West Chatham

Main Street Intersections and Corridor Project

Town of Chatham, Massachusetts

PROPOSED ALTERNATIVES DISCUSSION

February 4, 2010

ENGINEERS FST Since 1914

TOWN OF CHATHAM INCORPORATED JUNE 11 1712 MASS.

Agenda

- Introduction – 7:00 PM
- Project Overview – 7:10 PM
- MassDOT Planning Process – 7:20 PM
- Key Points from Dec. 17 Meeting – 7:30 PM
- Transportation Evaluation Criteria – 7:45
- Conceptual Improvements – 7:50 PM
- Closing Remarks – 9:00 PM

Project Team

- Town of Chatham
  - Terry Whalen – Town Planner
  - Jeff Colby – Dept of Public Works
  - Paul Lagg – GIS Coordinator
- FST Project Team
  - Doug Prentiss, P.E., PTOE
  - Sarah Weimer

Project Overview

Feb. 4, 2010

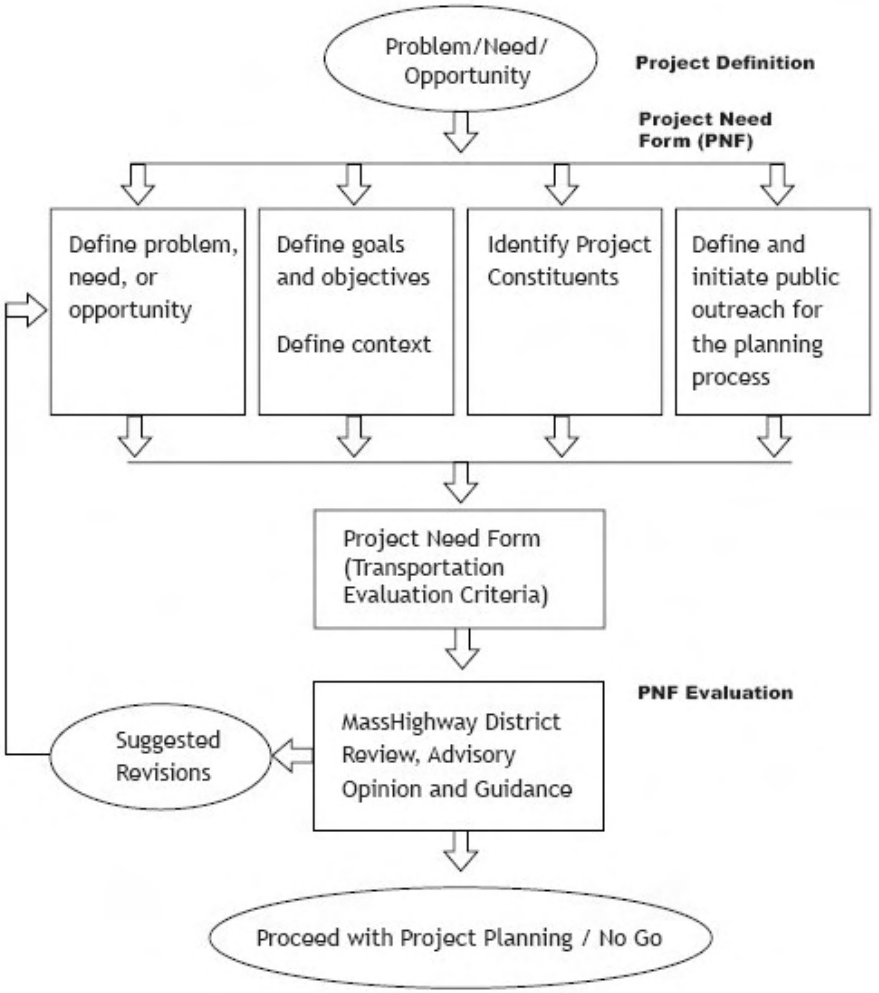
Project Objective

- To improve the conditions along Main Street in West Chatham for all users including vehicles, pedestrians, and bicyclists.
- Develop a unified vision for traffic improvements for the intersections and corridor and enhance safety.

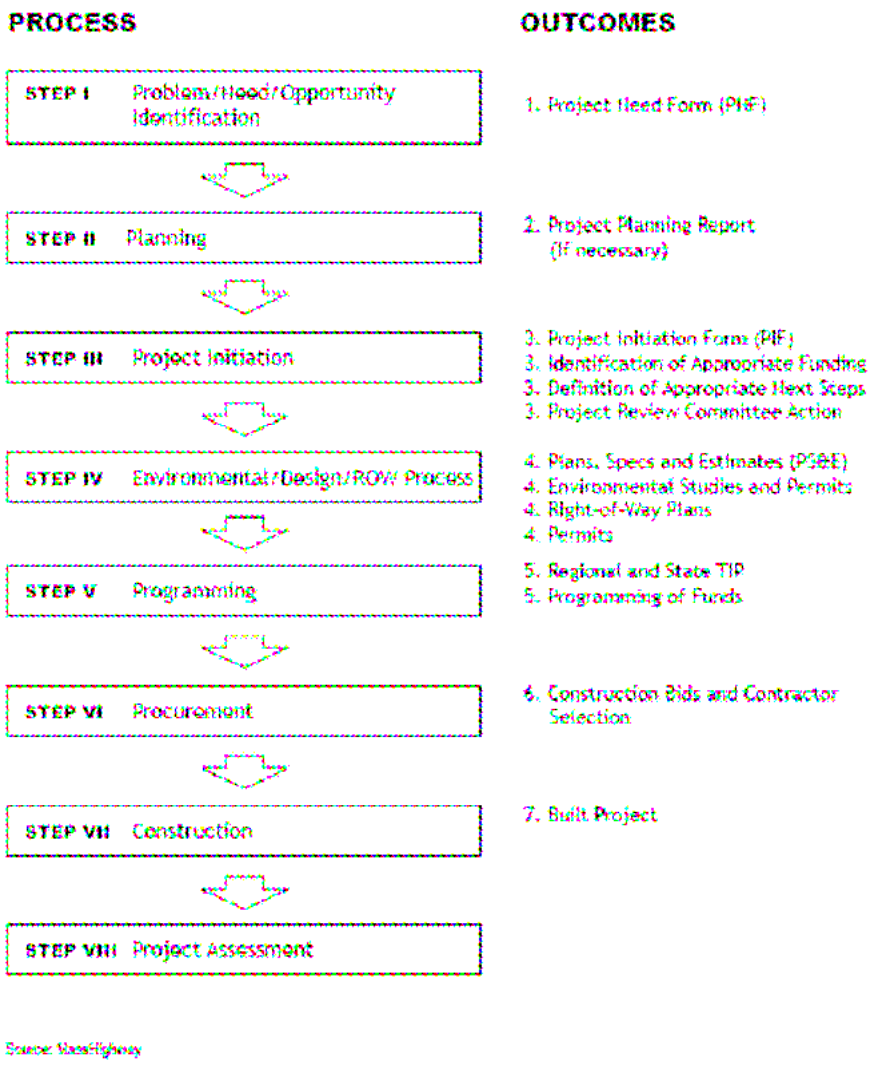
ENGINEERS FST Since 1914

Feb. 4, 2010

MassDOT Planning Process



MassDOT Planning Process



Source: Massdighway

Feb. 4, 2010

Key Summary Points

From Dec. 17 Workshop

- Traffic signals or roundabouts at George Ryder Rd and/or Barn Hill Rd
- Slow down traffic and enforce speed limit
- Provide bike lanes on Main Street
- Provide pedestrian-friendly corridor with ADA ramps, crosswalks, street lighting, and trash receptacles
- Provide safe access/egress curb cuts

ENGINEERS FST Since 1914

Feb. 4, 2010

Key Summary Points

From Dec. 17 Workshop

- Restrict left-turns to/from businesses
- Improve landscaping
- Provide right and left-turn lanes at Barn Hill Rd intersection
- Improve sight lines at George Ryder Rd
- Improve signage along corridor

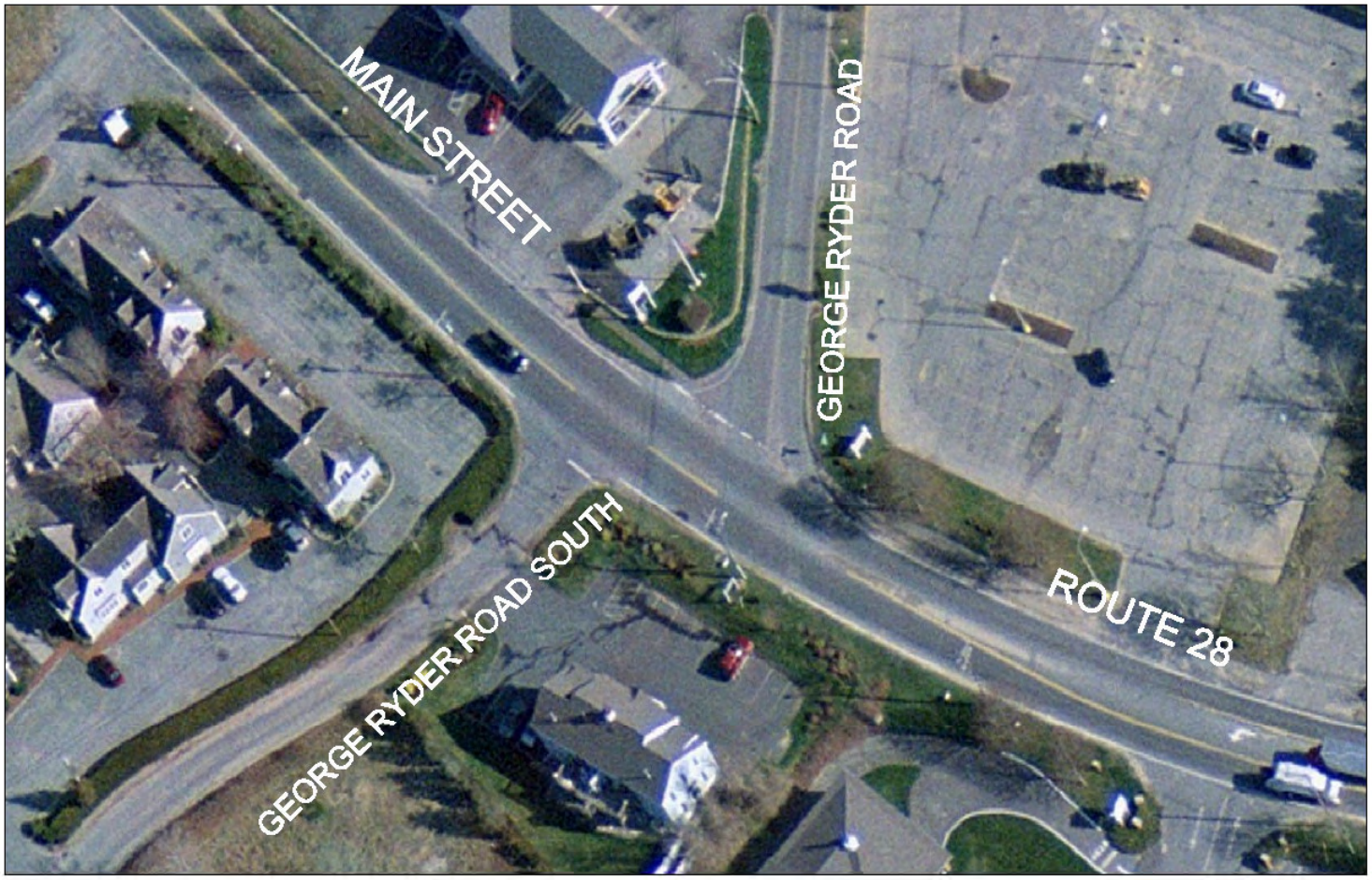
Transportation Evaluation Criteria

- 24-Hour Summer Traffic Volumes
- Peak Hour Traffic Volumes
- Peak Hour Bicycle Volumes
- Peak Hour Pedestrian Volumes

