



State Street Two-Way Modeling Effort Portsmouth, New Hampshire

June 1, 2023

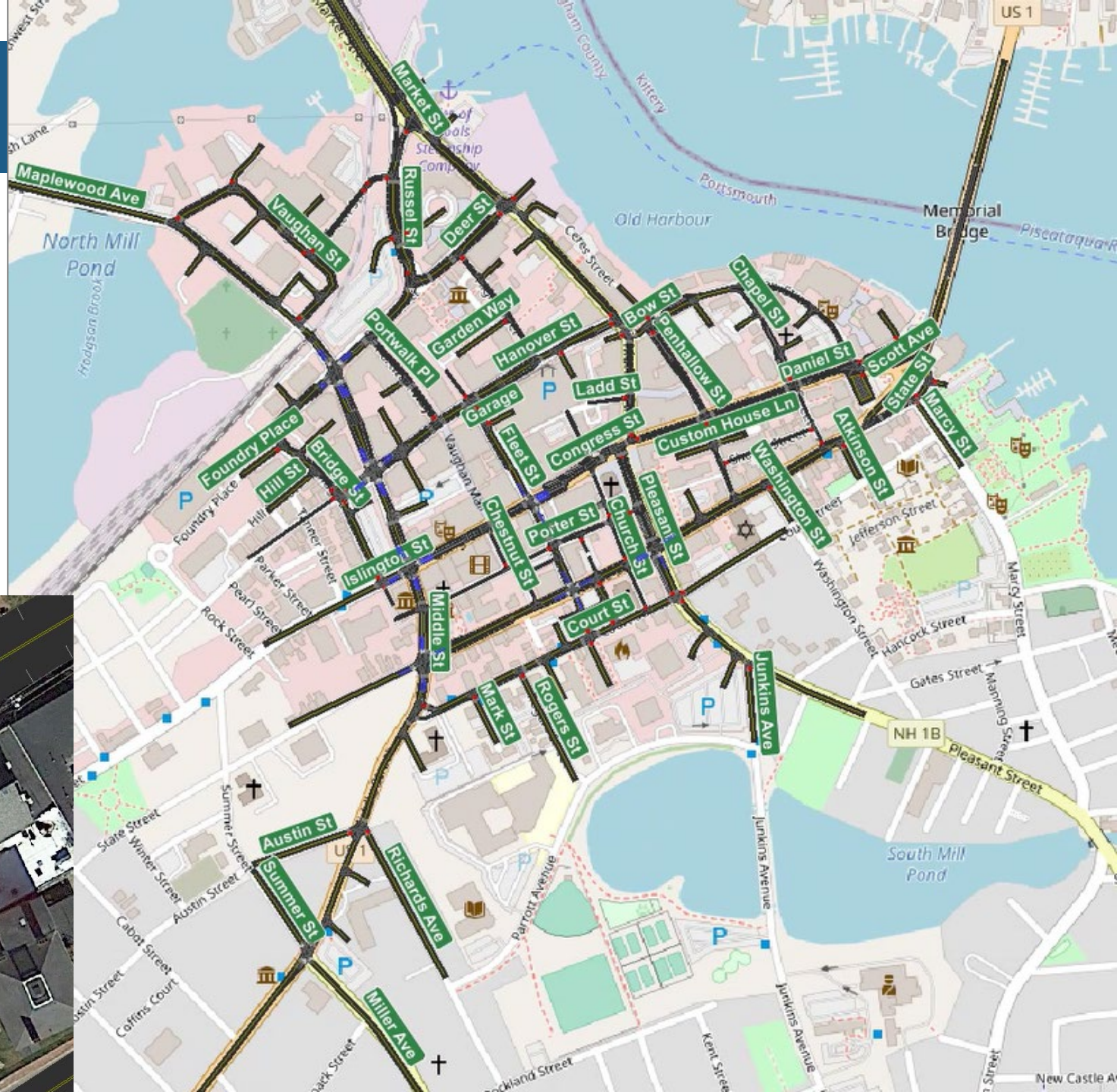


Overview

- Model Background
- Model History & Current Status
- Two-way State Street Scenarios
- Model Results
 - No drawbridge lift
 - With drawbridge lift

Model Details

- Model built within TransModeler Traffic Simulation Software
- Models complex downtown environment details



