Nantucket Planning & Economic Development Commission

Old South Road Corridor Study:
First Project Meeting

Public Safety Facility
4 Fairgrounds Road
Nantucket, MA

June 19, 2017 (6:00PM)

BETA

Source: Flickr User thisisbossi

Presentation Outline

1. Project Goals
2. Scope of Services
3. Reference Materials
4. Study Area
5. Data Compilation
6. Existing Conditions
   - Analysis
   - Deficiencies
   - Existing Recommendations
7. Next Steps
8. Discussions

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Project Goals

- Develop *Short Term, Mid Term, and Long Term* strategies that would improve safety, congestion, and connectivity for all modes of transportation within the study area.
  - → Connectivity Between OSR and Areas North and South
  - → Left Turn Movements from Ancillary Roadways to OSR
  - → Bus Stop Locations and Amenities
  - → Bicycle and Pedestrian Crossings Safety
  - → Bicycle and Pedestrian Connectivity on South Side of OSR

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Scope of Services

1. Kickoff Meeting
   - Discuss Key Issues
   - Secure Available Project Information
2. Field Investigations
3. Data Compilation
4. Crash Data Analysis
5. Traffic Capacity Analysis
6. Develop Alternative Concepts
7. Final Report

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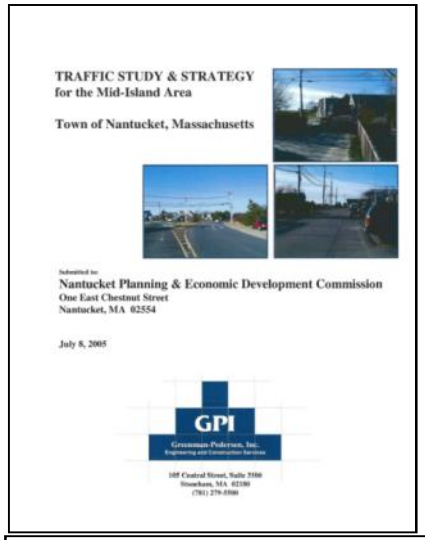
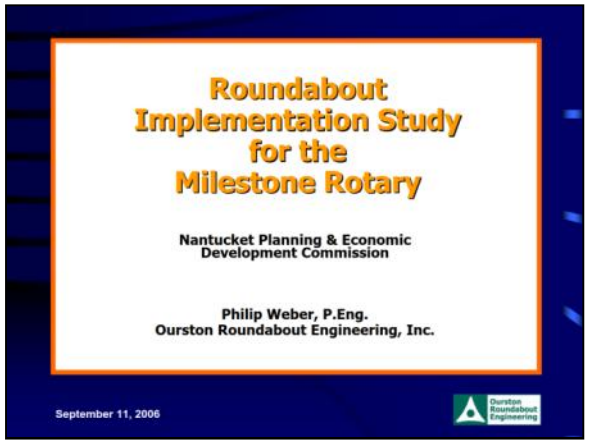
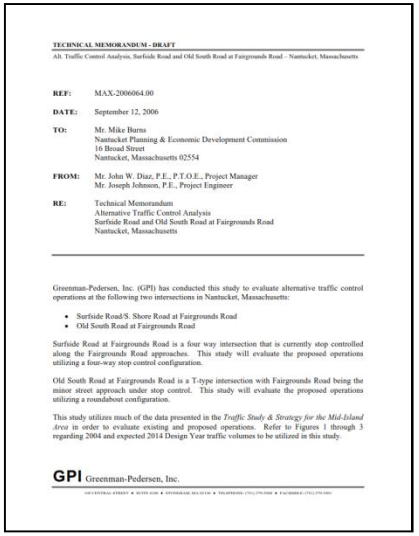
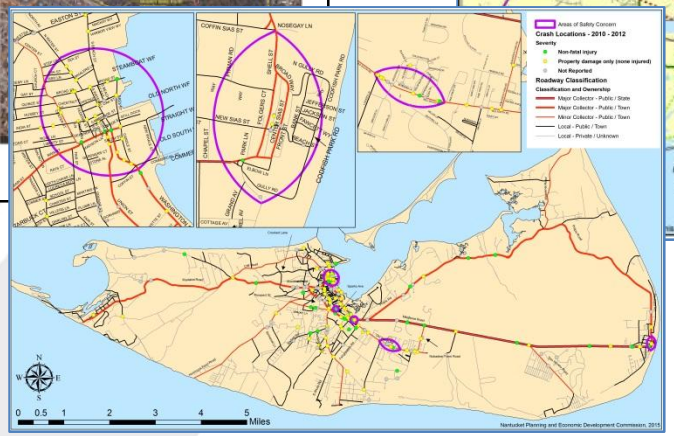
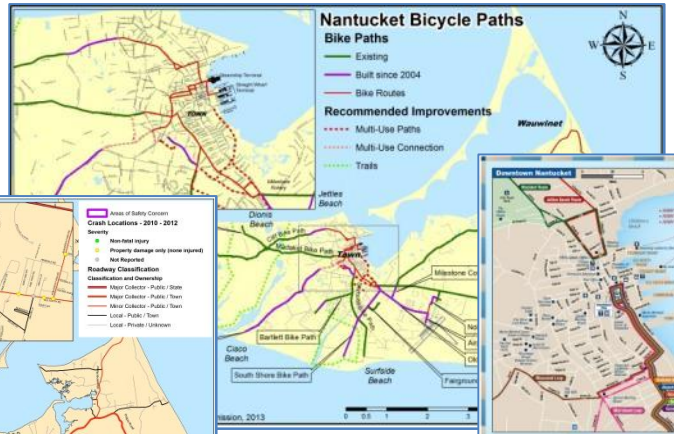
Reference Materials











Study Area

- 11 Study Area Intersections
  1. Milestone Road at Monomoy Road
  2. Milestone Road at Polpis Road
  3. Milestone Road at Nobadeer Farm Road
  4. James Coffin Memorial Rotary
  5. Old South Road at Fairgrounds Road
  6. Old South Road at Amelia Drive
  7. Old South Road at Youngs Way
  8. Old South Road at Lovers Lane
  9. Old South Road at Greglen Avenue / Goldfinch Drive
  10. Old South Road at Airport Road / Macy's Lane
  11. Old South Road at Nobadeer Farm Road

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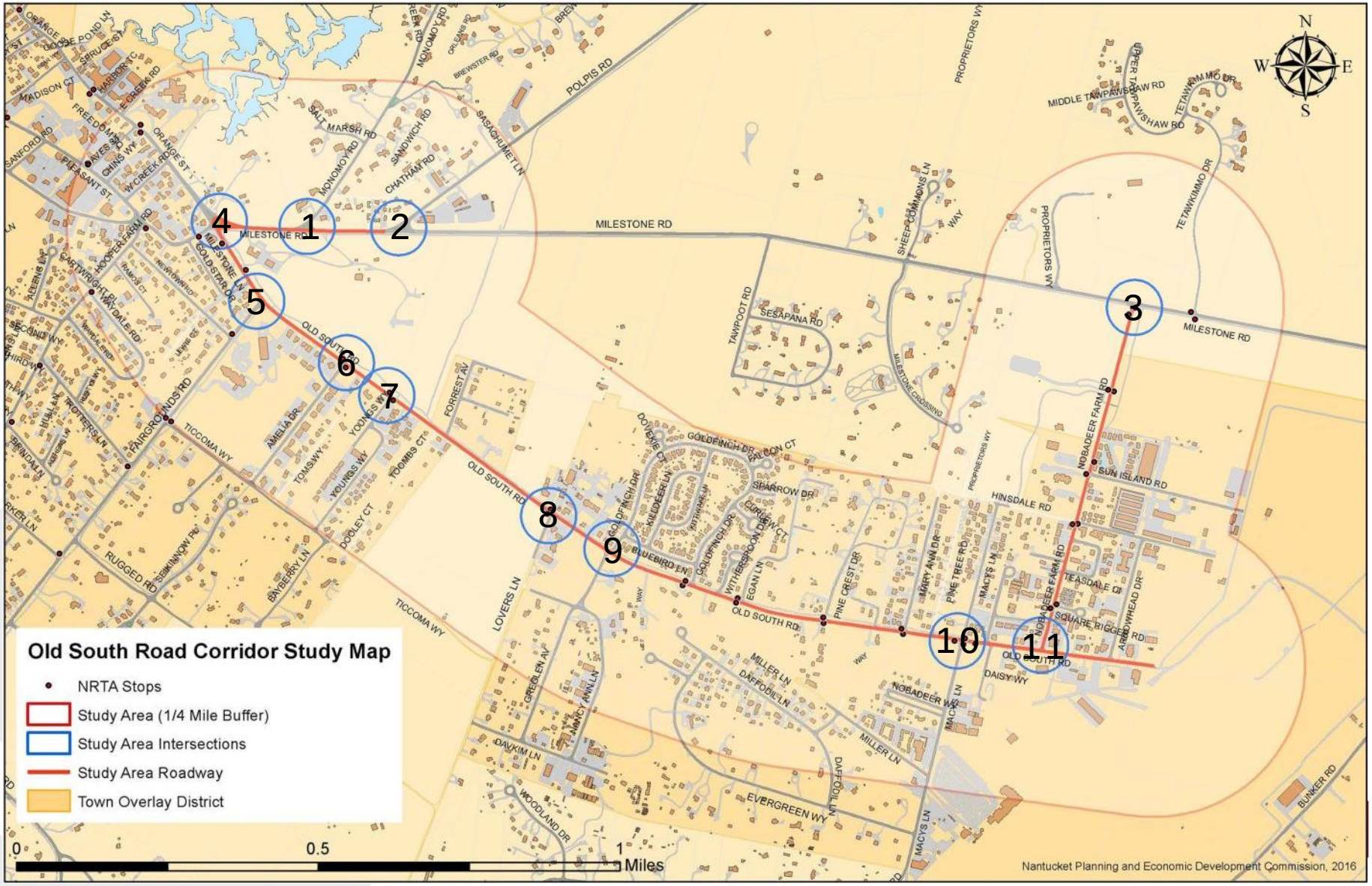
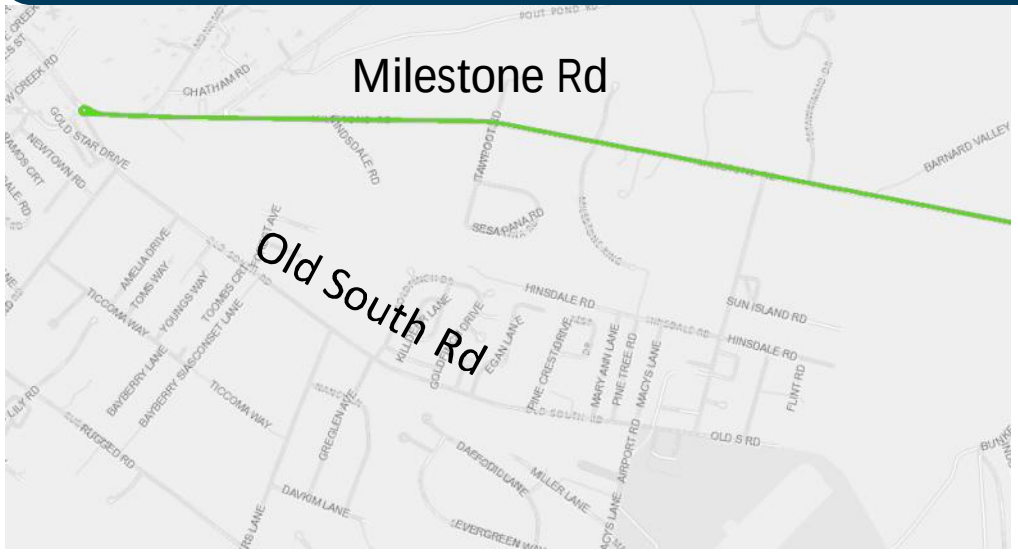
Study Area


Old South Road Corridor Study Map
NRTA Stops
Study Area (1/4 Mile Buffer)
Study Area Intersections
Study Area Roadway
Town Overlay District
0
0.5
1
Miles
Nantucket Planning and Economic Development Commission, 2016
1
2
3
4
5
6
7
8
9
10
11
MILESTONE RD
OLD SOUTH RD
POLPIS RD
MONOMOY RD
SALT MARSH RD
SANDWICH RD
CHATHAM RD
SASACHUMET LN
PROPRIETORS WY
SHEEP COMMONS LN
TAWPOOT RD
SESAPANA RD
MILESTONE CROSSING
MIDDLE TAWPAWSHAW RD
UPPER TAWPAWSHAW RD
TETAWKIMMO DR
NOBADEER FARM RD
SUN ISLAND RD
HINSDALE RD
TEASDALE DR
SQUARE RIGGER RD
ARROWHEAD DR
DAISY WY
NOBADEER WY
MACY'S LN
PINE TREE RD
MARY ANN DR
PINE CREST DR
MILLER LN
DAFFODIL LN
EVERGREEN WY
DAVKIM LN
WOODLAND DR
NANCY ANN LN
GREGLEN AV
LOVERS LN
TICCOMA WY
RUGGED RD
FAIRGROUNDS RD
FORREST AV
BLUEBIRD LN
GOLDFINCH DR
SPARROW DR
EGAN LN
WITHERSPOON DR
KILDEER LN
DOVEKIE CT
PALOON CT
GOLDFINCH CT
CURLEW CT
YOUNGS WY
TOMS WY
TOOMBS CT
DOOLEY CT
AMELIA DR
BAYBERRY LN
SEMINNOW RD
BUNKER RD
N
S
E
W

Study Area



Jurisdiction Roads

Mile_Point

Jurisdiction

- Massachusetts Department of Transportation
- Other State Agency
- Department of Conservation and Recreation
- Federal
- County Institutional
- City or Town accepted road

Federal Aid Roads

Federal-Aid Eligible

- Interstate
- Other Road - NHS
- STP Eligible
- STP Road (Capped at 15% of total STP Funds)
- Not Federal-Aid Eligible

