AGENDA

Monday

November 20, 2017

TOWN OF EASTHAM

AGENDA
BOARD OF WATER COMMISSIONERS
Work Session
Monday, November 20, 2017
4:00 p.m.

Location: *Earle Mountain Room*

I. **Work session with Environmental Partners Group and Town Administrator** to discuss; policy issues related to:

A. Water system hook-up and issues related to multiple units on a parcel;
B. Policy for requesting any variance from the existing regulations;
C. Policy for abatement of fees.

Note: Amendments to the regulations require a public hearing with the changes being posted in advance of the meeting. The only vote that may be taken on 11/20/17 would be to schedule a public hearing for any policy changes that would amend the existing regulations.)

AGENDA -- Revised
BOARD OF SELECTMEN
Monday, November 20, 2017
5:00 p.m.

Location: *Earle Mountain Room*

I. PUBLIC/SELECTMEN INFORMATION

II. APPOINTMENTS

5:10 p.m. **Complete Streets Update,** *Glen Cannon, Technical Services Director, Cape Cod Commission & Neil Andres, DPW Superintendent.*

The Town has received funding to explore a Complete Streets program. The funding, description of the program and next steps will be discussed. (discussion & votes may be taken)

5:30 p.m. **Water Project Update,** *Environmental Partners Group.*

This is the monthly update on progress of the water system construction, specifically focused on contracts 9,10, & 11 of Phase 2A. (discussion & votes may be taken)

III. ADMINISTRATIVE MATTERS

A. Action/Discussion (*discussion & vote may be taken*)

1. **Request from Cape & Vineyard Electric Cooperative (CVEC) to extend the Round one adder into FY19, from July 1, 2018 through June 30, 2019.** This is a request, in writing, from the CVEC board that the Town continue to pay the adder as agreed for FY18, and is recommended by our representative to the CVEC. *(vote needed)*

2. **Request for a One-day Liquor License for the Chapel in the Pines.** Reception and Art Auction. This is a request for a one-day alcohol license from the Town for an event on December 16, 2017 at the Chapel in the Pines. These one day licenses may only be granted by the Board of Selectmen as the Town's Licensing Board. According to State law and the ABCC they may only be granted to non-profits for specific events. The Chapel in the Pines has completed all the required applications and approvals, and met all the requirements for the one-day license. *(vote needed)*
3. **Approve Transient Vendor Permits:** see list attached in packet *(vote needed)*
4. **Accept Committee Resignation:** from Madeline Vicky Anderson from the Board of Health, effective September 29, 2017. *(vote needed)*

IV. TOWN ADMINISTRATOR'S REPORT

V. OTHER BUSINESS/CORRESPONDENCE

VI. EXECUTIVE SESSION (NONE SCHEDULED)

Upcoming Meetings

Wednesday, November 22, 2017	*2:30 PM*	*Small Meeting Room*	*Work Session*
Monday, December 4, 2017	*5:00 PM*	*Earle Mountain Room*	*Regular Session*
Wednesday, December 6, 2017	*2:30 PM*	*Small Meeting Room*	*Work Session*
Monday, December 18, 2017	*5:00 PM*	*Earle Mountain Room*	*Regular Session*
Wednesday, December 20, 2017	*2:30 PM*	*Small Meeting Room*	*Work Session*

This meeting is video recorded and broadcast over Local Access Channel 18 and on the Town website at www.eastham-ma.gov.

**Per the Attorney General's Office: The Board of Selectmen may hold an open session for topics not reasonably anticipated by the Chair 48 hours in advance of the meeting.*

**If you are deaf or hard of hearing or are a person with a disability who requires an accommodation, contact Laurie Gillespie-Lee, 5900 x3207*

BOWC Worksession 4:00 PM

STAFF MEMO

TO: BOARD OF SELECTMEN
FROM: JACQUI BEEBE
SUBJECT: WATER OPERATIONS & RATES
DATE: NOVEMBER 16, 2017

As we continue to operate the Water System and have more opportunities to hook-up new parcels, we have experienced some issues with the current regulations that we may want to address.

The policy of one curb-stop/meter per parcel. I have had several calls from Condo Association Trustees and other owners of parcels with more than one residential unit. Specifically, attached is a letter from the Shore Garden Condo Association. The concerns expressed by this association relate to two issues that have also been a focus of concern for many other residents.

- **The policy of one meter per parcel.** We currently have several hundred parcels that have two or more units on the parcel. If one owner owns the units, then it is a less complicated matter to meter and bill them as one unit. However, we have 56 parcels where there are either cottage colonies or condos. In the case of a cottage colony with a single owner, the single meter policy still makes sense, but the condos are more complicated. We have found that each condo association is very different. Some do not share wells, electricity, and we bill each condo owner separately for property taxes. I The current policy creates issues, especially for condo owners, some of whom rent their units or have more than one person in a unit and do not want to pay for other unit's/tenants water usage. They want to be metered and billed separately. In these cases, the property owners want to bear the cost of multiple meters and have the Town bill each condo owner separately for water usage. The Housing Authority has units that are multiple rental units on one parcel. And has requested the same. The tiered water rates will cause a larger, single system to incur more of a cost per gallon than a single household, so it makes sense to property owners to independently meter their condos. Multiple units with one-meter face hitting the top tiers much faster (11 or 17 units will go over 15,000 gallons and move to the higher rated tiers) as it is one bill rather than many. They are expressing that this is unequitable and places a higher cost on the condo owners that residential property owners do not have.
    - The example of the Shore Garden Complex is a good one for this. This condo association has 11 separate owners. They receive separate

property tax bills from the Town. They all have private wells and separate other utilities. Some are year-round, some seasonal. Some rent to others and some do not. They have high salt in their water and are anxious to hook-up. When the owners did the math and discovered that they would pay equally (with one meter) if they used 1,000 gallons a month and their neighbor used 10,000 gallons (they would pay for 5,000 gallons) they stopped the hook-up process. This is an association that used 100,000 gallons of water in the months of June, July and August of 2017 (Public Water Supply Records). Even at the lowest tier, it would be a huge customer for us. Also, if we meter separately, we will pick up the user fee of $98 for each unit, which will bring revenue in over the winter months. Changing the regulations to allow for multiple unit parcels to meter individually will be no initial cost to us and although revenue may be slightly lower initially, our sense is that it will bring more customers and increased user fees now and over time.

- **The lack of appeal, or variance request process in the regulations.** Currently the regulations do not allow any mechanism that allows for making exceptions to the regulations. There is no appeal other than to write a letter to the Board of Water Commissioners, but no process by which the BOWC would meet regularly to hear complaints or appeals to the regulations. I would like permission to draft an appeal process for your review, to ultimately include in the regulations.

- **The lack of abatement policy in the regulations.** Currently we have no process or mechanism whereby a water bill can be negotiated if there is a mistake or a good faith effort to correct a leak. We have no approval process for waiving interest or fees, or adjusting the bill in any way. Again, I would like to draft a policy for your review.

- We also need to discuss when and under what conditions, the Board of Selectmen want to consider divesting as the Board of Water Commissioners.

Questions:

- Do we want to allow more than one meter, if the property owners pay for the additional costs of the meters? (We would agree to bill separately for each unit for water usage like we do property taxes) but the owners would pay for the additional meters and the cost of any additional work beyond the curb stop.

- Your views on appeals/variance process and abatement/collections policy.

- Your views on BOWC?

II. 5:10 p.m

This is additional reading on Complete Streets - Presentation will give detail on Eastham Process.
JWB

Town of Eastham
SELECTMEN POLICY ON COMPLETE STREETS

1.0 Authority

The Board of Selectmen hereby adopt a Complete Street Policy.

2.0 Purpose

The fifteen towns of Barnstable County make up a distinctive region known for its coastlines, historic villages, and environmental resources. It can be challenging to accommodate all users on narrow roadways that follow colonial layouts and are constrained by historic buildings and environmental resources, especially when the volume of users swells during the summer tourist season. The goal of Eastham's Complete Streets policy is to make sure that all users and resources are considered when designing roadway improvements, and that accommodations for a full array of users are balanced with the elements that are important to both the character and the economy of the town and the region.

Complete Streets are designed and operated to provide safety, comfort, and accessibility for all the users of our roadways, trails, and transit systems, including pedestrians, bicyclists, transit riders, motorists, commercial vehicles, and emergency vehicles. "All users" includes users of all ages, abilities, and income levels. Furthermore, Complete Streets principles contribute toward the safety, health, economic viability, and quality of life in a community by improving the pedestrian and vehicular environments in order to provide safe, accessible, and comfortable means of travel between home, school, work, recreation and retail destinations. Complete Streets also furthers equity objectives by providing safe forms of travel for residents of all income levels. The purpose of the town of Eastham's Complete Streets policy, therefore, is to accommodate all users by creating a context-sensitive roadway network that meets the needs of individuals utilizing a variety of transportation modes. It is the intent of the town of Eastham to formalize the plan, design, operation and maintenance of roadways so that they are safe for all users of all ages and abilities and all income levels as a matter of routine. This Policy directs decision-makers to consistently plan, design, construct, and maintain roadways to accommodate all anticipated users including but not limited to pedestrians, bicyclists, motorists, transit riders and vehicles, emergency vehicles, and freight and commercial vehicles.

3.0 Core Commitment

The town of Eastham recognizes that users of various modes of transportation, including but not limited to pedestrians, cyclists, transit and school bus riders, motorists, delivery and service personal, freight haulers, and emergency responders, are legitimate users of streets and deserve safe facilities. "All users" includes users of all ages, abilities, and income levels.

The Town of Eastham recognizes that all projects, including new construction, maintenance and reconstruction, are potential opportunities to apply Complete Streets design principles. The town will, to the maximum extent practicable, design, construct, maintain and operate all streets to provide for a comprehensive and integrated street network of facilities for people of all ages and abilities. Complete Streets design recommendations shall be incorporated into all publicly and privately funded projects, as appropriate. All transportation infrastructure and street design projects requiring funding or approval by the Town of Eastham, as well as projects funded by the State and Federal government, including but not limited to Chapter 90 funds, City improvements grants, Transportation Improvement Program (TIP), the MassWorks Infrastructure Program, Community Development Block Grants (CDBG), Capital Funding and other state and federal funds for street and infrastructure design shall adhere to the Town of Eastham Complete Street Policy. Private developments and related roadway design components shall also adhere to the Complete Street principles. In addition, to the extent practical, state-owned roadways will comply with the Complete Streets Policy, including the design, construction and maintenance of such roadways within town boundaries.

Town Departments, will use best judgment regarding the desirability and feasibility of applying Complete Streets principles for routine roadway maintenance and projects such as repaving, restriping and so forth.

4.0 Exemptions

Transportation infrastructure projects, including but not limited to roadway reconstruction, roadway reconfigurations or subdivisions may be excluded upon approval by the Board of Selectmen with consultation from the appropriate town departments and the Eastham Planning Board where documentation and date indicate that any of the following apply:

- Where it is demonstrated that costs or impacts of accommodation are excessively disproportionate to the need or probable future use.
- Other town policies, regulations or requirements contradict or preclude implementation of Complete Streets principles.

5.0 Best Practices

The Town of Eastham Complete Streets policy will focus on developing a connected, integrated network that serves all users. Complete Streets will be integrated into policies, planning and design of all types of public and private projects, including new construction, reconstruction, rehabilitation, repair, and maintenance of transportation facilities on streets and redevelopment projects. As practicable, recommendations from the appropriate town departments, Boards and Committees for incorporating complete streets elements will occur in projects' beginning stages prior to design.

Implementation of the Town of Eastham Complete Streets Policy will be carried out cooperatively within all departments in the Town of Eastham with multi-jurisdictional cooperation and, to the greatest extent possible, among private developers and state, regional and federal agencies.

The Town of Eastham will work cooperatively with neighboring communities and regional entities in an effort to strengthen regional connectivity options for all users.

Complete Streets principles include the development and implementation of projects in a context-sensitive manner in which project implementation is sensitive to the community's physical, economic, and social setting. The context-sensitive approach to process and design includes a range of goals by giving significant consideration to stakeholder and community values. It includes goals related to livability with greater participation of those affected in order to gain project consensus. The overall goal of this approach is to preserve and enhance scenic, aesthetic, historical and environmental resources while improving or maintaining safety, mobility and infrastructure conditions.

The Town of Eastham recognizes that "Complete Streets" may be achieved through single elements incorporated into a particular project or incrementally through a series of smaller improvements or maintenance activities over time.
The latest design guidance, standards and recommendations available will be used in the implementation of Complete Streets, including the most up-to-date versions of:

- The Massachusetts Department of Transportation Project Design and Development Guidebook
- American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets
- The United States Department of Transportation Federal Highway Administration's Manual on Uniform Traffic Design Controls
- The Architectural Access Board (AAB) 521 CMR Rules and Regulations
- The Cape Cod Commission's Complete Streets/Living Streets Design Manual
- Cape Cod Metropolitan Planning Organization's Cape Cod Regional Transportation Plan
- Documents and plans created for the Town of Eastham including but not limited to:
    - Local Comprehensive Plan
    - Open Space and Recreation Plan
    - Downtown Improvement or Historic District plans
    - Bicycle and pedestrian network plans.

The Town of Eastham will implement a balanced and flexible approach to Complete Streets implementation that utilizes the latest design guidance, standards and recommendations while providing flexibility to best accommodate all users and modes given the unique characteristics of the surrounding community.

6.0 Evaluation of Effectiveness

The Town will develop performance measures to periodically assess the rate, success, and effectiveness of implementing the Complete Streets Policy. The Town will determine the frequency of assessment and utilize appropriate metrics for analyzing the success of this policy. These metrics may include:

- Total miles of new on-street bicycle routes defined by lane markings or signage,
- Linear feet of new pedestrian accommodation,
- Number of new curb ramps or other retrofitted pedestrian facilities,
- Increase in the number of users of public transportation,
- Decrease in the number of traffic accidents involving vehicles, bicycles and pedestrians in Complete Streets areas.

These metrics will be compiled into a report by the Town and presented as needed, but no less than annually. Implementation strategies will be adjusted as needed based on the findings in these reports.

7.0 Implementation

The town shall make Complete Streets practices a routine part of everyday operations, shall approach every transportation project and program as an opportunity to improve streets and the transportation network for all users, and shall work in coordination with other Town departments, boards, committees, State and Federal agencies, and jurisdictions to achieve Complete Streets.

The Eastham Planning Department shall integrate Complete Streets principles in all new planning documents, as applicable (master plans, open space and recreation plan, etc.), laws, procedures, rules, regulations, guidelines, programs and templates, and make recommendations for zoning and subdivision codes to encourage contextual design of complete streets policies, respecting the presence of important scenic, environmental and historic resources. In facilitating new projects, the Eastham Planning Department may convene a workgroup composed of multi-disciplinary stakeholders, including members of relevant departments, committees and members of the community to ensure that the perspectives of the community are considered and incorporated as appropriate.

The town shall maintain a comprehensive inventory of pedestrian and bicycle facility infrastructure that will highlight projects that eliminate gaps in the sidewalk and bikeway network.

The Town will evaluate projects within the Capital Improvement Plan to encourage implementation of this Policy.

The town will secure training for pertinent town staff and decision-makers on both the technical content of Complete Streets principles and best practices, as well as community engagement methods for implementing the Complete Streets Policy. Training may be accomplished through workshops and other appropriate means.

The town will utilize inter-department coordination to promote the most responsible and efficient use of resources for activities within the public way.

The town will seek out appropriate sources of funding and grants for implementation of Complete Street policies.

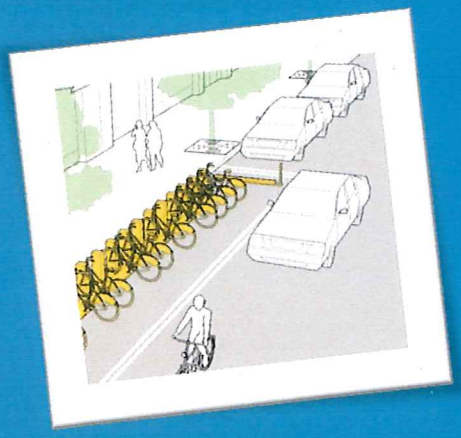
8.0 The Board of Selectmen or their designee reserves the right to revise this policy at any time.

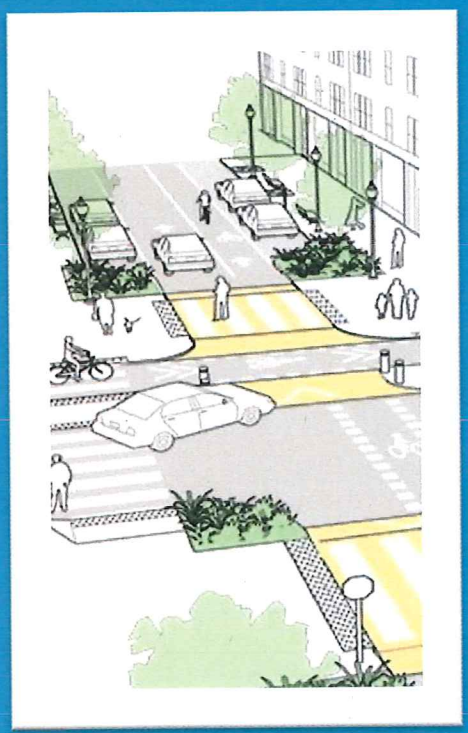
9.0 Effective Date
The policy is effective as of ____December 19, 2016_____

This policy was adopted by the Board of Selectmen at a public meeting on _____December 19, 2016_____

Signed,
Eastham Board of Selectmen.

Signature_____ Date 1/3/17
John Knight, Chairman





massDOT
Massachusetts Department of Transportation

Complete Streets Funding Program Guidance

Additional Complete Streets Reading

More on DOT website:

massdot.state.ma.us/highway/DoingBusinesswithUs/LocalAidPrograms/CompleteStreets

January 2016

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Appendix

(contained in separate downloadable document)

Introduction: Complete Streets are for Everyone

A Complete Street is one that provides safe and accessible options for all travel modes – walking, biking, transit, and motorized vehicles – for people of all ages and abilities. Designing streets with these principles contributes toward the safety, health, economic viability and quality of life in a community by improving the pedestrian and vehicular environments and providing safer, more accessible and comfortable means of travel between home, school, work, recreation and retail destinations. More broadly, embedding Complete Streets principles in policy and practice help promote more livable communities.

In addition, the creation of Complete Streets encourages an active transportation lifestyle and is supported by the United States Centers for Disease Control and the Massachusetts Department of Public Health as a way to decrease obesity and reduce risk for chronic diseases (heart disease, arthritis, diabetes, etc.). Also inherent in the development of a Complete Street is meeting the most current accessibility guidelines outlined by the Americans with Disabilities Act (ADA) and the Massachusetts Architectural Access Board (AAB), which are upheld by Code of Massachusetts Regulations 521 (521 CMR).

Complete Streets improvements may be large scale, such as corridor-wide improvements that include a separated bicycle lane, new crosswalks and new bus stops; or a small scale improvement, such as a new bus shelter to encourage transit use. Other Complete Street project examples include improved street lighting, minor changes to traffic signal timings, new bicycle or pedestrian facilities, a median refuge island, or improved connection to transit. The design of a Complete Street should be context sensitive and incorporate improvements or treatments that fit with the need and within the character of a community.

The Massachusetts Department of Transportation (MassDOT) recognizes the importance of supporting projects that provide context-sensitive, multimodal transportation options on appropriate roadways. In 2013 MassDOT issued its own *Healthy Transportation Policy Directive* to ensure that all MassDOT projects are designed and implemented in a way that all our customers have access to safe and comfortable healthy transportation options at all MassDOT facilities and in all the services we provide.

MassDOT also recognizes the importance of supporting Complete Streets on local roads for the benefits they provide, and to assist in closing critical gaps in transportation networks. MassDOT is pleased to provide a new Complete Streets Funding Program to further the understanding and development of Complete Streets on local roads across the Commonwealth.

This *Complete Streets Funding Program Guidance* document describes the full requirements of the program, including guidance on best practices in Complete Streets Policy development and implementation. The Complete Streets Portal provides the online application and program participation process.

MassDOT has allocated $12.5 million for the first two years of this effort. Future funding will be based on the availability of funds and the interest and success of the program.

Chapter 1: Background and Overview

The Massachusetts Department of Transportation (MassDOT) Complete Streets Funding Program was created by legislative authorization through the 2014 Transportation Bond Bill[1] with the intent of rewarding municipalities that demonstrate a commitment to embedding Complete Streets in policy and practice. MassDOT was provided with seven criteria to develop the program, along with the requirement that one-third of the funding be spent on Massachusetts municipalities below the median household income. MassDOT conducted a robust stakeholder process, described below, to further develop the program criteria and keep within the spirit of the legislative intent. A more detailed description of the *Program Response to Transportation Bond Bill Requirements* is contained in Appendix A.

Briefly, the reward for municipalities that choose to participate is:

1) Funding for technical assistance to analyze their community needs and develop a Complete Streets Prioritization Plan, and

2) Funding for construction of Complete Streets infrastructure projects.

The eligibility requirements are designed to demonstrate a municipality's commitment to embedding Complete Streets in policy and practice, while also allowing a level playing field for entry into the program. In other words, MassDOT is seeking to meet a community where it is at, and allow flexibility in the level of commitment and implementation.

To be eligible for technical assistance a municipality must attend training and pass a Complete Streets Policy in the manner prescribed; and to be eligible for project funding the municipality must complete a Complete Streets Prioritization Plan, which is a targeted investment strategy.

The Complete Streets Funding Program is structured with three Tiers to meet municipalities where they are at in the development of their Complete Streets Policy and practices:

Tier 1 – Complete Streets Training and Policy Development

Tier 2 – Complete Streets Prioritization Plan Development

Tier 3 – Project Construction Funding

A full explanation of the program reward, eligibility requirements, model policy guidance and flexible options for entry into the program are discussed in Chapters 2, 3, and 4. In Chapter 5 more general guidance is given on best practices for incorporating Complete Streets in municipal operations, and in Chapter 6 the MassDOT training, Portal process, and contracting process are explained.

[1] House Bill 4046, An Act financing improvements to the Commonwealth's transportation system. April 18, 2014. https://malegislature.gov/Bills/188/House/H4046

Outreach Process for Program Development

MassDOT led an extensive stakeholder engagement effort for over a year to develop the Complete Streets Funding Program requirements. This included presentations and meetings with municipal public works and planning officials, the Massachusetts Healthy Transportation Compact Advisory Group, the Massachusetts Bicycle and Pedestrian Board, the Massachusetts Partnership for Health Promotion and Chronic Disease Prevention's Built Environment Community of Practice, the Transportation Managers Group, and Regional Planning Agencies. Additional information about this process can be found in Appendix A.

The stakeholder engagement process included meetings with 19 municipalities during August and September of 2015. Municipalities were represented by Department of Public Works (DPW) directors and planning officials. The municipalities MassDOT sought input from varied in size and location and included Gateway Communities, communities below the Commonwealth's median household income, and some with environmental justice and Title VI areas. MassDOT met with municipalities as far south as New Bedford and Tisbury; as far west as Amherst and Belchertown; and as far north as Lawrence. Some of the municipalities MassDOT consulted with already passed a Complete Streets policy.

Lessons Learned from Outreach Process

Municipalities clearly acknowledged the need to include more Complete Streets elements on all project types. However, the current Chapter 90 funding does not reach far enough to do more than address immediate needs. Without additional funding options municipalities are unable to adequately address the needs of multiple modes.

Municipalities are concerned that the additional funding required to meet the Complete Streets commitment required by the statue on all municipal road projects reduces their overall spending ability. The example of the Safe Routes to School program (SRTS) was cited – in trying to meet the requirements of the Healthy Transportation Policy Directive (P-13-0001) and Engineering Directive (E-14-006), several SRTS projects had to be re-scoped and the result was an average increase in project cost of 30 percent

Municipalities are also concerned that they cannot meet the mode share goal and lack the baseline data needed to even develop such a goal as outlined in the statute.

All stakeholder input was considered throughout the development process of the Complete Streets Funding Program and is reflected in the structure and requirements of the program as presented in Chapter 2 and the Complete Streets Policy Guidance and Scoring System presented in Chapter 3.

Benefits of Complete Streets

Employing Complete Streets principles in the project development process entails a balanced approach to address the needs of all modes; the result is an integrated transportation network that promotes safer and more convenient access and travel for all users and people of all abilities. Effective application of these principals may also provide the following benefits:

- **Safety** – Safety may be improved through the reduction of number and severity of crashes. There are several strategies to improve safety that can be deployed through a complete streets approach including: road diets, medians and pedestrian crossing islands in urban and suburban

areas, corridor access management, roundabouts, and pedestrian hybrid beacons. The last two of which are considered proven safety countermeasures by the Federal Highway Administration (FHWA). These and other measures often enhance safety for all users. For example, medians with pedestrian crossing islands allow pedestrians and bicyclists to cross streets in two, simplified stages; medians also reduce left turning and access-related crashes for vehicles.

Complete Streets measures also promote a better understanding of the function of the roadway environment and often result in more predictable and desirable behaviors. Such behaviors include a reduction in the incidence of speeding, which has the effect of improving safety for all users as well. Other behaviors such as sidewalk bicycle riding- especially against the flow of motorized traffic where intersection and driveway conflicts may occur- may be reduced as well.

- **System Efficiency** – Complete Streets support an efficiently planned transportation system that maximizes space for each mode of travel. This helps to increase overall system capacity and reduce congestion.
- **Public Transportation** – Complete Streets provide opportunities for more reliable transit service and can improve connections between customers and transit and enhance access to transit stops.
- **Livable Communities** – Complete Streets promote more livable communities by fostering stronger communities where residents are able to interact and have equal access to transportation. Children, older adults, people with disabilities, and others who choose to not drive a vehicle all have equal access to other transportation choices that promote a healthy lifestyle and physical activity. Complete Streets have also been shown to lower overall transportation costs, thus providing better transportation equity.
- **Transportation Options** – An increasing number of people are showing an interest in living in areas that provide transportation options for various reasons. Complete Streets can offer these transportation choices that have also been shown reduce household costs on transportation.
- **Health** – Complete Streets help improve quality of life by providing transportation options and by encouraging active transportation through improved connections to activities. The travel paradigm has begun to shift toward healthier options such as walking and biking.
- **Energy** – Complete Streets promote travel by modes that are more energy efficient such as walking, biking, and transit. In many Complete Streets projects this mode shift away from travel by automobile has been realized, which helps lessen dependence on oil.
- **Environment** –Complete Streets have multiple environmental benefits. The largest source of transportation greenhouse gas emissions is from automobiles. By maximizing alternative modes of transportation, Complete Streets aid in reducing vehicle trips thereby reducing greenhouse gas emissions and improving air quality. Complete Streets can also reduce pavement width, which reduces deleterious impacts of stormwater runoff on water quality and reduces the urban heat island effect.
- **Economic Development** – Complete Streets can provide accessible connections between land uses, thus providing greater opportunity for people to access activities that support daily life, recreation and entertainment, and other activities. The more activity an area can generate, the greater the investment. Numerous Complete Streets projects have demonstrated economic benefits through higher property values and increased business revenues.

Considerations and Challenges to Implementation

While support for multimodal facilities is a well-established goal, there may be multiple challenges to achieving desired Complete Streets that balance multiple transportation modes safely and efficiently. These challenges may be dependent upon the type of road, composition and volume of traffic, and the surrounding roadway environment. Some potential challenges on Complete Streets projects include:

- **Physical Constraints –** Implementing Complete Streets designs may be a challenge at locations with significant constraints. This may be most relevant in urban areas and downtown villages (where demands by all users are the heaviest and right-of-way is often constrained) or in a park or historic settings where there may be impacts to natural, historic, and/or cultural resources.

- **Intersections –** Intersections are an integral component of Complete Streets. Intersections are where the greater percentage of conflicts occur along a roadway for all users. Intersections may be dissimilar along a corridor, with different approaches, volume, control, and geometric characteristics. Many times, intersections typically have to be treated individually.

- **Driveways –** Driveways have attributes similar to intersections in that they may differ greatly in volume and geometric characteristics when compared to the roadway corridor. Driveways interrupt the desired cross section, introducing elements that may impact a Complete Streets design.

- **The Transportation Network –** The entire transportation network should be considered to effectively apply the appropriate facilities for users of all abilities, in particular, the safety and needs of children, elderly, and those with disabilities. For example, bicyclists should be provided a complete bicycle network that offers safer routes to destinations. However, not every roadway can be designed to accommodate all types of bicyclists. Facilities for bicyclists must be appropriate for the land use, roadway classification, traffic speed, composition, and volume context. A Complete Streets approach should consider the appropriateness and safety of facilities on the roadway network; that is the appropriate context should be considered.

  The public should also be engaged to understand the needs and perceptions that relate to travel by each mode. This is necessary to ensure there is a return on the investment for a given facility and that new facilities help a municipality achieve its larger safety and mode share goals.

- **Special Conditions –** Streets may be designated to address traffic needs for special conditions. While all public roads are designed with emergency vehicle access in mind, even during construction, selected streets may be critical for event management (i.e. concerts, sporting events, festivals, etc.), incident management needs, or as an evacuation route, which may limit or constrain how the street is able to meet the needs of multiple modes.

- **Snow Removal –** The road environment must provide adequate space for snow storage as well as all designated modes of transportation. Municipalities must ensure that all transportation infrastructure, including sidewalks and bike lanes/separated bicycle facilities are in usable condition year-round.

- **Ownership and Cross-Jurisdictional Issues –** It is not uncommon for a specific road to have ownership by multiple jurisdictions. This may add complexity as different municipalities or agencies may have different goals that need to be considered when designing a Complete Streets project.

- **Organizational Changes –** Applying a Complete Streets approach may depart from the common practices of a jurisdiction. Some of the perceptions of deploying a Complete Streets approach may have to be overcome, which can begin by providing staff with training on new planning, design, and operational approaches utilized in Complete Streets designs. It may also be necessary to re-evaluate policies and procedures long established through automobile-centered investment and design.

- **Long-Term Maintenance and Funding –** As is with many transportation projects, funding a Complete Streets project may be one of the biggest challenges. Funding challenges may exist at the project onset, from potential property acquisitions, to long-term operations and maintenance costs. Maintenance issues may be further exacerbated by complex or multi-jurisdictional roadway ownership; in particular, maintenance of sidewalks, which are often the responsibility of adjacent property owners.

Chapter 2: Program Overview

The objective of the Complete Streets Funding Program is to reward municipalities that demonstrate a commitment to embedding Complete Streets in policy and practice with technical assistance and construction funding. This chapter provides an overview of the Program, including its objectives, rewards, eligible projects, and structure and process.

Program Objectives

The Complete Streets Funding Program's objectives are as follows:

1. Provide technical assistance and incentives for adoption of Complete Streets policies at the municipal level so that a broader range of communities are encouraged to enter the program in order to be eligible for project funding.
2. Encourage municipalities to adopt a strategic and comprehensive approach to Complete Streets, rather than simply seeking funding for a single project, by providing technical assistance to municipalities to create Complete Streets Prioritization plans (described below).
3. Facilitate better pedestrian, bicycle, and transit travel for users of all ages and abilities by addressing critical gaps in pedestrian, bicycle, and transit infrastructure by funding Complete Streets projects in cities and towns that have already adopted policies and undertaken planning.
4. Distribute funding to reward municipalities who have committed to adopting Complete Streets best practices through the Community Compact Cabinet.
5. Ensure that underserved municipalities are served equitably by the program as anticipated by statute.

Program Reward

The objective of the Complete Streets Funding Program is to reward municipalities that demonstrate a commitment to embedding Complete Streets in policy and practice. There are two program rewards outlined below.

Program Reward

(for municipalities that meet the eligibility requirements)

1. Technical Assistance – up to $50,000 for analysis in support of a Complete Streets Prioritization Plan. (Funding is not available for assistance in Policy development.)

2. Construction Funding – up to $400,000 (Design is not an eligible expense. Chapter 90 monies can be used to support design)

Technical Assistance

The technical assistance funding will to determine municipality's Complete Street needs. This could be in the form of a network gap analysis or safety audit.

The first reward is for technical assistance funding, up to $50,000, for analysis and completion of a Complete Streets Prioritization Plan. The Complete Streets Prioritization Plan will be a targeted investment strategy to improve safety, mobility or accessibility. It will identify the streets, infrastructure, cost estimate and timeline for the municipality's desired Complete Street improvements, and should align with local master plans and roadway maintenance schedules. The technical assistance funding provides municipalities the means to fund planning studies or conduct analysis, if it doesn't already exist, to support a prioritized list of projects.

This funding can be used to engage third-party consultants or offset costs for assistance from regional planning associations in such activities as a network gap analysis or walk, bicycle or safety audit. Technical assistance funds are handled independently of construction funds and do not count against the $400,000 total municipalities are eligible for under construction funding.

