COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PROJECT INITIATION FORM

Project File Number: _____

Part I: Summary Information

A. Proponent Information

Municipality/Agency submitting form: Town of Chatham

Municip. Contact: Jeff Colby	Completed by: Terence M. Whalen, AICP
Title: Director	Title: Principal Projects Administrator
Department: Public Works Department	Representing: Town of Chatham
Email: jcolby@chatham-ma.gov	Email: twhalen@chatham-ma.gov
Phone: 508-945-5155	Phone: 508-945-5194

B. Geographic Location of Proposed Project or Program (check all that apply)

Highway Division District:

Statewide	☐	District 3	☐
District 1	☐	District 4	☐
District 2	☐	District 5	☒

MPO:

Statewide	☐	Merrimack Valley MPO	☐
Berkshire MPO	☐	Montachusett MPO	☐
Boston Region MPO	☐	Nantucket	☐
Cape Cod MPO	☒	N. Middlesex MPO	☐
Central Mass MPO	☐	Old Colony MPO	☐
Franklin County TPO	☐	Pioneer Valley MPO	☐
Martha's Vineyard	☐	Southeastern Mass MPO	☐

Municipality(ies): Town of Chatham

C. Maximum Geographic Extent or Coverage of the Project or Program (Check one)

Statewide	☐
MassDOT Highway Division District-wide	☐
Entire Metropolitan Planning Organization	☐
Regional Transit Authority district	☐
Municipality(ies) only	☒

D. Facility Location

If the need and/or opportunity are related to a particular facility, please fill as a much of the following information that applies. Please include a locus map.

Route Number(s): Route 28

Street Name(s): Main Street

From Cross Street: Snow Lane

To Cross Street: Depot Road to Queen Anne Road

Mile Marker: From: To:

Intersection of: Crowell Road and Depot Road and Queen Anne

Address: 819 Main Street to 859 Main Street

Other Location Info: Route 28 - Station 69+00 to 74+00 (*Source: Chatham -1927 Alteration – Sheet No. 2 of 17 Sheets – Layout No. 2414*)

If work is proposed on a bridge or bridges as part of the project, please complete the following:

Bridge ID Number(s): NA

Facility Carried on Bridge:

Facility Bridge is Over:

E. Area Type

Please denote the area type of the project's location, as defined in the Chapter 3 of the Guidebook. Project limits may include more than one area type.

Rural Natural	☐	Suburban High Density	☐	Urban Park	☐
Rural Village	☒	Suburban Village/Town Center	☐	Urban Residential	☐
Rural Developed	☒	Suburban Low Density	☐	Urban CBD	☐

Part II: Project or Program Description

A. Please briefly describe the proposed transportation project or program:

The proposed project is to modify the existing five–leg intersection of Route 28 (Main Street) with Crowell Road, Queen Anne Road and Depot Street to make safety, infrastructure and functional improvements to this sub-standard intersection. The goal of this project is bring the intersection into conformity with modern highway design standards by making physical adjustments to correct poor intersection geometry that will enhance the safety, mobility of all users, replace outdated traffic controls in a manner that improves the intersection's function and appearance in a context sensitive manner. The Town of Chatham's Comprehensive Long Range Plan supports the vision for this portion of Chatham to be maintained as a commercial node and neighborhood center.

The outdated signals, poor vertical grade connections, confusing geometry and lack of adequate accommodations for handicap accessibility, pedestrians and bicyclists contribute to less than optimal functioning, which is exacerbated by the summer time volumes (30% greater than AAD) and motorists unfamiliar the intersection's peculiarities. As part of the of the operational review of this intersection 24-hour summer traffic volumes, peak hour traffic volumes, peak hour bicycle volumes and peak hour pedestrian volumes were reviewed (see attached presentations). The improved functioning of the Route 28/Crowell Road intersection is integral to public safety with the Town's Fire Station Headquarters located to the northeast. In order to respond to EMS/fire calls in West and South Chatham, this is the first intersection encountered. The movement through this intersection is problematic as the Fire Department is forced to make a movement that is prohibited under normal conditions adding to the potential conflicts in this area. While some access improvements have been made along Queen Anne Road associated with the recently completed Chatham Village Market / CVS project, the general lack of sidewalks in the southern portion of the project area is deficient in meeting area needs, as this intersection provides a primary pedestrian connection from a housing development north of the intersection to this commercial center, particularly the market and convenience store.

The proposed project's design objective is to make safety and physical design improvements in a context-sensitive manner, balancing the needs of the intersection's users and adjacent property owners by improving alignments, intersection grades, turning accommodations reconfiguring islands, modernizing traffic controls, enhancing pavement markings, adding sidewalks, and providing ADA crossings for pedestrians and bicyclists.

B. Estimated Costs

Please list available cost estimates or estimated cost ranges in current-year dollars. Please attach any cost estimate work sheets or summaries:

Estimated Construction Costs:		*Estimated Other Costs:*	
Construction Items:	$864,000	Planning/Design:	$120,000
Contingencies (@ 25 %):	$300,000	Right-of-way:	NA
Other Constr. Costs (@ 3 %):	$36,000	Env. Mitigation:	NA
Total Est. Construction Cost:	$1,200,000	Total Other Costs:	$120,000

C. Funding

Please identify any current or expected funding related to this need or opportunity, including federal earmarks in legislation, budget acts, or programs; state earmarks in bond bills, budget acts, or programs; funding provided by the municipality or other local agency; and/or funding provided by private entities:

Federal:	NA		Year(s)	Amount:	
State:	TIP		Year(s) 2014-2017	Amount:	$1.2M
Municipal:	Chapter 90 and CIP		Year(s) 2014-2017	Amount:	$120,000
Private:			Year(s)	Amount:	
Other:			Year(s)	Amount:	

D. Cross Section Data

Please fill in as much of the following project cross section information that applies. "Current" data should describe actual current conditions. "Future w/o Project" should describe estimated future (20 years from now) conditions if the project is not implemented. "Future with Project" should describe estimated future conditions if the project is implemented.

	Current	Future w/o Project	Future with Project	Data Source
Project length (mi)	500+/- feet			
Speed limit (mph)	30 mph			
Design speed (mph)				
Number of travel lanes	2			
Travel lane width (ft)	13-14			
Bike lane width (ft)				
Shoulder width (ft)	< 1 foot			
Sidewalk width (ft)	4-5 feet			
Median width (ft)				
Total cross section (ft)	27-41 feet			

E. Usage Section Data

Please fill in as much of the following usage information that applies. "Current" data should describe actual current conditions. "Future w/o Project" should describe estimated future (20 years from now) conditions if the project is not implemented. "Future with Project" should describe estimated future conditions if the project is implemented.

	Current	Future w/o Project	Future with Project	Data Source
Traffic volume (AADT)	15,222/9,834			CCC data
Percentage of Trucks (%)				
Number of Pedestrians	44/peak hour	25/peak hour	30/peak hour	CCC data
Number of Bicyclists	43/peak hour	21/peak hour	26/peak hour	CCC data
Number of Transit Riders				
Num. of Parking spaces				
Parking Utilization (%)				

Part III: Summary of Project Planning and Public Process Activities and Results

A. Planning Summary

Please summarize project-planning activities that were undertaken prior to the submission of this PIF. Please refer to pages 2-12 to 2-27 of the Guidebook for descriptions of suggested activities:

Prior to submission of this PIF, there were summertime observations of traffic operations and field visits to measure roadway geometry to, collect a sign and pavement marking

inventory and identify traffic control devices. Traffic information was collected including traffic counts, accident data and vehicle speeds, all as a result of this project initiation. A public meeting was held locally, in addition to in-house staff meetings, several including public safety personnel. Various concept plans including multiple roundabout alternatives were developed and reviewed. With input from local groups and the Town staff, a scaled-downed approach to make minimal changes to the intersection configuration and traffic controls was selected as the preferred alternative to move forward with this project.

☐ None, other than completing the PNF (please attach). Please describe any updated PNF information, if any:

☒ Project-focused planning study (please attach document).

☐ Comprehensive corridor study and alternatives analysis (please attach document).

B. Public Participation Summary

Please summarize any public participation activities and results that were undertaken prior to the submission of this PIF. Please include meeting dates, participants, issues, and outcomes, and note any opposition to the project/program. Please refer to Section 2-9 of the Guidebook for descriptions of suggested public participation activities.

There have been several meetings on this Crowell Road / Main Street intersection project. Noted below is a listing:

DATE(S)	PARTICIPANTS	PURPOSE	OUTCOME
1. 2/19/09	25+/-	Public Information Meeting	Public Input
2. 2/1/10	25+/-	Public Presentation of Alternatives	Public Input
3. 3/10-12/12	8 +/-	Inter-Departmental meetings	Public Safety Input

C. Environmental Coordination Activities

Please summarize any environmental coordination activities and results that were undertaken prior to the submission of this PIF, such as meetings, filings, etc. Please include meeting dates, participants, issues, and outcomes.

It is not anticipated that any wetland impacts will occur with this project, however there is a resource area to the south of the project area that may need to be considered, depending upon how far the final project limits extend down Queen Anne Road.

D. Design Activities

Please summarize any design activities that were undertaken prior to the submission of this PIF.

Conceptual designs were developed for various intersection alternatives using AASHTO standards and Project Development and Design Guide criteria. Various alignment schemes and concepts were developed for Town and public review. Design alternatives included traffic signals upgrades, approach improvements, multiple round-about configurations and island changes/improvements in the intersection.

E. Right-of-Way Activities

Please describe any activities related to right-of-way undertaken prior to the submission of this PIF.

Discussions on the various alternatives occurred in the public forum and in meetings with town staff and public safety officials. The consensus was to simplify this project to eliminate or minimize to the maximum extent practical the need for any takings – leading toward the minimal impact approach – smallest project impact footprint possible within the limits of the State right-of-way (ROW).

Part IV: Project or Program Activities, Benefits, and Impacts

Please complete all applicable sections of Part IV to the extent possible.

A. Condition

1. Please describe the effect of the project/program on the surface condition of the roadway, path, or other horizontal facility.

   West Main Street (Route 28) was recently under construction due to the sewer installation and repaving was completed to within approximately 1,800 feet (just east of the Main Street / Old Queen Anne Road intersection) of the project area. Pavement improvements for the remainder of Route 28 throughout Chatham are expected to be completed in the future under MassDOT's maintenance project to be re-pave the road in its entirety.

2. Please describe the effect of the project/program on the condition of any roadside/facility appurtenances, such as signs, signals, lighting, median barriers, guardrail, pavement markings, drainage facilities, curbs/sidewalks, fences, etc.

   All signing is expected to be upgraded, new traffic signals installed, improved pavement markings, curbing and crosswalks. A new sidewalk will be added to the south side.

3. If the project/program includes a bridge or bridges, please describe its/their condition, such as bridge ratings, dates of inspection, weight restrictions, closings, structural adequacy, functional obsolescence, condition of other bridge elements, etc., and the benefit/impact of project:

   NA

4. Please describe effect of the project on the condition of other facilities, structures, or equipment (buildings, noise barriers, bus shelters, bike racks, etc.)

   The proposed project is expected to be designed and operated to enable safe access for all users. Intersection improvements will help maintain the vitality of this commercial node. Area business will make provisions for bike racks and accommodations for pedestrians off-site.

5. Please describe the most recent repairs, preventive maintenance, rehabilitation, reconstruction, or replacement of the facility, including the extent and date.

   See # 1 above

B. Mobility

1. Please describe the effect of the project/program on the magnitude and duration of traffic congestion.

   Presently, the optimal function of this intersection is compromised by both its existing geometry and substandard signal controls as noted above. The 30% greater AAD volumes experienced in the summer typically result in significant queuing on the eastbound lane. Observations of backups on overcast/rainy summer days have been routinely noted 1,200 to 1,500 feet to the west of the intersection. The effect of this project on congestion would be the improved flow through this intersection as a result of more defined turning movements, better signal timing controls and safety enhancements to reduce motorist confusion.

2. Please describe the effect of the project/program on travel time (not congestion-related) and connectivity/access for users.

   Proposed signal upgrades, ADA crosswalks, and bicycle accommodations will improve non-motorized vehicle transit of this inter-section. This project will also improve traffic flow by reducing seasonal queuing experienced during summer peak back-ups as noted above.

3. Please describe the effect of the project/program on other users of the facility including changes in service quality, number of existing and new users, and accessibility.

   The intersection improvements are proposed to better accommodate all users (bicycles, pedestrians and vehicles). A new sidewalk will be provided on the south side of the road where the businesses exist.

4. Please describe any proposed Intelligent Transportation System components of the project.

   Other than Opticom, none are proposed at this time.

C. Safety and Security

1. Please describe any highway safety concerns, such as number and severity of vehicle crashes, crash rates, fatalities, etc., and the effect of the project/program on safety.

   According to records provided by the Chatham Police department for the years 2004-2011, there was a total of 27 vehicle accidents, five with injuries, 15 with major damage (over $1,000) and 14 with minor damage.

2. Please describe any safety issues for other users such as pedestrians, bicyclists, persons with disabilities, transit riders, trucks, schoolchildren, etc., and the effect of the project/program.

   There are presently no on-road accommodations for bicycles and this intersection which is part of an on-road signed bicycle route. The present 4 to 5-foot wide sidewalk on the north side is used by both pedestrians and bicycles. There is no designated CCRTA bus stop, although field observations indicated bus boardings/unloadings occur in the Main Street/Crowell Road intersection area as the route includes travel through this intersection. The intersection does not have actuated crossings or ADA compliant features.

3. Please describe the effect of the project/program on security, such as vulnerability, evacuation procedures, hazardous materials, etc.

   An improved corridor will provide a safe evacuation route and a better route for emergency vehicles.

D. Land Use and Economic Development

1. Please describe any project/program issues or opportunities related to area businesses, such as access to labor, parking, noise, freight access, etc.

   Access management is proposed along the corridor to better consolidate the curb cuts. Enhanced opportunities for shared parking could be further explored for area businesses to minimize access openings.

2. Please describe any project/program issues or opportunities related to economic development and job creation, and the relationship of the project/program to particular development projects or attractions.

   This intersection, located within a General Business (GB) zoning district is the core of the neighborhood center identified in Chatham's Comprehensive Plan as the "Crowell Road Area". This area is defined in the plan as Chatham's cultural, public facilities, and recreation center, with commercial and residential uses are interspersed with cultural and public facilities through the neighborhood. The three town road legs feeding Route 28 (Main Street) serve multiple key neighborhood elements. Depot Road to the northeast provides a direct connection to the Fire Station headquarters for access to West and South Chatham, and also provides access to elementary school, public recreation (ballfield, playground, tennis courts, community center) located approximately ¼ of a mile from the intersection. Key land uses to the north of the intersection include many small businesses, the Department of Public Works and public housing approximately (1/2 mile) and the current Chatham High School Middle School (which will become the Monomoy Regional Middle School in 2014) about ¾ a mile from the intersection. To the southeast, Queen Anne Road provides access to the newly renovated Chatham Village Market and newly relocated CVS. Beyond this complex, Queen Anne Road provides alternate access to Chatham's Downtown and the Oyster Pond park, Stage Neck area. Heading east from the intersection along Route 28, is a Post Office, neighborhood conveniences and serves as a gateway to Chatham's Historic Downtown. Directly to the west of the intersection is a highly active gas station/convenience store and Real Estate Office, further to the west are multiple small business and general business districts, including the Cornfield, West Chatham and South Chatham Neighborhood Centers.

3. Please describe any project/program issues or opportunities related to land use, smart growth, and transit-oriented development, as well as the relationship of the project to local and regional economic development and land use plans, zones, or districts.

   The Town, in cooperation with the Cape Cod Commission (the Regional Planning Agency), is presently reviewing the Main Street corridor from this intersection, west to the Harwich border with a visualization and land use planning study which is intended to dove-tail into the proposed context sensitive traffic safety and design improvements described above. There is some residential housing in the project area but the general land use in the direct proximity to the intersection is primarily retail/commercial.

E. Environmental and Air Quality/Climate Effects

1. Please describe any project/program environmental quality issues or opportunities related to wetlands.

   There are no anticipated impacts to wetlands.

2. Please describe any project/program environmental quality issues or opportunities related to water quality and water supply.