ENGINEERS FST Since 1914

Feb. 4, 2010

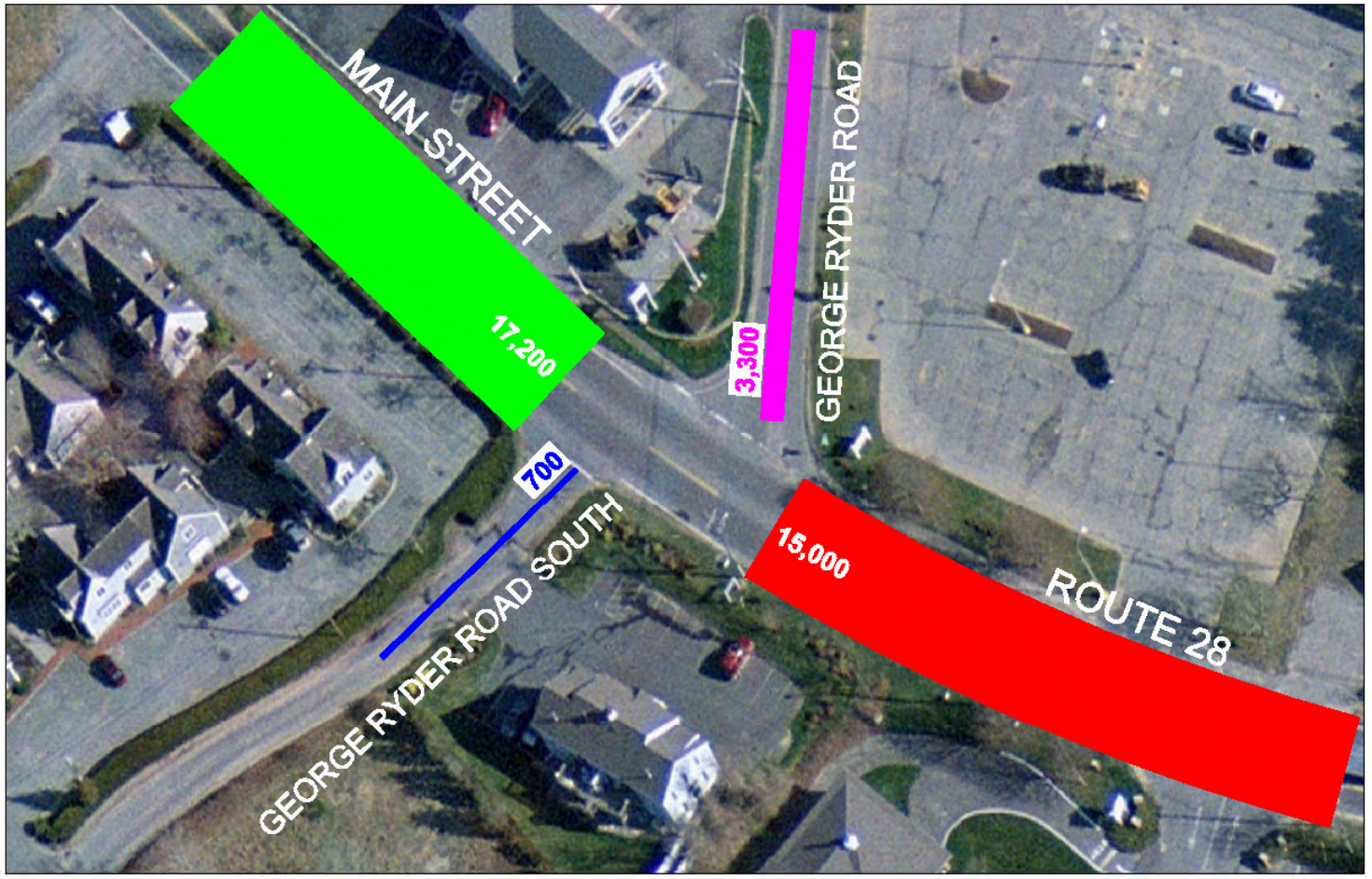
George Ryder Road/Main Street Intersection



