Redesign of Route 52 Corridor in Ocean City and Somers Point, NJ

Design Team:

David Anderson

Vincenzo Lepore

Andrew Marinucci

Alexander Slavinsky (Team Leader)

Project Advisor:

Dr. Thomas Brennan

Background and Problem Statement

- Connects Somers Point and Ocean City
- High congestion during summer months
- Inadequate accommodation for pedestrians and cyclists
- Traffic fatalities

Design Constraints

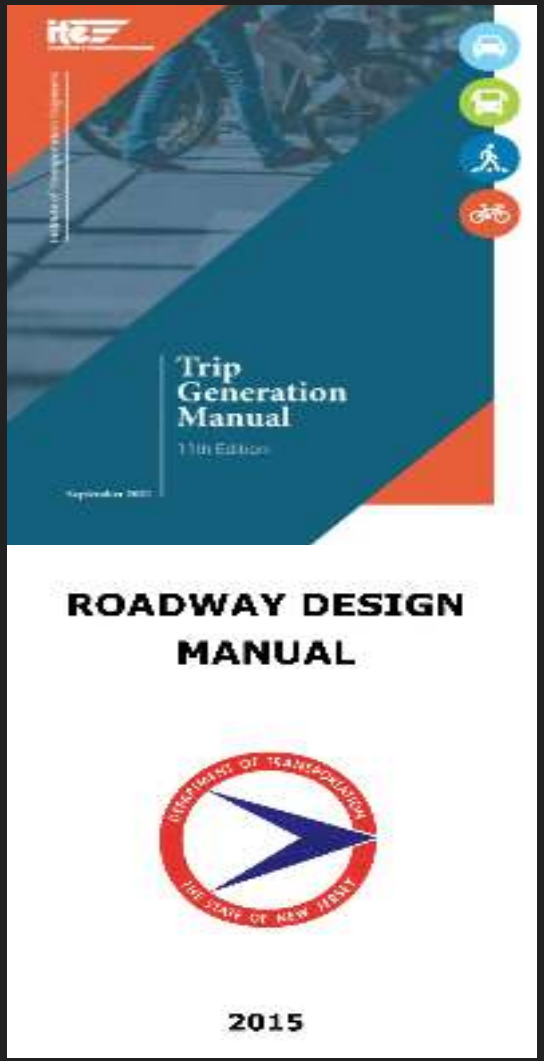
- Existing roadway and bridge geometry
- Historical Buildings
- Maintain Access to Ocean City
- Accommodate pedestrians and cyclists
- City and State Ordinances

Realistic Constraints

- Economic: Budget limitations
- Political: State / County / Township Regulations
- Sustainability: Wetlands, Green Materials, Pollution
- Ethical: Safety vs. Convenience
- Health and Safety: Reducing Accidents and Fatalities