STP = Surface Transportation Program

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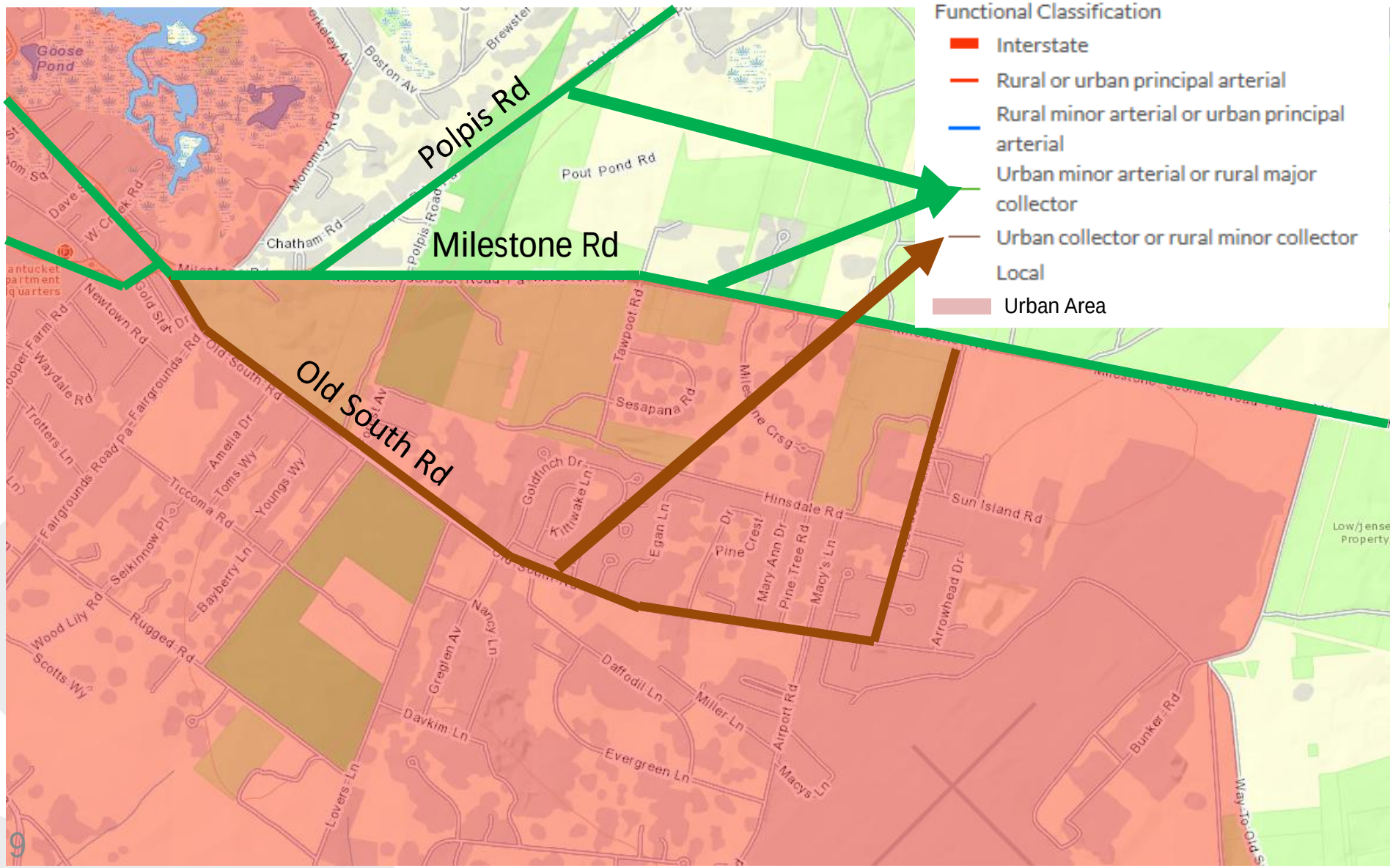
Study Area


Functional Classification
Interstate
Rural or urban principal arterial
Rural minor arterial or urban principal arterial
Urban minor arterial or rural major collector
Urban collector or rural minor collector
Local
Urban Area
Polpis Rd
Milestone Rd
Old South Rd
Goose Pond
Pout Pond Rd
Chatham Rd
Boston Av
Brewster
Monomoy Rd
Newtown Rd
Waydale Rd
Fairgrounds Rd
Old South Rd
Tawpoot Rd
Sesapana Rd
Goldfinch Dr
Kittiwake Ln
Egan Ln
Hinsdale Rd
Pine Crest
Mary Ann Dr
Pine Tree Rd
Macy's Ln
Sun Island Rd
Arrowhead Dr
Amelia Dr
Toms Wy
Youngs Wy
Ticcoma Rd
Seikinnow Pl
Bayberry Ln
Wood Lily Rd
Rugged Rd
Scotts Wy
Nancy Ln
Gregien Av
Daffodil Ln
Miller Ln
Davkim Ln
Evergreen Ln
Airport Rd
Macys Ln
Lovers Ln
Bunker Rd
Low/Dense Property

Data Compilation

- Historical Data obtained from NP&EDC
  - Various Years: 2013, 2014, 2015
  - Data collected in July and August
- Existing Conditions - 2017
  - Historical Data was grown at 1% per year for 2, 3, and 4 years to reflect common 2017 conditions
- Future Conditions - 2024
  - Existing Conditions were grown at 1% per year for 7 years
  - Include future permitted developments

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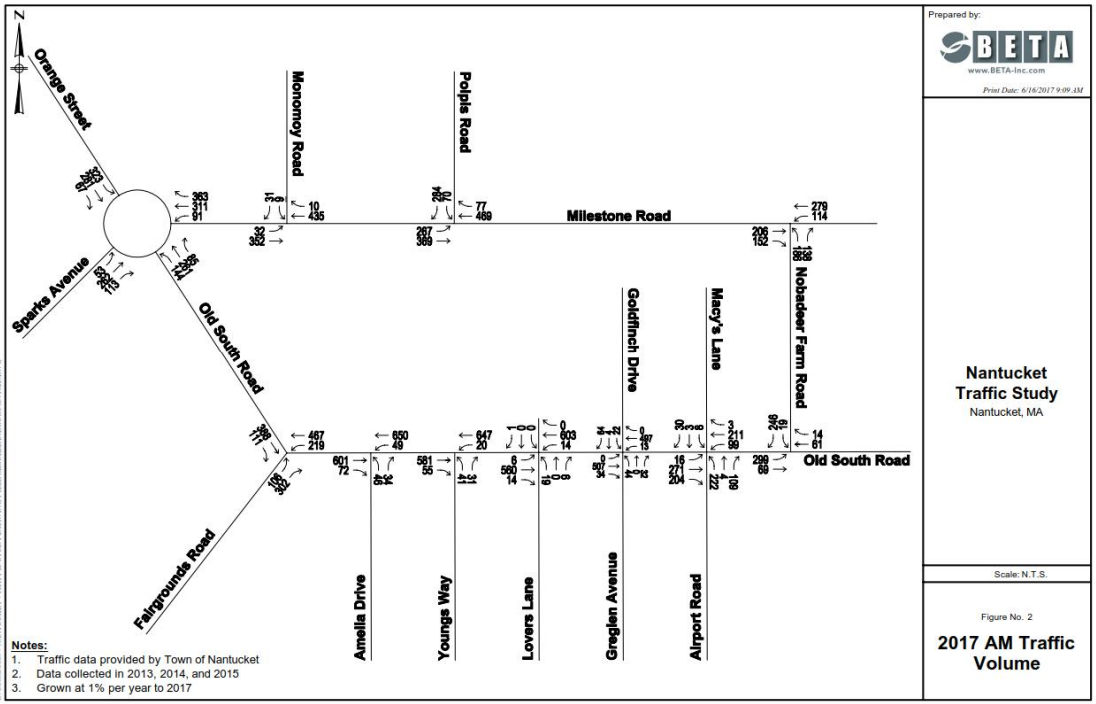
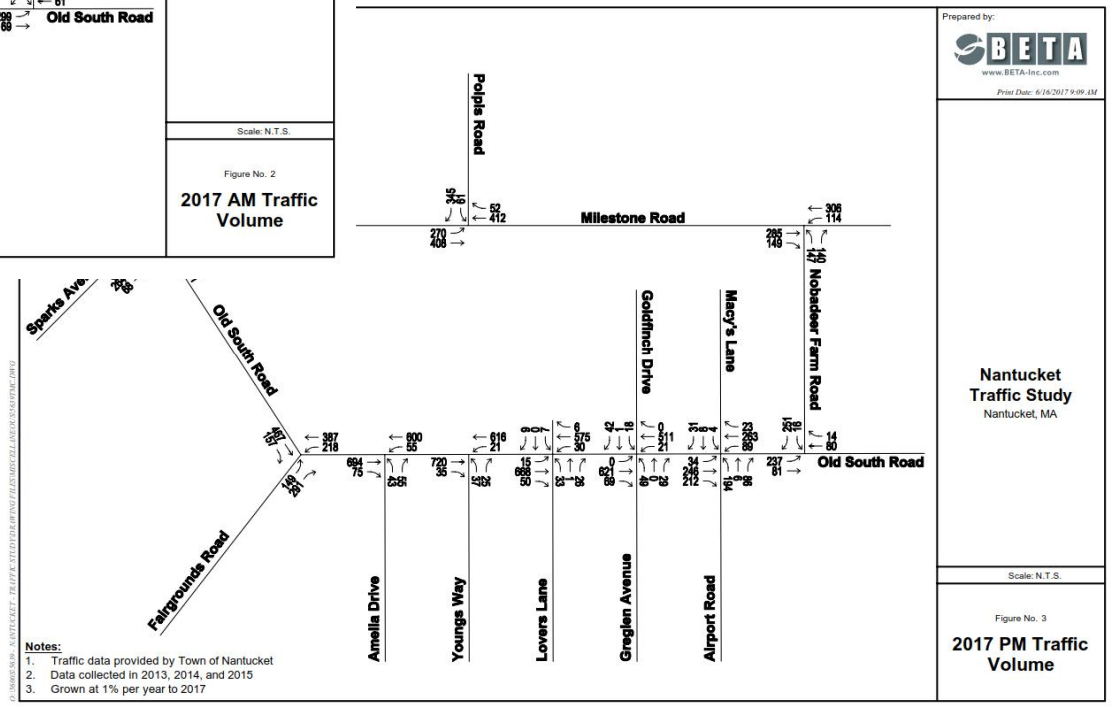
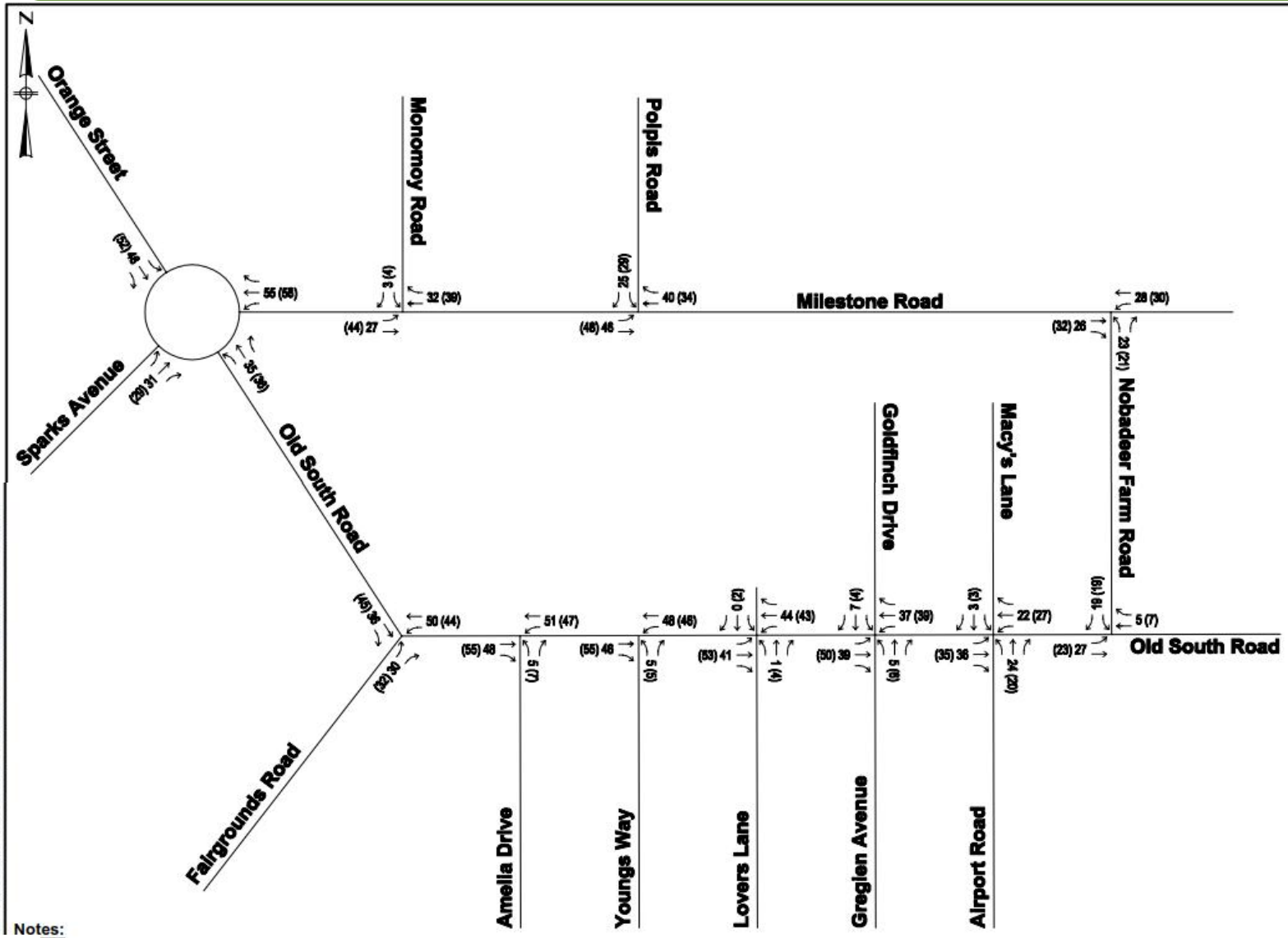
2017 AM & PM Existing Conditions





2024 AM 7 PM Future Conditions



Notes:
AM(PM) volume growth
Grown at 1% per year for 7 years.

Prepared by:
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Print Date: 6/14/2017 10:18 AM

Nantucket Traffic Study
Nantucket, MA

Scale: N.T.S.