   There is no anticipated degradation to water quality or water supply with the proposed project.

3. Please describe any project/program environmental quality issues or opportunities related to wildlife habitat and endangered species.

   There are no anticipated impacts to wildlife or endangered species.

4. Please describe any project/program environmental quality issues or opportunities related to historic and cultural resources.

   The historic Unitarian Universalist Meeting House is located on the eastern side of the intersection. The church desires the installation of crosswalks and sidewalks in the vicinity to improve the safety of pedestrian circulation in the area. Additionally, the Seaside Cemetery is located just to the north of this intersection. The configuration of the ROW in this area could provide opportunities to improve access to the cemetery. along Crowell and Depot Roads. All proposed improvements will be developed to not impact these sites in a detrimental way.

5. Please describe any project/program environmental quality issues or opportunities related to air quality and climate change.

   With improved intersection function, vehicle delays are expected to be decreased, thus improving air quality.

F. Community Effects and Environmental Justice

1. Please describe any project/program community or neighborhood issues or opportunities such as emergency vehicle access, access to schools, cut-through traffic, etc.

   With Opticom proposed in the new signals for the intersection enhanced mobility is expected for emergency vehicles. Area residential abutters have been vocal at public meetings regarding the use of context–sensitive controls infrastructure and the need for improved crosswalks across Main Street. The Chatham Elementary School and Monomoy Regional Middle School on Depot and Crowell Roads respectively are directly accessed through this intersection from Main Street.

2. Please describe the type, magnitude, and extent of any project/program right-of-way impacts including takings, noise, property values, etc., and any associated mitigation efforts.

   At the 25% stage, it is possible that easements will be explored to expedite the project. Major takings are not anticipated. It is anticipated that with the proposed intersection upgrade, property values will be improved while the composition of traffic will remain the same, those not impacting noise levels from what they are today.

3. Please note whether the project/program is in an environmental justice community/area as defined by the MPO, and describe any community or neighborhood issues or opportunities that the project or program may address related to environmental justice.

   While the Main Street/Crowell Road intersection area is not an Environmental Justice area, as identified by the Cape Cod Commission (CCC) and defined by EOEEA, project improvements will benefit lower-income residents from an affordable housing development to the north to safely and efficiently reach the shopping areas on the south side of this intersection. With the upgrade of the intersection, businesses are anticipated to be maintained, thus supporting full and part-time jobs.

4. Please describe any project/program community or neighborhood issues or opportunities related to the creation or rehabilitation of housing.

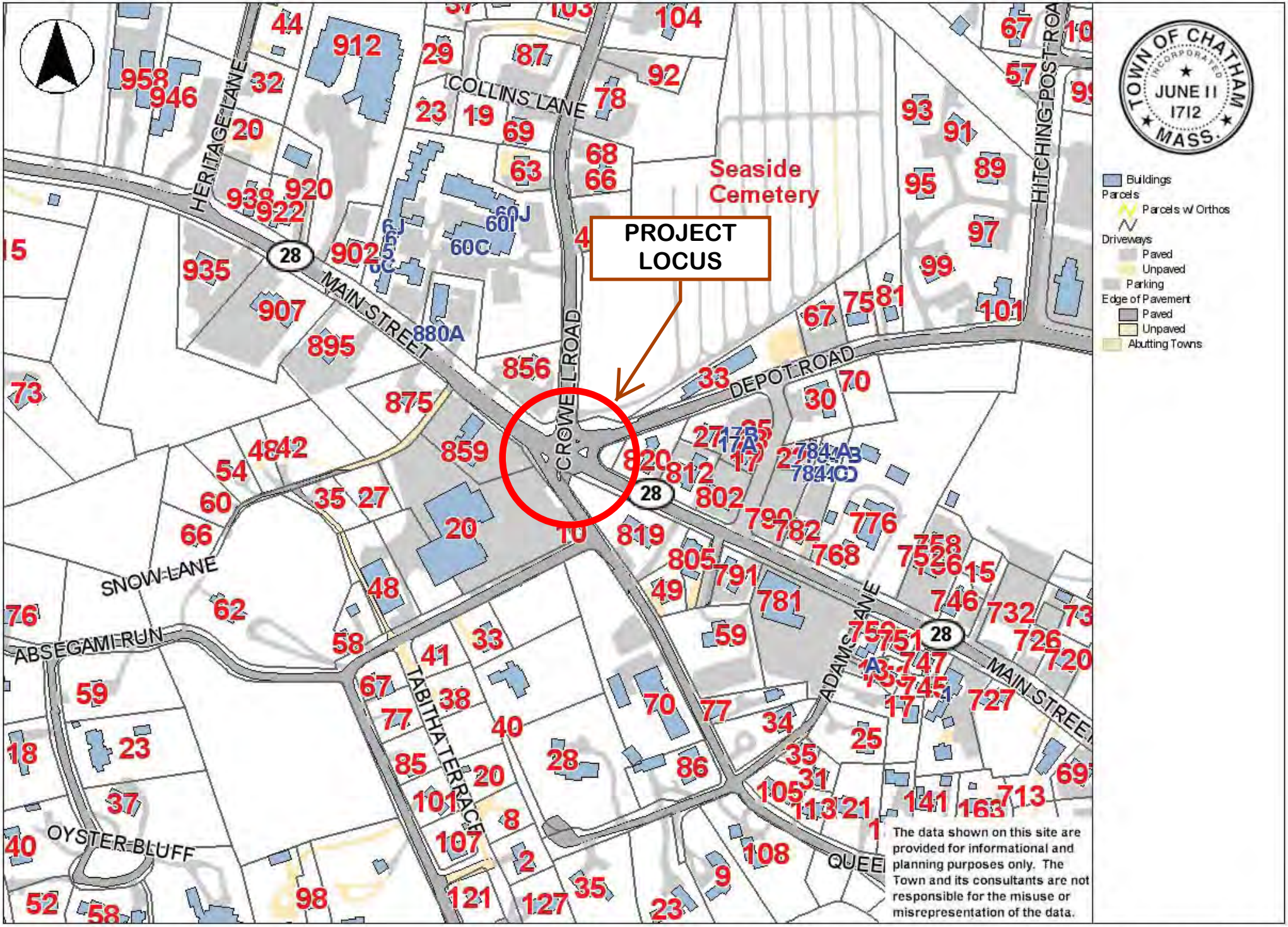
   See # 3 above in addition to 3E above.

Part V: Future Activities and Project Management

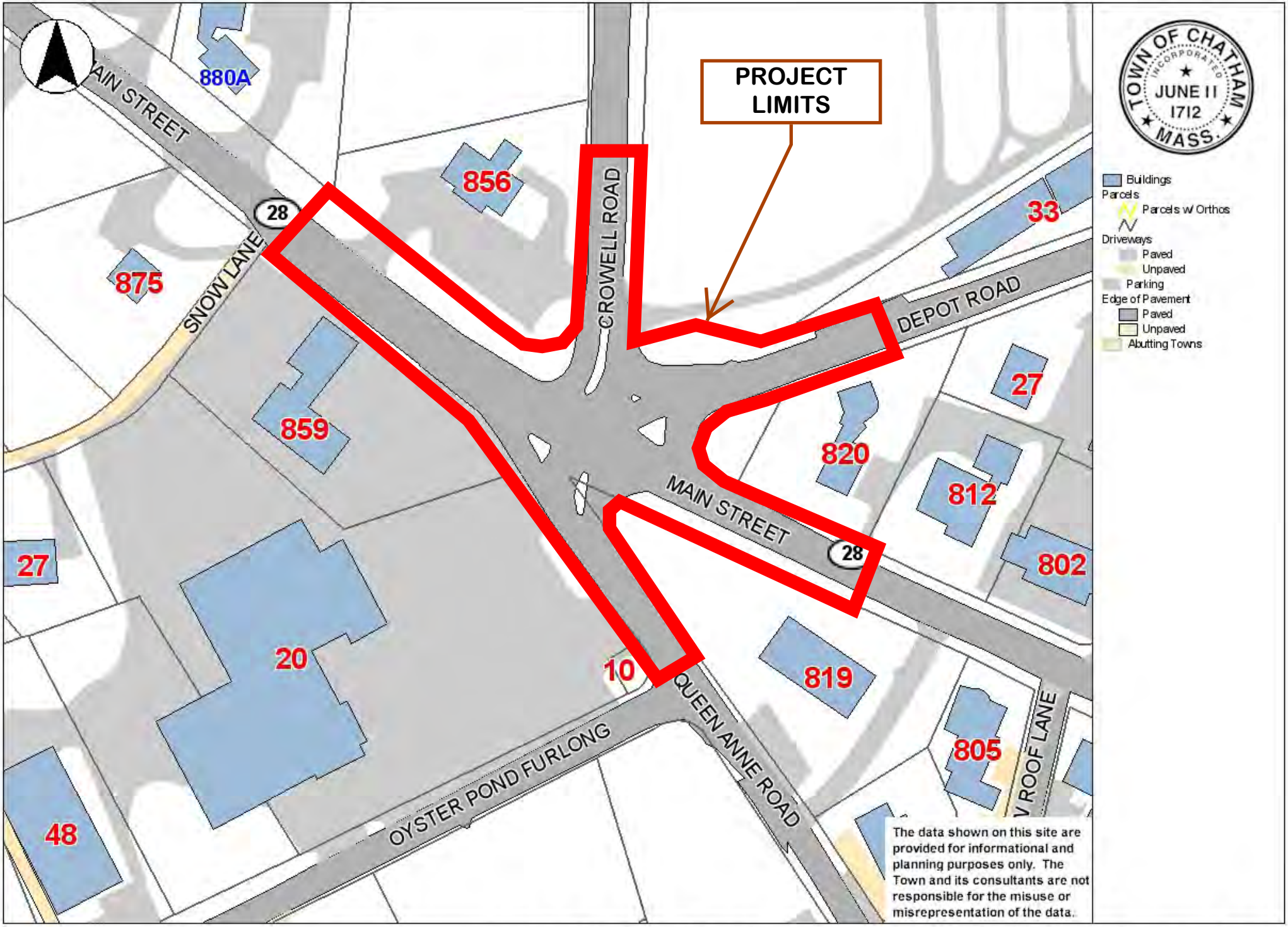
A. If the Highway Division approves this project, please check all remaining activities that will be necessary to implement this project/program and the responsible entity:

	N/A	Highway Division	Municipality	Other
State MEPA Env. Notification Form	☒	☐	☐	☐
State MEPA Draft EIR	☒	☐	☐	☐
State MEPA EIR	☒	☐	☐	☐
Federal NEPA Categorical Exclusion	☒	☐	☐	☐
Federal NEPA Environmental Assessment	☒	☐	☐	☐
Federal NEPA DEIS	☒	☐	☐	☐
Federal NEPA EIS	☒	☐	☐	☐
Preliminary Design	☐	☐	☒	☐
Final Design	☐	☐	☒	☐
Other Environmental Permitting	☒	☐	☐	☐
Right-of-Way Permits and Takings	☐	☒	☒	☐
Construction	☐	☒	☐	☐

Thank you for completing this form. Please submit this form and attachments to your local MassDOT Highway Division District Office.



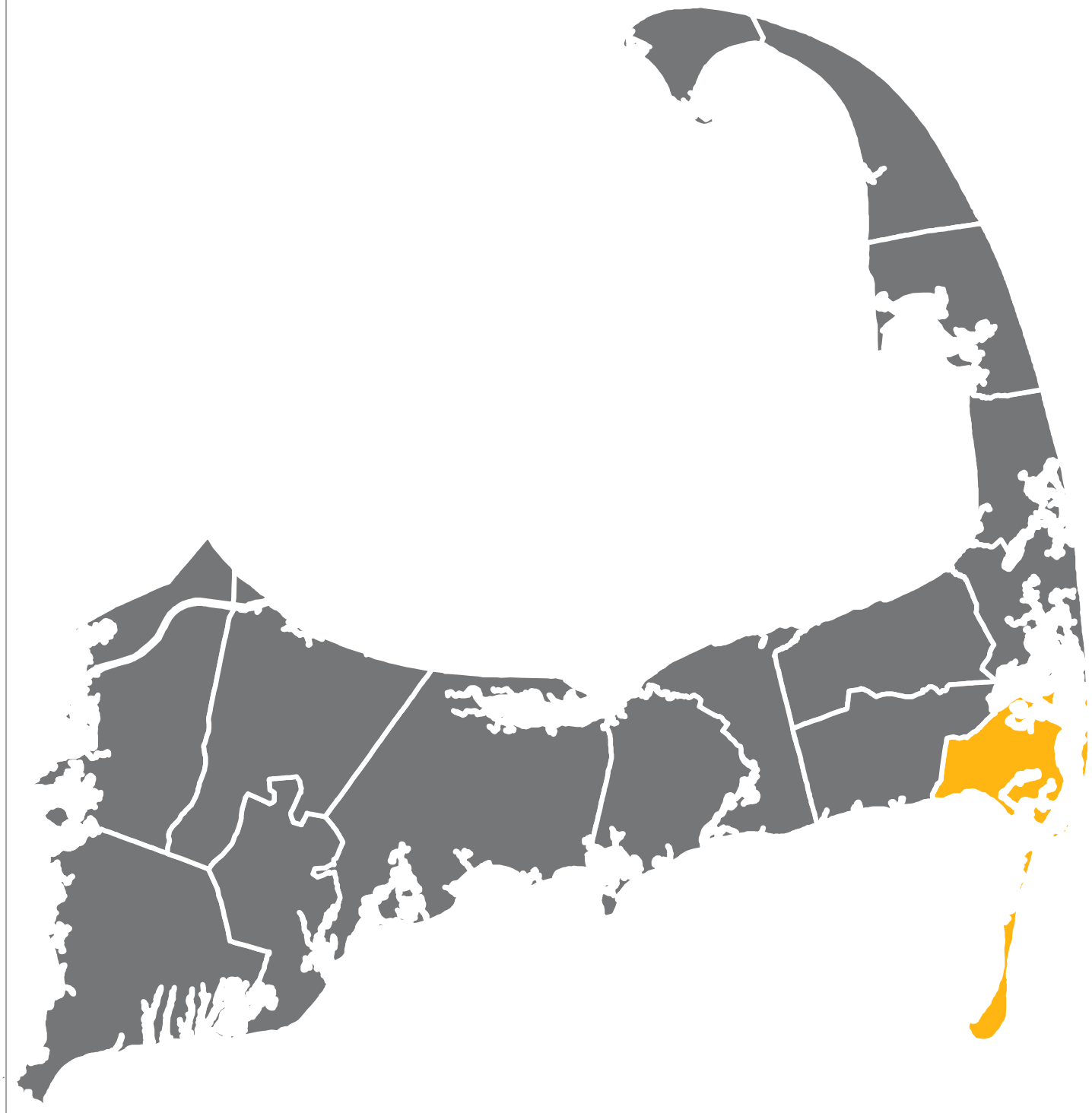
Main Street (Route 28) / Crowell Road Intersection



Main Street (Route 28) / Crowell Road Intersection

Chatham

09



Previous Section
Harwich 08

Next Section
Brewster 10

Chatham 2002-2012 Traffic Counts

Chatham

Rt 137 S of Middle Rd

Site Code 20554

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
2012	8/20/12	8/22/12	Mixed	**Total**	**7,436**	**8/21/12 Tue**	**16**	**647**	**636**	**5,651**
				NB	3,808			362	345	2,894
				SB	3,630			285	292	2,759
2010	6/22/10	6/24/10	Clear	**Total**	**6,761**	**6/24/10 Thu**	**12**	**599**	**558**	**6,017**
				NB	3,493	6/24/10 Thu	12	312	306	3,109
				SB	3,267	6/24/10 Thu	13	290	252	2,908
2008	7/21/08	7/23/08	Overcast	**Total**	**8,515**	**7/22/08 Tue**	**15**	**741**	**689**	**6,642**
				NB	4,379	7/21/08 Mon	14	398	378	3,416
				SB	4,133	7/21/08 Mon	12	382	311	3,224
2007	6/19/07	6/21/07	Clear	**Total**	**6,759**	**6/20/07 Wed**	**12**	**566**	**534**	**5,813**
				NB	3,275	6/20/07 Wed	12	288	238	2,817
				SB	3,486	6/20/07 Wed	15	327	296	2,998
2005	6/29/05	7/1/05	Overcast	**Total**	**8,995**	**7/1/05 Fri**	**12**	**796**	**724**	**7,286**
				NB	4,497	6/30/05 Thu	16	400	385	3,643
				SB	4,497	7/1/05 Fri	13	396	340	3,643
2004	8/3/04	8/5/04	Mixed	**Total**	**9,602**	**8/3/04 Tue**	**11**	**815**	**786**	**7,490**
				NB	4,741	8/3/04 Tue	13	422	396	3,698
				SB	4,855	8/3/04 Tue	12	428	390	3,787
2003	7/30/03	8/1/03	Clear	**Total**	**9,906**	**8/1/03 Fri**	**12**	**968**	**786**	**7,727**
				NB	4,747	8/1/03 Fri	12	450	390	3,703
				SB	5,155	8/1/03 Fri	12	518	395	4,021
2002	8/6/02	8/8/02	Clear	**Total**	**9,790**	**8/6/02 Tue**	**12**	**847**	**755**	**7,636**
				NB	5,035	8/7/02 Wed	16	416	414	3,927
				SB	4,755	8/6/02 Tue	12	439	343	3,709