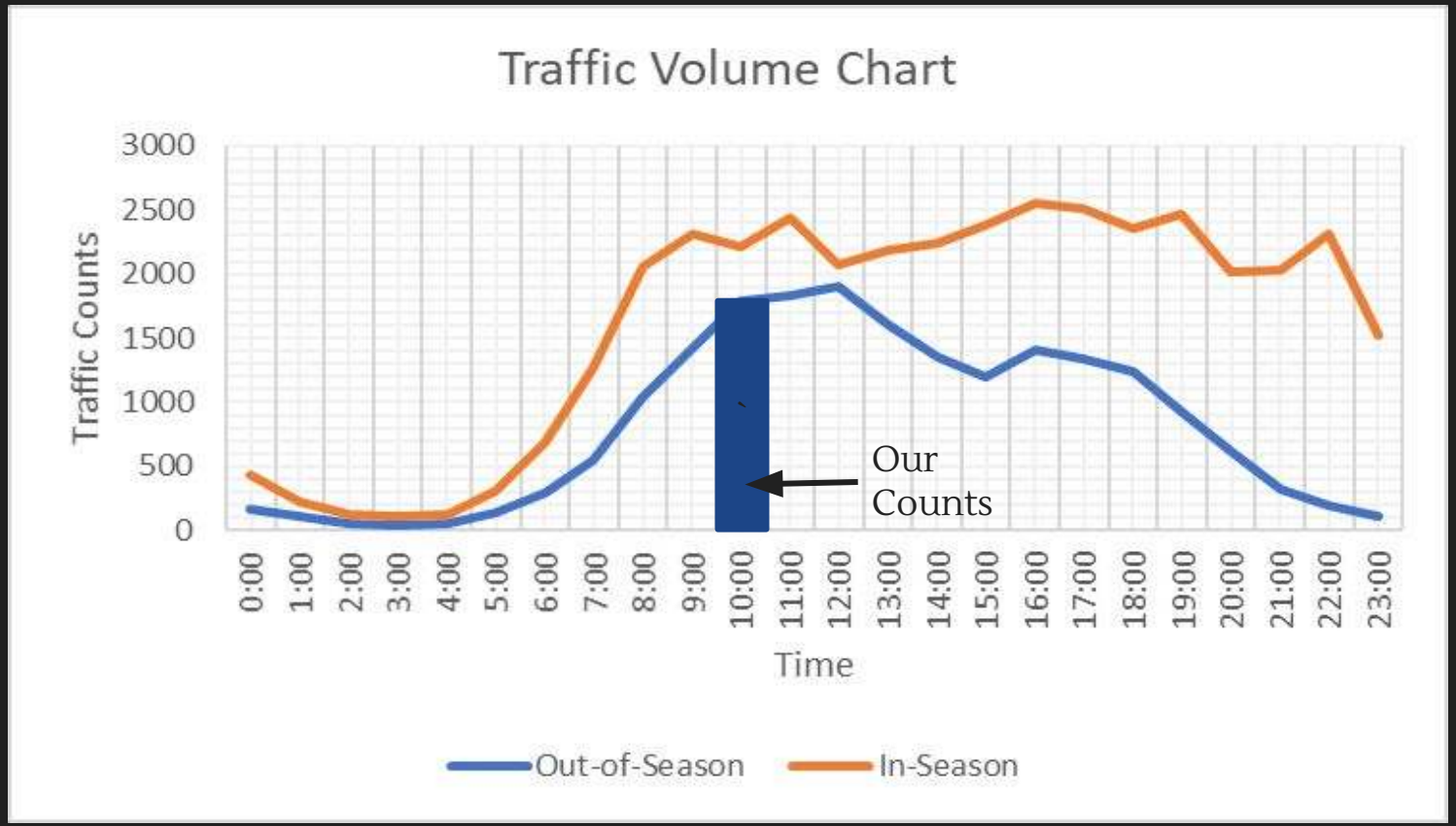
Design Standards

- ADA Standards for Accessible Design
- Ocean City, City of Somers Point, Atlantic County, and Cape May County Zoning Ordinances
- ITE Trip Generation Manual, 11th Edition
- Manual on Uniform Traffic Control Devices (MUTCD)
- NJDOT Roadway Design Manual