Figure No. 6

7 Year Traffic Growth

Average Daily Traffic (ADT)

ATR Loc.	Location	Weekday ADT	*Dir. Dist.*	Saturday ADT	*Dir. Dist.*
1	Old South Road Btw Fairgrounds & Amelia	16,150	*53% East*	14,835	*51% East*
2*	Milestone Road Btw Rotary & Monomoy	17,500	--	15,000	--
3	Monomoy Road Btw Chatam & Salt Marsh	1,775	*50% North*	--	--
4	Fairgrounds Road Btw Newton & Ticcoma	9,610	*53% North*	8,365	*51% North*
5	Nobadeer Farm Road Btw Park Cir & Milestone	6,430	*54% North*	4,535	*53% North*

* Data collected in 2015 via MassDOT Count Station 253515
All others collected in 2016 by NP&EDC

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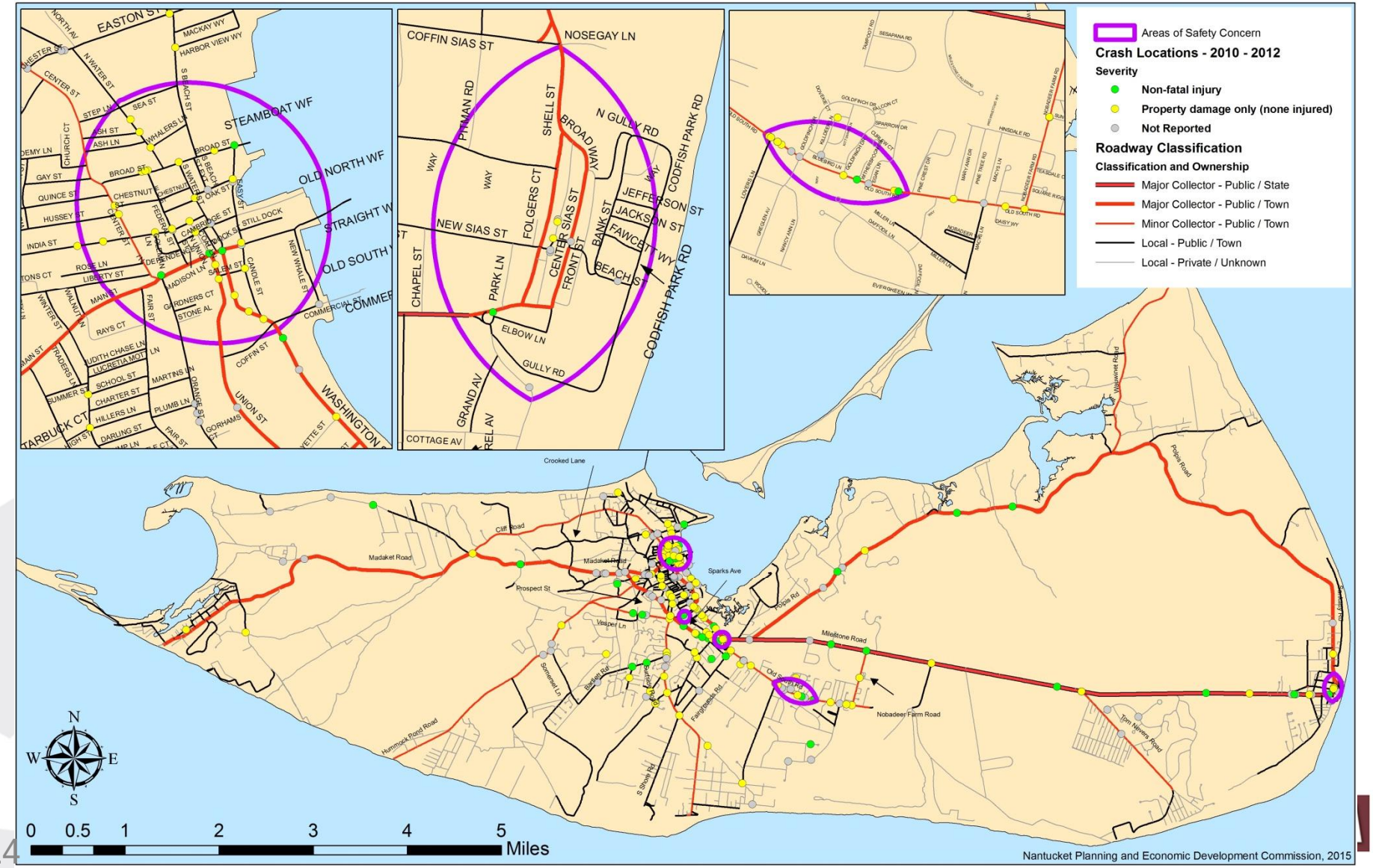
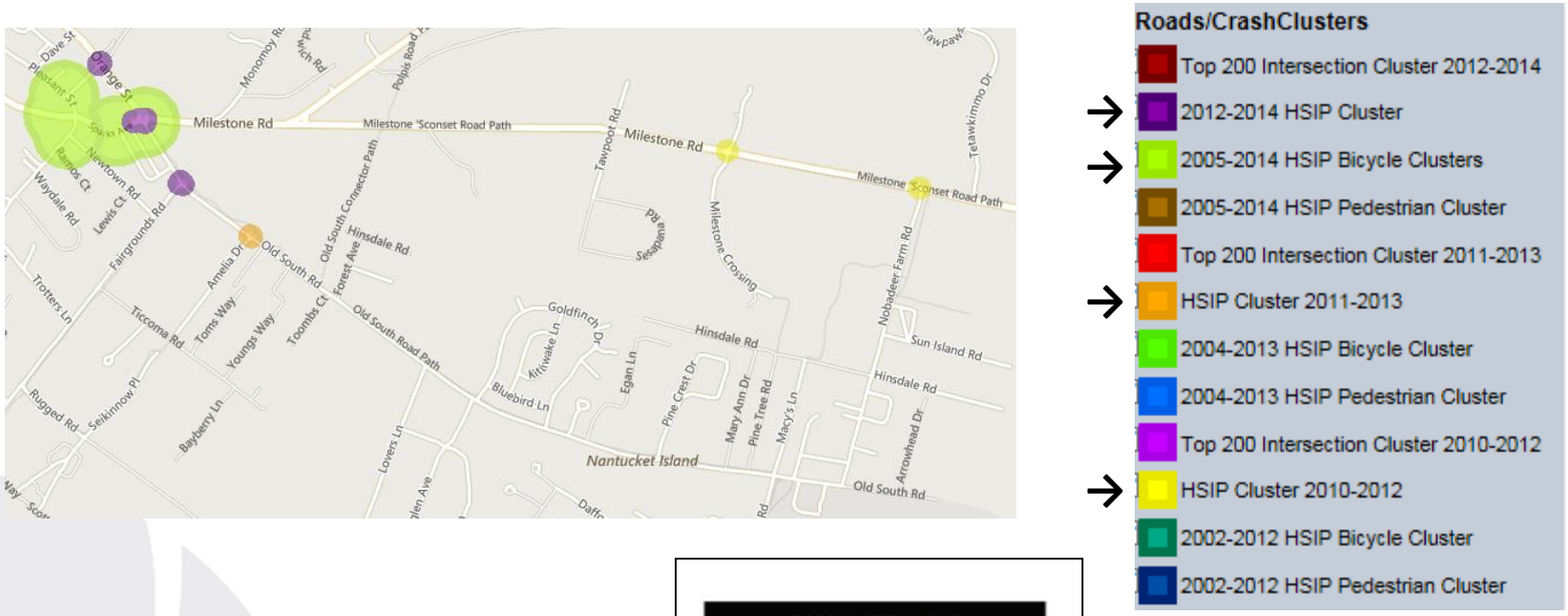
Crash Data Analysis



Crash Data Analysis

§ Highway Safety Improvement Plan (HSIP) Clusters



§ Road Safety Audit (RSA) (April 2017)

ROAD SAFETY AUDIT

Milestone Road

Nantucket, MA

April 14, 2017

Prepared For:
Massachusetts Department of Transportation

massDOT

Prepared By:
Toole Design Group
2 Oliver Street, Suite 305
Boston, MA 02109

Crash Data Analysis

- MassDOT Crash Database
  - Most Recent 3 Years of Available Data
    - 2012, 2013, 2014

Year	Collision Type								Accident Type				Ambient Light					Weather Condition					Total Crashes
	Angle	Rear-End	Head On	Sideswipe, Same Dir	Sideswipe, Opp. Dir	Pedestrian/Bike	Single Vehicle Crash	Unknown	Property Damage	Non-Fatal Injury	Fatal Injury	Not Reported	Daylight	Dawn/Dusk	Dark Lighted Roadway	Dark Non-Lighted Roadway	Unknown	Clear	Cloudy	Rain	Snow	Unknown	
Old South Road at Fairgrounds Road (Unsignalized)																							Crash Rate: 0.45 MEV
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
2013	-	2	-	1	-	-	1	-	1	-	-	3	4	-	-	-	-	2	1	-	1	-	4
2014	-	6	-	-	-	-	1	-	3	3	-	1	7	-	-	-	-	3	3	1	-	-	7
Total	0	8	0	1	0	0	2	0	4	3	0	4	11	0	0	0	0	5	4	1	1	0	11

* No crashes involving Mopeds or Scooters were reported.

Crash Data Analysis

	Location	Rear-End	Ped/Bike	Injury	Total
1*	Milestone @ Monomoy	0	0	0	0
2*	Milestone @ Polpis	4	0	1	5
3*	Milestone @ Nobadeer	1	1	1	6
4*	James Coffin Mem. Rotary	4	2	2	7
5	OSR @ Fairgrounds	8	0	3	11
6	OSR @ Amelia	2	0	1	3
7	OSR @ Youngs	0	0	0	0
8	OSR @ Lovers	2	0	1	4
9	OSR @ Greglen/Goldfinch	0	0	1	3
10	OSR @ Macys/Airport	1	0	0	2
11	OSR @ Nobadeer	1	0	0	1

* Locations examined as part of April 2017 Road Safety Audit

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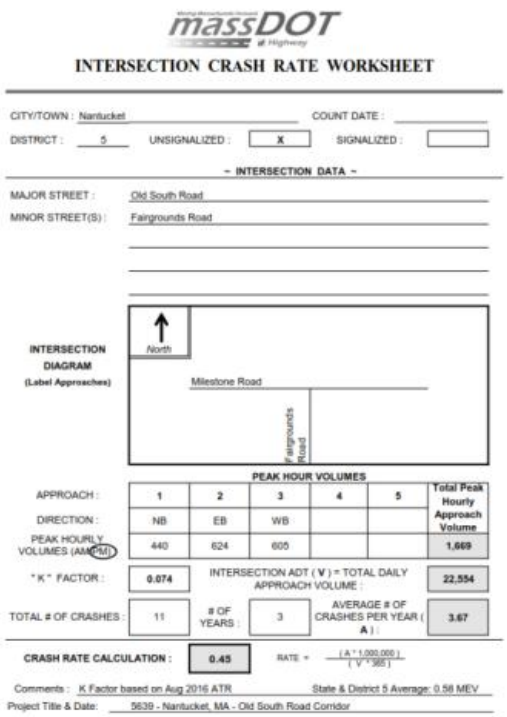
Crash Data Analysis

- Crash Rates
  - The number of estimated crashes that occur at an intersection <u>per one million entering vehicles (MEV)</u>



massDOT

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Nantucket COUNT DATE :

DISTRICT : 5 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Old South Road

MINOR STREET(S) : Fairgrounds Road

INTERSECTION DIAGRAM (Label Approaches)

North

Milestone Road

Fairgrounds Road

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	EB	WB			
PEAK HOURLY VOLUMES (AM/PM)	440	624	605			1,669

"K" FACTOR :	0.074	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :			22,554
TOTAL # OF CRASHES :	11	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	3.67

CRASH RATE CALCULATION : 0.45 RATE = (A * 1,000,000) / (V * 365)

Comments : K Factor based on Aug 2016 ATR State & District 5 Average: 0.58 MEV

Project Title & Date: 5639 - Nantucket, MA - Old South Road Corridor

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Crash Data Analysis

	Location	Crash Rate	State & District 5 Average Crash Rate
1	Milestone @ Monomoy	0.00	0.58
2	Milestone @ Polpis	0.27	
3	Milestone @ Nobadeer	0.38	
4	James Coffin Mem. Rotary	0.24	
5	OSR @ Fairgrounds	0.45	
6	OSR @ Amelia	0.13	
7	OSR @ Youngs	0.00	
8	OSR @ Lovers	0.18	
9	OSR @ Greglen/Goldfinch	0.14	
10	OSR @ Macys/Airport	0.11	
11	OSR @ Nobadeer	0.09	

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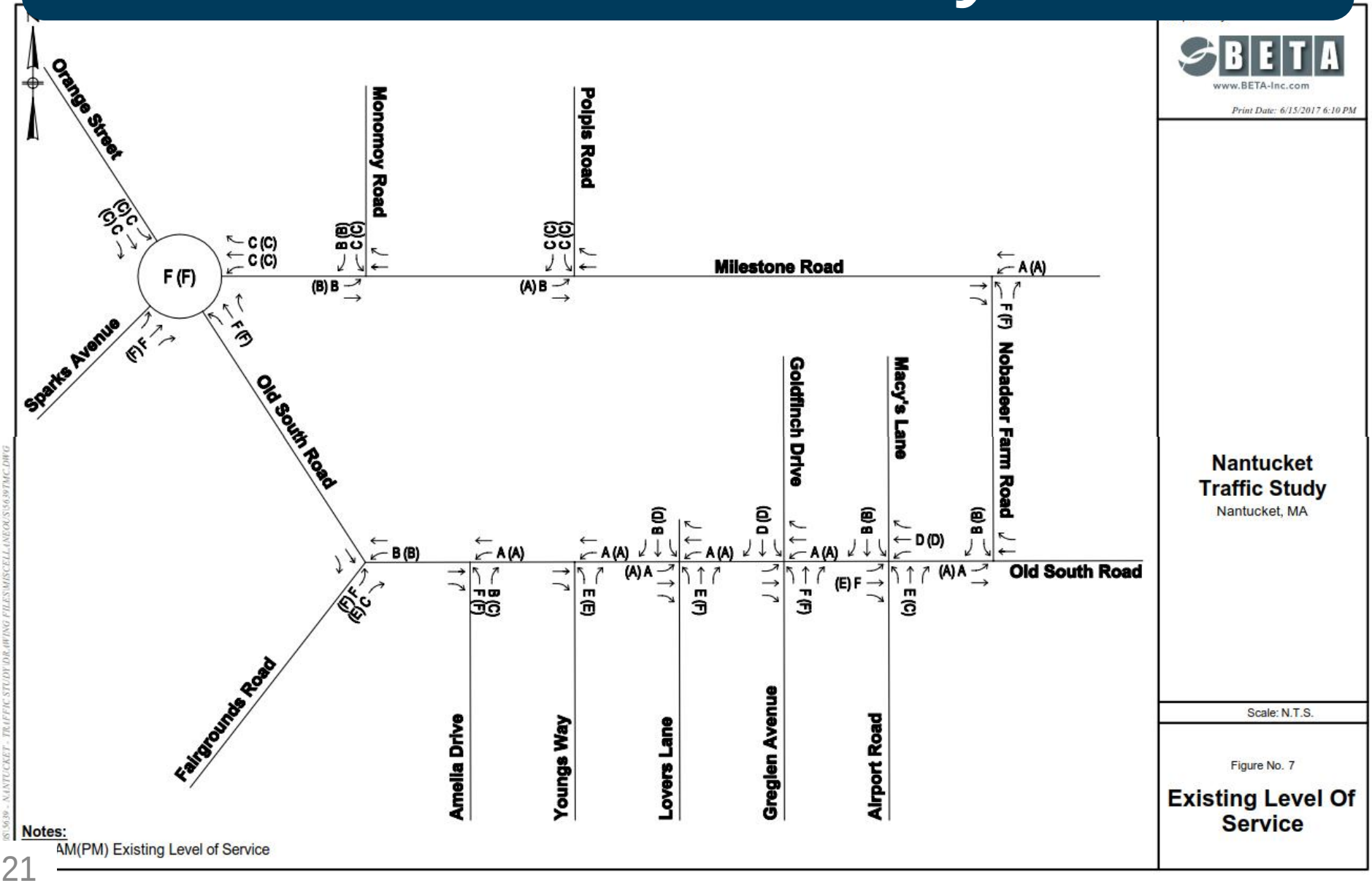
Traffic Capacity Analysis

Traffic analysis based on Level of Service (LOS), delays, v/c, and queues.