Chatham

Rt 137 S of Queen Anne Rd

Site Code 20555

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
2012	7/30/12	8/1/12	Clear	**Total**	**9,642**	**7/31/12 Tue**	**15**	**870**	**791**	**7,328**
				NB	5,127			455	432	3,897
				SB	4,516			415	359	3,432
2011	7/19/11	7/21/11	Overcast	**Total**	**10,076**	**7/21/11 Thu**	**12**	**798**	**800**	**7,658**
				NB	5,182			372	400	3,938
				SB	4,897			425	401	3,722
2010	8/18/10	8/20/10	Clear	**Total**	**10,613**	**8/20/10 Fri**	**12**	**885**	**815**	**8,066**
				NB	5,374	8/20/10 Fri	15	455	409	4,084
				SB	5,243	8/20/10 Fri	12	444	407	3,985
2009	8/4/09	8/6/09	Mixed	**Total**	**10,879**	**8/5/09 Wed**	**12**	**915**	**820**	**8,268**
				NB	5,518	8/5/09 Wed	12	462	419	4,194
				SB	5,360	8/5/09 Wed	12	454	402	4,074
2008	8/27/08	8/29/08	Mixed	**Total**	**9,072**	**8/29/08 Fri**	**12**	**827**	**760**	**6,895**
				NB	4,552	8/29/08 Fri	12	419	389	3,460
				SB	4,521	8/29/08 Fri	12	408	370	3,436

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
2008	8/19/08	8/21/08	Clear	**Total**	**9,772**	**8/19/08 Tue**	**15**	**840**	**800**	**7,427**
				NB	4,950	8/19/08 Tue	16	444	432	3,762
				SB	4,822	8/19/08 Tue	12	414	368	3,665
2008	6/25/08	6/27/08	Clear	**Total**	**8,466**	**6/26/08 Thu**	**15**	**739**	**686**	**7,535**
				NB	4,292	6/26/08 Thu	15	388	368	3,820
				SB	4,174	6/26/08 Thu	12	354	318	3,715
2007	8/14/07	8/16/07	Clear	**Total**	**10,565**	**8/16/07 Thu**	**12**	**901**	**790**	**8,346**
				NB	5,300	8/16/07 Thu	12	439	390	4,187
				SB	5,264	8/16/07 Thu	12	462	399	4,159
2004	8/3/04	8/5/04	Mixed	**Total**	**10,788**	**8/3/04 Tue**	**12**	**915**	**877**	**8,415**
				NB	5,451	8/3/04 Tue	13	475	436	4,252
				SB	5,342	8/3/04 Tue	12	491	442	4,167

Chatham

Rt 28 E of Rt 137

Site Code 20563

2008	7/21/08	7/23/08	Overcast	**Total**	**15,596**	**7/21/08 Mon**	**16**	**1,328**	**1,292**	**12,165**
				EB	7,857	7/22/08 Tue	12	690	566	6,128
				WB	7,742	7/22/08 Tue	16	736	726	6,039
2003	7/29/03	7/31/03	Clear	**Total**	**17,770**	**7/29/03 Tue**	**12**	**1,463**	**1,367**	**14,038**
				EB	9,049	7/29/03 Tue	11	787	602	7,149
				WB	8,713	7/30/03 Wed	16	786	765	6,883
2002	8/6/02	8/8/02	Clear	**Total**	**17,668**	**8/6/02 Tue**	**12**	**1,450**	**1,360**	**13,781**
				EB	8,880	8/6/02 Tue	12	797	587	6,926
				WB	8,790	8/6/02 Tue	16	805	773	6,856

Chatham

Rt 28 E of Barn Hill Rd

Site Code 20557

2012	7/30/12	8/1/12	Clear	**Total**	**15,821**	**7/31/12 Tue**	**14**	**1,451**	**1,287**	**12,024**
				EB	7,803			729	562	5,930
				WB	8,016			722	725	6,092
2011	7/19/11	7/21/11	Overcast	**Total**	**15,589**	**7/21/11 Thu**	**12**	**1,288**	**1,231**	**11,848**
				EB	7,627			628	584	5,797
				WB	7,962			660	647	6,051
2010	8/18/10	8/20/10	Clear	**Total**	**17,100**	**8/20/10 Fri**	**13**	**1,467**	**1,320**	**12,996**
				EB	8,342	8/20/10 Fri	10	802	576	6,340
				WB	8,760	8/18/10 Wed	15	811	744	6,658
2009	6/24/09	6/26/09	Overcast	**Total**	**13,842**	**6/25/09 Thu**	**13**	**1,207**	**1,116**	**12,181**
				EB	6,885	6/25/09 Thu	13	618	455	6,059
				WB	6,961	6/25/09 Thu	16	687	660	6,126
2008	7/21/08	7/23/08	Overcast	**Total**	**17,504**	**7/21/08 Mon**	**16**	**1,492**	**1,452**	**13,653**
				EB	8,127	7/22/08 Tue	11	720	568	6,339
				WB	9,383	7/21/08 Mon	16	891	883	7,319
2006	8/21/06	8/24/06	Overcast	**Total**	**15,842**	**8/21/06 Mon**	**15**	**1,370**	**1,278**	**12,515**
				EB	7,750	8/21/06 Mon	15	654	566	6,123
				WB	8,094	8/22/06 Tue	16	753	713	6,394

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
2003	7/29/03	7/31/03	Clear	**Total**	**20,750**	**7/29/03 Tue**	**12**	**1,746**	**1,605**	**16,393**
				EB	10,256	7/29/03 Tue	12	871	721	8,102
				WB	10,492	7/30/03 Wed	16	910	885	8,289

Chatham
Rt 28 W of Barn Hill Rd — Site Code 21185

2011	6/29/11	7/1/11	Overcast	**Total**	**15,295**	**7/1/11 Fri**	**10**	**1,219**	**1,202**	**12,618**
				EB	7,564			537	520	6,240
				WB	7,730			682	682	6,377
2009	6/24/09	6/26/09	Overcast	**Total**	**14,398**	**6/25/09 Thu**	**13**	**1,285**	**1,151**	**12,670**
				EB	7,071	6/25/09 Thu	13	660	470	6,222
				WB	7,330	6/25/09 Thu	16	713	681	6,450

Chatham
Rt 28 N of Crowell Rd (N end) — Site Code 20559

2009	8/4/09	8/6/09	Clear	**Total**	**13,196**	**8/5/09 Wed**	**15**	**1,159**	**1,085**	**10,029**
				NB	6,333	8/5/09 Wed	16	597	580	4,813
				SB	6,864	8/5/09 Wed	14	622	505	5,217
2004	8/10/04	8/12/04	Clear	**Total**	**13,441**	**8/11/04 Wed**	**15**	**1,133**	**1,106**	**10,484**
				NB	6,991	8/11/04 Wed	16	635	623	5,453
				SB	6,452	8/11/04 Wed	12	520	484	5,033

Chatham
Rt 28 E of Crowell Rd (S end) — Site Code 21189

2009	6/24/09	6/26/09	Overcast	**Total**	**11,175**	**6/26/09 Fri**	**12**	**972**	**841**	**9,834**
				EB	5,277	6/26/09 Fri	12	460	321	4,644
				WB	5,892	6/25/09 Thu	16	520	519	5,185

Chatham
Rt 28 W of Crowell Rd (S end) — Site Code 20755

2009	6/24/09	6/26/09	Overcast	**Total**	**17,298**	**6/24/09 Wed**	**16**	**1,560**	**1,469**	**15,222**
				EB	9,243	6/24/09 Wed	16	1,104	839	8,134
				WB	8,055	6/26/09 Fri	16	804	629	7,088

Chatham
Rt 28 E of George Ryder Rd — Site Code 20956

2011	6/27/11	6/29/11	Clear	**Total**	**14,239**	**6/28/11 Tue**	**12**	**1,195**	**1,135**	**12,673**
				EB	6,955			603	484	6,190
				WB	7,281			592	651	6,480
2003	7/30/03	8/1/03	Clear	**Total**	**20,231**	**8/1/03 Fri**	**12**	**1,764**	**1,562**	**15,780**

Chatham
Rt 28 W of George Ryder Rd — Site Code 20329

2011	6/27/11	6/29/11	Clear	**Total**	**13,417**	**6/28/11 Tue**	**15**	**1,120**	**1,054**	**11,941**
				EB	6,581			507	445	5,857
				WB	6,836			613	608	6,084

Chatham 2002-2012 Traffic Counts

Harwich & Chatham

Rt 28 @ Harw/Chat TL (N end)

Site Code 20508

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
2012	8/20/12	8/22/12	Mixed	**Total**	**10,185**	**8/21/12 Tue**	**15**	**862**	**882**	**7,741**
				NB	5,294			469	463	4,023
				SB	4,893			393	418	3,719
2011	7/19/11	7/21/11	Clear	**Total**	**10,792**	**7/20/11 Wed**	**16**	**950**	**874**	**8,202**
				NB	5,033			429	407	3,825
				SB	5,760			520	468	4,378
2010	7/20/10	7/22/10	Clear	**Total**	**10,438**	**7/20/10 Tue**	**16**	**942**	**928**	**7,933**
				NB	5,205	7/20/10 Tue	16	466	438	3,956
				SB	5,233	7/21/10 Wed	16	503	490	3,977
2009	8/4/09	8/5/09	Overcast	**Total**	**11,600**	**8/5/09 Wed**	**11**	**962**	**951**	**8,816**
				NB	5,655	8/5/09 Wed	11	517	511	4,298
				SB	5,944	8/4/09 Tue	15	483	441	4,517
2008	8/12/08	8/14/08	Overcast	**Total**	**10,755**	**8/12/08 Tue**	**13**	**976**	**868**	**8,174**
				NB	5,418	8/12/08 Tue	14	505	455	4,118
				SB	5,336	8/12/08 Tue	13	479	413	4,055
2007	6/19/07	6/21/07	Clear	**Total**	**7,790**	**6/20/07 Wed**	**16**	**680**	**648**	**6,699**
				NB	3,896	6/20/07 Wed	15	378	356	3,351
				SB	3,891	6/20/07 Wed	14	339	293	3,346
2006	8/21/06	8/24/06	Overcast	**Total**	**9,815**	**8/23/06 Wed**	**16**	**885**	**852**	**7,754**
				NB	4,913	8/23/06 Wed	16	474	452	3,881
				SB	4,897	8/22/06 Tue	16	435	400	3,869
2005	8/29/05	8/31/05	Clear	**Total**	**7,072**	**8/29/05 Mon**	**15**	**725**	**573**	**5,516**
				NB	3,650	8/29/05 Mon	15	391	307	2,847
				SB	3,420	8/29/05 Mon	15	334	268	2,668
2003	7/29/03	7/31/03	Clear	**Total**	**11,266**	**7/30/03 Wed**	**15**	**986**	**948**	**8,900**
				NB	5,605	7/29/03 Tue	14	524	497	4,428
				SB	5,661	7/30/03 Wed	15	503	452	4,472
2002	8/5/02	8/7/02	Overcast	**Total**	**11,493**	**8/6/02 Tue**	**16**	**1,061**	**985**	**8,965**
				NB	5,873	8/6/02 Tue	16	582	532	4,581
				SB	5,616	8/6/02 Tue	14	523	453	4,380

Harwich & Chatham

Rt 28 @ Harw/Chat TL (W end)

Site Code 20509

2012	6/25/12	6/28/12	Overcast	**Total**	**8,827**	**6/27/12 Wed**	**17**	**733**	**686**	**7,856**
				EB	4,565			328	313	4,063
				WB	4,263			405	372	3,794
2011	7/19/11	7/21/11	Overcast	**Total**	**10,217**	**7/20/11 Wed**	**12**	**851**	**798**	**7,765**
				EB	5,138			424	390	3,905
				WB	5,073			426	408	3,855
2010	8/18/10	8/20/10	Clear	**Total**	**10,806**	**8/18/10 Wed**	**16**	**865**	**825**	**8,213**
				EB	5,501	8/20/10 Fri	11	478	365	4,181
				WB	5,307	8/19/10 Thu	17	485	460	4,033

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
2009	8/4/09	8/6/09	Clear	**Total**	**11,974**	**8/5/09 Wed**	**13**	**1,037**	**995**	**9,100**
				EB	6,052	8/5/09 Wed	12	541	453	4,600
				WB	5,921	8/4/09 Tue	16	564	541	4,500
2008	8/12/08	8/14/08	Overcast	**Total**	**10,946**	**8/12/08 Tue**	**15**	**989**	**893**	**8,319**
				EB	5,512	8/12/08 Tue	12	516	388	4,189
				WB	5,436	8/12/08 Tue	16	536	506	4,131
2007	6/19/07	6/21/07	Clear	**Total**	**8,650**	**6/20/07 Wed**	**13**	**747**	**732**	**7,439**
				EB	4,363	6/21/07 Thu	11	384	314	3,752
				WB	4,290	6/19/07 Tue	16	425	419	3,689
2005	8/29/05	8/31/05	Clear	**Total**	**8,452**	**8/29/05 Mon**	**16**	**779**	**704**	**6,593**
				EB	4,258	8/30/05 Tue	12	395	316	3,321
				WB	4,191	8/29/05 Mon	16	440	388	3,269
2004	8/3/04	8/5/04	Overcast	**Total**	**11,947**	**8/3/04 Tue**	**16**	**1,015**	**967**	**9,319**
				EB	6,071	8/3/04 Tue	12	540	429	4,735
				WB	5,883	8/3/04 Tue	16	551	539	4,589
2003	6/24/03	6/26/03	Clear	**Total**	**10,298**	**6/25/03 Wed**	**16**	**842**	**790**	**8,959**
				EB	5,199	6/25/03 Wed	11	439	349	4,523
				WB	5,100	6/25/03 Wed	16	468	440	4,437
Chatham Rt 28 N of Main St									Site Code 21035	
2009	7/13/09	7/15/09	Clear	**Total**	**5,630**	**7/15/09 Wed**	**11**	**516**	**474**	**4,335**
				NB	2,545	7/15/09 Wed	12	241	215	1,960
				SB	3,090	7/15/09 Wed	11	280	259	2,379
2003	8/20/03	8/22/03	Clear	**Total**	**7,724**	**8/22/03 Fri**	**11**	**663**	**586**	**5,947**
				NB	3,166	8/22/03 Fri	12	271	248	2,438
				SB	4,558	8/22/03 Fri	11	415	338	3,510
Chatham Rt 28 N of Old Comers Rd									Site Code 21190	
2009	8/4/09	8/6/09	Clear	**Total**	**10,347**	**8/5/09 Wed**	**14**	**941**	**856**	**7,864**
				NB	5,210	8/5/09 Wed	16	488	478	3,960
				SB	5,139	8/5/09 Wed	14	492	378	3,906
Chatham Rt 28 S of Old Harbor Rd									Site Code 20562	
2003	7/29/03	7/31/03	Clear	**Total**	**5,800**	**7/29/03 Tue**	**12**	**532**	**448**	**4,582**
				NB	2,804	7/29/03 Tue	12	294	213	2,215
				SB	2,991	7/29/03 Tue	14	267	234	2,363
Chatham Rt 28 W of Stage Harbor Rd									Site Code 20829	
2003	8/20/03	8/22/03	Clear	**Total**	**14,074**	**8/22/03 Fri**	**15**	**1,150**	**1,045**	**10,837**
				EB	6,397	8/21/03 Thu	12	517	424	4,926
				WB	7,673	8/22/03 Fri	15	662	621	5,908