The municipality is required to enter into a contract with MassDOT and will receive funding through a reimbursement process. Additional information regarding contracting with MassDOT is located in the *Contracting with MassDOT* section in Chapter 6.

Construction

One of the primary purposes of this funding program is to ultimately provide funds to municipalities for the construction of infrastructure projects that support Complete Streets goals and principles. The second reward is for construction of Complete Streets infrastructure projects listed on the Complete Streets Prioritization Plan. An award of up to $400,000 will be available to eligible municipalities for construction.

Municipalities that complete the requirements outlined by Tiers 1 and 2 (discussed in detail in the *Program Structure and Process* section of this chapter) are eligible for construction of Complete Streets infrastructure projects. Prior to receiving funds, the municipality is required to enter into a contract with MassDOT. Additional information regarding contracting with MassDOT is located in the *Contracting with MassDOT* section in Chapter 6. Eligible and ineligible project types are described in the following section. Projects eligible for funding through the Transportation Improvement Program (TIP) may not qualify for Complete Streets funding in their entirety, although it is likely they would have components that could.

Eligibility

Many projects are candidates to incorporate Complete Streets elements and may be eligible for Complete Streets construction funding, including:

- New construction
- Reconstruction
- Some types of rehabilitation
- Resurfacing and changes in the allocation of pavement width on an existing roadway (e.g., removal of on-street parking or reduction in the number of travel lanes)[2]

[2] While MassDOT Complete Streets construction funding could be available for roadway width reallocation measures identified above, funding shall not be awarded for roadway resurfacings costs.

Eligible Roadways

Implementation of Complete Streets elements is appropriate on many public roadways, including arterials, collectors, and local streets.

Eligible Project Types

Projects may incorporate one or more Complete Street elements to improve safety and/or pedestrian, bicycle, transit, vehicular, or freight mobility. Specific project types that are eligible for Complete Streets construction funding can be found in Appendix B.

If a project or element does not appear on the list in Appendix B, it may still be eligible for funding. The applicant should provide justification for the decision based upon the classification of comparable projects.

Specific project types not eligible for Complete Streets funding are also outlined in Appendix C.

Exceptions

The following exceptions should be noted:

- Corridors where non-motorized use is prohibited, such as freeways that are posted with signs that exclude non-motorized modes;
- When the cost of accommodation will be excessively disproportionate to the need or probable use[3]; or
- When minimal population or other factors indicate an absence of need.

Eligibility Requirements and Program Process

The Complete Streets Funding Program eligibility requirements are organized into three Tiers, each of which carries specific responsibilities for both the municipality and MassDOT. In Tier 1, the municipality demonstrates its commitment to Complete Streets principles by passing a Complete Streets policy through its official approval channels. Tier 2 seeks to have municipalities look holistically at Complete Street needs, safety, or network gaps, and develop a hierarchy of funding priorities that align with local plans and roadway work. Tier 3 is where a municipality identifies projects from its priority plan for funding, MassDOT determines which projects are to be funded, and then the municipality and MassDOT enter into a contract. The following sections provide additional details on the funding program and Tiers.

Program Tiers

Tier 1 – Training and Complete Streets Policy Development

Tier 2 – Complete Streets Prioritization and Plan Development

Tier 3 – Project Approval and Notice to Proceed

[3] The FHWA defined "excessively disproportionate" as exceeding 20 percent of the cost of the larger transportation project.

Tier 1 – Training and Policy Development

This first Tier of the program is designed to assist municipalities in developing a comprehensive Complete Streets policy and incorporating Complete Streets principles into current and future infrastructure development practices.

MassDOT will provide assistance through hosting workshops as part of the Baystate Roads program. These workshops cover two levels: Complete Streets 101 Introductory Training and Complete Streets 201 Advanced Training. To complete Tier 1, each municipality must send at least one representative to at least one training workshop. For more information on training workshops and eligible municipal employees, see the *Training* section of Chapter 6.

Municipalities who have developed a Complete Streets policy can submit it to MassDOT for review and scoring. The Complete Streets policy must score at least 80 points out of a possible 100 points to be approved by MassDOT. Any Complete Streets policy that scores less than 80 will be returned to the municipality for revision. The scoring system is designed to confirm that the municipality's Complete Streets policy is sufficiently comprehensive. Additional details on the review and scoring process are available in Chapter 3, *Complete Streets Policy Guidance and Scoring System*. The Complete Streets policy must be passed by the municipality's highest elected official or governing body (Mayor, Board of Selectmen or City Council).

Additional points will be available to municipalities who become members of the Community Compact Cabinet (+4 points) and who choose Complete Streets as one of their Best Practices (+4 points) up to a maximum score of 100. More information on Community Compacts is included below.

Alternatively, a municipality can provide MassDOT with a Tier 1 commitment letter in order to access up to $50,000 in technical assistance funding to work on their Complete Streets Prioritization Plan (see Tier 2 section below). The Tier 1 commitment letter (see below) and the $50,000 in technical assistance funding enables the municipality to work on its Complete Streets policy and Prioritization Plan in parallel, thus broadening the group of municipalities that will be eligible for project funding in FY17 and beyond. As long as the municipality fulfills all of the Tier 1 requirements or provides a letter committing to complete the Tier 1 requirements within the year, the municipality can proceed to Tier 2.

Tier 1 Commitment Letter

In order to become eligible to receive technical assistance funding prior to fulfilling the Tier 1 requirements, a municipality must provide Intent *to Become a Complete Streets Eligible Municipality* letter:

- Statement of intent to complete Tier 1 requirements within 1 year of MassDOT verification including:
    - Submitting a Complete Streets Policy for scoring (≥80 points)
    - Passing Complete Streets Policy by highest elected official or governing body
- Signature of highest ranking municipal administrator (Mayor, Town Manager, etc.)

Tier 1 Required Municipal Actions

1. Have a municipal employee **attend Complete Streets 101 or 201 Training**.
2. **Submit a Complete Streets Policy** (Bylaw, Ordinance, or Administrative Policy) that has been approved by the highest elected official or board with one public meeting, or alternatively
3. **Upload *Intent to Become a Complete Streets Eligible Municipality* letter** (allows municipality to qualify for Technical Assistance funding in Tier 2).

Community Compacts

A Community Compact is a voluntary, mutual agreement entered into between the Commonwealth and individual cities and towns to elevate partnerships, to work toward mutual accountability, reduce red tape, and to promote best practices. The program was established by an Executive Order signed by Governor Baker in January 2015 as a way to elevate the Administration's partnership with municipalities throughout the Commonwealth.

In a Community Compact, a community will self-identify and agree to implement at least one best practice over a two year period that they select from seven best practice areas. The Complete Streets best practice, one of the best practices in the area of Transportation and Citizens Safety, states that:

> *Complete Streets policies and programs provide accommodations for all users and modes, create safer and more livable neighborhoods, and encourage healthy transportation alternatives. The municipality will become certified through MassDOT and demonstrate the regular and routine inclusion of complete streets design elements and infrastructure on locally-funded roads.*

As of the date of this Guidance document there were 55 communities that signed Community Compacts. Approximately 20 percent have selected Complete Streets as their best practice commitment.

Communities that sign a compact receive priority for specific Commonwealth technical assistance resources to help achieve their chosen best practice(s). The Massachusetts Department of Revenue Division of Local Services administers the program and serves as the primary point of entry for communities looking for resources in best practice development and implementation.

Tier 2 – Complete Streets Prioritization Plan Development

This second Tier of the program looks to the municipality to determine its Complete Streets needs and prioritize its Complete Streets infrastructure projects through the development of a Complete Streets Prioritization Plan. Municipalities can enter into Tier 2 in one of three ways, outlined below:

Tier 2 Entry Options

Option 2a	Option 2b	Option 2c
1. Fulfill all Tier 1 requirements 2. Want to submit their Complete Streets Prioritization Plan for review	1. Fulfill all Tier 1 requirements 2. Want to request Technical Assistance (up to $50k) to develop a Complete Streets Prioritization Plan	1. Commit to fulfilling Tier 1 requirements (through letter of intent to MassDOT, see Tier 1) and developing a Complete Streets Prioritization Plan. 2. Want to request Technical Assistance (up to $50k) to develop a Complete Streets Prioritization Plan

Option 2a provides municipalities that have already completed a Complete Streets Prioritization Plan to submit it to MassDOT for review. The municipality must provide the Prioritization Plan in the provided format (downloadable from the Complete Streets Portal).

Options 2b and 2c allow municipalities to access to up to $50,000 in technical assistance funding to work on their Complete Streets Prioritization Plan. Option 2b is available to those municipalities who have fulfilled all Tier 1 requirements. Option 2c is available for those municipalities who have not completed Tier 1 but commit to fulfilling the Tier 1 requirements within a year of MassDOT verification of the commitment letter. In order to receive technical assistance funding under either Option 2b or 2c, the municipality must enter into a contract with MassDOT.

In developing its needs assessment, the municipality can draw from planning documents and sources and/or engage with consultants or other resources to help them to generate a master list of potential Complete Streets projects. Documents or planning studies that may be drawn from include (but are not limited to):

- Capital Investment Plans
- Network Gap Analyses
- Roadway Maintenance Plan
- Pavement Management System
- Private Development Review processes
- ADA Transition Plan/Assessments
- Safety Audits
- Bike/Ped Audits

The list of potential projects will be vetted by the municipality through its own prioritization process. The prioritized list will then be formatted into the MassDOT Prioritization Plan template and submitted to MassDOT for approval. After acceptance of the municipality's Prioritization Plan, the municipality will have completed Tier 2. Municipalities that complete Tier 1 and Tier 2 requirements become a MassDOT Complete Streets Eligible Municipality and are eligible to submit projects for funding in Tier 3.

Tier 2 Required Municipal Actions

Option 2a	Option 2b	Option 2c
1. Format Prioritization Plan into MassDOT template	1. Apply for technical assistance funding (up to $50,000)	1. Commit to fulfilling Tier 1 *(through Letter of Intent to Become Complete Streets Eligible Municipality)* and Tier 2 requirements within a year
2. Submit Prioritization Plan to MassDOT for approval	2. Enter into a contract with MassDOT	2. Apply for technical assistance funding (up to $50,000)
	3. Develop and submit Complete Streets Prioritization Plan on provided template to MassDOT for approval	3. Enter into a contract with MassDOT
		4. Develop and submit Complete Streets Prioritization Plan on provided template to MassDOT for approval

Tier 3 – Project Approval and Notice to Proceed

Tier 3 presents municipalities with the opportunity to receive funding for Complete Streets infrastructure projects. Municipalities can only enter Tier 3 after the successful completion of Tier 1 and Tier 2, fulfilling all requirements and receiving MassDOT approval of its Complete Streets policy and Prioritization Plan. Through the project prioritization process, municipalities have identified candidate Complete Streets infrastructure projects for funding. The municipality will annually submit an application for funding, highlighting five projects for which they would like to receive funding[4]. For year 1 of the Complete Streets Funding Program (FY16), funding can range up to $400,000 (with no minimum) for each municipality. This funding cap can include numerous, less expensive projects or a single project. Since the level of award per municipality could vary based on the total number of applications received, municipalities are encouraged to consider the cost of individual projects when preparing their applications. MassDOT is committed to working diligently to fund all eligible projects prioritized by the municipalities. However, funding awards will depend on the overall number of municipalities seeking funding and will be based on several criteria:

- How well each project accomplishes Complete Streets goals:
  - Safety
  - Connectivity
  - Mobility
  - Accessibility
- Equity
  - Municipality median household income at or the below statewide average

[4] It should be noted that only Tier 3 project approvals are required on an annual basis. While updating of the Prioritization Plan is encouraged every five years, the Tier 1 and Tier 2 obligations are only required in the first year.

  - Gateway Community
  - Environmental justice/Title VI area
- Geographic distribution of funding
- Number of submitted projects
- Available funding

Based on funding available and the number of project applications received in Tier 3, MassDOT may chose projects ranked lower in priority for a given municipality.

In order to receive funds from MassDOT, the municipality must enter a contract with MassDOT. The municipality and appropriate District State Aid office will be notified of approved projects. The municipality will then enter a State Aid process, similar to the Chapter 90 process.

Tier 3 Required Municipal Actions

1. **Submit Tier 3 application with project priority list**
2. **Enter contract with MassDOT**
3. **Enter State Aid process**

Schedule and Cost Estimate

As communities identify priority Complete Streets projects and apply for funding in Tier 3, they should also establish the anticipated schedule and prepare conceptual cost estimates for each project.

Schedule

Projects put forward for consideration will be expected to complete permitting and design, secure all necessary rights of way, and obligate all other funding sources within the current fiscal year. Any project that receives an award but does not demonstrate readiness within a reasonable timeframe that would enable construction during the upcoming construction season, will lose its funding commitment for that year and will not be eligible to submit the project for funding consideration again until the following round. Funds committed to projects that are unable to demonstrate readiness in a reasonable timeframe will be redistributed to other projects that are ready to proceed to construction.

It is MassDOT's intent that funding be awarded to projects that are ready to proceed. To meet the minimum threshold for consideration for the Complete Streets Program, infrastructure projects must make reasonable efforts to demonstrate:

- A timeline and funding source for completing design in a timeframe that allows for construction in the upcoming construction season; and
- Project design that is consistent with MassDOT's Complete Streets design guidelines (as well as other MassDOT design guides and Engineering Directives), which call for accommodation of all roadway users in a manner that is appropriate to the type of roadway and location; and
- A complete list of required state and local permits; and

- Demonstration that all required permits can be reasonably obtained such that construction can be completed within the fiscal year for which the money is awarded; and
- All rights of way are secured or evidence that the rights of way will be secured such that construction can be completed within the fiscal year for which the money is awarded; and
- Demonstration that all sources necessary to fully fund the project have been obtained and a complete draw schedule that reflects a construction start during the upcoming construction season. Sources must be fully committed.

Cost estimate

Each potential project will be evaluated based upon its ability to enable or encourage bicycling, walking and transit trips rather than individual automobile trips. Eligible projects will be selected based on the municipality's priorities and needs. To insure a fair and equitable distribution of available funds, construction costs will be a critical factor in the final selection of Complete Streets projects.

Costs for pedestrian and bicycle safety infrastructure often vary greatly among regions. The FHWA document *Costs for Pedestrian and Bicyclist Infrastructure Improvements, A Resource for Researchers, Engineers, Planners and the General Public* provides meaningful estimates of infrastructure costs by collecting up-to-date cost information for pedestrian and bicycle treatments from municipalities across the country. Using this information, applicants can better understand the cost of pedestrian and bicycle treatments in their communities and make informed decisions about which infrastructure enhancements are best suited for implementation.

It must be noted that costs in this document can vary widely from state to state and also from site to site. Therefore, the cost information contained in the FHWA report should be used only for estimating purposes and not necessarily for determining actual bid prices for a specific infrastructure project. Applicants should field review all proposed projects sites to identify potential items of work specific to each project and supplement the information in the FHWA report with MassDOT cost estimating and weighted bid prices, which are available from the representative district office.

Chapter 3: Complete Streets Policy Guidance and Scoring System

MassDOT provides the following model policy guidance for municipalities interested in building a Complete Streets Policy that suits their community. This guidance is adapted from Smart Growth America and the National Complete Streets Coalition's Local Policy Workbook. MassDOT has also developed a Complete Streets Policy Scoring System that will be used to score municipal policies and model policy language for each element. Table 1 (below) can be used to score draft policies. The scoring system was also adapted from the National Complete Streets Coalition's methodology.

MassDOT requires that the municipal Complete Streets Policy be adopted as a bylaw, ordinance or administrative policy by the municipality's highest elected body (i.e. Mayor or Board of Selectmen) and include at least one public meeting. Ideally, the body, individual, or entity responsible for carrying out the policy should be identified. The municipal Complete Streets Policy must score 80 points or above to meet the eligibility criteria.

An ideal Complete Streets policy contains the following four core areas and ten elements. Policies are scored based on their level of commitment to these ten elements. There is a possible 100 points for the ten policy elements. Additional points are awarded if a municipality is a signatory to the Community Compact (4 points) and has chosen Complete Streets as its best practice (4 points).

Complete Streets Ten Policy Elements Snapshot

I. Vision and Intent

1. Includes **a vision and intention** for how and why the community wants to advance Complete Streets infrastructure. (10 points)

II. Core Commitment

2. Specifies that the transportation system serves **'all users'** including pedestrians, bicyclists and transit passengers of **all ages and abilities**, as well as trucks, buses and automobiles. (20 points)
3. Applies to **all projects and phases**, including reconstruction, new construction, design, planning, maintenance, and operations, for the entire right of way. (15 points)
4. Makes any **exceptions** specific and sets a clear procedure that requires high-level approval of exceptions. (10 points)

III. Best Practice

5. Encourages and aims to create a **comprehensive, integrated, connected network** for all modes. (10 points)
6. Is clear regarding what **jurisdictions** the policy applies to and emphasizes the need for coordination. (5 points)
7. Directs the use of the latest and best **design criteria** and guidelines while recognizing the need for flexibility in balancing user needs. (10 points)
8. Directs that Complete Streets solutions be **context sensitive** and complement the community. (5 points)
9. Establishes **performance standards** with measurable outcomes. (5 points)

IV. Implementation

10. Includes specific next steps for **implementation** of the policy. (10 points)

Special Consideration – Community Compact Cabinet

If a municipality is a signatory to the Community Compact it will receive 4 points toward its policy score. If a municipality has committed to Complete Streets as a best practice, it will receive an additional 4 points (for a total of 8 points) toward the policy score, not to exceed 100 points. The Community Compact is administered by the Massachusetts Department of Revenue's Division of Local Services (http://www.mass.gov/governor/administration/groups/communitycompactcabinet/).

Ten Complete Streets Policy Elements

I. Vision and Intent

1. Vision and Intent (10 pts)

A strong vision inspires a community to follow through on its Complete Streets Policy. Just as no two policies are alike, the visions across municipalities are not one-size-fits-all. The vision of each municipality cannot be empirically compared across policies, so this criterion compares the strength and clarity of each policy's commitment to Complete Streets. Clarity of intent and presentation makes it easy for those

tasked with implementation to understand the new goals and determine what changes need to be made to fulfill the Policy's intent.

1. Vision and Intent (10 pts)

Core Points

- 10 points: The strongest policies are those that are clear in intent, stating that facilities meeting the needs of people traveling on foot and bicycle "shall" or "must" be included in transportation projects. Full points also are awarded to policies in which the absolute intent of the policy is obvious and direct, even if they do not use the words "shall" or "must," because there is no equivocating language.
- 5 points: Many policies are clear in their intent—defining what a community expects from the policy—but use equivocating language that dilute the directive. For example, an average policy may say that the needs of pedestrians and bicyclists "will be considered" or "may be included" as part of the process.
- 2 points: Some policies are indirect: they refer to implementation of certain principles, features, or elements defined elsewhere; refer to general Complete Streets application with no clear directive; or instruct the development of a more thorough policy document.

No additional points available for this element.

Examples of indirect language include phrases such as "consider the installation of Complete Streets transportation elements" and "supports the adoption and implementation of Complete Streets policies and practices to create a transportation network that accommodates all users." Using this language perpetuates the separation of modes and the perception that a road for motor vehicles is fundamentally different from the road for other users, that only some roads should receive a Complete Streets treatment, and even that these roads require special, separately funded "amenities" or "enhancements."

Model Policy Language: Vision and Intent (Plymouth, MA)

The Plymouth policy recognizes that all, new, maintenance, or reconstruction, are included as opportunities to implement Complete Streets. The town will, to the maximum extent possible, design, construct, maintain, and operate all streets to provide for a comprehensive and integrated street network of facilities for people or all ages and abilities.

II. Core Commitment

2. Users and Modes (20 pts)

No policy is a Complete Streets Policy without a clear statement affirming that people who travel by foot or on bicycle are legitimate users of the transportation system and equally deserving of safe facilities to accommodate their travel. It is therefore a requirement to include both modes—walking and bicycling—in the policy before it can be further analyzed. Beyond the type of user is a more nuanced understanding that not all people who move by a certain mode are the same. The needs of people—young, old, with disabilities, without disabilities—are integral to great Complete Streets policies. Additional points are available, awarded independently of each other and the core points for modes.

2. Users and Modes (20 pts)

Core Points

- 12 points: Policy includes two more modes, in addition to walking, bicycling, and transit. Such modes include cars, freight traffic, emergency response vehicles, or equestrians.
- 8 points: Policy includes one more mode, in addition to walking, bicycling, and public transportation.
- 4 points: Policy includes public transportation, in addition to walking and bicycling.
- 0 points: Policy includes walking and bicycling only.

Additional points are available - awarded independently of each other

- 4 points: Additional points if the policy references the needs of users of all ages.
- 4 points: Additional points if the policy references the needs of users of all abilities.

Model Policy Language: Users and Modes (Beverly, MA)

Complete Streets are designed and operated to provide safety, comfort, and accessibility for all the users of our streets, including pedestrians, bicycles, transit riders, motorists, commercial vehicles and emergency vehicles, and for people of all ages, abilities, and income levels. Furthermore, Complete Streets principles contribute toward the safety, health, economic viability and quality of life in a community by improving the pedestrian and vehicular environments in order to provide safer, more accessible and comfortable means of travel between home, school, work, recreation and retail destinations.

3. All Projects and Phases (15 pts)

The ideal result of a Complete Streets policy is that all transportation or roadway improvements are viewed as opportunities to improve safety, mobility and accessibility. A strong Policy will seek to embed Complete Streets planning into all projects beyond new construction or full reconstruction. In projects such as resurfacing, restriping, minor residential street reconstruction, or spot improvements (i.e. intersection signal retiming and curb ramp construction), the basic Complete Streets principles of multimodal, green, and smart should be applied.

For example, if a municipality proposes to resurface a roadway it may also consider restriping to accommodate bicyclists where permissible or adding a crosswalk and a pedestrian hybrid beacon. In routine work on traffic lights, the signal timing could be changed to allow more time for pedestrians of all abilities to cross safely and/or audible pedestrian and countdown pedestrian signals could be installed.

3. All Projects and Phases (15 pts)

Core Points

- 10 points: Policy clearly applies to municipal road repairs, upgrades or expansion projects on public right-of-way.
- 0 points: Policy does not apply to projects beyond newly constructed roads or is not clear regarding its application.

Additional points are available

- 5 points: Policy requires procedures be developed to incorporate Complete Street elements when conducting municipal road repairs, upgrades or expansion projects on public right-of-way.

Model Policy Language: All Projects and Phases (Reading, MA)

Where feasible, Complete Streets design recommendations shall be incorporated into all publicly and privately funded projects. This includes transportation infrastructure and street design projects requiring funding or approval by the Town of Reading, as well as projects funded by the state and federal government, such as the Chapter 90 funds, Town improvement grants, Transportation Improvement Program (TIP), the MassWorks Infrastructure Program, Community Development Block Grants (CDBG), Capital Funding and other state and federal funds for street and infrastructure design. The same will be applied to private developments and related street design components or corresponding street-related components. In addition, to the extent practical, state-owned roadways will comply with the Complete Streets resolution, including the design, construction, and maintenance of such roadways within Town boundaries.

The Town Engineer, in consultation with the Department of Public Works and/or the Parking/ Traffic/ Transportation Task Force as needed, will use best judgment regarding the feasibility of applying Complete Streets principles for routine roadway maintenance and projects.

4. Clear, Accountable Exceptions (10 pts)

Making a policy work in the real world requires a process for exceptions to provide for all modes in each project. MassDOT believes the following exceptions are appropriate with limited potential to weaken the policy. They follow FHWA's guidance on accommodating bicycle and pedestrian travel and identified best practices frequently used in existing Complete Streets policies.

1. Accommodation is not necessary on corridors where specific users are prohibited, such as interstate freeways or pedestrian malls.
2. Cost of accommodation is excessively disproportionate to the need or probable use. MassDOT does not recommend attaching a percentage to define "excessive" as the context for many projects will require different portions of the overall project budget to be spent on the modes and users expected. In many instances the costs may be difficult to quantify. A percentage cap may be appropriate in unusual circumstances, such as where natural features (steep hillsides, shorelines, etc.) make it very costly or impossible to accommodate all modes. Any cap should always be used in an advisory rather than absolute sense.
3. A documented absence of current and future need.

Many communities have included other exceptions that MassDOT, in consultation with transportation planning and engineering experts, believes are likely to be considered appropriate:

1. Transit accommodations are not required where there is no existing or planned transit service.
2. Routine maintenance of the transportation network that does not change the roadway geometry or operations; such as mowing, sweeping, and spot repair.
3. Where a reasonable and equivalent project along the same corridor is already programmed to provide facilities exempted from the project at hand.

In addition to defining exceptions through good policy language, there should be a clear process for granting them, preferably with approval from senior officials. Establishing this within a policy provides clarity to staff charged with implementing the policy and improves transparency and accountability to other agencies and the public.

4. Clear, Accountable Exceptions (10 pts)

Core Points

- 4 points: Policy includes one or more exceptions, none are inappropriate.
- 2 points: Lists exceptions, but at least one lacks clarity or allows loose interpretation
- 0 points: Policy lists no exceptions.

Additional points are available

- 6 points: Additional points for specifying an approval process for policy exceptions.

Model Policy Language: Exceptions (Stoughton, MA)

Exceptions to the Complete Streets Policy may be granted by the Town of Stoughton Street Commissioners which include:

1. *Transportation networks where specific users are prohibited by law, such as interstate freeways or pedestrian malls. An effort will be made, in these cases for accommodations elsewhere.*
2. *Where cost or impacts of accommodation is excessively disproportionate to the need or probable use.*
3. *Documentation of an absence of current and future need.*

III. Best Practice

5. Network (10 pts)

An ideal Complete Streets Policy recognizes the need for a connected, integrated network that provides transportation options to a resident's many potential destinations. Approaching transportation projects as part of the overall network—and not as single segments—are vital for enhancing safe access to destinations. Successful Complete Streets processes recognize that all modes do not receive the same type of accommodation and space on every street, but that everyone can safely and conveniently travel across the network. MassDOT encourages additional discussion of connectivity, including block size and intersection density.

5. Network (10 pts)

Core Points

- 10 points: Policy simply acknowledges the importance of a network approach.
- 0 points: Policy does not reference networks or connectivity.

No additional points available for this element.

Model Policy Language: Network (Acton, MA)

WHEREAS, Complete Streets support economic growth and community stability by providing accessible and efficient connections between home, school, work, recreation and retail destinations by improving the pedestrian and vehicular environments throughout communities;...

6. Jurisdiction (5 pts)

Creating Complete Streets networks is challenging because many different agencies have a role in funding, planning and development of streets. Roadways are designed, built and maintained by state, regional, and local agencies, as well as private developers. Individual jurisdictions do have an opportunity to influence the actions of others, through funding or development review, and through an effort to work with their partner agencies on Complete Streets. In this policy element, the policy is rated based on the level of jurisdiction that the policy applies to and recognition of the need to work with other departments, agencies and/or private developers.

6. Jurisdiction (5 pts)

Core Points

- 3 points: A municipality's policy clearly notes that projects receiving any funding (state, federal, private) are expected to follow a Complete Streets approach.
- 2 points: Policy is restricted in its jurisdiction and applicability.
- 0 points: Policy does not clearly state its jurisdiction and applicability.

Additional points are available

- 2 points: Additional points for recognizing the need to work with entities.

Model Policy Language: Jurisdiction (Acton, MA)

(1) All transportation infrastructure and street design and construction projects requiring funding or approval by the Town of Acton shall adhere to the Town of Acton Complete Streets Policy.
(2) Projects funded by the State or Federal government, including but not limited, Chapter 90 funds, Transportation Improvement Program (TIP), MassWorks Infrastructure Program, Community Development Block Grants (CDBG), or other State and Federal funds for street and infrastructure design shall adhere to the Town of Acton Complete Streets Policy, subject to and as may be modified by funding agency guidelines and standards.
(3) Private developments and related or corresponding street design and construction components shall adhere to the Town of Acton Complete Streets Policy.

(4) To the extent possible, state-owned streets shall comply with the Town of Acton Complete Streets Policy, including the design, construction, and maintenance of such streets within Town boundaries, subject to and as may be modified by MassDOT guidelines and standards.

7. Design (10 pts)

Complete Streets implementation relies on using the best and latest design standards to maximize design flexibility. Intertwined with the need to use the best currently available guidance and standards is the need for a balanced approach to transportation design; one that provides flexibility to best accommodate all users and modes given the unique characteristics of the surrounding community. The municipality should consider adding language to the policy that recognizes the need for some roads to offer greater or lesser degrees of accommodation for each type of user while still ensuring basic accommodation is provided for all permitted users.

7. Design (10 pts)

Core Points - awarded independently of each other

- 8 points: Policy clearly names specific recent design guidance or references using the best available.
- 2 points: Policy addresses the need for a balanced or flexible design approach.
- 0 points: Policy does not address design guidance, balancing of user needs, or design flexibility.

No additional points are available for this element.

Model Policy Language: Design (Salem, MA)

The latest design guidance, standards, and recommendations available will be used in the implementation of Complete Streets, including the most up-to-date versions of:

- *The Massachusetts Department of Transportation Project Design and Development Guidebook*
- *The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide*
- *The National Association of City Transportation Officials (NACTO) Urban Street Design Guide*
- *Pioneer Valley Planning Commission's Healthy Community Design Toolkit*
- *The latest edition of American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highway and Streets*
- *The United States Department of Transportation Federal Highway Administration's Manual on Uniform Traffic Design Controls*
- *The Architectural Access Board (AAB) 521 CMR Rules and Regulations*
- *Documents and plans created for the City of Salem, including but not limited to:*
  - *Bicycle Master Plan*
  - *Open Space and Recreation Action Plan*
  - *Salem Downtown Renewal Plan*

8. Context Sensitivity (5 pts)

An effective Complete Streets policy must be sensitive to the surrounding community, its current and planned infrastructure and expected transportation needs. At minimum a Complete Streets policy should mention the importance of context sensitivity in making decisions. MassDOT encourages more detailed discussion of adapting roads to fit the character of the surrounding neighborhood and development.

8. Context Sensitivity (5 pts)

Core Points

- 5 points: Policy mentions community context as a factor in decision-making.
- 0 points: Policy does not mention context.

No additional points are available for this element.

Model Policy Language: Context Sensitivity (Stoughton, MA)

Complete Streets principles include the development and implementation of projects in a context sensitive manner in which project implementation is sensitive to the community's physical, economic, and social setting. The context sensitive approach to process and design includes a range of goals by considering stakeholder and community values on a level plane with the project need. It includes goals related to livability with greater participation of those affected in order to gain project consensus. The overall goal of this approach is to preserve and enhance scenic, aesthetic, historical, and environmental resources while improving or maintaining safety, mobility, and infrastructure conditions.

9. Performance Measures (5 pts)

Understanding what constitutes the success of a municipal Complete Streets policy is important to establish at the outset with the community. Municipalities with Complete Streets policies can measure success a number of different ways, from system-wide multimodal performance measures to project-level indicators. Some community-wide measures may simply aggregate a project-level measure across many projects (such as the total number of accessible curb cuts) and others may address non project-specific issues (such as improved air quality). Below is a partial list of measures the municipality may want to include, starting from simple outputs to more challenging outcomes:

- Linear feet of new or reconstructed sidewalks
- Miles of new or restriped on-street bicycle facilities
- Number of new or reconstructed curb ramps
- Number of new or repainted crosswalks
- Number of new street trees/percentage of streets with tree canopy
- Number of ADA accommodations built
- Percentage completion of bicycle and pedestrian networks as envisioned by municipal plans
- Efficiency of transit vehicles on routes
- Change in percentage of transit stops with shelters
- Change in percentage of transit stops accessible via sidewalks and curb ramps
- Increase in Bicycle, Pedestrian, and Multimodal levels of service (LOS)
- Auto Trips Generated (ATG)
- Number and type of crosswalk and intersection improvements
- Decrease in rate of crashes, injuries, and fatalities by mode
- Transportation mode shift: more people walking, bicycling, and taking transit
- Rate of children walking or bicycling to school
- Vehicle Miles Traveled (VMT) or Single Occupancy Vehicle (SOV) trip reduction
- Economic impacts in business districts
- Satisfaction levels as expressed on customer preference surveys
- Number of approved exemptions from municipal Complete Streets Policy

Given the complexity and range of performance measures available, some policies will opt to focus on creation and deployment of new metrics during implementation. When this is the case, the need for such measures should be mentioned in the policy document.

9. Performance Measures (5 pts)

Core Points

- 5 points: Policy includes at least one performance measure. 0 points: Policy does not include any performance measures.

No additional points are available for this element.