- LOS – Letter scale based on average delay (seconds) per vehicle
  - A = Free Flow (desirable)
  - F = Traffic Jam (undesirable)
- Delay – The amount of time a car has to wait

LOS	Unsignalized Average Total Delay	General Description
A	< 10.0	Free Flow
B	10.1 to 15.0	Stable flow
C	15.1 to 25.0	Stable flow
D	25.1 to 35.0	Approaching unstable flow
E	35.1 to 50.0	Unstable flow
F	> 50.0	Jammed

LOS Summary



Notes:
AM(PM) Existing Level of Service

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Print Date: 6/15/2017 6:10 PM

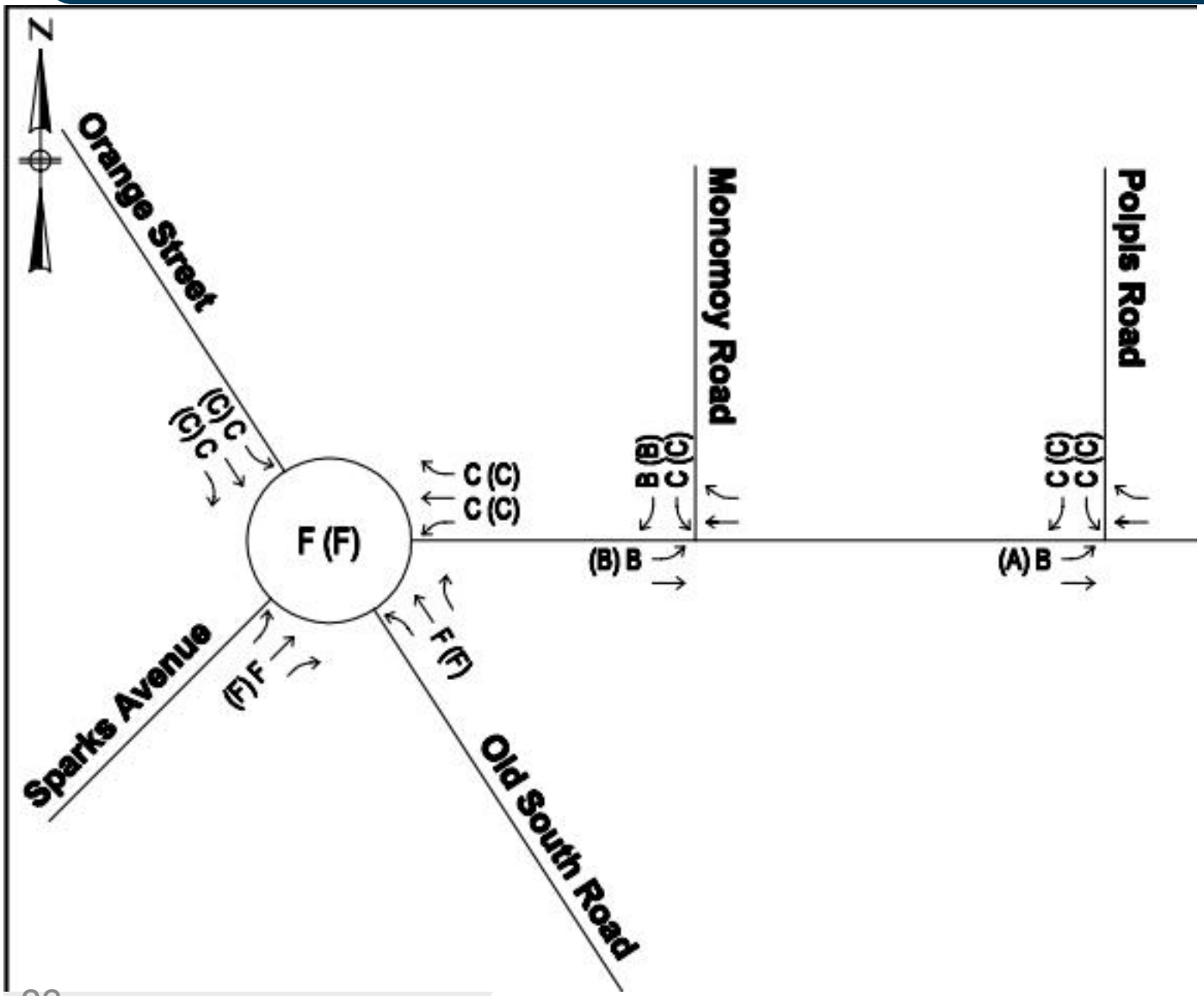
Nantucket
Traffic Study
Nantucket, MA

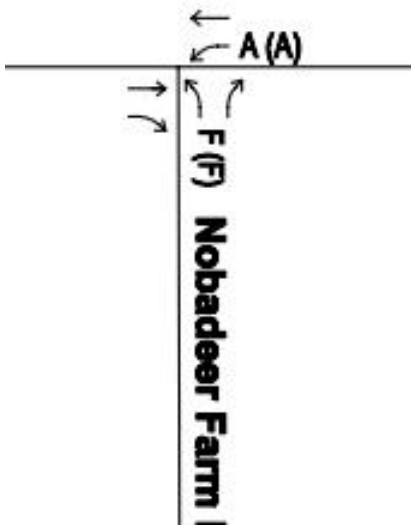
Scale: N.T.S.

Figure No. 7

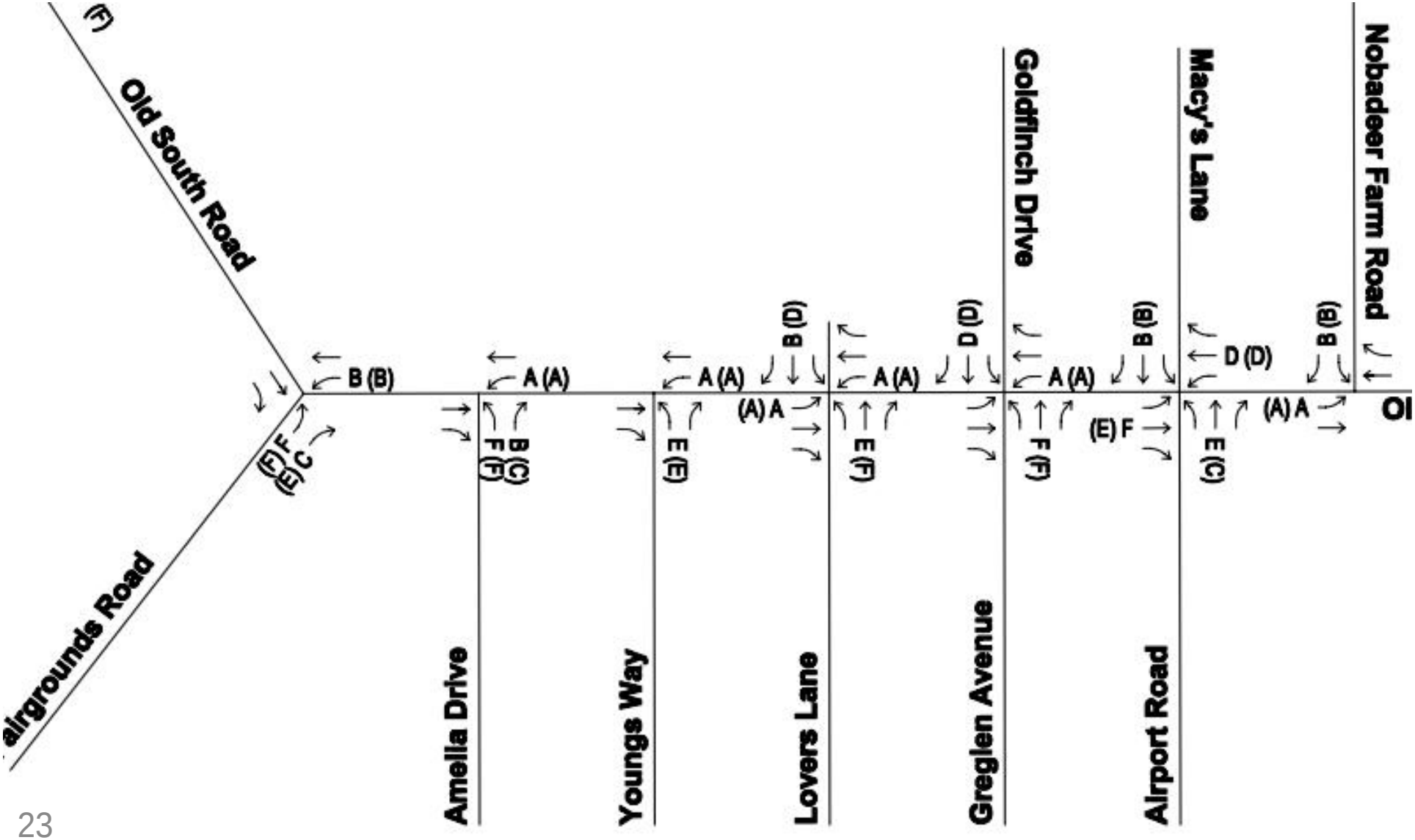
Existing Level Of Service

LOS Summary


Polpis Road
Monomoy Road
Orange Street
Sparks Avenue
Old South Road
N
(A) B
C C
(B) B
C (C)
C (C)
F (F)
(C) C
(C) C
(F) F
F (F)


Nobadeer Farm
A (A)
F (F)

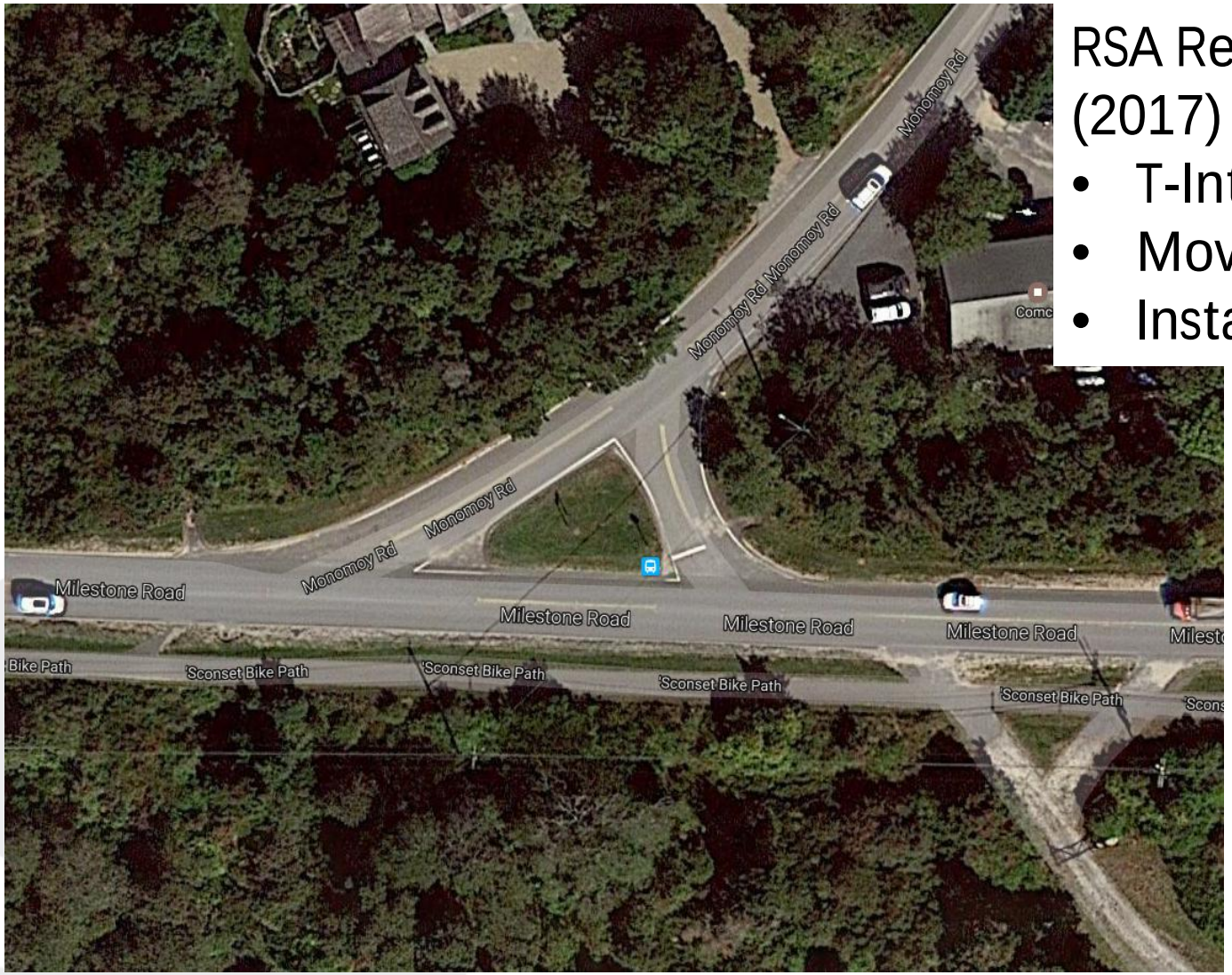
LOS Summary


Nobadeer Farm Road
Macy's Lane
Goldfinch Drive
Airport Road
Greglen Avenue
Lovers Lane
Youngs Way
Amelia Drive
Old South Road
airgrounds Road
B (B)
D (D)
A (A)
(A) A
E (C)
(E) F
F (F)
E (E)
B (C)
(F) F
(E) C

Intersection Discussion

1. Existing Deficiency
   - Volumes
   - Safety
   - Operation
2. Previous Study
3. Discussion (5 Min)

1. Milestone at Monomoy



RSA Recommendations (2017)