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
Chatham Rt 28 W of Stoney Hill Rd									Site Code 20564	
2012	8/20/12	8/22/12	Mixed	**Total**	**9,619**	**8/21/12 Tue**	**15**	**803**	**808**	**7,310**
				EB	5,373			454	454	4,083
				WB	4,245			349	353	3,226
2011	8/8/11	8/10/11	Overcast	**Total**	**10,642**	**8/9/11 Tue**	**12**	**921**	**904**	**8,088**
				EB	6,380			410	370	4,849
				WB	4,262			512	536	3,239
2011	7/19/11	7/21/11	Overcast	**Total**	**10,375**	**7/21/11 Thu**	**12**	**841**	**819**	**7,885**
2010	8/18/10	8/20/10	Clear	**Total**	**10,759**	**8/18/10 Wed**	**16**	**969**	**914**	**8,177**
				EB	5,431	8/18/10 Wed	16	463	444	4,128
				WB	5,331	8/18/10 Wed	16	506	469	4,052
2009	8/4/09	8/6/09	Clear	**Total**	**11,076**	**8/5/09 Wed**	**12**	**1,000**	**908**	**8,418**
				EB	5,578	8/5/09 Wed	13	529	403	4,239
				WB	5,494	8/5/09 Wed	16	524	504	4,175
2008	6/25/08	6/27/08	Clear	**Total**	**8,918**	**6/26/08 Thu**	**15**	**847**	**718**	**7,937**
				EB	4,520	6/26/08 Thu	15	404	325	4,023
				WB	4,401	6/26/08 Thu	15	443	394	3,917
2006	8/21/06	8/24/06	Overcast	**Total**	**9,848**	**8/23/06 Wed**	**16**	**891**	**849**	**7,780**
				EB	4,906	8/22/06 Tue	13	423	381	3,876
				WB	4,941	8/23/06 Wed	16	508	468	3,903
Chatham Rt 28 S of Stony Hill Rd									Site Code 20368	
2011	6/29/11	7/1/11	Overcast	**Total**	**8,330**	**7/1/11 Fri**	**11**	**678**	**623**	**6,872**
				NB	4,049			319	339	3,340
				SB	4,280			359	284	3,531
Chatham Barn Hill Rd S of Rt 28									Site Code 21184	
2011	6/29/11	7/1/11	Overcast	**Total**	**4,249**	**7/1/11 Fri**	**10**	**364**	**290**	**3,505**
				NB	2,167			170	141	1,788
				SB	2,086			194	149	1,721
2010	6/15/10	6/17/10	Clear	**Total**	**2,544**	**6/15/10 Tue**	**16**	**240**	**231**	**2,264**
				NB	1,280	6/15/10 Tue	16	131	123	1,139
				SB	1,262	6/17/10 Thu	12	122	107	1,123
2009	8/12/09	8/14/09	Clear	**Total**	**4,656**	**8/14/09 Fri**	**13**	**361**	**346**	**3,539**
				NB	2,421	8/14/09 Fri	17	241	182	1,840
				SB	2,234	8/14/09 Fri	13	271	164	1,698
Chatham Barn Hill Rd N of Hardings Beach Rd									Site Code 20530	
2011	6/7/11	6/9/11	Clear	**Total**	**2,312**	**6/8/11 Wed**	**15**	**206**	**181**	**2,058**
				NB	1,150			123	102	1,024
				SB	1,166			82	79	1,038

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
Chatham Bridge St E of Gammys Ln									Site Code 20531	
2011	6/7/11	6/9/11	Clear	**Total**	**1,355**	**6/9/11 Thu**	**12**	**132**	**119**	**1,206**
				EB	631			52	52	562
				WB	724			79	66	644
2010	6/22/10	6/24/10	Clear	**Total**	**1,771**	**6/24/10 Thu**	**13**	**201**	**159**	**1,576**
				EB	844	6/24/10 Thu	13	100	67	751
				WB	928	6/24/10 Thu	13	101	92	826
2010	5/3/10	5/7/10	Clear	**Total**	**861**	**5/5/10 Wed**	**12**	**106**	**69**	**827**
				EB	417	5/5/10 Wed	12	53	33	400
				WB	443	5/5/10 Wed	12	53	36	425
2004	8/10/04	8/12/04	Clear	**Total**	**3,616**	**8/10/04 Tue**	**12**	**338**	**305**	**2,820**
Chatham Crowell Rd S of Barcliff Av									Site Code 20535	
2011	6/7/11	6/9/11	Clear	**Total**	**4,657**	**6/8/11 Wed**	**14**	**414**	**347**	**4,145**
				NB	2,283			220	196	2,032
				SB	2,378			194	152	2,116
2005	8/29/05	8/31/05	Clear	**Total**	**5,172**	**8/30/05 Tue**	**16**	**480**	**453**	**4,034**
				NB	2,458	8/30/05 Tue	16	228	222	1,917
				SB	2,712	8/30/05 Tue	16	252	232	2,115
2002	8/6/02	8/8/02	Clear	**Total**	**6,707**	**8/7/02 Wed**	**12**	**602**	**516**	**5,231**
				NB	3,135	8/7/02 Wed	12	268	248	2,445
				SB	3,569	8/7/02 Wed	12	334	268	2,784
Chatham Crowell Rd (s) N of Rt 28									Site Code 21186	
2009	6/24/09	6/26/09	Overcast	**Total**	**5,365**	**6/25/09 Thu**	**12**	**459**	**422**	**4,721**
				NB	2,493	6/25/09 Thu	16	228	210	2,194
				SB	2,871	6/26/09 Fri	9	262	213	2,526
Chatham Depot Rd N of Rt 28									Site Code 21187	
2009	6/24/09	6/26/09	Overcast	**Total**	**1,078**	**6/26/09 Fri**	**9**	**111**	**79**	**949**
				NB	713	6/26/09 Fri	9	84	47	627
				SB	362	6/26/09 Fri	10	46	32	319
Chatham George Ryder Rd N of Rt 28									Site Code 21054	
2011	6/27/11	6/29/11	Clear	**Total**	**2,782**	**6/29/11 Wed**	**11**	**263**	**204**	**2,476**
				NB	1,346			129	95	1,198
				SB	1,434			135	109	1,276

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
Chatham George Ryder Rd N of Katie Ford Dr									Site Code 20538	
2011	6/7/11	6/9/11	Clear	**Total**	**2,307**	**6/7/11 Tue**	**15**	**187**	**191**	**2,053**
				NB	1,070			86	85	952
				SB	1,239			101	107	1,103
2004	8/3/04	8/5/04	Overcast	**Total**	**3,525**	**8/3/04 Tue**	**12**	**458**	**252**	**2,750**
				NB	1,847	8/4/04 Wed	13	229	125	1,441
				SB	1,680	8/3/04 Tue	12	241	128	1,310
Chatham George Ryder Rd S S of Rt 28									Site Code 20330	
2011	6/27/11	6/29/11	Clear	**Total**	**695**	**6/28/11 Tue**	**11**	**68**	**53**	**619**
Chatham Hardings Beach Rd W of Barn Hill Rd									Site Code 20540	
2011	6/7/11	6/9/11	Clear	**Total**	**1,523**	**6/8/11 Wed**	**14**	**171**	**119**	**1,355**
				EB	756			88	63	673
				WB	767			82	56	683
2008	8/19/08	8/21/08	Mixed	**Total**	**2,396**	**8/20/08 Wed**	**16**	**229**	**205**	**1,821**
				EB	1,159	8/20/08 Wed	16	141	114	881
				WB	1,230	8/21/08 Thu	12	133	91	935
Chatham Main St E of Rt 28									Site Code 21034	
2003	8/20/03	8/22/03	Clear	**Total**	**13,149**	**8/21/03 Thu**	**16**	**950**	**907**	**10,125**
				EB	7,050	8/21/03 Thu	20	521	446	5,429
				WB	6,098	8/22/03 Fri	16	489	462	4,695
Chatham Main St W of Chatham Bars Av									Site Code 21281	
2012	7/30/12	8/1/12	Clear	**Total**	**7,097**	**7/31/12 Tue**	**12**	**560**	**508**	**5,394**
				EB	3,879			359	272	2,948
				WB	3,216			201	235	2,444
2012	7/9/12	7/11/12	Clear	**Total**	**7,362**	**7/10/12 Tue**	**12**	**533**	**506**	**5,595**
				EB	3,917			299	250	2,977
				WB	3,443			233	256	2,617
Chatham Main St W of Shore Rd									Site Code 20543	
2011	6/7/11	6/9/11	Clear	**Total**	**2,604**	**6/8/11 Wed**	**14**	**260**	**206**	**2,318**
				EB	1,470			150	110	1,308
				WB	1,130			110	95	1,006
2005	8/29/05	8/31/05	Clear	**Total**	**3,640**	**8/29/05 Mon**	**14**	**344**	**281**	**2,839**
				EB	1,986	8/29/05 Mon	12	189	161	1,549
				WB	1,652	8/29/05 Mon	14	160	120	1,289

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
Chatham										
Morton Rd N of Charles St									Site Code 20545	
2012	6/25/12	6/28/12	Mixed	**Total**	**1,183**	**6/27/12 Wed**	**13**	**102**	**84**	**1,053**
				NB	533			43	38	474
				SB	652			59	45	580
2010	6/22/10	6/24/10	Clear	**Total**	**1,293**	**6/24/10 Thu**	**13**	**123**	**95**	**1,151**
				NB	617	6/22/10 Tue	15	63	45	549
				SB	680	6/24/10 Thu	13	63	51	605
2002	8/6/02	8/8/02	Clear	**Total**	**1,541**	**8/6/02 Tue**	**11**	**132**	**116**	**1,202**
				NB	757	8/6/02 Tue	14	69	55	590
				SB	775	8/6/02 Tue	12	66	61	605
Chatham										
Old Comers Rd W of Rt 28									Site Code 20546	
2012	8/20/12	8/22/12	Mixed	**Total**	**3,285**	**8/21/12 Tue**	**12**	**277**	**278**	**2,497**
				EB	1,645			131	103	1,250
				WB	1,644			146	175	1,249
2009	8/4/09	8/6/09	Overcast	**Total**	**3,442**	**8/5/09 Wed**	**16**	**315**	**300**	**2,616**
				EB	1,804	8/6/09 Thu	12	153	118	1,371
				WB	1,640	8/5/09 Wed	16	183	182	1,246
2007	8/14/07	8/16/07	Clear	**Total**	**3,473**	**8/15/07 Wed**	**15**	**304**	**285**	**2,744**
				EB	1,780	8/16/07 Thu	12	163	113	1,406
				WB	1,690	8/15/07 Wed	15	178	172	1,335
2004	8/3/04	8/5/04	Overcast	**Total**	**3,801**	**8/3/04 Tue**	**16**	**335**	**320**	**2,965**
				EB	1,945	8/3/04 Tue	13	180	133	1,517
				WB	1,852	8/3/04 Tue	16	198	187	1,445
Chatham										
Old Queen Anne Rd N of Stepping Stones									Site Code 20550	
2012	7/30/12	8/1/12	Clear	**Total**	**7,046**	**7/31/12 Tue**	**15**	**655**	**588**	**5,355**
				NB	3,373			332	307	2,563
				SB	3,675			323	281	2,793
2011	7/19/11	7/21/11	Overcast	**Total**	**7,558**	**7/21/11 Thu**	**11**	**590**	**581**	**5,744**
				NB	3,565			318	302	2,709
				SB	3,995			272	279	3,036
2009	7/21/09	7/23/09	Overcast	**Total**	**6,629**	**7/21/09 Tue**	**14**	**631**	**543**	**5,104**
2008	6/25/08	6/27/08	Clear	**Total**	**6,079**	**6/26/08 Thu**	**16**	**559**	**550**	**5,410**
				NB	2,869	6/26/08 Thu	16	307	306	2,553
				SB	3,207	6/26/08 Thu	9	276	244	2,854
2007	8/14/07	8/16/07	Clear	**Total**	**7,254**	**8/14/07 Tue**	**16**	**632**	**629**	**5,731**
				NB	3,420	8/14/07 Tue	16	354	344	2,702
				SB	3,833	8/16/07 Thu	8	341	285	3,028

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
2006	8/21/06	8/24/06	Overcast	**Total**	**6,396**	**8/23/06 Wed**	**16**	**560**	**543**	**5,053**
				NB	3,038	8/22/06 Tue	16	308	299	2,400
				SB	3,354	8/21/06 Mon	12	286	244	2,650
2005	6/29/05	7/1/05	Overcast	**Total**	**7,083**	**7/1/05 Fri**	**15**	**673**	**561**	**5,737**
				NB	3,240	7/1/05 Fri	15	308	275	2,624
				SB	3,842	7/1/05 Fri	15	365	285	3,112
2003	8/19/03	8/21/03	Clear	**Total**	**6,866**	**8/20/03 Wed**	**16**	**586**	**586**	**5,287**
				NB	3,223	8/19/03 Tue	16	321	314	2,482
				SB	3,638	8/21/03 Thu	9	310	271	2,801
2002	8/6/02	8/8/02	Clear	**Total**	**7,406**	**8/6/02 Tue**	**16**	**616**	**600**	**5,777**
				NB	3,478	8/6/02 Tue	16	324	311	2,713
				SB	3,916	8/7/02 Wed	12	342	287	3,054

Chatham

Old Queen Anne Rd S of Stepping Stones Rd

Site Code 20551

2012	7/30/12	8/1/12	Clear	**Total**	**3,851**	**7/31/12 Tue**	**12**	**344**	**309**	**2,927**
				NB	1,985			186	183	1,509
				SB	1,867			158	126	1,419
2008	8/19/08	8/21/08	Clear	**Total**	**3,578**	**8/20/08 Wed**	**17**	**333**	**295**	**2,719**
				NB	1,758	8/20/08 Wed	16	182	171	1,336
				SB	1,816	8/20/08 Wed	15	152	124	1,380
2007	8/14/07	8/16/07	Mixed	**Total**	**3,945**	**8/15/07 Wed**	**16**	**332**	**332**	**3,117**
				NB	1,995	8/14/07 Tue	16	193	189	1,576
				SB	1,953	8/15/07 Wed	8	159	142	1,543
2005	8/29/05	8/31/05	Clear	**Total**	**3,144**	**8/29/05 Mon**	**16**	**318**	**277**	**2,452**
				NB	1,614	8/29/05 Mon	16	198	160	1,259
				SB	1,530	8/31/05 Wed	8	132	118	1,193

Chatham & Harwich

Queen Anne Rd E of Rt 137

Site Code 20552

2012	7/30/12	8/1/12	Clear	**Total**	**11,827**	**7/31/12 Tue**	**15**	**1,028**	**963**	**8,989**
				EB	6,361			524	467	4,834
				WB	5,469			504	496	4,156
2008	8/19/08	8/21/08	Clear	**Total**	**11,053**	**8/19/08 Tue**	**16**	**946**	**944**	**8,400**
				EB	5,623	8/21/08 Thu	12	471	403	4,273
				WB	5,427	8/20/08 Wed	16	553	542	4,125
2007	8/14/07	8/16/07	Clear	**Total**	**11,215**	**8/15/07 Wed**	**16**	**974**	**954**	**8,860**
				EB	5,710	8/16/07 Thu	12	470	418	4,511
				WB	5,503	8/15/07 Wed	16	571	535	4,347
2006	8/21/06	8/24/06	Overcast	**Total**	**10,963**	**8/21/06 Mon**	**16**	**942**	**911**	**8,661**
				EB	5,527	8/24/06 Thu	13	451	400	4,366
				WB	5,436	8/22/06 Tue	16	520	511	4,294
2005	8/31/05	9/2/05	Clear	**Total**	**10,456**	**9/1/05 Thu**	**16**	**910**	**893**	**8,940**
				EB	5,423	9/2/05 Fri	14	427	409	4,637
				WB	5,028	9/1/05 Thu	16	487	484	4,299