ENGINEERS
FST
Since 1914

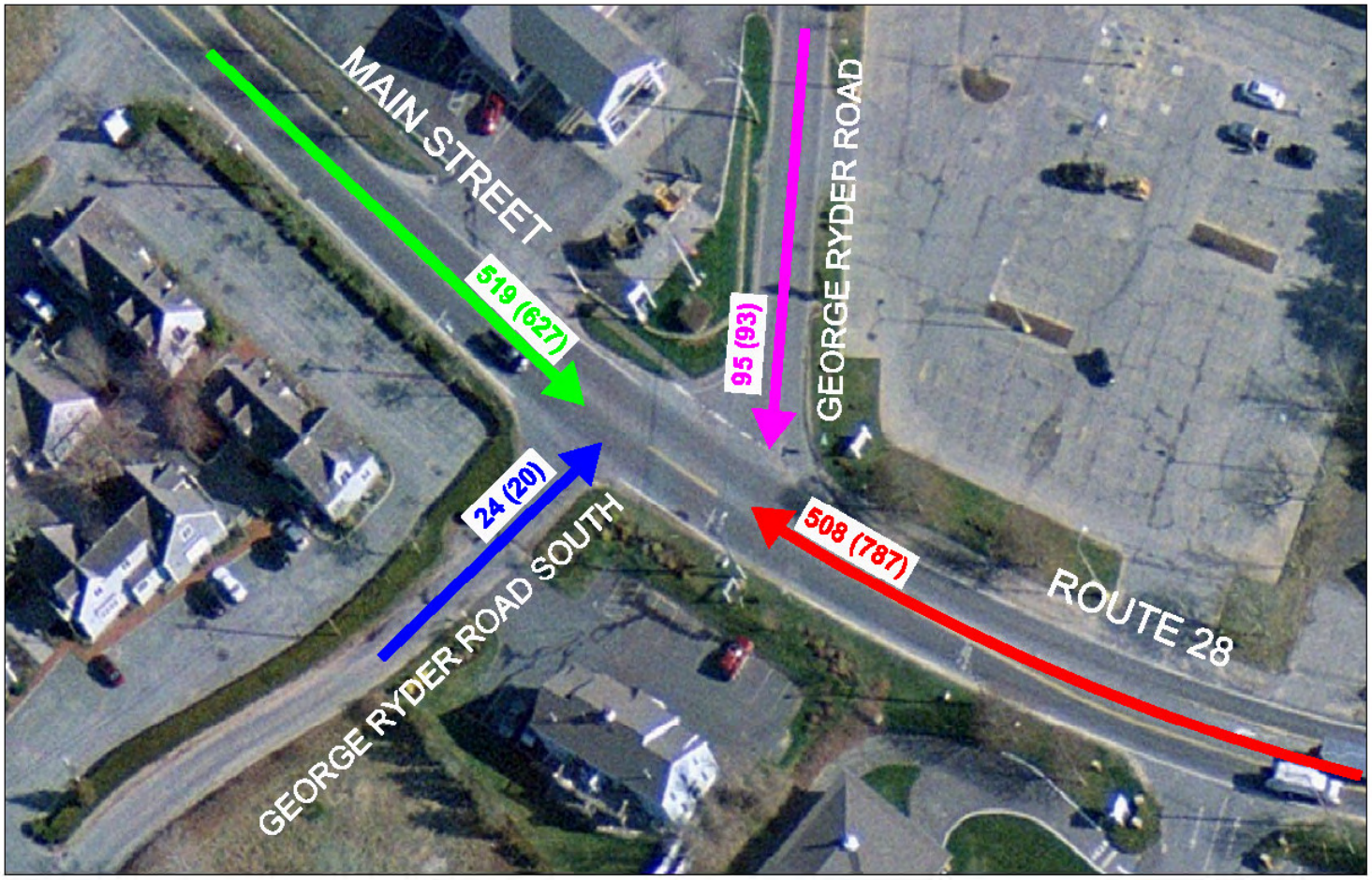
Feb. 4, 2010

24-Hour Summer Traffic Volumes



Feb. 4, 2010

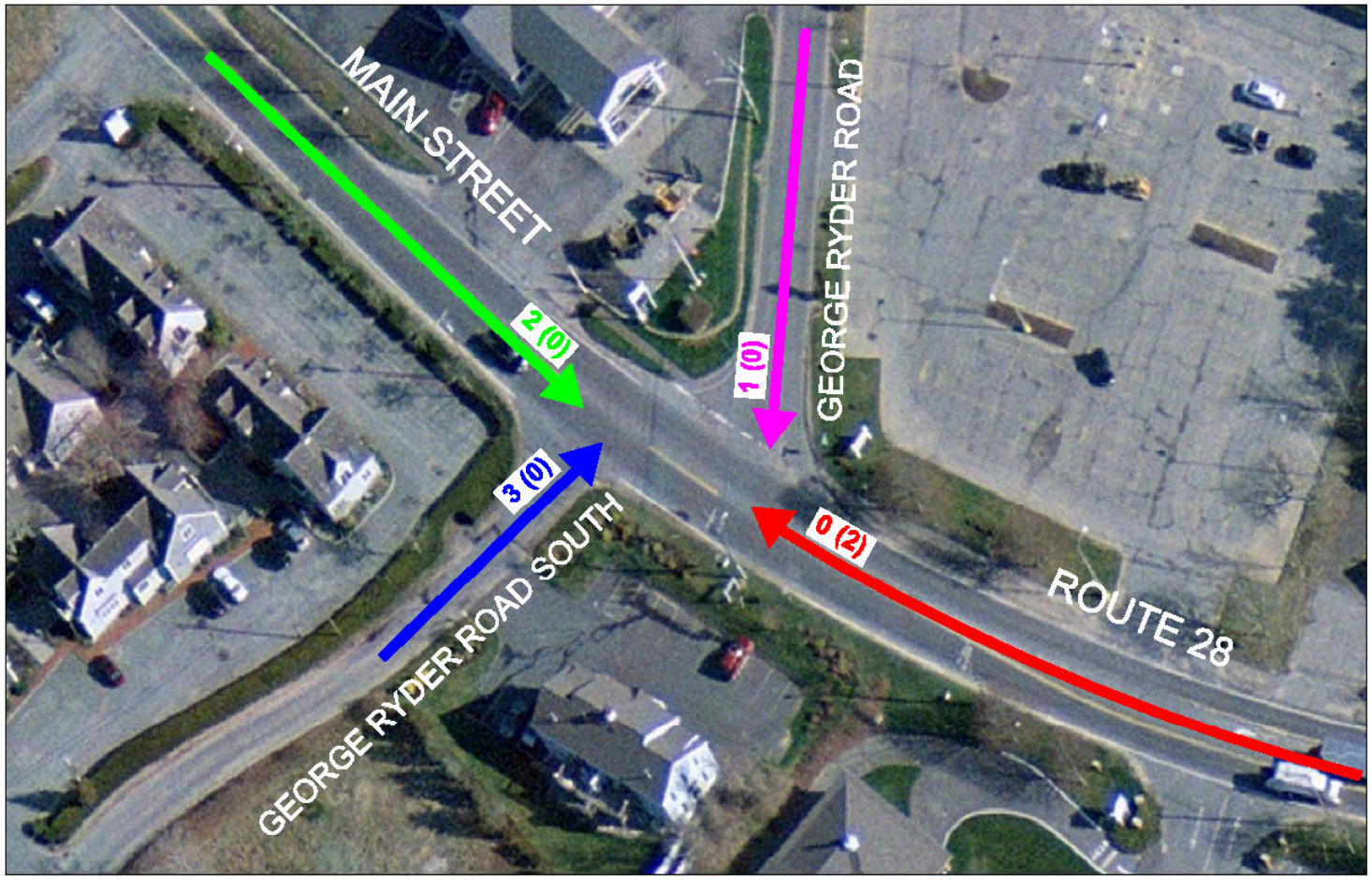
Peak Hour
Traffic Volumes



ENGINEERS
FST
Since 1914

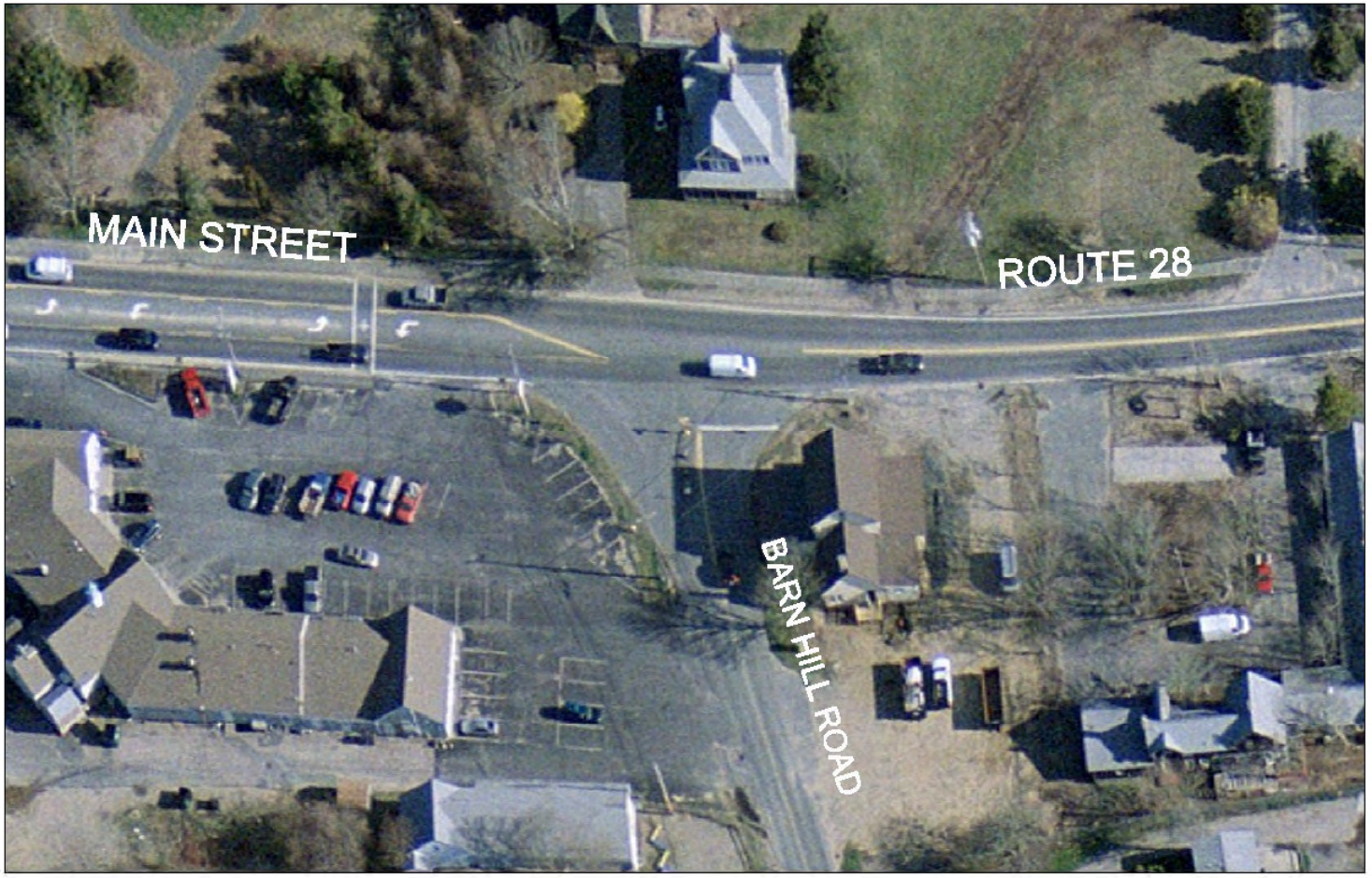
Feb. 4, 2010

Peak Hour Pedestrian Volumes



Feb. 4, 2010

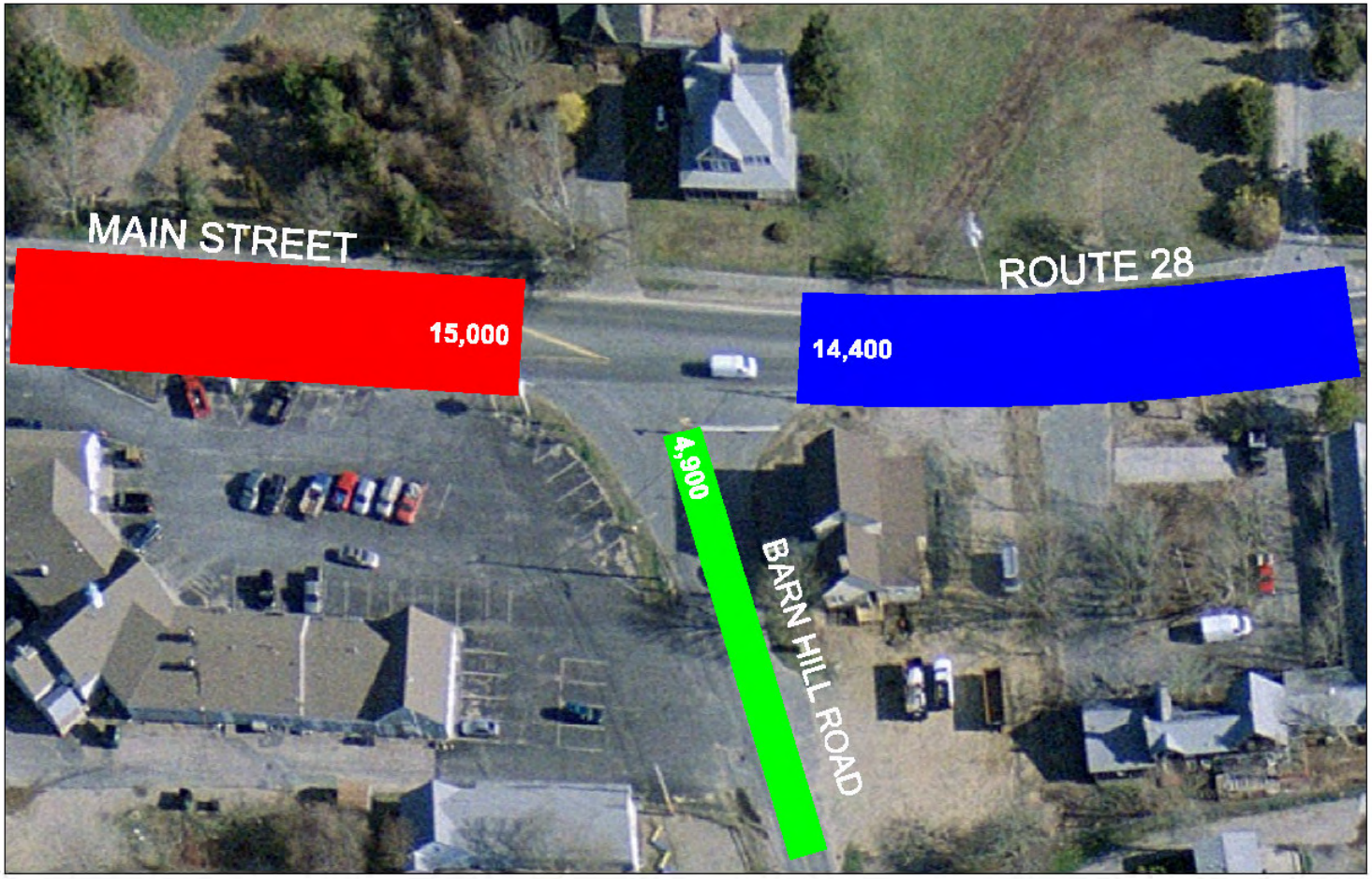
Barn Hill Road/Main Street Intersection



ENGINEERS
FST
Since 1914

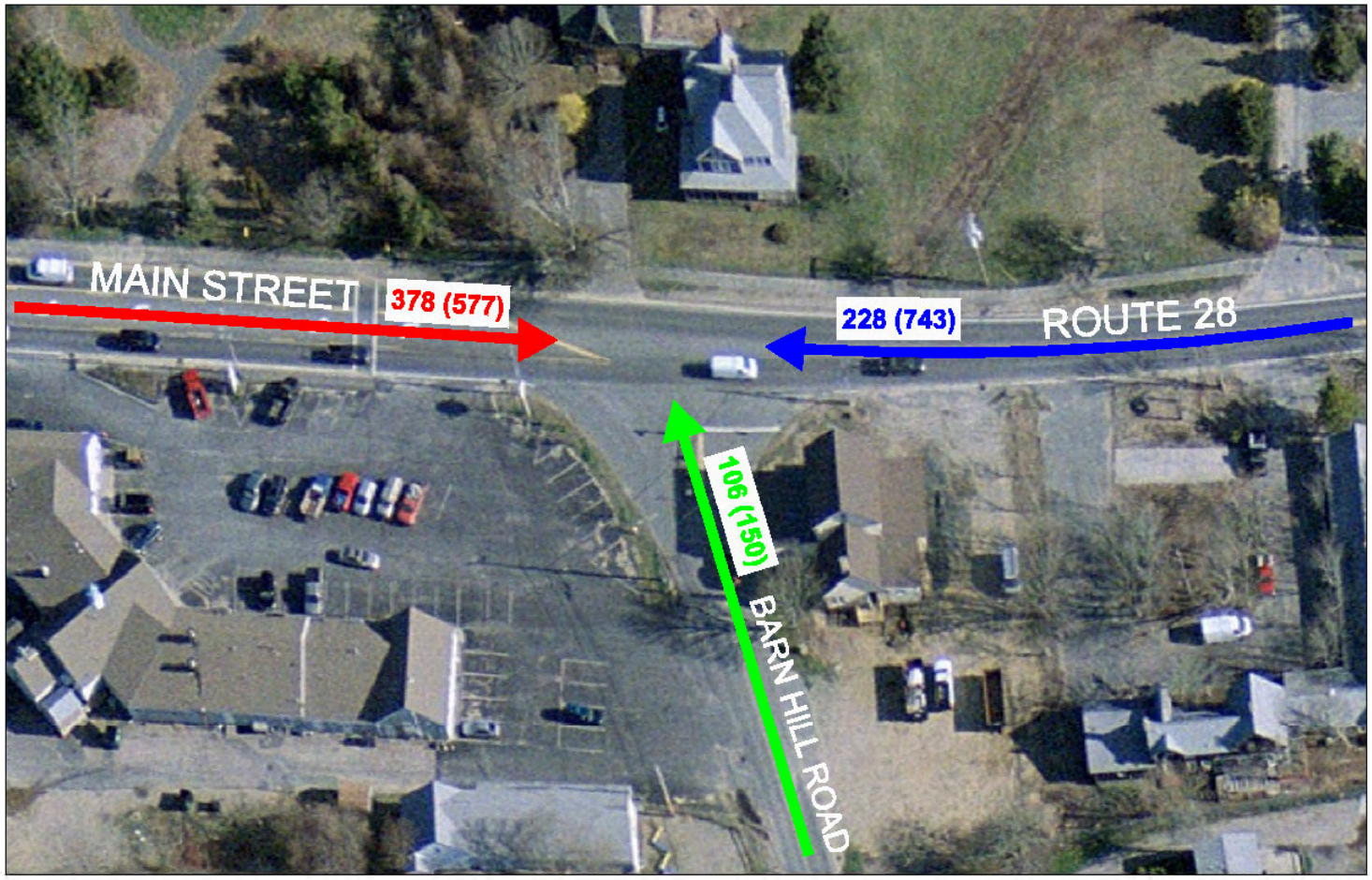
Feb. 4, 2010

24-Hour Summer Traffic Volumes