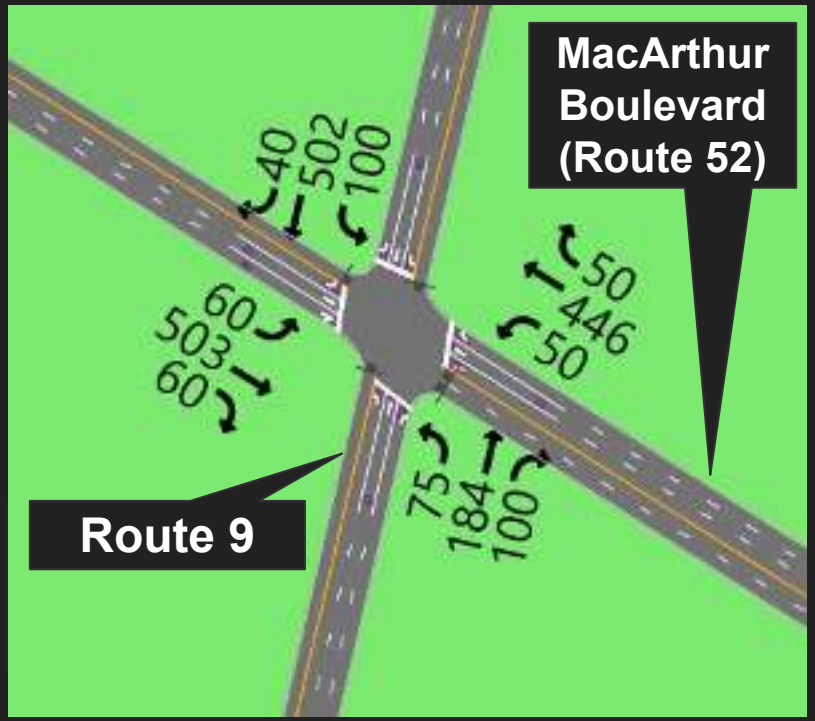
Traffic Count Data

In Season Date 7/4/24 NJ DOT Traffic Data Off Season Date 9/27/25

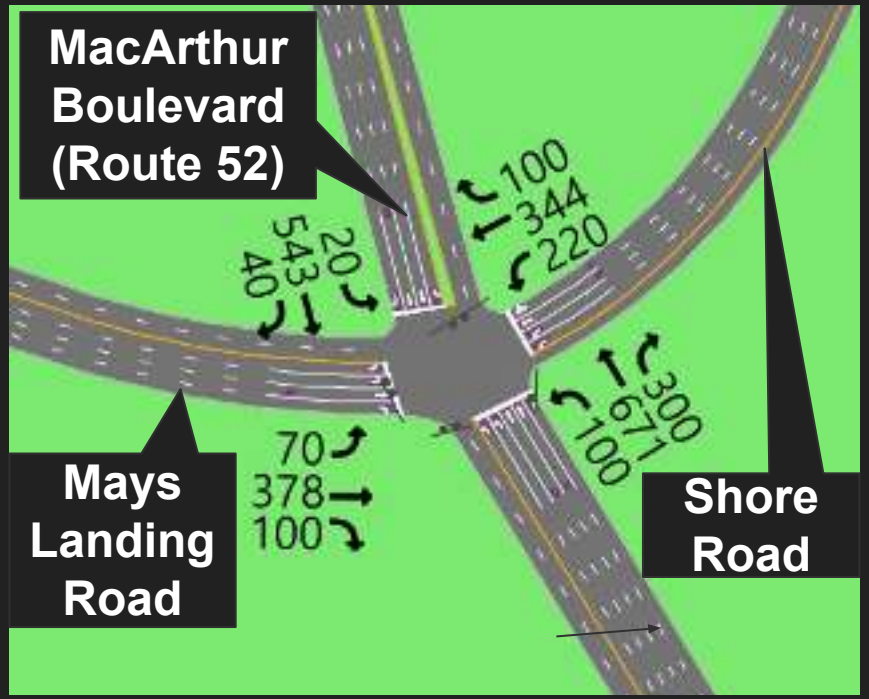


Existing Conditions Overview

Intersection 1

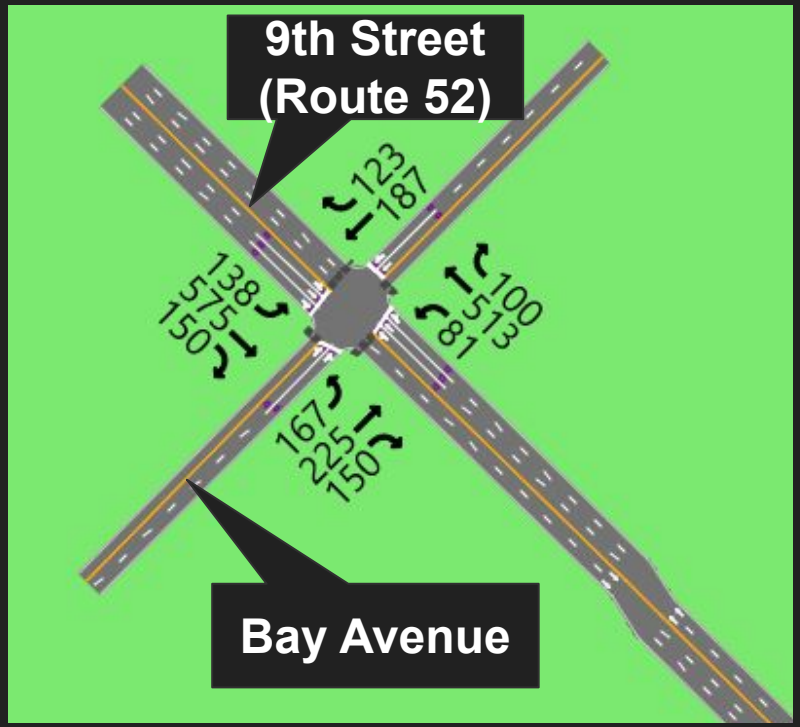


Intersection 2

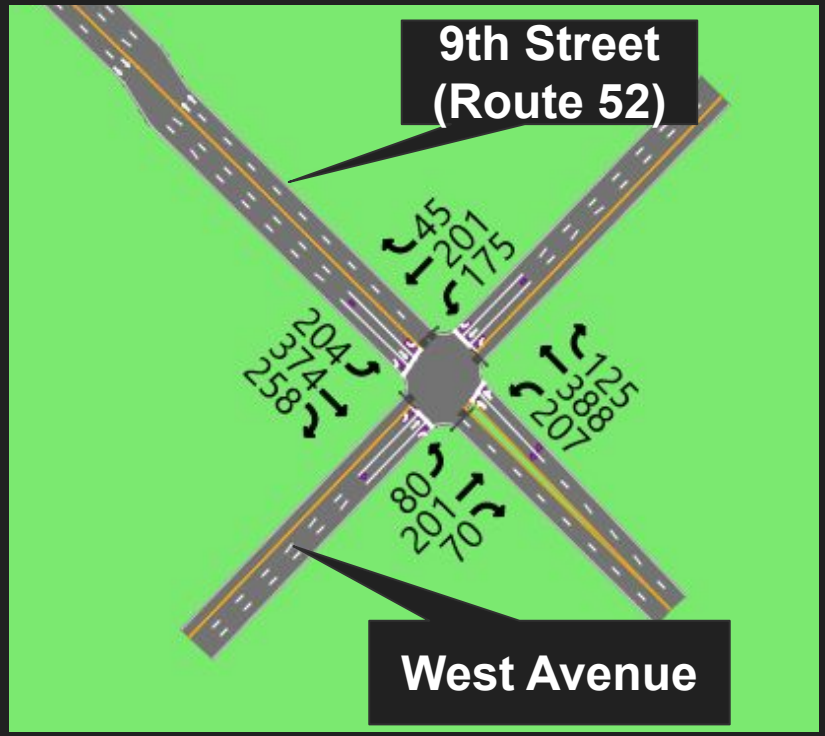


Existing Conditions Overview

Intersection 3



Intersection 4



Alternative 1 Overview

Proposed: 2 Lane Roundabout

Proposed: Turbo Roundabout

Proposed: Turbo Roundabout

Proposed: 2 Lane Roundabout

Intersection 1

Intersection 2

Intersection 3

Intersection 4

Standard Roundabout

Intersections 1 and 4

- Reduce delay
- Balance traffic demand
- Lower speed (25 mph)
- Improved safety for pedestrians

Turbo Roundabout

Intersections 3 and 4

- Continuous flow
- Higher capacity
- Lower speed (25 mph)
- Prevent weaving
- Lane guidance for drivers

