

# Existing Conditions Belmont Circle – Bourne, MA

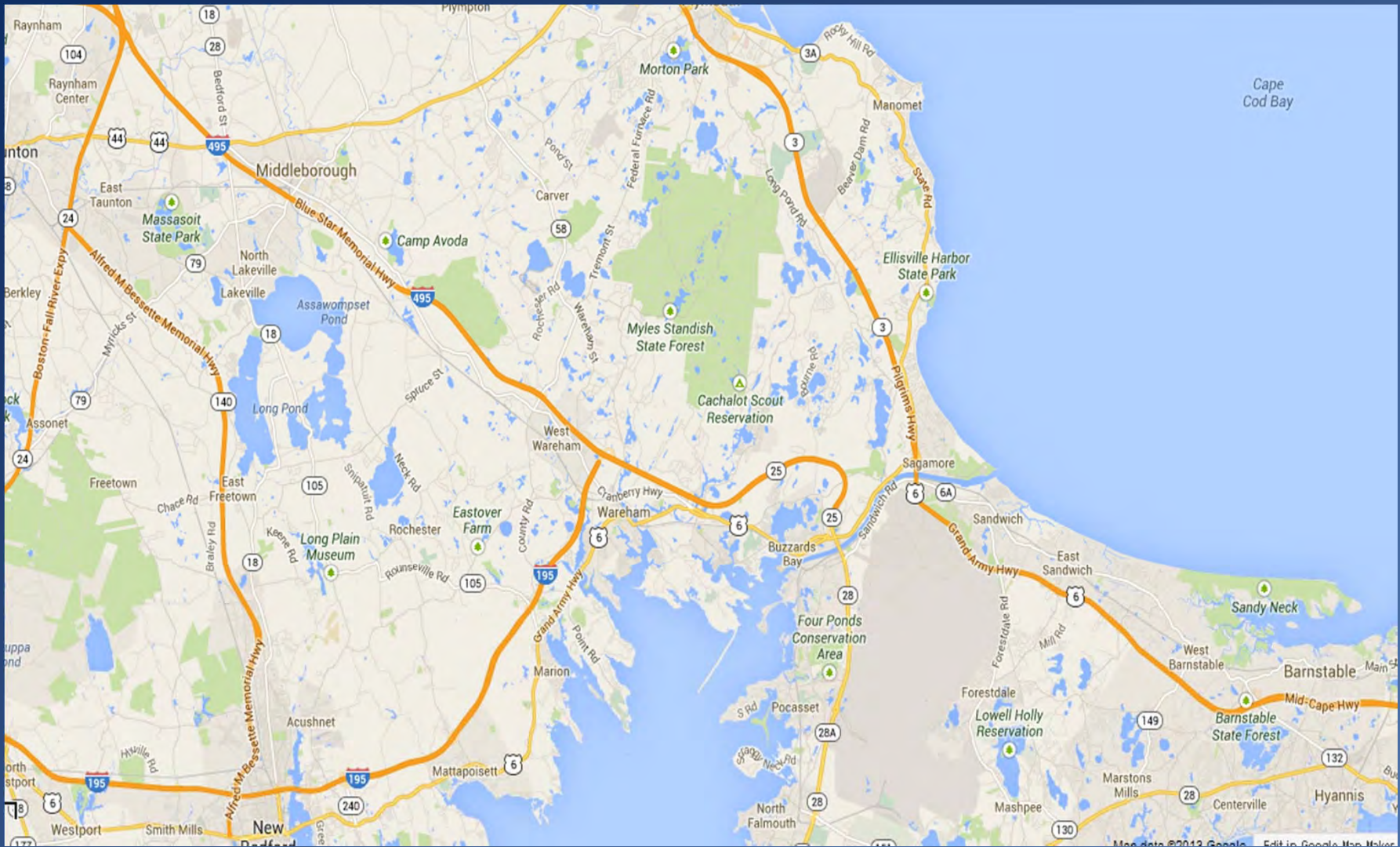


# Speakers

- Pam Haznar, MassDOT
- Ed Hollingshead, Fay Spofford & Thorndike
- Heather Ostertog, Fay, Spofford & Thorndike

# Goals for Group

- Local Knowledge
- Work through details with us
- Communicate study status to others



Source: Google Maps



# Belmont Circle Improvements





# Study Overview

# Understanding What the Problems Are

- Existing 2013 Conditions
  - operations/crashes, environmental
- Future 2033 No-Build Conditions
  - operations/crashes, known development

# Understanding What We Can Do to Improve Problems

- Alternative Evaluation
  - near term - geometry, signals
  - long term - redesign, grade separation
- Impacts
  - Natural Resources
  - Access
  - Costs
  - Constructability
- Meet Purpose and Need



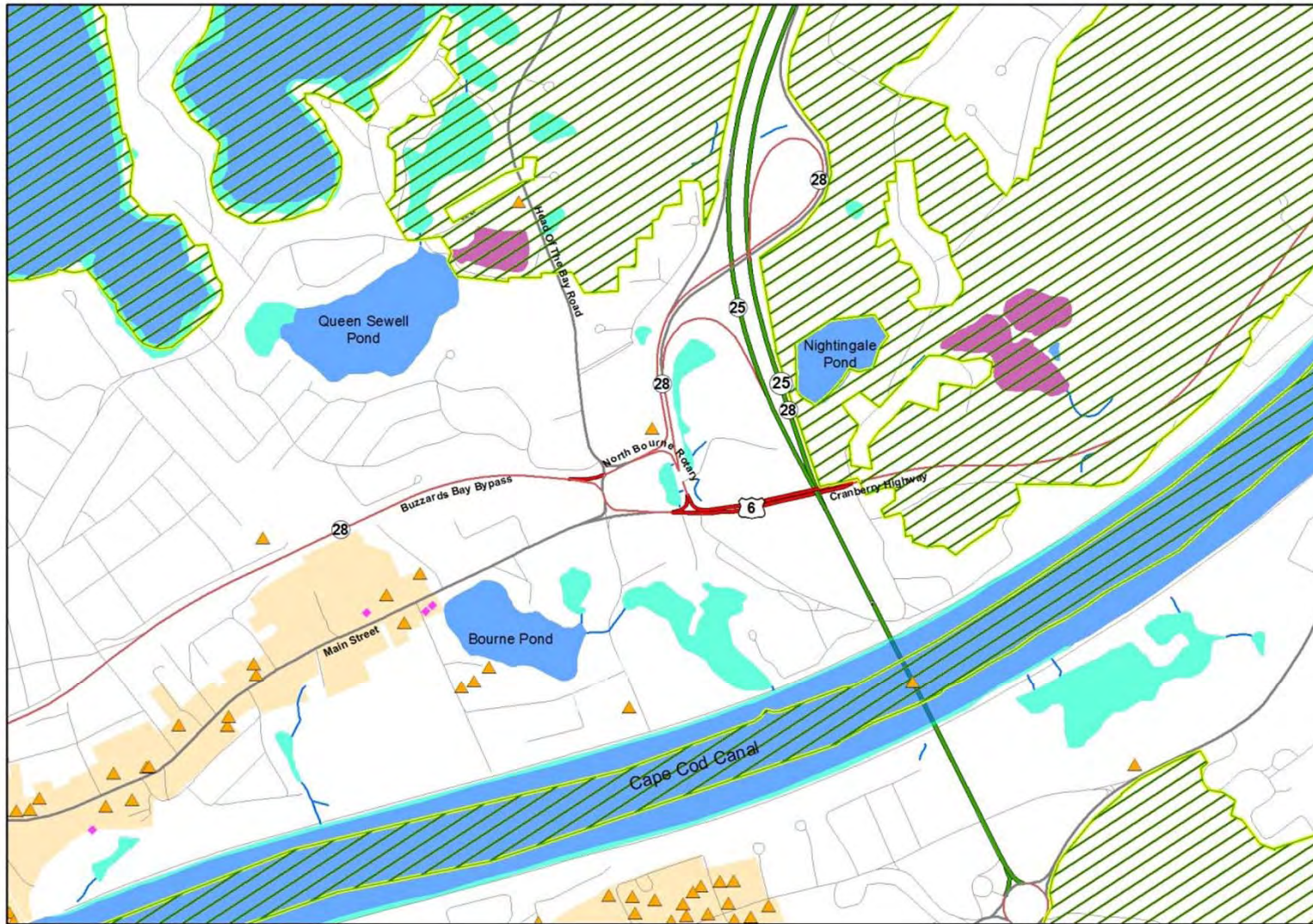
# Study Products

- Draft Report
- Final Report

# Purpose and Need

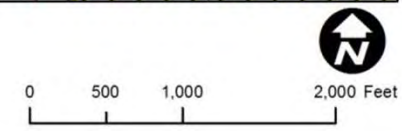
- Improve travel to and within Bourne by minimizing delays encountered in traversing the Circle
- Reduce crashes in Circle
- Improve multimodal travel through Circle
- Accommodate projected growth in surrounding area
- Improve access to abutting property

# Existing Conditions

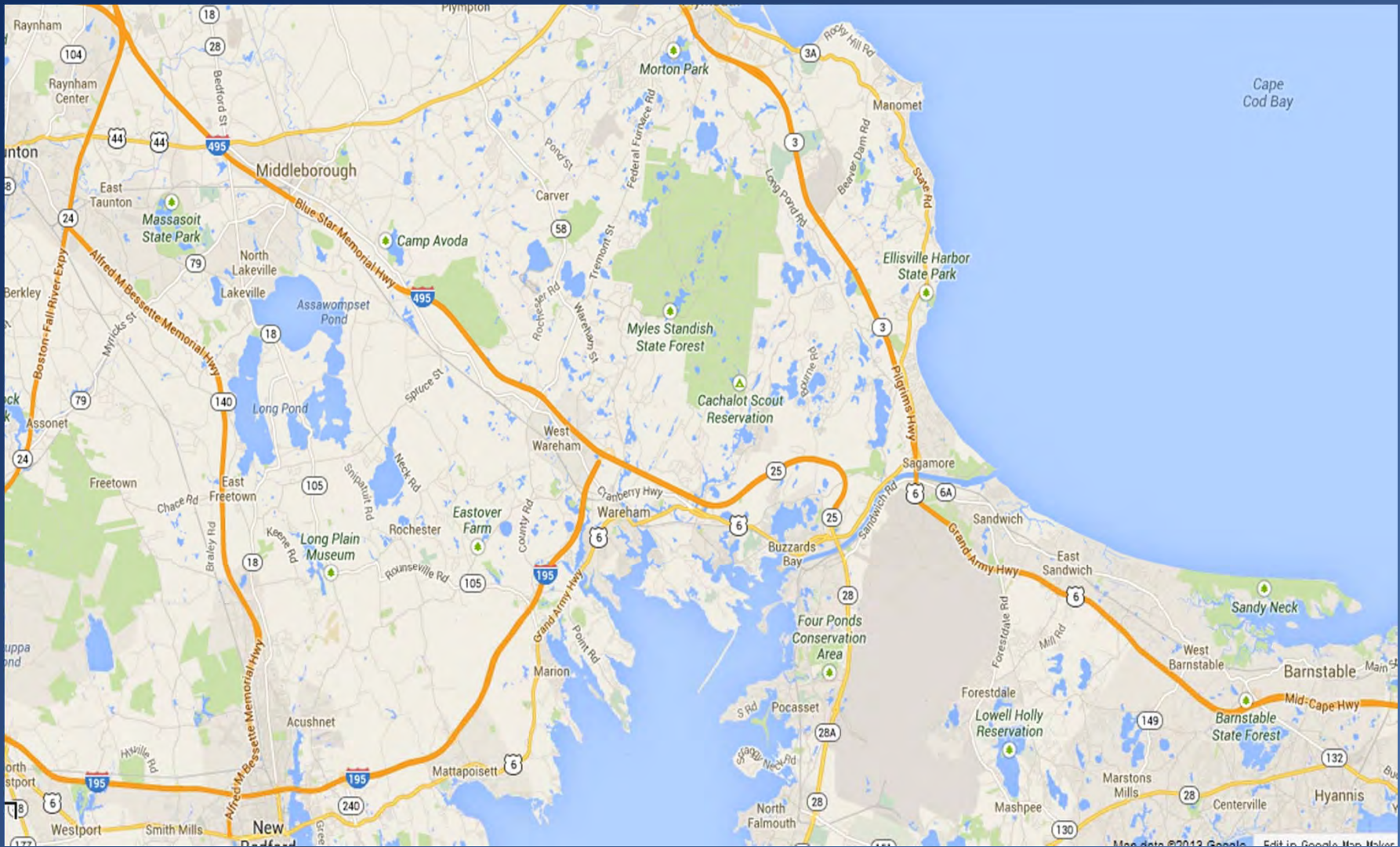


**Legend**

- DEP Wetland
- Cranberry Bog
- Open Water
- Hydrologic Connection
- AUL Site
- MGL c. 21E - Tier II Site
- NHESP Estimated Habitat of Rare Wildlife
- NHESP Priority Habitat of Rare Species
- Identified Historic Area
- Identified Historic Site







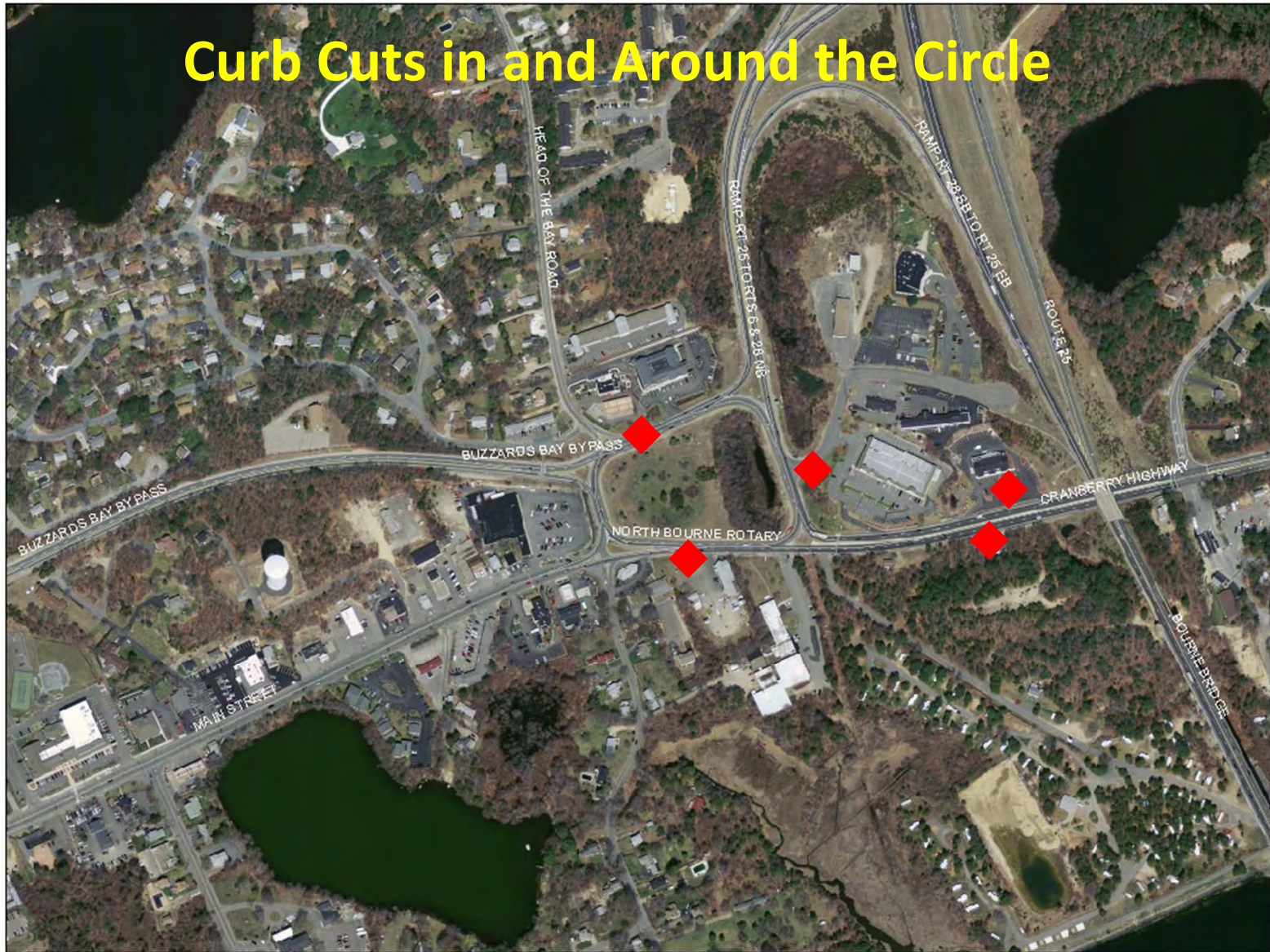
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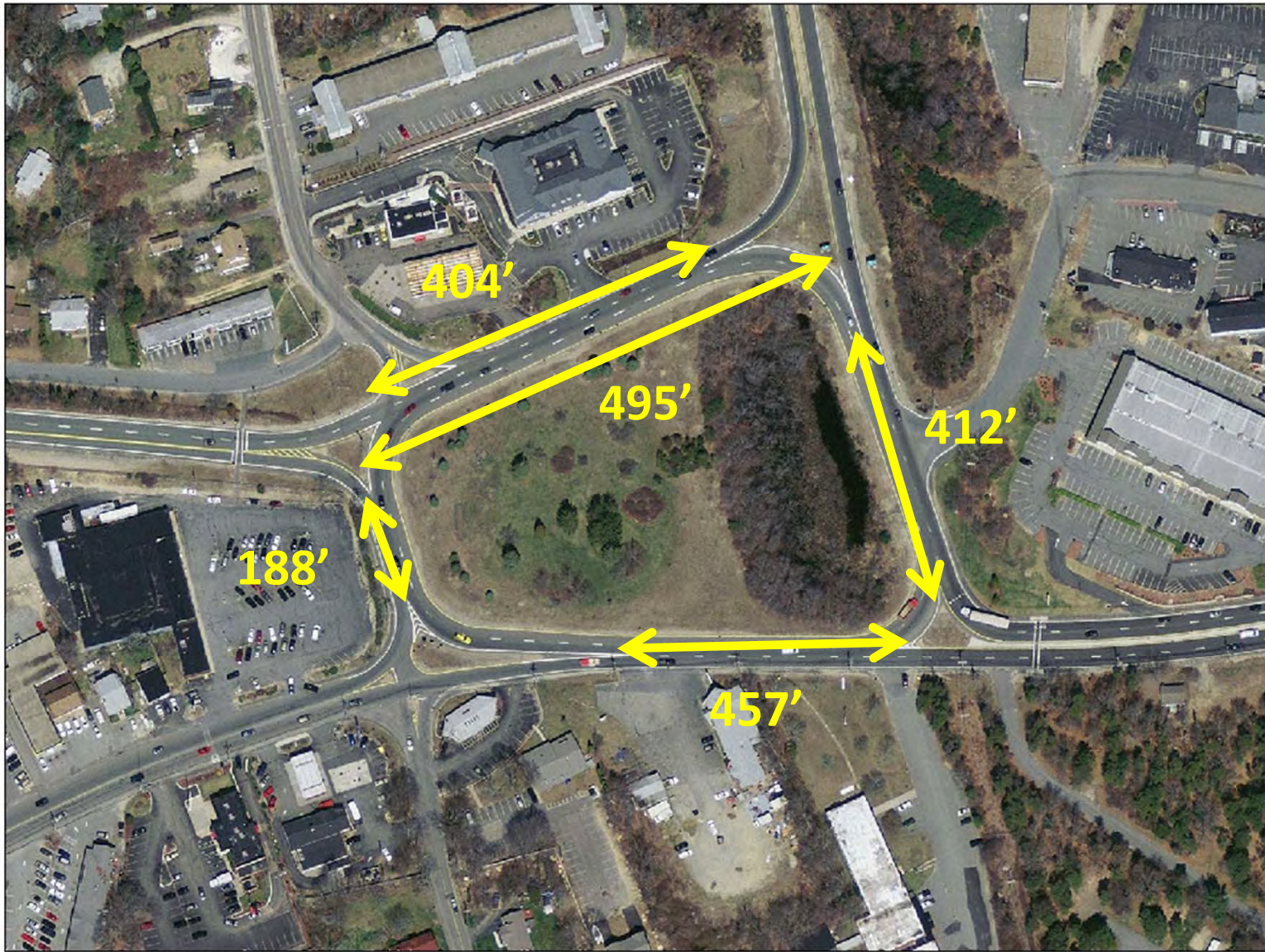