Feb. 4, 2010

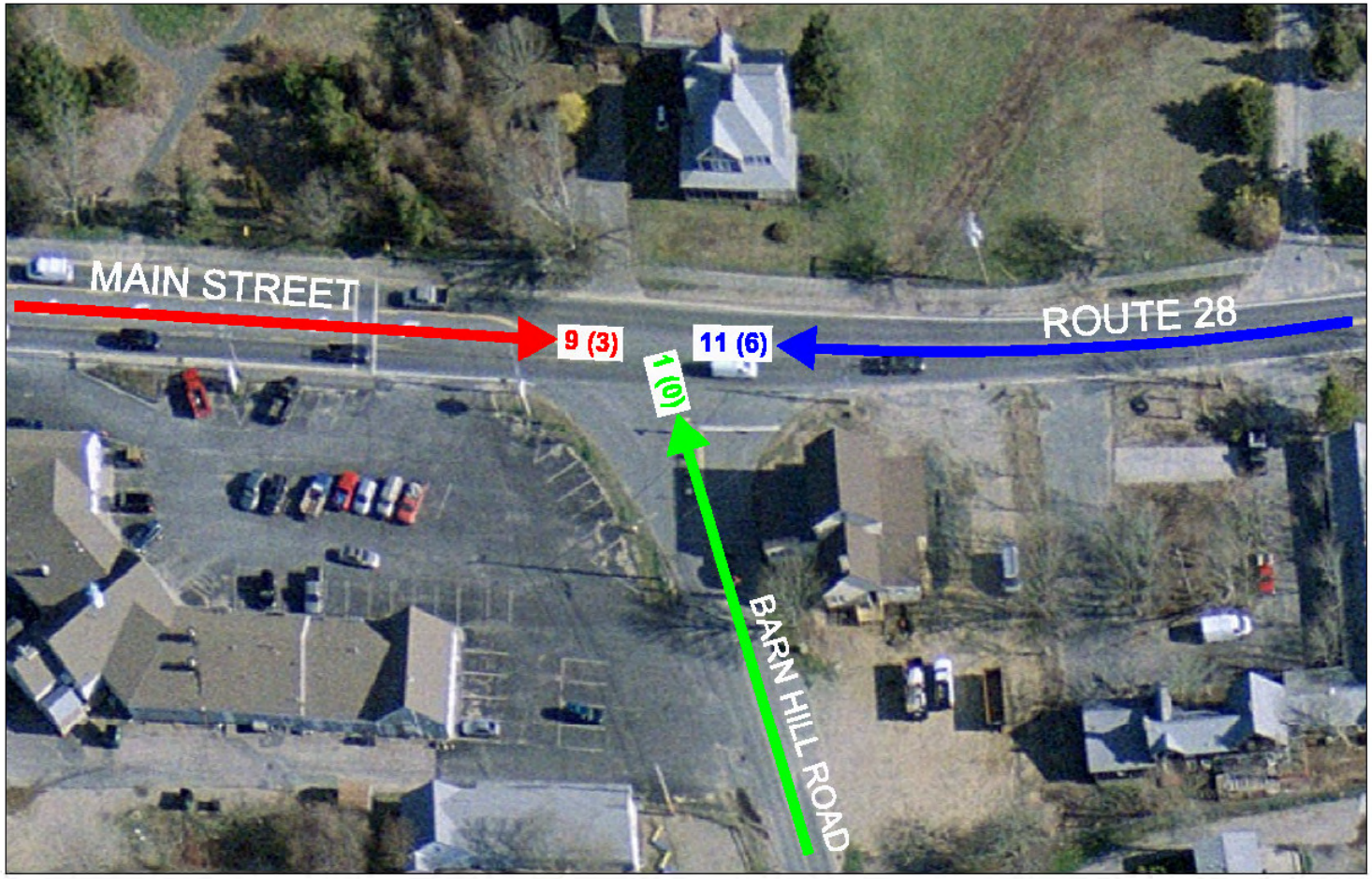
Peak Hour Traffic Volumes



ENGINEERS
FST
Since 1914

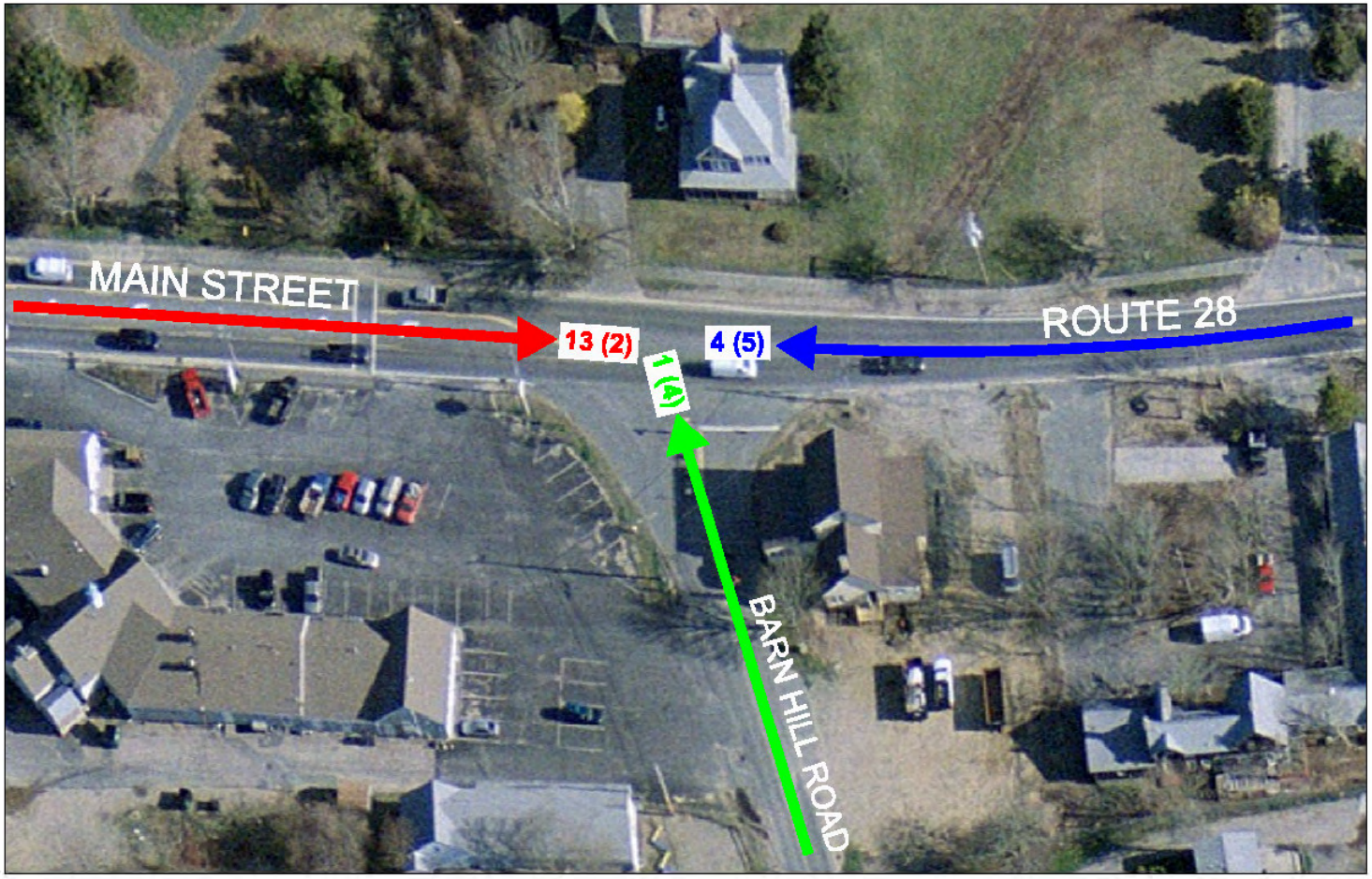
Feb. 4, 2010

Peak Hour Pedestrian Volumes



Feb. 4, 2010

Peak Hour
Bicycle Volumes



ENGINEERS
FST
Since 1914

Feb. 4, 2010

West Chatham
Main Street Intersections and Corridor Alternatives

- Roundabouts at George Ryder and Barn Hill
- Roundabout at George Ryder, Signal at Barn Hill
- Signal at George Ryder, Roundabout at Barn Hill
- Signals at George Ryder and Barn Hill