- T-Intersection
- Move Bus Stop
- Install Crosswalks

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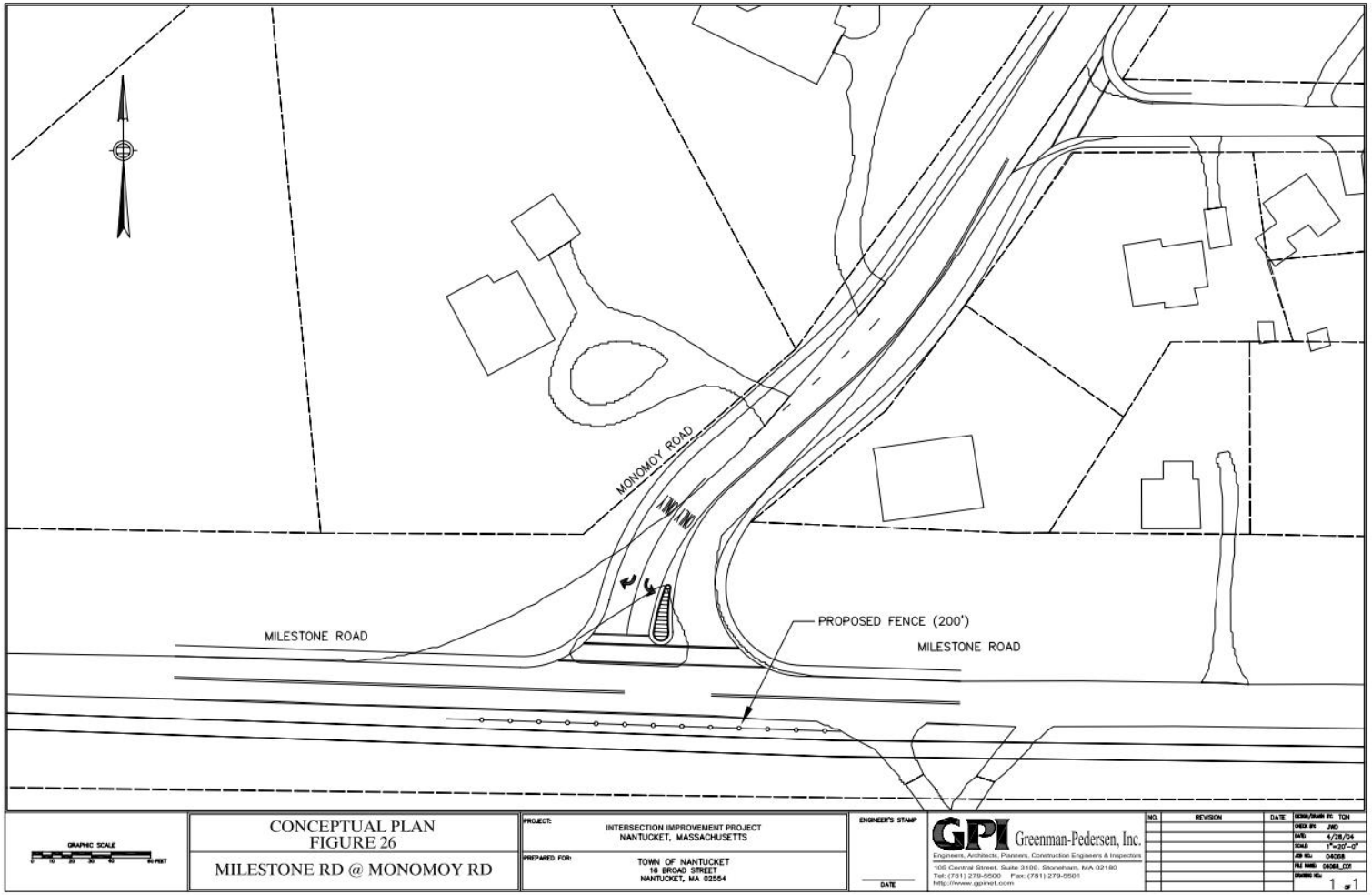
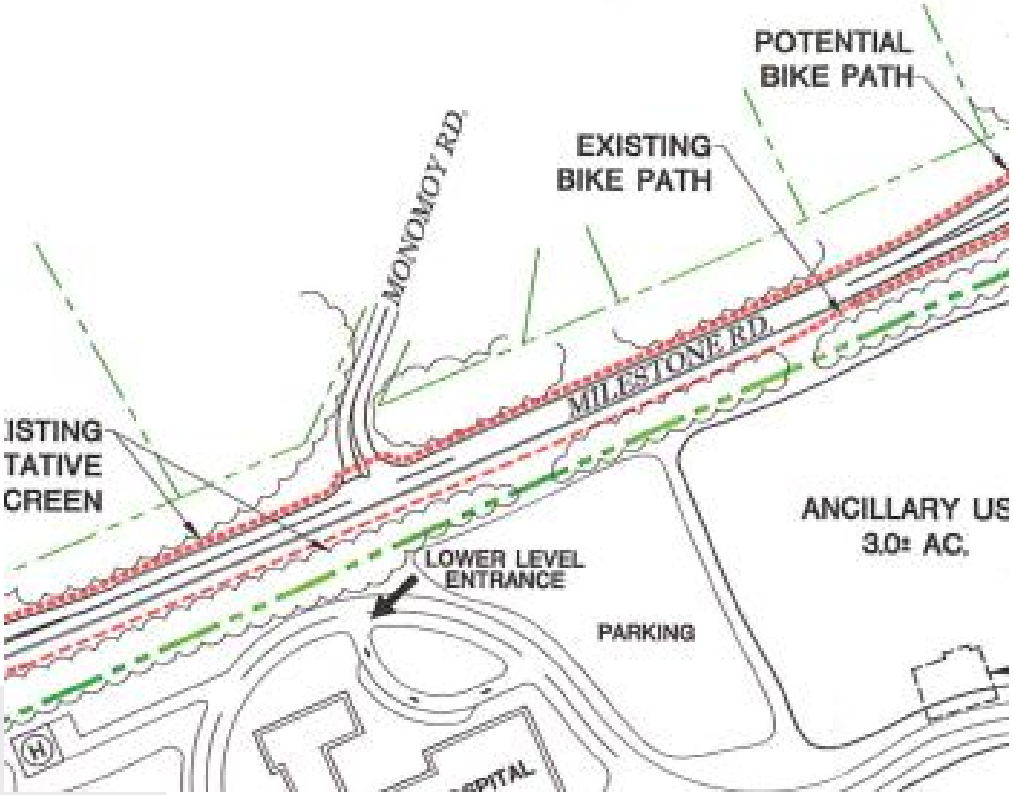
1. Milestone at Monomoy

§ Two Lane "T-type" Approach (2004)



1. Milestone at Monomoy

§ Single Lane "T-type" Approach (2013)*



* Previously proposed hospital project.

2. Milestone at Polpis

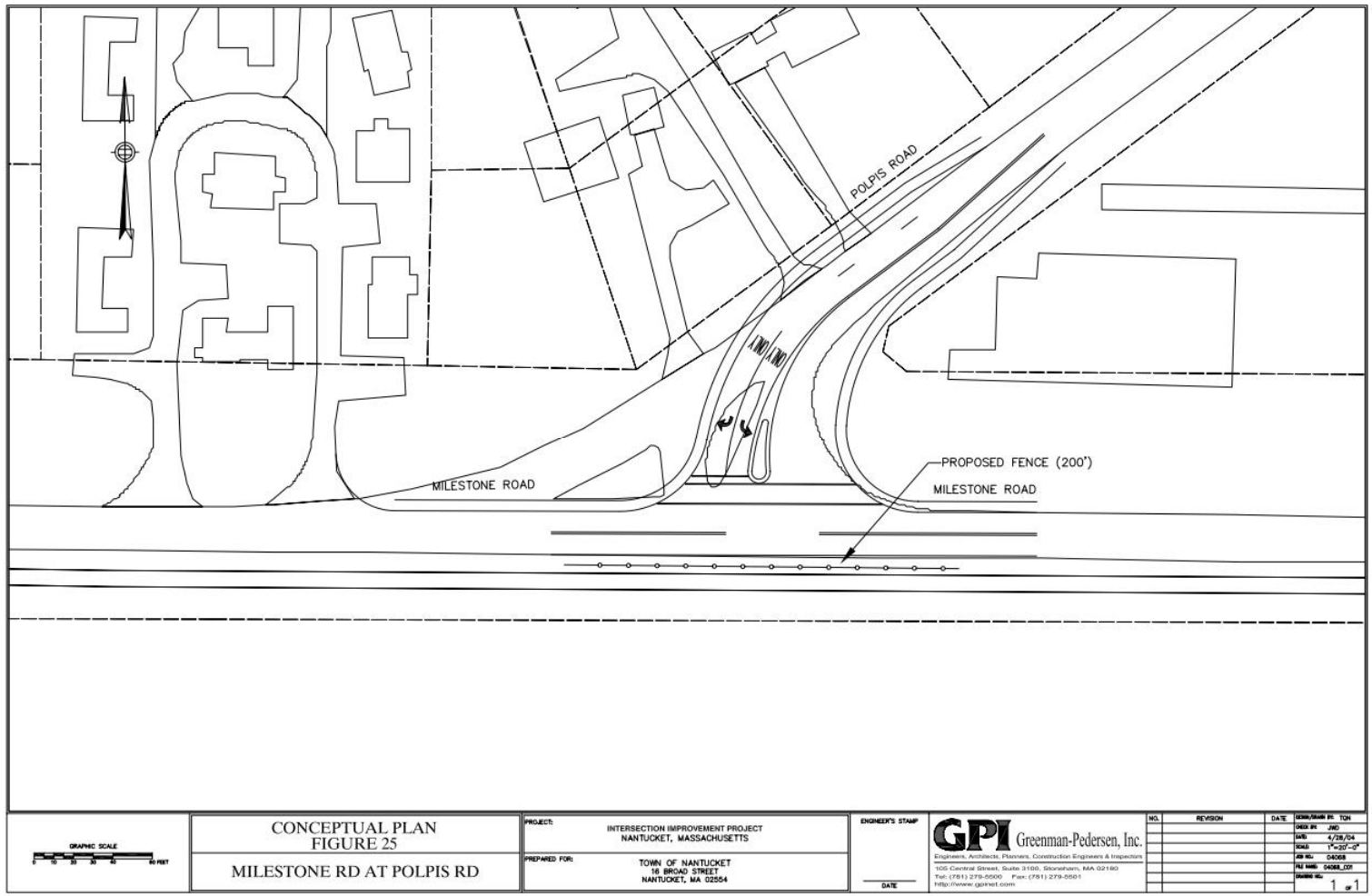
RSA Recommendations (2017)

- Close middle link
- T-Intersection
- Install Crosswalks

** Known Fatality in 2015*

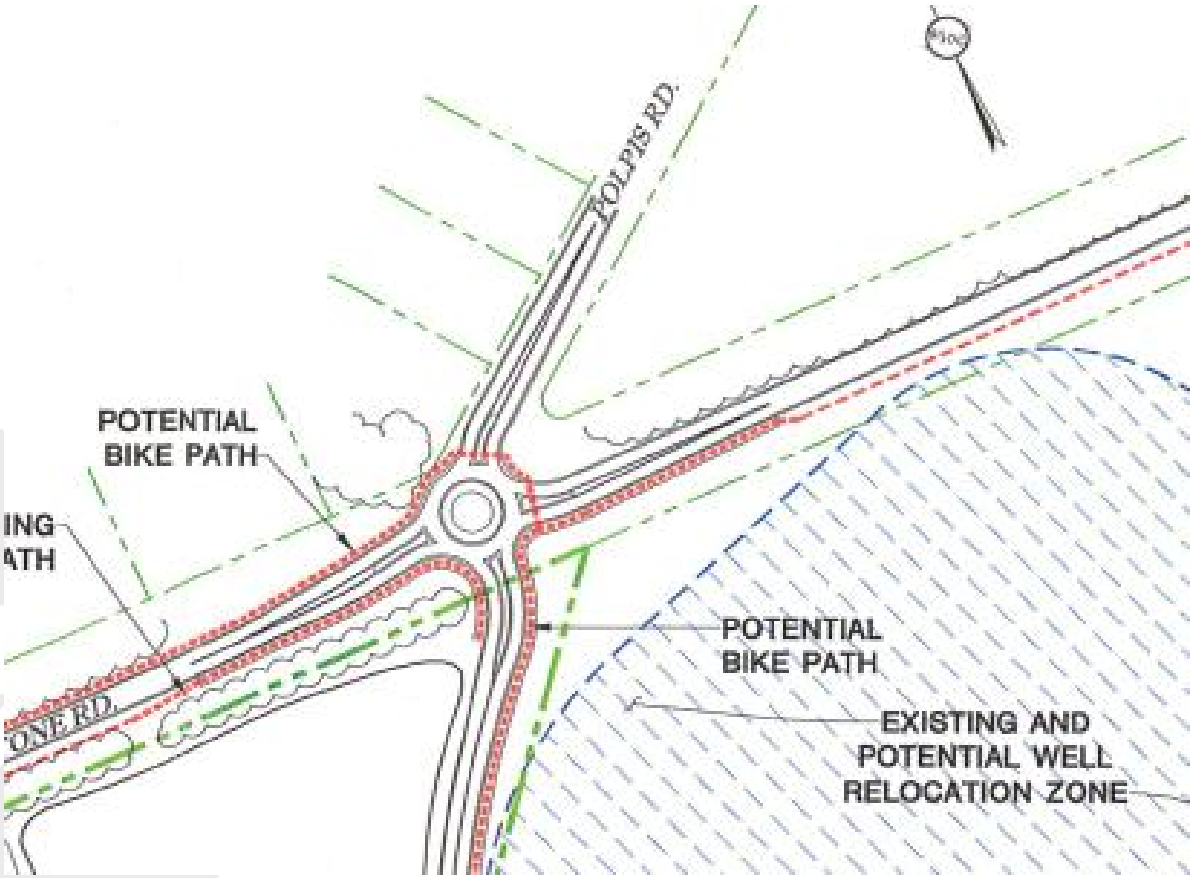
2. Milestone at Polpis

§ Two Lane "T-type" Approach (2004)