# Belmont Circle Improvements



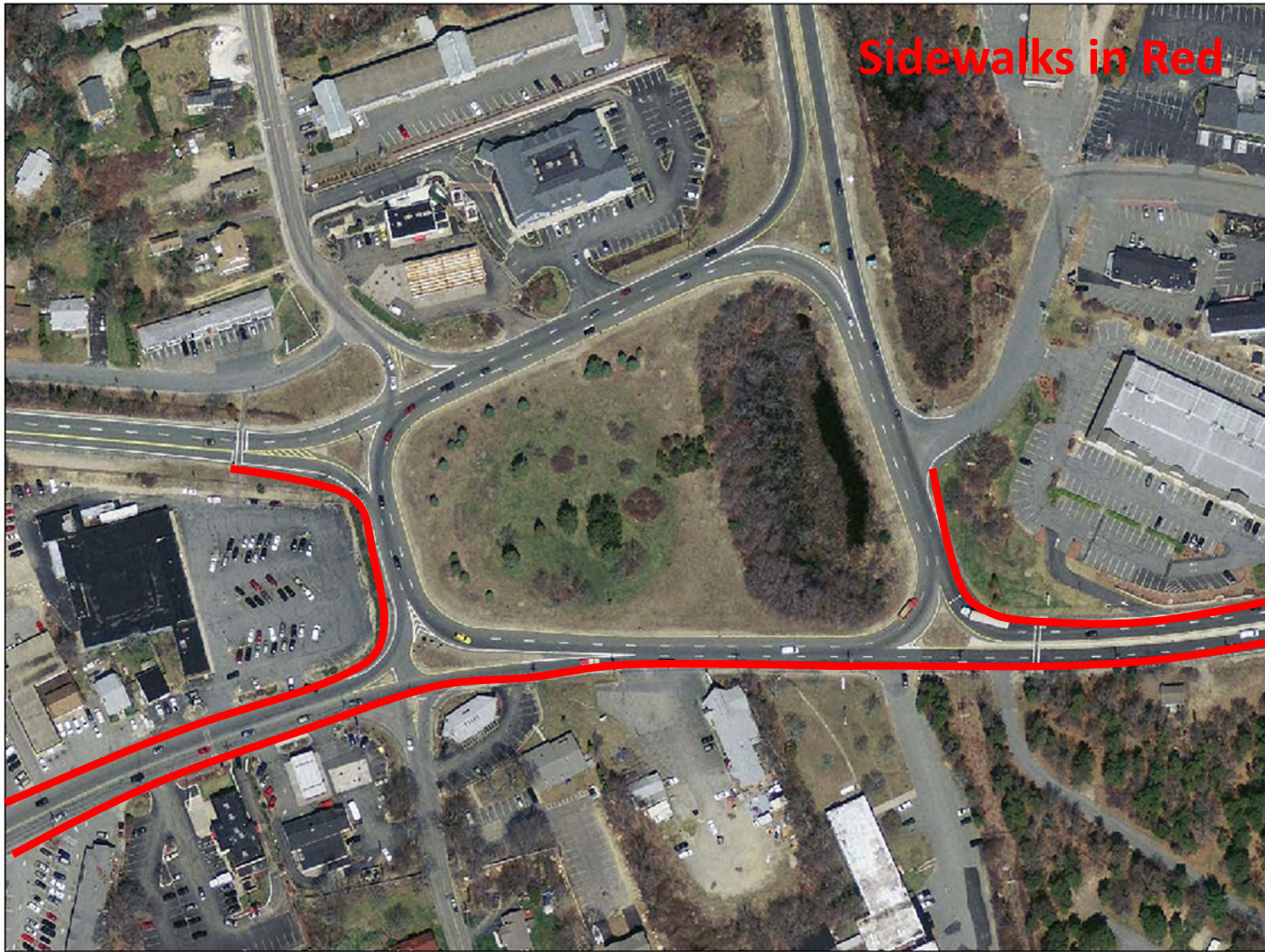
# Curb Cuts in and Around the Circle







# Pedestrian and Bicycle





Crosswalk in White









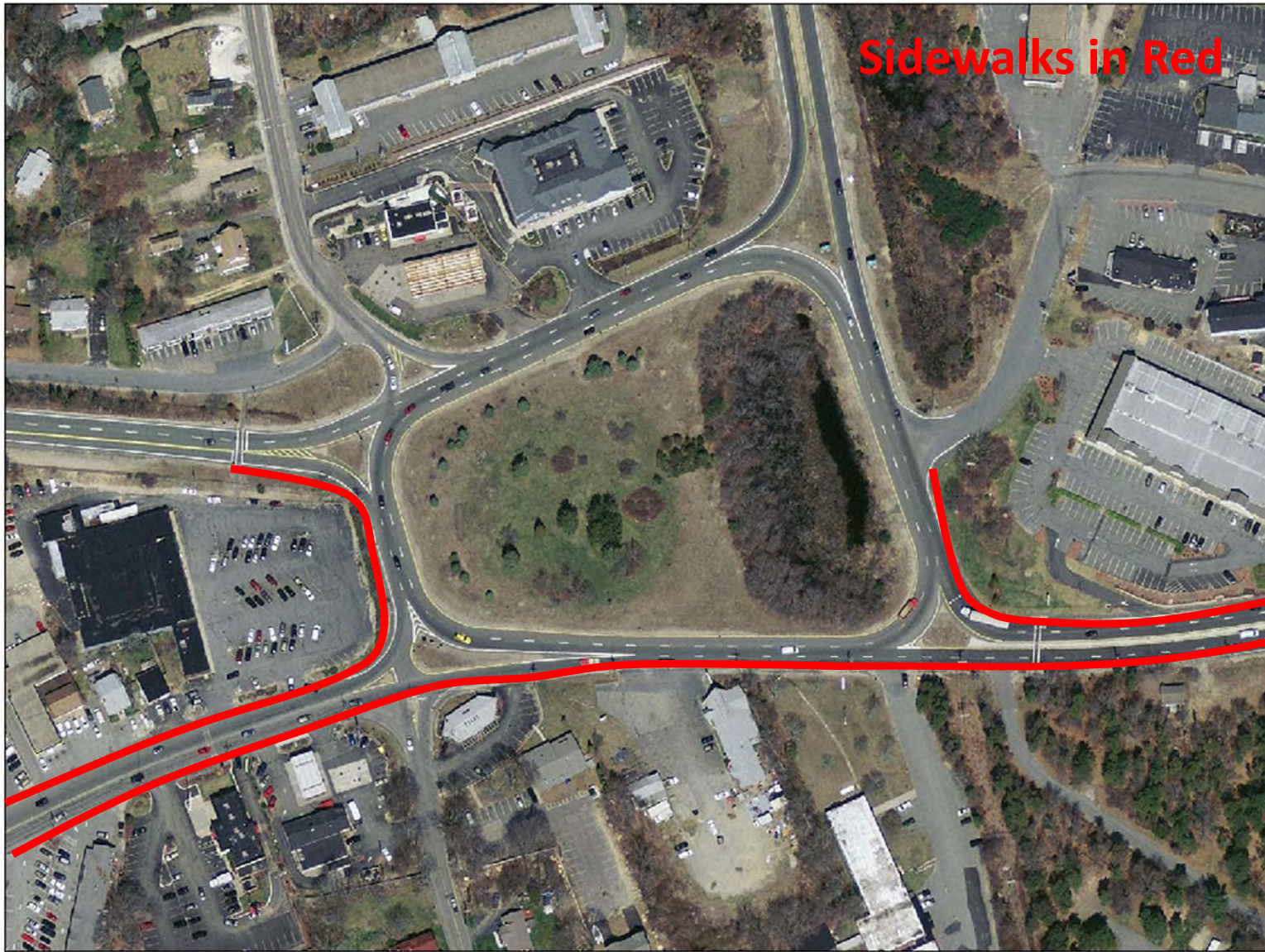
# Existing Area Bicycle Facilities

- Off-Road: Cape Cod Canal
- On-Road: Head of the Bay Road
- On-Road: Shore, Sandwich and County Roads