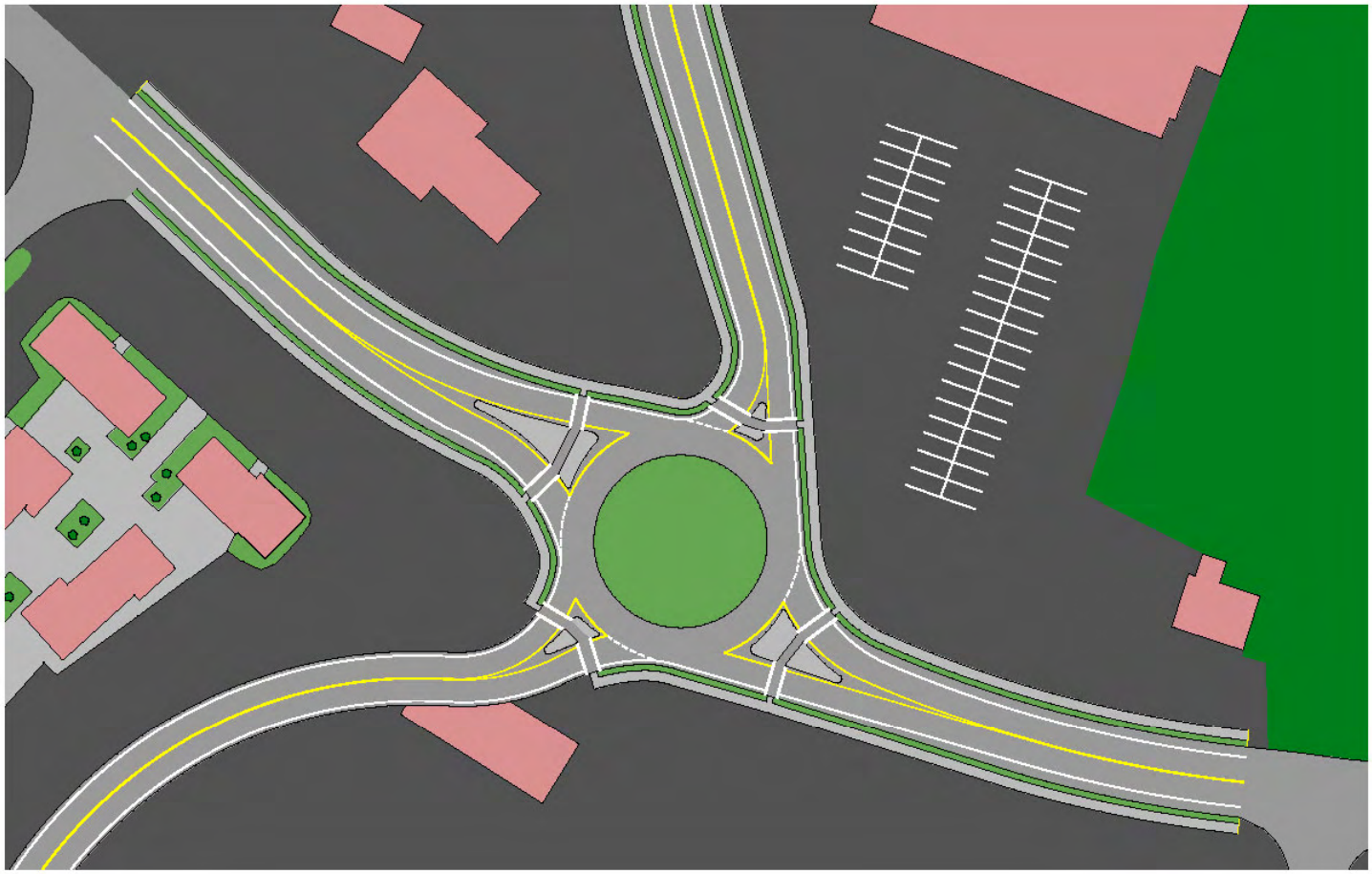
ENGINEERS FST Since 1914

Feb. 4, 2010

Design Criteria

- *Project Development and Design Guide* - MassHighway (now MassDOT);
- *Traffic Calming –State of the Practice* - Institute of Transportation Engineers;
- *Proposed Recommended Practice for Context Sensitive solutions;* - Institute of Transportation Engineers;
- *Manual on Uniform Traffic Control Devices*; - US DOT/Institute of Transportation Engineers