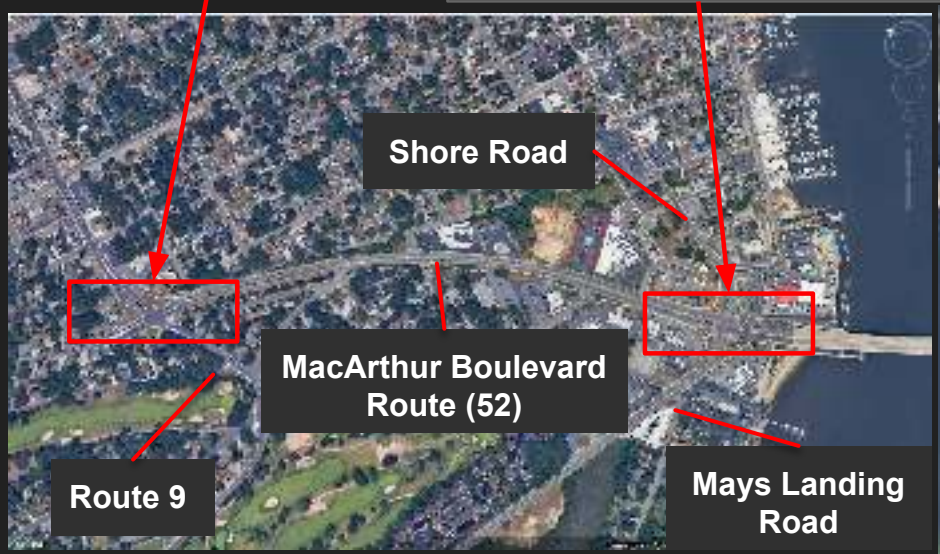
Alternative 2 Overview

Proposed: Extend Green, add Bike Lanes

Proposed: Intersection Dedicated Lanes

Proposed: Roadway Median / Slip Lane

Proposed: Road Diet



Intersection 1

Intersection 2

Intersection 3

Intersection 4

Alternative 2

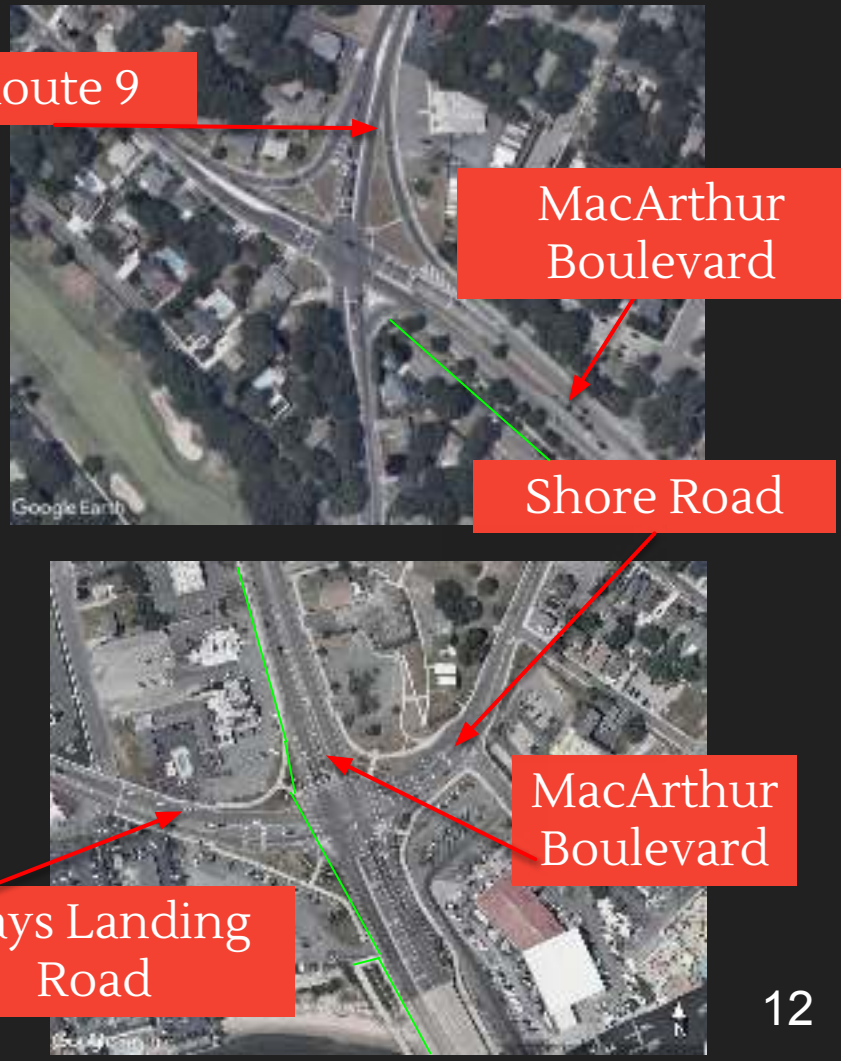
Intersections 1 and 2

Intersection 1:

- Crosswalks upgraded to High-Visibility
- Bike Lanes added to intersection

Intersection 2:

- Introduction of 5-phase signal
- Realignment of Sidewalks in accordance with most recent ADA standards