Source: Cape Cod Commission

# August Weekday Peak Hour Traffic Volumes

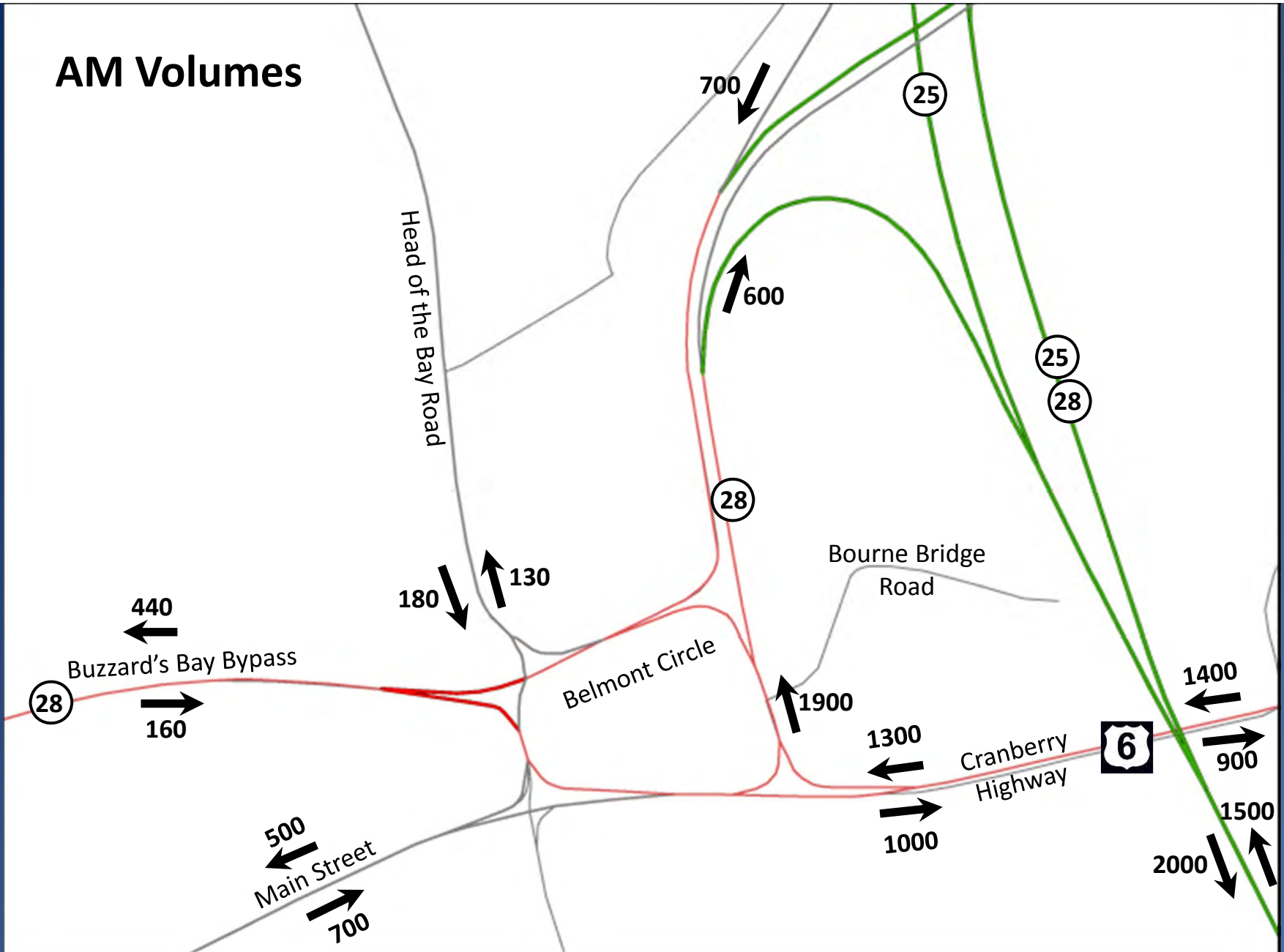
# Traffic Counts

- August – 7 days/24 hours a day



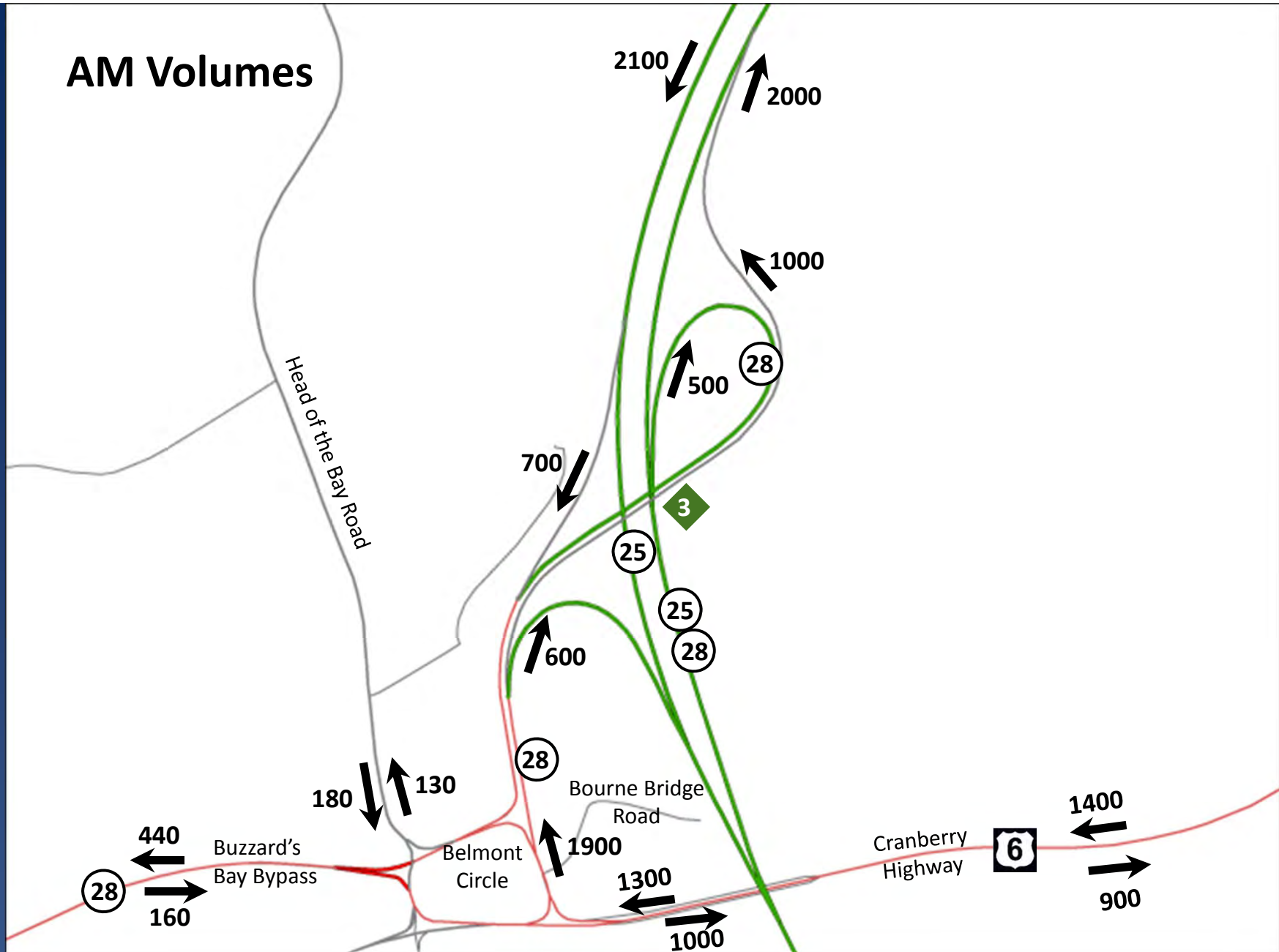
ATR Locations

# AM Volumes

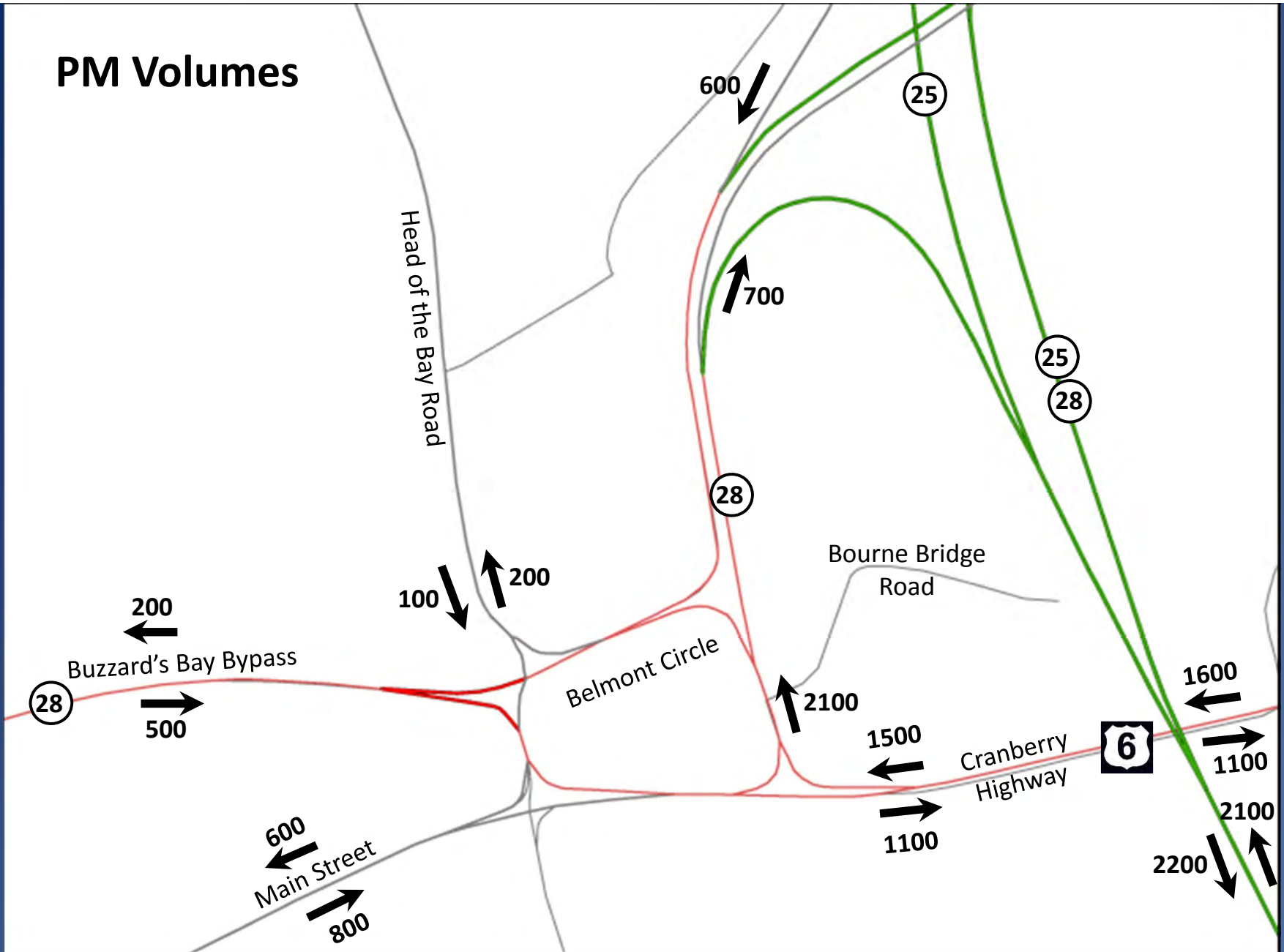




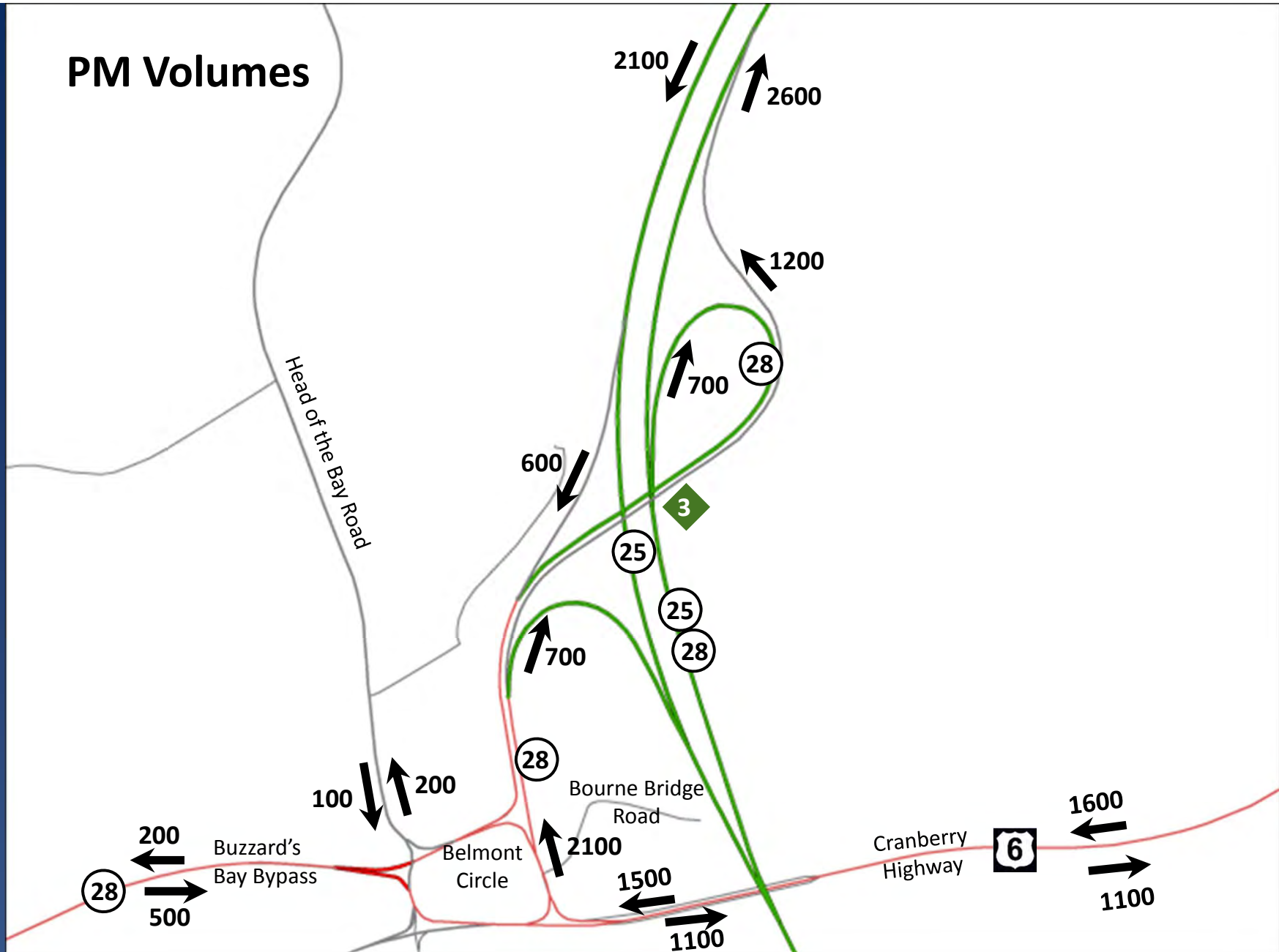
# AM Volumes



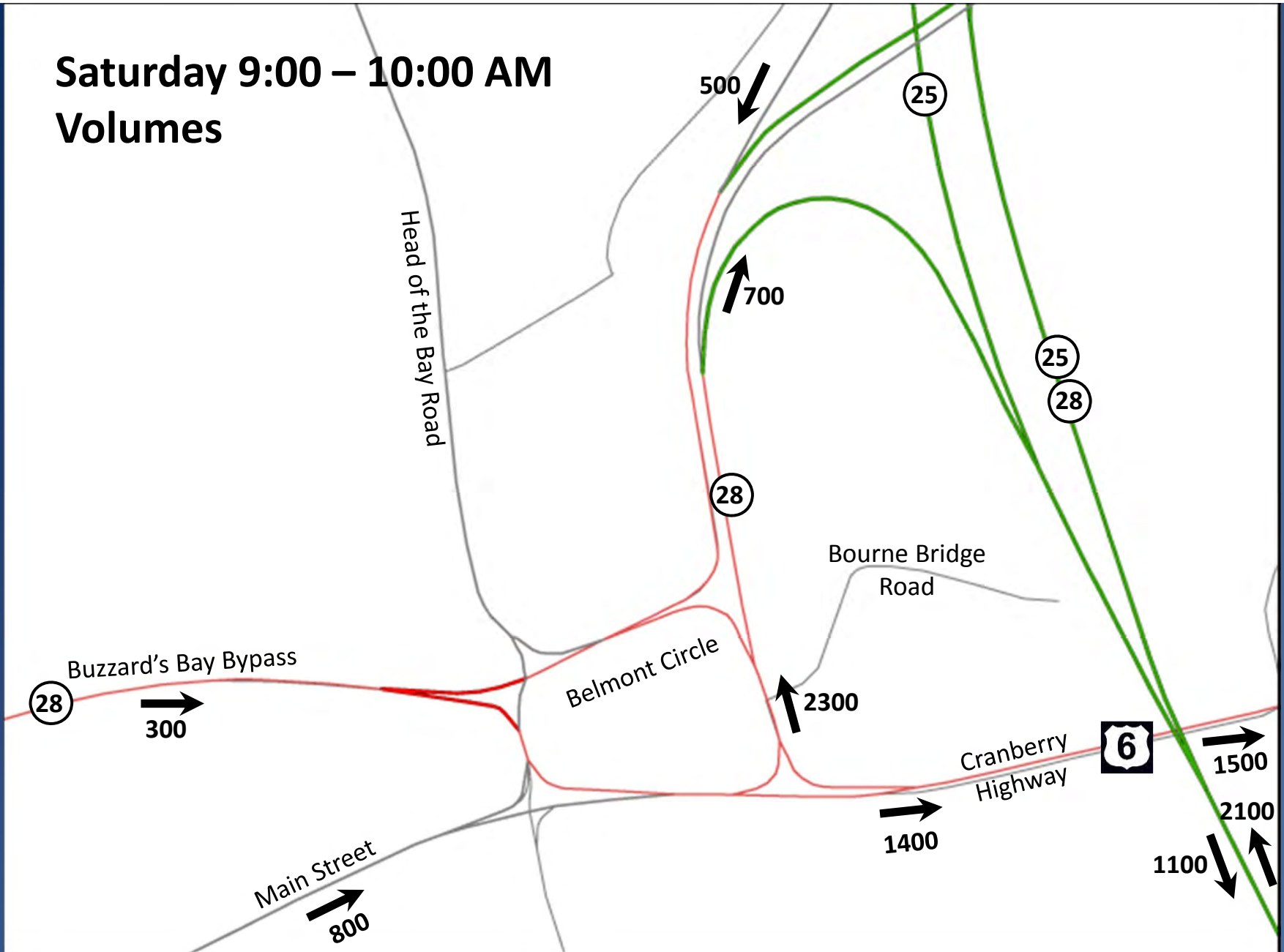
# PM Volumes



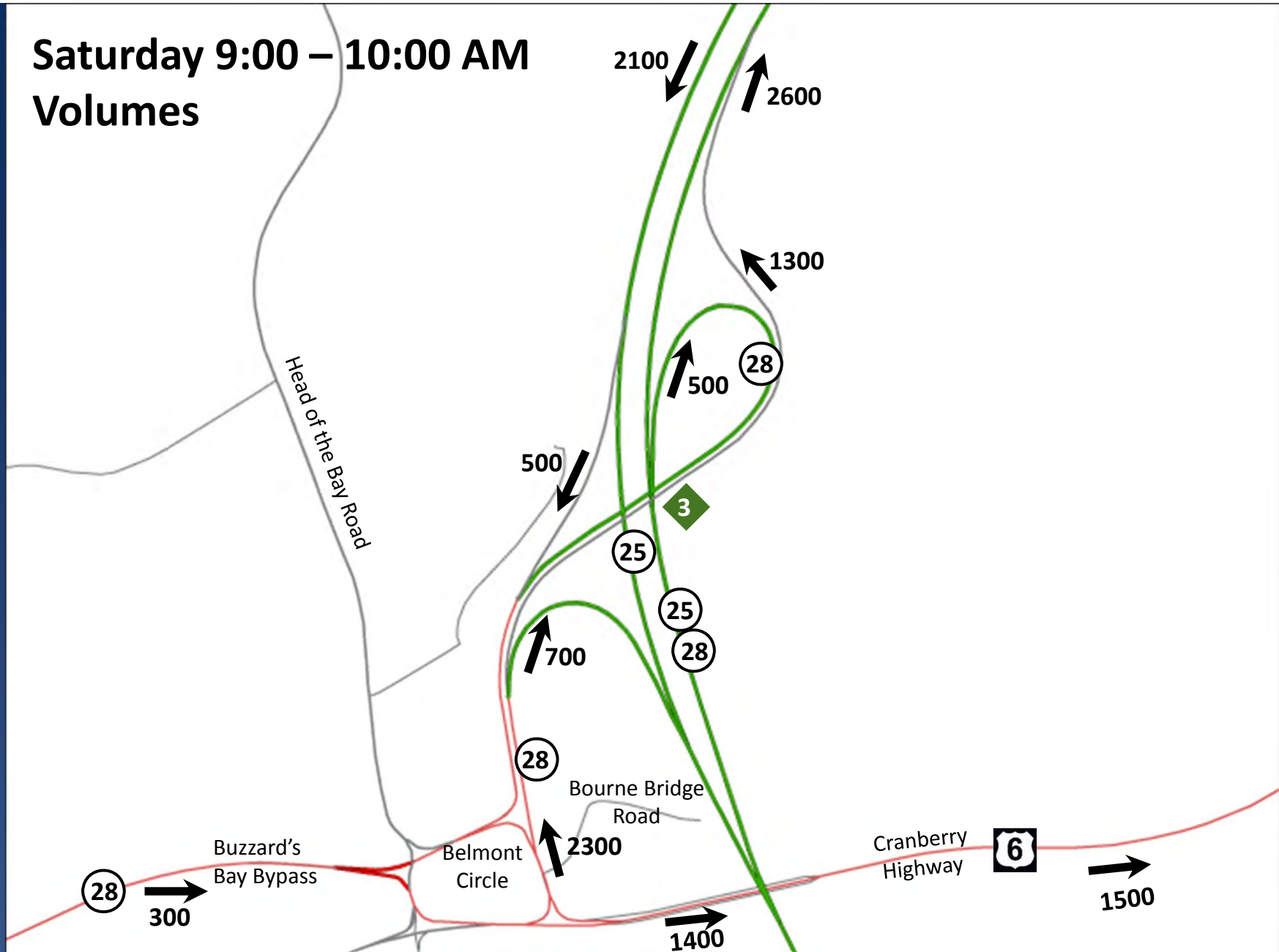
# PM Volumes

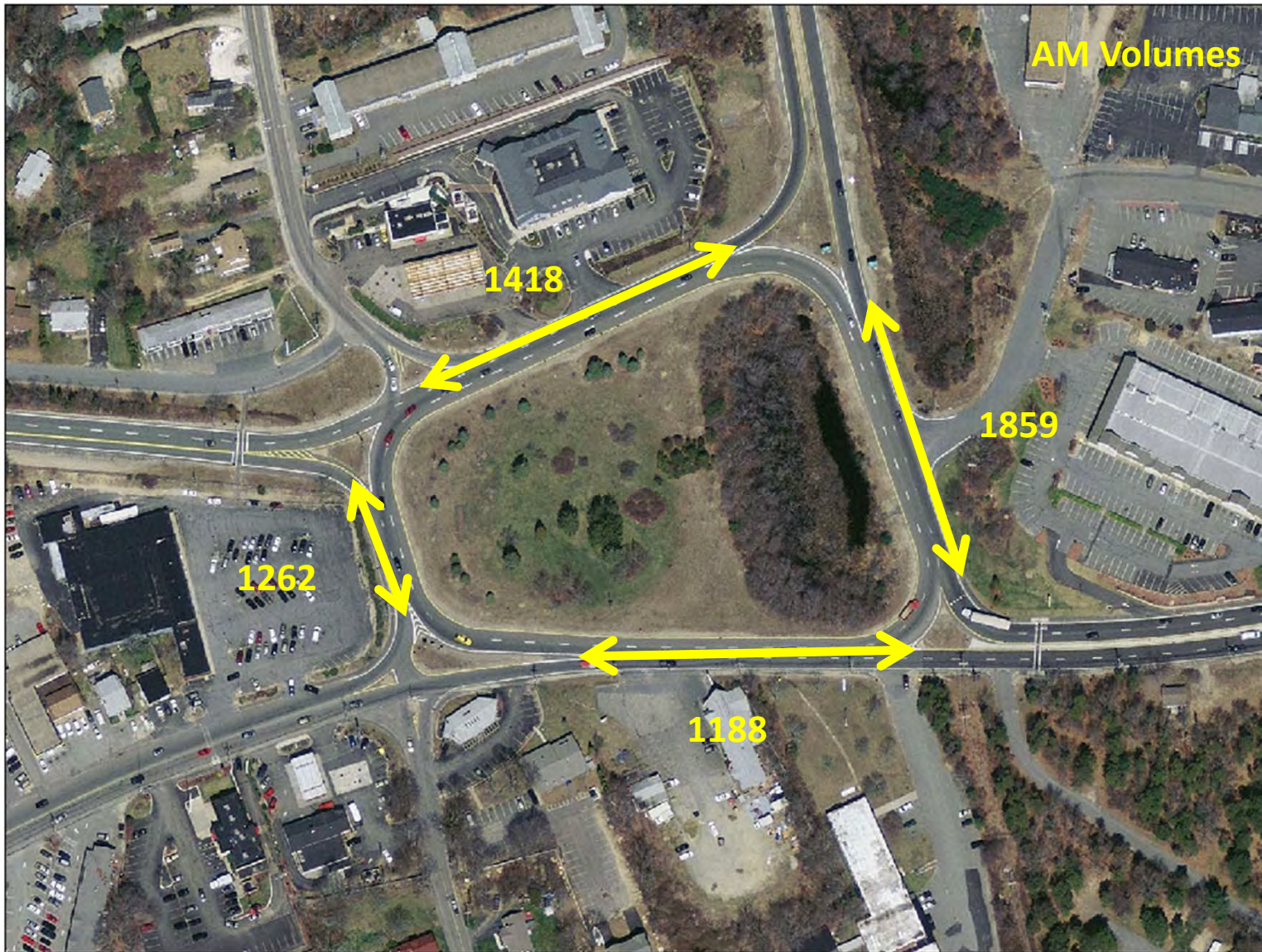


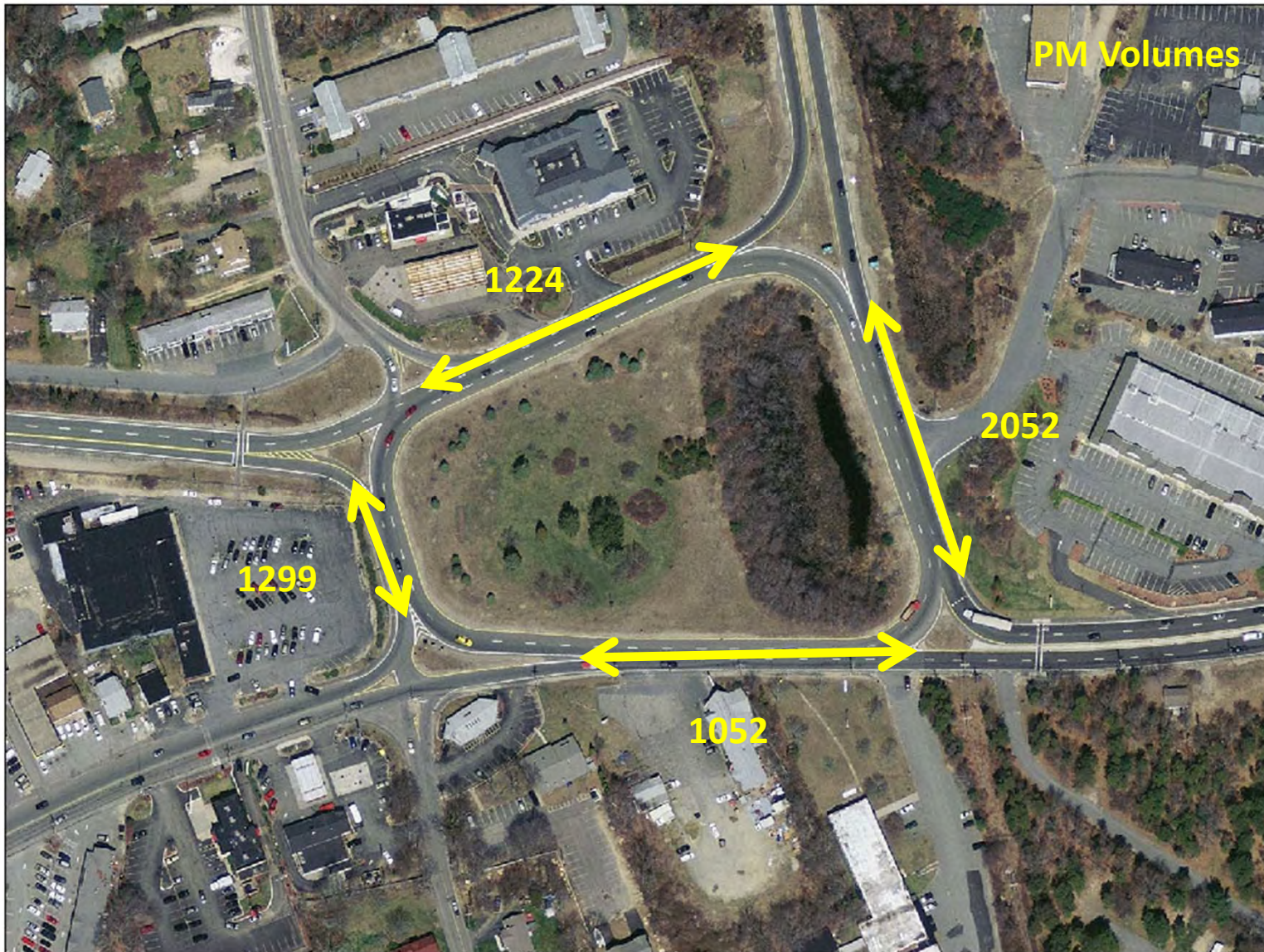
# Saturday 9:00 – 10:00 AM Volumes

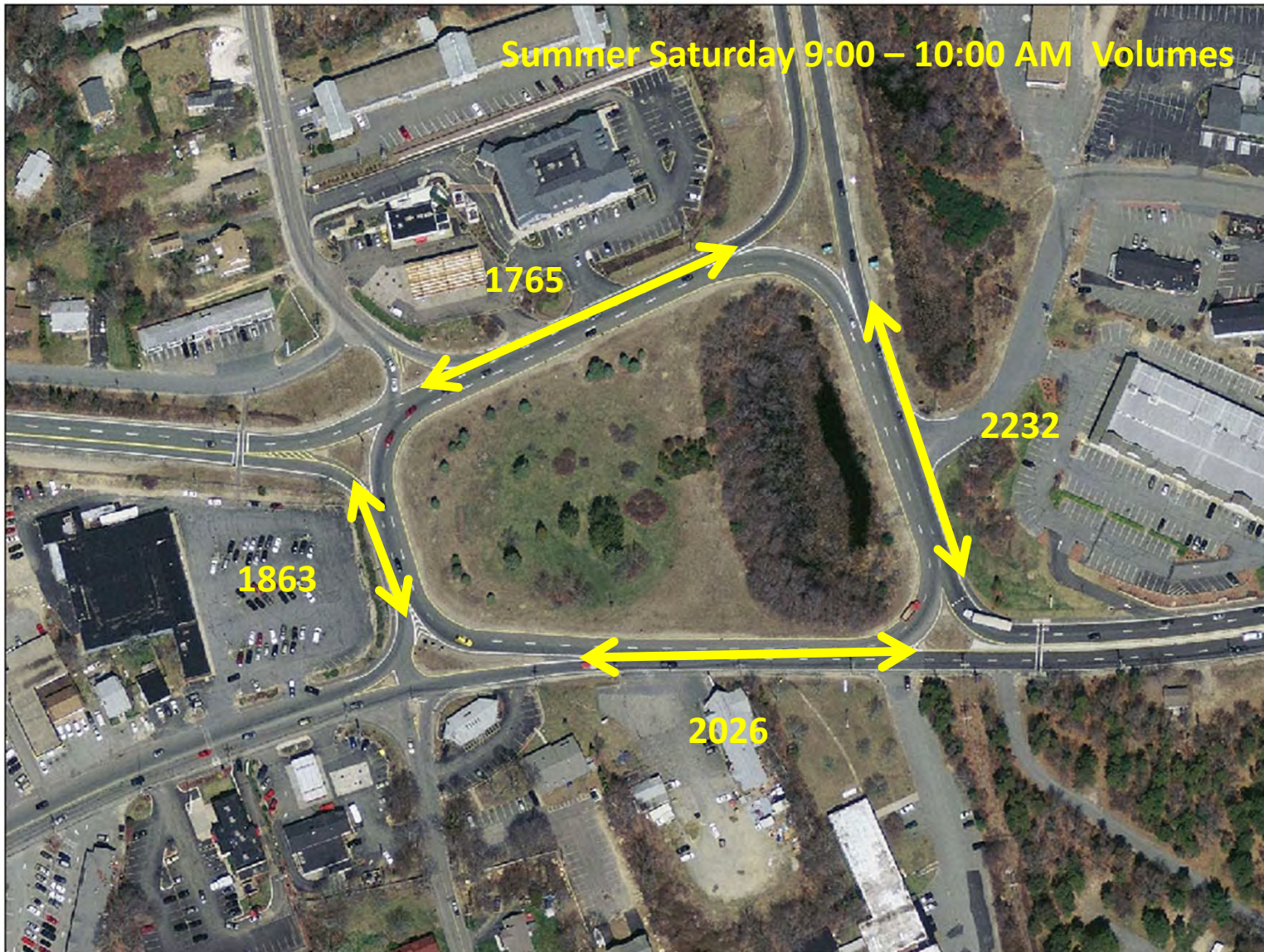


# Saturday 9:00 – 10:00 AM Volumes











# Level of Service

# Level of Service

- Expression or ranking of traffic operations.  
Report card LOS A – LOS F
- Always based on AM and PM peak hour traffic volumes
- Peak hour is hour with highest traffic volumes
- Never based on daily traffic volumes