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
Harwich & Chatham										
Queen Anne Rd W of Rt 137									Site Code 20495	
2012	7/30/12	8/1/12	Clear	**Total**	**4,604**	**7/31/12 Tue**	**15**	**427**	**398**	**3,499**
				EB	2,357			191	179	1,791
				WB	2,246			235	219	1,707
2008	8/27/08	8/29/08	Mixed	**Total**	**3,889**	**8/28/08 Thu**	**16**	**355**	**353**	**2,956**
				EB	2,041	8/28/08 Thu	7	177	158	1,551
				WB	1,846	8/28/08 Thu	16	196	195	1,403
2008	6/25/08	6/27/08	Clear	**Total**	**3,719**	**6/25/08 Wed**	**16**	**323**	**323**	**3,310**
				EB	1,979	6/25/08 Wed	8	180	144	1,761
				WB	1,744	6/25/08 Wed	16	184	179	1,552
2004	8/4/04	8/6/04	Clear	**Total**	**4,510**	**8/6/04 Fri**	**16**	**441**	**399**	**3,518**
				EB	2,403	8/6/04 Fri	15	215	183	1,874
				WB	2,107	8/6/04 Fri	16	229	216	1,643
Chatham										
Queen Anne Rd S of Rt 28									Site Code 21188	
2009	6/24/09	6/26/09	Overcast	**Total**	**4,369**	**6/26/09 Fri**	**12**	**466**	**327**	**3,845**
				NB	1,800	6/25/09 Thu	12	180	159	1,584
				SB	2,571	6/26/09 Fri	12	292	169	2,262
Chatham										
Queen Anne Rd W of Stage Harbor Rd									Site Code 21036	
2010	6/15/10	6/17/10	Clear	**Total**	**469**	**6/16/10 Wed**	**14**	**52**	**39**	**417**
				EB	296	6/16/10 Wed	12	43	27	263
				WB	174	6/15/10 Tue	13	25	12	155
2003	8/20/03	8/22/03	Clear	**Total**	**724**	**8/21/03 Thu**	**10**	**77**	**55**	**557**
				EB	437	8/22/03 Fri	12	48	30	336
				WB	284	8/21/03 Thu	10	36	26	219
Chatham										
Sam Ryder Rd N of Middle Rd									Site Code 20791	
2012	7/9/12	7/11/12	Clear	**Total**	**2,498**	**7/10/12 Tue**	**13**	**230**	**180**	**1,898**
				NB	1,317			114	105	1,001
				SB	1,179			115	75	896
2011	7/19/11	7/21/11	Clear	**Total**	**2,690**	**7/20/11 Wed**	**11**	**253**	**203**	**2,044**
				NB	1,402			119	107	1,066
				SB	1,289			135	95	980
2010	8/17/10	8/20/10	Overcast	**Total**	**2,886**	**8/20/10 Fri**	**10**	**297**	**201**	**2,193**
				NB	1,530	8/20/10 Fri	10	148	115	1,163
				SB	1,353	8/20/10 Fri	10	149	86	1,028
2009	7/20/09	7/22/09	Overcast	**Total**	**2,650**	**7/21/09 Tue**	**11**	**266**	**189**	**2,041**
				NB	1,434	7/21/09 Tue	11	143	100	1,104
				SB	1,220	7/21/09 Tue	11	123	88	939
2008	7/21/08	7/23/08	Overcast	**Total**	**2,571**	**7/21/08 Mon**	**13**	**256**	**183**	**2,005**
				NB	1,363	7/21/08 Mon	13	150	97	1,063
				SB	1,207	7/21/08 Mon	15	120	85	941

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
Chatham Seaquanset Rd S of Rt 28									Site Code 20304	
2011	6/27/11	6/29/11	Clear	**Total**	**310**	**6/28/11 Tue**	**15**	**36**	**24**	**276**
				NB	156			17	9	139
				SB	158			20	15	141
Chatham Shore Rd N of Main St									Site Code 20566	
2009	7/21/09	7/23/09	Overcast	**Total**	**4,992**	**7/21/09 Tue**	**14**	**477**	**437**	**3,844**
				NB	2,605	7/23/09 Thu	12	258	243	2,006
				SB	2,389	7/21/09 Tue	14	251	194	1,840
2006	8/21/06	8/24/06	Overcast	**Total**	**4,706**	**8/23/06 Wed**	**15**	**469**	**405**	**3,718**
				NB	2,478	8/23/06 Wed	15	263	222	1,958
				SB	2,228	8/21/06 Mon	12	209	183	1,760
2004	8/10/04	8/12/04	Clear	**Total**	**5,509**	**8/11/04 Wed**	**15**	**552**	**460**	**4,297**
				NB	2,903	8/11/04 Wed	15	303	263	2,264
				SB	2,602	8/11/04 Wed	15	249	196	2,030
Chatham Stage Harbor Rd S of Rt 28									Site Code 20570	
2010	8/17/10	8/20/10	Overcast	**Total**	**4,074**	**8/17/10 Tue**	**14**	**438**	**364**	**3,096**
				NB	2,660	8/17/10 Tue	14	269	254	2,022
				SB	1,413	8/17/10 Tue	13	176	110	1,074
2007	8/14/07	8/16/07	Clear	**Total**	**7,182**	**8/15/07 Wed**	**12**	**717**	**613**	**5,674**
				NB	3,548	8/15/07 Wed	16	355	334	2,803
				SB	3,633	8/15/07 Wed	12	377	279	2,870
2003	8/20/03	8/22/03	Clear	**Total**	**4,744**	**8/22/03 Fri**	**12**	**427**	**376**	**3,653**
				NB	3,043	8/20/03 Wed	16	266	256	2,343
				SB	1,700	8/21/03 Thu	11	182	120	1,309
Chatham Stepping Stones Rd E of Old Queen Anne Rd									Site Code 20571	
2007	8/14/07	8/16/07	Clear	**Total**	**4,400**	**8/15/07 Wed**	**16**	**394**	**392**	**3,476**
				EB	2,393	8/16/07 Thu	11	236	178	1,890
				WB	2,007	8/15/07 Wed	16	215	214	1,586
2005	8/29/05	8/31/05	Clear	**Total**	**3,738**	**8/31/05 Wed**	**10**	**350**	**316**	**2,916**
				EB	1,976	8/31/05 Wed	10	209	147	1,541
				WB	1,760	8/29/05 Mon	16	180	168	1,373
Chatham Stony Hill Rd E of Rt 28									Site Code 20572	
2011	6/29/11	7/1/11	Overcast	**Total**	**2,191**	**7/1/11 Fri**	**10**	**189**	**168**	**1,808**
				EB	1,049			101	88	865
				WB	1,138			88	79	939

Chatham 2002-2012 Traffic Counts

Yr	Begin Date	End Date	Weather	Dir.	Axle Adj. ADT	PEAK HOUR DATA [Date&Day	Hour	Vol]	Four~ Five	AADT
Chatham										
Stony Hill Rd W of Rt 28									Site Code 20331	
2011	6/29/11	7/1/11	Overcast	**Total**	**2,657**	**7/1/11 Fri**	**10**	**242**	**196**	**2,192**
				EB	1,336			126	101	1,102
				WB	1,321			116	95	1,090
Chatham										
Training Field Rd S of Echo Ln									Site Code 20573	
2008	7/21/08	7/23/08	Overcast	**Total**	**2,330**	**7/21/08 Mon**	**15**	**214**	**197**	**1,817**
				NB	1,162	7/22/08 Tue	12	109	83	906
				SB	1,170	7/21/08 Mon	16	117	113	913
2006	8/21/06	8/24/06	Overcast	**Total**	**2,348**	**8/24/06 Thu**	**11**	**221**	**192**	**1,855**
				NB	1,181	8/24/06 Thu	11	125	77	933
				SB	1,165	8/22/06 Tue	16	140	115	920

Crowell Road/Main Street

Route 28 Intersection Project

Town of Chatham, Massachusetts



PROPOSED ALTERNATIVES DISCUSSION

February 11, 2010

ENGINEERS FST Since 1914

Agenda

- Introduction – 7:00 PM
- Project Overview – 7:10 PM
- MassDOT Planning Process – 7:15 PM
- Key Points from Jan. 7 Meeting – 7:20 PM
- Transportation Evaluation Criteria – 7:30
- Conceptual Improvements – 7:45 PM
- Closing Remarks – 9:00 PM

ENGINEERS FST Since 1914

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

Feb. 11, 2010

Main Street(Route 28)/Crowell Road/Depot Road/Queen Anne Road

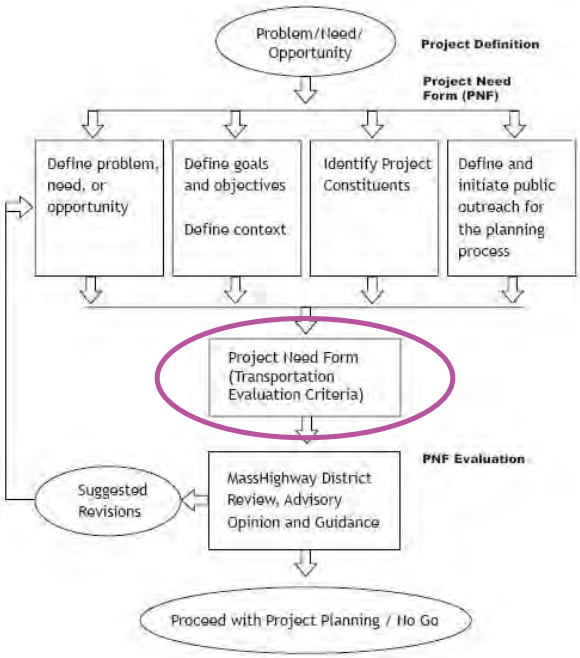
Feb. 11, 2010

Project Objective

- To improve the operating conditions at this key intersection and enhance safety for all users including vehicles (cars, busses and trucks), pedestrians and bicyclists.
- Develop a unified vision for traffic improvements for this intersection.

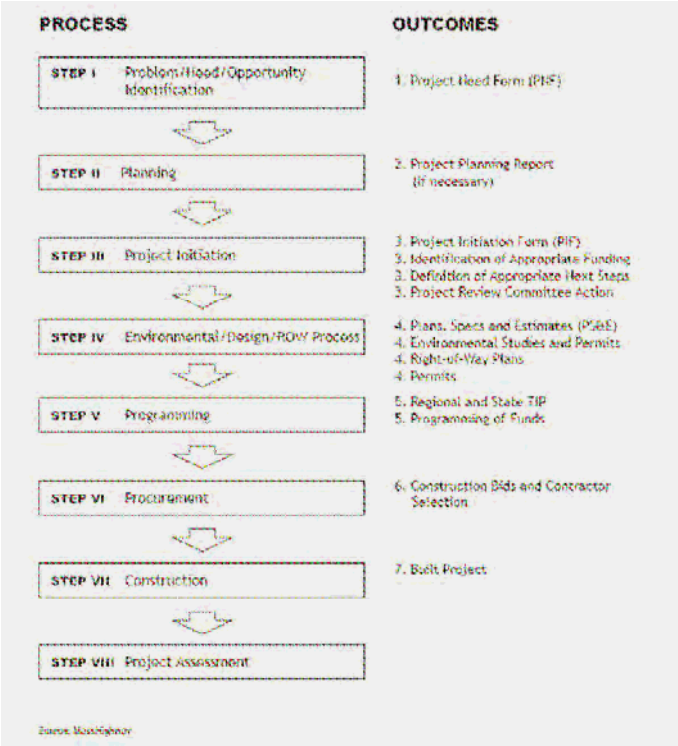
Feb. 11, 2010

MassDOT Planning Process



Feb. 11, 2010

MassDOT Planning Process



Feb. 11, 2010

Key Summary Points

---From January 7 Workshop

- Add Crosswalks and sidewalks
- Consider handicap requirements
- Consider Roundabout
- Eliminate conflicts (playing chicken)
- Provide exclusive turn lanes
- Provide lane transitions
- Improve signal phasing and timing
- Slow traffic down
- Consider emergency vehicle access

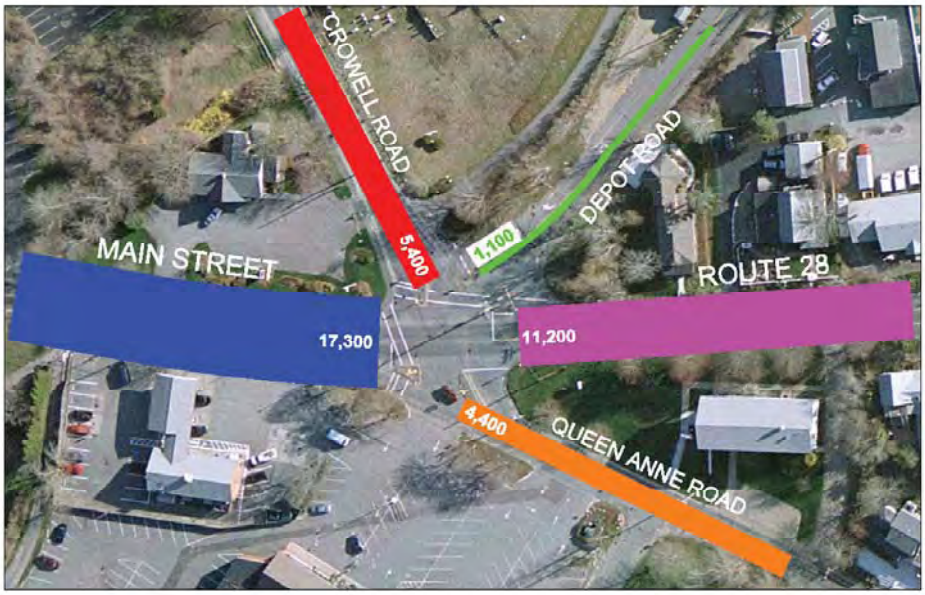
Feb. 11, 2010

Transportation Evaluation Criteria

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

Feb. 11, 2010

24-Hour Summer Traffic Volumes



Feb. 11, 2010

Peak Hour
Traffic Volumes

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Peak Hour
Bicycle Volumes

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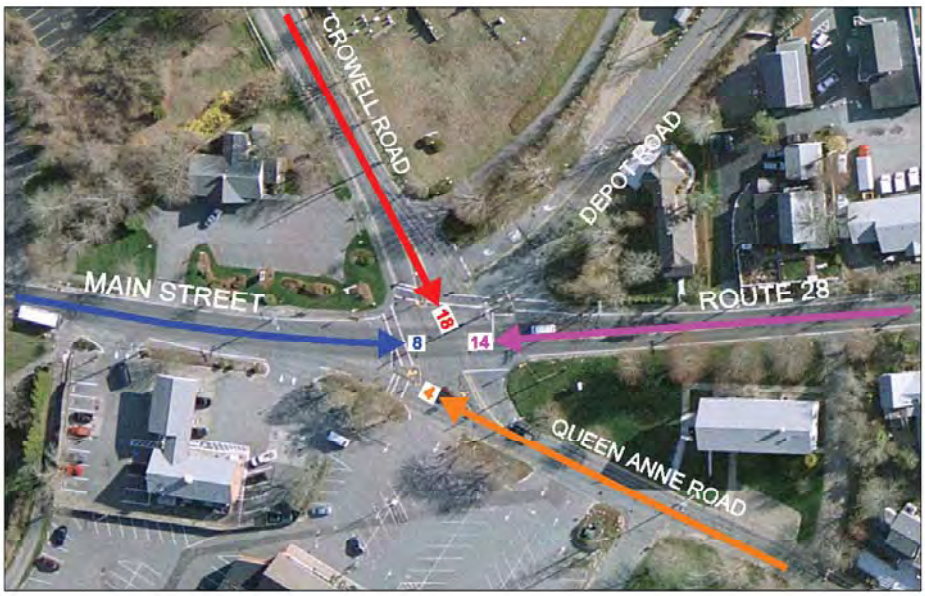
Peak Hour Pedestrian Volumes



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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
- *A Policy on Geometric Design of Streets and Highways* - American Association of State Highway and Transportation Officials

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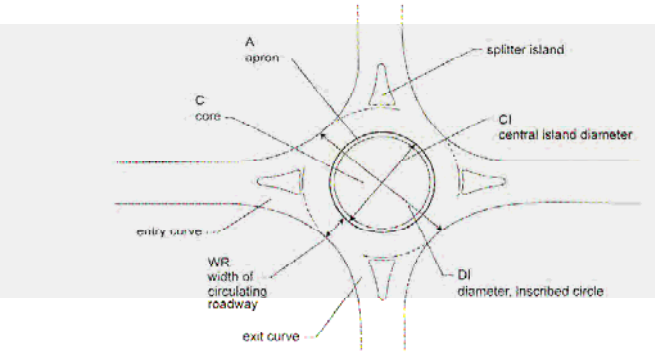
Roundabout Design Requirements



Circle Dimensions (feet)

Functional Class Major Street	Design Vehicle	Diameter, Inscribed Circle (DI, feet)	Width, Circulating Roadway (WR, feet)	Central Island Core (C, feet)	Central Island Apron (A, feet)	Central Island Total (CI, feet)
Arterial	Tractor/Trailer (WB-50)	100-130	29-35	55-95	5-10	65-100
Collector	Single Unit Truck (SU)	80-100	17-21	50-80	5-10	60-85
Local	Passenger Car (P)	45-80	16	25-60	3-5	30-65

Note: The design vehicle should be the largest vehicle expected to be accommodated on the street
Source: Roundabouts: An Informational Guide, FHWA June 2000.