2. Milestone at Polpis

§ Modern Roundabout (2013)*



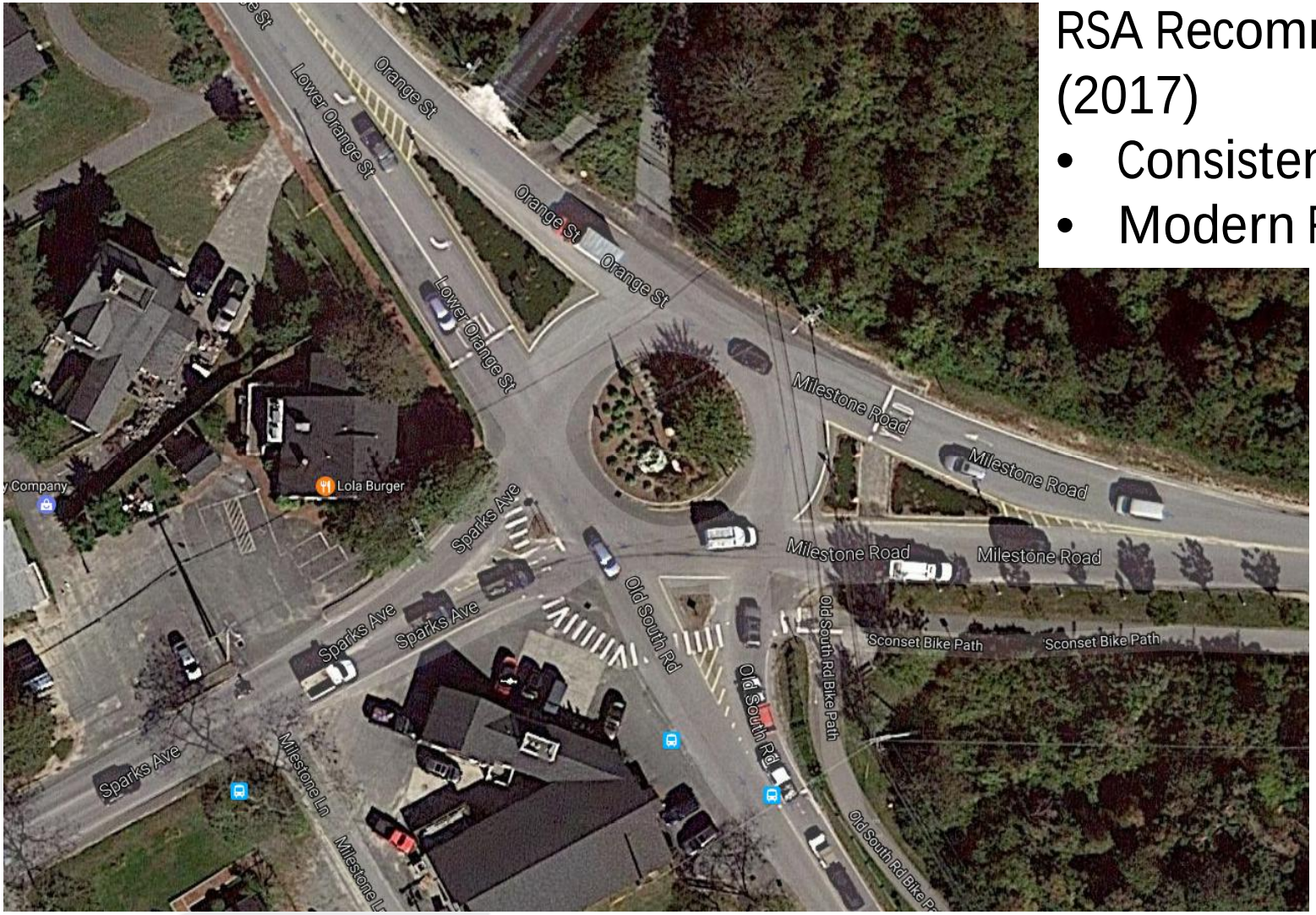
* Previously proposed hospital project.

3. Milestone at Nobadeer Farm

RSA Recommendations (2017)

- Eliminate Passing Zone
- Intersection Warning Signs
- Replace Stop Line

4. James Coffin Mem. Rotary



RSA Recommendations (2017)

- Consistent Signage
- Modern Roundabout

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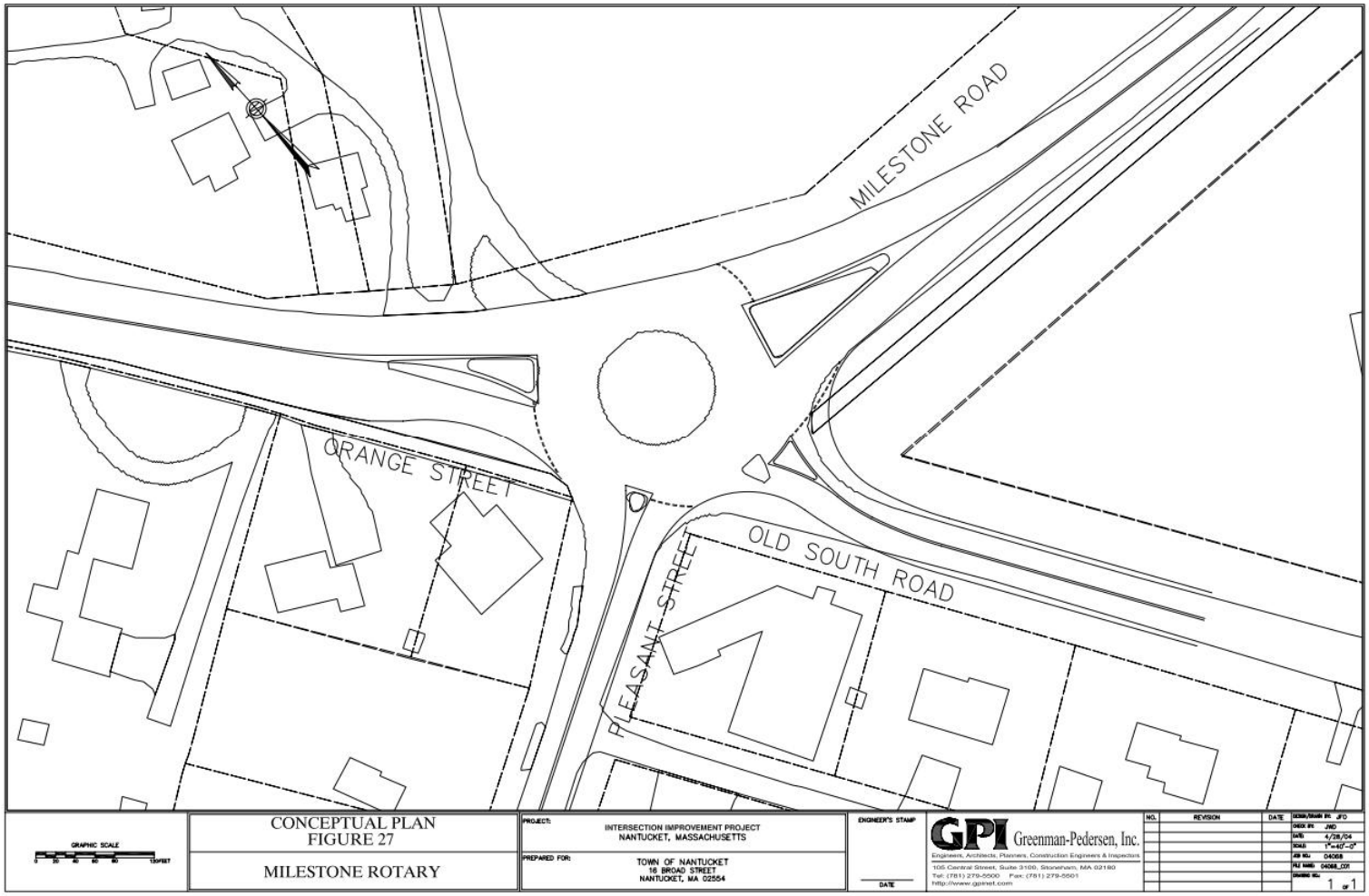
4. James Coffin Mem. Rotary

§ Single Lane Roundabout (2004)

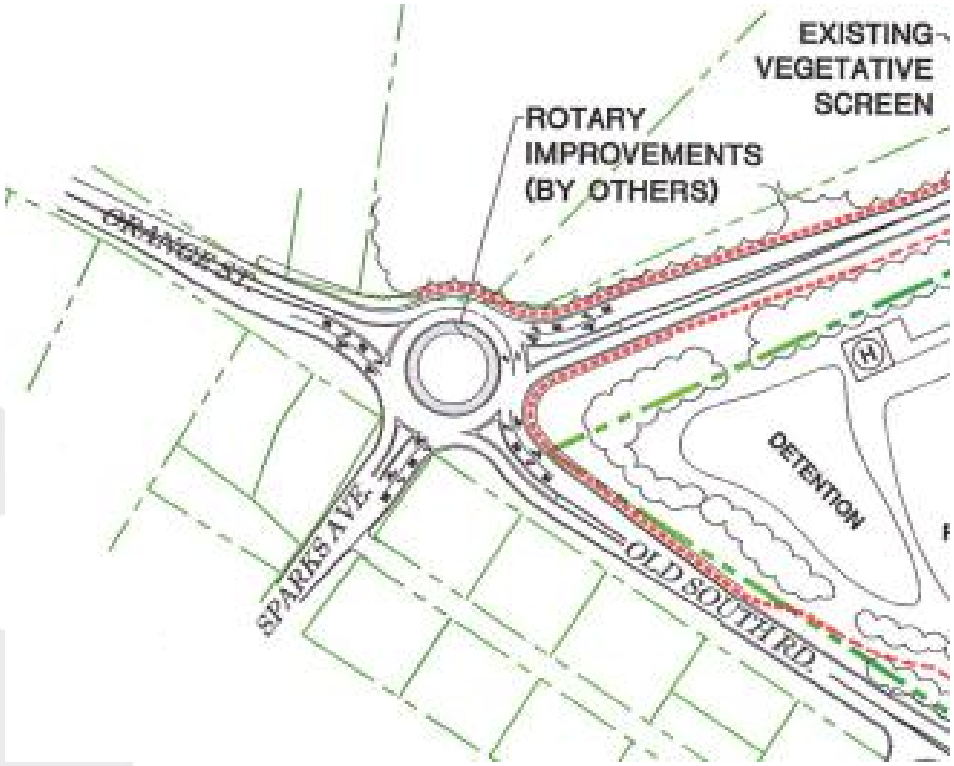


4. James Coffin Mem. Rotary

§ 2 Lane Modern Roundabout (2006)

4. James Coffin Mem. Rotary

§ 2 Lane Modern Roundabout (2013)*

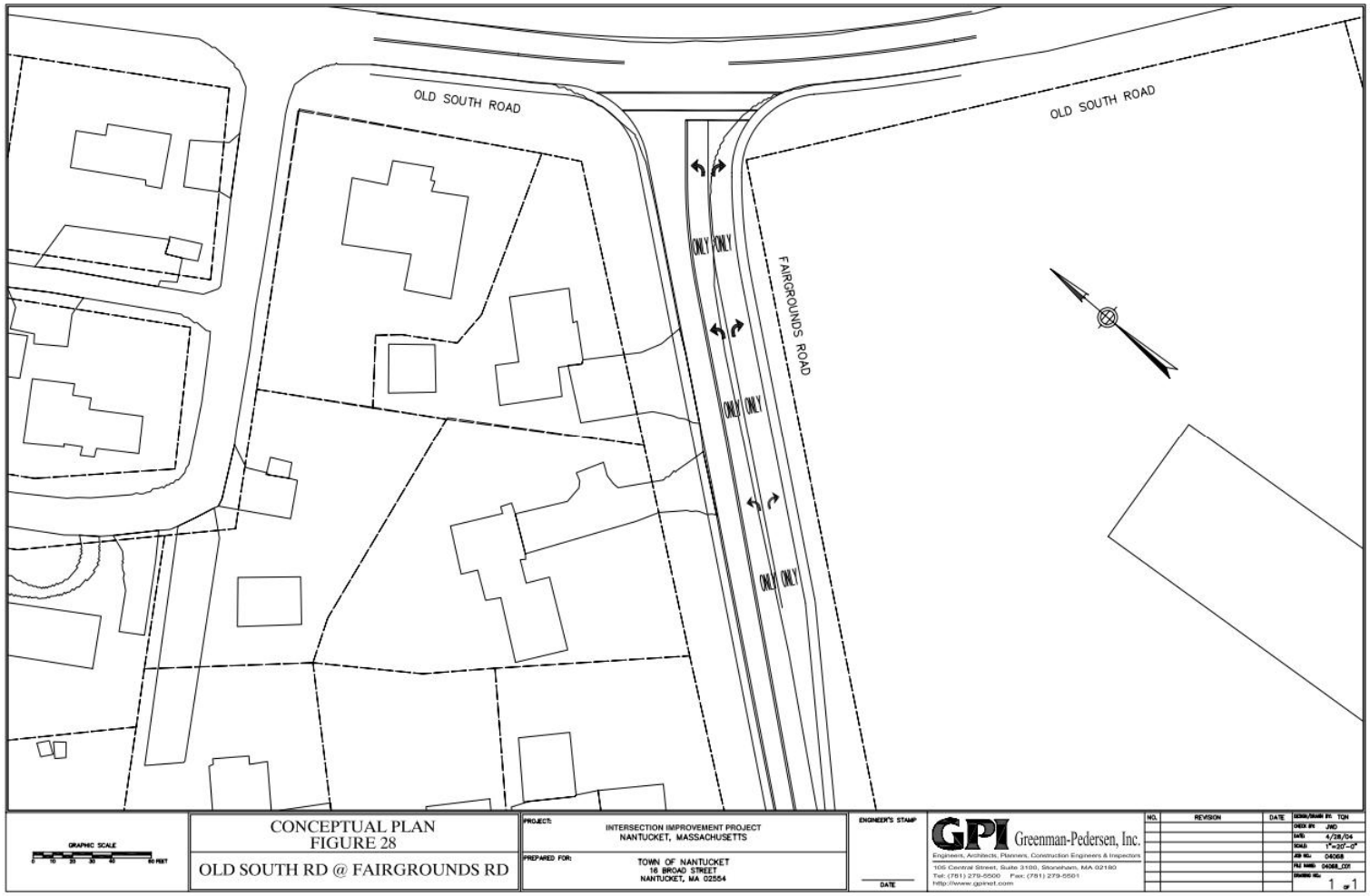


* Previously proposed hospital project.