# Operational Conditions

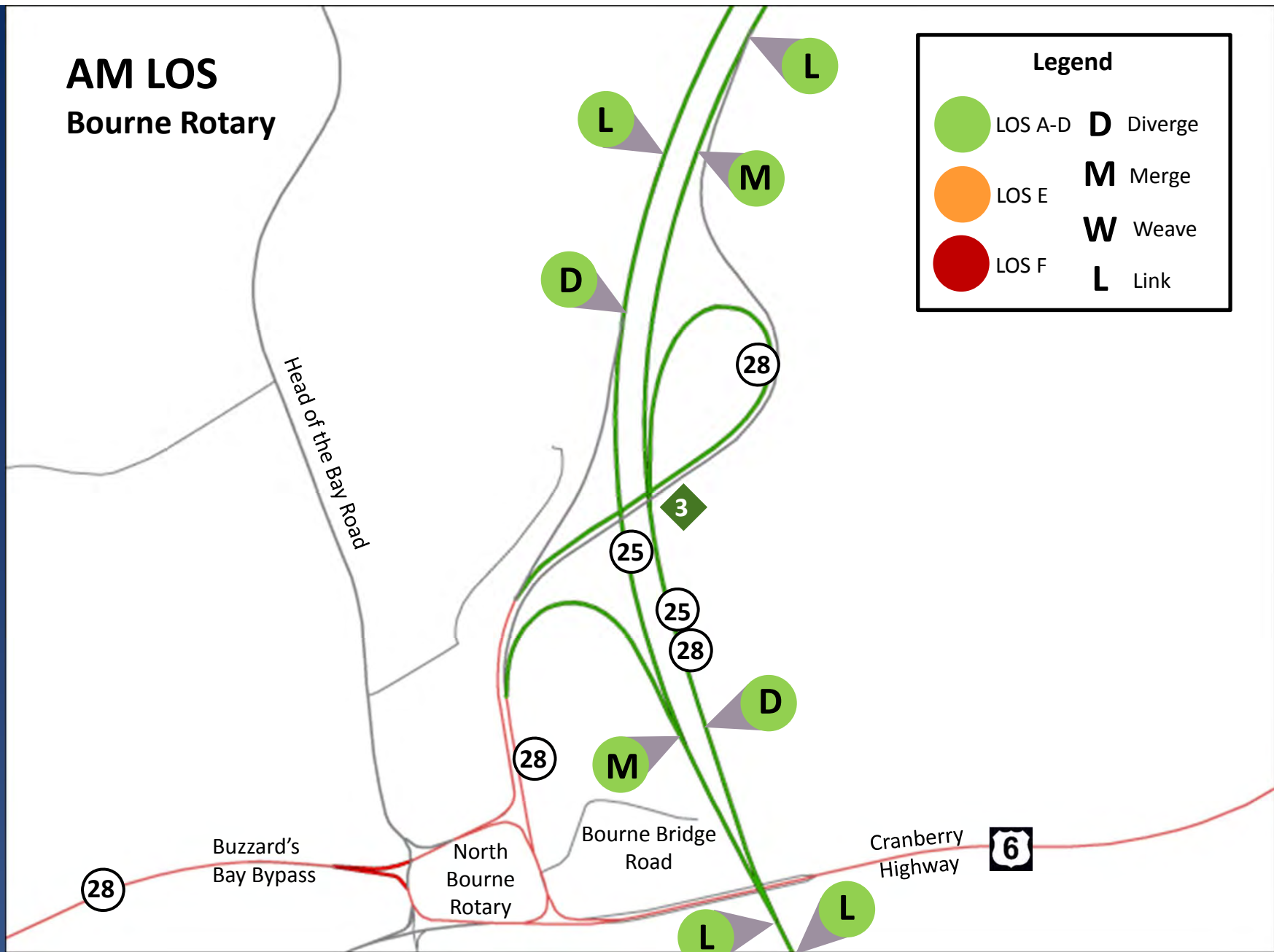
- Operations within the Circle
  - Conflicting turning movements
- Intersection of Local streets
  - Conflicting turning movements at signalized location
- Travel lanes on limited access roads
  - Density of traffic inhibits freedom to maneuver

# Freeway Operations

# AM LOS

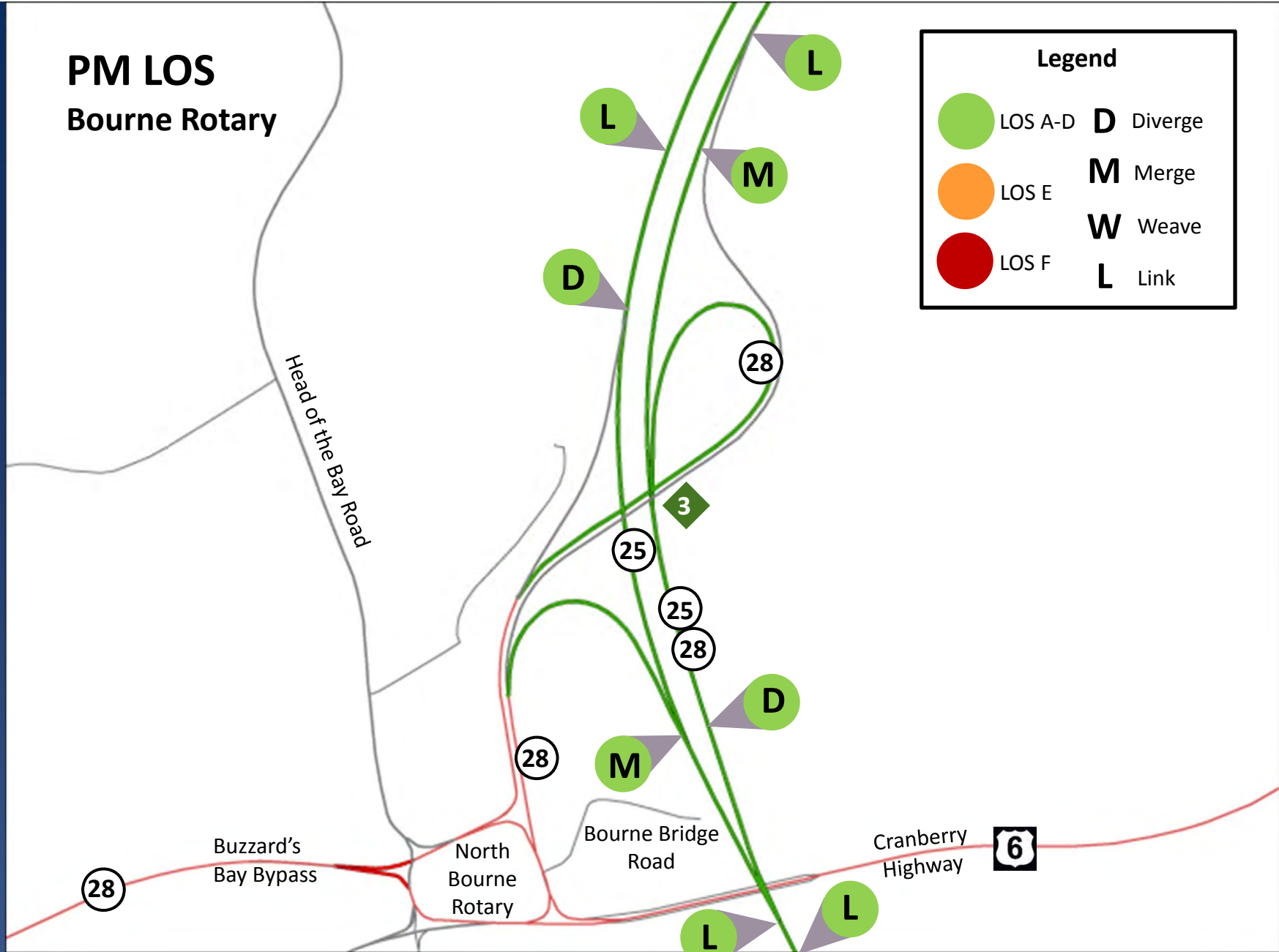
## Bourne Rotary

Legend	
<span style="color: green;">●</span> LOS A-D	<b>D</b> Diverge
<span style="color: orange;">●</span> LOS E	<b>M</b> Merge
<span style="color: red;">●</span> LOS F	<b>W</b> Weave
	<b>L</b> Link



# PM LOS Bourne Rotary

Legend	
<span style="color: green;">●</span> LOS A-D	<b>D</b> Diverge
<span style="color: orange;">●</span> LOS E	<b>M</b> Merge
<span style="color: red;">●</span> LOS F	<b>W</b> Weave
	<b>L</b> Link



How do we determine the origin and destinations of the vehicles?

