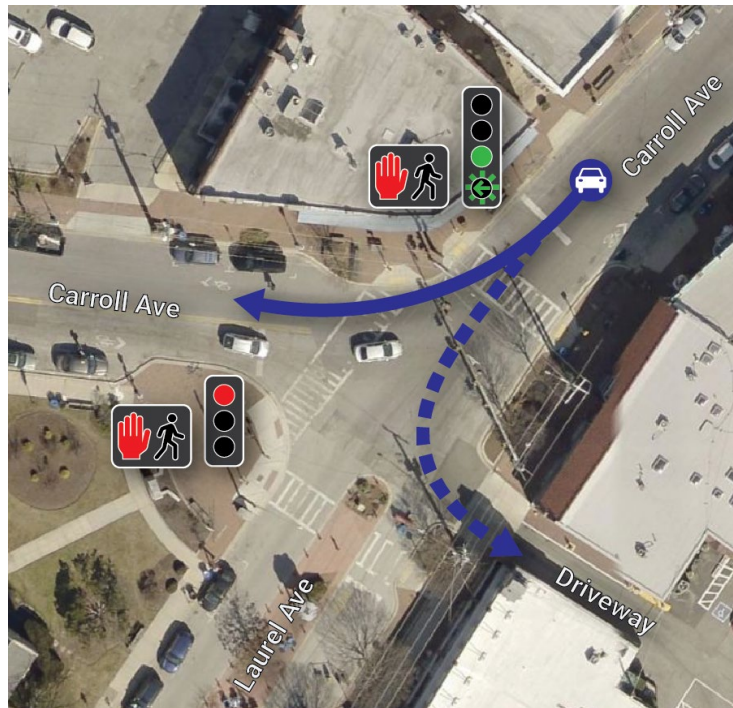
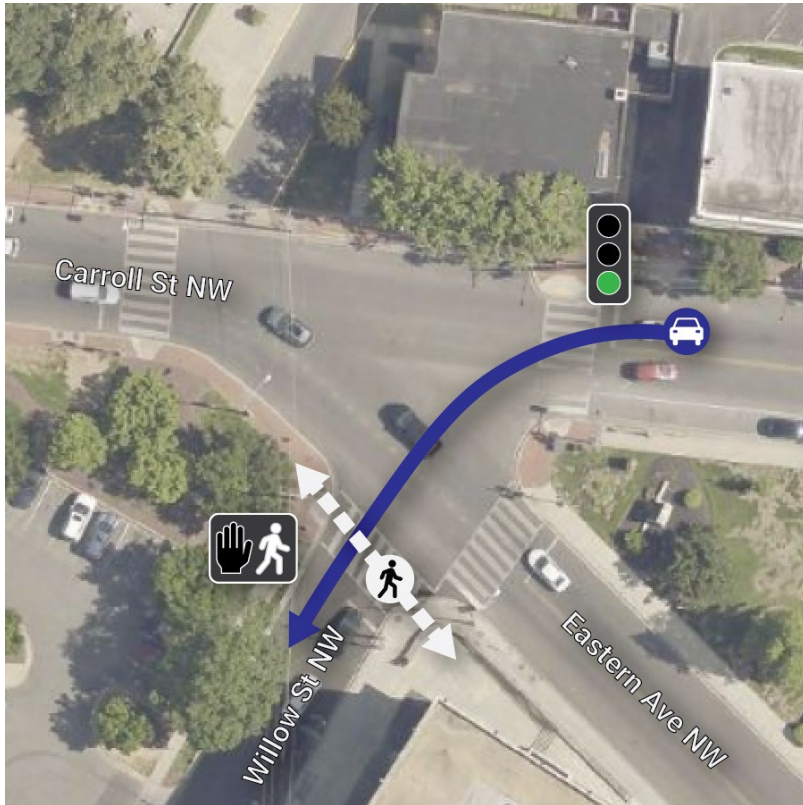Shorter westbound-only phase

Longer through phase

Keep all-pedestrian phase

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Intersection Level of Service – Existing vs. Rerouted Conditions with Signal Timing Changes