5. OSR at Fairgrounds

5. OSR at Fairgrounds

§ Two Lane Approach (2004)



5. OSR at Fairgrounds

§ Single Lane Roundabout (2006)

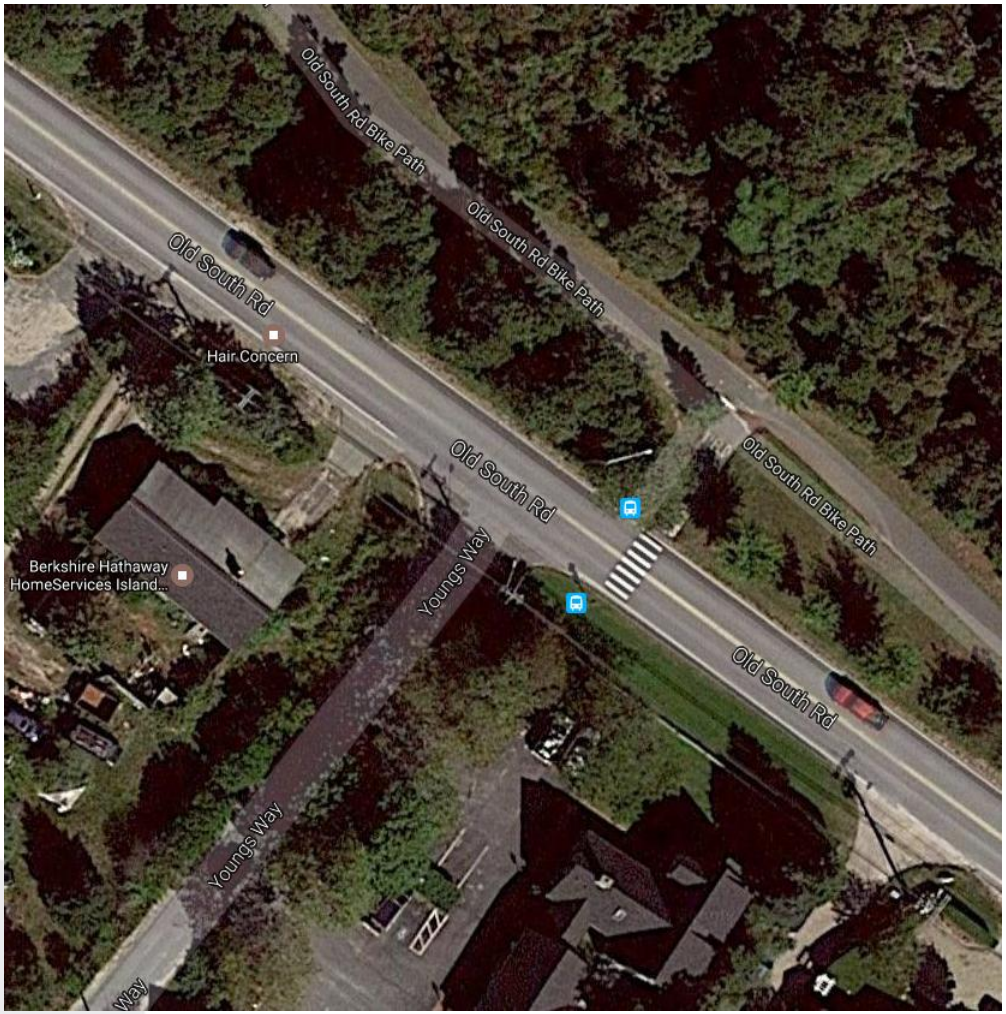
5. OSR at Fairgrounds

§ Modern Roundabout (2013)*

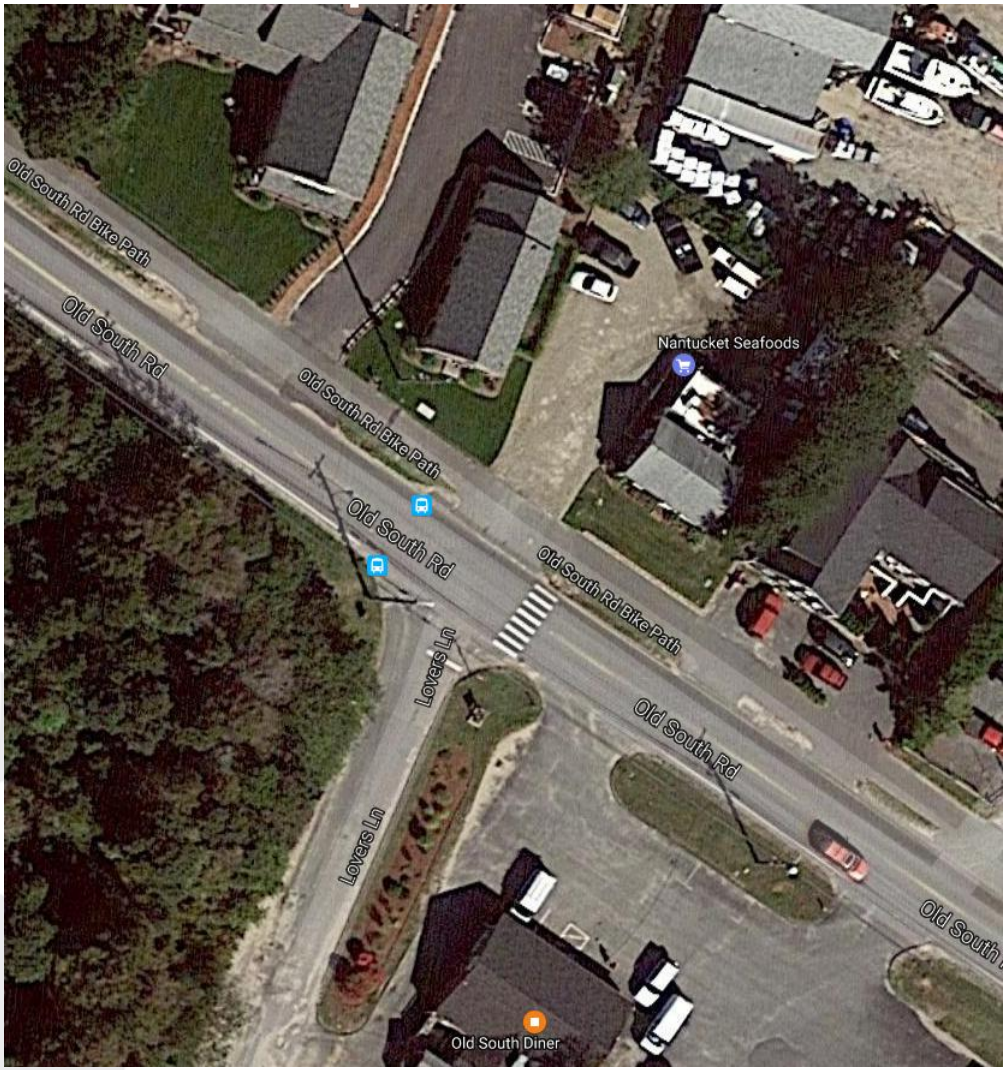
* Previously proposed hospital project.

6. OSR at Amelia

7. OSR at Youngs

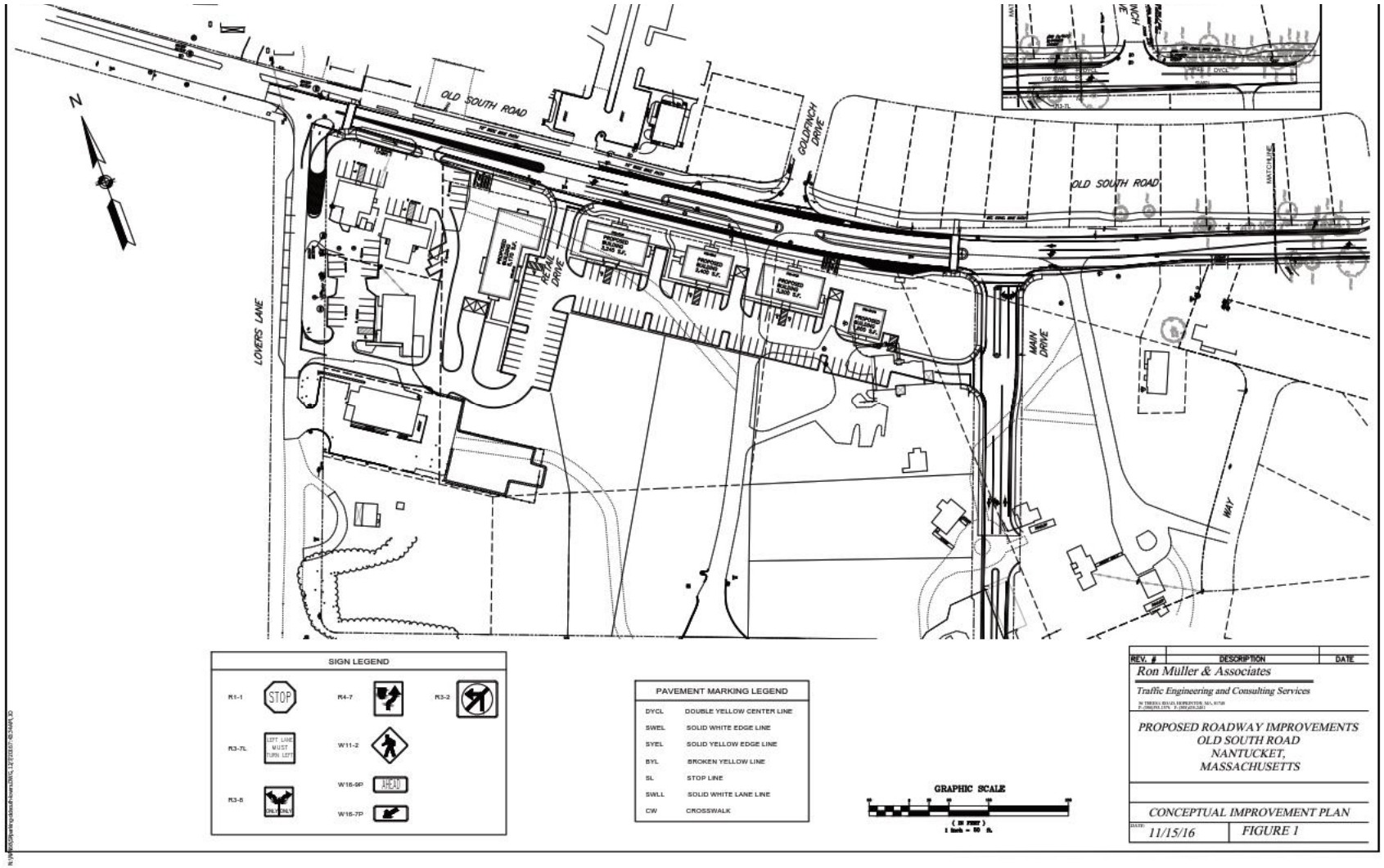


8. OSR at Lovers



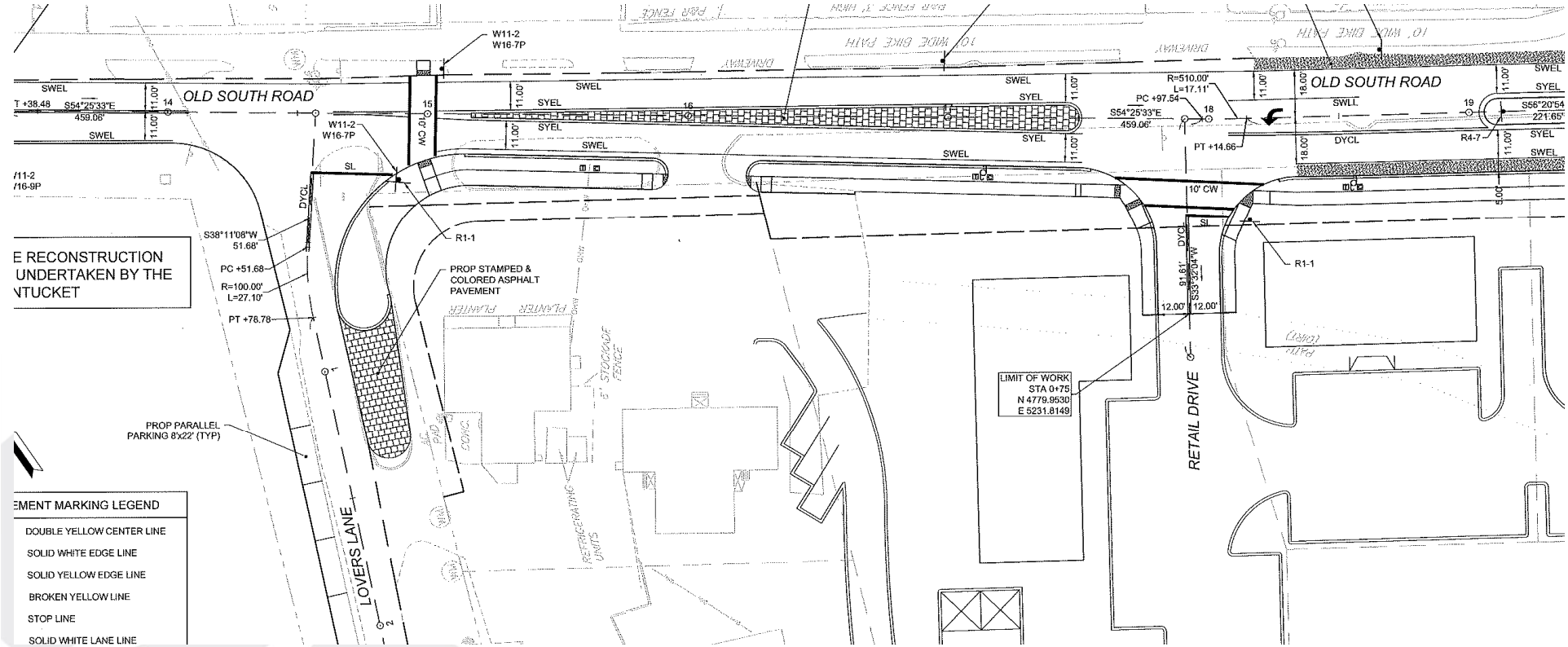
8. OSR at Lovers

§ Median Island with Turn Pockets (2016)

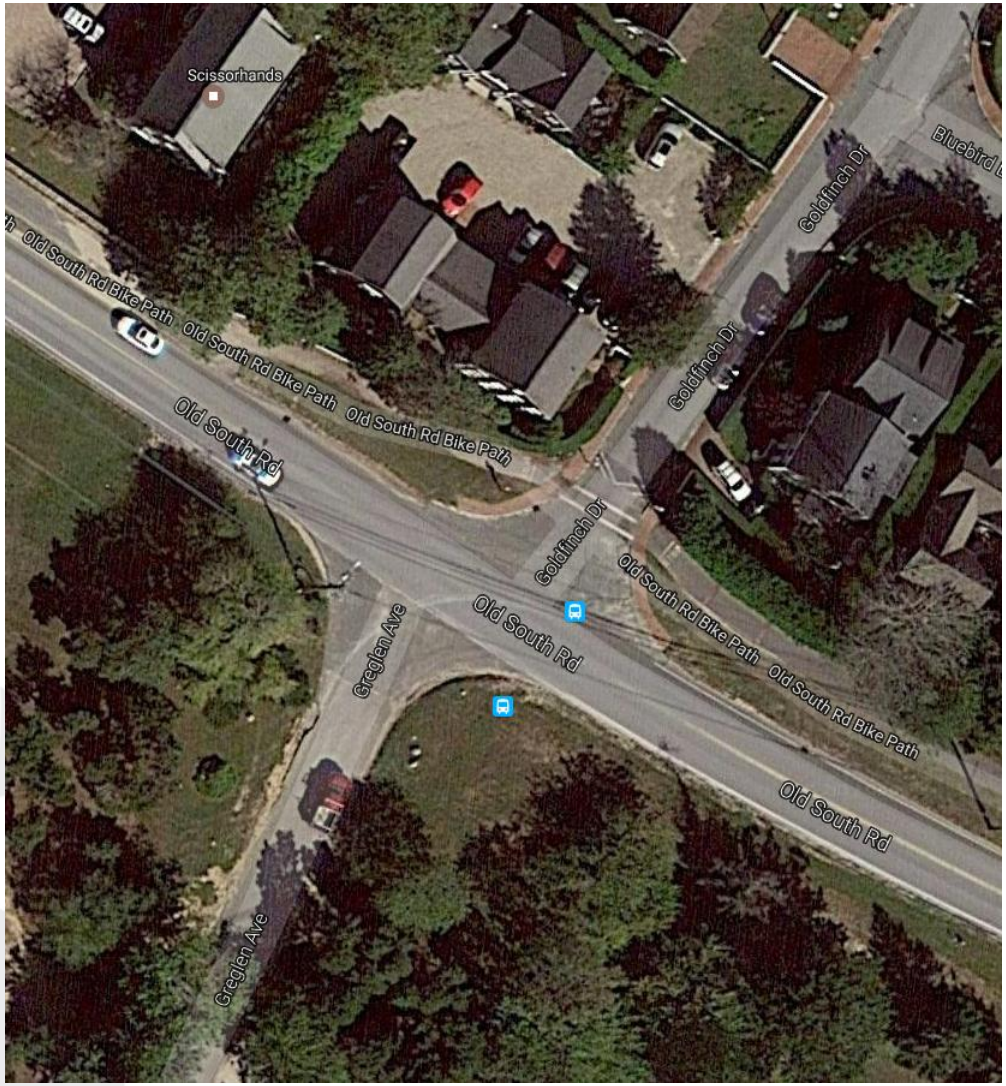


8. OSR at Lovers

§ Median Island with Turn Pockets (2016)