# License Plates vs. BlueTOADS





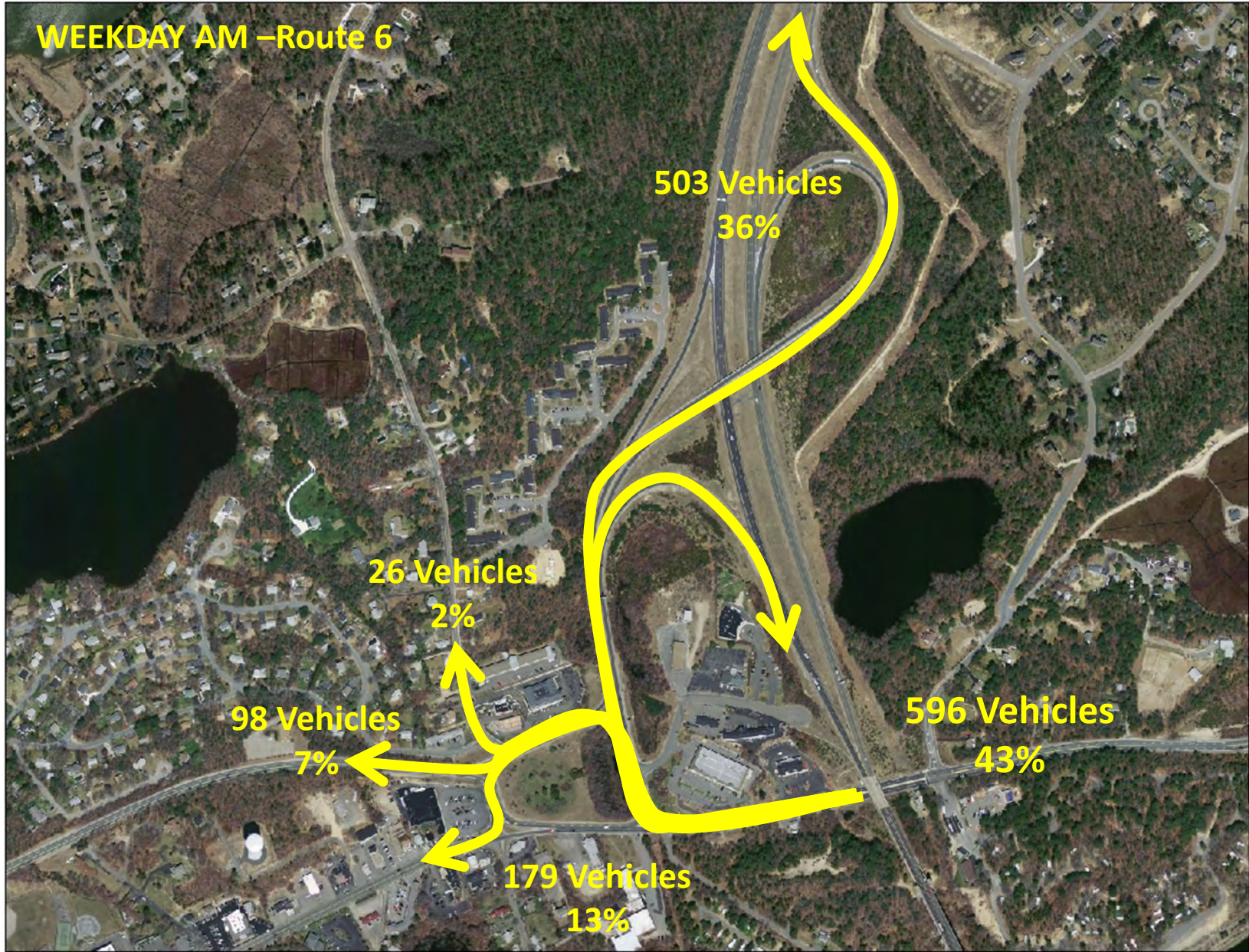


BlueTOAD Locations

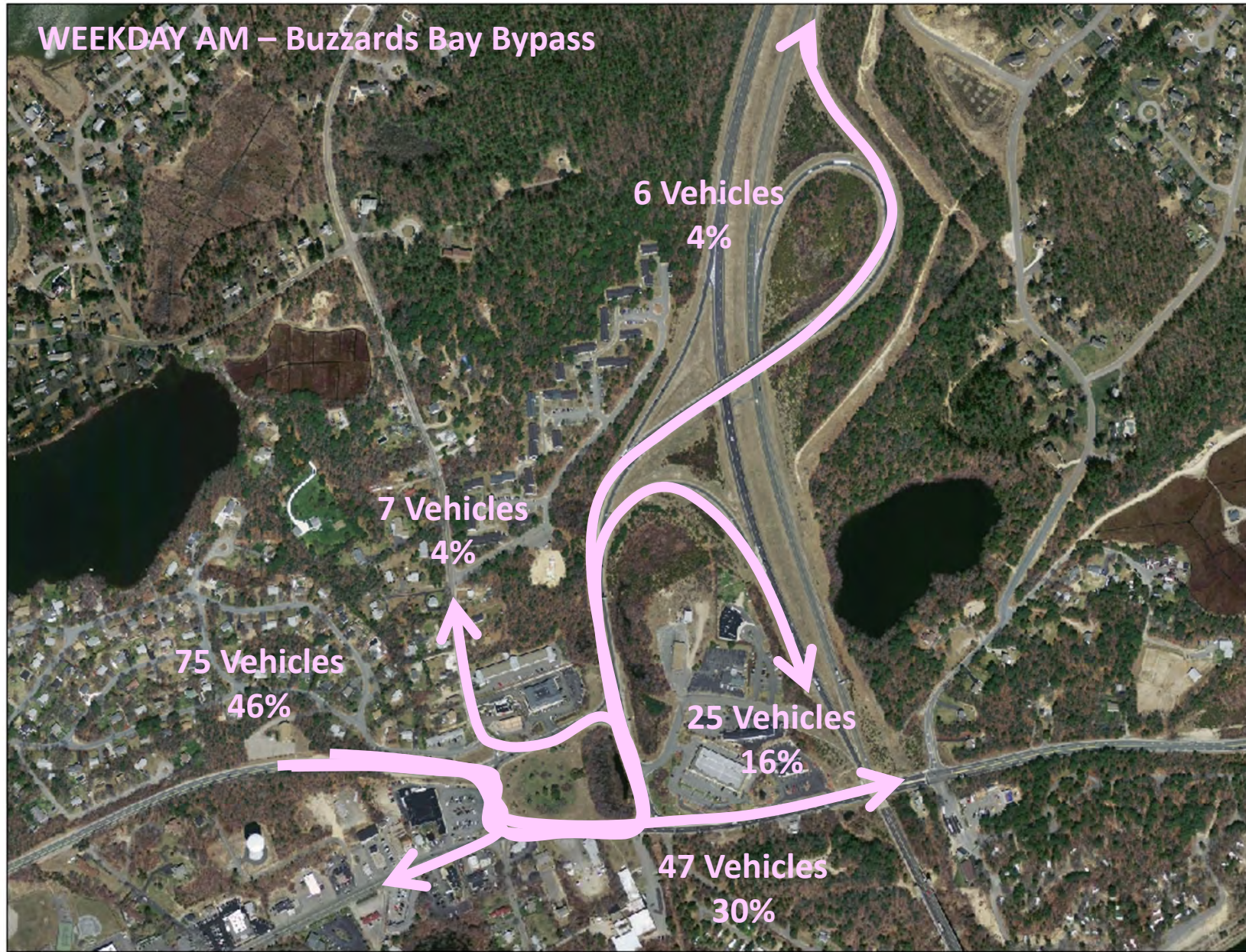
# Traffic Simulations - VISSIM

# AM Traffic Distribution

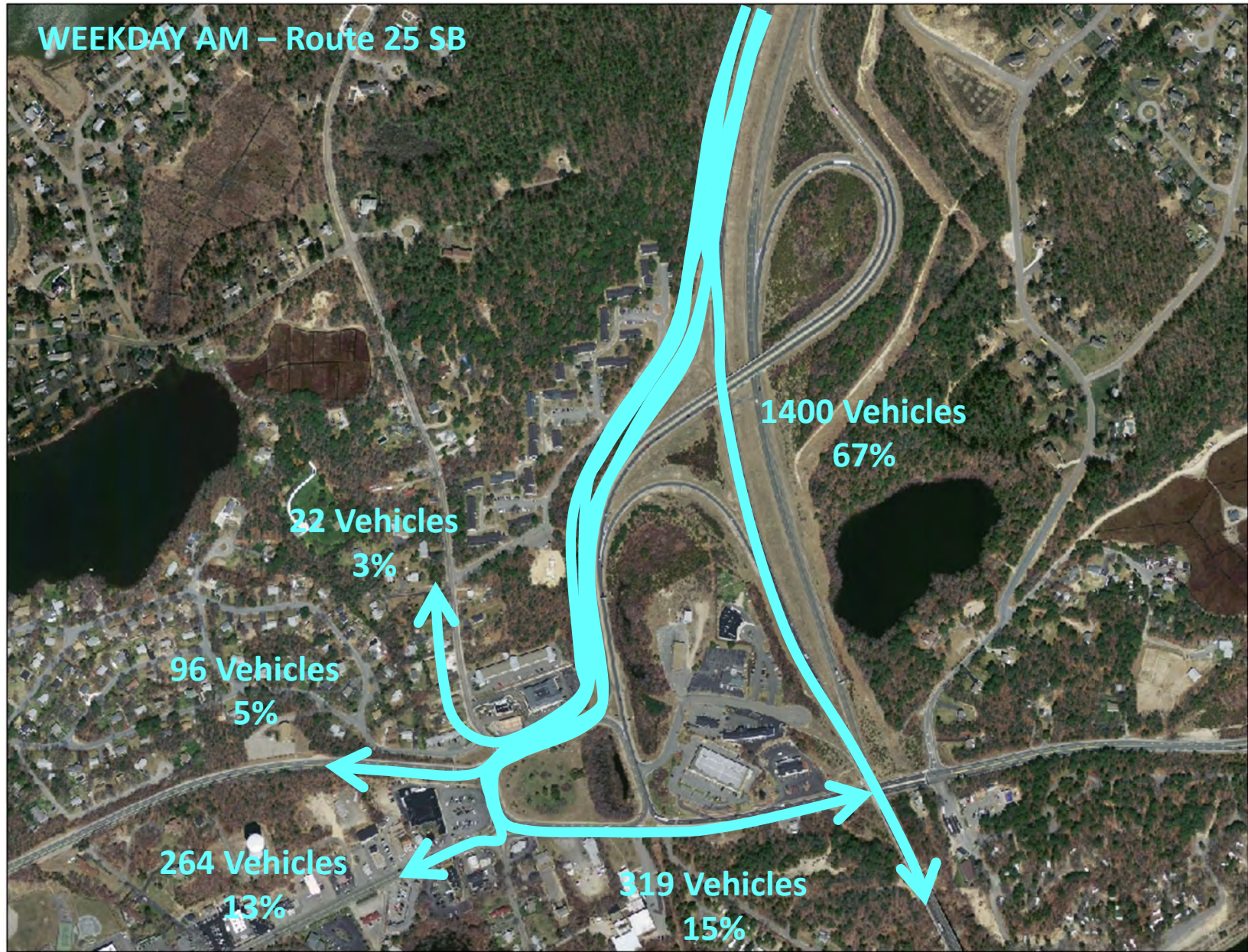
WEEKDAY AM -Route 6



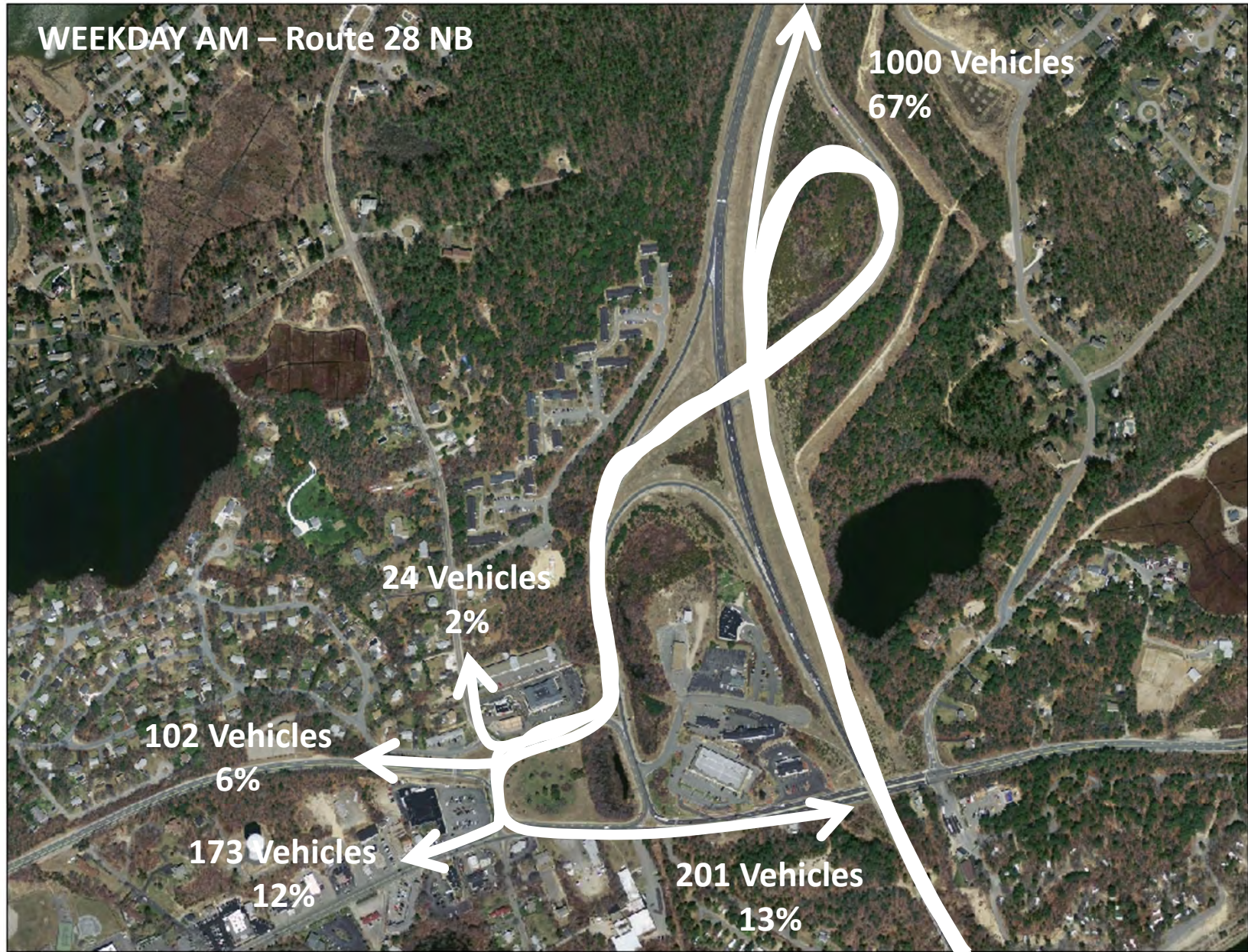
WEEKDAY AM – Buzzards Bay Bypass

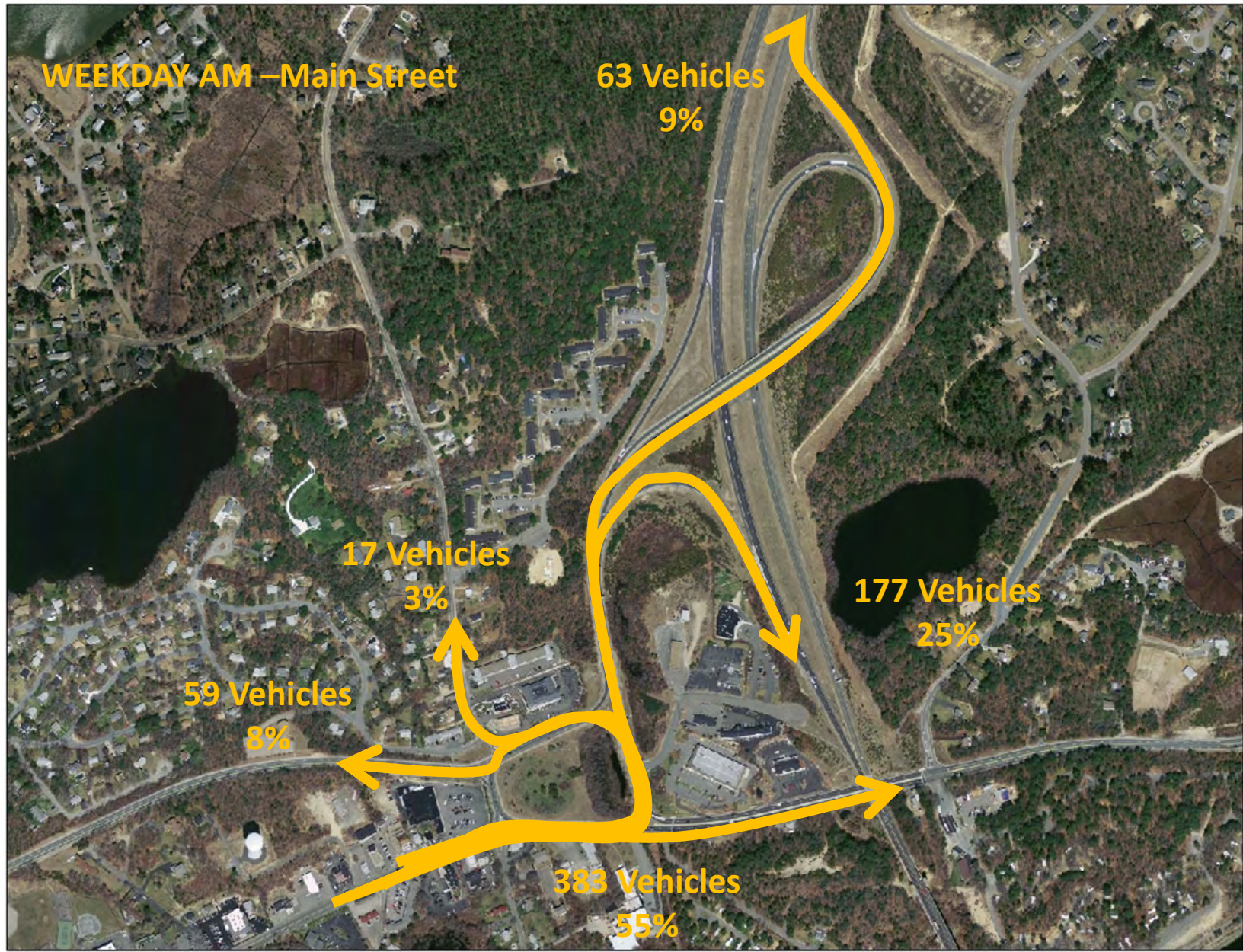


WEEKDAY AM – Route 25 SB



WEEKDAY AM – Route 28 NB





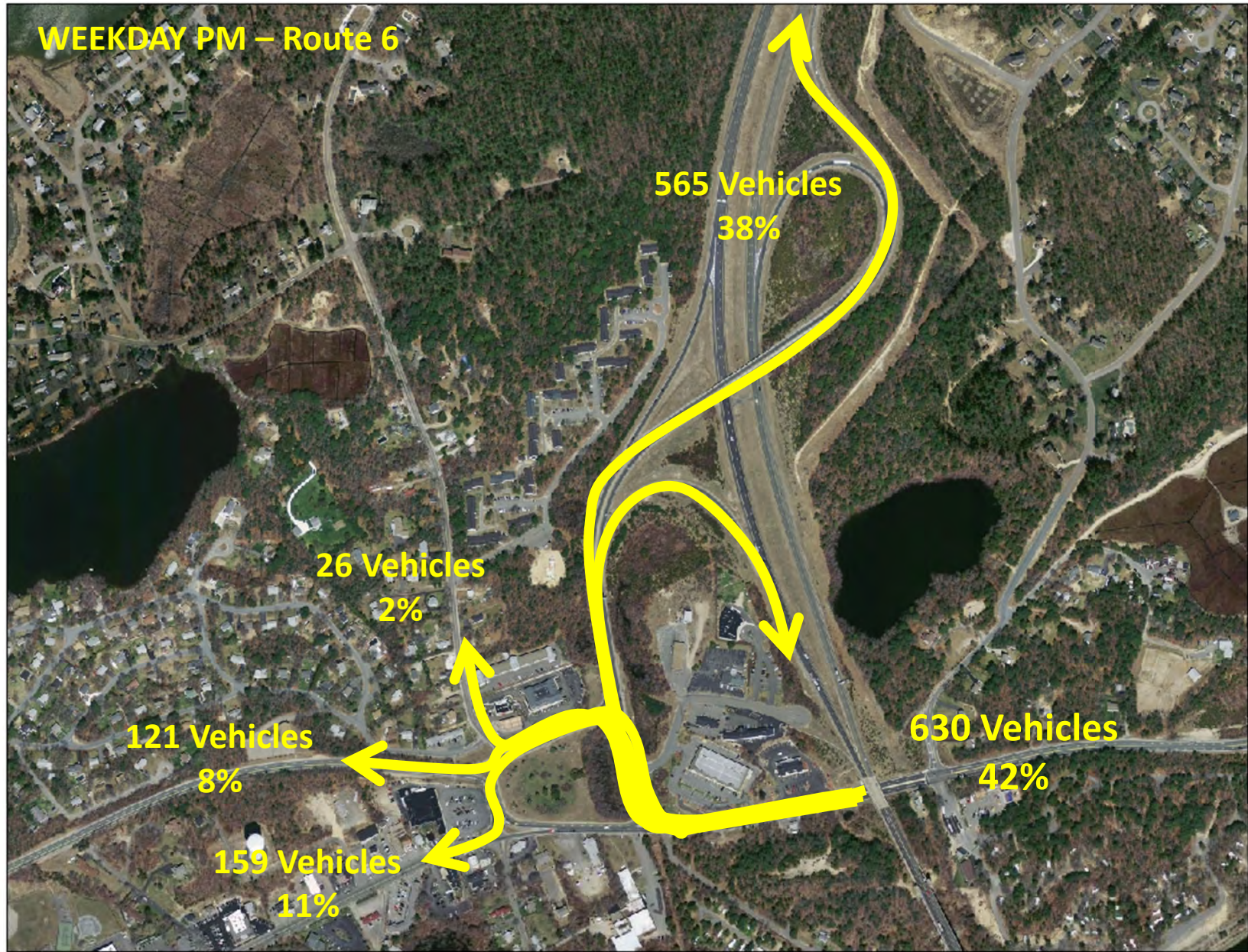