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Intersection Alternatives Considered

- Roundabout Design
- Upgraded Traffic Signals
- Unsignalized – i.e. Stop Signs
- No Build – Do Nothing

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Existing Conditions

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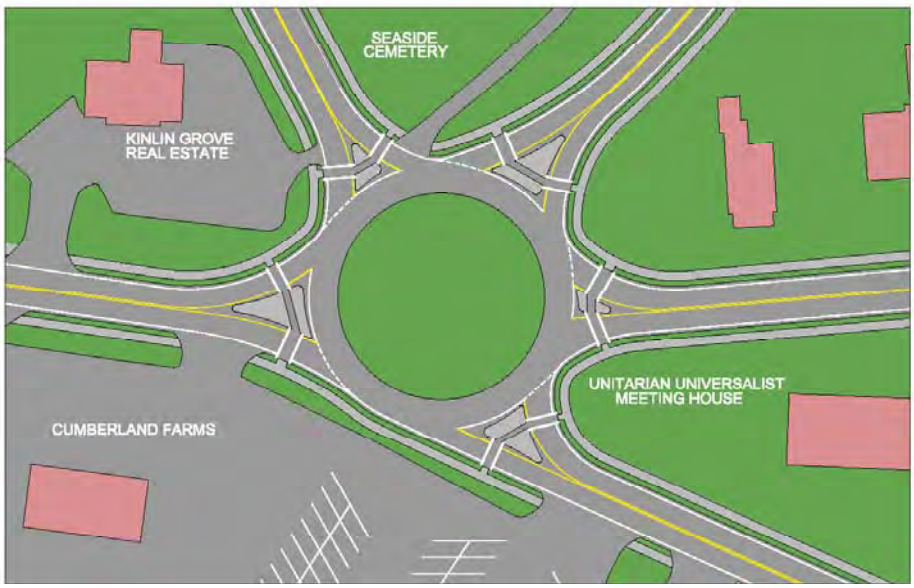
Roundabout Alternative 1



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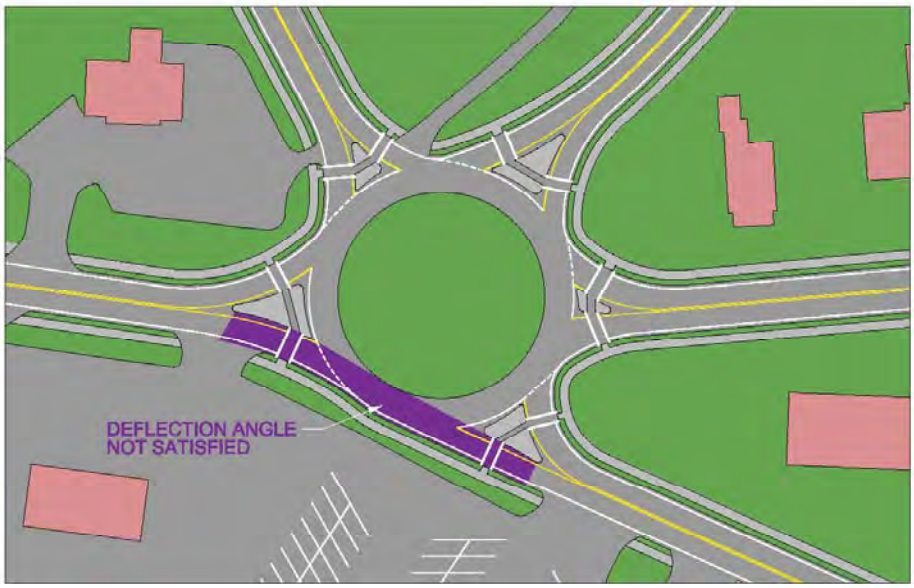
Roundabout Alternative 1



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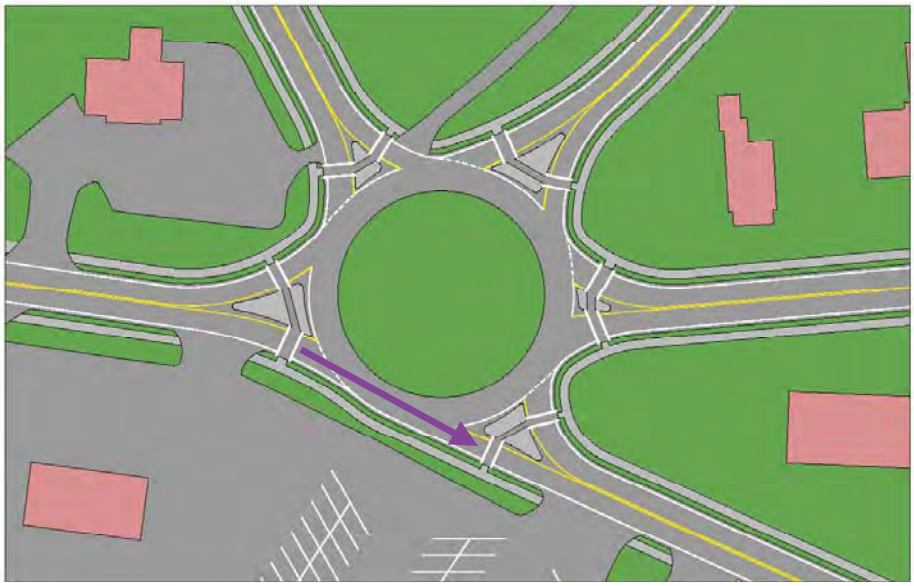
Roundabout Alternative 1



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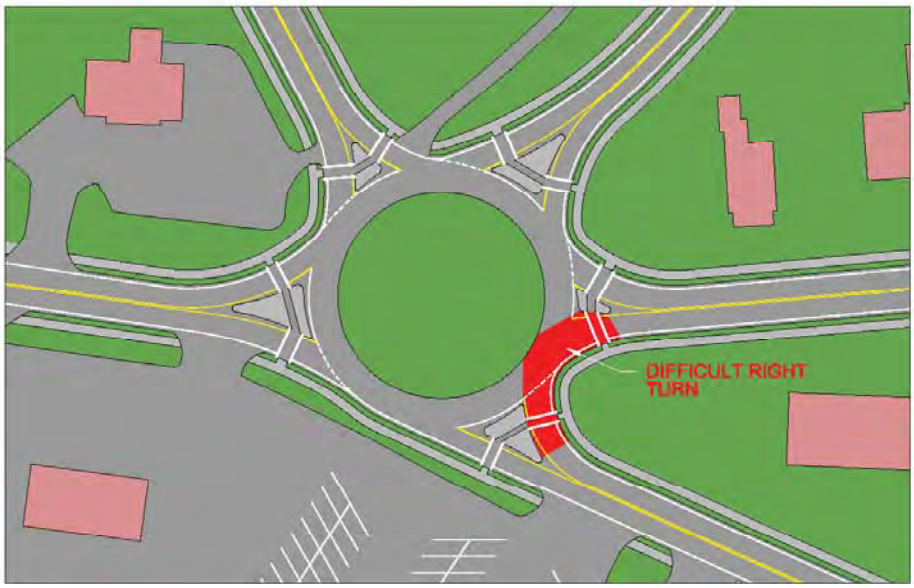
Roundabout Alternative 1



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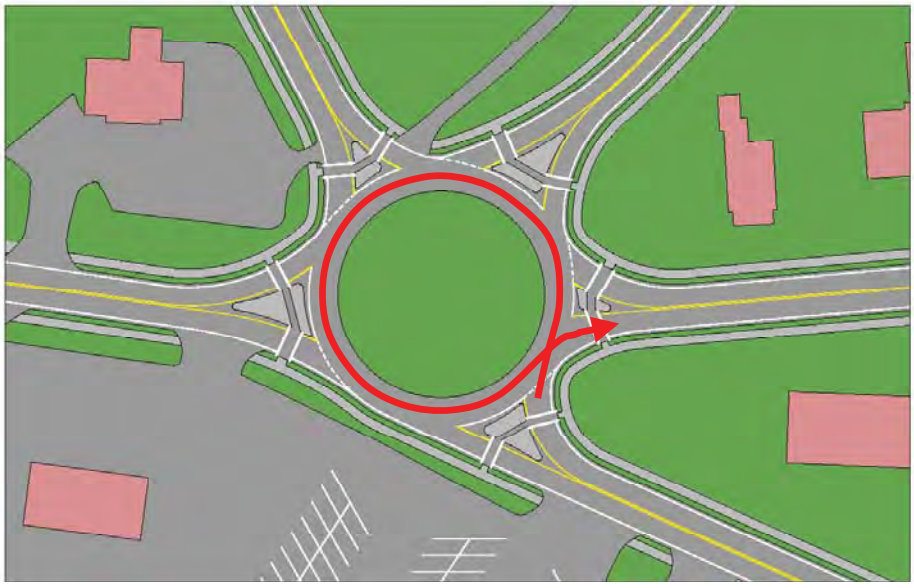
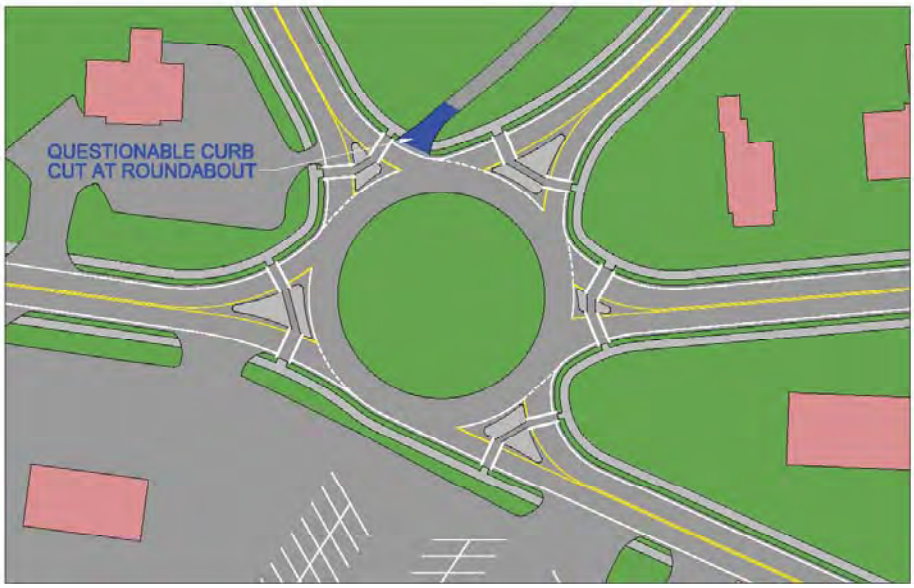
Roundabout Alternative 1



Feb. 11, 2010

Roundabout Alternative 1



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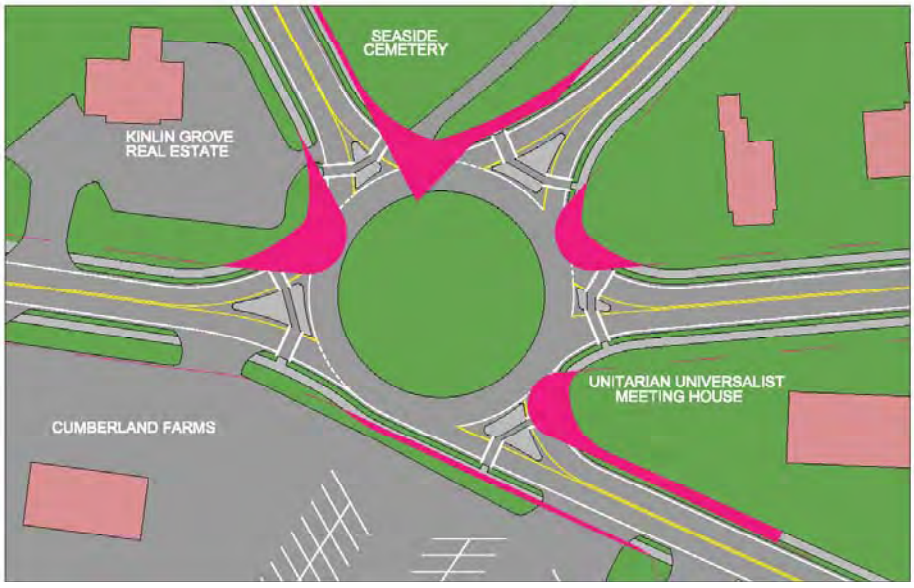
Feb. 11, 2010

Roundabout Alternative 1
(with encroachments)



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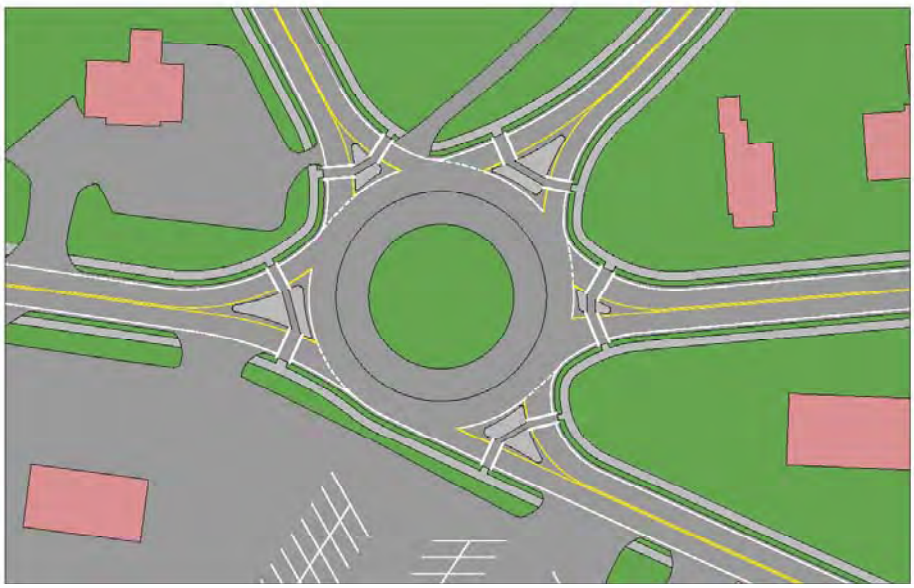
Roundabout Alternative 1