Longer-Term: Additional Options

Intersection #2 – Carroll Avenue at Eastern Avenue and Willow Street

- More left turns increases potential for vehicle-pedestrian conflicts at...
  - Willow Street crosswalk
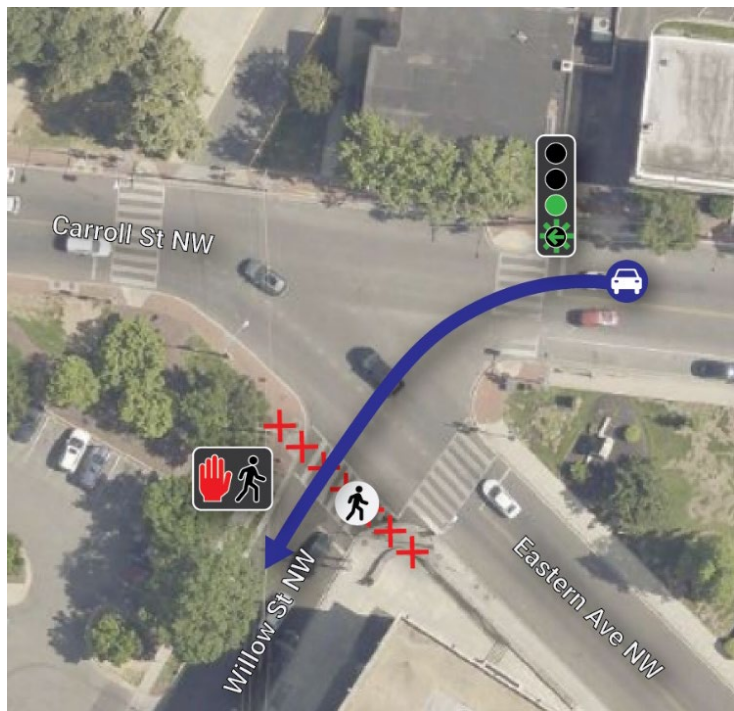 - At Breakthrough Montessori PCS (during AM school drop-off)

Longer-Term: Additional Options

Intersection #2 – Carroll Avenue at Eastern Avenue and Willow Street
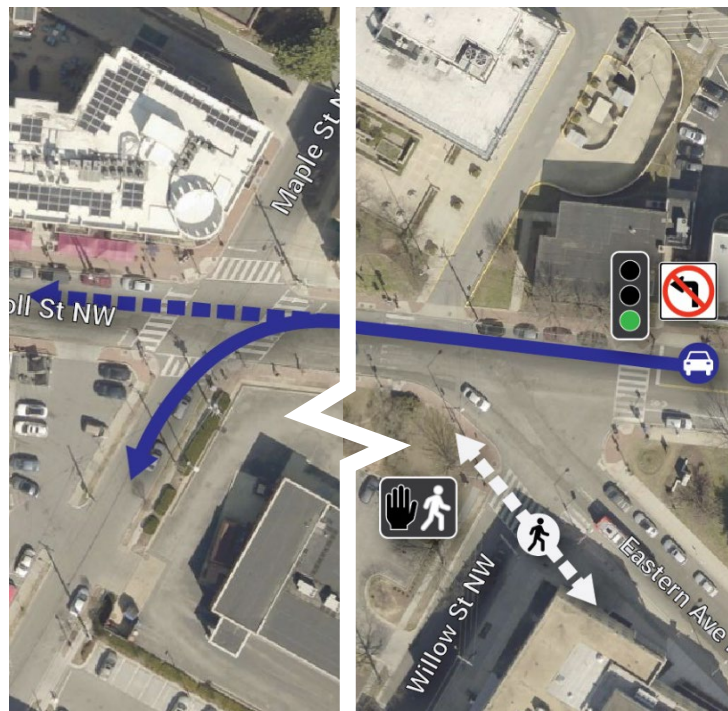
Existing: **D** **E** **F**

Protected Left Turn w/LTL

Left Turn Restriction

Roundabout

D **E** **F**

D **D** **E**

A **A** **A**

Summary of Findings

- Closure of Laurel Avenue is feasible from a traffic operations perspective with moderate impact

- Greatest impact on AM peak hour, as follows:

    - 14% more vehicles overall on Willow/Maple/Cedar Streets

    - 20% more vehicles overall on Westmoreland streets

    - Comparable to volume changes caused by closure of NB Laurel Ave

    - Carroll/Eastern/Willow – most impacted intersection but can be easily mitigated with signal timing changes; further mitigation options available

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