WEEKDAY AM – Head of the Bay Road

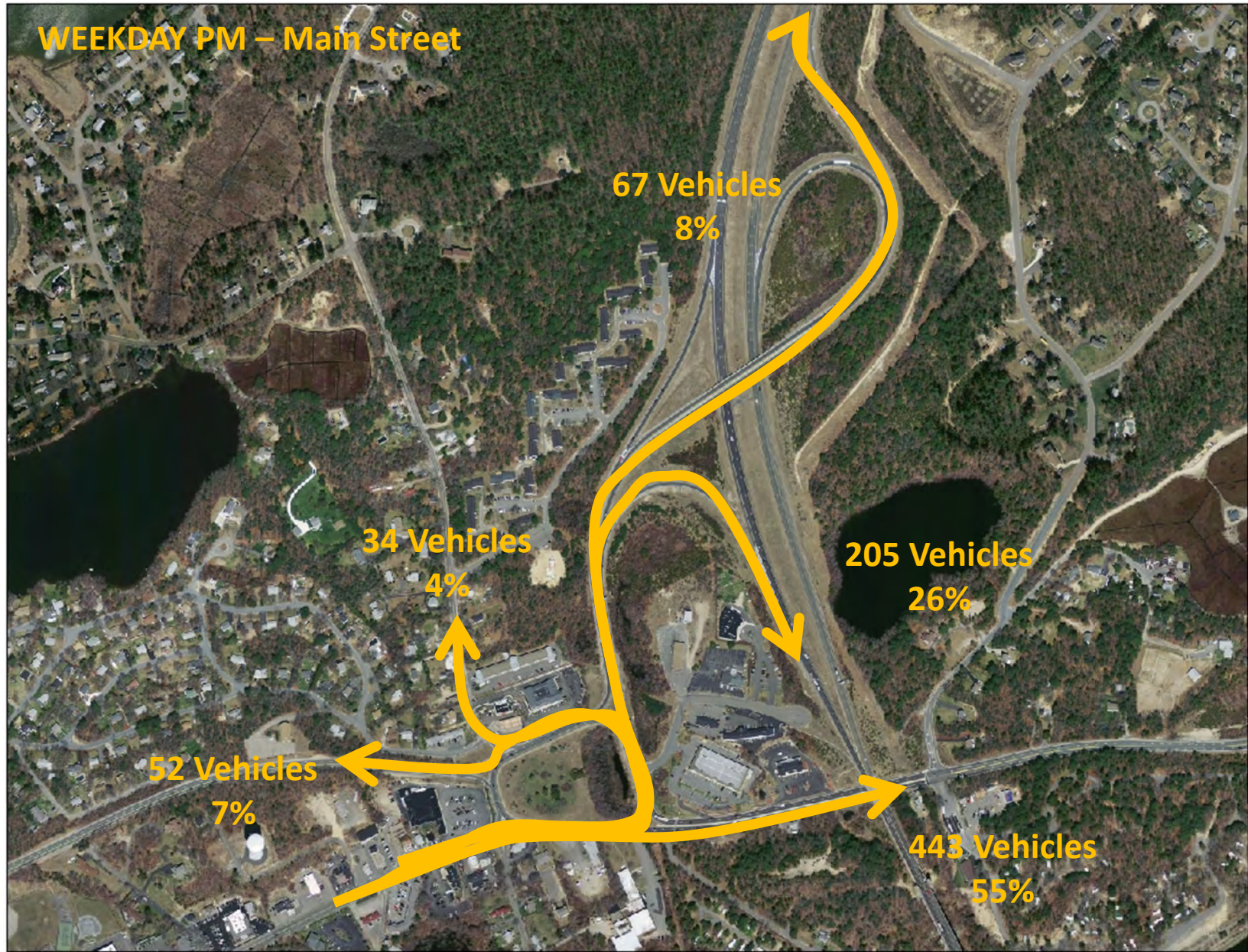


# PM Traffic Distribution

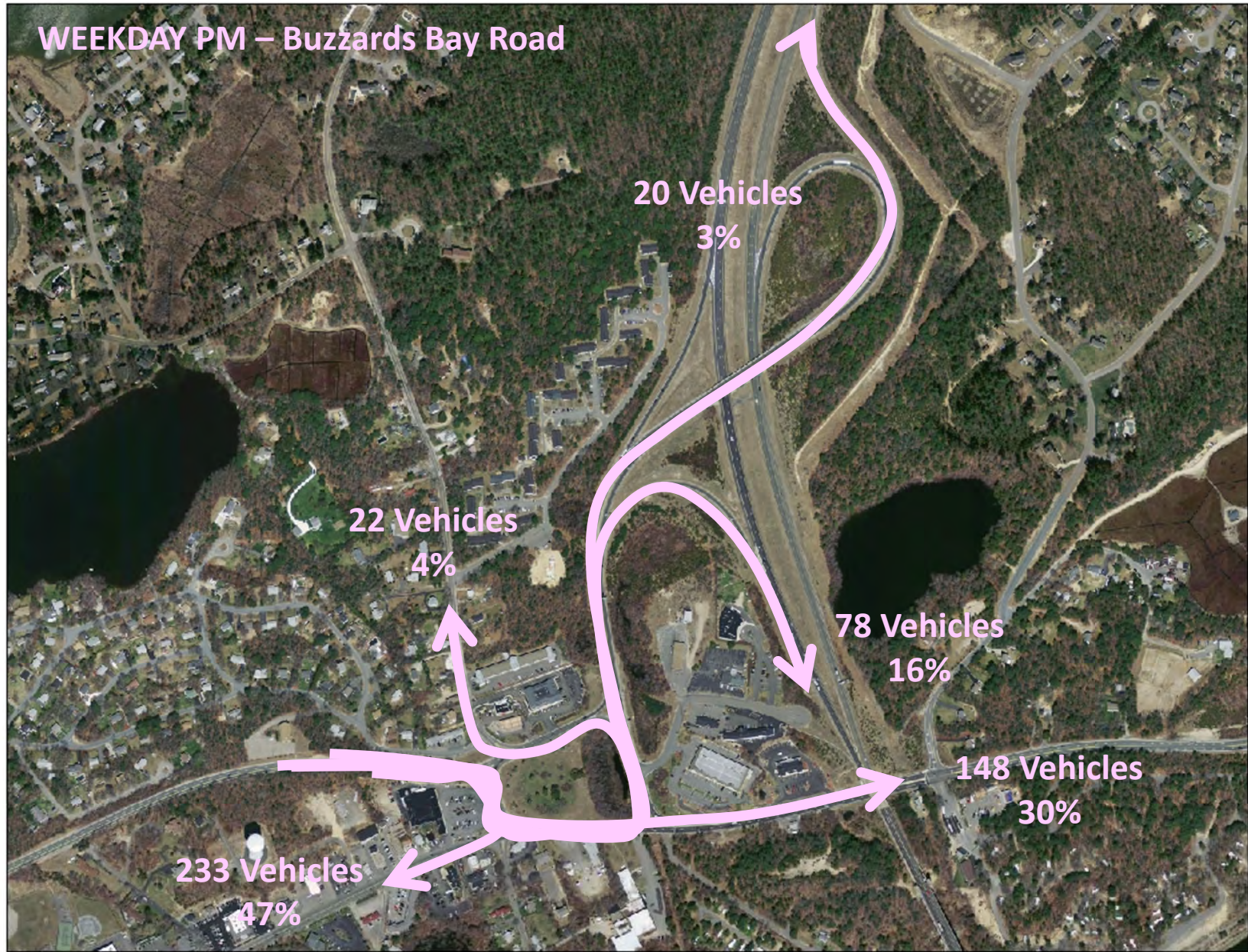
WEEKDAY PM – Route 6



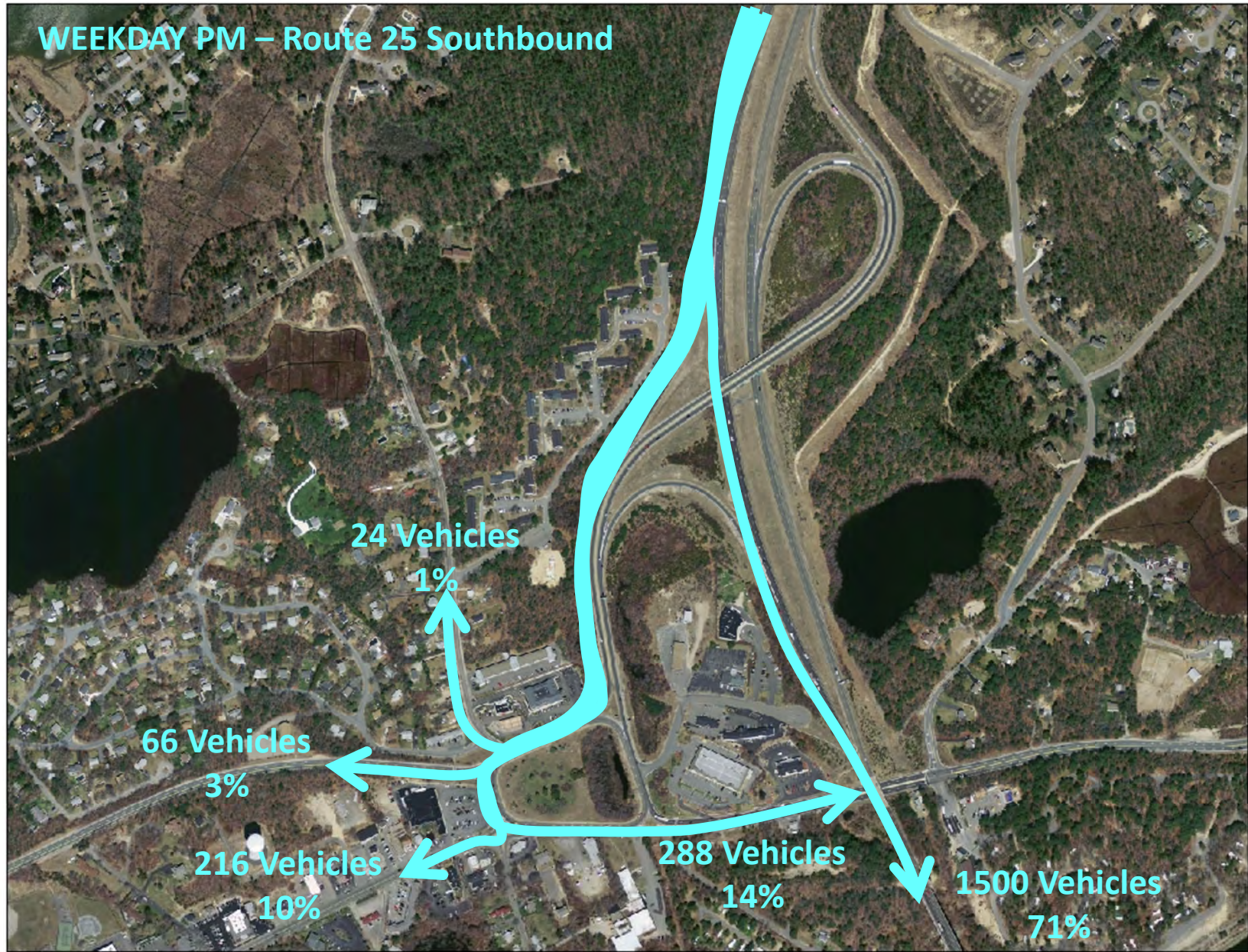
WEEKDAY PM – Main Street



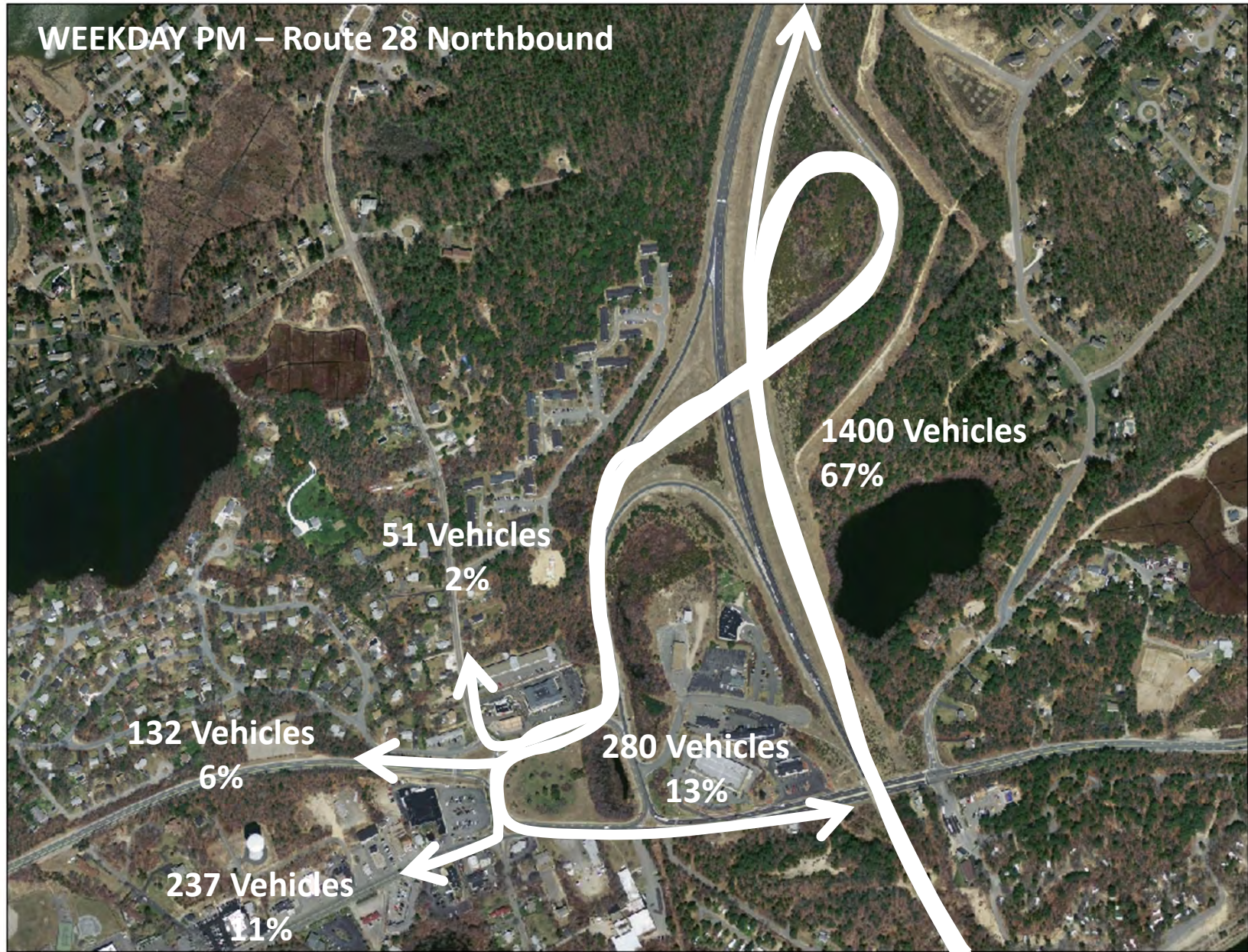
WEEKDAY PM – Buzzards Bay Road



WEEKDAY PM – Route 25 Southbound



WEEKDAY PM – Route 28 Northbound

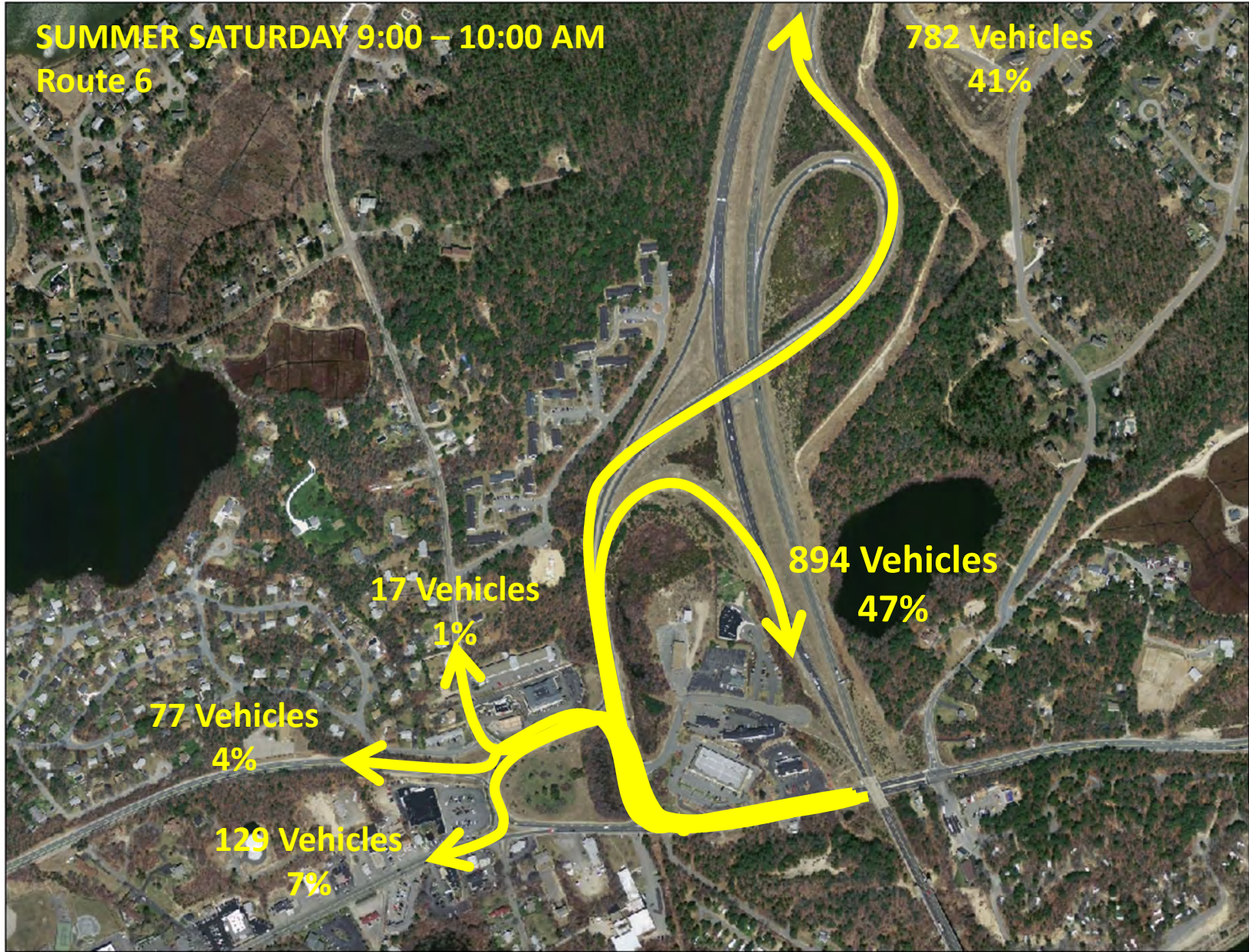




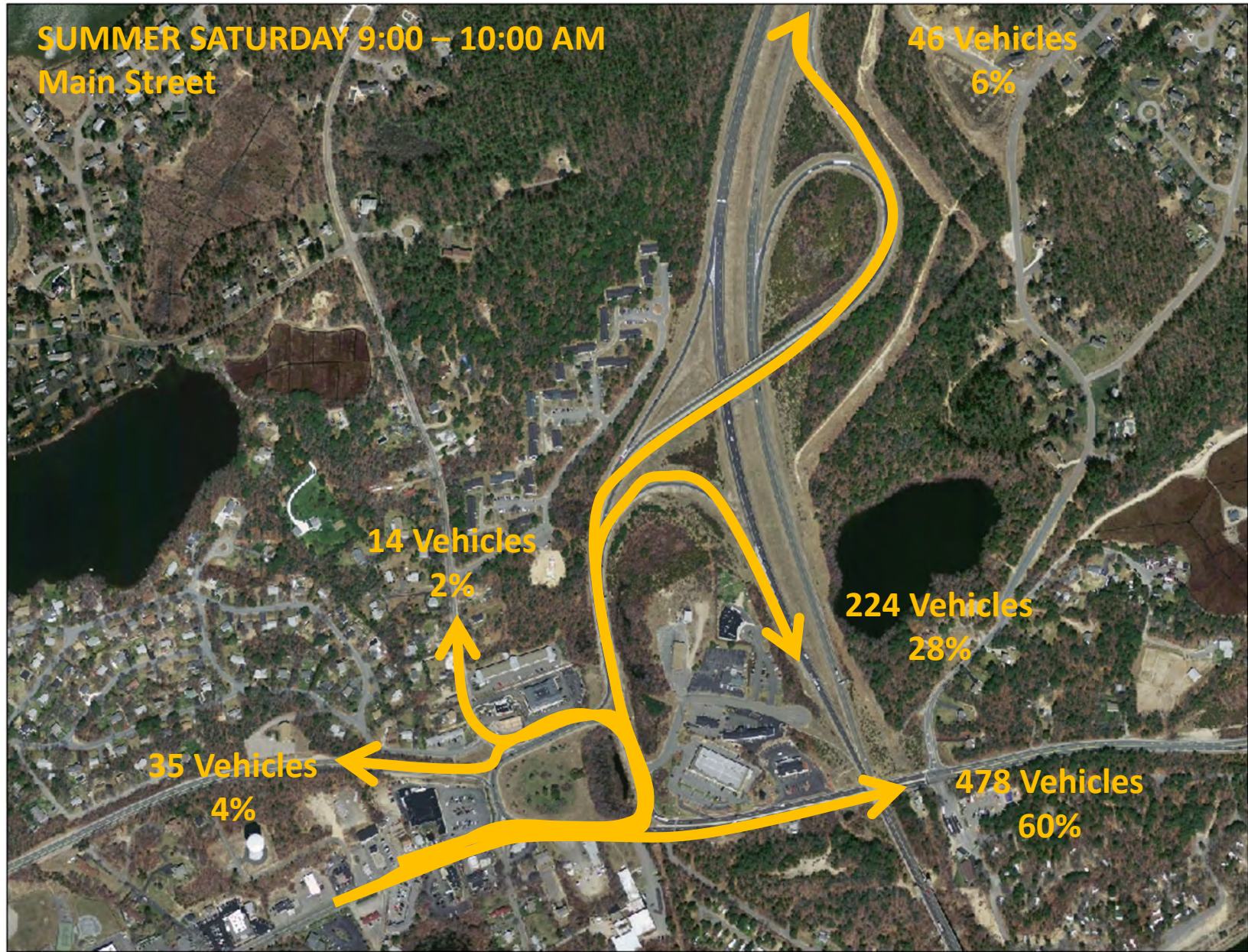