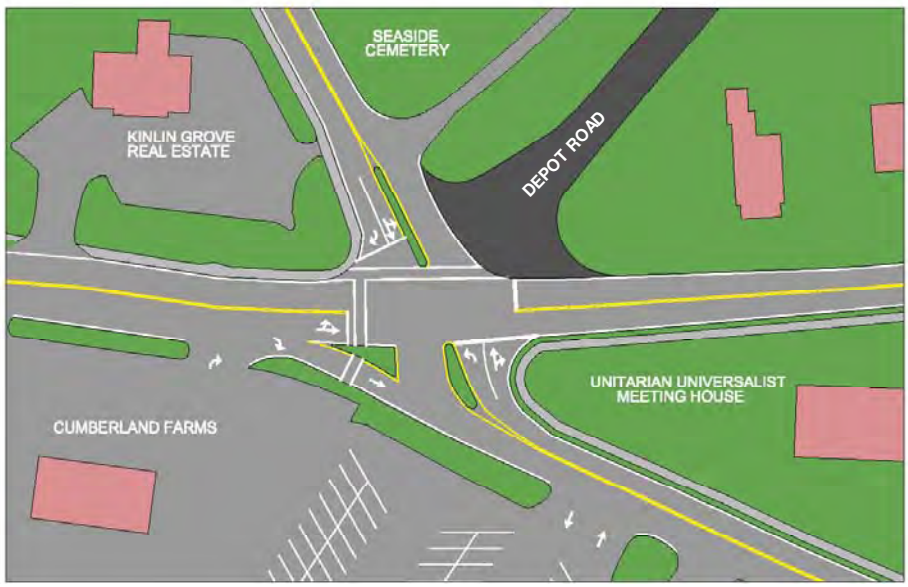
Feb. 11, 2010

Roundabout Alternative 2
(With Smaller Radii)



Feb. 11, 2010

Upgraded Signal Alternative 1



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Upgraded Signal Alternative 1

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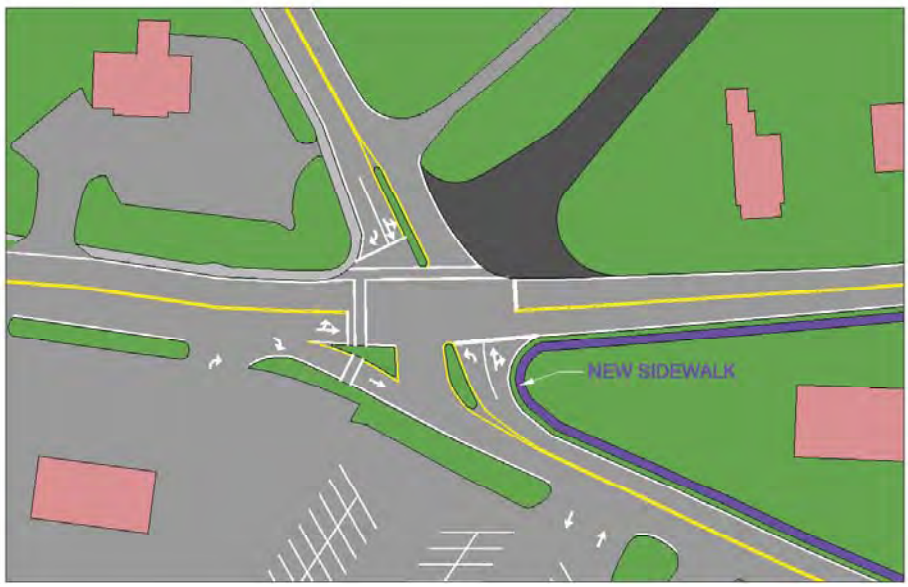
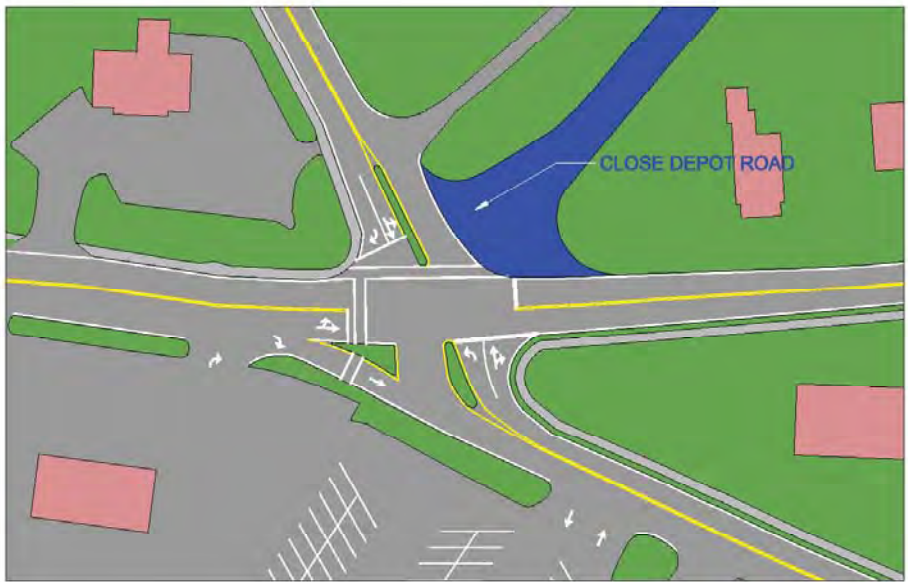
Upgraded Signal Alternative 1



Feb. 11, 2010

Upgraded Signal Alternative 1



Feb. 11, 2010

Upgraded Signal Alternative 1

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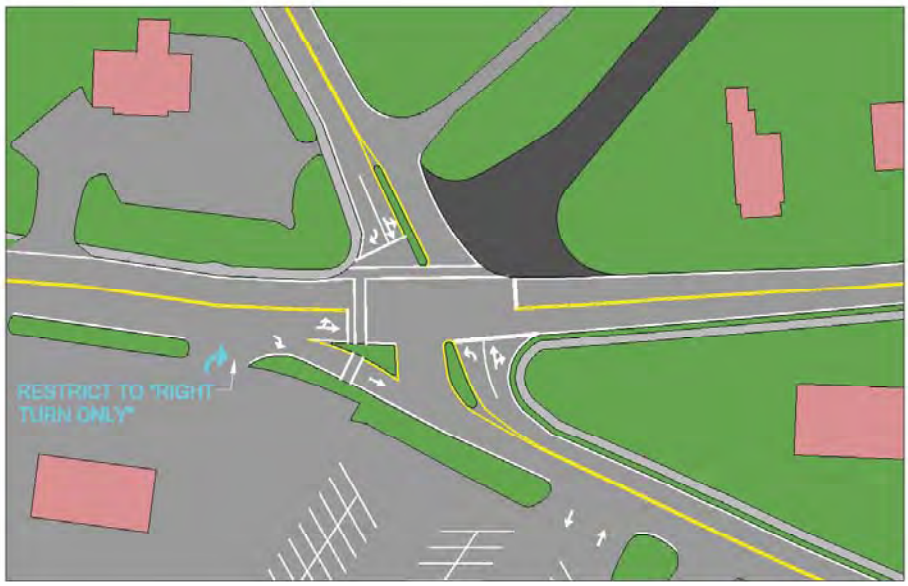
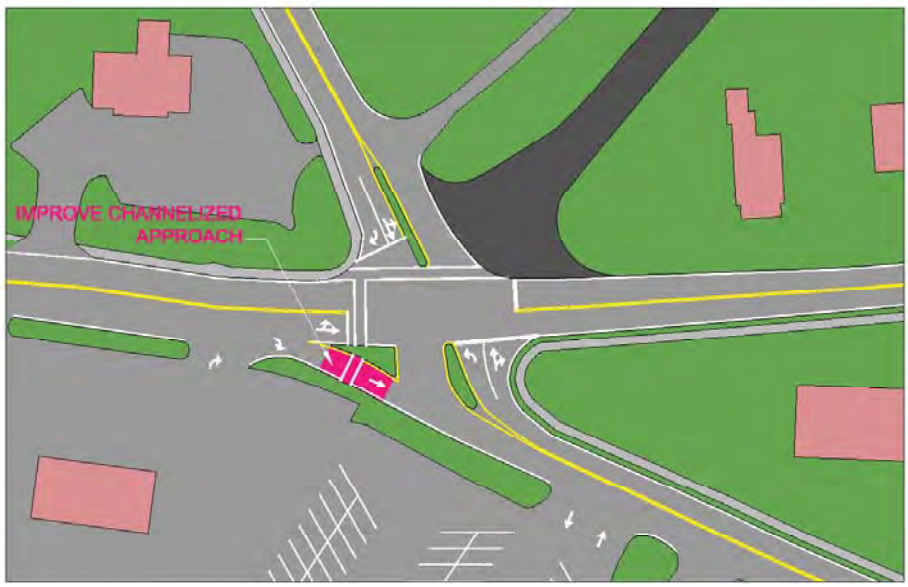
Upgraded Signal Alternative 1



Feb. 11, 2010

Upgraded Signal Alternative 1



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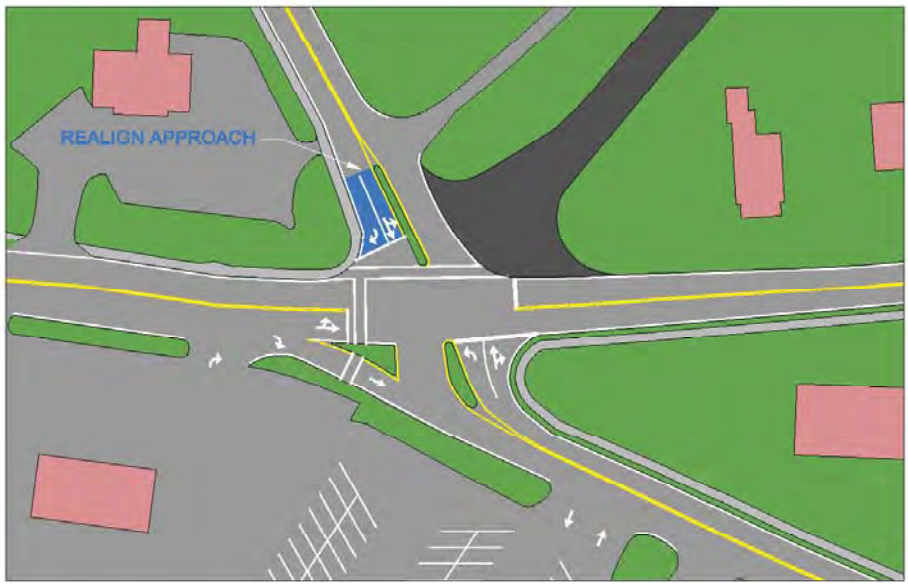
Upgraded Signal Alternative 1



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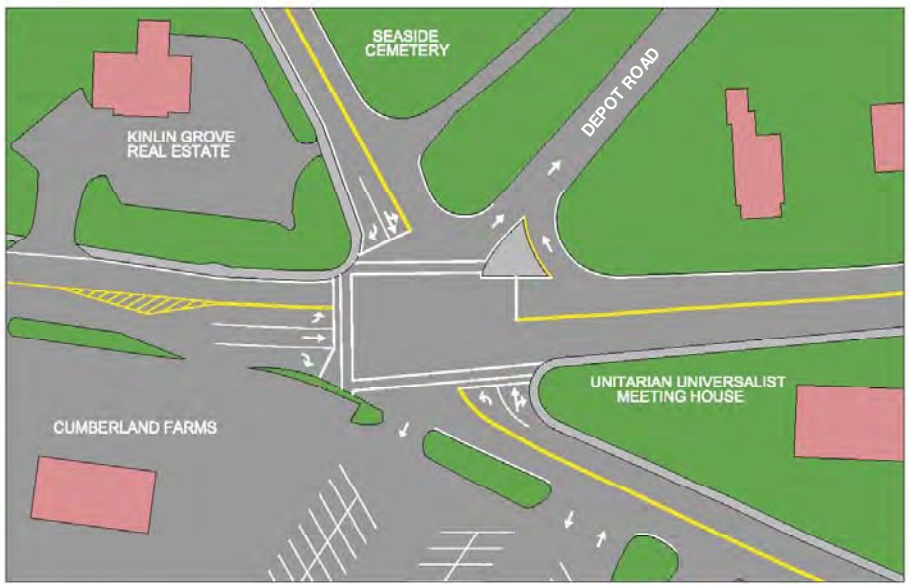
Upgraded Signal Alternative 2



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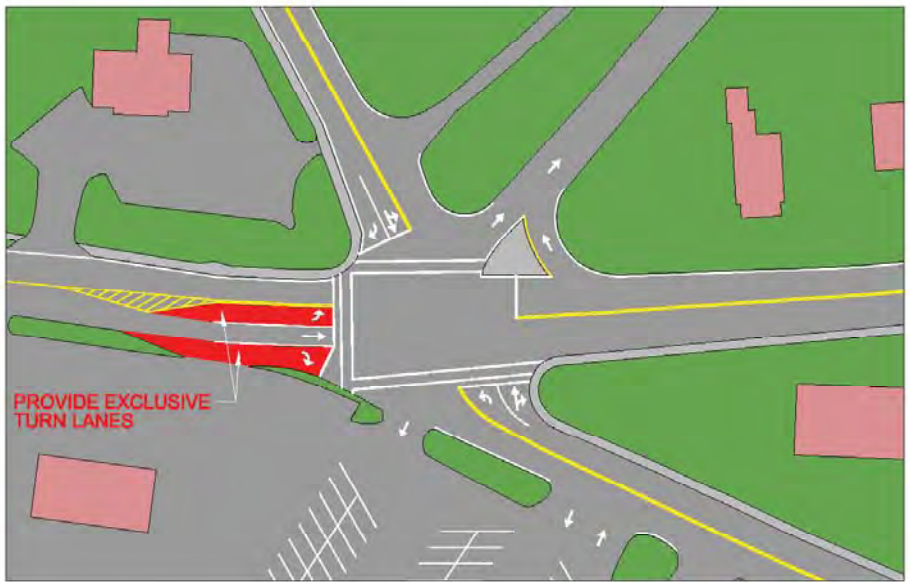
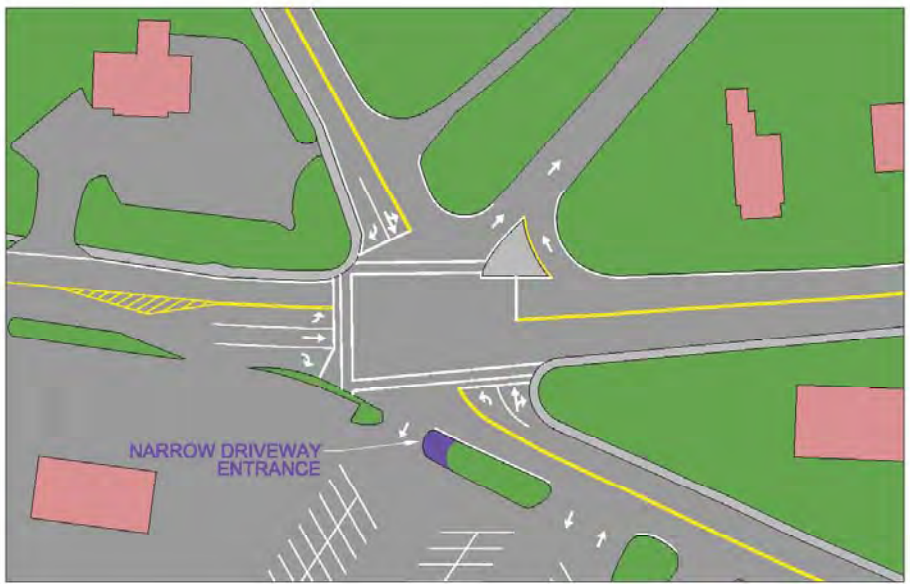
Upgraded Signal Alternative 2