IV. Implementation

10. Implementation Steps (10 pts)

A formal commitment to the Complete Streets approach is only the beginning. MassDOT has identified some examples of implementation steps for a Complete Streets policy:

1. Restructure or revise related procedures, plans, regulations, and other processes to accommodate all users on every project
2. Develop new (or revise existing) design policies and guides to reflect the current state of best practices in transportation design. Municipalities may also elect to adopt national or state level recognized design guidance.
3. Encourage municipal staff and community leaders to attend introductory and advanced classes and training opportunities on Complete Streets.
4. Develop and institute better ways to measure performance and collect data on how well the streets are serving all users.

Assigning oversight of implementation or requiring progress reports is a critical accountability measure, ensuring the policy becomes practice. Policies can also influence the funding prioritization system to award those projects improving the multimodal network. Points for either type of activity are awarded independently.

10. Implementation Steps (10 pts)

Core Points

- 6 points: Policy specifies the need to take action on at least two to four implementation steps or accountability measures.
- 2 points: Policy includes at least one implementation steps or accountability measure.
- 0 points: Policy does not include any implementation or accountability measures.

Additional points are available - awarded independently of each other:

- 4 points: Additional points for identifying a specific person or advisory board to oversee and help drive implementation or establish a reporting requirement.

Model Policy Language: Implementation Steps (Middleton, MA)

A Complete Streets Committee comprised of stakeholders, including members of relevant Town departments will be created to implement this initiative. The Complete Streets Committee will be a multidisciplinary team and members will include representation from: Department of Public Works (DPW), Board of Health, Planning, Inspection Department, Town Administrator's office and other committees, departments or organizations as appropriate. The focus of this Committee will be ensuring the implementation of the Complete Streets Policy and, where necessary, altering existing practices and overcoming barriers that may act as impediments to implementation. In addition, this Committee will regularly update and solicit feedback on potential projects with the general public to ensure that the perspectives of the community are considered and incorporated, as appropriate.

Complete Streets Score Sheet

Table 1 summarizes the Complete Streets Policy scoring system.

Table 1: Complete Streets Policy Element Score Sheet (Possible 100 points)

Complete Street Elements	Potential Scoring
1. Vision and Intent ***Total Points: 10***	
Core points:	
• Indirect: Indirect statement ("shall implement Complete Streets principles," etc.)	2
• Average: Direct statement with equivocating or weaker language ("consider," "may")	5
• Direct: Direct statement of accommodation ("must," "shall," "will")	10
No additional points available for this element.	
2. All Users and Modes ***Total Points: 20***	
Core points:	
• "Bicyclists and pedestrians" (required for consideration)	0
• "Bicyclists, pedestrians, and transit"	4
• "Bicyclists, pedestrians, transit," plus one more mode	8
• "Bicycles, pedestrians, transit," plus two more modes	12
Additional points available - awarded independently of each other:	
• Including reference to "users of all ages"	4
• Including reference to "users of all abilities"	4
3. All Projects and Phases ***Total Points: 15***	
Core points:	
• Policy does not apply to projects beyond newly constructed roads, or is not clear regarding its application.	0
• Policy clearly applies to municipal road repairs, upgrades or expansion projects on public right-of-way.	10
Additional points available:	
• Policy requires procedures be developed to incorporate Complete Street elements when conducting municipal road repairs, upgrades or expansion projects on public right-of-way.	5
4. Exceptions ***Total Points: 10***	
Core points:	
• No mention of policy exceptions.	0
• Lists exceptions, but at least one lacks clarity or allows loose interpretation.	2
• Lists exceptions, none are inappropriate.	4
Additional points available:	
• Specifies an approval process.	6

Table 1: Complete Streets Policy Element Score Sheet (cont.)

Complete Street Elements	Potential Scoring
5. Network ***Total Points: 10*** *Core points:* • Policy does not reference networks or connectivity. • Policy simply acknowledges the importance of a network approach. *No additional points available for this element.*	0 10
6. Jurisdiction ***Total Points: 5*** *Core points:* • Policy does not clearly state its jurisdiction and applicability. • Policy is restricted in its jurisdiction and applicability, and does not articulate a need to work with other jurisdictions. • A municipality's policy clearly notes that projects receiving any funding (state, federal, private) are expected to follow a Complete Streets approach. *Additional points available:* • Policy recognizes the need to work with other agencies, departments, or jurisdictions.	0 2 3 2
7. Design ***Total Points: 10*** *Core points - awarded independently of each other:* • Policy does not address design guidance, balancing of user needs, or design flexibility. • References design flexibility in the balance of user needs. • References specific design criteria or directing use of the best and latest designs. *No additional points available for this element.*	0 2 8
8. Context Sensitivity ***Total Points: 5*** *Core points:* • No mention of keeping within the community context. • Mentions community context as a factor in decision making. *No additional points available for this element.*	0 5
9. Performance Standards ***Total Points: 5*** *Core points:* • Policy does not include any performance measures or next steps. • Policy includes at least one performance measure. *No additional points available for this element.*	0 5

Table 1: Complete Streets Policy Element Score Sheet (cont.)

Complete Street Elements	Potential Scoring
10. Implementation steps ***Total Points: 10***	
Core points:	
• No implementation plan specified.	0
• Policy includes at least one implementation step or accountability measure.	2
• Addresses two or more implementation steps or accountability measures.	6
Additional points available - awarded independently of each other:	
• Policy assigns oversight of implementation to a person or advisory board or for establishing a reporting requirement.	4

Chapter 4: Prioritization Plan Development

Once a municipality has developed a Complete Streets policy that has been approved by MassDOT and adopted at the local level, or has committed to develop a policy within 1 year of MassDOT verification of a commitment letter, the next step is to develop a Prioritization Plan – Tier 2 of the MassDOT Complete Streets Funding Program. Within this plan, the municipality will identify projects that incorporate Complete Streets elements and rank these projects based on their ability to address defined issues/needs. Through the Prioritization Plan process, the municipality will also assess project details including the readiness level of each project, conceptual cost estimate, and multimodal benefits.

The Project Prioritization Plan must be accepted by MassDOT before a municipality can apply for Complete Street project construction funding in Tier 3 of the Program.

Prioritization Plan Development Actions

1. **Download MassDOT Prioritization Plan template from Portal**
2. **Determine evaluation criteria**
3. **Develop methodology to apply the evaluation criteria (establish weights)**
4. **Submit Prioritization Plan to MassDOT (upload to Portal)**

Prioritizing Projects at the Local Level

Many municipalities have existing Prioritization Plans or plans of highly desired projects already developed. These plans can most often be modified to fit the MassDOT Complete Streets Prioritization Plan format and then ranked based on the municipality's desired evaluation criteria (considerations discussed below). The municipality can use existing Capital Improvement Plans, Master Plans, Long Range Transportation Plans, Local Comprehensive Plans, and other available documentation to form the basis of the Complete Streets Prioritization Plan. Further guidance on project types, needs assessments, and the development of Prioritization Plan elements can be found below and in Chapter 5.

Potential Evaluation Criteria

The process of prioritizing projects will be unique to each community and should consider evaluation criteria tailored to addressing defined issues/needs and accomplishing goals established by the municipality. A municipality should select evaluation criteria that are applicable to a wide range of projects, efficient to apply and easy to understand, and agreed upon by various departments to ensure consistency and efficacy. Potential criteria that could be evaluated include:

- Safety benefits (addresses high crash location, reduces vehicular speeds, etc.)
- Pedestrian mobility improvements (new or improved crosswalks, ADA upgrades, sidewalks/paths, pedestrian signals, lighting, signage, etc.)
- Bicycle mobility improvements (new or separated bike lanes, wider shoulders, signal accommodation, shared-use paths, bicycle parking, signage, etc.)
- Transit operations and access improvements (enhanced stop amenities, dedicated bus lanes, queue jump lanes, stop consolidation, signal priority, etc.)

- Vehicular operations improvements
- Freight operations improvements
- Air quality benefits
- Compatibility with local or regional goals
- Degree of public/stakeholder support
- Plan progress
- Anticipated project schedule
- Cost estimate

As part of the evaluation process, municipalities may also wish to consider potential impacts to right-of-way, environmental resources, cultural/historical resources, and environmental justice as criteria.

Example Methods to Prioritize Projects

Once a municipality develops a list of active and potential Complete Streets projects and gathers project details to assess the selected evaluation criteria, the city or town would then develop a methodology to apply these criteria and prioritize its list of projects. A variety of prioritization methodologies could be considered:

- **Evaluation Criteria** – Apply the selected evaluation criteria to each Complete Streets project with the project scoring the highest ranked as number one and so on.
- **Weighted Evaluation Criteria** – Establish weights for the selected evaluation criteria to emphasize the municipality's key goals. Score the list of Complete Streets projects using these weighed evaluation criteria.
- **Weighted Evaluation Criteria plus Cost Level** – Group projects into cost levels after ranking projects based on weighed evaluation criteria.
- **Weighted Evaluation Criteria plus Target Geographies** – Group projects into targeted geographies (i.e. town centers, recreational areas, schools) after ranking projects based on weighed evaluation criteria.

Submitting a Prioritization Plan

The intent of the Prioritization Plan for the purposes of the MassDOT Complete Streets Funding Program is to streamline municipal plans into uniform, organized content that allows MassDOT to review projects, allows for a broader understanding of the municipality's upcoming transportation plan, and will allow for the ability to sort projects among all Complete Streets municipalities for specific performance measures. Municipalities are encouraged to submit Prioritization Plans that include anticipated projects over a five-year horizon and to commit to regularly updating their plans as needs within the community change or projects are completed.

Once a municipality enters Tier 2 of the program, a Prioritization Plan template will be available for download on the Complete Streets online Portal (see Chapter 6). Instructions for completing the Prioritization Plan form are provided in Appendix D. The municipality will identify the Complete Streets project type, need addressed, funding amount requested, and other information about each project in their plan. As discussed above, it is up to the municipality's discretion how specific projects should be prioritized. Once the municipality has completed their Prioritization Plan, the form is uploaded back to the online Portal. The system will alert MassDOT and the review committee will review and approve the plan. Upon approval of the Prioritization Plan, the municipality has successfully completed Tier 2.

Chapter 5: Incorporating Complete Streets Best Practices

Embedding Complete Streets Best Practices into programs and activities a municipality regularly performs encourages a holistic approach and can limit additional burdens. This chapter discusses methods for a municipality to incorporate Complete Streets Best Practices.

Embedding Complete Streets Best Practices into Programs

1. **Capital Improvement Plans**
2. **Network Gap Analysis**
3. **Private Development**
4. **Recurring Roadway Rehabilitation**
5. **ADA Transition Plan/Assessment**
6. **Safety Audits**
7. **Bike/Ped Audits**

Capital Improvement Plans

Consideration of the municipality's Complete Streets policy and Prioritization Plan should be incorporated into planning, approval, design, and funding for all of roadway and infrastructure projects. The municipality's Capital Improvement Plan can be considered as a resource for the development of the Prioritization Plan. To the extent practical, projects should anticipate opportunities to incrementally achieve fully Complete Streets and networks over time. The municipality should examine all planned capital improvement projects to determine if they can be leveraged to advance the Complete Streets policy and, moving forward, apply the policy to all applicable transportation projects in the Capital Improvement Plan. This may include:

- Considering all elements of the right-of-way and utilizing all applicable Complete Streets policies during repaving and resurfacing.
- Modifying Capital Improvement Program project criteria to value inclusion of transit, bicycle, and pedestrian features.
- Planning all future roadway projects to benefit all users, with consideration given to land use, available right-of-way, and cost.
- Evaluating construction costs based upon each type of facility proposed within the right-of-way in order to maximize community benefits.

Network Gap Analysis

Balancing the needs of all users across an integrated multimodal transportation network is essential to enabling safe travel. Rather than trying to make each street perfect for every traveler, communities should

aim to develop a holistic street network that emphasizes critical connections and the nexus of modes around key destinations.

A critical step in developing a comprehensive network is first evaluating existing accommodations by mode and then overlaying an understanding of land use, demographics, safety, and usage statistics. This process will help to identify gaps in each of the modal networks in a community. By overlaying the networks (pedestrian, bicycle, transit, etc.), a municipality can identify missing or inadequate connections between modes. The results of this network gap analysis could be used to inform and prioritize Complete Streets improvements.

Network gap analysis is a snapshot of the current system and outlines where gaps in the system are currently located. Municipalities should recognize that it will become outdated as the transportation network changes and Complete Streets projects are installed and should plan to continually update their network gap analysis.

Municipalities could complete a network gap analysis in a variety of ways and should tailor their approach to local needs and priorities. It is anticipated that the network gap analysis could be completed by one or more of these methods:

- Utilizing a multimodal travel demand model to assess desire lines based on land use
- Developing a geodatabase using GIS analysis tools
- Conducting a site walk of critical connections with one or more advocacy groups (WalkBoston, MassBike, etc.), district/chamber of commerce, neighborhood associations, or other local groups
- Interviewing key stakeholders

Specific elements evaluated during the network gap analysis could include:

- Sidewalks and Paths
- Bike Facilities
- Marked Crosswalks
- Transit Routes/Frequency
- Roadway centerline, number of lanes, curbline, right-of-way
- Average Annual Daily Traffic (AADT)
- Posted Speed Limit
- Signalized Intersections
- Jurisdiction Boundaries
- Land Use (Zoning Classifications)
- Community/Senior Centers
- Parks
- Population
- Employment Centers/Employees
- Demographics (Census Data)
- Elementary, Middle, and High Schools (Public and Private)
- Universities and Community Colleges
- Crash Data
- Topography

Municipalities should utilize existing documents, such as pedestrian and bicycle studies or community master plans, as a resource and to help guide network-related decisions.

It may be beneficial to collaborate with other levels of government, adjacent municipalities (provided they are also Complete Streets communities), and/or departments within the community to complete a network gap analysis and foster partnerships for future project prioritization and implementation.

Private Development Review

Creating networks of Complete Streets requires coordination among both public and private entities. Private developers are often responsible for building roads in new developments or altering the right-of-way – both having a major impact on road networks.

It is key for private developers to follow a community's Complete Streets vision. To ensure a shared vision, municipalities should include language regarding the review of private development projects and how they will incorporate Complete Streets. Communities may choose to include changes to zoning or subdivision codes or to right-of-way standards in their Complete Streets policy or implementation plan to ensure newly built or redesigned streets are aligned with the approved Complete Streets policy. To encourage a dense, well-connected network of streets, municipalities may choose to specify preferred and maximum block lengths based on land use.

Recurring Roadway Rehabilitation

A comprehensive Complete Streets strategy strives to consider all transportation improvements as opportunities to create safer, more accessible streets for all users. This includes the integration of Complete Streets elements not only into new construction and reconstruction projects, but also into rehabilitation, repair, major maintenance, and operations work so that even small projects can be an opportunity to make meaningful improvements.

Maintenance projects typically involve the repair and preservation of the roadway pavement structure, and upgrading pavement markings and signage to meet safety requirements. Opportunities to implement Complete Streets elements within these types of projects include:

- Restriping to reduce lane widths or reallocate space to provide a full bike lane
- Striping shoulders
- Striping wider outside lanes
- Providing shared lane markings
- Road diets by restriping or reassigning lanes
- Widening or paving a shoulder to provide striped bike lane, wider outside lane, or paved shoulder
- Upgrading or installing curb ramps to achieve ADA compliance

Operation projects such as intersection improvements, traffic signal installation/upgrades, pavement restriping, and roadway widening also offer opportunities to include Complete Streets elements:

- Restriping or widening shoulders through intersections for bike lanes
- Installing sidewalks
- Providing crosswalks
- Providing pedestrian refuges or islands
- Upgrading or installing curb ramps to achieve ADA compliance
- Installing pedestrian signal heads and countdown equipment
- Retiming signals to allow for pedestrian phases and/or improve pedestrian operations
- Incorporating accessible pedestrian crossing signals

- Incorporating other Complete Streets amenities or technologies

Routine maintenance activities such as mowing, sweeping, spot repair, temporary detours, etc. may not be appropriate to incorporate Complete Streets elements. While MassDOT Complete Streets construction funding could be available for the measures identified above, funding shall not be awarded for roadway resurfacings costs.

ADA Transition Plan/Assessment

As a requirement of the 1990 ADA legislation, each municipality was expected to establish and implement an ADA Transition Plan within the public right-of-way. This plan was meant to ensure that citizens of all abilities were able to gain access to and navigate public roadways and within public buildings. For transportation infrastructure, this is managed federally through the ADA Accessibility Guidelines (ADAAG) and at the state level through 521 CMR (note that it is expected that the Public Rights-of-Way Accessibility Guidelines (PROWAG) will supersede ADAAG in the near future and the most recent approved guidance should be followed). While both state and federal guidelines are still emerging, a review of accessible features within a municipality (and their compliance with current guidelines), particularly along roadways that connect activity centers or are identified as network gaps is essential in the design of Complete Streets.

Policies should recognize the need to provide access for all ages and abilities and prioritization should consider a full range of improvement options. Incremental improvements such as fully compliant wheel chair ramps, traffic signal equipment, and transit stations can greatly enhance the user experience. Longer term solutions such as relocating utility poles and ensuring adequate clearance around obstructions are also encouraged. An assessment of ADA compliance within a municipality is a low cost action that can lead to meaningful improvements for underserved populations.

Safety Audits

Since potential criteria for prioritizing Complete Streets projects may include safety benefits, it seems reasonable to anticipate that municipalities need to identify safety issues on their existing network or on proposed projects. FHWA has developed several tools to assist in the identifying safety issues and proposed counter measures. Road Safety Audits (RSAs) bring an improved understanding of crash cause and countermeasures to bear in a proactive manner. Well-documented experience shows that RSAs are both effective and cost beneficial as a proactive safety improvement tool. The *FHWA Road Safety Audit Guidelines* provide a foundation for public agencies to draw upon when developing their own RSA policies and procedures and when conducting RSAs within their jurisdiction.

An RSA is a formal safety performance examination of an existing or future road or intersection by an independent audit team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. The RSA team considers the safety of all road users, qualitatively estimates and reports on road safety issues and opportunities for improvement.

An RSA is not a means to check compliance with design standards nor a crash investigation. Rather, an RSA is proactive review focused on road safety for all users conducted by a multidisciplinary team independent of the design team.

The aim of an RSA is to answer the following questions:

- What elements of the road may present a safety concern: to what extent, to which road users, and under what circumstances?
- What opportunities exist to eliminate or mitigate identified safety concerns?

Bike/Ped Audits

Similar to an RSA, pedestrian and bicycle RSAs are formal safety examinations of a future transportation plan or project or an existing facility focused on pedestrian and bicycle issues, and is conducted by an independent, multidisciplinary team but geared more to the issues associated with non-motorized travel.

FHWA has produced guides to assist municipalities in the conduct of a bicycle and/or a pedestrian road safety audit. The *Pedestrian Road Safety Audit Guidelines and Prompt Lists* and the *Bicycle Road Safety Audit Guidelines and Prompt Lists* provide residents, local officials, transportation agencies and road safety audit teams with a better understanding of the needs of pedestrians and bicyclists in the transportation system. The first section in each Guide discusses basic concepts of an RSA such as understanding the characteristics of all pedestrians and cyclists, analyzing pedestrian/bicycle crash data, and use of the Guide. The second section of the guides includes guidelines and prompt lists that will help familiarize the RSA teams with potential pedestrian and bicyclist issues and help the team identify specific safety concerns and appropriate countermeasures during a field review of existing facilities or during a plan review for proposed projects.

RSAs are a cost effective method to proactively identify safety issues and make suggestions on measures and facilities to improve pedestrian and bicycle safety that may be included in a community's Complete Streets Prioritization Plan

Chapter 6: MassDOT Process

MassDOT has developed an online Portal and contractual process for municipalities seeking funding in Tier 2 and Tier 3. The process is familiar to many municipal officials and is comprised of training offered by MassDOT, use of the online Portal, and project implementation.

Training

To increase understanding and adoption of a Complete Streets design approach, MassDOT has sponsored a series of workshops on the topic of Complete Streets. Training attendees could include municipal public works and planning staff, local elected leaders, professional designers, and MassDOT employees throughout the Commonwealth.

Training on Complete Streets has been developed into two sessions: Complete Streets Training & The Complete Streets Funding Programs (referred to as the "101"); and an advanced training on Complete Streets (referred to as the "201"). Both sessions are offered through Baystate Roads, the Massachusetts Local Technical Assistance Program (LTAP) designed to improve access to highway, road, and street technology for local agencies.

Attendance by a municipal employee at either a Complete Streets 101 or 201 training session is a prerequisite for receipt of funding through the Complete Streets Funding Program. The training attendees will be required to submit their attendance records as part of the Program application process.

- **Complete Streets 101 Introductory Training** – This session covers the basic concepts of Complete Streets, emphasizes MassDOT's Project Development & Design Guide, shows some innovative approaches towards Complete Streets, discusses health and economic benefits, and gives and overview of the elements of a Complete Streets Policy and the Complete Streets Funding Program requirements. (3 hours)
- **Complete Streets 201 Advanced Training** – This advanced training focuses more on the engineering behind Complete Streets by following in greater detail The Project Development & Design Guide as well as the latest Policy and Engineering Directives. Case studies will be evaluated to discuss options towards implementation of Complete Streets as well as a field visit to discuss Complete Streets options. (6 hours)

Individuals may view schedules and register for training sessions on Baystate Roads' website: http://baystateroads.eot.state.ma.us/

As part of the training program, several resources for planning and designing Complete Streets will be referenced. A list of these suggested resources is provided in Appendix E.

Online Portal and Process

The MassDOT Complete Streets Portal is an online web application designed to facilitate applying, and ultimately being approved for, Complete Streets project funding. To meet the requirements for Complete Streets funding a municipality must qualify in three different Tiers by providing required documentation and having that documentation approved. The Complete Streets Portal facilitates this qualification process by providing access to relevant templates, a means to upload the documentation, and an iterative solution for document approval by MassDOT Complete Streets administrators. As such the Portal provides the central location for municipalities to engage in this qualification process, monitor progress, and respond to feedback.

Online Portal Actions

1. **Visit https://www.masscompletestreets.com/ to register**
2. **Fill out Municipality Profile information**
3. **Provide Representative Information (person who attended CS Training & Program Contact Person)**
4. **Under Tier 1 Tab – upload Complete Streets Policy or Letter of Intent to Become a Complete Streets Municipality**
5. **Under Tier 2 Tab – Download Prioritization Plan Template then upload once completed**
6. **Under Tier 3 Tab – Identify projects you would like funded (up to 5 and no more than $400k)**
7. **Monitor email submitted under municipality profile as most actions will result in email notifications**

A municipality first engages with the Portal by becoming authorized to participate in the program via a curated registration process. Once officially registered the municipality is at Tier 1 status. At Tier 1 a municipality can submit a Complete Streets Policy document and/or an Intent to Fulfill Tier 1 requirements letter. Once submitted the Complete Streets Policy is reviewed and scored by the Completes Streets review committee. If the policy scores high enough (80 points or higher) the municipality has achieved Tier 2 status. In addition, the municipality can achieve Tier 2 status if the Intent to Fulfill Tier 1 requirements letter is approved.

At Tier 2 the municipality can download a Tier 2 funding agreement (only required if the municipality is seeking technical assistance for Tier 2) and a Prioritization Plan template. Having completed the template locally the municipality can upload the Prioritization Plan for review and approval. While the contract forms are available for download from the Portal, they are submitted as signed hard copies and sent directly to MassDOT[5]. Approval of the Prioritization Plan will result in the municipality being considered at Tier 3 status.

At Tier 3 the municipality can download a Project Application Form and a Contract Form to apply for Complete Streets project funding. Similar to the Tier 2 contracting process, completed Contract forms are submitted as hard copies directly to MassDOT. Complete Streets project funding applications are submitted through the Portal and the application status will be updated on the Portal accordingly. The municipal contact will be notified directly when project funding decisions are made.

[5] Submission instructions are provided on the contract forms.

Complete Streets Program material can be found at:
http://www.mass.gov/massdot/completestreets

The Complete Streets Funding Program Portal can be found at:
https://www.masscompletestreets.com/

Instructions for the Portal can be found in Appendix F.

Project Implementation

Once a municipality receives project approval from MassDOT, project implementation can proceed. Complete Streets grants awarded will be reimbursed through State Aid, similar to the Chapter 90 program. Information on the Chapter 90 program can be found online:

http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/LocalAidPrograms/Chapter90Program.aspx

Funding coordination and communication for Complete Streets will be through each Districts' State Aid Office, a list of which is provided in Appendix G. The most recent contact information for each district can be found on the MassDOT website:

www.massdot.state.ma.us/highway/DoingBusinessWithUs/LocalAidPrograms/Chapter90Program/ContactInformation.aspx

Local Aid Program

Communities need to provide adequate documentation to the State Aid Engineer to demonstrate compliance with MassDOT's policies and requirements for procuring design and construction bids for approved projects, as outlined below. All forms listed below must be submitted to the District State Aid Engineer and can be found in Appendix H or online:
(https://www.massdot.state.ma.us/highway/DoingBusinessWithUs/LocalAidPrograms/Chapter90Program/ContactInformation.aspx)

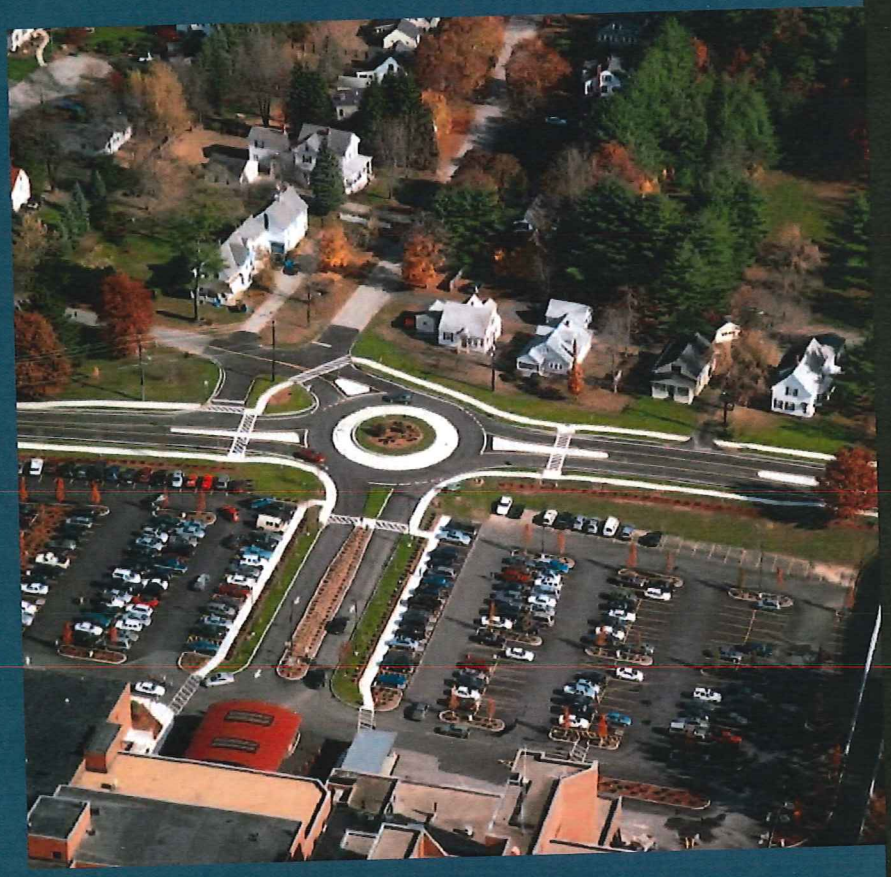
- **Designer Prequalification** – Designers selected by communities for the design development for projects must be prequalified for the approved project type. For more information on designer prequalifications, visit:
  http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/DesignEngineering/PrequalificationofArchitecturalEngineering.aspx
- **Contractor Requirements** – Contractors selected by communities must be prequalified for the approved project type with a value of $50,000 and greater. For more information on contractor requirements visit:
  http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction.aspx
- **Summary of Bid Forms** – Communities need to submit the construction bid results for approved projects.
- **Environmental Punch Lists** – All environmental permits and permissions must be obtained prior to the start of construction.
- **Final Report** – Upon completion of construction, this form is to be completed by the municipalities.

Contracting with MassDOT

Upon project approval by MassDOT, the municipality will receive a MassDOT Standard Contract Form for the approved project costs. The contract will need to be signed by authorized personnel for the municipality and sent back to MassDOT for processing. Costs for Complete Streets improvements will not be reimbursed prior to the municipality's receipt of a signed Contract Form and/or written Notice to Proceed issued by MassDOT.

Chapter 16

Traffic Calming & Traffic Management



Traffic Calming and Traffic Management

16.1 Introduction

This chapter describes a variety of measures that can be used to lower vehicle speeds, and redirect traffic flows. ***Traffic calming*** measures are physical road design elements intended to reduce vehicle speeds and improve driver attentiveness. ***Traffic management*** measures are the application of turn restrictions and other measures to redirect or restrict traffic flows. This chapter places a greater emphasis on traffic calming measures; however, traffic management strategies are also discussed.

Traffic calming incorporates three major categories of design measures:

- Narrowing the real or apparent width of the street.
- Deflecting (introducing curvature to) the vehicle path.
- Altering the vertical profile of the vehicle path.

These measures are used to reduce operating speeds on a roadway and to increase driver attentiveness. A major objective of traffic calming is to reinforce the desired operating speed through design of the facility, thereby self-enforcing the desired speed. The goal is to:

- Reduce the number of motorists exceeding the posted speed limit;
- Reduce the speed of all motorists to the desired operating speed; and
- In some cases, to support the reduction of posted speed limits.

Desirable operating speeds, regularly requested by those affected by traffic calming measures (typically residents, business owners/operators, employees, and business patrons), range from 15 to 30 miles per hour in residential settings and 20 to 35 miles per hour in commercial or institutional settings. The selection of appropriate design speeds is discussed further in Chapter 3 and needs to be informed by existing operating speeds and applicable speed limits.

Traffic calming should reduce the operating speed of the street (i.e. the speed which most motorists intuitively choose) to the target speed. In many cases, traffic calming is also used to increase the attentiveness of drivers by signaling a change from the prevailing roadway conditions. Additional attentiveness is achieved through:

- Reduction of operating speeds;
- Increase in noticing other important users of the street, specifically, pedestrians, bicyclists and motorists using on-street parking;
- Heightened awareness of a need for safe driving behavior; and
- Elimination of inducements to aggressive and dangerous behavior (for example, reducing pavement width to stop vehicle overtaking).

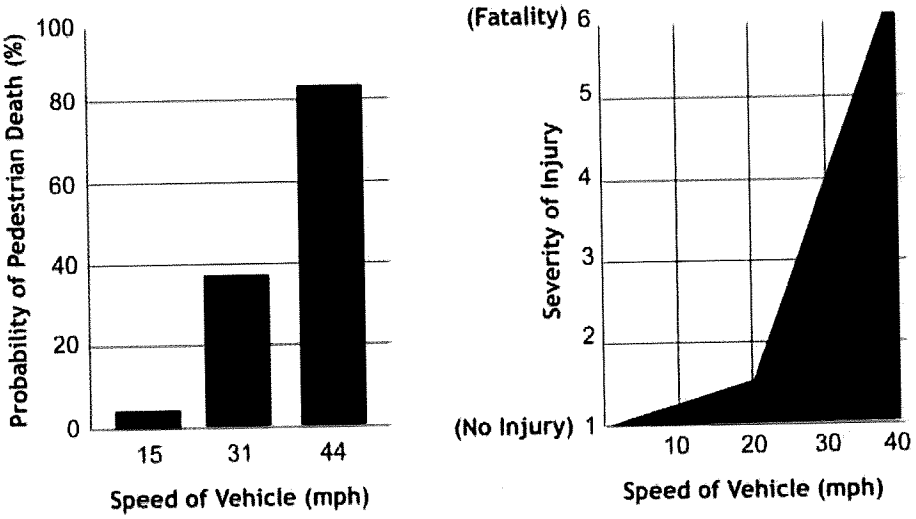
16.2 Potential Benefits and Impacts

When used in appropriate settings, the reduction in vehicle speeds obtained through traffic calming measures reduces both the frequency and severity of collisions. Further, traffic calming measures are also intended to increase driver attentiveness so that vehicles are less likely to collide. A number of studies support the correlation between reduced motor vehicle speed and reduced severity of collisions. For vehicle/pedestrian collisions, the severity of injuries increases sharply as vehicle speed increases, as illustrated in Exhibit 16-1. Traffic calming measures can improve pedestrian accommodation by:

- Reducing crosswalk distances, and the extent of pedestrian/motor vehicle conflict;
- Reducing motor vehicle speeds, their stopping distances, and the severity of pedestrian/motor vehicle conflicts;
- Increasing the attentiveness of motor vehicle drivers to the presence of pedestrians;
- Reducing the number of lanes of vehicular traffic, at least for short segments of streets;
- Increasing sidewalk space;
- Shielding sidewalks from moving motor vehicles with parked vehicles, trees, curbs, bicycle lanes and added sidewalk width; and

- Improving yielding to pedestrians due to the reduced sense of "lost" time for slowing and resuming speed when compared with higher speed environments.