# Summer Traffic Distribution

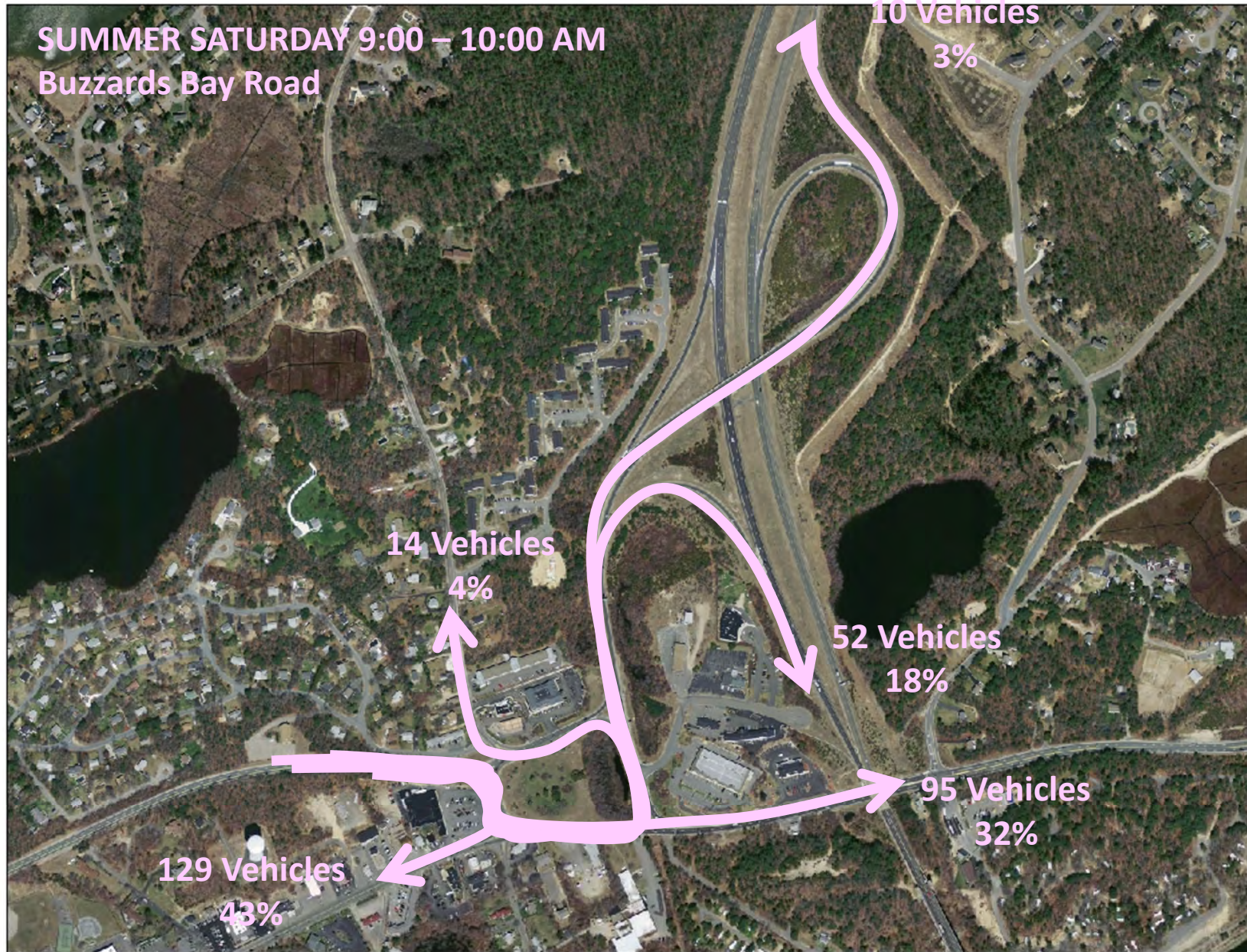
**SUMMER SATURDAY 9:00 – 10:00 AM**  
**Route 6**



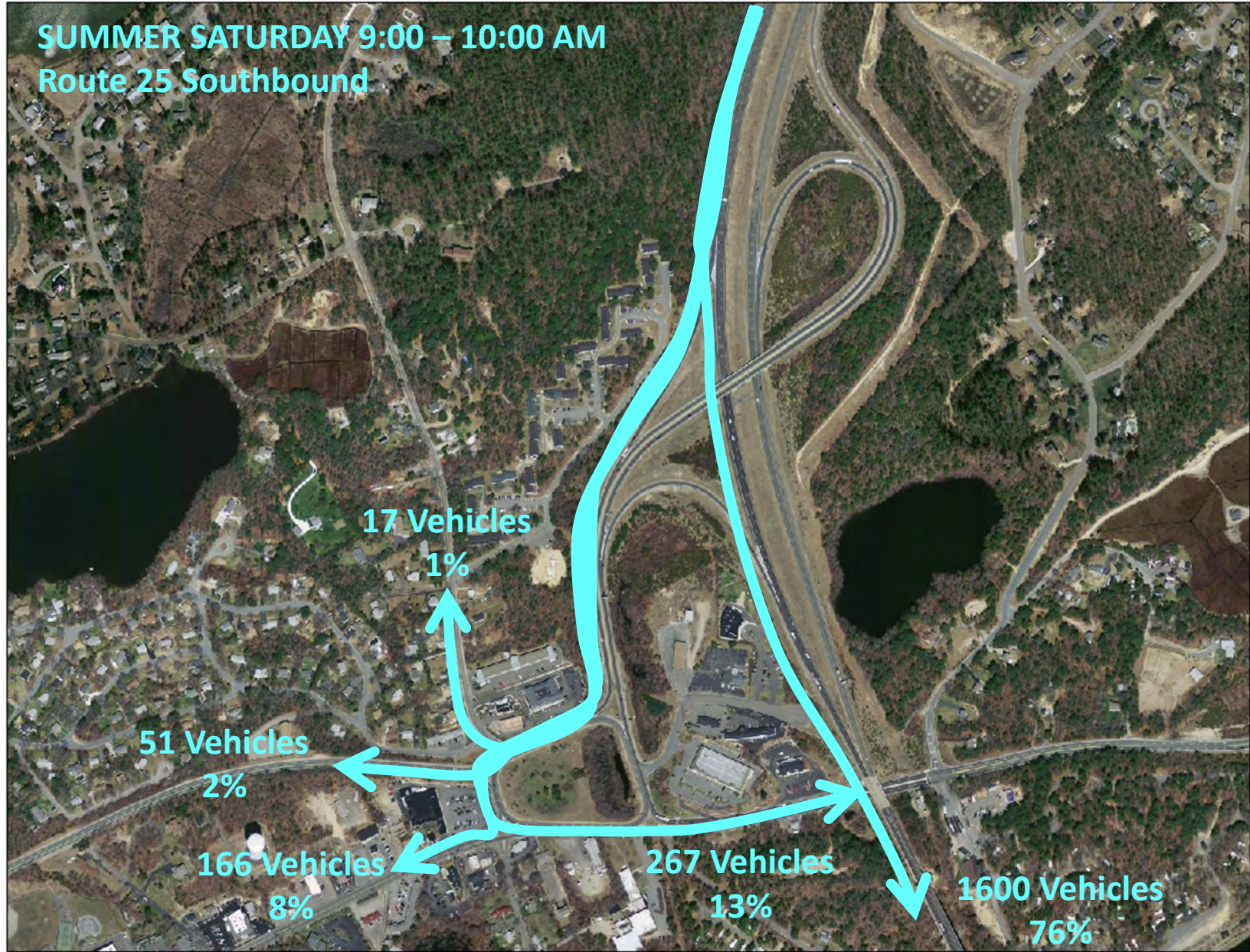
SUMMER SATURDAY 9:00 – 10:00 AM  
Main Street



SUMMER SATURDAY 9:00 – 10:00 AM  
Buzzards Bay Road



SUMMER SATURDAY 9:00 – 10:00 AM  
Route 25 Southbound



SUMMER SATURDAY 9:00 – 10:00 AM  
Route 28 Northbound



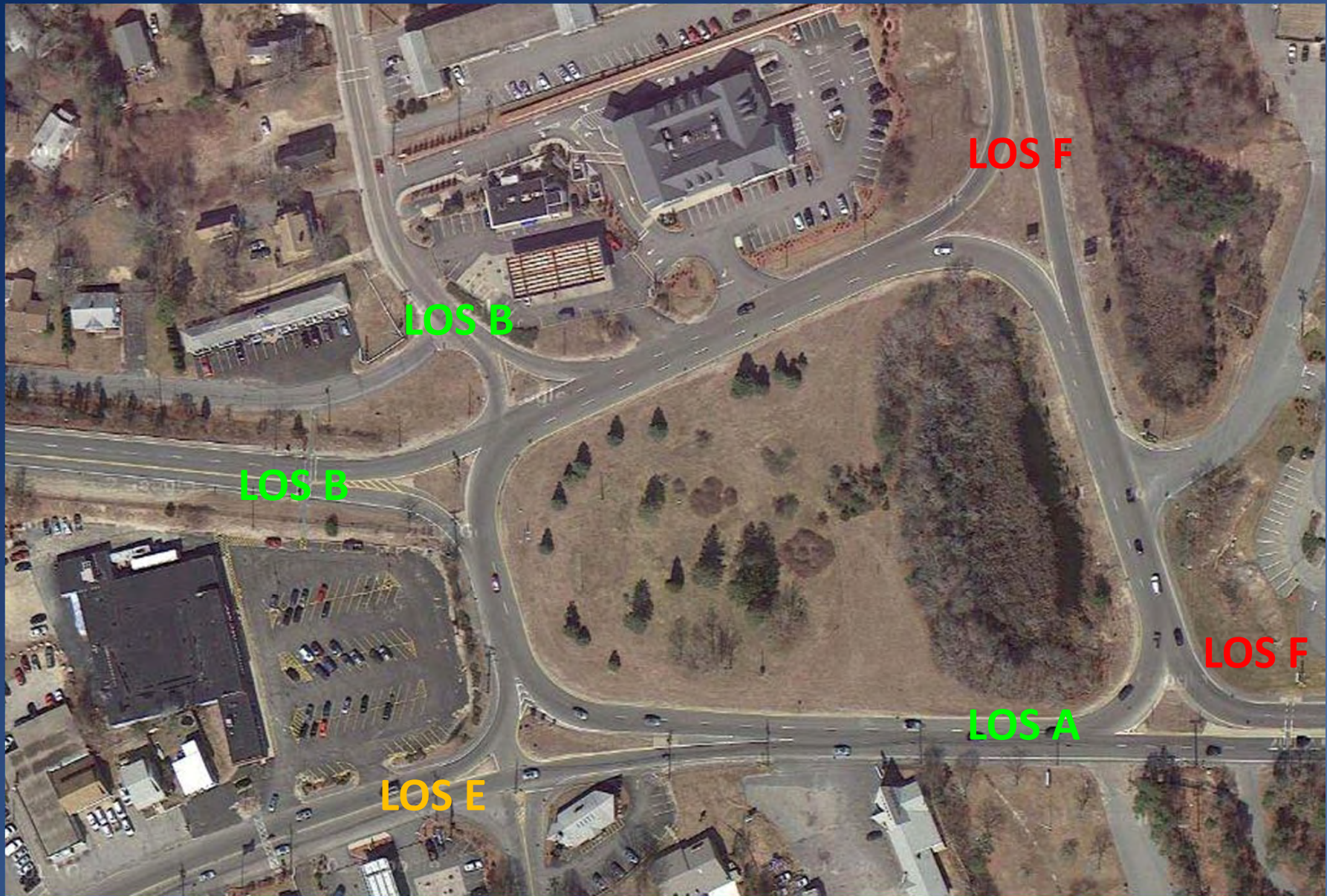
SUMMER SATURDAY 9:00 – 10:00 AM  
Head of the Bay Road