George Ryder Rd/Main Street Roundabout Alternative 1

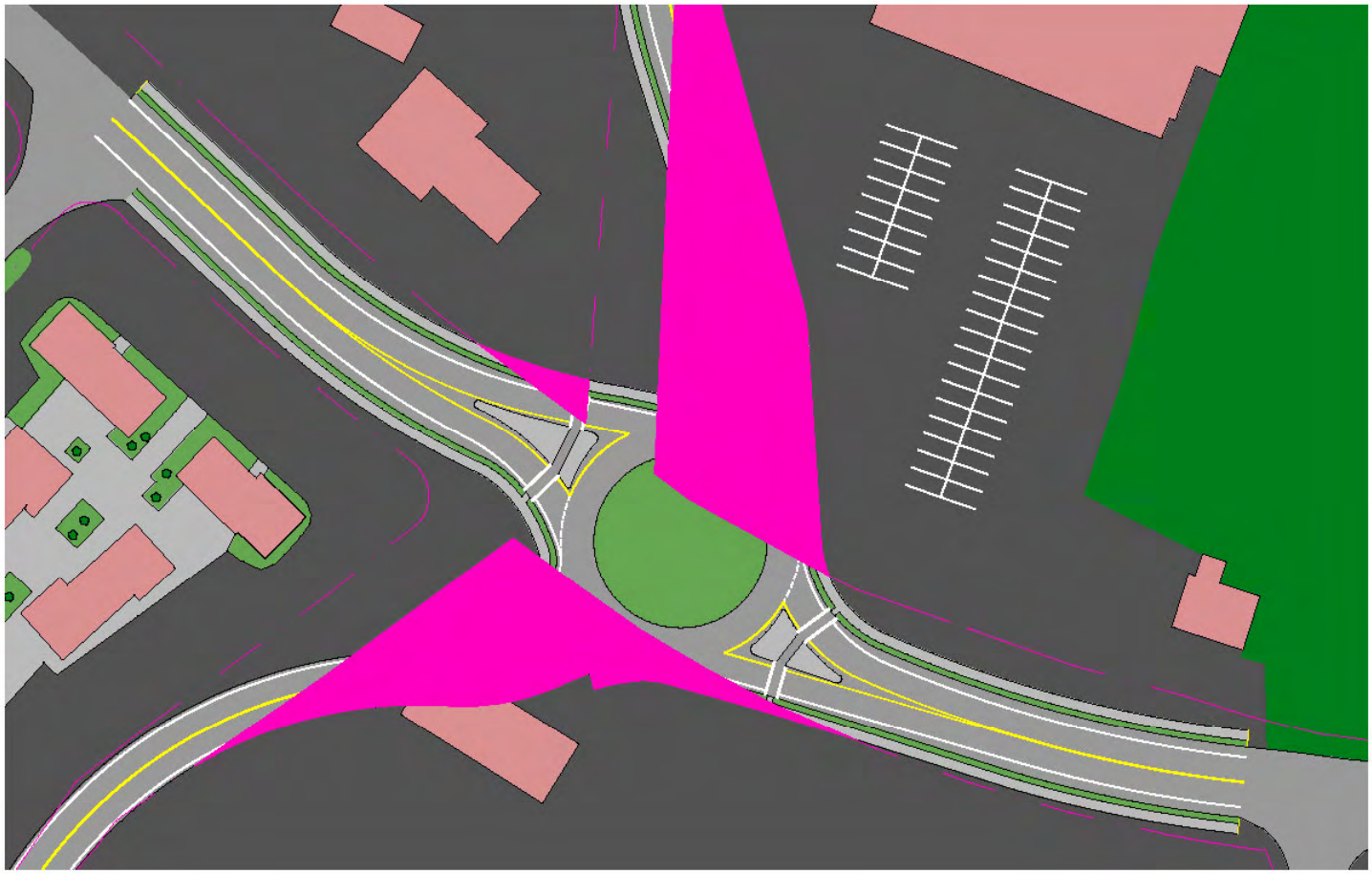


ENGINEERS
FST
Since 1914

Feb. 4, 2010

George Ryder Rd/Main Street Roundabout Alternative 1

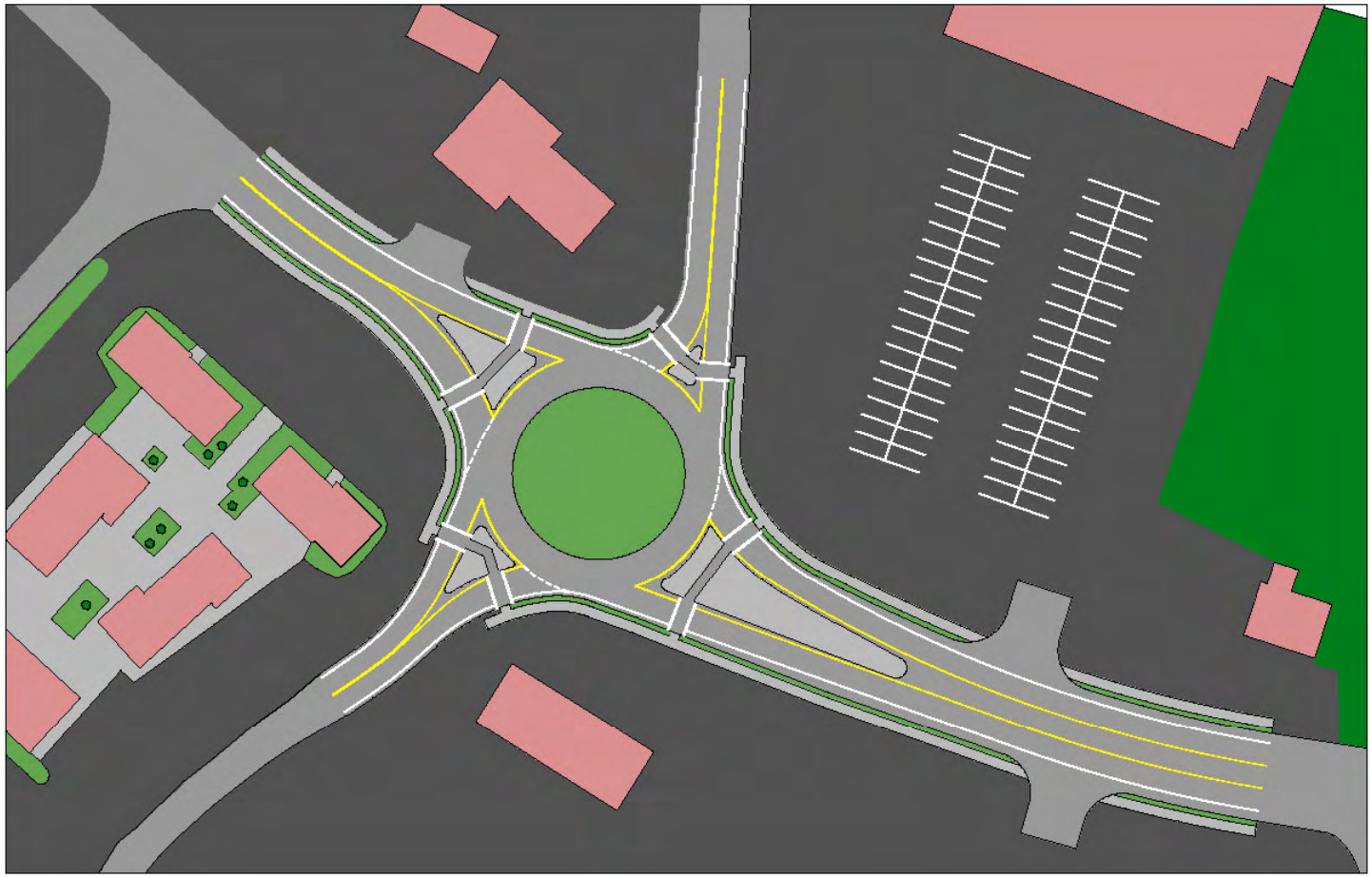
(with encroachments



ENGINEERS
FST
Since 1914

Feb. 4, 2010

George Ryder Rd/Main Street Roundabout Alternative 2

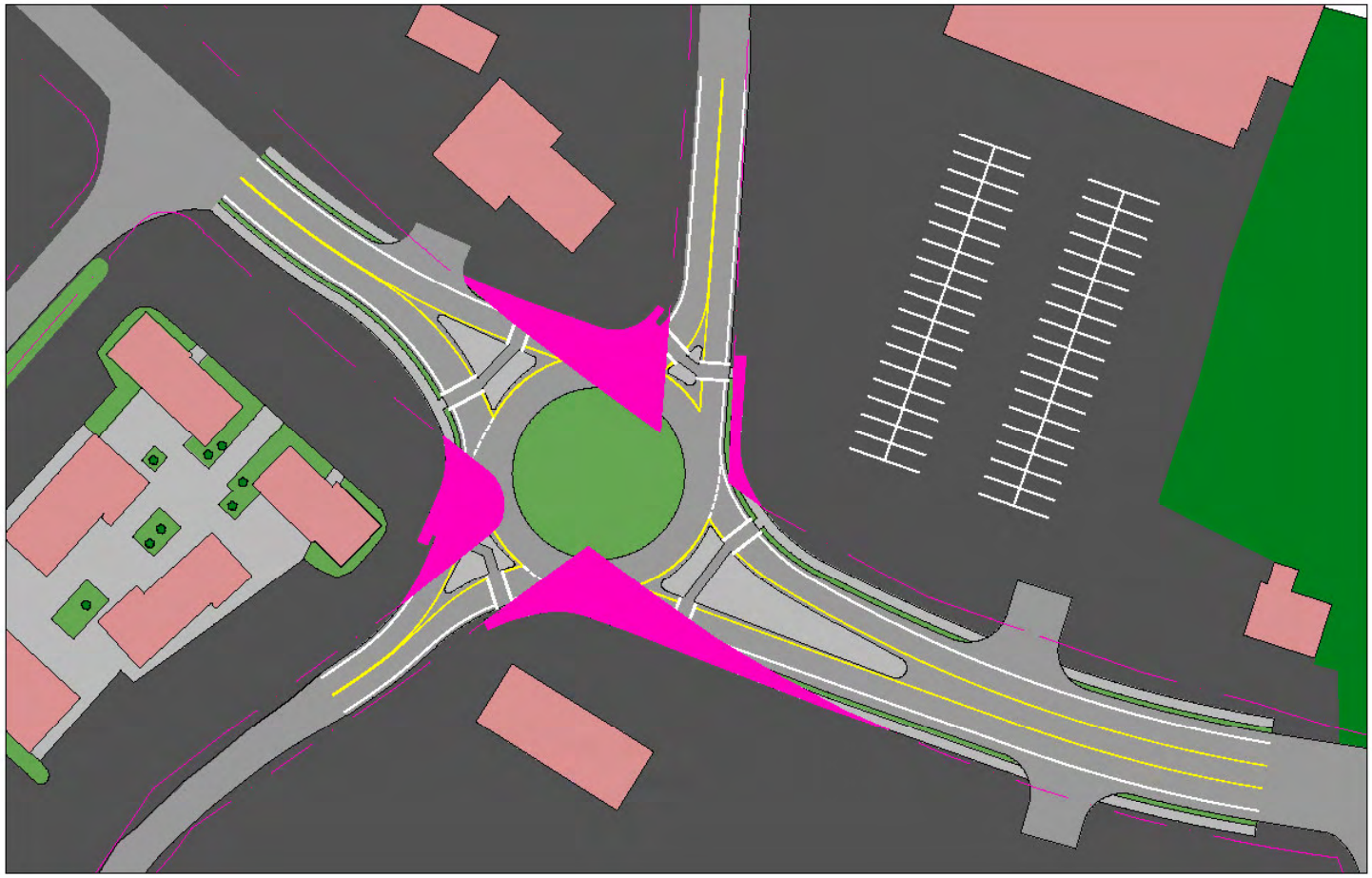


ENGINEERS
FST
Since 1914

Feb. 4, 2010

George Ryder Rd/Main Street Roundabout Alternative 2

(with encroachments)