Microsimulation Model Uses

- Assess impacts of
 - Changes to intersection control
 - Installing a signal
 - Installing a roundabout
 - Changes to road network
 - New road
 - Traffic pattern change (e.g. 2-way to 1-way)
 - Changes to land use
 - Major development

Model History

- Model developed & calibrated in 2017
 - Drawbridge lift alternative developed & calibrated
 - Two-way pair downtown scenario
- Base recalibrated in 2019 to support evaluation of developments
 - Accounts for Foundry Place Garage & the Sarah Long bridge opened
 - New traffic data at indicator intersections
- 2021 Model → new baseline model

Current Model

- Adjusted baseline 2021 model to reflect 2032
- Reflects typical weekday PM peak hour (5:00 – 6:00 PM)
 - Highest combination of vehicles and pedestrians observed in model area
- Accounts for:
 - Recent traffic counts
 - Changes due to COVID
 - Annual growth projections
 - Planned developments

Drawbridge Alternative

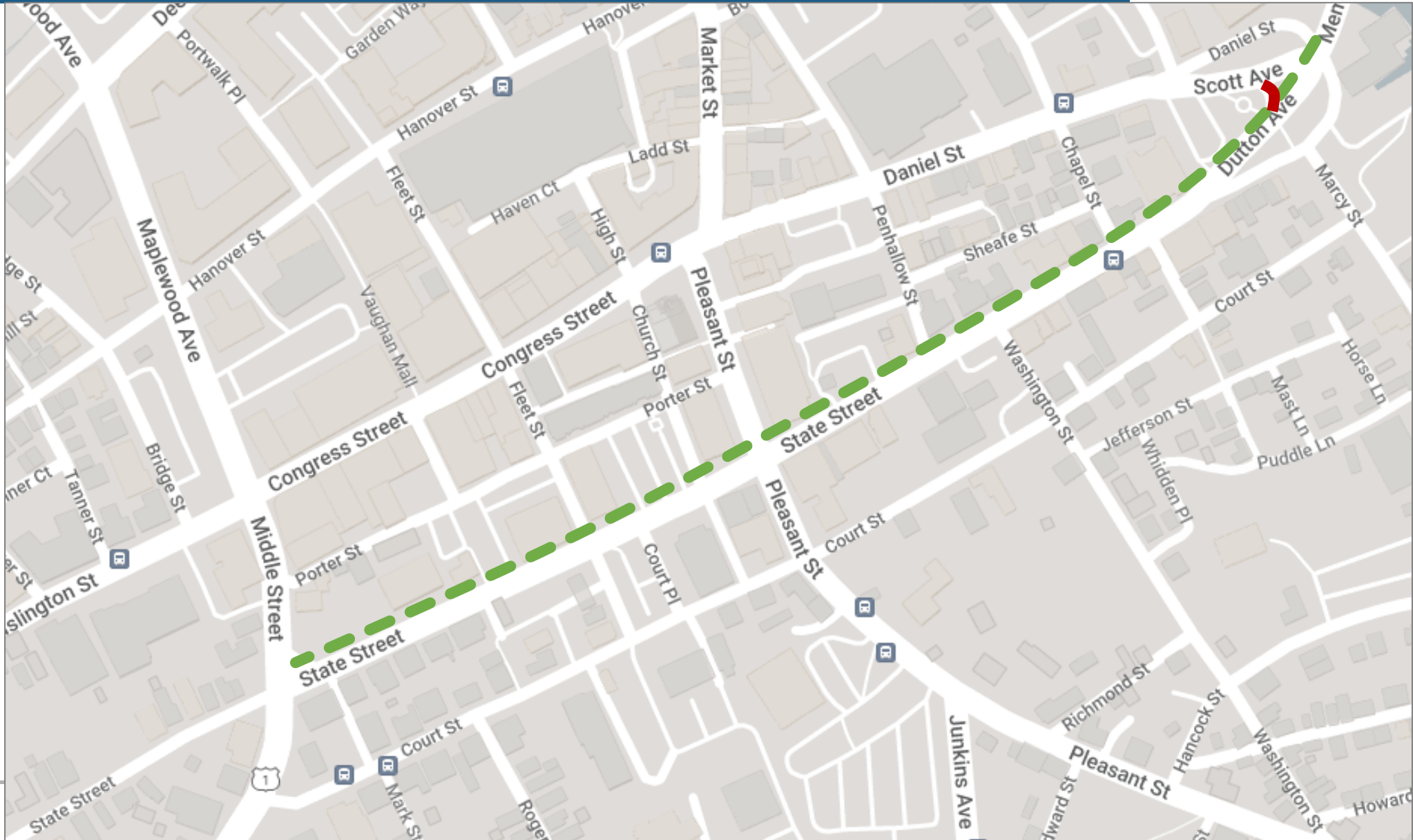
- Lift data obtained from NHDOT in 2017 for original model
- Typical lift length 6-7 minutes
 - Modeled lift duration of 6.5 minutes
- 43% of weekday PM peak hours in spring had a lift
 - Included one lift during the hour