Alternative 2

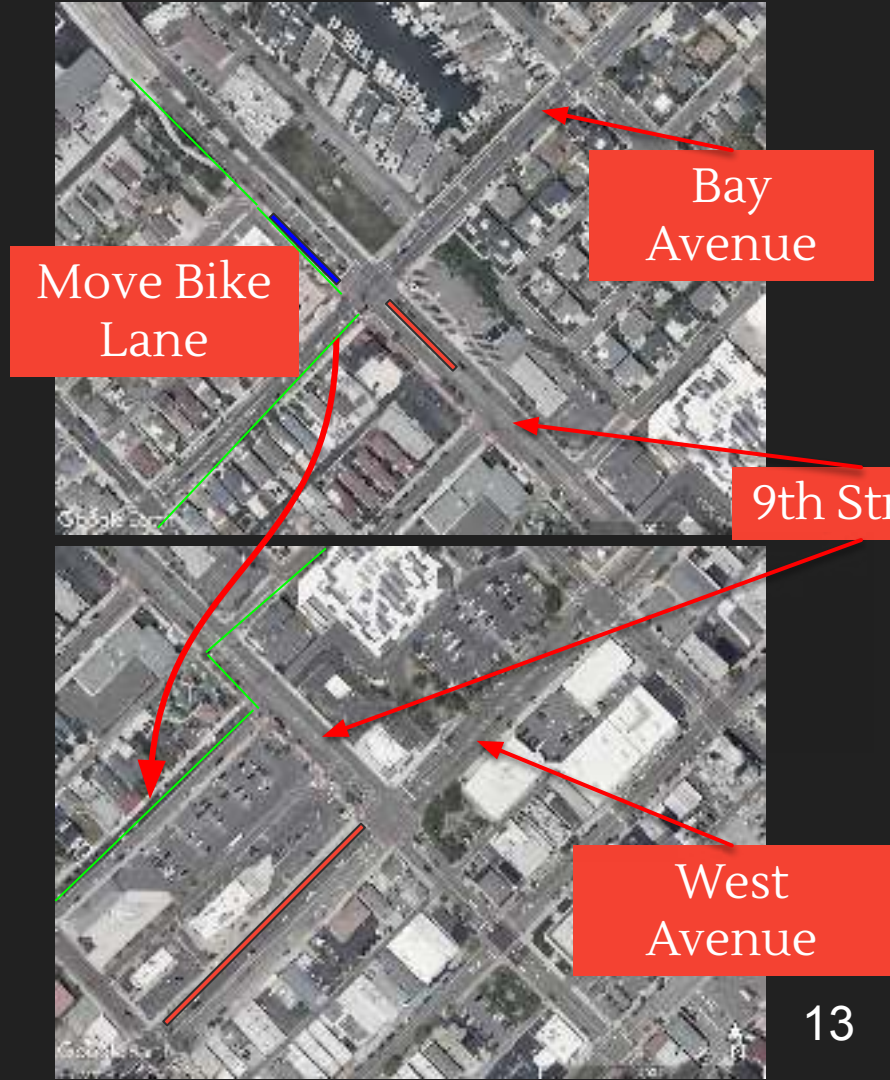
Intersections 3 and 4

Intersection 3:

- Addition of Dedicated Right Turn Lane
- Removal of Left Turn Lane
- Relocation of Bike Lane

Intersection 4:

- Introduction of 5-phase signal
- High Visibility, Raised Pedestrian Crossings
- Removal of Extra Southbound Lane