ENGINEERS FST Since 1914

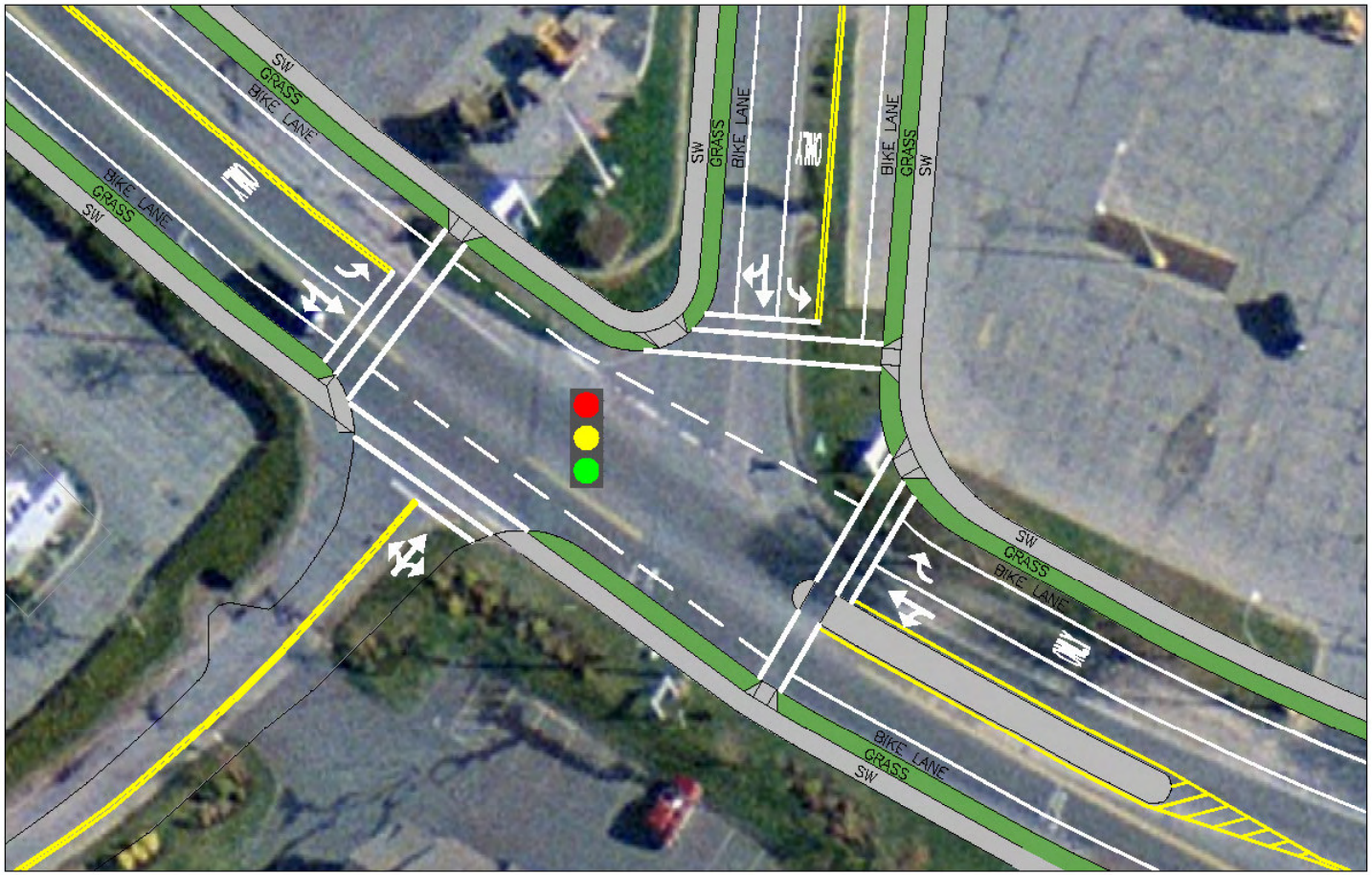
Feb. 4, 2010

George Ryder Rd/Main Street Roundabout Alternative 2

ENGINEERS
FST
Since 1914

Feb. 4, 2010

George Ryder Rd/Main Street Signal Alternative

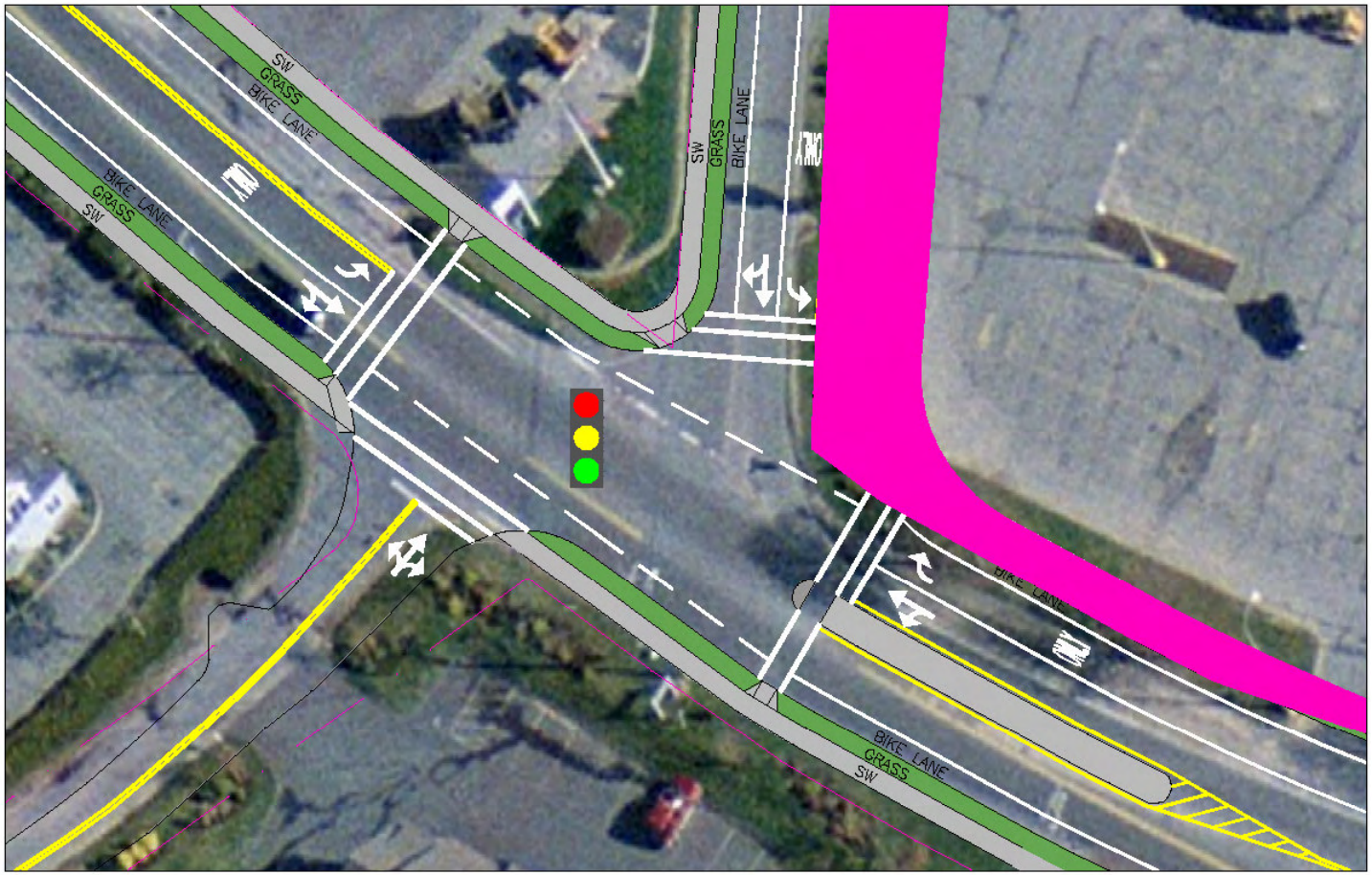


ENGINEERS
FST
Since 1914

Feb. 4, 2010

George Ryder Rd/Main Street Signal Alternative

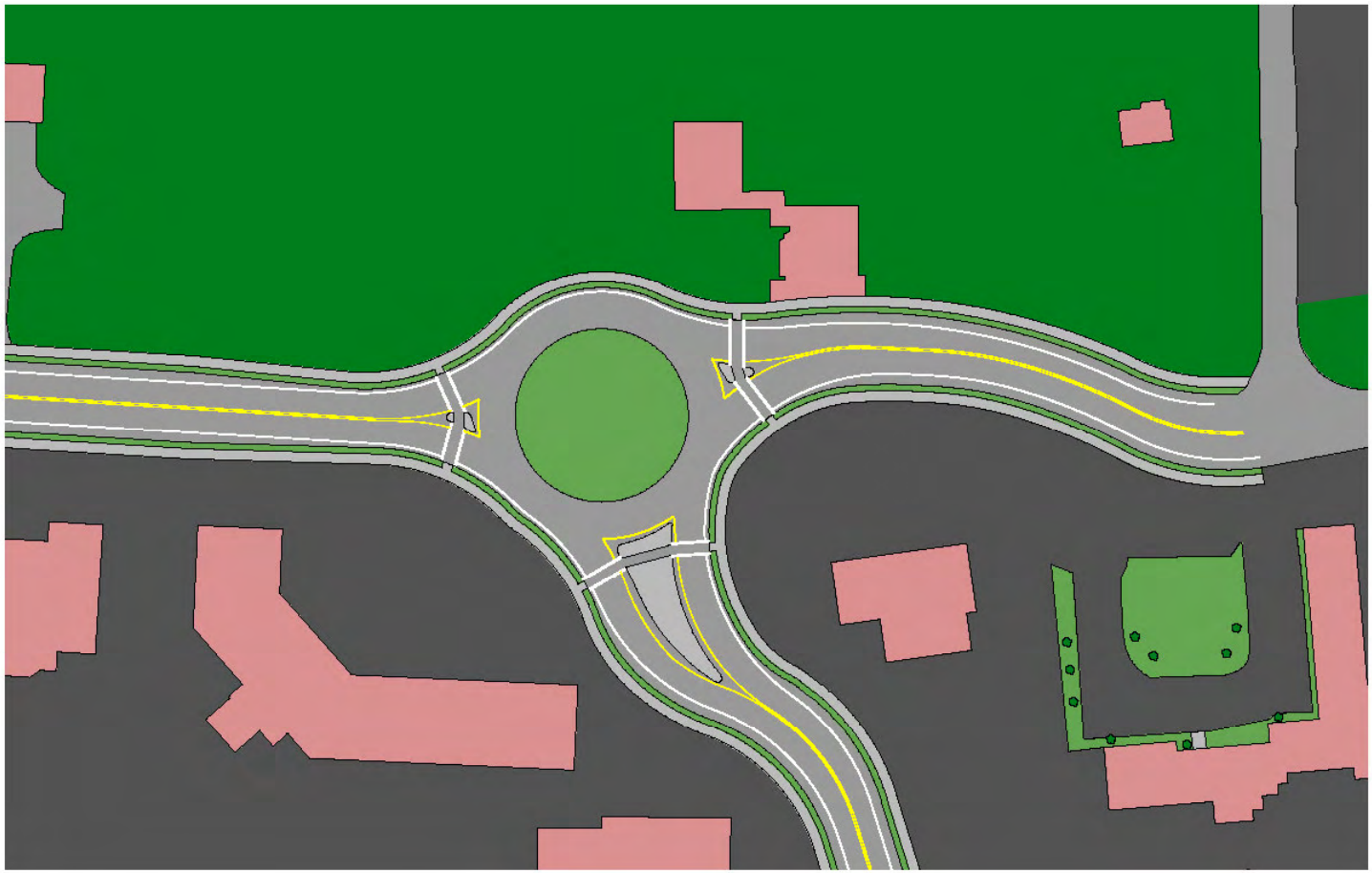
(with encroachments)



ENGINEERS
FST
Since 1914

Feb. 4, 2010

Barn Hill Road/Main Street Roundabout Alternative 1

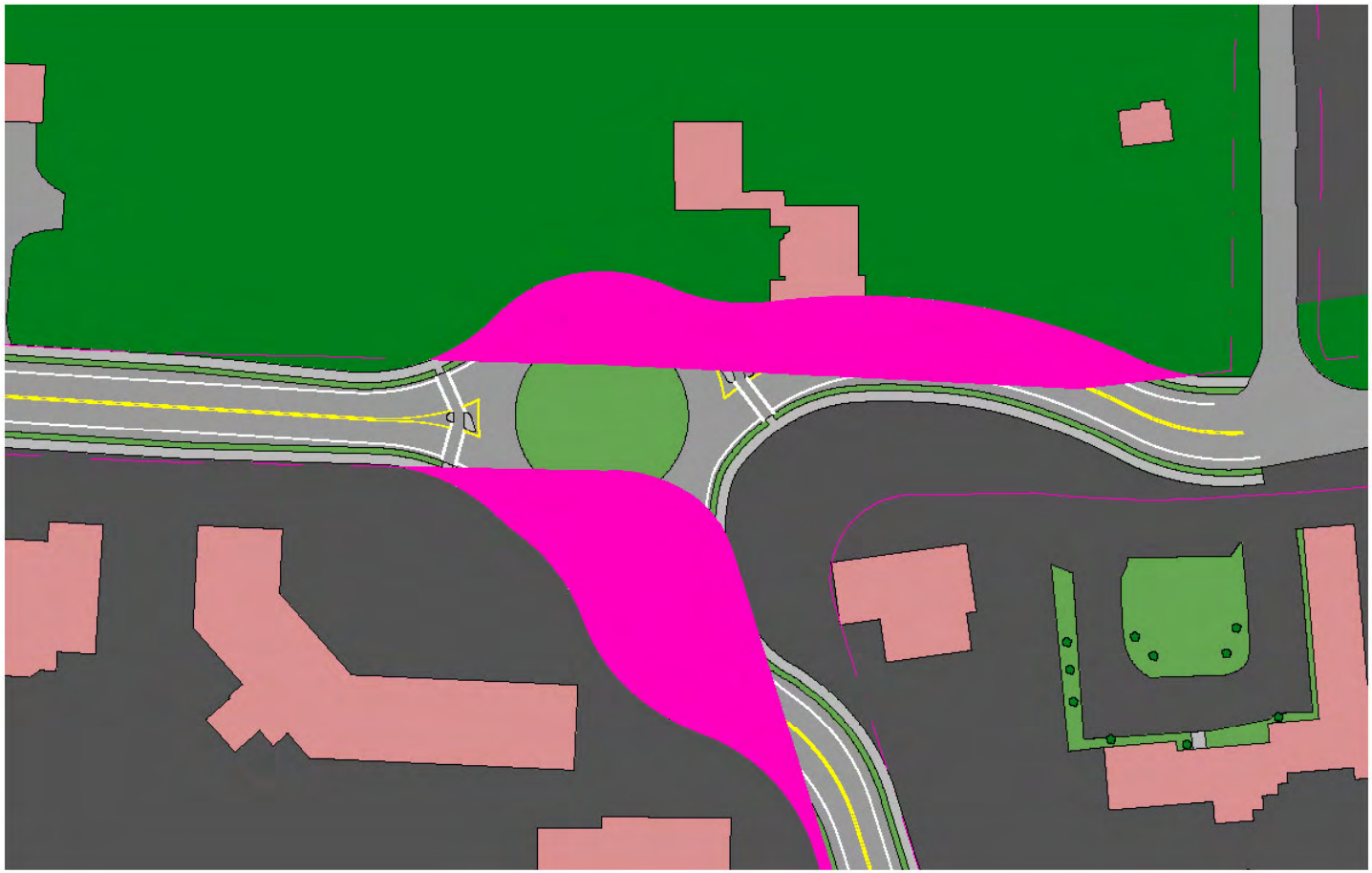


ENGINEERS
FST
Since 1914

Feb. 4, 2010

Barn Hill Road/Main Street Roundabout Alternative 1

(with encroachments)



ENGINEERS
FST
Since 1914

Feb. 4, 2010

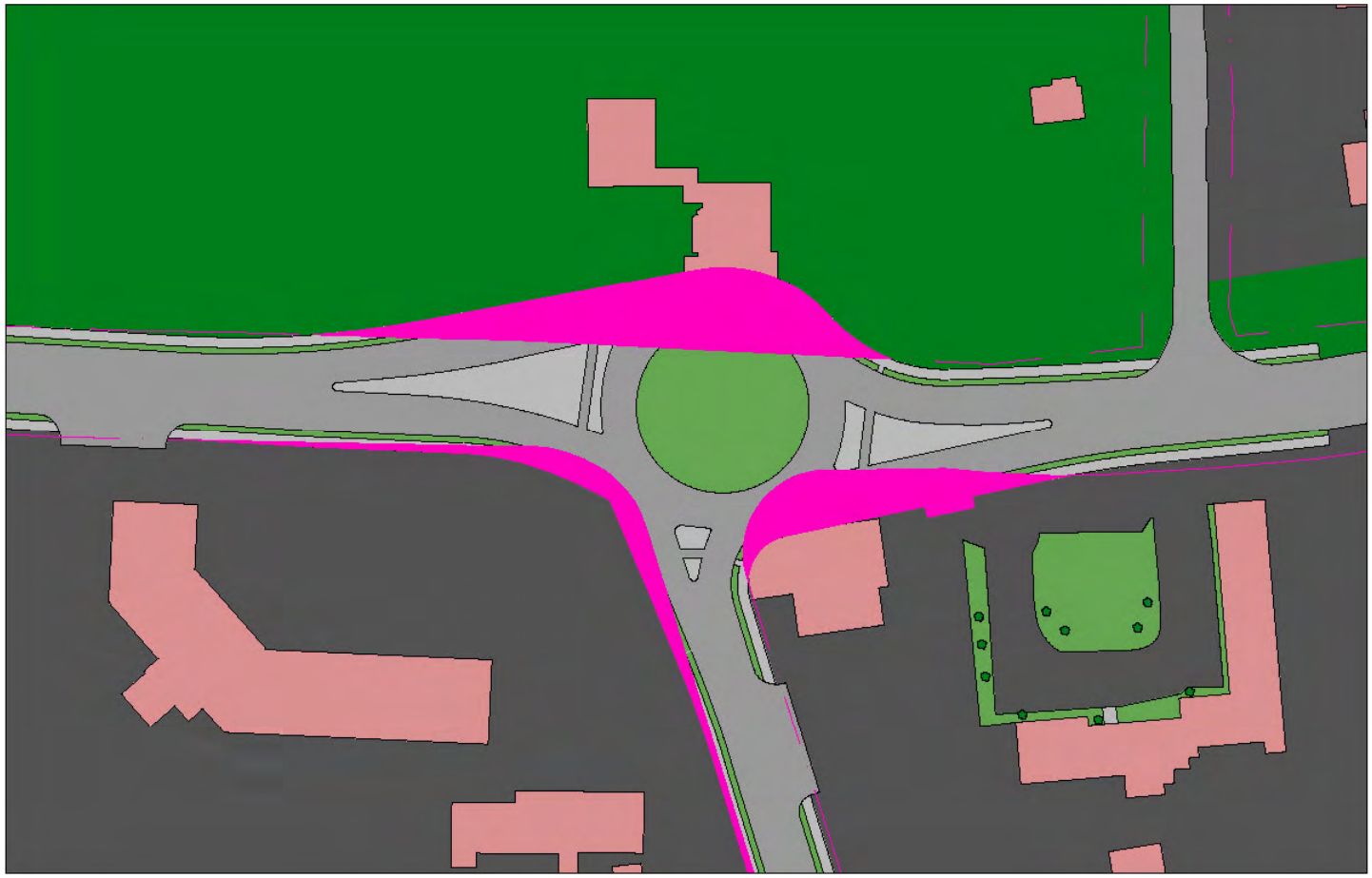
Barn Hill Road/Main Street Roundabout Alternative 2

ENGINEERS
FST
Since 1914

Feb. 4, 2010

Barn Hill Road/Main Street Roundabout Alternative 2

(with encroachments)