Exhibit 16-1
Vehicle Speed and Pedestrian Fatality Rate



Source: Adapted from the Guide for the Planning Design and Operation of Pedestrian Facilities, AASHTO, 2004

The impact on safety for pedestrians is compounded since there are more suitable gaps for pedestrian crossings, complemented by improved yielding by drivers. The result is an increase in the ability for pedestrians to cross a traffic steam of any vehicular volume. The safety improvement is further compounded by the reduced probability and severity of injuries resulting from those collisions that do occur.

Traffic calming measures can improve bicycle accommodation by:

- Reducing motor vehicle speeds, reducing motor vehicle stopping distance, and the probability of bicycle/motor vehicle conflicts;
- Providing an opportunity to consider installation of bicycle lanes;
- Increasing the awareness of bicyclists;
- Reducing the severity of motor vehicle/bicycle collisions; and
- Reducing intersection size and the probability of motor vehicle/bicycle conflicts.

Traffic calming measures can improve motor vehicle accommodation by:

- Reducing motor vehicle speed, thus reducing the probability and severity of crashes;
- Reducing the frequency of vehicle overtaking on urban and neighborhood streets;
- Providing design features (for example, roundabouts) that self-enforce lower vehicular speeds; and
- Providing motor vehicle drivers with multiple reminders of safe and appropriate operating speed.

Although there are numerous possible benefits of traffic calming, there are several potential disadvantages that must be considered when developing a traffic calming design. Many of these potential disadvantages can be mitigated as described below.

- Traffic calming measures do not improve safety for motorists who fail to heed the indications of reduced design speed and operate a vehicle at speeds in excess of a road's design speed. Advance signage can help to inform drivers of changes in proper operating speed when approaching traffic calming areas.
- Traffic calming and traffic management measures can slow emergency response since they often require slower operating speeds or diversions. It is important to coordinate traffic calming plans with local emergency response departments so that these impacts are minimized.
- Inappropriately designed or placed traffic calming and traffic management measures can impede transit vehicles. It is important to coordinate traffic calming plans with local transit agencies to avoid these impacts.
- Inappropriately designed or placed traffic calming and traffic management measures can impede large truck traffic. It is important to understand regional and local truck routes when developing traffic calming programs to avoid these impacts.
- Some traffic calming measures (particularly those involving horizontal and vertical deflection) can result in increased noise and headlight impacts to adjacent properties. Traffic calming design needs to be sensitive to these potential impacts.

16.3 Applicability to Settings and Roadways

Traffic calming measures are usually deployed in response to community concerns about high motor vehicle operating speeds and volumes. As a result, traffic calming measures are more often applied in developed settings such as urban areas, suburban town centers and villages, suburban high density areas, and rural villages. Typical characteristics of settings associated with traffic calming are:

- Concentrated generators of pedestrian activity; for example, school campuses, elderly housing, downtown retail districts, "Main Street" shopping areas, public assembly venues (stadiums, auditoriums), recreation destinations (parks, playgrounds), health care complexes, and large employers;
- Pedestrian activity, either constant or in surges, along and across the street;
- Neighborhood streets where the street serves both as a transportation facility and a community space;
- Sensitive land uses (historical, tourist, retail, civic, institutional) abutting the street; and
- Transition zones, from higher to lower speed, e.g., when approaching a rural village.

Traffic calming is most often applied to existing streets where vehicle operating speeds are in conflict with pedestrian activity and other aspects of the setting as described above. Some traffic calming measures (such as crossing islands and curb extensions) used as retrofit measures on existing streets can also be used as regular design elements on new or rebuilt streets.

Traffic calming must strike a balance between local needs and local mobility.

The needs of the setting must be balanced with the regional mobility function of the roadway when considering traffic calming measures, similar to many other aspects of roadway design. Traffic calming measures discussed in this chapter are most appropriate for local roads and minor collectors. Additional measures suitable for local streets (but too restrictive for other types of streets) are not discussed in this chapter, but may be found in the references listed at the end of the chapter.

In some circumstances, such as in a town center environment, where both high vehicular and high pedestrian volumes are present, traffic calming measures can be suitable for use on arterials. In some cases, these elements, such as crossing islands and curb extensions, can be

incorporated directly as elements of good design for new roadways. However, intensive traffic calming programs are usually not applied to suburban and rural arterials since they primarily provide for regional travel and the settings for which traffic calming is desired are not usually found along arterials.

Traffic calming measures are not appropriate for freeways and expressways. The settings associated with traffic calming are not present along freeways and expressways. Exhibit 16-2 summarizes the applicability of various traffic calming measures to various roadway types under typical conditions. The specific measures are described in more detail in the following sections.

Exhibit 16-2
Traffic Calming and Traffic Management Applicability by Roadway Type

	Arterials	Major Collectors	Minor Collectors	Local Roads
Street Narrowing				
Narrow Lanes		Δ	■	■
Raised Curbs	■	■	■	■
Street Furniture	■	■	■	■
Street Trees	■	■	■	■
Street Lighting	■	■	■	■
Spot Narrowing	Δ	■	■	■
Medians and Crossing Islands	■	■	■	■
Curb Extensions	■	■	■	■
Road Diets	Δ	Δ	■	■
Building Siting	■	■	■	■
Horizontal Deflection				
Chicanes			■	■
Crossing Islands/Short Medians	■	■	■	■
Mid-Block Traffic Circles			Δ	■
Roundabouts	■	■	■	■
Lane Offsets		Δ	Δ	■
Profile Alterations				
Speed Humps		Δ	Δ	■
Raised Crosswalks		Δ	■	■
Raised Intersections		Δ	■	■
Textured Pavement	■	■	■	■
Traffic Management	Δ	Δ	Δ	Δ

■ Often used for new design or retrofit programs in traffic calming settings
Δ May be suitable

16.4 Spacing and Frequency of Measures

Traffic calming measures which alter the cross section of the street (for example, on-street parking for a block or more, continuous planting of street trees) are appropriate for extended lengths. Drivers are more likely to regard such features as an inherent characteristic of the street and not as measures "aimed" at their driving practices.

On the other hand, "spot" traffic calming measures, applicable to only a small segment of street (for example, roadway narrowing or speed humps) should be spaced so that the desired operating speed is maintained along the roadway segment in question. If measures are placed more frequently and require excessive slowing and accelerating or maneuvering, they can become annoying and less effective in controlling speeds. The particular spacing of elements depends greatly upon the context in which they are used. For example, with speed humps, the driver should be cued to their spacing so that a consistent speed is maintained. Often, speed humps should be visible from one to the next along a continuous segment of roadway to encourage a flat speed profile rather than rapid acceleration and deceleration at the speed humps.

In a comprehensive traffic calming plan, continuous street-length measures (on-street parking, tree planting) are used on streets, such as the major spine of the area. On other streets within the district, a spacing of one to two traffic calming measures per block is appropriate.

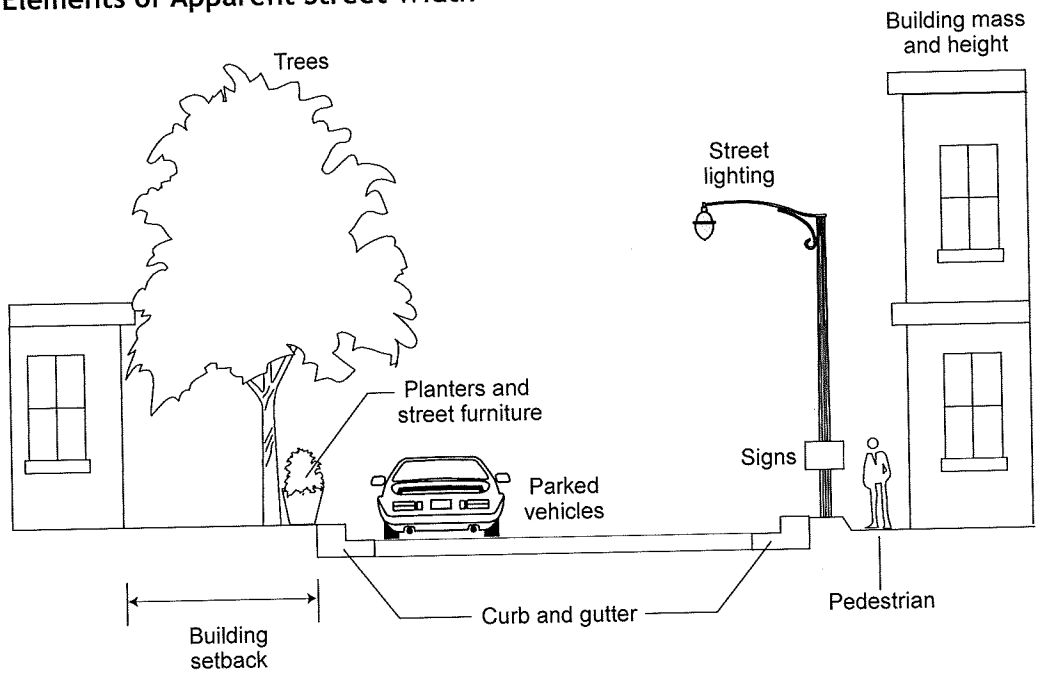
16.5 Measures to Narrow the Apparent Width

Reduction of the apparent street width can be an important traffic calming element. Elements that influence the apparent width of a street are illustrated in Exhibit 16-3, listed below, and discussed in the subsequent sections.

- Building placement along the street;
- The presence or placement of trees along the street;
- Street furniture including lights, benches, and other elements;
- Edge treatment of the pavement; and
- Pavement cross-section including on-street parking, spot narrowing, bike lanes, travel lanes, auxiliary lanes, medians, and islands.

An additional tool for narrowing the apparent width is the use of gateways, which are also described later in this section.

Exhibit 16-3
Elements of Apparent Street Width



Source: MassHighway

16.5.1 Building Placement

In commercial settings, the placement of buildings directly along the street (i.e., with no setbacks from the right-of-way) is a highly effective traffic calming measure. Building sites are, by definition, outside the public right-of-way. Their regulation is usually the prerogative of local government jurisdictions (city or town). Regulatory changes, by local governments, to encourage building placement adjacent to streets, particularly in commercial areas, are effective complements to traffic calming design.

Placing buildings directly on the street involves no loss in vehicular service. The quantity, but not the placement, of off-street parking can remain the same for development, although in practice the improved walking atmosphere and the availability of on-street spaces reduces the demand for off-street parking. Drive-through windows can be placed to the rear of buildings, with no loss in vehicle access. In many instances, drive-through operations function better when serviced by

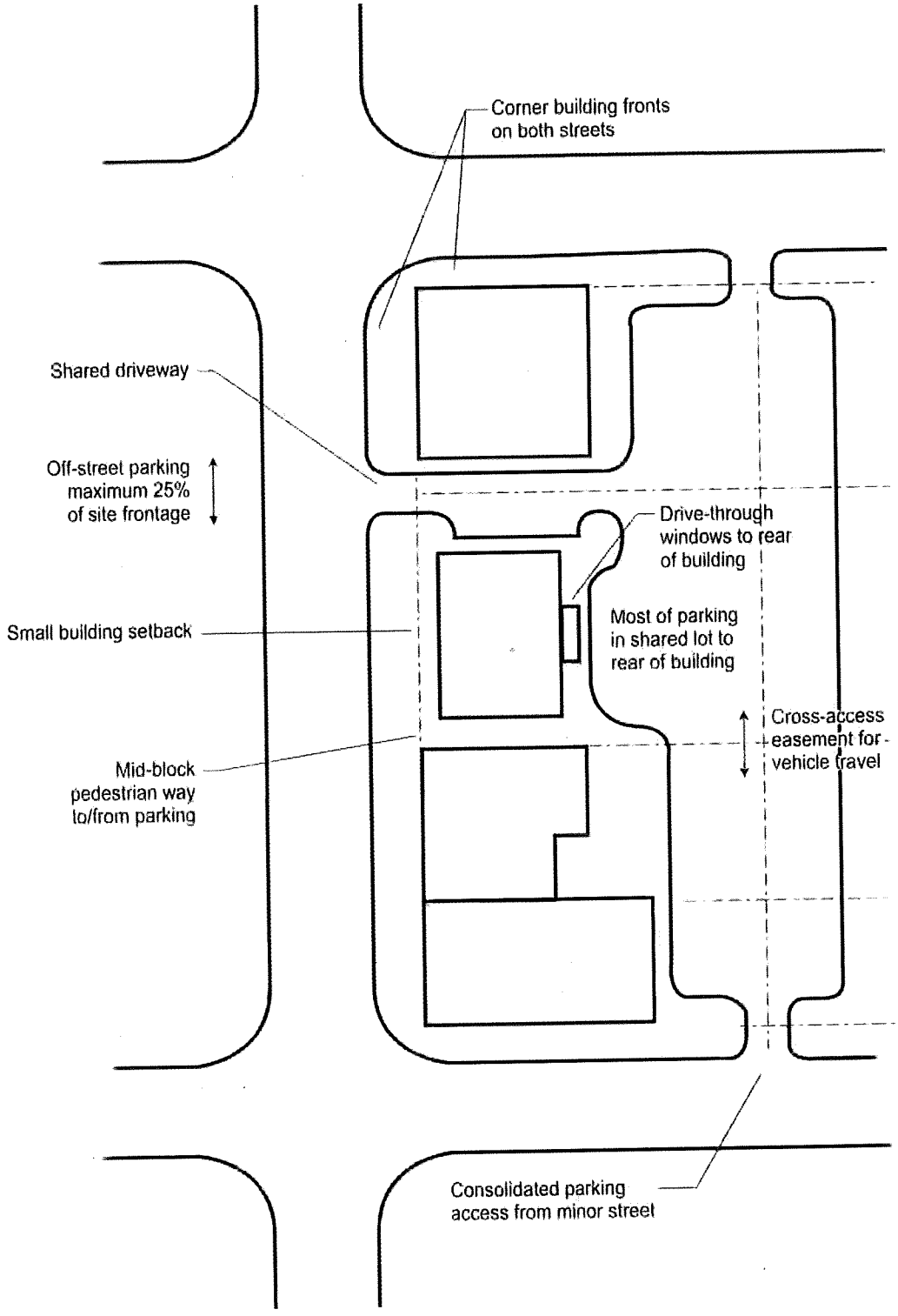
the long drive aisles of joint parking areas located behind the building, rather than in small parking areas on individual parcels.

To properly support traffic calming in commercial settings, commercial buildings should be sited along the street as shown in Exhibit 16-4. Parking lots in front of buildings (i.e., along the street frontage) should be prohibited. On corner parcels, the building should occupy the corner itself, with visible off-street parking (if any) at parcel boundaries, as far from the corner as possible.

Features of building placement that contribute to traffic calming include:

- **Sense of enclosure** – With buildings fronting the street, typical street-side building mass (two story building or equivalent) encloses the street, from the driver's eye point, to a height of about 30 degrees from horizontal. This visual enclosure is always greater than that produced by buildings of the same height, but set back from the street.
- **Urban Characteristics** – Buildings sited along the street convey a broad set of signals signifying that the area is a setting requiring lower vehicle operating speeds. Some elements associated with a town or village center environment are the detailing of the building faces, signs and symbols on the buildings, merchandise visible in the building or displayed on the sidewalk, and on-street parking.
- **Pedestrians or expectation of pedestrians** – Building placement directly along the street puts multiple possible origins and destinations along the street edge. Front doors along a street, served by on-street parking, assure some level of pedestrian travel on the sidewalk. The presence of pedestrians, or the expectation that pedestrians might be present, is an important factor in reducing vehicle speeds and heightening attentiveness of drivers.

Exhibit 16-4
Building Siting Guidelines

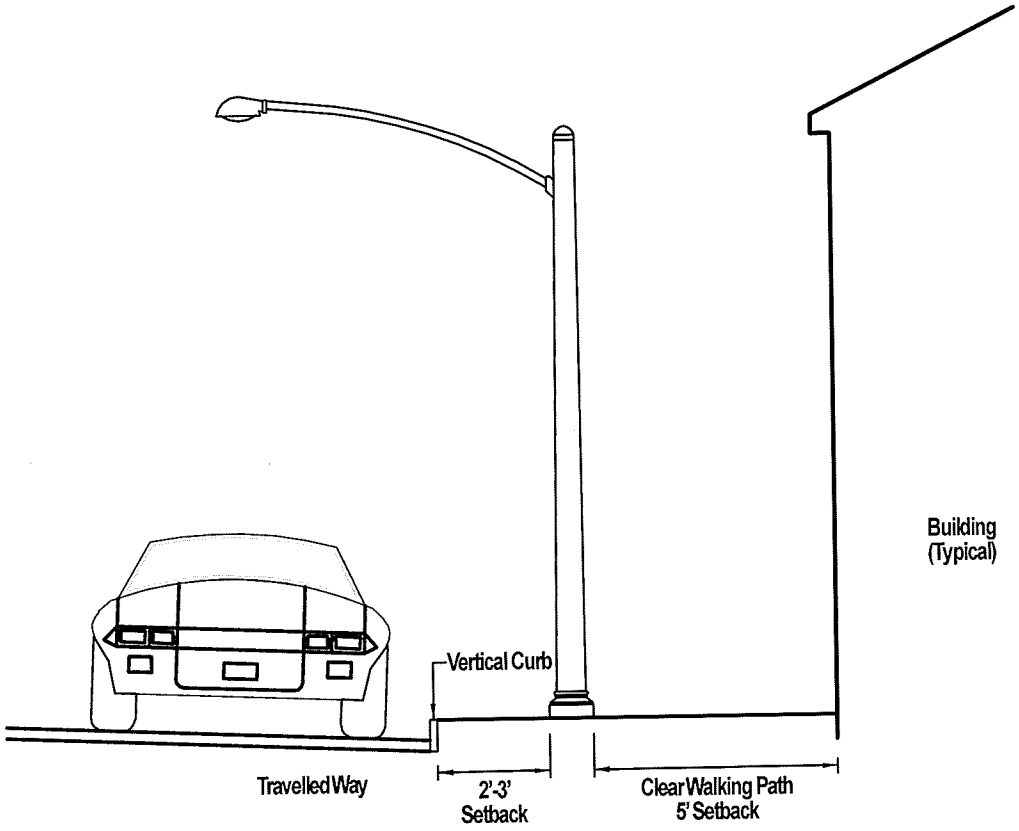


Source: Adapted from Congress for New Urbanism

16.5.2 Street Furniture

Street furniture elements include signs, signals, street lights, walls, fencing, and pedestrian furnishings such as benches, shelters and trash receptacles. In traffic calmed settings, it is desirable for street furniture to border the street and provide a separation between the pedestrian pathway and traffic. Poles and planters are normally located 2-3 feet from the back of curb, leaving room for the opening of car doors or for movement of pedestrians to/from parked automobiles, as shown in Exhibit 16-5. Benches, kiosks and shelters should allow sufficient space (6-8 feet from curb) for the comfort of their users.

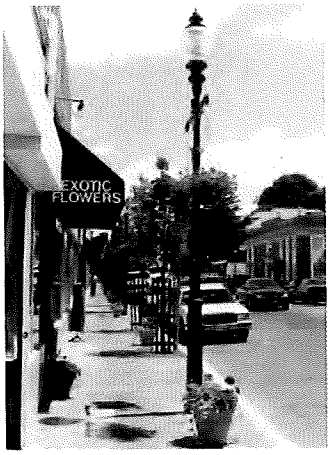
Exhibit 16-5
Desirable Street Furniture Setbacks



Source: MassHighway

16.5.3 Street Lighting

Common street furniture elements are street lights, which affect the apparent width of the roadway in several ways:



Street lights in a town center setting

- By the size and placement of the street lights,
- By the height and pattern of light when illuminated, and
- Through the sense of enclosure created by overhead street lights.

A street lamp height of 12-15 feet supports a traffic calmed environment by signaling an area of special concern where pedestrians are present. Where street trees are present, the lamp height should be beneath the tree canopy, or between trees.

For the street lamp heights suggested above and desirable illumination levels, a longitudinal spacing of 50-75 feet is appropriate. Lighting fixtures should be appropriately shielded to minimize undesirable light pollution and the color emitted (white light is often preferred in developed areas) should be consistent with the setting.

In addition to possible traffic calming influences, street lights are an important feature of the urban design for a district. In many cases, municipal or district standards apply to the selection and placement of street light fixtures.

16.5.4 Street Trees

Tree trunks lining the roadside create a sense of enclosure and contribute to a reduced apparent width. The overhead tree canopy further adds to the perception of a narrowed road since the light/shade patterns on the pavement created by the trees contribute to a sense of texture on the pavement. Guidance for the planting of street trees is provided in Chapter 13.

16.5.5 Raised Curbs

Curbs are important in traffic calmed settings because they signal a lower design speed to motorists. Curbing is not normally paired with clear zones typical of rural areas and high speed environments. Further, a raised curb permits a placement of roadside objects (trees and street furniture) close enough to the travel lanes to have a pronounced traffic calming effect.

Short segments of streets with no curb within longer segments of curbed streets can also be a traffic calming measure. In such instances, the edge of the traveled way is delineated by pavement markings, change in pavement texture, or paving bands of a contrasting color and texture. The edge of the traveled way can be further delineated by bollards, planters or other street furniture. Curbless sections can also serve as "shared streets" which are designed to be fully part of the public realm and are integrated into the surrounding context. Examples of such shared streets are plazas in a town center, market places with street vending, streets regularly used for festivals, and places (e.g., in front of churches or city halls) of unusual civic interest.

16.5.6 Curbside Parking

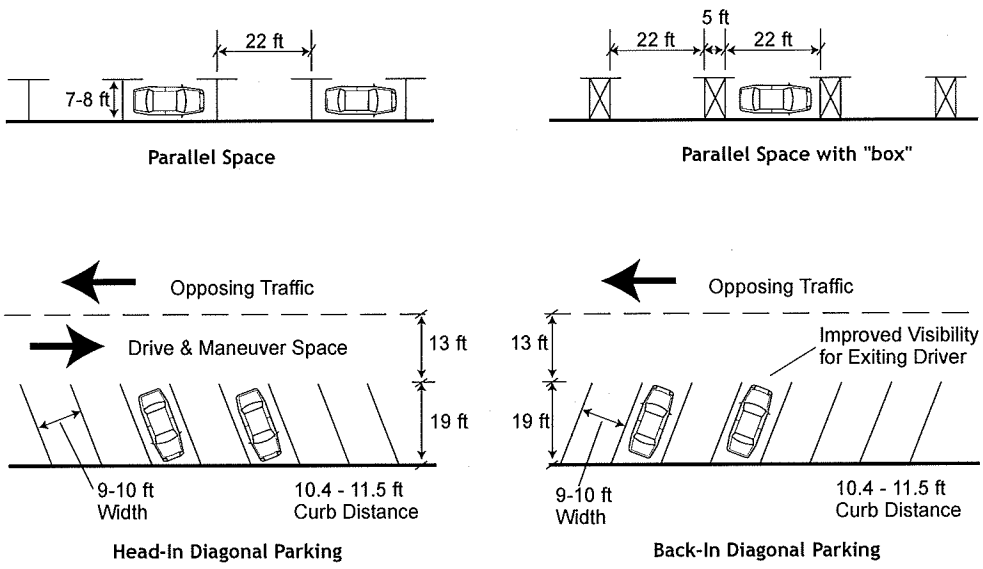
The sense of enclosure resulting from parked cars, the articulated appearance of parked cars, the entry/exit vehicular maneuvers, and the pedestrian traffic generated by occupants of parking/departing vehicles, all contribute to traffic calming on streets with parking. Curbside parking of all types should be considered in the context of bicycle use of the street since parking maneuvers and door openings are obstacles to bicyclists.

The dimensions for on-street parking, in contrast to those for moving vehicles, are not intended to change behavior, but rather are intended to make parking safe and efficient. Although spaces do not need to be striped, the typical dimensions for on-street parallel spaces are a width of 8 feet, and a length of 20-22 feet. In many locations, particularly with short sections of curb face interrupted by driveways or hydrants, the length of parking spaces can be increased without reducing the number of spaces. The selected width should also take into consideration whether bicycle lanes are present and the volume and composition of traffic on the street.

The parallel parking maneuver can be expedited and made more convenient to drivers by marking a "box" at one or both ends of the parking space, as illustrated in Exhibit 16-6. If parking is allowed, this treatment is particularly suited to roadways with higher traffic volumes. The box striping plan can help minimize the delays caused by the parking maneuver. With these boxes in place, the entering or exiting motorist has available the marked dimensions of the space (typically 22 feet, although smaller spaces are possible with this treatment) and also the length of both of the attached boxes (a total of 8-10 feet) to enter and exit the parking space.

Diagonal parking is not commonly used because of limitations in roadway width, but can be an element of traffic calming in areas with a high demand for parking and sufficient pavement width. The allocation of pavement (parking versus travel lanes) and the "friction" of parking maneuvers contribute to traffic calming.

Exhibit 16-6
Curbside Parking



Source: Adapted from Back-In Angle Parking in the Central Business District, John A. Nawn, 2003

"Back-in" diagonal parking, shown in Exhibit 16-6 has recently been suggested as another approach to angle parking. Parking dimensions are the same as head-in diagonal parking. However, the back-in layout permits exiting drivers to have a clear view of on-coming traffic, bicyclists, and pedestrians in the street as they exit the space. Visibility leaving the space is superior to head-in parking, where exiting drivers are likely to have their view of on-coming traffic obscured by the adjacent vehicle. An additional advantage of back-in parking is that the open doors of the parked vehicles block passenger access to the street, and instead channel passengers toward the sidewalk, a safety benefit for all users and particularly for children. Finally, back-in parking places the cargo area (trunk, hatchback, truck bed) for almost all vehicles on the curb, and not in the street adjacent to traffic lanes.

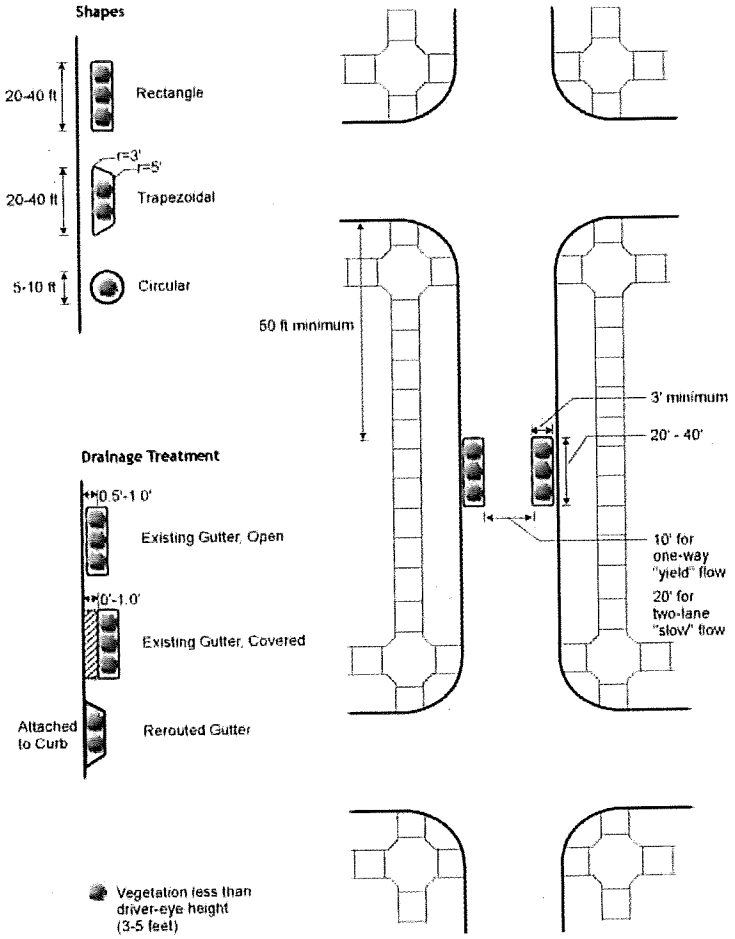
The principal drawbacks of back-in parking, when compared with head-in parking are the need for a motorist to stop in the travel lane before backing

into a space and increased potential for vehicle overhang on sidewalks. The overhang is a significant concern if the sidewalks are narrow. The provision of wheel stops can help address the overhang issues, although the rear-wheel overhang dimension varies widely across the motor vehicle fleet. Wheel stops can also pose a challenge for maintenance operations such as street sweeping and snow plowing.

16.5.7 Spot Narrowing of Pavement

Narrowing a street at mid-block locations, as illustrated in Exhibit 16-7, can capture much of the benefit of a far more extensive narrowing. Narrowing the street at mid-block locations serves to reduce the speed of vehicles not only at the narrowing itself, but also for the adjacent street segments, where motorists decelerate and return to normal running speed.

Exhibit 16-7
Mid-block Street Narrowing



16.5.8 Medians and Crossing Islands

Traversable medians, typically built of textured or contrasting materials such as stamped concrete, bricks, pavers, or cobblestones can be effective traffic calming devices particularly where periodic segments of raised median are included, as shown in Exhibit 16-8. These medians are flush with the travel lanes but are notably different, both in appearance and in feel to the driver. Traversable medians narrow the real and apparent width of the street, and provide deflection at end points, while still permitting unlimited driveway access across them. They can serve as left-turn lanes, and allow for passing of double-parked cars. Further, traversable medians offer opportunities for emergency vehicles to bypass stopped traffic. At intersections, the ends of the traversable medians can extend all the way through the crosswalk, thereby providing some pedestrian refuge.

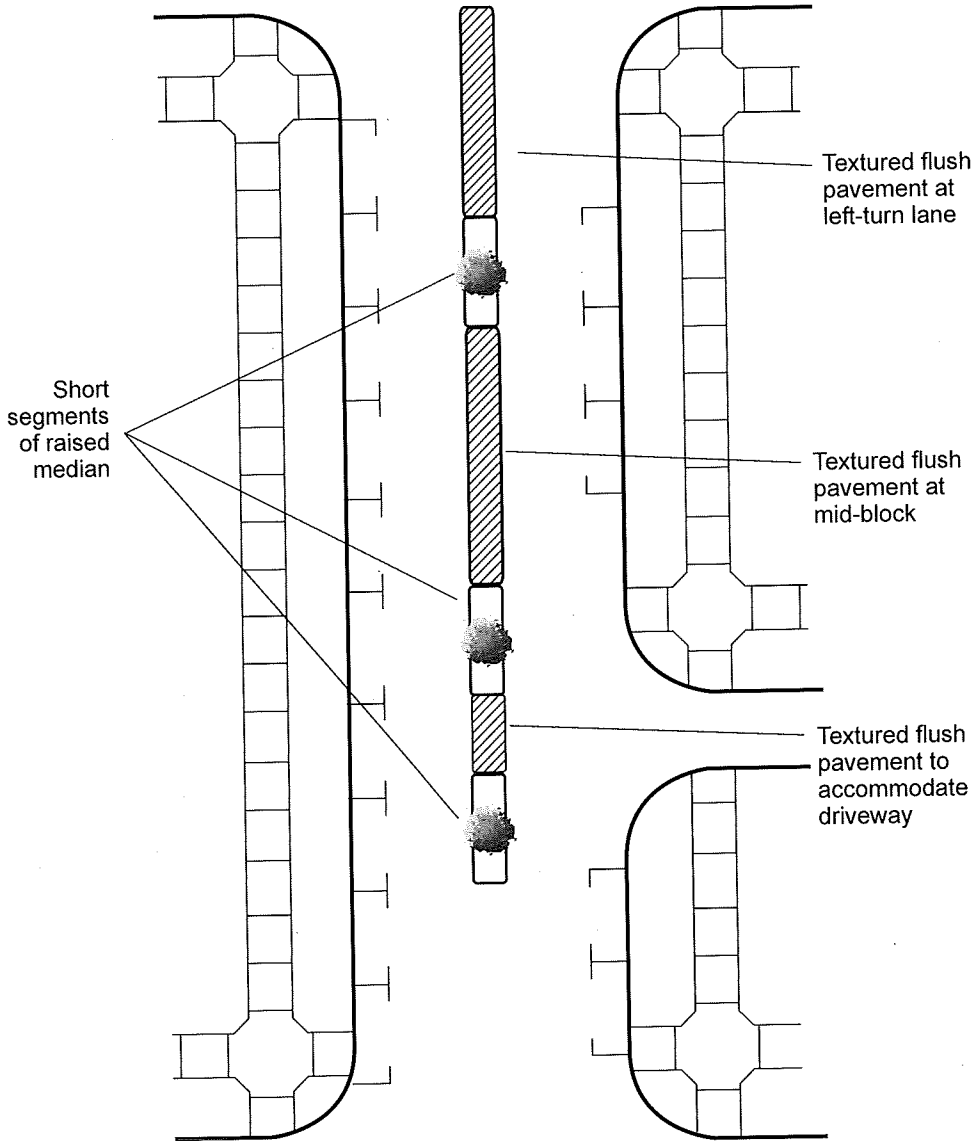
Pedestrian crossing islands are short divisional islands located at crosswalks. Pedestrian crossing islands may be located at intersection or midblock locations. These islands allow pedestrians and bicyclists to cross only one traffic stream at a time and provide some degree of protection from the vehicular traffic while waiting for a gap to finish their crossing.