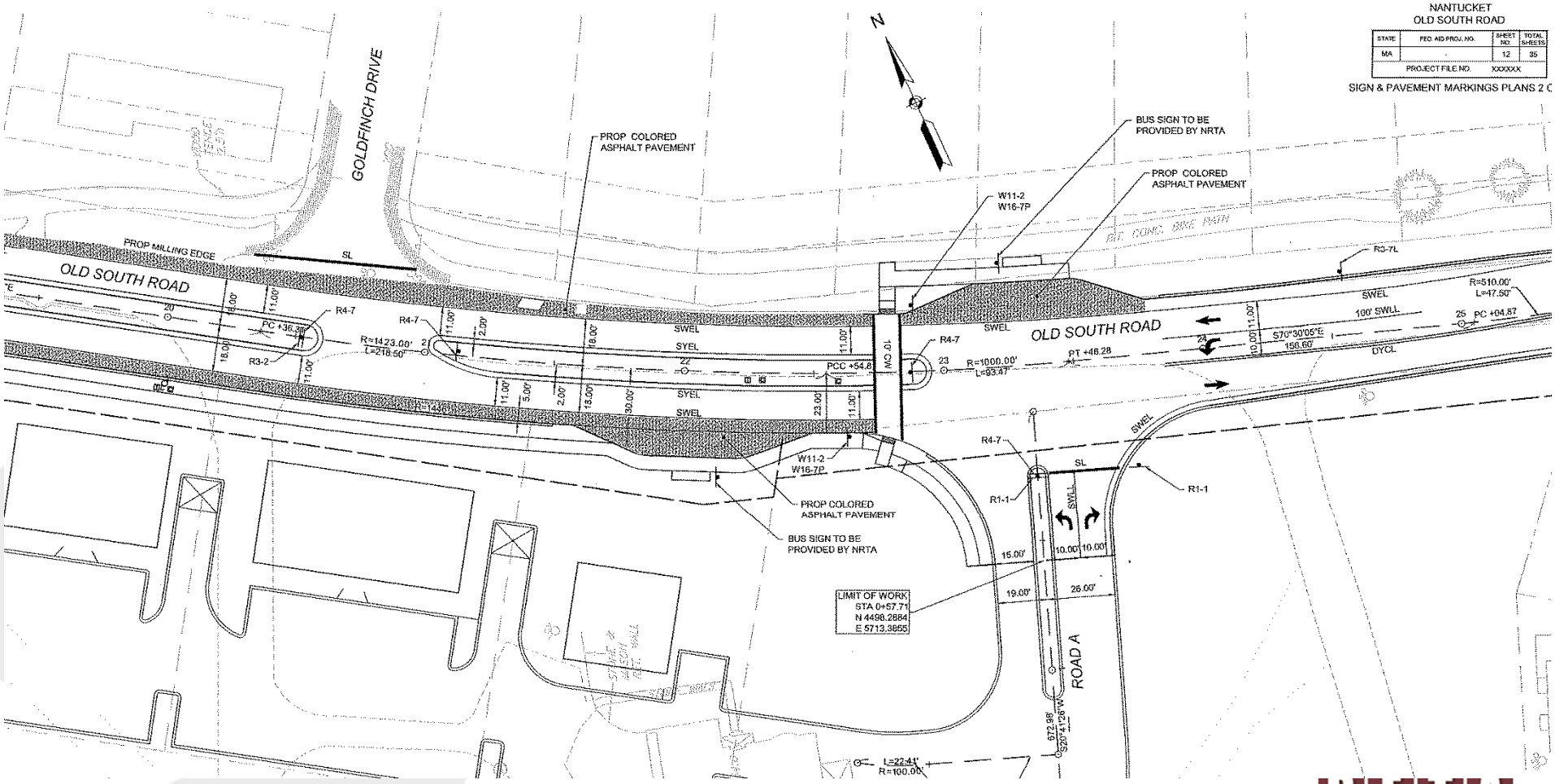


9. OSR at Greglen/Goldfinch

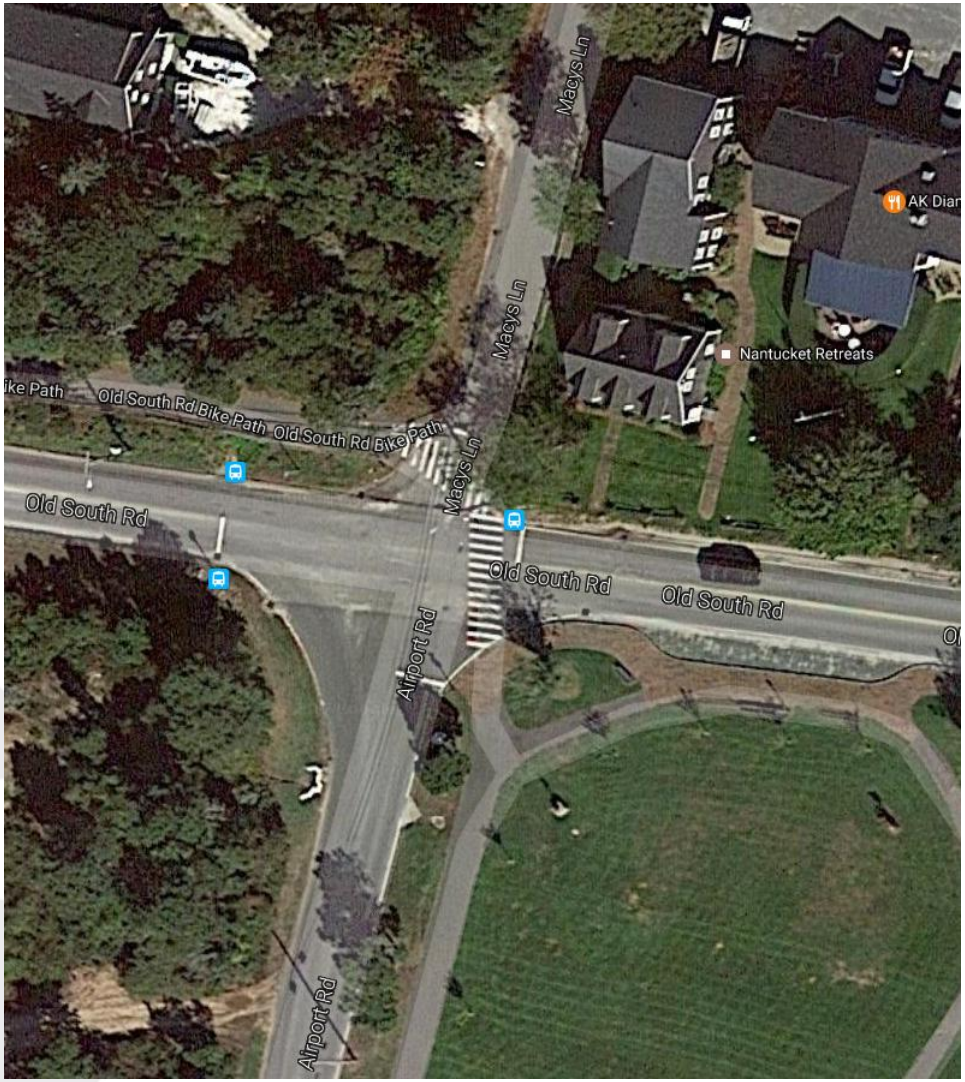


9. OSR at Greglen/Goldfinch

§ Median with Relocated Greglen Avenue (2016)

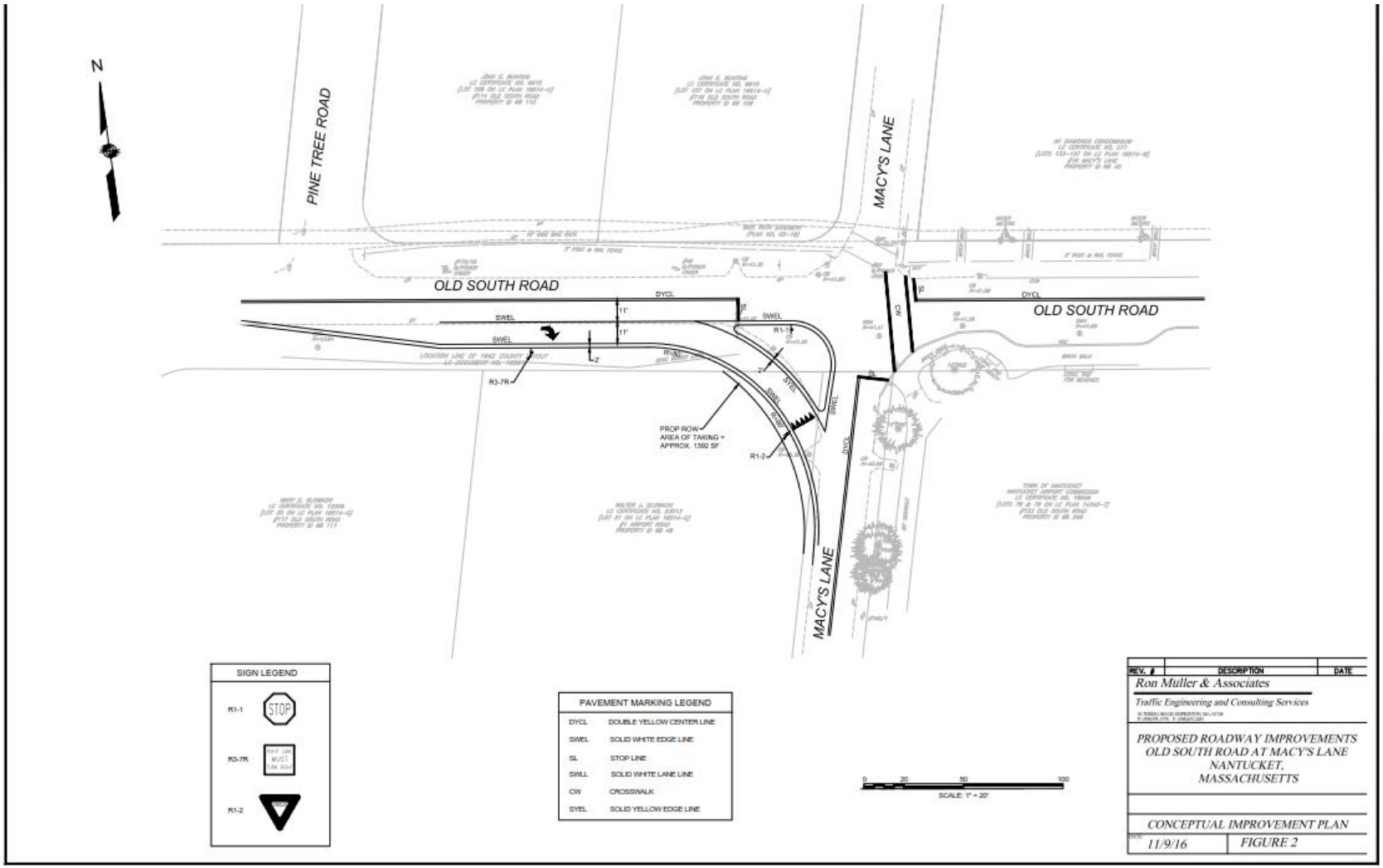


10. OSR at Macy's/Airport

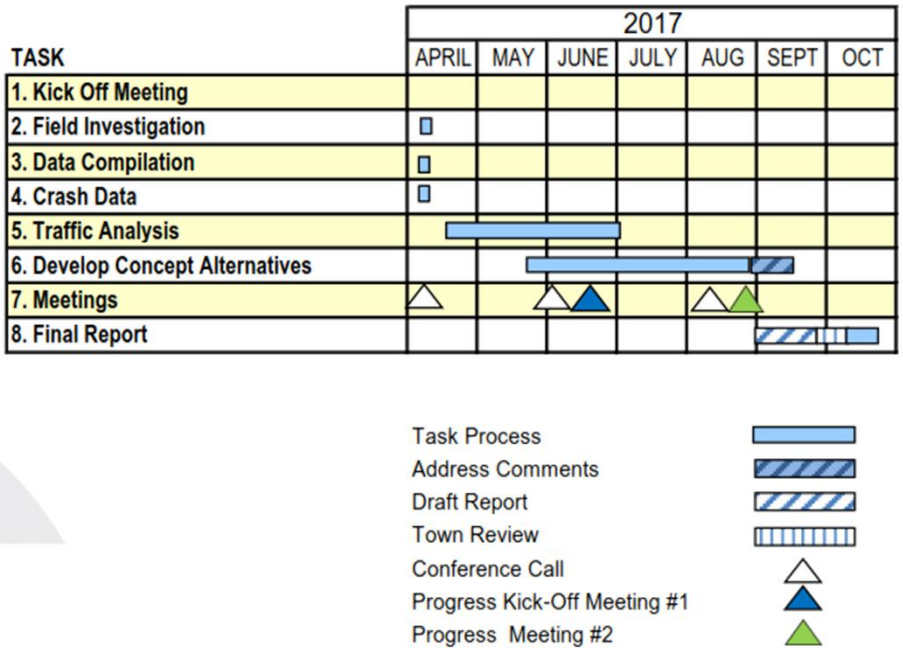


10. OSR at Macy's/Airport

§ Right Turn Lane with Channelized Slip Lane (2016)



11. OSR at Nobadeer Farm

Next Steps

Town of Nantucket, MA
Old South Road Corridor Traffic Study
Project Schedule - 4/5/2017