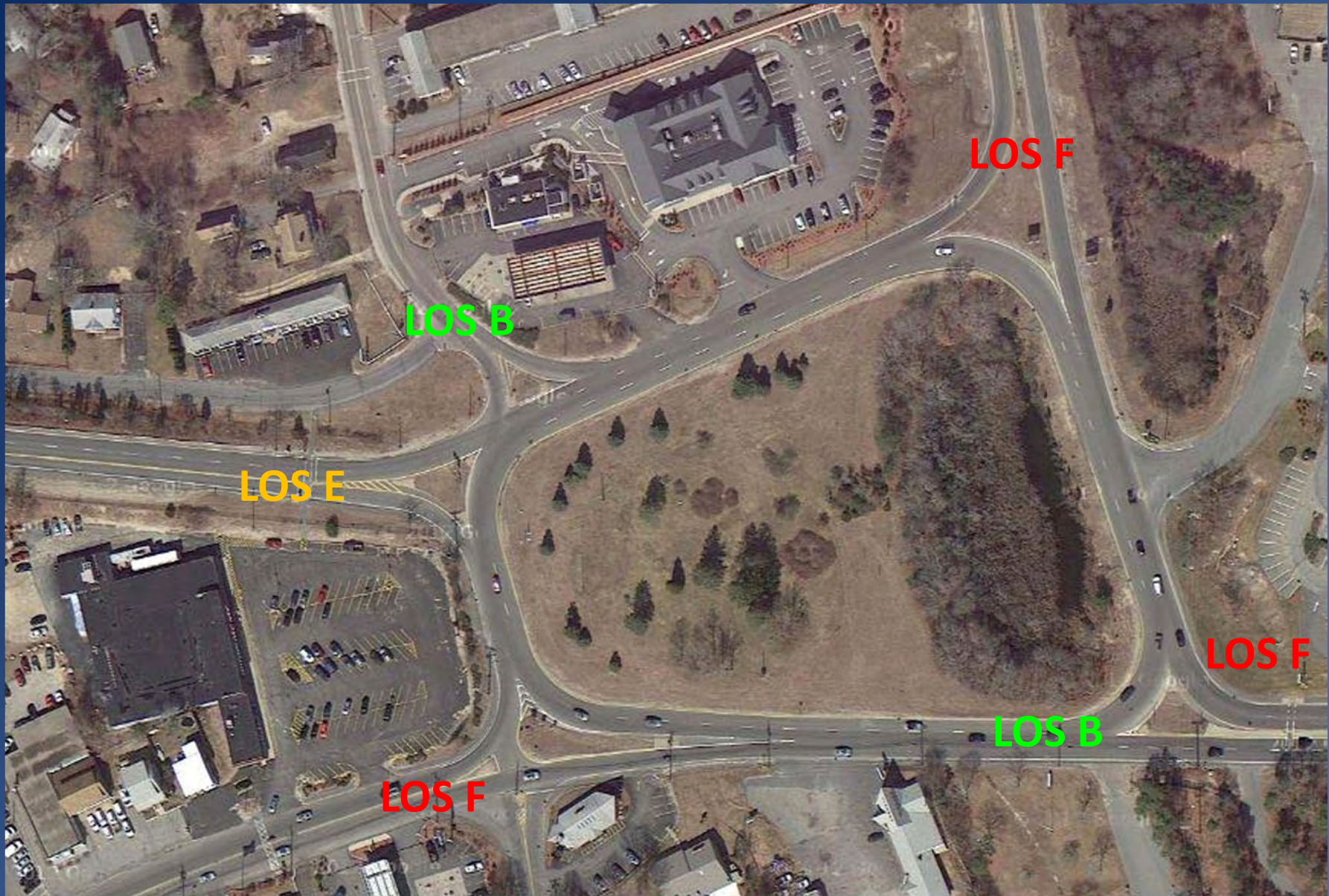
# Traffic Operations



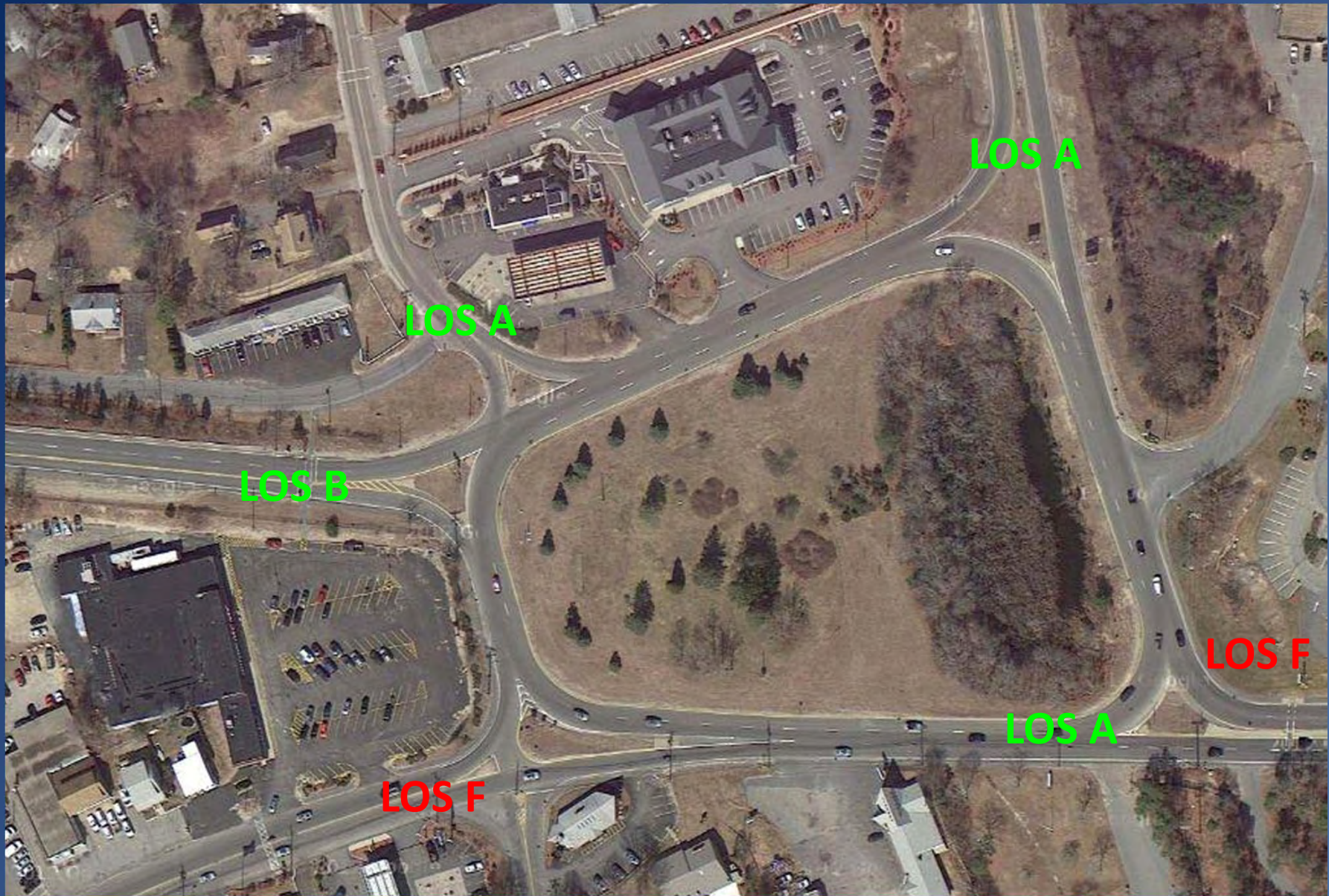
# AM BELMONT CIRCLE OPERATIONS



# PM BELMONT CIRCLE OPERATIONS



# SUMMER SATURDAY 9:00 – 10:00 AM BELMONT CIRCLE OPERATIONS



# Traffic Simulations - VISSIM

# AM

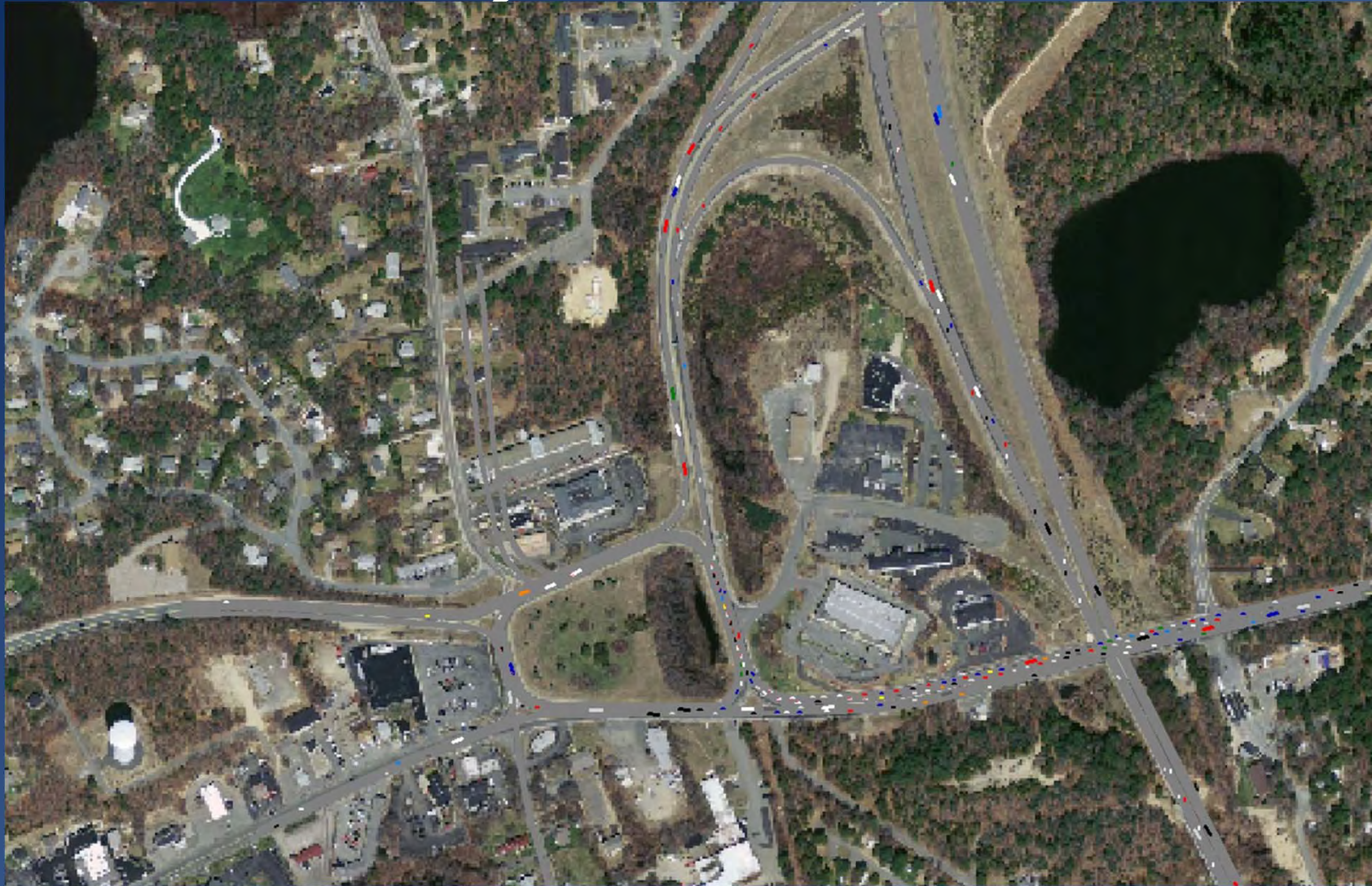




# PM



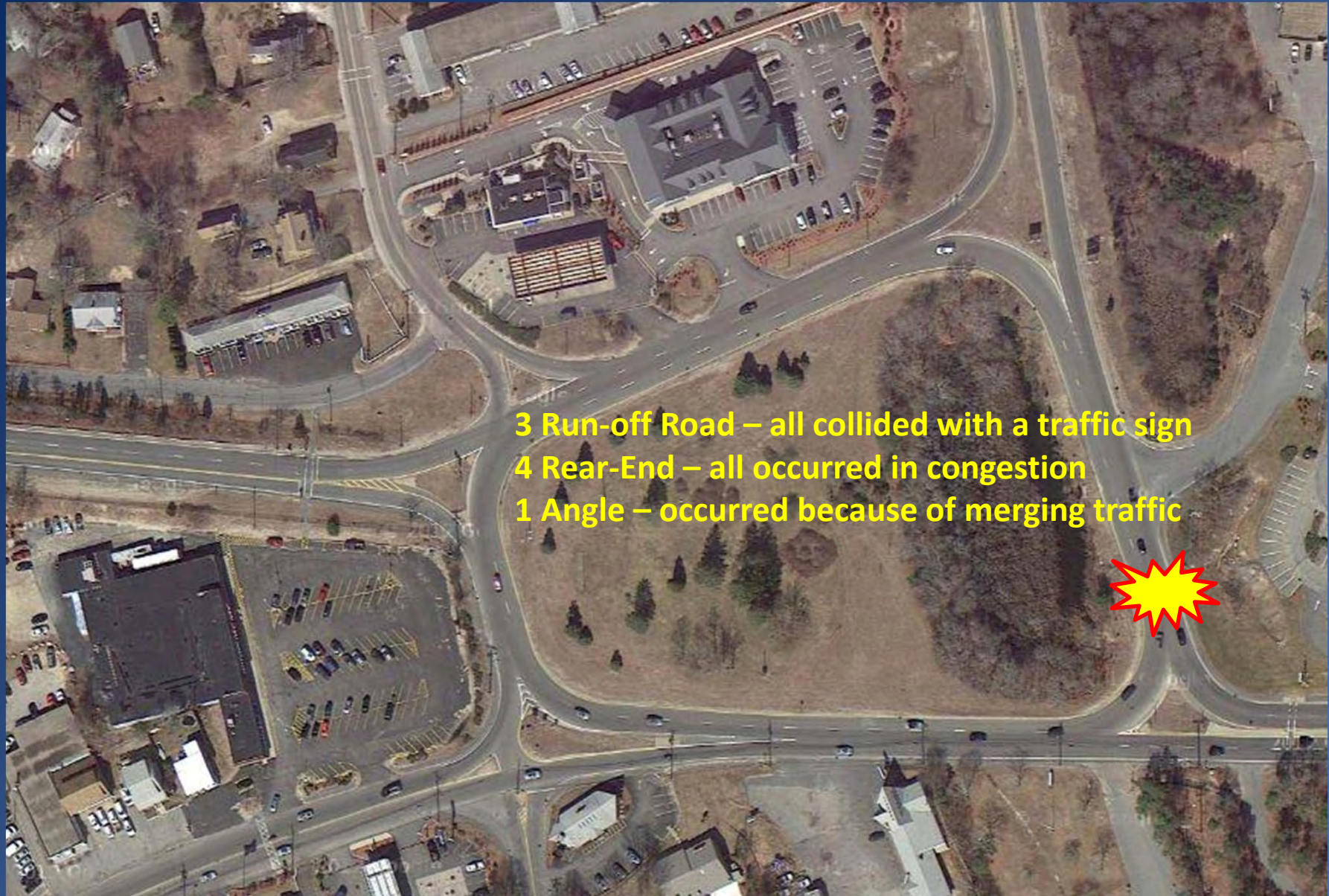
# Saturday 9:00 – 10:00AM



# Crashes 2009 - 2011



6 Run-off Road – all occurred in the dark  
5 Rear-End – all occurred in congestion  
1 Angle – driveway access



3 Run-off Road – all collided with a traffic sign  
4 Rear-End – all occurred in congestion  
1 Angle – occurred because of merging traffic





2 Run-off Road – dark, 1 injury and 1 fatality  
1 Angle – occurred because of driveway  
Fatality was a pedestrian



5 Rear-End – entering the circle  
1 Angle – driveway  
1 Run-off Road – hit a tree  
4 out of 6 crashes involved an injury



2 Angle – occurred because of merging traffic  
1 Rear-End - occurred because of merging traffic



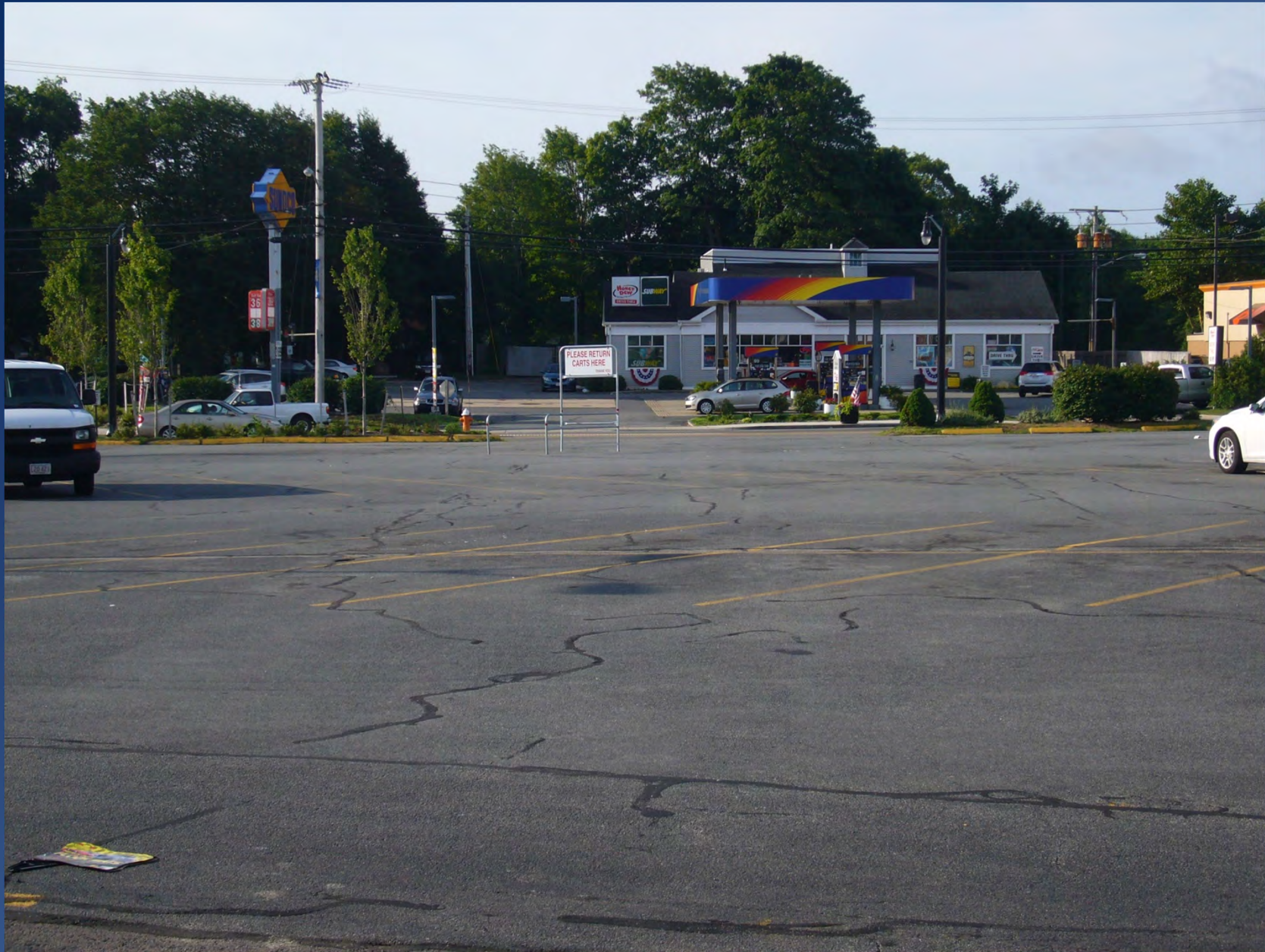














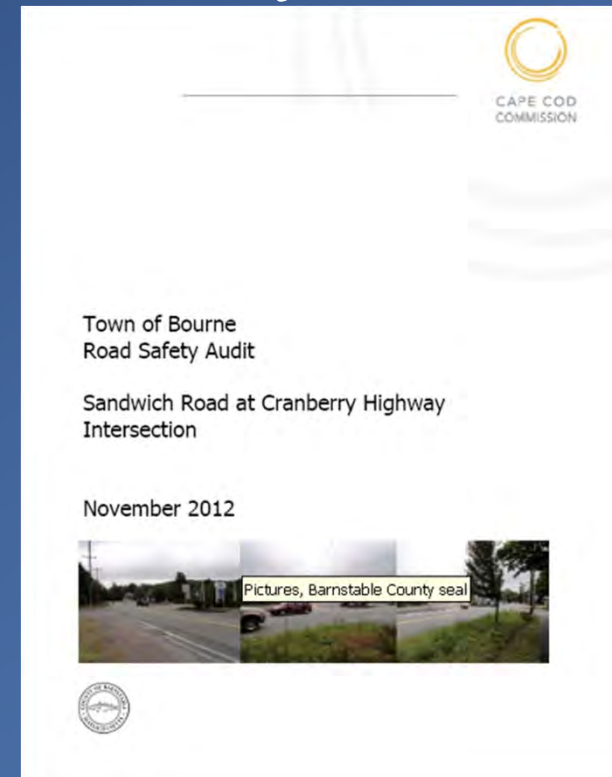
# What does the crash data tell us?

- Dark Roadway
- Congestion and Queuing
- 
- Many Driveways and Curb Cuts
- Difficult Pedestrian Environment
- Multiple Merge, Diverge and Weave Areas
- Driver Unfamiliarity with the Area



# Road Safety Audit

- Purpose is to identify potential safety issues and possible opportunities for safety improvements considering all roadway users.
- Multidisciplinary team.
- Highway Safety Improvement Program (HSIP) Funding
- High Crash Location



# Purpose and Need

- Improve travel to and within Bourne by minimizing delays encountered in traversing the Circle
- Reduce crashes in Circle
- Improve multimodal travel through Circle
- Accommodate projected growth in surrounding area
- Improve access to abutting properties

# Next Steps

- Traffic counts and Blue Toad – Week of October 28
- Roadside Safety Audit - November
- Next Meeting - January

# Schedule



# Comments

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Questions?

# Existing Conditions Belmont Circle – Bourne, MA