These islands should include raised curbs with a cut-through at the pavement level for wheelchair users. The cut-through should be graded to drain quickly and should also have special provisions to assist the visually impaired in identifying the refuge island. The pedestrian crossing island should be at least 6 feet wide from the face of the curb to the face of the curb. The island should not be less than 12 feet long or the width of the crosswalk, whichever is greater.

Raised mid-block islands should be short in length, typically less than 70-90 feet. Longer islands are likely to cut off access to too many properties and do not add to the deflection. Ideally, these short segments of median are sited to avoid blocking property access, although confining the occasional driveway to right-in/right-out access may be reasonable. The minimum island size should be 50 square feet. Larger islands can sometimes support plantings if adequate soil volumes and irrigation are provided. See Chapter 3 for additional planting guidance.

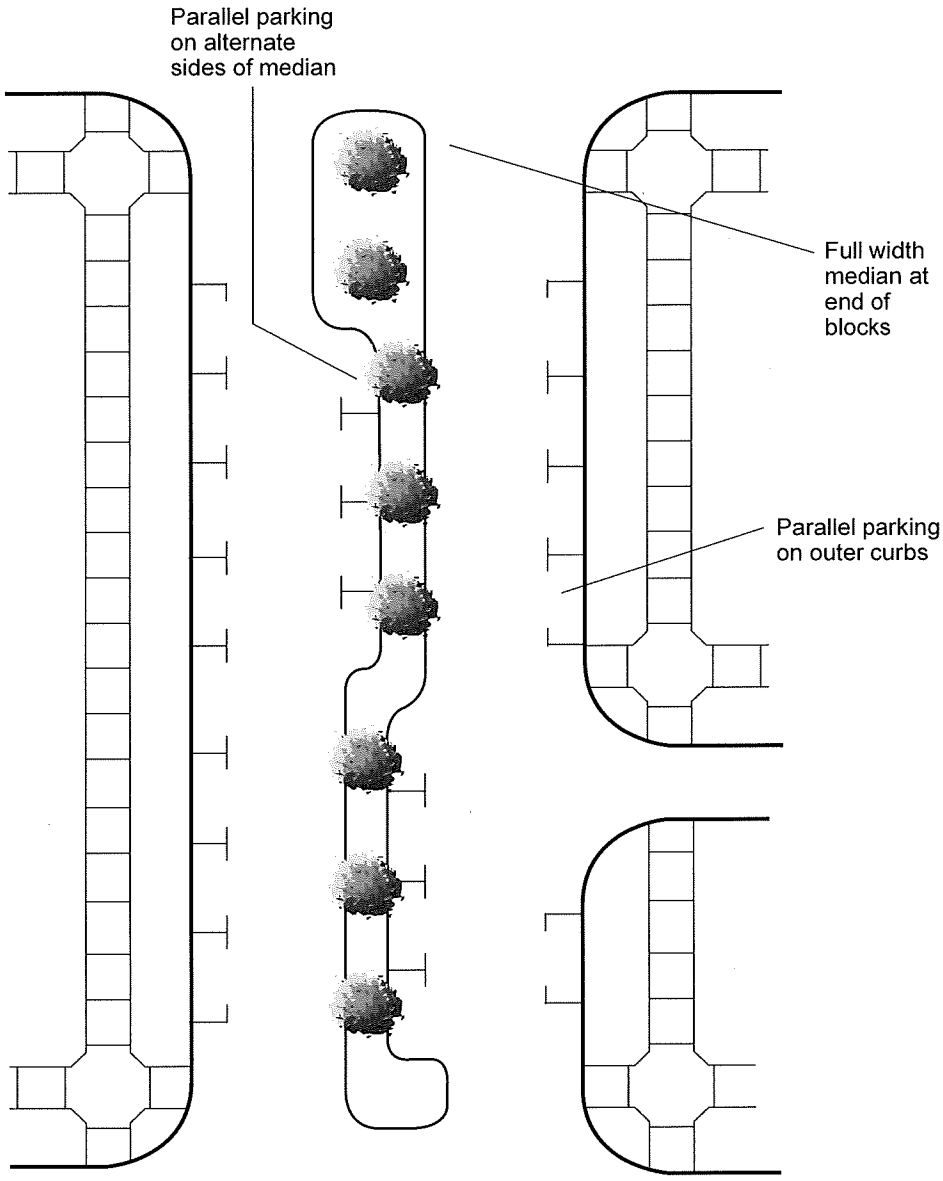
All raised islands should also include an approach nose, offset from the edge of the traffic lane and appropriately treated to provide motorists with sufficient warning of the island's presence. This can be achieved in various ways, such as illumination, reflectorization, marking, signage, and/or by the size of the island.

Exhibit 16-8
Median Islands



On divided streets, parking can be added along the median. Where the total street width permits only one lane of parking along the median, that parking lane can be alternated, as shown in Exhibit 16-9. With this approach a planted median can give the appearance of a double row of trees, although only a single row is present at any point along the street. The designer should refer to Chapter 13 for additional guidance on tree planting in the medians.

Exhibit 16-9
Parking on Median Islands



16.5.9 Allocation of Pavement Width and Road Diets

The pavement width of the street can be allocated in a manner that gives more space to pedestrians, bicycles, and parking, reducing the width of the motor vehicle traveled way. In some instances, the elimination of a travel lane on a four-lane roadway and conversion of another lane to a median with turning pockets can improve conditions for pedestrian and bicycle users without adversely affecting roadway capacity since the left-turns are accommodated within the median. Allocation of pavement width could also provide wider sidewalks if conditions suggest that additional space could better accommodate the existing or anticipated pedestrian activity. These types of measures have recently been referred to as "road diets" when applied to existing streets.

16.5.9.1 Bicycle Lanes

Adding an on-street bicycle lane, as shown in Exhibit 16-10, reduces the pavement width for motor vehicles, while at the same time providing for bicycle travel. The typical dimensions and placement of bicycle lanes are discussed in Chapter 5.

16.5.9.2 Travel Lane Width

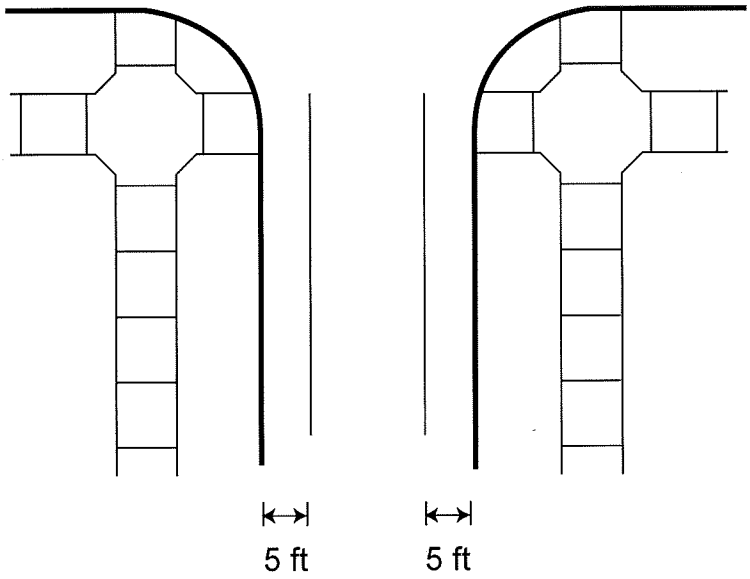
Minimal lane widths can reduce vehicle speeds, reduce pedestrian crosswalk distances, and maximize the space available for bicycle lanes and sidewalks.

Where traffic calming is intended, driving lane widths should be 10 feet, a width widely accepted as appropriate for residential and minor collector streets. A larger lane width (11 feet) is appropriate for outer (curb) lanes on streets where on-street parking is not present and on arterials or other roadways that carry large numbers of trucks and buses.

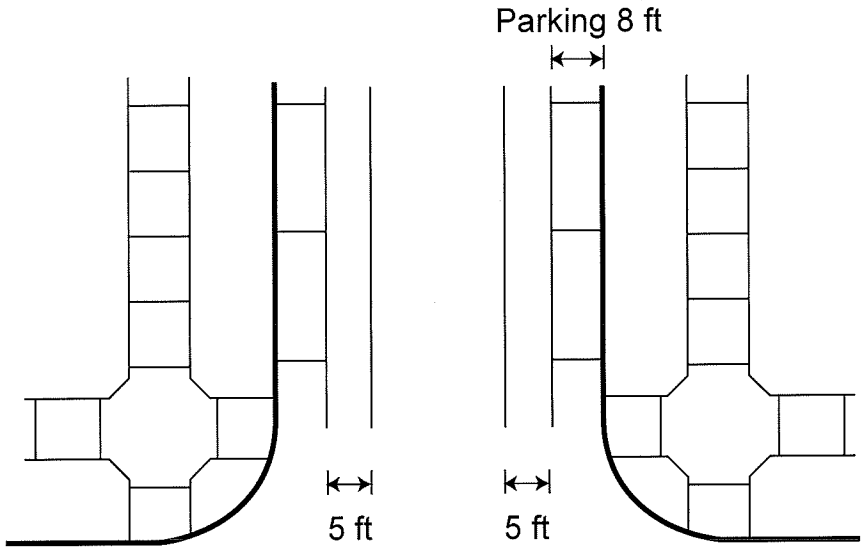
Lane layouts should also take into consideration space for bicycles, as described in Chapter 5. Traffic claming measures that reduce the travel lane width may reduce or eliminate the opportunities for motor vehicles drivers to overtake bicycles sharing the same lane. Where such overtaking is impossible, motor vehicle speed is likely to be determined by bicyclist speed. Thus, the presence of bicyclists becomes a significant element of traffic calming.

Exhibit 16-10
Bicycle Lanes

A. Streets without On-Street Parking



B. Streets with On-Street Parking



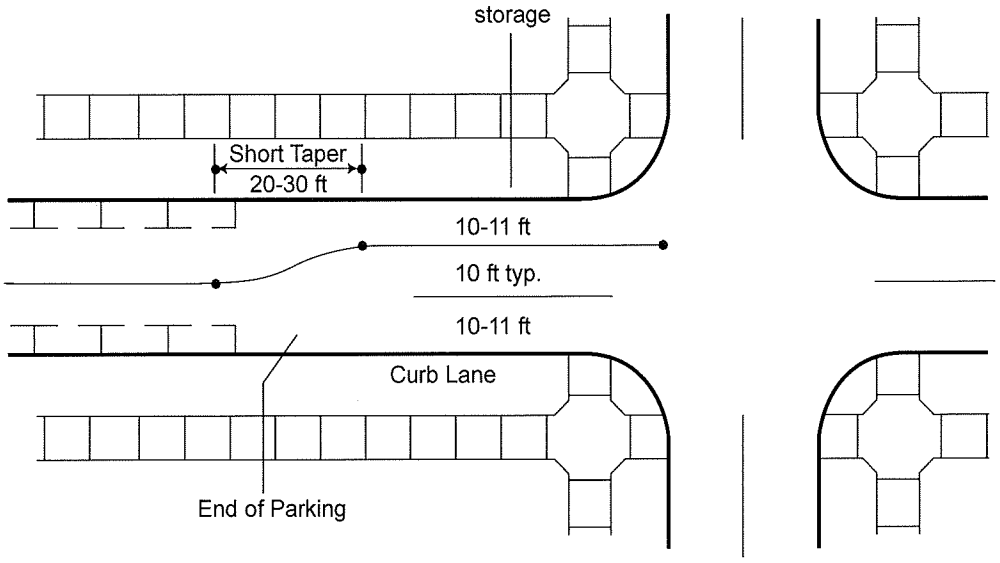
16.5.9.3 Auxiliary Lanes

Auxiliary (left turn and right turn) lanes should be used sparingly with traffic calming. Typically, rear-end collisions between a left-turning and at-speed following vehicle are less frequent and less severe due to the lower speeds of traffic in traffic-calmed settings. Further, the occasional blockage of through traffic by a left-turning vehicle should not be considered a detriment in a traffic calmed setting. Occasional and irregularly timed variations in traffic flow are an intended consequence of traffic calming.

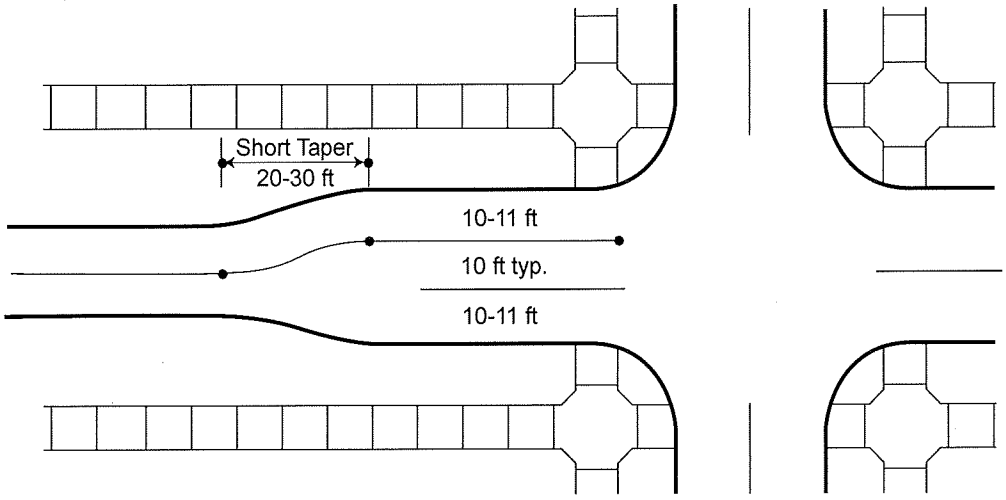
When on-street parking is present, as shown in Exhibit 16-11, left-turn lanes can generally be accommodated (when necessary) within the existing pavement width on the intersection approach leg by removing parking spaces on both sides of the street at the intersection. On streets without parking, the existing pavement width may not be adequate to accommodate a left-turn lane, and the approach may therefore have to be flared to accommodate the left turn lanes. Auxiliary lanes (typically left-turn lanes) should typically be 10 feet wide in traffic calmed areas.

Right-turn lanes are inadvisable in most traffic calmed settings. Their emphasis on vehicular accommodation, the additional crossing distance they create for pedestrians, and the increased possibility of vehicle conflicts with pedestrians are all likely to negate the goals for the traffic calmed street.

Exhibit 16-11
Left-turn Lanes, Traffic Calming Values



A. Within existing pavement width



B. Pavement width flared to accommodate left-turn lane

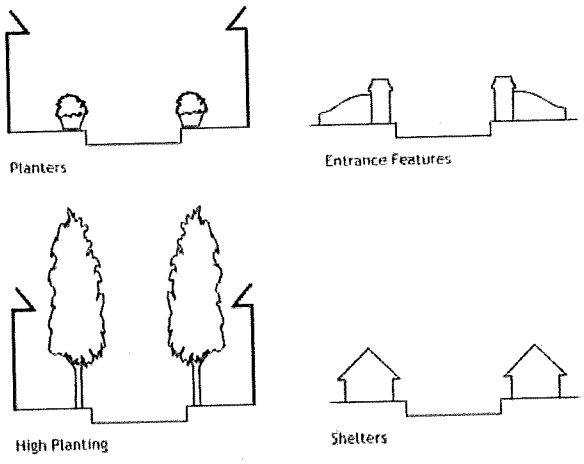
16.5.10 Gateways

Closure of a street (through gates, barricades, pavement removal) should not be considered as part of a traffic calming program. The unintended consequences of street closure – moving traffic problems to a new location, increasing vehicle miles of travel, contentiousness, and degrading emergency services – argue strongly against street closure as a remedy for neighborhood traffic problems.

However, street-side features that function as gates or portals are an effective traffic calming device. Gateway features, located close to the pavement edge, appear to narrow the road and therefore reduce the operating speed of approaching motorists. Gateways are usually interpreted as indicative of a special area, requiring increased attentiveness. Gateways are often associated with dead-end street systems, and can therefore be a signal to unfamiliar motorists that a route is not a likely cut-through route. In addition to their traffic calming function, gateway features can serve as transit waiting areas, information kiosks and mountings for signs and lighting.

As shown in Exhibit 16-12, it is appropriate for gateway features to be placed within the street right-of-way. Minimum clearance from the street is 2-feet from back of curb. When placed near or at an intersection, gateway designs should be checked to assure that an adequate intersection sight triangle is preserved as described in Chapter 3.

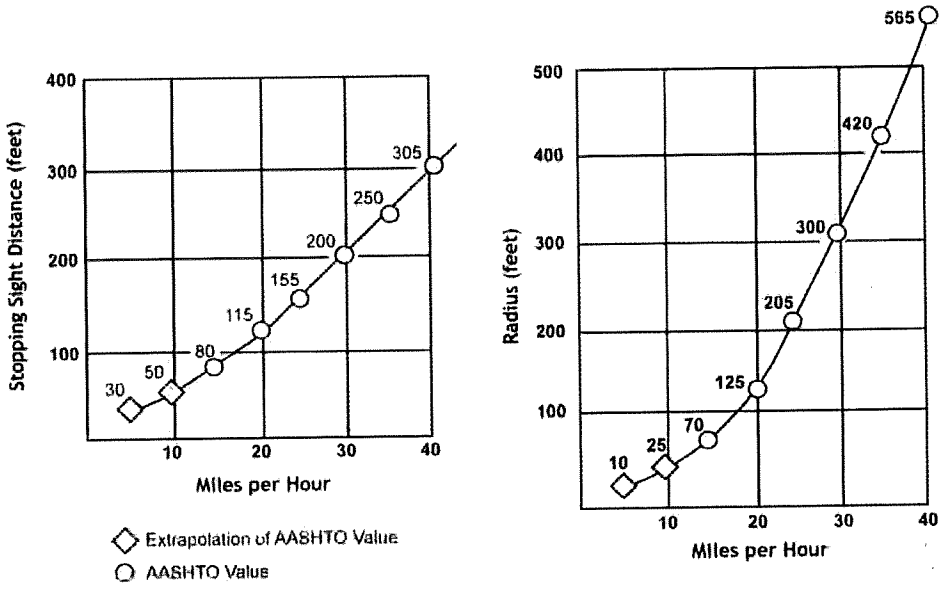
Exhibit 16-12
Gateways



16.6 Traffic Calming Measures Incorporating Deflection

Deflecting the vehicle from an otherwise straight path is an important traffic calming action that reduces vehicle speed. The relationship of sight distance and curvature to operating speed is a basic relationship for road design at all speeds as described in Chapter 3. For the lowest design speeds associated with traffic calming (5-15 miles per hour), it is necessary to extend the ranges of stopping sight distance and minimum radius, by extrapolating the values adopted for higher speeds, illustrated in Exhibit 16-13.

Exhibit 16-13
Low-speed Design Parameters



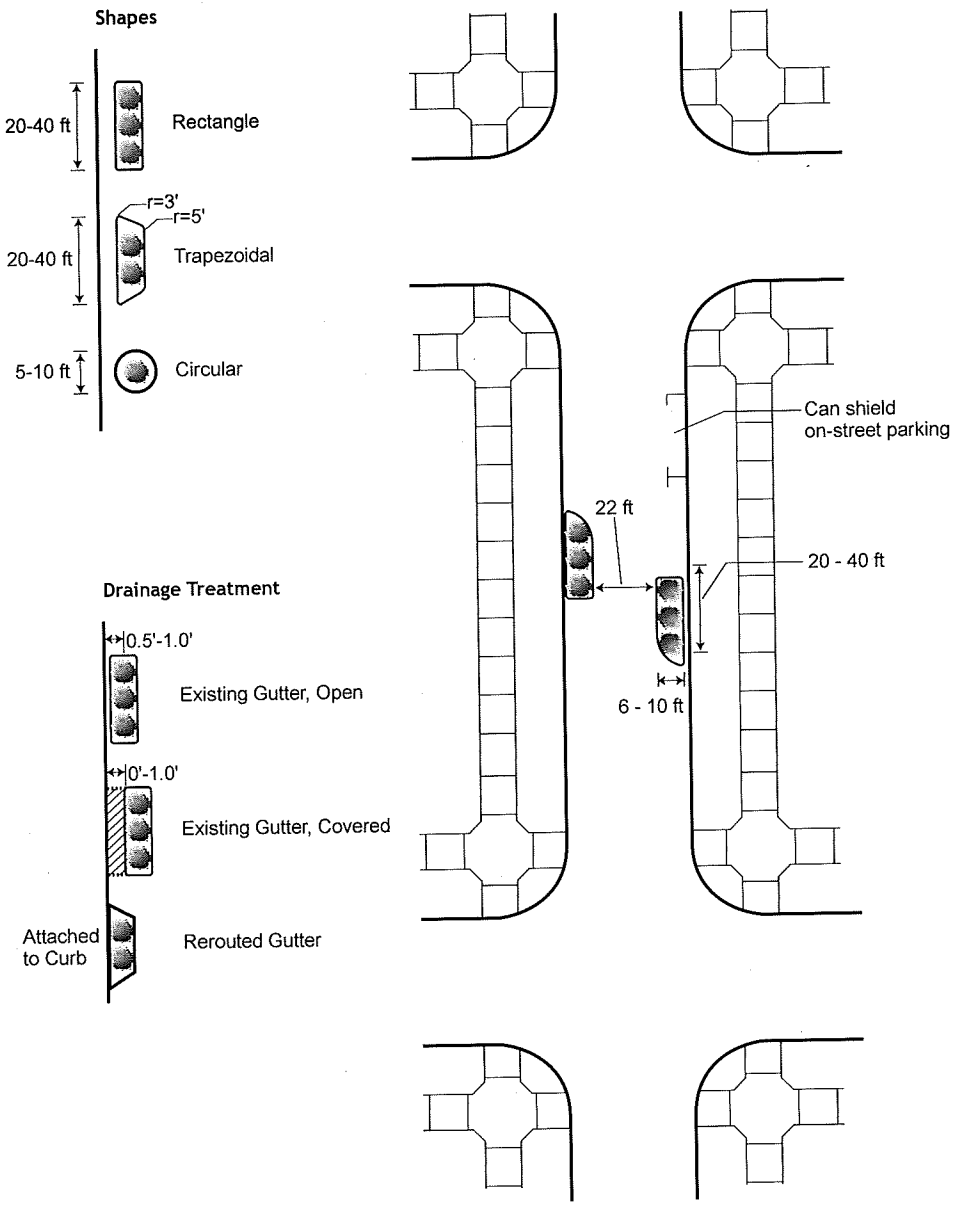
16.6.1 Mid-Block Deflection Measures

There are several possible approaches to introducing mid-block deflection to a vehicle path, as described below:

16.6.1.1 Chicanes and Lane Offsets

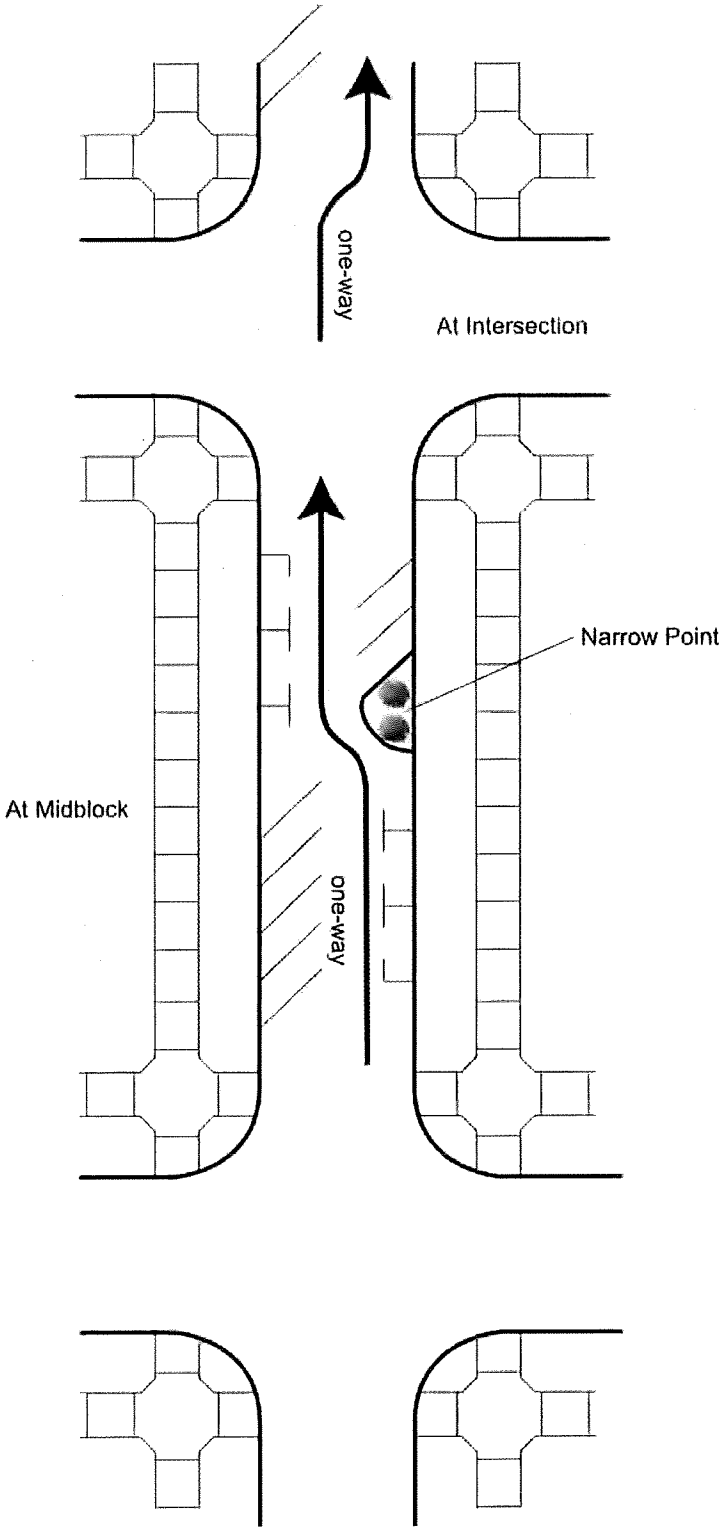
The simplest measure for deflecting traffic is the narrowing of one side of the street by an amount that requires the through traffic to deflect from its previously straight path, as shown in Exhibit 16-14. A series of such deflections, typically called chicanes, multiplies in effectiveness as it extends throughout the entire length of the block.

Exhibit 16-14
Mid-block Deflection



Mid-block deflection can also be obtained by alternating the parking (or type of parking) along the block faces as shown in Exhibit 16-15.

Exhibit 16-15
Lane Offsets from Parking



16.6.1.2 Short Medians/Crossing Islands

Measures to deflect traffic, such as medians and crossing islands, can also be centered in the street, as discussed previously in Section 16.5.8. Horizontal deflection can be achieved with crossing islands where there is on street parking by eliminating parking near the island. Curb lines can also be adjusted to accommodate the crossing islands.

16.6.1.3 Mid-Block Traffic Circles

Mid-block traffic circles are a traffic calming measure that assures a great deal of deflection in the vehicle path, and therefore a significant reduction in vehicle speeds. Unlike the roundabout intersection, the mid-block circle has no traffic control function, since there is no cross street traffic to be controlled. Beyond its traffic calming value, the highly visible central island of the mid-block circle can serve as a major demarcation point at a neighborhood boundary, as a setting for a monument or other display, or to deliberately terminate the view down the street in order to hide the scene beyond.

16.6.2 Intersection Measures

The principle of deflecting traffic in order to reduce its speed can be applied to intersections as well as non-intersection locations. Roundabouts provide a central island, which requires deflection for all movements. Deflection through intersections can also be provided by offsetting the through traffic lanes or through the use of crossing islands.

16.6.2.1 Lane Offsets at Intersections

Traffic lanes can be offset at an intersection, reducing speed through the intersection, as shown previously in Exhibit 16-15. On streets with parking on one side, the offset results from alternating the side of the street containing the parking. At "T" intersections with a left-turn bay provided, the left-turn lane requires an offset for through traffic in at least one direction of travel. On streets with diagonal parking on one side and parallel on the other, the offset at the intersection results from alternating the sides on which each type of parking is provided.

16.6.2.2 Crossing Islands

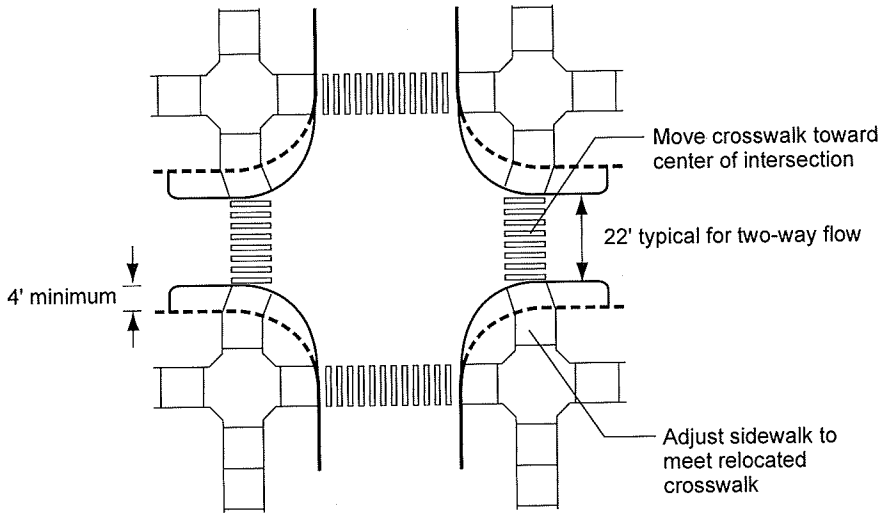
Crossing islands, as described in Section 16.5.8, can also be used at intersection locations.

16.6.2.3 Curb Extensions

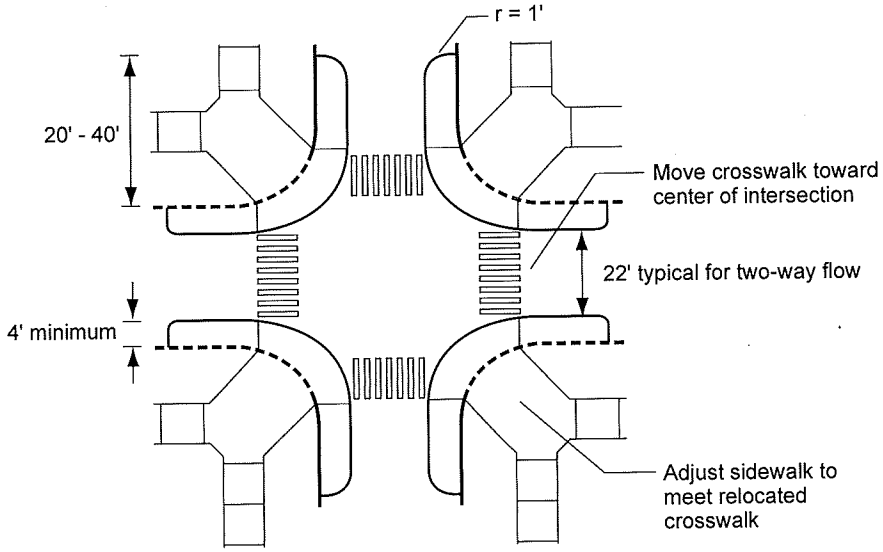
Narrowing the street at an intersection, through the use of curb extensions, is a versatile and widely used traffic calming measure, as shown in Exhibit 16-16.

Exhibit 16-16
Intersection Curb Extensions

A. Bulbouts on Both Streets



B. Bulbouts on One Street



In addition to slowing traffic due to reduced pavement widths, curb extensions delineate on-street parking, shield the ends of the parking lane from moving traffic, and discourage drivers from using an empty parking lane for overtaking other vehicles. They also prevent illegal parking at corners, thereby improving sight lines for all users.

Curb extension substantially reduce the pedestrian crossing distance while increasing the pedestrian space on the intersection's corners. Curb extensions can also benefit vehicular traffic, by moving the stop bar on the approach lanes further into the intersection, thereby reducing the intersection size and signal clearance intervals. The reduced intersection size can, in some instances, solve sight-distance deficiencies on the intersection approaches. Curb extensions can prevent parking close to intersections, and thus improve sight distance from cross streets. Also, curb extensions frequently reduce the "wasted" pavement at intersections (i.e., areas of pavement unusable by either vehicles or pedestrians near the corners). Fire hydrants are often located near intersections so that curb extensions result in no loss of legal parking.