Alternative 3 Overview

Proposed: 2 lane Roundabout

Proposed: 2 lane Roundabout

Proposed: Roadway Reconfiguration

Proposed: Road Diet

Intersection 1

Intersection 2

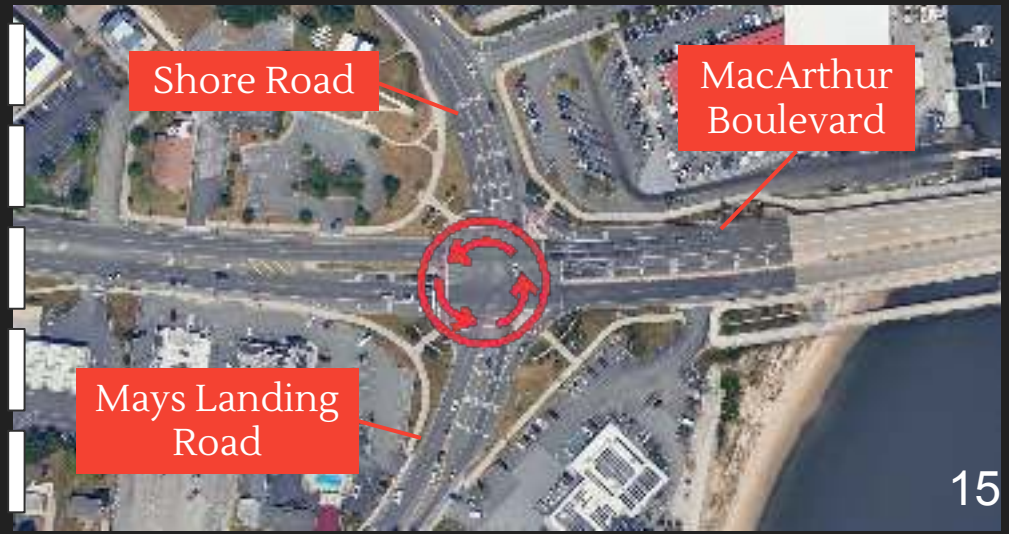
Intersection 3

Intersection 4

Alternative 3

Intersections 1 and 2

- Continuous flow
- Improves safety for pedestrians
- Handles traffic fluctuations well
- Lowers speed limit (25mph)