Two-Way State Street Scenarios

June 1, 2023

Two Way Conversion Extents



Model Results

June 1, 2023



Results: Delay

No Drawbridge Lift

- A – C** Minimal Delay
- D** Modest Delay
- E** Significant Delay
- F** Excessive Delay



One-Way State Street

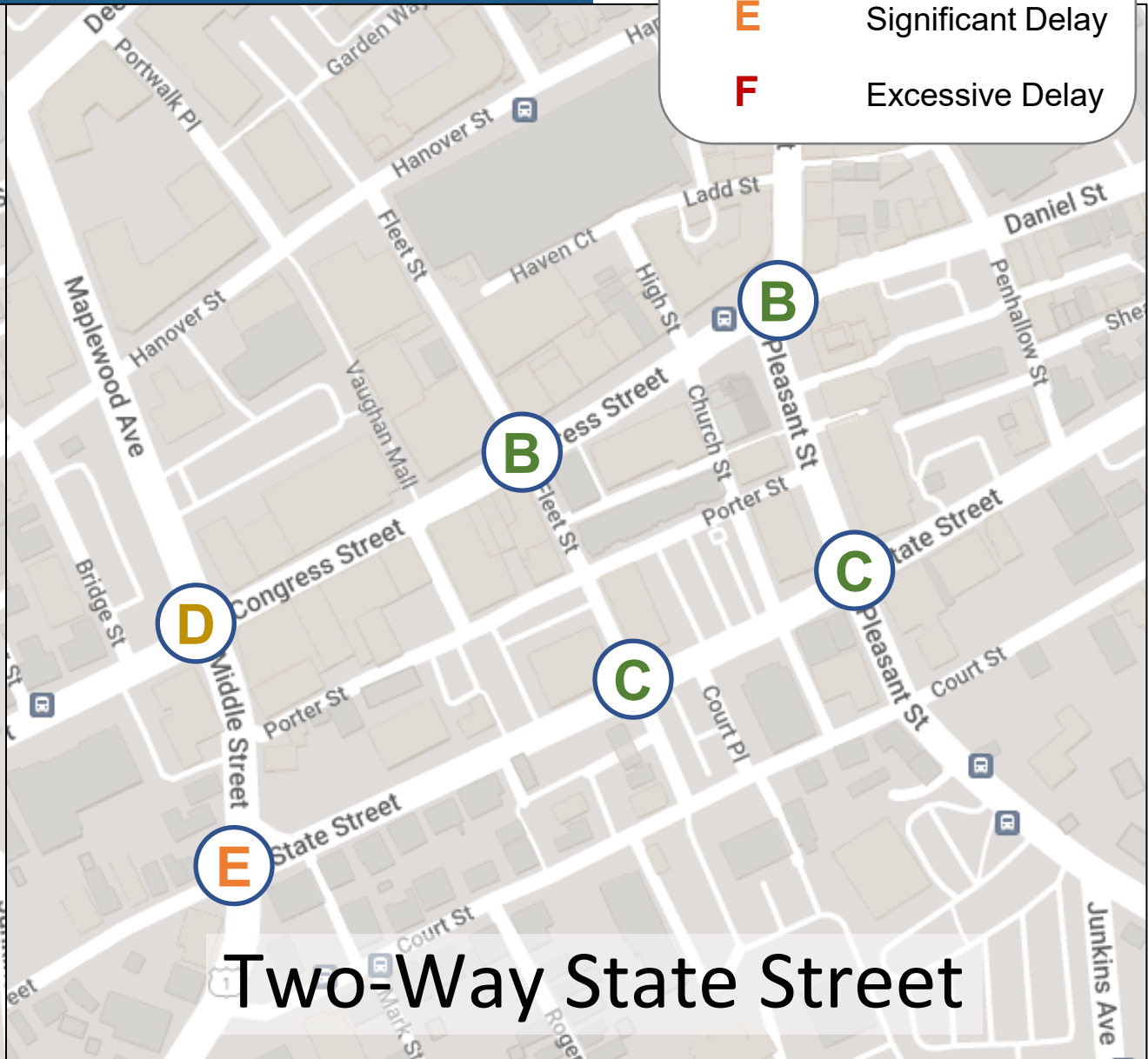


Two-Way State Street

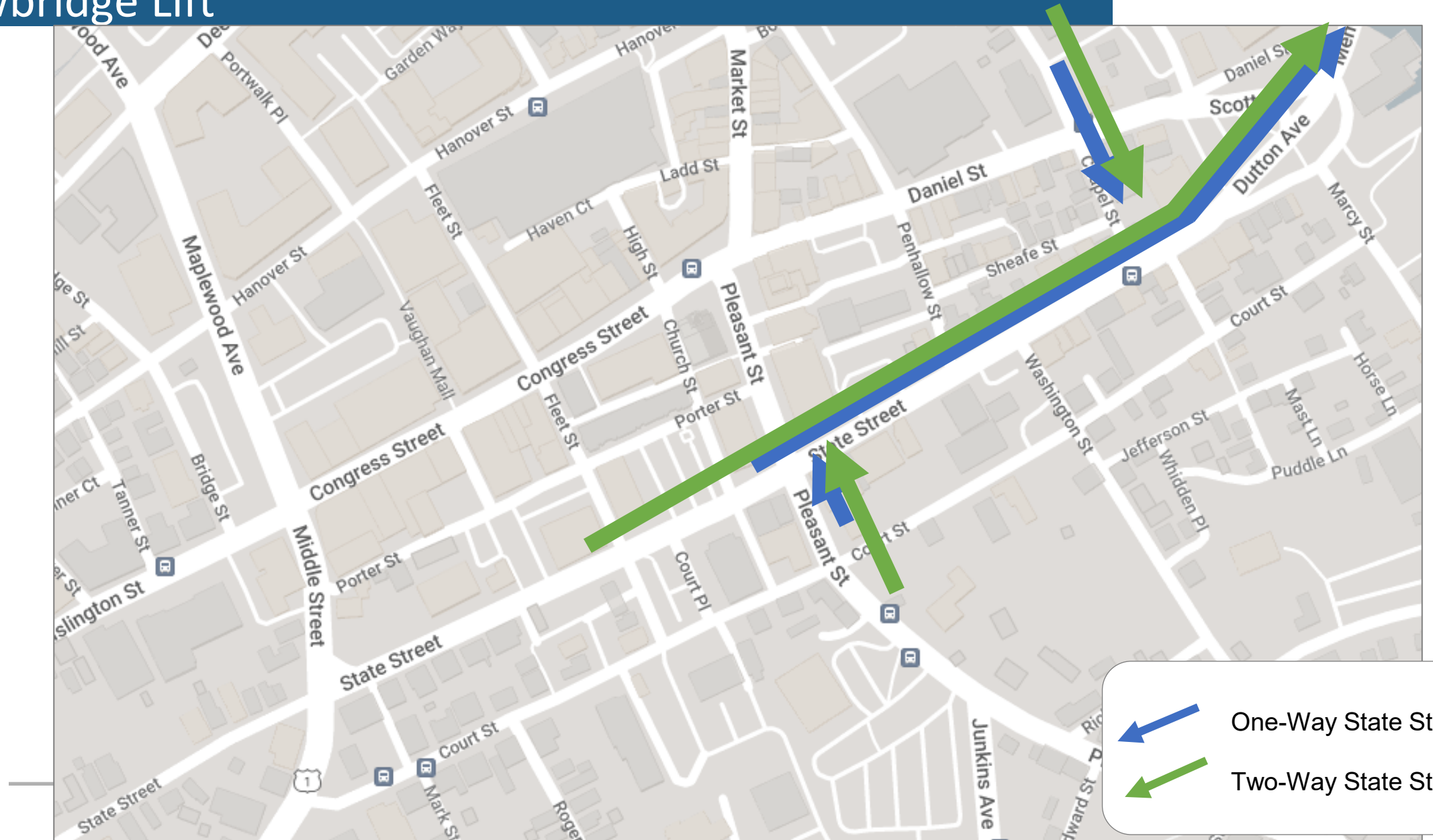
Results: Delay

Drawbridge Lift

- A – C** Minimal Delay
- D** Modest Delay
- E** Significant Delay
- F** Excessive Delay