Curb extensions can be used on one or both of the intersecting streets, or on any combination of approaches. The width of the roadway at the curb extension is typically no wider than necessary to accommodate the through lanes, providing 10 to 12 feet per lane plus additional offset of 1 to 2 feet from the edge of the traveled way. Curb extensions should only be used in conjunction with on-street parking so that they do not pose an unexpected hazard to bicyclists and motor vehicles.

With curb extensions, the increase in sidewalk area provides space for street furniture such as fire hydrants, information kiosks, benches and plantings. The additional sidewalk space is particularly useful where local regulations require buildings to be located adjacent to the sidewalk, thereby putting a premium on sidewalk space.

Typically, curb extensions are cost effective, since a single intersection treatment affects traffic in all directions on both intersecting streets. Because of their high visibility, curb extensions can be an important entrance feature for a neighborhood or a district of special interest.

16.6.2.4 Roundabouts and Mini-Traffic Circles

Two characteristic features of roundabouts—splitter islands on approaches and the central circle—provide a significant reduction in vehicle speeds and corresponding increases in driver attentiveness. The deflection provided by the splitter islands encourages a decrease in speed as drivers approach the intersection. Within the roundabout, the radius of the central island reinforces the low operating speed. At some roundabouts landscaping or man-made features within the central island terminate the view on approaching roadways, thereby contributing to reduction of the operating speed of approaching traffic. Guidelines for the design of roundabouts are given in Chapter 6 of this Guidebook.

Roundabouts are intersection control measures that provide speed reduction. (Photo Credit: Jan Conklin)

Because of its circular central island, the mini-traffic circle is frequently confused with roundabouts. However, the mini-traffic circle differs from a roundabout in important ways. Mini-traffic circles are typically smaller than roundabouts and do not merge traffic into a stream around a circulating roadway. Unlike the roundabout, the mini-traffic circle is not a traffic control device. Rather, at the mini-traffic circle, right-of-way is assigned by stop control (often all-way stop control). Mini-traffic circles usually do not have splitter islands on their approaches, although these are sometimes provided to absorb excess pavement width on approaches or to provide pedestrian refuge. For automobiles, operations at the mini-traffic circle are similar to those at a roundabout, with vehicles proceeding around in a counterclockwise direction. Large trucks (single unit (SU) trucks or larger) make right turns and through movements by entering the circle and proceeding counterclockwise. However, they make left turns by turning in front of the mini-traffic circle, after yielding right-of-way.

This pattern of movement can be hazardous where truck and buses are present on a regular basis. Mini-traffic circles can also pose significant challenges for emergency vehicles. As a result, mini-traffic circles are not recommended for most locations. Roundabouts and mini-roundabouts (designed using the same principles as a roundabout, but will a small central island) should be considered in lieu of mini-traffic circles.

16.6.2.5 Stop Control

Stop control, considered to be a traffic calming measure by many neighborhood groups, can be an appropriate traffic control decision under special circumstances. However, stop signs are traffic control devices that help to assign who has the operational right-of-way movement through an intersection and should not normally be considered a traffic calming tool. Warrants supporting the use of two-way and all-way stop are provided in the MUTCD. Some factors that may suggest use of all-way stop control include a lack of an obvious major and minor street, large volumes of turning movements, nearby pedestrian generators (park, school), and single through lanes in all directions.

Advocates of neighborhood traffic calming tend to overrate the effectiveness of stop control, and often request it at inappropriate locations. Excessive numbers of stops are difficult to enforce, and can be annoying to even careful motorists. Over the longer run misuse of stop control contributes to the erosion of motorist respect for traffic control devices in general, and is likely to decrease safety.

16.7 Measures to Alter the Street Profile or Texture

Traffic calming measures involving the profile and surface of the street include alterations to the profile of the street (humps and elevated segments of streets) and placing a textured pavement surface in parts of the street.

16.7.1 Speed Humps

Speed humps are intended to let vehicles operating at intended speeds pass with little discomfort to the driver, no bouncing of loads in trucks, and little noticeable stress (for example, bottoming out) of the vehicles. Because driver discomfort at humps rises rapidly as their design speed is exceeded, humps are an effective measure for controllig speeds.

Vehicle crossing a speed hump

Speed humps can be appropriate for minor collectors and local roads. On higher-classified streets (major collectors or arterials), the target design speed of 15-20 miles per hour for humps is likely to be inappropriate and inconsistent with the function of such streets.

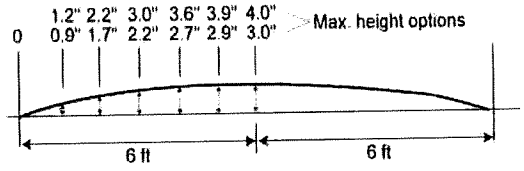
Speed humps may generate noise from vehicles braking and accelerating. Noise impacts on nearby residents can be mitigated through careful locating of the speed humps, or by spacing humps closely to encourage constant speeds.

16.7.1.1 Round-Top Speed Humps

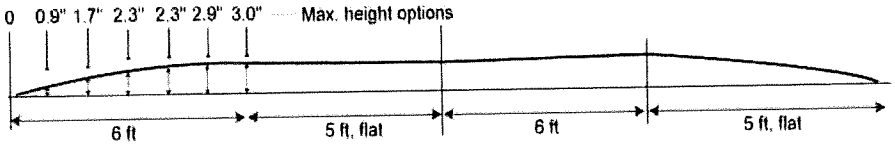
Round-top speed humps are 12-14 feet in length, and rise to a height of 3-4 inches. A common profile, the parabolic crown, illustrated in Exhibit 16-17, permits comfortable crossing at design speed, but makes crossings increasingly uncomfortable as design speed is exceeded.

Exhibit 16-17
Speed Humps and Speed Tables

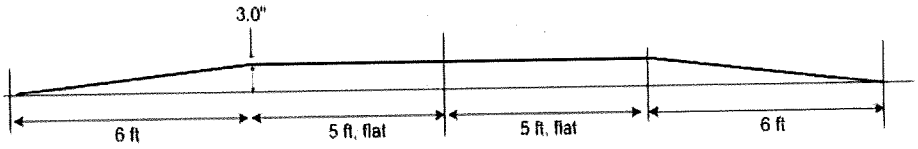
A. 12-Foot Parabolic Crown Hump



B. 22 Foot Parabolic Ramp Speed Table



C. 22 Foot Straight Ramp Speed Table



Round-top humps may be constructed from a wide variety of materials: asphalt, textured or colored asphalt, and poured and stamped concrete. Typically, the space between the end of the hump and the curb is left open, allowing the gutter drainage to continue functioning unhampered.

16.7.1.2 Speed Cushions

The speed cushion is a variety of flat-top hump that does not extend fully across the street, but rather affects only one side of the vehicle. Speed cushions provide much of the traffic calming impact of a flat-top hump, and also allow bicycle lanes and storm drainage to continue unhindered at the original street grade.

16.7.2 Raised Crosswalks (Flat-Top Speed Humps)

Flat-top speed humps, shown in Exhibit 16-17, are frequently used to complement pedestrian crossings, particularly where curb extensions are in place. When constructed of a pavement material differing from the adjacent street, flat-top speed humps are conspicuous to both drivers and pedestrians, thereby improving the pedestrian crossing safety. Flat-top humps at crosswalk locations also serve to protect the pedestrian crossing from intrusion by on-street parking. For flat-top humps, typical ramp lengths are 6 feet, and the typical length of the flat top is 10 feet, giving a total length of 22 feet. A simple straight ramp is typically used.

16.7.3 Raised Intersections

The concept of the flat-top hump can be extended to an entire intersection, raising the entire intersection to sidewalk height or nearly so. The raised intersection provides benefits to all crosswalks. Raised intersections employ many of the same design elements as raised crosswalks; however, the designer needs to pay special consideration to drainage issues and the demarcation of intersection corners through pavement changes, markings, or bollards.

16.7.4 Textured Pavement

Textured pavement encourages motorists to be aware of an area of special concern due to the appearance of the texture, vibration, more noticeable motion of the vehicle and tire noise. Pavement texture alone, at isolated locations, is not an effective traffic calming measure. Rather, textured pavement is more appropriate in support of other traffic calming measures such as mid-block narrowing, intersection curb extensions, or roundabouts.

Flexible pavement materials (i.e., asphalt) can be colored or stamped with patterns, and are often the material of choice for speed humps and crosswalks. Rigid pavement (i.e., concrete and stamped concrete) is regularly used for flat-top humps, and for crosswalks. Rigid materials, such as concrete pavers, are frequently used for full-

intersection designs, raised intersections, crosswalks, and in connection with mid-block traffic calming measures such as narrowing and splitter islands. Paver-insets need to be constructed so that their long-term serviceability is ensured given the freeze-thaw cycles common in this region.

16.7.5 Rumble Strips

The use of rumble strips as a traffic calming measure is inappropriate, since these are typically used as a warning device at high-hazard locations, such as isolated, high-volume, rural intersections. Further, rumble strips are hazardous to bicyclists, and the noise generated by them is likely to be problematical in neighborhoods. A further reason to avoid rumble strips as a traffic calming measure is that they do not compel a reduced speed as do other traffic control measures, and drivers eventually learn to ignore them.

16.8 Traffic Management Measures

Traffic calming measures are intended to reduce operating speeds and increase driver attentiveness. On the other hand, *traffic management* measures are intended to reduce and redirect traffic movements, but are unlikely to have a significant influence on operating speeds.

Traffic management measures fall into two categories:

(1) Movements physically restricted by street design features, and

(2) Regulatory restrictions, conveyed primarily through signs.

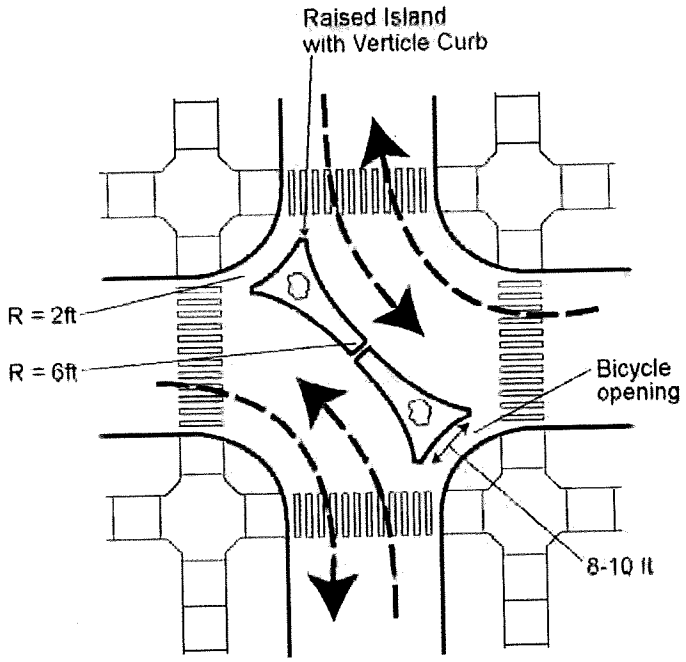
16.8.1 Restriction of Vehicle Movements through Street Design

Several design measures are available to restrict specific movements at an intersection. For example, a segment of median extending across an intersection limits turning movements, from all approaches, to a right turn only. Further, a median eliminates the possibility of through trips on the cross street. This type of cross-street access restriction by medians could be appropriate where sight distance is inadequate for safe turning movements at the intersection, or where through traffic on the cross street is being discouraged. Other techniques such as the use of channelizing islands for particular movements can be used to restrict traffic movements at intersections.

On local streets, the diagonal street closure, shown in Exhibit 16-18, prevents through movement on both of the intersecting streets, but allows

either a right or left turn from all approaches. Diagonal through-movement closure may be appropriate to discourage cut-through trips in neighborhood districts with a dense, well-connected network of streets. Diagonal street closures should also maintain connectivity for bicycle travel.

Exhibit 16-18
Diagonal Street Closure



Source: Traffic Calming State of the Practice, ITE, 1999

Completely blockading (i.e., completely closing) a street should not be considered as a traffic management measure. Street closures should be considered only in instances where such closure is vital for a public purpose (for example, major park or public institution) and then only when an ample, well-connected network remains. Restriction of vehicle movements at town lines is not permitted without the consent of the adjacent community.

16.8.2 Regulatory Measures to Restrict Vehicle Movements

Turn restrictions, on both right turns and left turns, have long been used at intersections to improve pedestrian or traffic flow, and such measures can be used as traffic management actions. Restrictions on turning movements ("no left turn" or "no right turn"), are commonly used to expedite traffic flow. Turning movement restrictions can be more efficiently policed than speed or stop control violations. The

drawback of traffic management measures that rely on regulation is less for turn restrictions than most other types of regulatory action.

The all-way turn restriction, with neither right nor left turns permitted from any approach, is sometimes used at downtown intersections, where large volumes of pedestrians are present on all crosswalks. When used as a traffic management measure, an all-way turn restriction has the further impact of redirecting traffic away from areas of special concern, and channeling it toward intended routes.

Turn restrictions have value in traffic management when used to discourage the use of inappropriate routes. Turn restrictions that apply only during the peak hour, intended to prevent peak hour commuter cut-through traffic in neighborhoods, can also be effective.

16.9 Administering a Traffic Calming Program

Requests for traffic calming often come from neighborhood groups. Traffic calming programs should be planned in a design dialogue, conducted on-scene in the subject area, involving residents, property owners, and business operators in intensive hands-on work sessions. A successful program of traffic calming measures requires skilled gathering and interpretation of input and applying a large measure of judgment in developing the measures.

Formal traffic survey techniques are often ineffective in forming traffic calming programs. Requiring petitions from residents, business or property owners as a prerequisite for installing traffic calming measures is inadvisable. Petitions voluntarily submitted by stakeholder groups can be one of a number of useable inputs to the design of any traffic calming program and can be a measure of the community's perceived need for improvement and their willingness to fund it. However, such petitions should not be required. They are expensive, both in terms of funding and managerial attention required by the traffic calming program. Further, the petition process is often divisive, with the outcome likely to vary greatly depending on the wording of the petition and the outlook of the person collecting signatures.

Attempting to plan a program of traffic calming based on numerical scores or quotas is not advisable. Numerical scoring schemes will focus on those traffic characteristics that are easily measured (specifically, speeds, traffic volumes and collisions), thereby furnishing an

incomplete and often misleading analysis of the need for traffic calming. Factors that are important to the community may not register in this type of numerical analysis. These important factors include the character of residential neighborhoods, historical value, type and value of retail business, neighborhood institutions and aesthetic character.

It is important to determine and discuss the benefits and impacts of various traffic calming measures with community members so that a well-founded traffic calming program can be prioritized and implemented. In some cases, gathering numerical data is expensive and time consuming, and can drain the traffic calming program of funds needed for producing the measures themselves. However, before-and-after studies and the use of low-cost, temporary measures (such as carefully arranged construction barrels) can be used to identify the effectiveness of existing or proposed traffic calming measures to build consensus around a traffic calming plan.

16.10 Traffic Calming and Tort Liability

Traffic calming measures are simply low-speed street design elements, following accepted design guidelines or reasonable extrapolations of them, as discussed earlier in this Chapter. Therefore, traffic calming measures can be defended against tort liability in the same manner as road design in general. The design should document the design decisions and their rationale by following the recommendations listed below:

- Provide a reasonable, written rationale for the traffic calming measure or program of measures. Typical rationales include neighborhood safety, historical preservation, retail viability, and proximity of important institutions (schools, for example).

- Observe good practice in designing the traffic calming measures.

- Monitor the safety performance of installed measures. Ongoing crash record systems are suitable for this monitoring.

- Address observed safety problems in a cost-effective manner, making prudent use of available funding. The "prudent use" test has long been a defense against tort liability at known or suspected safety problem locations, and can be extended to modifications needed at traffic calming measures.

16.11 For Further Information

- *Traffic Calming Guidelines*, Devon County Council, Exeter, England, 1991.
- *Traffic Calming – State of the Practice*, Institute of Transportation Engineers, Washington, D.C., August, 1999.
- *Traffic Calming, Planning Advisory Service Report Number 456*, American Planning Association, Chicago, IL, 1995.
- *Guidelines for the Design and Application of Speed Humps – A Recommended Practice*, Institute of Transportation Engineers Speed Humps Task Force, Washington, D.C., 1997.
- Traffic *Calming Guidelines*, FHWA, 2002 (www.fhwa.dot.gov/environment/tcalm)

STAFF MEMO

TO: BOARD OF SELECTMEN
FROM: JACQUI BEEBE
SUBJECT: WATER OPERATIONS & RATES
DATE: NOVEMBER 16, 2017

As we continue to operate the Water System and have more opportunities to hook-up new parcels, we have experienced some issues with the current regulations that we may want to address.

The policy of one curb-stop/meter per parcel. I have had several calls from Condo Association Trustees and other owners of parcels with more than one residential unit. Specifically, attached is a letter from the Shore Garden Condo Association. The concerns expressed by this association relate to two issues that have also been a focus of concern for many other residents.

- **The policy of one meter per parcel.** We currently have several hundred parcels that have two or more units on the parcel. If one owner owns the units, then it is a less complicated matter to meter and bill them as one unit. However, we have 56 parcels where there are either cottage colonies or condos. In the case of a cottage colony with a single owner, the single meter policy still makes sense, but the condos are more complicated. We have found that each condo association is very different. Some do not share wells, electricity, and we bill each condo owner separately for property taxes. I The current policy creates issues, especially for condo owners, some of whom rent their units or have more than one person in a unit and do not want to pay for other unit's/tenants water usage. They want to be metered and billed separately. In these cases, the property owners want to bear the cost of multiple meters and have the Town bill each condo owner separately for water usage. The Housing Authority has units that are multiple rental units on one parcel. And has requested the same. The tiered water rates will cause a larger, single system to incur more of a cost per gallon than a single household, so it makes sense to property owners to independently meter their condos. Multiple units with one-meter face hitting the top tiers much faster (11 or 17 units will go over 15,000 gallons and move to the higher rated tiers) as it is one bill rather than many. They are expressing that this is unequitable and places a higher cost on the condo owners that residential property owners do not have.
    - The example of the Shore Garden Complex is a good one for this. This condo association has 11 separate owners. They receive separate

property tax bills from the Town. They all have private wells and separate other utilities. Some are year-round, some seasonal. Some rent to others and some do not. They have high salt in their water and anre anxious to hook-up. When the owners did the math and discovered that they would pay equally (with one meter) if they usued 1,,000 1,000 gallons a month and their neighbor used 10,000 gallons (they would pay for 5,000 glalons) they stopped the hook-up process. This is an association that used 100,000 gallons of water in the months of June, July and August of 2017 (Public Water Supply Records). Even at the lowest tier, it would be a huge customer for us. Also, if we meter separately, we will pick up the user fee of $98 for each unit, which will bring revenue in over the winter months. Changing the regulations to allow for multiple unit parcels to meter individually will be no cost to us and will bring more customers and increased user fees.

- **The lack of appeal, or variance request process in the regulations.** Currently the regulations do not allow any mechanism that allows for making exceptions to the regulations. There is no appeal other than to write a letter to the Board of Water Commissioners, but no process by which the BOWC would meet regularly to hear complaints or appeals to the regulations.

- **The lack of abatement policy in the regulations.** Currently we have no process or mechanism whereby a water bill can be negotiated if there is a mistake or a good faith effort to correct a leak. We have no approval process for waiving interest or fees , or adjusting the bill in any way.

Questions:

- Do we want to allow more than one meter, if the property owners pay for the additional costs of the meters? (We would agree to bill separately for each unit for water usage like we do property taxes) but the owners would pay for the additional meters and the cost of any additional work beyond the curb stop.

- If we continue to stay with one meter per parcel, do we want to adjust the water rates for parcels with over a certain number of units?

In order to evaluate what the cost would be I am taking the following steps.

- The assessor is providing data on how many properties we have in town with multiple units (residential and commercial) on one parcel;

- Staff is looking to see what regulations other town water departments have for condos.

- I am having Pennichuk, our billing company, run several different rate scenarios to see what the impact might be for a different rate structure for condos/multiple units.

Once I have that data, I would request that we have a work session or meeting so the Board of water commissioners to discuss these issues in detail.

Water System Update

BOS Meeting – November 20, 2017

Happy Thanksgiving

A partnership for engineering solutions.

II. 5:30pm

Water System Update
BOS Meeting – November 20, 2017

- Phase 1
  - Construction Status
  - Budget Status
- Phase 2A – Contracts 9, 10 & 11
  - Construction Schedules
  - Website Updates
- Phase 2
  - Permitting status and schedule

A partnership for engineering solutions.

Phase 1 – Construction Update

- All Contracts substantially complete
- All Curb Stops completed
- Landfill area paving completed
- Orleans Loop is completed and in service
- Orleans Loop and Bridge Road (south of bridge) paving done
- Route 6 Paving Issues Resolved (for now)
- Remaining:
  - Connecting Eastham parcels on Orleans system

Route 6 South Paving Deficiencies

- Result of MassDOT meetings
- Areas addressed in early November
- Spring 2018: revisit areas,
  meet with MassDOT

Phase 1 Budget Status
Through August 2017

	Original Budget	Current Budget	Total Completed
TOWN MEETING APPROPRIATION	**$ 45,800,000**	**$ 45,800,000**	**$ 45,800,000**
Construction	$ 35,670,000	$ 31,302,670	$ 30,899,179
Police Details	$ 2,320,000	$ 1,200,000	$ 1,186,716
Engineering	$ 5,400,000	$ 5,400,000	$ 5,002,445
Additional Items		$ 3,167,587	$ 1,845,435
TOTAL	$ 43,390,000	$ 41,070,257	$ 38,933,775
BALANCE, Phase 1	**$ 2,410,000**	**$ 4,729,743**	

$4.7M under budget

(to be carried forward into Phase 2)

A partnership for engineering solutions.

Update on Connections

- 621 current homes connected, about 1,600 people (not including school populations)
- 61 current outstanding applications awaiting installation
- 173 homes connected outside mandatory area
- Applications picking up in offseason as expected. Also should increase with new Phase 2A water mains.

Free Meter End Dates

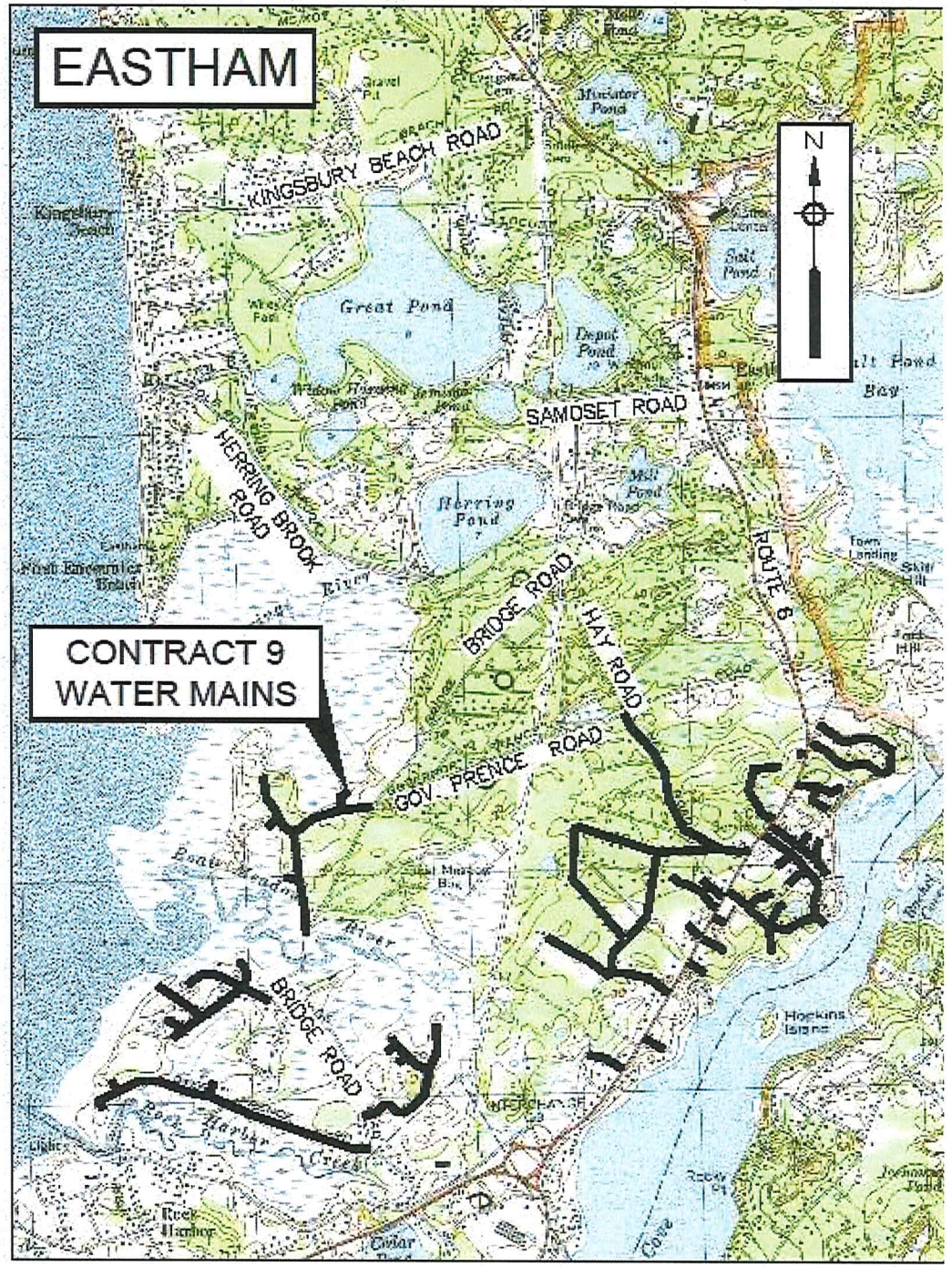
Contract 2	November 14, 2017
Contract 3	March 29, 2018
Contract 4	February 27, 2018
Contract 5	November 14, 2017
Contract 6	December 7, 2017
Contract 7	November 14, 2017
Contract 8	March 3, 2018

Connecting Your Property

- Get multiple quotes for the work
- Have a contractor or plumber file your application
- If you choose not to keep you well for irrigation:
  - Cut and cap below grade (3' or more)

Phase 2A
Contract 9
South Eastham

- Construction scheduled for January 2018

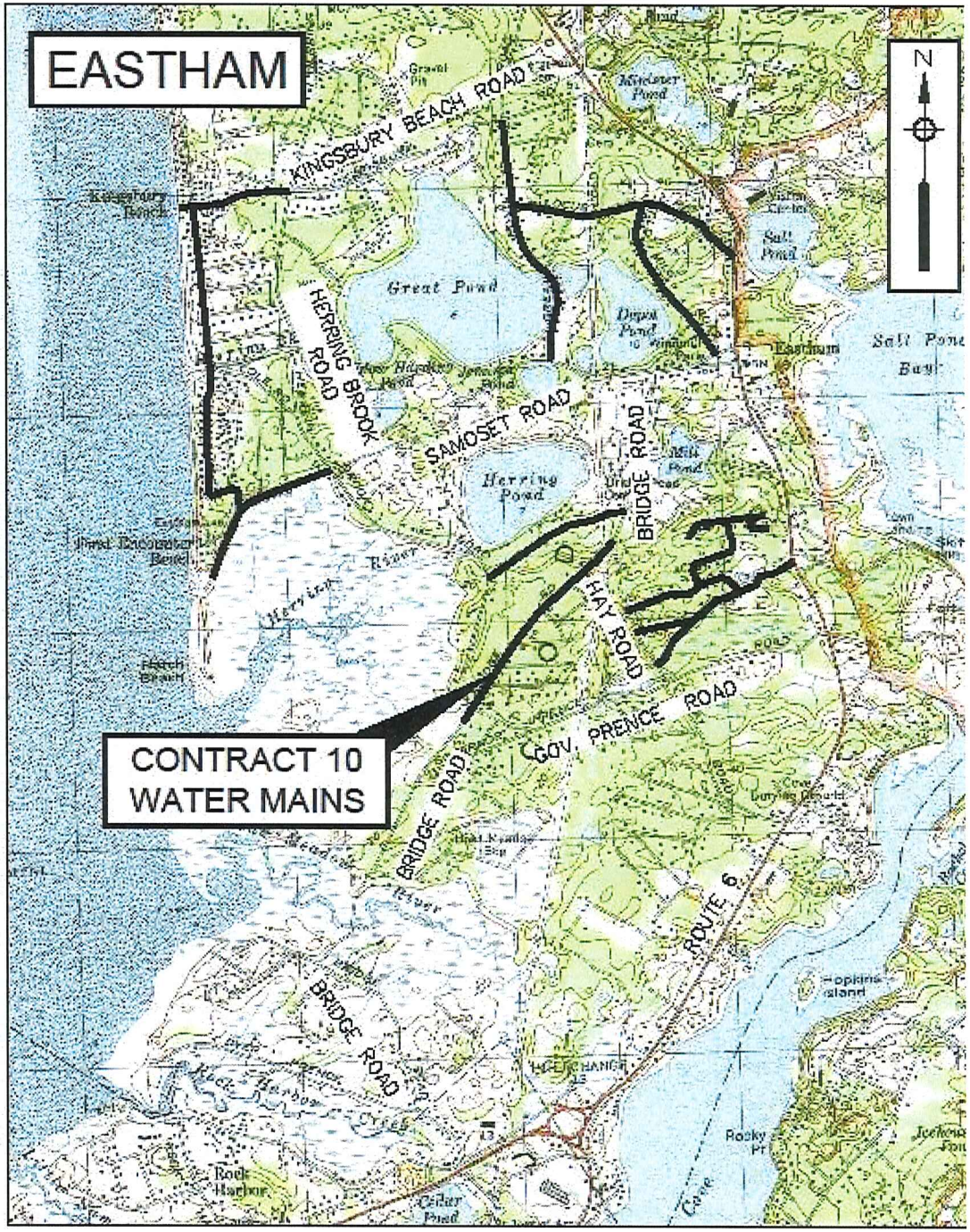


A partnershi

Phase 2A

Contract 10 - Central Eastham

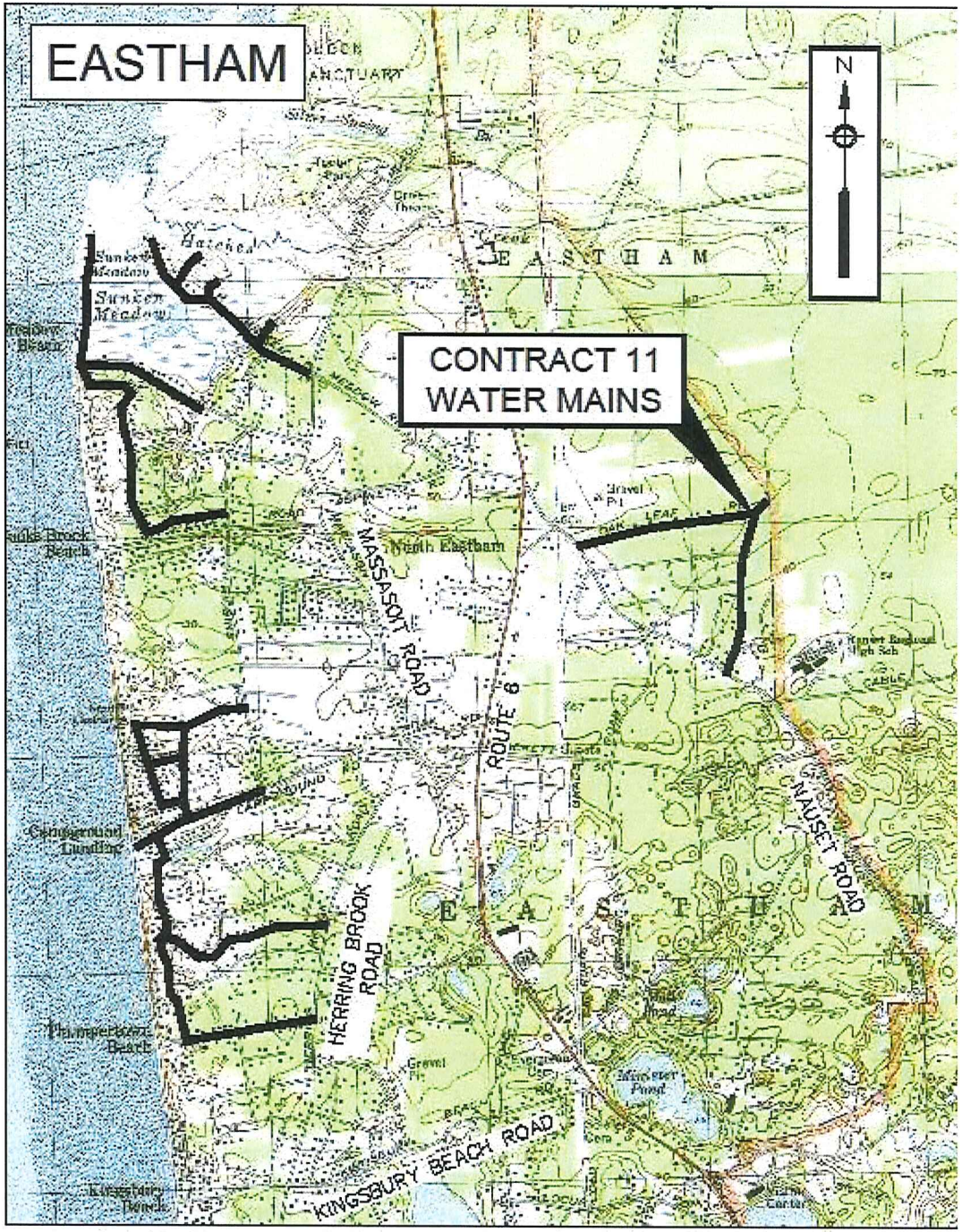
- Contractor mobilizing today
- Construction begins on Bridge Road & Samoset Road on 11/27



Phase 2A

Contract 11 - North Eastham

- Contractor mobilizing 11/27
- Construction begins on Shurtleff Road area 12/4



Phase 2A – Additional Work?