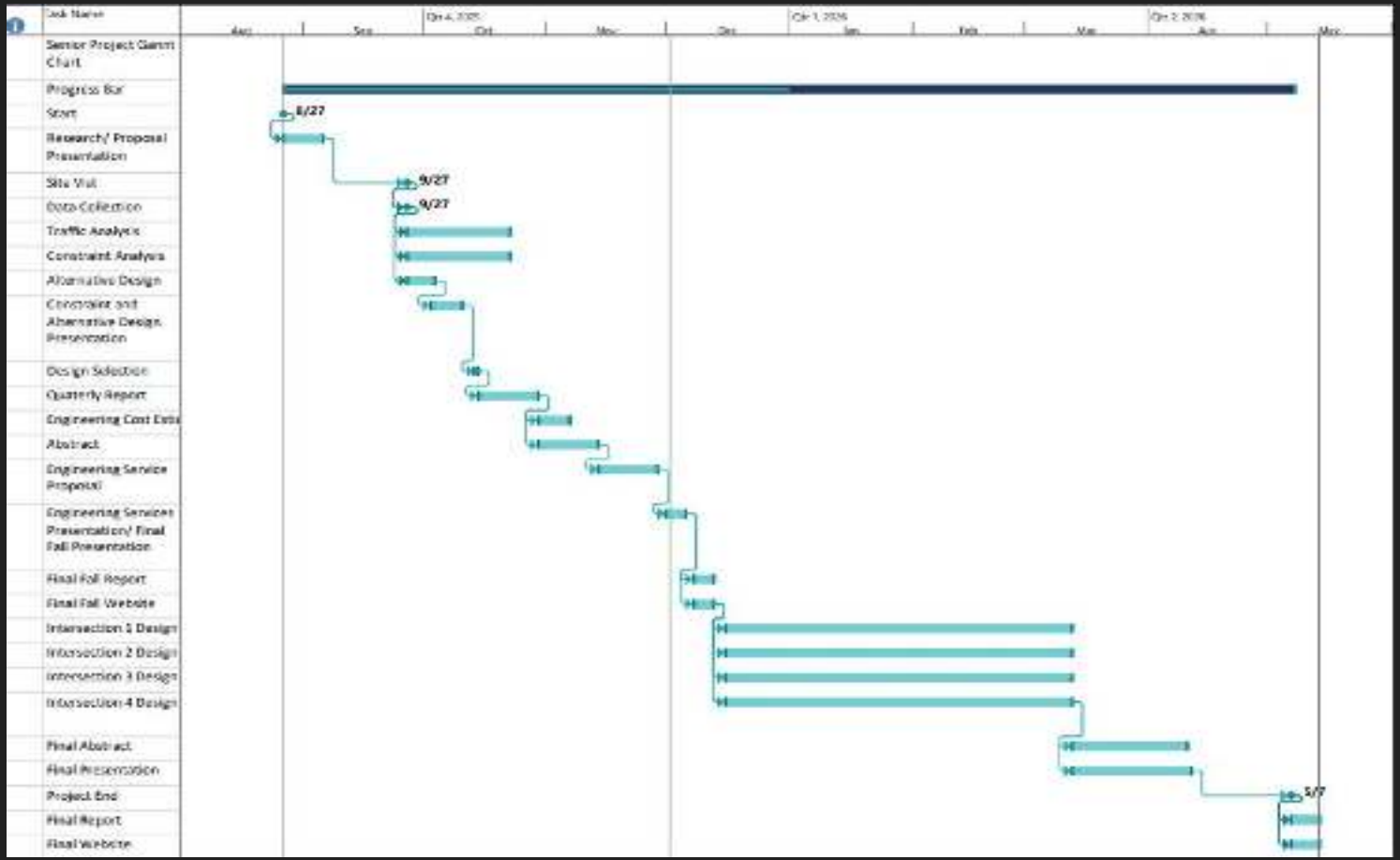


Alternative 3

Intersections 3 and 4

- Eliminate left turn only lane, Northbound 9th street
- Shift Southbound 9th street to insert protected bike lane
- Eliminate Street parking on West Avenue
- Insert Bike Lane where parking is eliminated

Gantt Chart


Senior Project Gantt Chart
Progress Bar
Start
Research/ Proposal Presentation
Site Visit
Data Collection
Traffic Analysis
Constraint Analysis
Alternatives Design
Constraint and Alternative Design Presentation
Design Selection
Quarterly Report
Engineering Cost Esti
Abstract
Engineering Service Proposal
Engineering Services Presentation/ Final Fall Presentation
Final Fall Report
Final Fall Website
Intersection 1 Design
Intersection 2 Design
Intersection 3 Design
Intersection 4 Design
Final Abstract
Final Presentation
Project End
Final Report
Final Website
8/27
9/27
9/27
5/7

Budget Breakdown

Position	Faculty Advisor	Engineer 2	Engineer 1	Engineer 1	Engineer 1
Project Team	Dr. Thomas Brennan	Alexander Slavinsky	Andrew Marinucci	David Anderson	Vincent Lepore
Hourly Rate	$95.00	$38.00	$36.00	$36.00	$36.00
TASKS	FALL 2025 HOURS				
Research	2	5	3	3	3
Site Visit	0	4	4	4	4
Proposal Presentation	1	5	5	3	3
Traffic Analysis	0	3	3	4	4
Alternative Design Research	0	2	2	2	2
Alternative Design Presentation	1	3	3	3	3
Quarterly Report	1	3	3	2	2
Estimate of Engineering Cost and Schedule	0	3	3	3	4
Engineering Services Proposal	2	9	9	9	8
Engineering Services Proposal Presentation	1	8	8	8	8
	ESTIMATED SPRING 2025 HOURS				
Intersection Design	2	6	5	4	4
CAD Design	0	3	3	5	5
Final Presentation	2	8	8	8	8
Final Report	2	8	8	7	7
	TOTALS				
Hours	14	70	67	65	65
Total Individual Cost	$1,330.00	$2,660.00	$2,412.00	$2,340.00	$2,340.00
Total Cost	$11,082.00				
Overhead (150%)	$16,623.00				
Fixed Fee (10%)	$1,662.30				
Final Cost	$29,367.30				

Project Budget

Fall Total Cost	
Total Cost	$6,970
Overhead (150%)	$10,455
Fixed Fee (10%)	$1,046
Cost	$18,471
Final Cost	$18,500

Spring Total Cost	
Total Cost	$4,112
Overhead (150%)	$6,168
Fixed Fee (10%)	$617
Cost	$10,897
Final Cost	$11,000

Selection Matrix

Criteria	Weight	Alternative 1	Alternative 2	Alternative 3
Cost	3	1	2	3
Construction Time	1	1	2	3
Physical Constraints	1	1	3	2
Longevity	3	2	3	1
Operations and Maintence	2	1	2	3
Aesthetic	1	3	1	2
Changes to Public Traffic Patterns	2	1	3	2
Pedestrian Accessibility	2	2	3	1
Safety	3	3	2	1
Totals		31	43	34

Questions?