ENGINEERS FST Since 1914

Feb. 11, 2010

Upgraded Signal Alternative 2



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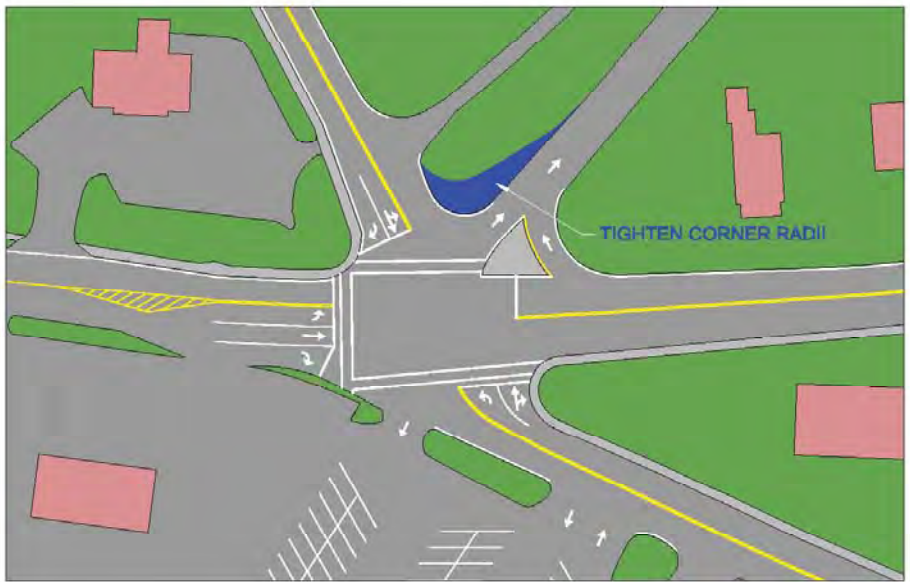
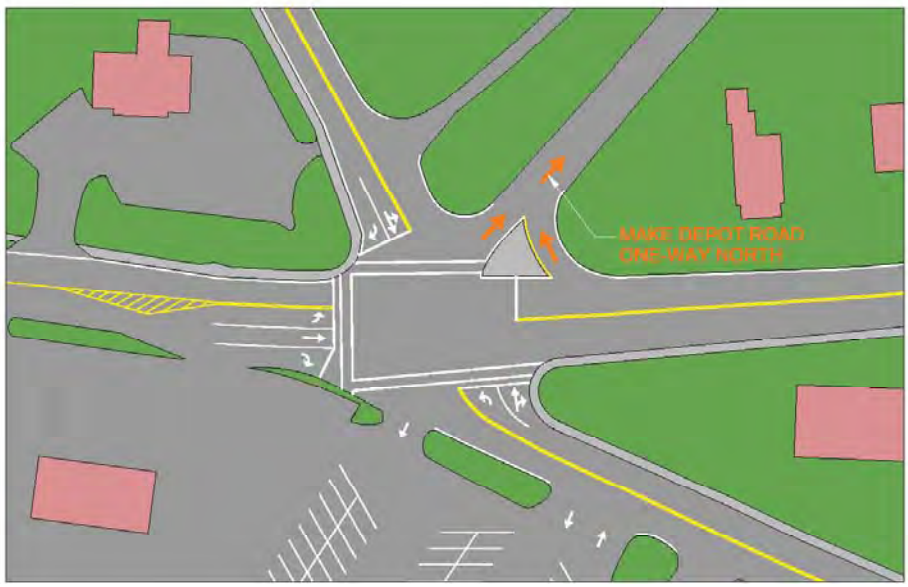
Upgraded Signal Alternative 2



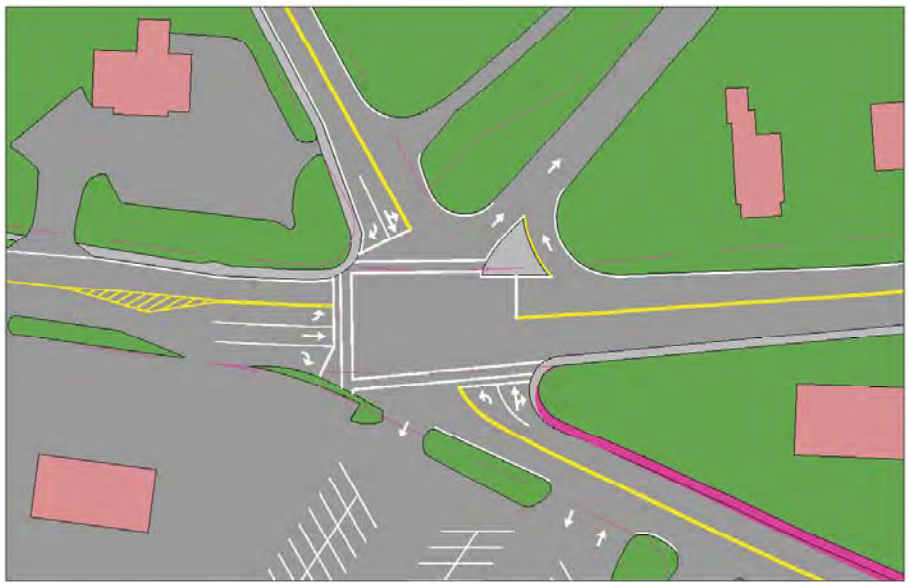
Feb. 11, 2010

Upgraded Signal Alternative 2



Feb. 11, 2010

Upgraded Signal Alternative 2
(with encroachments)



Feb. 11, 2010

Crowell Road/ Route 28 Intersection Improvements

Public Information Meeting
February 19, 2009

Project Team

TOWN OF CHATHAM
INCORPORATED
JUNE 11
1712
MASS.

COUNTY OF BARNSTABLE
MASSACHUSETTS

MASS HIGHWAY

Project Background

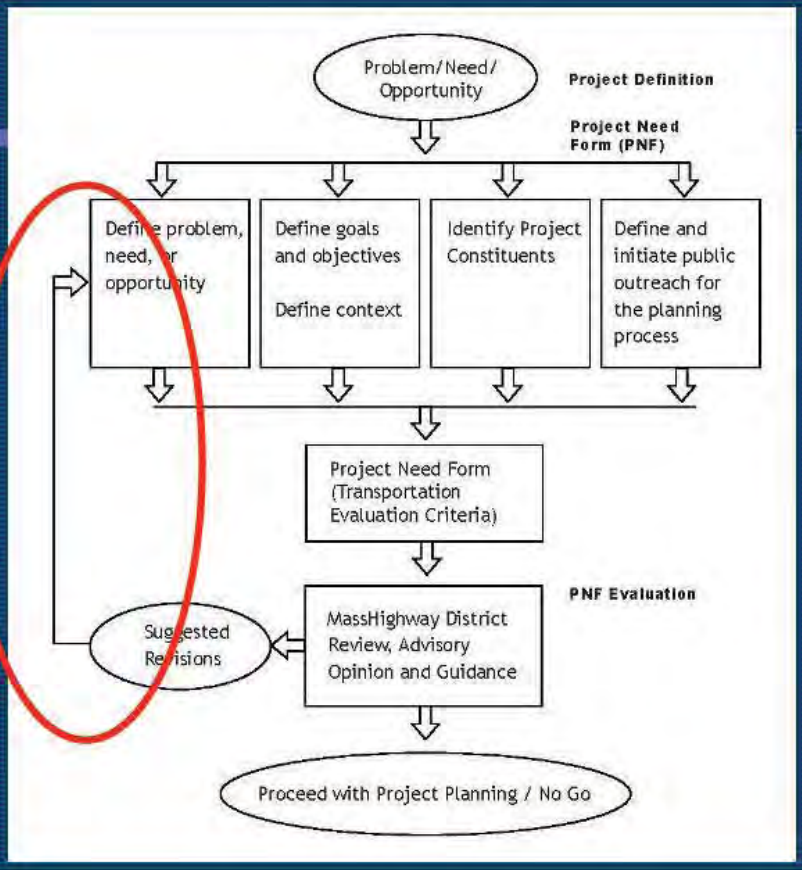
- **Chatham Comprehensive Plan**
- **Article 12 (ATM 2007)**

MHD Guidebook

- Multimodal Consideration
- Context Sensitive Design
- Clear Project Development Process

Project Area

PROCESS		OUTCOMES
STEP I	Problem/Need/Opportunity Identification	1. Project Need Form (PNF)
STEP II	Planning	2. Project Planning Report (If necessary)
STEP III	Project Initiation	3. Project Initiation Form (PIF) 3. Identification of Appropriate Funding 3. Definition of Appropriate Next Steps 3. Project Review Committee Action
STEP IV	Environmental/Design/ROW Process	4. Plans, Specs and Estimates (PS&E) 4. Environmental Studies and Permits 4. Right-of-Way Plans 4. Permits
STEP V	Programming	5. Regional and State TIP 5. Programming of Funds
STEP VI	Procurement	6. Construction Bids and Contractor Selection
STEP VII	Construction	7. Built Project
STEP VIII	Project Assessment	



Public Review Milestones

- **Problem Need (Step 1)**
  - Local Meetings
- **Planning (Step 2)**
  - Local Issues/Alternatives
- **Design/ROW (Step 4)**
  - Public Information Meeting
  - MEPA NEPA documentation
  - Public Hearings
  - ROW (if necessary)

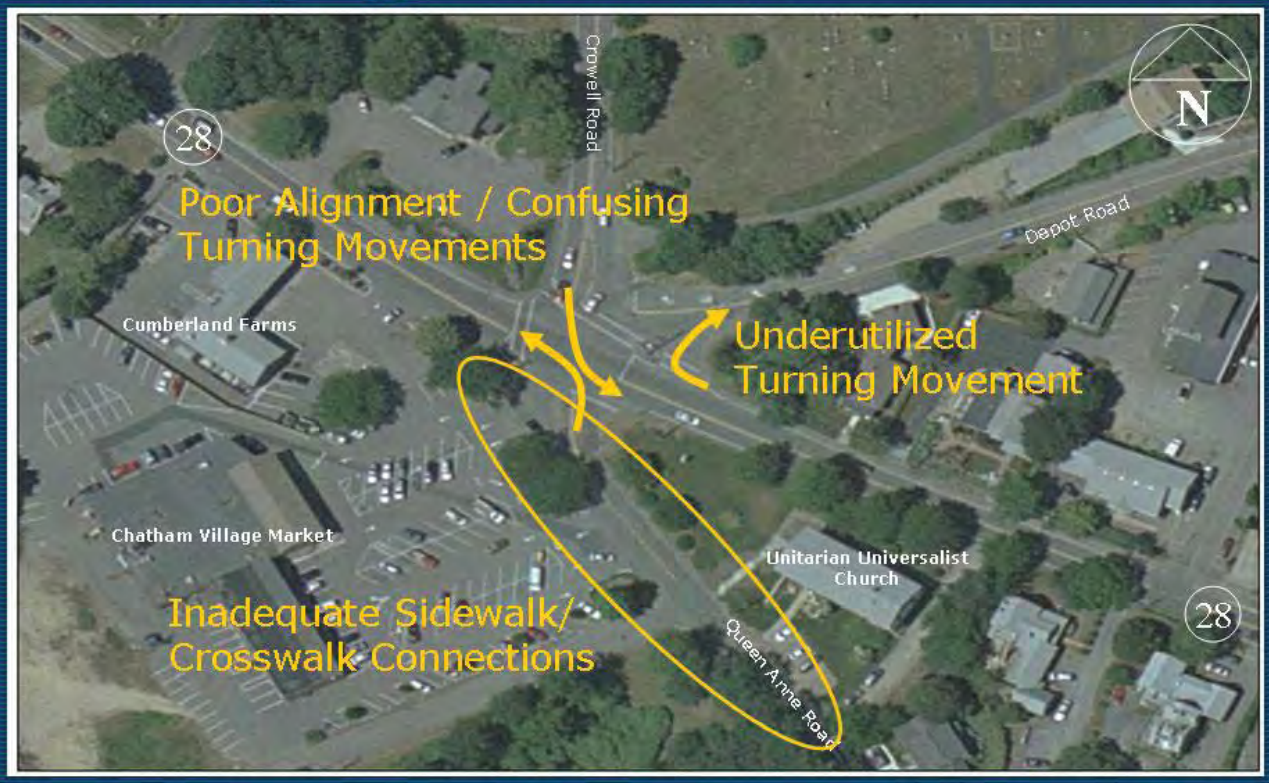
Identifying Problems

Crosswalks do not connect to sidewalk

Public Review Milestones

- **Programming (Step 5)**
  - JTC/TIP/MPO Meetings
- **Construction (Step 7)**
  - Community Informational Meetings

Identifying Problems



Identifying Problems

Outdated traffic signals, poor intersection geometry

Motor Vehicle Accidents 2004-2009

Crowell Road/Rte. 28 Intersection including Depot Rd. and Queen Anne Rd.

- **Total Accidents: 27**
- **5 with injuries**
- **14 with major damage (over $1000)**
- **13 with minor damage**

Source: Chatham Police Department

Cape Cod Commission

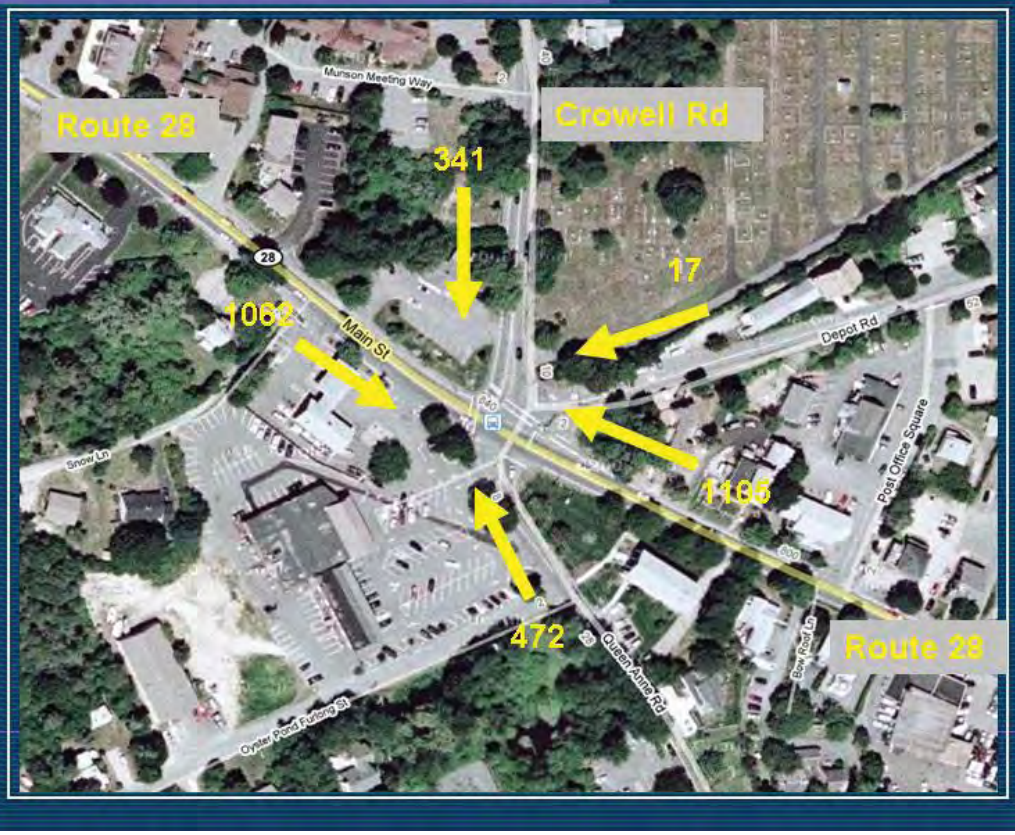
- **Traffic Data Collection**
- **Potential Concepts to Consider**

Weekday PM Peak Hour Turning Movement Count: Aug. 13, 2003, 4:00-5:30 pm

Route 28 and Crowell Rd

- **Total volume: 2,997**
- **Truck %: 1.6%**
- **Total Bicycles: 20**
- **Total Pedestrians: 25**
- **Peak Hour: 4:00-5:00 pm**
- **4-5 pm Volume: 2,025**

Volumes by Approach



Automatic Traffic Recording

Route 28 W of Crowell Rd
Dates Recorded: 7/25-7/27, 1994
AADT: 14,513
Peak Hour: 1-2 pm
4-5 pm Average: 1,587

Crowell Rd S of Barcliff Ave
Dates Recorded: 8/29-8/31, 2005
AADT: 4,034
Peak Hour: 4-5 pm
4-5 pm Average: 480

Route 28 W of Stage Harbor Rd
Dates Recorded: 8/20-8/22, 2003
AADT: 10,837
Peak Hour: 3-4 pm
4-5 pm Average: 1,150

Potential Improvements

- **Possible easement(s) with abutting properties to expand sidewalk(s)**
- **Improve Traffic Islands**
- **Intelligent Transportation System (ITS) to accommodate nearby Fire Station**
- **Add/Improve Crosswalks**
- **Traffic Rotary**
- **Overhead Traffic Signals**