- Bid prices left almost $3M in contingency for Phase 2A
- May be able to add additional streets to the Phase 2A contracts
- Waiting on final permitting and private road takings

Phase 2A – Curb Stop Locations

- Property owners contacted last summer and early fall
- Door hangers with information were left
- Flag placed at proposed curb stop location
- There's still time to adjust your curb stop location! Email easthamwater@envpartners.com if you want to change the location

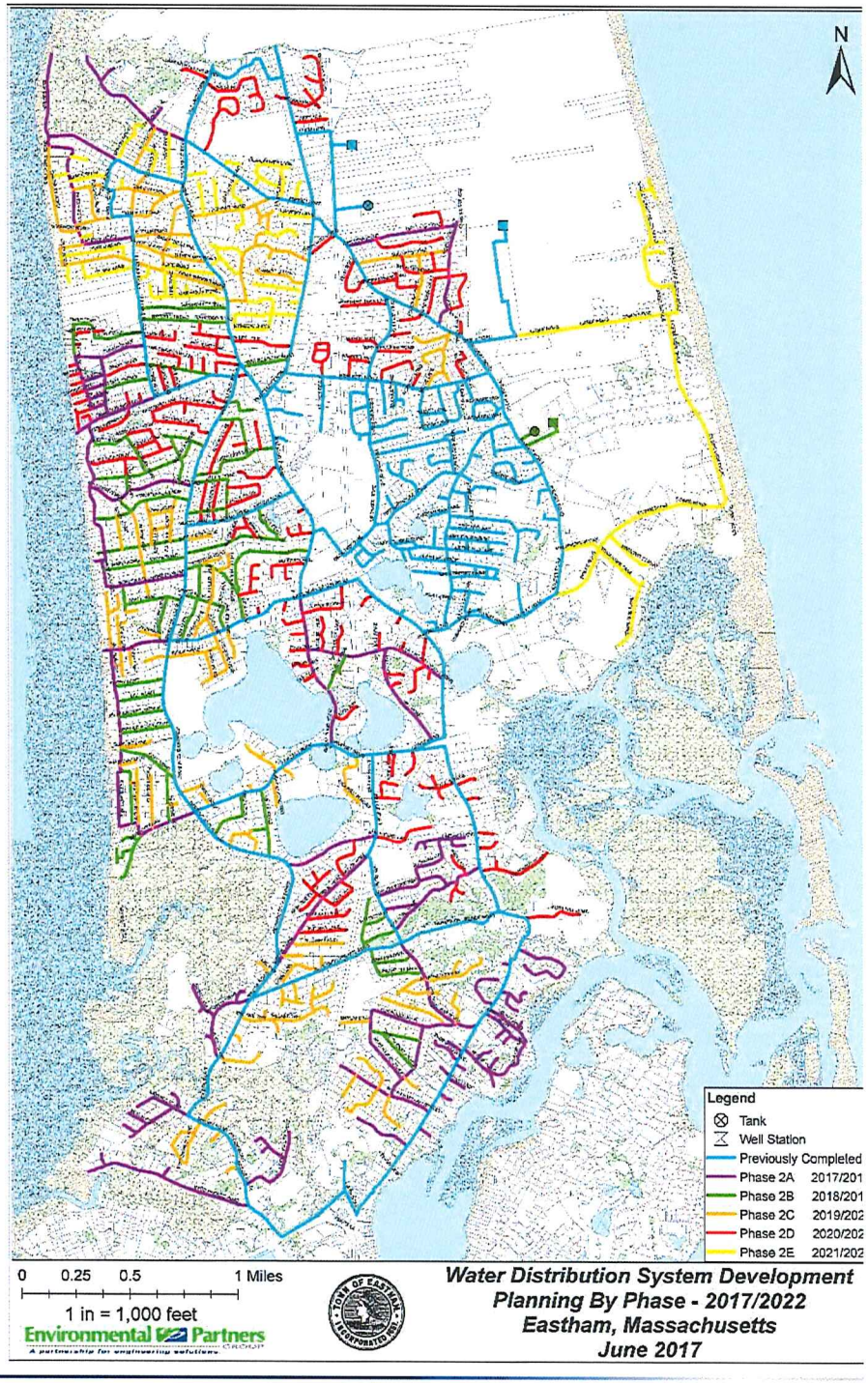
Phase 2B-2E Construction start dates

2B – Fall 2018

2C – Fall 2019

2D – Fall 2020

2E – Fall 2021



A partnership for en

When is my street going to get water?

- Go to "Eastham Municipal Water Project" web page
- Click blue button: "WHEN WILL WATER BE INSTALLED ALONG MY ROAD"
- Each road is listed with the phase, contract and projected date of construction.

Phase 2 Permitting

- Front Burner Item: District H – Endangered Species (Eastern Spadefoot Toad)
- Supplemental information given to Mass Fish & Wildlife, Endangered Species Program; meeting held Nov. 7th
- Hope to conclude negotiations them by mid-December.
- Conservation & Mgmt Plan to follow.

Phase 2 Permitting Activities

- District H – Endangered Species
  - Eastern Spadefoot Toad
- MEPA
- Cape Cod Commission
- DEP Design Review for all Phase 2 water mains
- Conservation Commission (received)

Phase 2 Permitting Program
Next Steps and Schedule

- MEPA Supplemental EIR (Draft and Final)
  January 2017 – March 2018
- Cape Cod Commission Development of Regional Impact – March 2018
- Conservation Commission NOI – done
- Water Management Act – Spring 2018

Where Can I Get Information?

- Eastham web page

http://easthamwaterproject.weebly.com

- Eastham Water Projects Email Address:
  easthamwater@envpartners.com

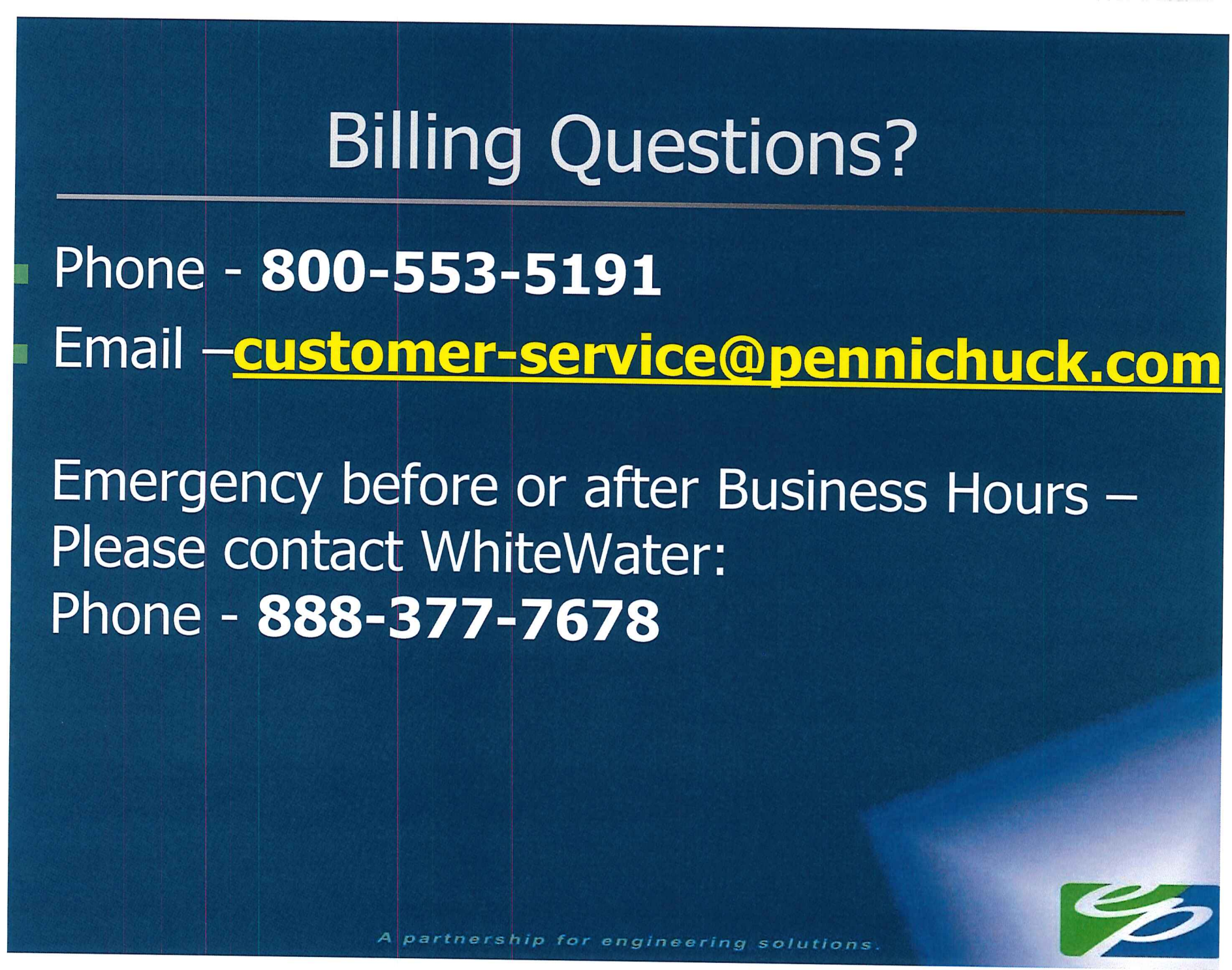
- Eastham Water Project Phone Number
  617-657-0279

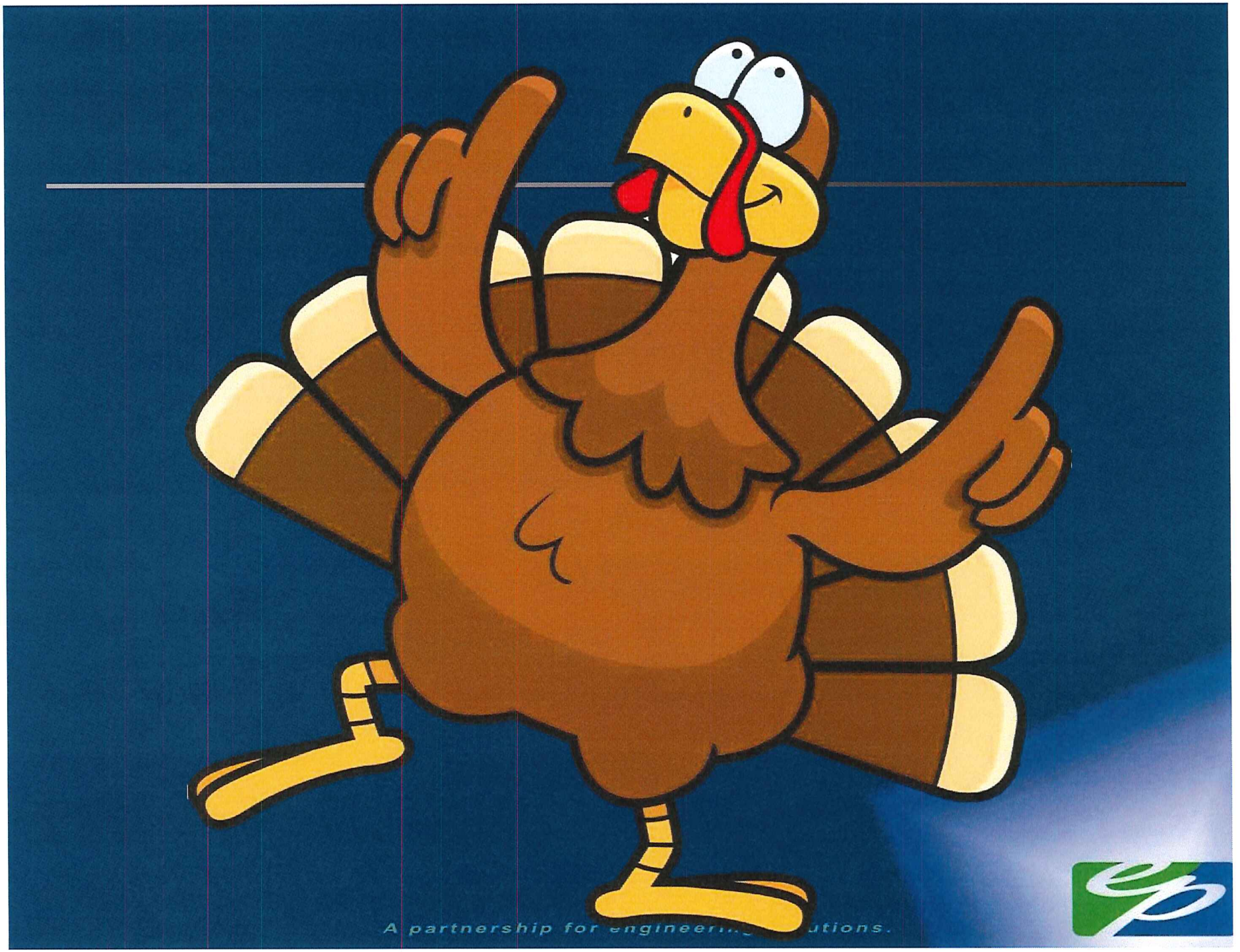
A partnership for engineering solutions.

Billing Questions?

- Phone - **800-553-5191**
- Email –**customer-service@pennichuck.com**

Emergency before or after Business Hours –
Please contact WhiteWater:
Phone - **888-377-7678**




A partnership for engineer
utions.

HA III. A. 1.

Cape & Vineyard Electric Cooperative, Inc.
Superior Courthouse . P.O. Box 427 . Barnstable, MA 02630
508.375.6648 . www.cvecinc.org

9.19.17

RE: CVEC Extension of the Round 1 Adder for FY19

Dear Administrator,

I hope your summer has been a good one. As you know, CVEC spent its summer working hard to represent the municipalities, counties and districts in the Eversource Rate Case. We thank you all for the many letters submitted to the Department of Utilities to support our case against Eversource's proposed lowering of Net Metering Credit values.

As many of you will remember, when seeking agreements for the FY18 Round 1 Operational Adder last winter, CVEC agreed to return by December 1, 2017 to ask for the Adder's extension through FY19. The promise was made so the renewal request for FY19 would coincide with FY19 budget preparation. To facilitate the extension, the following clause exists in the Round 1 Operational Adder Memorandum of Agreement signed by all of you:

4. **Extension.** On or before December 1, 2017, the CVEC Board of Directors shall determine the necessity of the Round 1 Adder, and, upon determining the necessity of the Round 1 Adder to CVEC operations, CVEC shall solicit the Town for a one-year extension to this Agreement. If the Town elects to exercise its option to extend this Agreement for one year, it shall notify CVEC in writing on or before January 1, 2018 and the extended duration of the agreement shall be effective from July 1, 2018 until June 30, 2019.

At our last CVEC Board meeting, CVEC Board members reviewed multiple actual and projected financials and voted to direct staff to seek the FY19 extension. Based on the Board directive, I emailed all CVEC Round 1 PV Initiative participants requesting an opportunity to appear for the renewal of the Round 1 Adder for FY19. Most of you have responded that an appearance is not required, and that you will present CVEC's request for the renewal letter in accordance with the extension clause if CVEC supplies supporting documents.

To that end, I am enclosing a summary of the CVEC FY17 financials, our FY18 budget, our projected FY19 budget as Exhibit A and the approximate annual change to your FY19 savings as Exhibit B. I am also including a template letter to extend our Agreement for one year as Exhibit C. Please do not hesitate to contact me with questions or concerns.

CVEC appreciates the support and appreciation voiced for the energy cooperative when seeking the Round 1 Adder last winter. The Adder is essential to keeping the energy cooperative as dynamic and instrumental as it has been to date. At the end of FY17, CVEC had provided over $7,340,500 in savings to our participants. With your support, CVEC can continue to represent our participants at the state level while bringing energy savings to the towns, counties and districts.

Sincerely,

Liz Argo
Manager, Programs & Administration
Cape & Vineyard Electric Cooperative, Inc.

EXHIBIT A

Budget

8/16/2017

	Audited Actual FY2015	Audited Actual FY2016	Budgeted FY2017	Actual Based on June Preliminarie FY2017	Working Budget FY 2018
REVENUES					
PV Solar Adder Revenue (Round 1)					100,610
PV Solar Adder Revenue (Round 2)	58,839	166,887	150,000		150,000
PV Solar Adder Revenue (Round 3)					12,000
Wind Project Administrative Adder Revenue			6,322		15,624
Nexamp Dartmouth Farms Solar Adder Revenue					2,187
Syncarpha Freetown Solar Adder Revenue			6,500		26,000
CVEC Consulting Services Revenue	10,042	4,600	6,000		12,000
ISO-NE Income		1,500	9,350		12,000
PV Solar Design/Engineering Support		919			
Grant/Contributions	403,455				
Member Fee Revenue	25				
Interest Income	154	266	150		270
Total Revenues	472,515	174,172	178,322	188,202	330,691

EXPENSES	Actual FY2015	Audited Actual FY2016	Budgeted FY2017		Working Budget FY 2018
Legal - General Counsel	$ 181,816	$ 33,091	$ 33,000		$ 45,000
Administration for Round 3					$ 18,000
Match for Community Clean Energy Resilience Grant					$ 72,210
Audit Fees	$ 14,000	$ 16,000	$ 25,400		$ 27,000
Consultants (Accounting/Bookkeeper)	$ 6,998	$ 38,684	$ 33,240		$ 35,000
Consultants (Peregrine Energy Group)	$ 43,800	$ 31,200	$ 35,000		$ 35,000
Contractual Professional Services:Implement data upload					$ 15,000
Internet, Phone and IT	$ 750	$ 3,191	$ 4,171		$ 5,684
Insurance	$ 15,230	$ 15,450	$ 15,450		$ 15,450
Taxes- State Income		$ 456	$ 456		$ 456
Office Rental		$ 2,000	$ 6,000		$ 6,000
Filing Fees		$ 125	$ 125		$ 125
Misc Office, Administrative Overhead, and Office Assis	$ 5,319	$ 7,445	$ 14,051		$ 27,547
Food - Board Lunches		$ 807	$ 807		$ 850
Travel Expense and Conference Costs		$ 3,390	$ 4,000		$ 7,500
Professional Development		$ 344	$ 400		$ 2,600
One-time Non-recurring Development Cost Adjustment					$ 11,000
CVEC-7 Project Fee and Costs for LOC	$ 6,267	$ 6,967	$ 6,267		$ 6,270
Total Expenses	$ 274,180	$ 159,150	$ 178,367	$ 238,740	$ 330,692
NET INCOME/(LOSS)	$ 198,335	$ 15,022	$ (45)	$ (50,538)	$ (0)
Beginning Unrestricted Cash Balance	***$ 264,322***	***$ 462,657***	***$ 477,679***		***$ 477,634***
End Unrestricted Cash Balance after apply end FY balance	**$ 462,657**	**$ 477,679**	**$ 477,634**		**$ 477,634**
Reserve Fund - Established in FY16		$ (180,000)	$(180,000)		$ (180,000)
End Unrestricted Cash Balance less Reserve		**$ 297,679**	**$ 297,634**		**$ 297,634**

EXHIBIT B

Projected Effects of Half-Penny Adder on Round 1 Participants Using FY17 Production

Lowered Potential Annual Savings

ROUND 1							
Hosts of R1 Projects - Green signifies Project has Offtakers (OT)	Project's annual kWh of production to Host in FY17	FY 2017 Income to Host	Adder @ half penny for Host's kWh (share X Adder)	$$ to CVEC from Host @ $0.005 R1 Adder	Adder @ quarter penny for Offtakers' kWh (share to OT X 1/2 Adder)	Total to CVEC for Adder for projects with and without offtakers	% of earned $$ to go to CVEC
			$ 0.005		$ 0.0025		
Barnstable	5,150,520	$ 382,604.72		$ 25,752.60		$ 25,752.60	7%
Brewster	1,543,380	$ 97,611.57		$ 7,716.90		$ 7,716.90	8%
Chatham	2,381,400	$ 183,613.13		$ 11,907.00		$ 11,907.00	6%
Edgartown Katama	1,318,680	$ 73,385.15		$ 6,593.40		$ 6,593.40	9%
Edgartown Nunnepog	726,390	$ 56,014.18		$ 3,631.95	$ 88.43	$ 3,720.38	7%
Eastham	514,271	$ 40,833.00		$ 2,571.36	$ 601.04	$ 3,172.39	8%
Harwich	3,592,642	$ 364,920.95		$ 17,963.21	$ 458.10	$ 18,421.31	5%
Tisbury	1,337,040	$ 177,683.68		$ 6,685.20	$ 1,220.02	$ 7,905.22	4%
Totals	16,564,323	$1,376,666.38		$ 82,821.62	$ 2,367.58	$ 85,189.20	

Offtakers of R1 Projects	Annual kWh of production to Offtaker in FY17	FY 2017 Income to Offtaker	Adder @ quarter penny for Offtaker's kWh (share X 1/2 Adder)	$$ to CVEC from Offtaker share of Adder @ $0.0025			% of earned $$ to go to CVEC
			$ 0.0025				
Barnstable County	684,732	$ 25,044.69		$ 1,711.83			7%
Dukes County	418,071	$ 15,293.55		$ 1,045.18			7%
Brewster	180,569	$ 6,605.98		$ 451.42			7%
Chatham	35,371	$ 1,279.32		$ 88.43			7%
Chilmark	60,031	$ 2,171.86		$ 150.08			7%
Monomoy Schools	240,414	$ 7,478.09		$ 601.04			8%
Oak Bluffs	183,238	$ 6,680.64		$ 458.10			7%
Provincetown	488,009	$ 17,805.37		$ 1,220.02			7%
Yarmouth	920,073	$ 33,594.23		$ 2,300.18			7%
Totals	3,210,508	$ 115,953.73		$ 8,026.27			

CVEC Earns from Adder using FY17 Production: $ 93,215.47

EXHIBIT C

Template Letter to Extend CVEC Agreement

Dear President Cakounes,

The Town of _____ (School District) wishes to extend the Memorandum of Agreement for the Round One Operational Administrative Adder previously agreed to on or before March 2017. The Adder paid to CVEC for management of the Round 1 projects will continue to be $0.005 per kilowatt hour of production. The extension for the Memorandum of Agreement for the Round One Operational Administrative Adder of $0.005 is to be for one year with the duration extending from July 1, 2018 through June 30, 2019.

III. A. 2.

Memorandum

TO: Jaqueline Beebe, Town Administrator
Board of Selectmen

JWB

FROM: Karen Chimwaza

DATE: November 16, 2017

RE: Nauset Fellowship One-Day Special License Request

Please find enclosed an application packet from Nauset Fellowship for a One-Day Liquor license. If the Board approves the application, please sign the license where indicated. Thank you.

Respectfully submitted by

Karen Chimwaza

COMMONWEALTH OF MASSACHUSETTS
TOWN OF EASTHAM
BOARD OF SELECTMEN

This is to certify that:

Nauset Fellowship

Is hereby granted a license for:

One-Day Liquor License – Chapel in the Pines Pre-Auction Reception from 4:30-5:30 on December 16, 2017

This license is granted in conformity with the Statutes and ordinances relating thereto, and expires December 16, 2017 at 7:30 pm unless sooner suspended or revoked.

Date of Issue: December 4, 2017
Permit Number: ODL2017-1
Fee: $50.00

_____
_____
_____
_____
_____

OL2017-01

TOWN OF EASTHAM
2500 State Highway, Eastham, MA 02642
508-240-5900
Fax 508-240-5908

FOR OFFICE USE ONLY
Date Rec'd: _____ **FEE: $50.00**
Payment Type: _____
☑ Proof of non-profit status (if applicable) ☑ ☐ Server Training Certificate ☐ Temp food (if applicable) ☐ PD review complete ☐ FD review complete ☐ BD review complete
Reviewed By: ____ ☑ OK ☐ Hold _____

ODL# _____

ONE-DAY LIQUOR LICENSE APPLICATION

Is the event by, or held for the benefit of, a business or non-profit group: ✓ Yes ___ No
Will there be a cash bar: ___ Yes ✓ No
Is there an entrance fee or donation required: ___ Yes ✓ No
Is the event open to the general public: ✓ Yes ___ No
If the answer to ANY of these questions is YES, a One-Day Special License is required. Applications must be heard before the Board of Selectmen. Please submit all applications at least thirty days prior to the event.

Application type: ___ All Alcohol (for non-profit groups only) ✓ Wine and Malt

Applicant Name: NAUSET FELLOWSHIP Company/Organization Name: CHAPEL IN THE PINES / UNITARIAN-UNIVERSALISTS

Is the Organization a non-profit: ✓ Yes ___ No
If yes, proof of non-profit status **must** be attached

Street Address: 220 SAMOSET RD. EASTHAM 02642

Mailing Address: BOX 831

Telephone: Email: AUCTION@NFUU.ORG

Will Applicant be Liquor Manager of Event: ✓ Yes ___ No

If no, Manager Name:
Company/Organization Name:
Copy of Server Training Certificate (TIPS) **must** be attached

Date of Event: 12/16/17 Time of Event: 4:30-5:30 P.M.

Location of Event: CHAPEL IN THE PINES

Occasion/Purpose of Event: RECEPTION, PRE-AUCTION, TO BE HELD AT 6 PM NEXT DOOR AT LIBRARY (WITHOUT ALCOHOL) AUCTION

The alcohol purchased for this event must be purchased from a licensed wholesaler. A list of approved wholesalers may be found at www.mass.gov/abcc. A person holding a Section 14 license cannot purchase alcoholic beverages from a package store. [MGL Ch. 138, Sec. 14, 23; 204 CMR 7.04]

Licensee must comply with all applicable Alcohol Control Laws of the Commonwealth of Massachusetts and regulations of the Town of Eastham.

Pursuant to MGL Ch. 62C section 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid state taxes as required by law.

Signature of Applicant: Deborah D. Ullman **Date:** Nov 7, 2017

Social Security # or Federal ID #: 017-38-8217 OR

NAUSET FELLOWSHIP: 04-265-1302

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/09/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Church Mutual Insurance Company 3000 Schuster Lane P.O. Box 357 Merrill WI 54452	CONTACT NAME: Sharon A Marquardt PHONE (A/C, No, Ext): 1-800-554-2642 Option 1 FAX (A/C, No): 855-264-2329 E-MAIL ADDRESS: cs9@churchmutual.com
INSURED NAUSET FELLOWSHIP INCORPORATED 220 SAMOSET RD EASTHAM MA 02642	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: Church Mutual Insurance Company — 18767 INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PRO-JECT [ ] LOC [ ] OTHER:	Y		0209944-21-969672	02/22/2017	02/22/2018	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG [ ]	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 3,000,000 $ 1,000,000 $
	AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) [ ]	$ $ $ $ $
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE AGGREGATE [ ]	$ $ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						[ ] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ $ $

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Evidence of Liability Insurance for permit for Art Auction on December 16, 2017, at 220 Samoset Rd. Eastham, MA . Commercial General Liability Additional Insured = Town of Eastham, subject to the coverage provided by the referenced policy. A225, UWAP168.

CERTIFICATE HOLDER

TOWN OF EASTHAM
2500 STATE HWY
EASTHAM MA 02642-2589

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Internal Revenue Service
District Director

Copy

Department of the Treasury
P. O. Box 9107
Boston, MA 02203

Date: JUN 22 1979

Employer Identification Number:
04-2651302
Accounting Period Ending:
August 30
Form 990 Required: ☐ Yes ☒ No

Nauset Fellowship, Inc.
Samoset Rd. P. O. Box 16
Eastham, MA 02642

Person to Contact:
E. Pecker
Contact Telephone Number:
617-223-4241

Determination Letter 79-1085

Dear Applicant:

Based on information supplied, and assuming your operations will be as stated in your application for recognition of exemption, we have determined you are exempt from Federal income tax under section 501(c)(3) of the Internal Revenue Code.

We have further determined that you are not a private foundation within the meaning of section 509(a) of the Code, because you are an organization described in section 170(b)(1)(A)(1) and 509(a)(1)

If your sources of support, or your purposes, character, or method of operation change, please let us know so we can consider the effect of the change on your exempt status and foundation status. Also, you should inform us of all changes in your name or address.

Generally, you are not liable for social security (FICA) taxes unless you file a waiver of exemption certificate as provided in the Federal Insurance Contributions Act. If you have paid FICA taxes without filing the waiver, you should contact us. You are not liable for the tax imposed under the Federal Unemployment Tax Act (FUTA).

Since you are not a private foundation, you are not subject to the excise taxes under Chapter 42 of the Code. However, you are not automatically exempt from other Federal excise taxes. If you have any questions about excise, employment, or other Federal taxes, please let us know.

Donors may deduct contributions to you as provided in section 170 of the Code. Bequests, legacies, devises, transfers, or gifts to you or for your use are deductible for Federal estate and gift tax purposes if they meet the applicable provisions of sections 2055, 2106, and 2522 of the Code.

The box checked in the heading of this letter shows whether you must file Form 990, Return of Organization Exempt from Income tax. If Yes is checked, you are required to file Form 990 only if your gross receipts each year are normally more than $10,000. If a return is required, it must be filed by the 15th day of of the fifth month after the end of your annual accounting period. The law imposes a penalty of $10 a day, up to a maximum of $5,000, when a return is filed late, unless there is reasonable cause for the delay.

(over)

You are not required to file Federal income tax returns unless you are subject to the tax on unrelated business income under section 511 of the Code. If you are subject to this tax, you must file an income tax return on Form 990-T. In this letter, we are not determining whether any of your present or proposed activities are unrelated trade or business as defined in section 513 of the Code.

You need an employer identification number even if you have no employees.

If an employer identification number was not entered on your application, a number will be assigned to you and you will be advised of it. Please use that number on all returns you file and in all correspondence with the Internal Revenue Service.

Because this letter could help resolve any questions about your exempt status and foundation status, you should keep it in your permanent records.

If you have any questions, please contact the person whose name and telephone number are shown in the heading of this letter.

Sincerely yours,

HERBERT B. MOSHER
District Director

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978— 702-954/101

CERTIFIED

eTIPS Concessions 3.0

Issued: 11/09/2017 **Expires:** 11/09/2020

ID#: 4669101

Deborah J Abbott

PO Box 1338
Eastham, MA 02642-1338 USA

Certificate of Completion

This Certificate of Completion of

eTIPS Concessions 3.0

For coursework completed on November 9, 2017
provided by Health Communications, Inc.
is hereby granted to:

Deborah Abbott

Certification to be sent to:

PO Box 1338
Eastham MA, 02642-1338 USA

HEALTH COMMUNICATIONS, INC.

This document is not proof of TIPS certification. It signifies only that you have completed the course. Valid certification documents will be forwarded to you.

Chimwaza, Karen

From: Edward Kulhawik <ekulhawik@eastham-ma.gov>
Sent: Monday, November 13, 2017 11:08 AM
To: Chimwaza, Karen
Cc: Kent , Farrenkopf; Thomas Wingard
Subject: Re: One Day Liquor License - Chapel in the Pines

Karen

This should be fine by us here. No problem

Thx

Chief Edward Kulhawik

On Nov 13, 2017, at 10:24 AM, Chimwaza, Karen <health@eastham-ma.gov> wrote:

> Good Morning,
>
> We received an application for a one day liquor license for an event at the Chapel in the Pines. The application is attached. Please let me know if you have any comments.
>
> Best,
>
> Karen Chimwaza
> Community Development Assistant
> Town of Eastham
> 508 240 5900 x3230
>
> <1 day liquor.pdf>

Chimwaza, Karen

From: Thomas Wingard <twingard@eastham-ma.gov>
Sent: Monday, November 13, 2017 2:30 PM
To: Chimwaza, Karen
Subject: RE: One Day Liquor License - Chapel in the Pines

Fine

Thomas J Wingard Jr
Building Commissioner/Zoning Enforcement
2500 State Highway
Eastham, MA 02642
774-801-3202 direct
508-240-5918 fax
508-246-3448 cell
twingard@eastham-ma.gov

From: Chimwaza, Karen [mailto:health@eastham-ma.gov]
Sent: Monday, November 13, 2017 10:24 AM
To: Edward Kulhawik <ekulhawik@eastham-ma.gov>; Kent , Farrenkopf <kfarrenkopf@eastham-ma.gov>; Thomas Wingard <twingard@eastham-ma.gov>
Subject: One Day Liquor License - Chapel in the Pines

Good Morning,

We received an application for a one day liquor license for an event at the Chapel in the Pines. The application is attached. Please let me know if you have any comments.