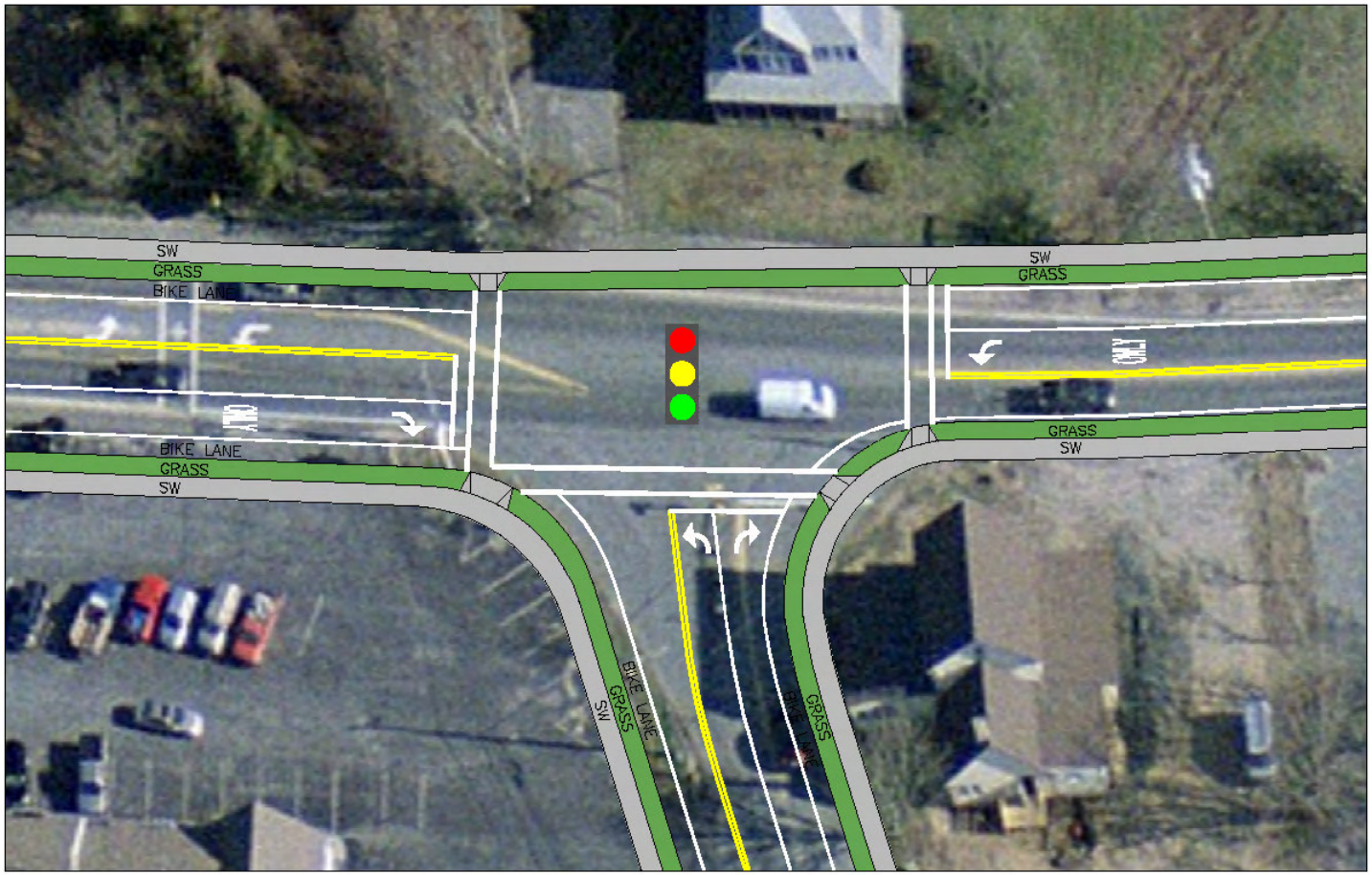
Feb. 4, 2010

Barn Hill Road/Main Street Roundabout Alternative 2

ENGINEERS
FST
Since 1914

Feb. 4, 2010

Barn Hill Road/Main Street Signal Alternative

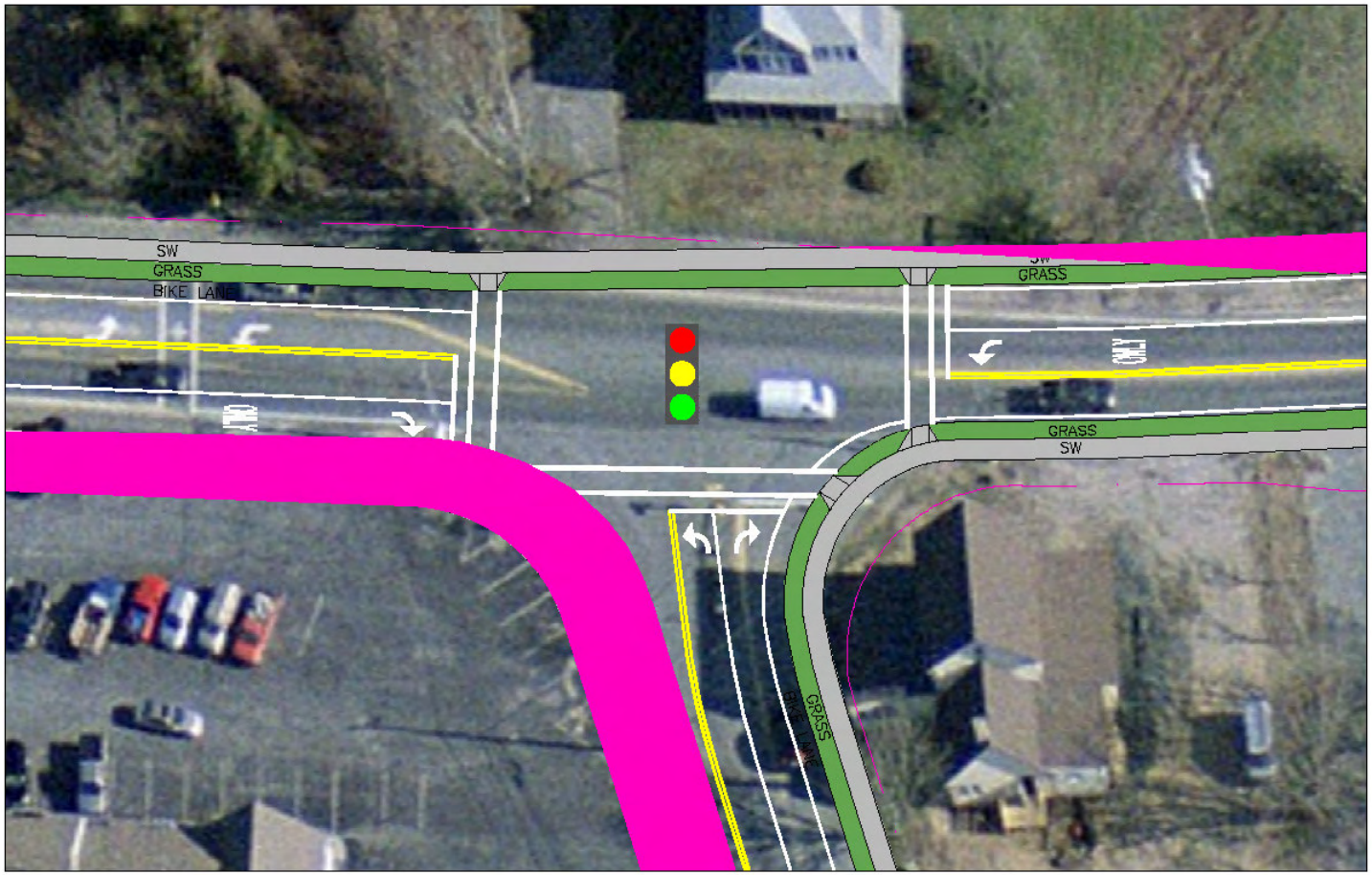


ENGINEERS
FST
Since 1914

Feb. 4, 2010

Barn Hill Road/Main Street Signal Alternative

(with encroachments)



ENGINEERS
FST
Since 1914

Feb. 4, 2010

Contact Information

- Town of Chatham
  - Terry Whalen – Town Planner

    twhalen@chatham-ma.gov
  - Jeff Colby – Dept of Public Works

    jcolby@town.chatham.ma.us
  - Paul Lagg – GIS Coordinator

    plagg@chatham-ma.gov

ENGINEERS FST Since 1914

TRANSPORTATION EVALUATION CRITERIA

Levels of Service (LOS)

- -The measurement of the quality of traffic flow on a roadway or through an intersection. Designated by a letter grade A----→F

- LOS related to average vehicle stopped delay.

- • A = Free flow, little or no delay (less than 10 seconds)
- • F = Long delays, congestion
- Unsignalized intersections = greater than 50 seconds
- Signalized intersections = greater than 80 seconds

TRANSPORTATION EVALUATION CRITERIA

Volume-to-Capacity Ratio (v/c)

- The ratio developed based on the relationship between the traffic volume entering an intersection or roadway and the measure of the calculated capacity of the facility or intersection. A capacity-*constrained* facility is v/c = 1.00

Vehicle Queue Lengths

- Critical value is assessing proposed design so that length of turn lanes are identified, driveway locations are noted so as not to be blocked and 'spillage' does not occur. One car length is typically used as 25'.

Traffic Analysis Results

With 2 Roundabouts

- Main Street/George Ryder Road

Traffic Analysis Summary (AM/PM)			
Approach	**LOS**	**Vehicle Delay**	**Queue Length (ft)**
Main St EB	A/A	6.2/6.2	106/144
Main St WB	A/A	5.9/6.0	200/95
Geo Ryder	B/B	12.3/15.4	23/34
Geo Ryder So	B/B	12.7/12.2	6/6
System	**A/A**	**6.7/6.8**	**0.43/0.65***
*** Volume-to-capacity ratio**			

- Main Street/Barn Hill Road

Traffic Analysis Summary (AM/PM)			
Approach	**LOS**	**Vehicle Delay**	**Queue Length (ft)**
Main St EB	A/A	5.6/5.9	64/131
Main St WB	A/A	6.8/6.8	40/230
Barn Hill	B/B	12.4/13.1	23/75
System	**A/A**	**7.0/7.5**	**0.64/0.67**
*** Volume-to-capacity ratio**			

Traffic Analysis Results

With 2 traffic signals

- Main Street/George Ryder Road

Traffic Analysis Summary (AM/PM)			
Approach	**LOS**	**Vehicle Delay**	**Queue Length (ft-PM)**
Main St EB Lt	C/C	27.6/32.7	49
Main St WB Th	C/C	20.5/26.1	361
Geo Ryder South	C/C	26.7/24.3	29
Geo Ryder So LT	C/C	25.1/31.0	47
Intersection	**B/B**	**15.9/18.7**	**0.58/0.75**
*** Volume-to-capacity ratio**			

- Main Street/Barn Hill Road

Traffic Analysis Summary (AM/PM)			
Approach	**LOS**	**Vehicle Delay**	**Queue Length (ft-PM)**
Main St EB	A/B	9.8/10.2	0.59/0.55
Main St WB Lt	B/A	16.1/6.0	0.38/0.25
Barn Hill Lt	B/B	10.9/10.7	0.22/0.21
Intersection	**A/A**	**8.1/9.0**	**0.45/0.55**
*** Volume-to-capacity ratio**			