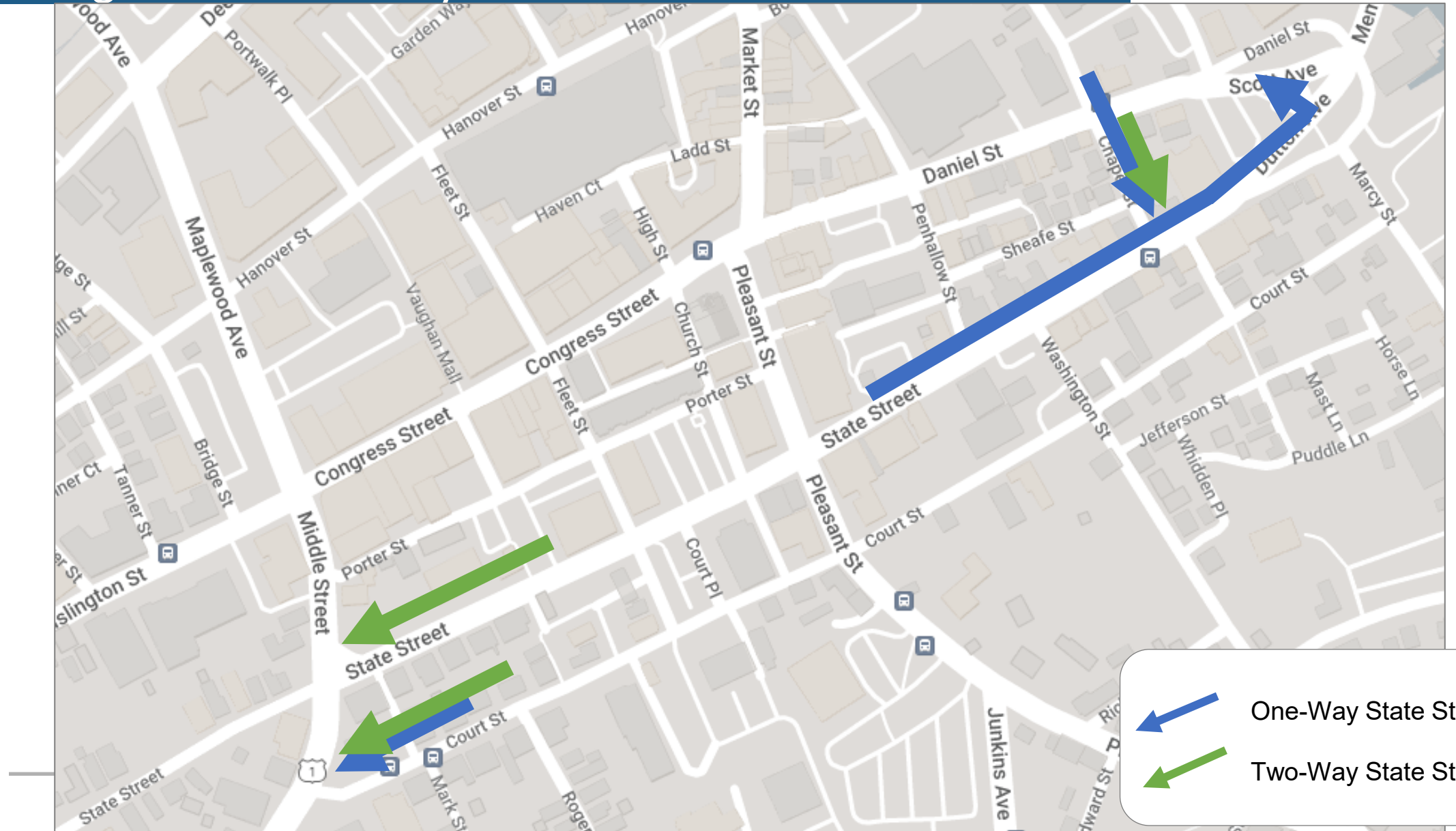


Results: Queuing Drawbridge Lift

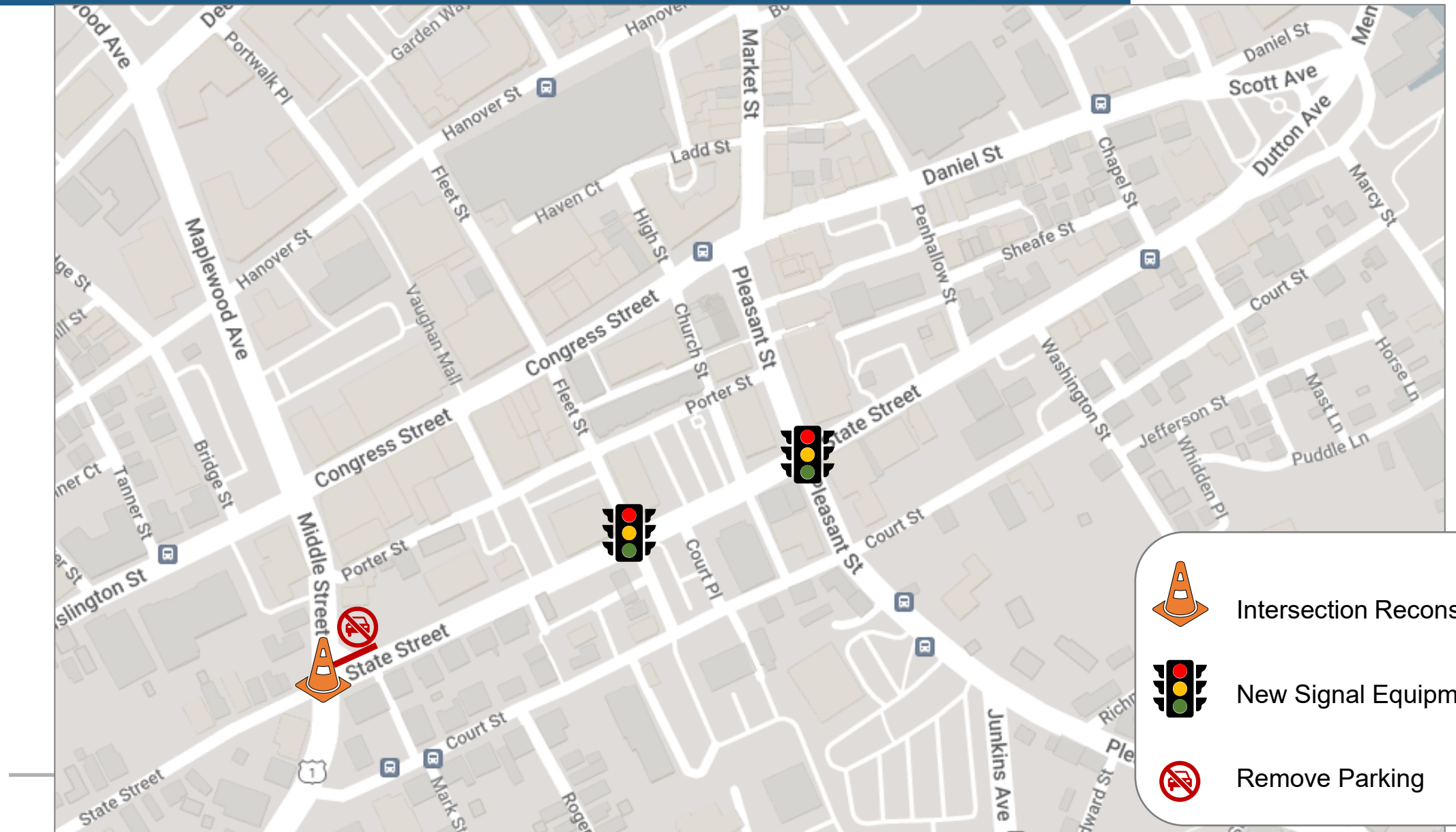


Results: Queuing

Drawbridge Lift: Secondary Queues



Changes Required to Support Conversion



Summary

- Minimal change to on-street parking
 - Possible loss of 1-2 spaces on State Street
- No Drawbridge Lift
 - Slight increase in total delay
 - Slight increase in average travel time across downtown
 - Slight decrease in average vehicle speed
 - Slight increase in vehicle miles travelled (VMT)
- Drawbridge Lift Scenario
 - Improved resilience after Drawbridge lifts
 - Larger increase in delays & travel times