Best,

Karen Chimwaza
Community Development Assistant
Town of Eastham
508 240 5900 x3230

Chimwaza, Karen

From: Kent , Farrenkopf <kfarrenkopf@eastham-ma.gov>
Sent: Thursday, November 16, 2017 1:38 PM
To: Chimwaza, Karen
Cc: Thomas Wingard; Susan Barker
Subject: RE: One Day Liquor License - Chapel in the Pines

Hello Karen,
I spoke to the Deputy and he had no problem with the one day liquor license for the Chapel in the Pines. Please relay to the applicant that all exits must be unlocked and unobstructed, no cooking is allowed, and the rated occupancy load is Followed. If you have any questions, please call me.
Thanks,
Kent

Chief Kent Farrenkopf
Eastham Fire Department
2520 State Highway
Eastham, Massachusetts 02642
774 212 2486 [C]
508 255 2324 [W]
Kfarrenkopf@eastham-ma.gov

From: Chimwaza, Karen [mailto:health@eastham-ma.gov]
Sent: Monday, November 13, 2017 10:24 AM
To: Edward Kulhawik <ekulhawik@eastham-ma.gov>; Kent , Farrenkopf <kfarrenkopf@eastham-ma.gov>; Thomas Wingard <twingard@eastham-ma.gov>
Subject: One Day Liquor License - Chapel in the Pines

Good Morning,

We received an application for a one day liquor license for an event at the Chapel in the Pines. The application is attached. Please let me know if you have any comments.

Best,

Karen Chimwaza
Community Development Assistant
Town of Eastham
508 240 5900 x3230

TOWN OF EASTHAM

2500 State Highway, Eastham, MA 02642 - 2544
All departments 508 240-5900 *Fax* 508 240-1291
www.eastham-ma.gov

III. A. 3

Date: November 20, 2017

To: Board of Selectmen

From: Jacqueline W. Beebe, Town Administrator

Re: Transient Vendor Permit

Turnip Festival – Saturday, November 18th, 2017.

Please find below the Transient Vendor applicants for approval by the Board of Selectmen. In each case, the $20.00 fee has been received. The following permits valid as stated below.

***** Permit #17-248 prepared in advance for the Turnip Festival on Saturday, November 18th.**

*** Owens, James Valid: November 18, 2017- November 18, 2018	

III. A. 4

Date: November 20, 2017

To: Board of Selectmen

From: Jacqueline W. Beebe, Town Administrator

Re: Committee Resignation

Please note the following member from the Town's Committees, Boards and Commissions who has resigned effective 09/29/17.

Eastham Board of Health	**Madeleine Vick Anderson**	(resigned: 11/06/17)

MADELEINE VICK ANDERSON
1285 MASSASOIT ROAD
EASTHAM MA 02642

November 6, 2017

Board of Selectmen
Town of Eastham
2500 State Highway
Eastham MA 02642

RE: Resignation, Eastham Board of Health

Dear Selectmen,

It is with some regret that I ask you to accept my resignation from the Eastham Board of Health. It has always been my belief that a volunteer must be able to consistently fulfill all requirements of their position. My current family situation and health issues make that an impossibility.

Thank you for allowing me to serve on the Eastham Board of Health. It has been a great honor for me. I feel pride in having been a part of the work on some well crafted regulations and policies. I learned a great deal about the issues facing our town. Finally, I had a good time in the process.

Very truly yours,

MADELEINE VICK ANDERSON

cc: Jane Crowley, Eastham Health Agent
Sue Fisher, Eastham Town Clerk

TOWN OF EASTHAM

2500 State Highway, Eastham, MA 02642 - 2544
All departments 508 240-5900 *Fax* 508 240-1291
www.eastham-ma.gov

November 20, 2017

Vicky Anderson
185 Massasoit Road
Eastham, MA 02642

Dear Vicky:

The work that Boards, Commissions and Committees accomplish is reflected by the membership of the group. Eastham is very fortunate to have a wonderful pool of volunteers to choose from and you are one of these chosen people. Thank you for the time and effort you devoted to the Water Management Committee.

May we express the appreciation of the Board of Selectmen, the staff, and indeed all the citizens of the Town of Eastham for your esteemed service.

Sincerely,

William O'Shea, Chair

Wallace F. Adams II, Vice-Chair

John F. Knight, Clerk

Martin F. McDonald

Aimée J. Eckman

BOARD OF SELECTMEN

Info

Bk 30899 Pg94 #58512
11-15-2017 @ 12:38p

Info

BARNSTABLE COUNTY ASSEMBLY OF DELEGATES

In the Year Two Thousand Seventeen

Ordinance 17-12

To establish a District of Critical Planning Concern pursuant to the Cape Cod Commission Act in Eastham, Massachusetts.

BARNSTABLE COUNTY hereby ordains:

Section 1.0 Source of Authority/Qualification

As authorized by Section 10 of the Cape Cod Commission Act, Chapter 716 of the Acts of 1989, as amended. the Cape Cod Commission ("Commission") hereby proposes the Town of Eastham District, hereinafter described, for designation as a District of Critical Planning Concern ("District" or "DCPC"). The designation of this District was nominated by the Eastham Board of Selectmen.

The proposed Town of Eastham District qualifies under Section 10(a) of the Cape Cod Commission Act for proposed designation as a DCPC due to the presence of significant natural and economic resources or values of regional, statewide, or national significance; and, the presence or proposed establishment of a major capital public facility or area of public investment.

Section 2.0 Effective Date

The District of Critical Concern set forth herein shall be effective following passage as an ordinance and upon recording of the ordinance with the Barnstable County Registry of Deeds.

Section 3.0 Description of the Proposed District

The proposed boundary of the District of Critical Planning Concern (hereinafter "DCPC") encompasses commercially zoned land in the Town of Eastham, including District C Industrial, District D Retail Sales and Service, and District E Residential/Limited Commercial, and all land within the North Eastham Overlay District bounded on the north by the Eastham/Wellfleet Town boundary, to the south by Old Orchard Road, to the east by the Cape Cod Rail Trail, and to the west by Herring Brook Road and Massasoit Road. The proposed District consists of approximately 280 acres of land area and approximately 2.9 acres of open water. A map of the proposed District is appended to this Decision as Exhibit "B".

Included within the overall district are approximately 0.46 acres of land owned by the Commonwealth of Massachusetts – Cape Cod Rail Trail, a 10-acre parcel owned by the Town of Eastham, and U.S. Route 6 state highway right-of-way.

Section 4.0 Types of Districts

The Eastham DCPC is designated for the following types of districts:

1. Economic or Development Resource District
2. Affordable Housing Resource District
3. Transportation Management District

Section 4.1 Reasons for the District's Designation

The area designated as a DCPC by this decision is of critical concern to the region because of the presence of significant natural and economic resources or values of regional, statewide, or national significance; and, the presence or proposed establishment of a major capital public facility or area of public investment.

The potential for uncontrolled or inappropriate development exists within the District. The proposed District is bisected by a four-lane undivided highway with multiple curb cuts and higher traffic volumes than other sections of U.S. Route 6. Permissive commercial zoning and the recent provision of town water to the proposed District have resulted in high-traffic volume commercial development proposals whose layout and design could be improved with adequate regulatory controls. Implementing regulations will allow the Town to provide the regulations desired by the community and ensure that this local economic center will grow in a way that existing infrastructure can support.

The Commission finds that the proposed district will preserve and maintain values and resources intended to be protected by the Act. The Commission specifically finds that controlled development within the proposed Town of Eastham District is important for the protection of coastal water quality; balanced economic growth; the provision of adequate capital facilities, including transportation and water supply; the coordination of the provision of adequate capital facilities with the achievement of other goals; the development of an adequate supply of fair affordable housing; and the preservation of architectural values. The Commission finds that there are planning and regulatory tools available which are likely to be effective in protecting or otherwise meeting the objectives of the District and that current regulatory mechanisms are not in place to control growth and development in a manner that would appropriately manage and protect the resources within the proposed District.

The Commission makes the following additional findings regarding the critical concerns in the proposed District:

4.1.1 Water Resources

The southeasterly portion of the proposed District lies within the contributing area to the Salt Pond sub-embayment, within the Nauset Harbor watershed. According to the Final Massachusetts Estuary Project ("MEP") Technical Report for Nauset Harbor, the Salt Pond sub-embayment watershed requires significant nitrogen removal (i.e. removal of 100% of the septic load). An approved Total Maximum Daily Load ("TMDL") report, currently in progress, will require nitrogen reductions in the Salt Pond sub-embayment. Reductions in nitrogen loading

within the watershed could be targeted to both development and redevelopment. Stormwater management retrofits or installations of best management practices ("BMPs") within the District that treat for nitrogen would reduce nitrogen loading to Salt Pond and greater Nauset watershed. Additionally, minimizing turf (i.e. fertilizer application), impervious surfaces (i.e. generation of stormwater runoff), and inadequately treated wastewater discharges within the Nauset Marsh watershed would help mitigate any increase in nitrogen load to the already-impaired embayments.

4.1.2 Economic Resources

The proposed District is the Town's core commercial area and is primarily zoned for general business use, which allows a variety of retail, accommodations, and other commercial uses. The Town has invested considerable funds into the proposed District by authorizing the design and construction of a one hundred thirty million dollar ($130M) public water supply system throughout the Town. This major public investment will provide town water to all properties within the proposed District. New development and redevelopment is now more feasible for many property owners within the proposed District, as evidenced by several recent retail and residential development proposals and permits issued by the Town. The advantage to developing the area in a controlled manner include addressing the impact of future growth on the character of the community.

4.1.3 Provision of Adequate Capital Facilities

The proposed District is bisected by U.S. Route 6, a Federal/State highway that serves as the major travel corridor to the Outer Cape towns of Wellfleet, Truro and Provincetown with average summer daily traffic volumes of approximately 25,000 - 30,000 vehicles/day. Average summer daily traffic volumes on Route 6 at the Wellfleet/Truro town line average 14,000 vehicles/day, and 12,000 vehicles/day at the Truro/Provincetown town line. Summer traffic congestion and safety on Route 6 impacts both residents and visitors daily. The Eastham section of Route 6 consists of a four-lane cross-section with 12-foot vehicle lanes and a 5-foot sidewalk on the west side of the roadway. There are no sidewalks on the east side of the roadway where most of the businesses and numerous curb cuts are located. There are approximately 100 curb cuts along the approximately 2.5-mile section of Route 6 within the proposed District.

The corridor lacks sufficient bicycle and pedestrian accommodations, and has not received upgrades to mitigate traffic volumes, safety issues, and stormwater runoff. As a state highway, Route 6 is under the jurisdiction of the Massachusetts Department of Transportation ("MassDOT") and the Town lacks the capacity and the regulatory framework to implement comprehensive improvements to the roadway.

In 2015, Eastham Town Meeting authorized the design and construction of a one hundred thirty million dollar ($130M) public water supply system throughout the Town. This major public investment will provide town water to all properties within the proposed District. New development and redevelopment is now more feasible for many property owners within the proposed District, as evidenced by several recent retail and residential development proposals and permits issued by the Town.

4.1.4 Provision of Adequate Supply of Fair Affordable Housing

The availability of public transit provided by the Cape Cod Regional Transit Authority ("CCRTA") Flex bus, coupled with the proximity of commercial and retail services along Route 6 and the availability of town water, makes the proposed District an appropriate location for affordable housing. The Town is seeking to diversify its housing stock by promoting mixed-use/village style development. This type of development will provide additional opportunities to accommodate appropriately designed residential units at higher densities, which is a vital component in making the development of affordable housing economically viable within the District.

4.1.5 Preservation of Architectural Values and Appropriate Site Design

In 2014, the Town approved overlay zoning within the proposed District to encourage mixed-use development in a traditional village-style development pattern. The overlay zoning has not yielded any new mixed-use development and the bylaw has not been effective in producing the form and type of development desired by the Town. Permissive commercial zoning and the recent provision of town water to the proposed District have resulted in high-traffic volume commercial development proposals whose impacts, layout and design could be improved with adequate regulatory controls.

Section 5.0 Guidelines for Proposed Implementing Regulations

The following guidelines shall serve as the basis for the future establishment of implementing regulations to be adopted by the Town of Eastham pursuant to Section 11 of the Cape Cod Commission Act. In order for the implementing regulations to be approved, they must be found by the Commission to be consistent with the following guidelines.

Section 5.1 Goals and Interests

The objective of these Guidelines is to ensure protection of the following goals and interests of the District through the establishment of implementing regulations by the Town of Eastham. The goals and interests of the District are to:

Enhance and protect the character of Eastham's commercial areas.
Encourage mixed-use development.
Support and enhance the local economy in North Eastham..
Improve bicyclist and pedestrian safety and access along the Route 6 corridor.
Minimize traffic conflicts and improve access management throughout the District.
Expand opportunities for creation of affordable housing.
Adopt best management practices to manage nutrients discharged through stormwater within the District.

Support appropriate-scale businesses, as well as compatible public/private institutional uses and maritime uses.

Section 5.2 Guidelines

5.2.1 The town could consider adopting appropriate site layout and design standards to achieve traditional village style development.

Eastham's underlying zoning regulations, including dimensional requirements discourage the compact development form desired by the town in this area. Allowing smaller lot sizes would encourage creation of a higher density village-style design. Reduced setbacks would facilitate improved site design, by allowing buildings to be closer to the street and encouraging parking to be located behind buildings, thereby promoting village character and pedestrian accessibility

The town could develop design guidelines or standards to encourage building and site design that promotes a mix of uses consistent with traditional village style development. The town could adopt building size limits based on the size and scale of existing structures and traditional village style form.

5.2.2 The town could adopt regulations to encourage creation of a range of affordable housing.

The town could examine existing regulations to encourage a range of appropriately designed affordable housing to meet a range of housing needs.

The town could develop design guidelines or standards to encourage higher density housing consistent with traditional village style residential design.

The town could consider adopting inclusionary zoning that could require new development to provide affordable dwelling units.

The town could consider encouraging creation of affordable accessory units by creating incentives for property owners to add them, such as a by-right allowance.

The Town could review its zoning bylaw and revise it as necessary to incorporate design requirements or guidelines to assist property owners in designing accessory units that would match the existing character of surrounding neighborhoods. Consideration of the adoption of design guidelines could be considered part of a minimum criteria for allowing accessory apartments by-right.

5.2.3 Development and redevelopment in the District could incorporate best management practices (Low Impact Development) to reduce stormwater impacts to resources.

New development and redevelopment may increase stormwater impacts to water resources. The town could adopt Best Management practices that are consistent with model LID bylaws.

5.2.4 Development and redevelopment should promote interconnectivity between properties to improve access for bicyclists, pedestrians, and motorists.

The town could adopt zoning and subdivision regulations to promote shared driveways, reduce curb cuts, and enhance circulation between sites.

5.2.5 The Town may consider working with the Cape Cod Commission and MassDOT to develop a transportation management plan to address the deficiencies on U.S. Route 6, including adequate pedestrian and bicycle accommodations, access management, intersection safety as well as safety along the corridor.

In addition, the transportation management plan will include a Cape Cod Commission corridor study of Route 6 to determine the best type of roadway system for Eastham (e.g., center turn lanes, a boulevard-type design, traffic signals, etc.). The Cape Cod Commission study is expected to be completed in the fall of 2018.

After concept-level plans have been developed and consensus has been reached on the best plan to move forward, the Town of Eastham, the Cape Cod Commission and MassDOT should work together to implement the design plans. The town may then amend or adopt its implementing regulations based on the results of the study.

Section 5.4 Review of Developments of Regional Impact (DRI) within the DCPC

The regulations adopted pursuant to these Guidelines in no way alter the process for the referral and review of Developments of Regional Impact according to the Act and Regulations of the Cape Cod Commission.

Section 5.5 Timeframe for Action

The Town of Eastham has one year from the date of the enactment of an ordinance by the Assembly of Delegates establishing the Eastham DCPC to adopt and incorporate implementing regulations that are consistent with the Cape Cod Commission guidelines into its official bylaws, regulations and maps. The Cape Cod Commission may grant an additional ninety-day extension of this time limit and may carry forward implementing regulations on the Town's behalf as provided by Section 11 of the Cape Cod Commission Act.

Adopted by the Assembly of Delegates on November 1, 2017

E. Suzanne McAuliffe, Speaker
Assembly of Delegates

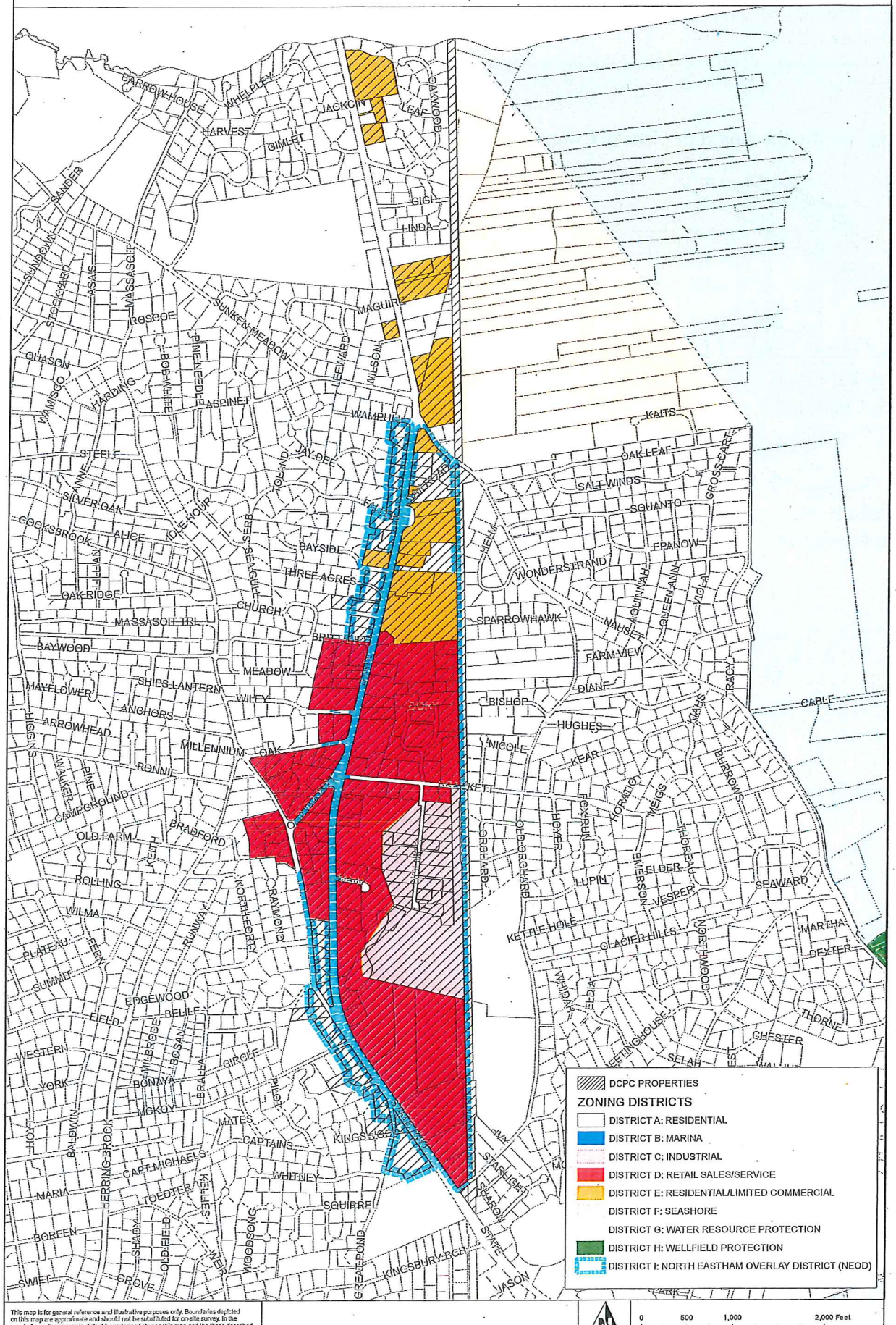
Approved by the Board of County Commissioners 11/08/17 (date), at 10:00 AM (time).

Leo Cakounes
Chairman

Mary Pat Flynn
Vice Chairman

Ronald Beaty
Commissioner

Town of Eastham - Proposed DCPC August 2017



This map is for general reference and illustrative purposes only. Boundaries depicted on this map are approximate and should not be substituted for on-site survey. In the event of any discrepancy in district boundaries between this map and the those described in the zoning by-law, the written discription contained in the by-law shall prevail.

Info?

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

November 1, 2017

Dear Public Water Supplier:

RE: Safe Drinking Water Act Assessment for Fiscal Year 2019 (to be billed in December 2018)

Please forward this notice to the person who is responsible for paying the bills for your public water system. When you receive your bill, please remember to enclose the top part of your bill with your payment.

The Assessment is paid for by all users of public water in Massachusetts and is collected by public water systems (PWSs) and submitted to MassDEP. The Safe Drinking Water Act Assessment rates remain the same for Fiscal Year (FY) 2019.

The Assessment rates for FY 2019, based on water use reported by PWSs for calendar year 2016, are as follows:

- $8.50 per million gallons of water used by PWSs with master meters;
- Minimum bill for metered PWSs is $20;
- Flat rate of $50 for unmetered PWSs serving up to 101;
- Flat rate of $100 for unmetered PWSs serving 101 through 200; and
- Flat rate of $250 for unmetered PWSs serving 201 through 899.

Please note that the bills for FY 2019 will be mailed to all PWSs in December 2018. The bills that you receive this year, in December 2017, will be for the Safe Drinking Water Act Assessment for FY 2018. The FY 2018 bill is based on water use reported by PWSs on the Annual Statistical Report for calendar year 2015.

Background

In 1993, the Massachusetts Legislature established the Safe Drinking Water Act Assessment as a mechanism to help fund the Commonwealth's effort to provide a safe and fit supply of water to all consumers of public drinking water. The Assessment also supports the Massachusetts Department of Environmental Protection's (MassDEP) ability to maintain state primacy to implement the federal Safe Drinking Water Act (SDWA). With the funds collected through the Assessment, MassDEP provides compliance and technical assistance, training and one-to-one help. This includes providing opportunities for PWSs to receive the Training Contact Hours (TCHs) needed to maintain their state licenses.

A Safe Drinking Water Act Assessment Advisory Committee was also created by the Legislature in 1993 to assist in administering the Assessment Program, including setting the Assessment rate and periodic review of that rate. By law, the following groups are represented on the Committee: a Massachusetts

statewide water works nonprofit association, a New England regional water works nonprofit association, a nonprofit association representing rural water systems, a regional water works association, a nonprofit association representing investor-owned water companies, two statewide environmental organizations, organizations representing non-community water suppliers, the Massachusetts Municipal Association, an organization representing industry and one member who shall be appointed by the commissioner. No state government employee may be on the Committee. The Committee makes recommendations about the Assessment rates to MassDEP's Commissioner, holds public meetings, and submits an Annual Report to the Massachusetts Legislature. More information about the Committee is posted on MassDEP's web site at http://www.mass.gov/eea/agencies/massdep/news/advisory-committees/safe-drinking-water-act-assessment-advisory-committee.html. You are welcome to attend the Committee's public meetings.

Thank you for the support that you have shown to the Drinking Water Program over the past year as we pursue our shared responsibility of protecting public health. A list of the Drinking Water Program's accomplishments for 2016 is provided with this letter. Please contact us at 617-292-5770 or program.director-dwp@state.ma.us if you have any questions about the Assessment Program or other public drinking water topics.

Sincerely,

Yvette DePeiza
Program Director
Drinking Water Program
MassDEP

Info

ADMINISTRATION
NOV 08 2017
RECEIVED

P.O. Box 1568
N. Eastham, MA 02651
capenate51@gmail.com

November 6, 2017

Town of Eastham
Jackie Beebe, Town Administrator
2500 State Highway
Eastham, MA 02642

Dear Jackie & Selectmen:

I understand that the Tee Time Property is under agreement. Please be advised that, should the proposed sale not go forward for any reason, I will buy the property and turn it into a farm for Eastham Turnips and Asparagus, among other vegetables. I would place it under the M.G.L. c 61 - Farm Act. I also have a very reliable and experienced farmer who is looking for farmland to grow turnips and other vegetables. I have been trying to reintroduce the Eastham Turnip, which has been lost over the years.

Please keep me informed if the land becomes available.

Sincerely,

Nathan A Nickerson III

Nathan A. Nickerson, III
508 240 8000

Massachusetts Department of Environmental Protection
ACCOMPLISHMENTS DIRECTLY SUPPORTED BY THE
SAFE DRINKING WATER ACT ASSESSMENT
January 1 through December 31, 2016

Protect Public Health through Compliance Reviews

- Reviewed 402 water quality monitoring waiver applications and issued 280 volatile organic compound waivers, 671 synthetic organic compound waivers; 572 inorganic compound waivers; and 730 perchlorate waivers. This program saved consumers $5,567,872 in water quality monitoring costs during the 2014-2016 waiver period.
- Approved watershed protection programs for 29 reservoirs with disinfection log credit.
- Approved watershed protection programs for nine reservoirs with filtration waivers.
- Maintained an incentive program for developing local watershed protection plans & bylaws.
- Reviewed and approved wellhead protection land use controls for 14 wells in four municipalities.
- Registered 12 existing PWS that were previously unregulated.
- Reviewed and/or approved 26 new large capacity public water sources.
- Performed eight Cross Connection Control Program (CCCP) audits.
- Reviewed and approved CCCP Plans for 16 non-community public water systems (PWSs).
- Sent 264 Cross Connection Surveyors/Testers Certification reminder letters.
- Issued 275 Cross Connection Surveyors/Testers Certificates.
- Reviewed and approved six new technologies for use with drinking water.
- Entered 333 permit applications into MassDEP's permit management system.
- Conducted 338 sanitary surveys which included technical and compliance assistance.

Save Money for Consumers with Compliance Assistance

- Continued to implement the Wellhead Protection Program to provide compliance and technical assistance. Assisted 120 municipalities or PWSs with wellhead protection issues.
- Field verified 26 watershed and tributary delineations for reservoirs and/or updated Geographic Information System (GIS) maps.
- Continued technical support of the bulk upload tool for laboratories to submit drinking water quality sampling results on-line.
- Continued with compliance assistance for Statistical Reporting, Ground Water under the Influence, Consumer Confidence, Cross Connection, Certified Operator and Source Water Protection programs.
- Captured the seventh year of electronic Annual Statistical Reporting (eASR).
- Continued improving the eASR for the next reporting year.
- Provided over 500 instances of Source Water Protection technical assistance at reservoirs and river sources.
- Continued biweekly Program Director emails to notify PWSs of new educational materials, regulatory rules, trainings, etc.

- Maintained an on-line template for PWSs to use for Consumer Confidence Report (CCR) compliance, updated support materials and mailed out CCR reminder e-postcards.
- Used an electronic document search for transient non-community CCRs.
- Notified new community water systems of CCR requirements for 2016.
- Reviewed 519 CCRs, provided Technical Assistance Reports and tracked CCR compliance.
- Posted sample schedules and Certificates of Registration for all PWSs.
- Provided technical assistance to K-12 schools, early education and care facilities, Boards of Health, Plumbing Inspectors, PWSs and the public on lead and copper in drinking water.
- Provided compliance assistance to PWSs for the Unregulated Contaminant Monitoring Rule.

Support Public Water Suppliers with Technical Assistance and Training

- Distributed fact sheets, guidance documents, and other technical assistance materials.
- Continued to improve web pages for access by PWSs, town officials, the public and others.
- Provided materials for statewide Board of Health workshops as requested.
- Prepared annual mailing to all Boards of Health to support their role in protecting drinking water and to update them on drinking water issues.
- Worked with the Office of the State Geologist and United States Geological Survey.
- Presented 41 awards to PWSs during Drinking Water Day in May 2016.
- The Board of Certification of Operators of Drinking Water Supply Facilities approved 81 training courses.
- Provided instructors for 9 New England Water Works Association (NEWWA) Backflow Tester and Cross Connection Survey classes.
- Provided Cross Connection Program technical assistance to 128 individuals and municipalities.
- Created new online training videos for PWSs at https://www.youtube.com/channel/UCXbNwZ4HNb6FSCydzuq1-NA.

Massachusetts Department of Environmental Protection
ACCOMPLISHMENTS PARTLY/INDIRECTLY SUPPORTED BY THE SAFE DRINKING WATER ACT ASSESSMENT
January 1 through December 31, 2016

Protect Public Health through Compliance Reviews

- Conducted inspections at six public surface water systems that have waivers from filtration.
- Conducted regular meetings with the Massachusetts Water Resources Authority including compliance reviews of monthly reports.
- Conducted regular meetings of the Drinking Water Filtration/Treatment Committee.
- Conducted 15 Capacity Reviews for Drinking Water State Revolving Fund applicants.
- Reviewed four Water Supply Business Plans during the New Source Approval Process.

Save Money for Consumers with Compliance Assistance

- Continued to offer free training programs for small system operators through an EPA grant.
- Continued the implementation of the Capacity Development Program which provides financial, managerial, and technical assistance to small water suppliers.
- Reviewed the technical, financial, and managerial operations of 186 community and non-transient non-community and 153 transient non-community PWSs.
- Reviewed Underground Injection Control (UIC) registration applications for 11 PWSs.
- Responded to requests from PWSs regarding the Unregulated Contaminant Monitoring Rule 3 (UCMR3) Program and the Inorganics Program.
- Helped PWSs write watershed protection plans & local water supply bylaws.
- Submitted the Annual Operator Certification Report to EPA.
- Presented to a Board of Health regional meeting in Northampton on welldriller topics.
- Gave six Boards of Health one-on-one assistance with well drilling requirements.
- Continued to refine private well locations for inclusion in MassGIS data layer.
- Continued implementation work for 90 PWS under the Long Term 2 (LT2) Enhanced Surface Water Treatment Rule. Prepared LT2 PWSs for second round of source water monitoring.
- Identified 1,120 technical, financial, and managerial deficiencies during sanitary surveys.

Support PWSs with Technical Assistance and Training

- Provided comments on MassDEP Bureau of Waste Site Cleanup, Title 5, and Groundwater Discharge Program regulations & policy development for consistency with the Drinking Water Program.
- Provided technical expertise to the United States Geological Survey (USGS) on their Climate Response Network.
- Collaborated with the USGS to help measure monthly water level readings throughout the State.

- Provided speakers on water supply topics for local and regional events and for operator training courses through NEWWA and the Massachusetts Rural Water Association.
- Continued to collaborate with the Mass. Department of Public Health (DPH) on the Lead Contamination Control Act and fluoridation.
- Provided classroom training on fluoride to PWSs.
- Revised MassDEP Private Well Guidelines with the assistance of technical committee consisting of Board of Health agents and well drillers.
- Provided assistance on writing capital improvement plans to 280 PWSs during sanitary surveys.
- Updated 2,800 entries in the Well Driller database.
- Added 3,200 new wells to the Well Driller database.
- Provided technical assistance and instructors to the New England Interstate Water Pollution Control Commission's Soil Evaluator Course.
- Provided technical assistance to the National Science Foundation Drinking Water Technology Review Section.

Participate on Committees that Bring Massachusetts Interests to the State, Regional and National Level

- MassDEP personnel participated in meetings and events of the following committees, organizations, and other state, regional and national entities: Association of State Drinking Water Administrators; State Vegetation Management Panel; State Pesticide Board; Office of the State Geologist State Map Advisory Committee; NEWWA Source Water Advisory Group, Groundwater Advisory Committee, Groundwater Resource Initiative, Drinking Water Operators Certification Committee, and Board of Certification of Backflow Prevention & Cross Connection Control, Management & Finance; Multi-Agency Task Force on Schools; National Drinking Water Advisory Council Small Systems Implementation Work Group; MassDEP Laboratory Advisory Committee; Mass. Water Works Association (MWWA) Technical Advisory Committee; New England Interstate Water Pollution Control Commission Source Water Protection Work Group; Ground Water Protection Council's Source Water Protection Work Group; Well Driller Certification Program Technical Advisory Committee; AWWA Fluoride Standards Committee. Participated on EPA work groups for Emergency Preparedness, Data Sharing, Lead and Copper Rule, Perchlorate, and the Ground Water Rule.