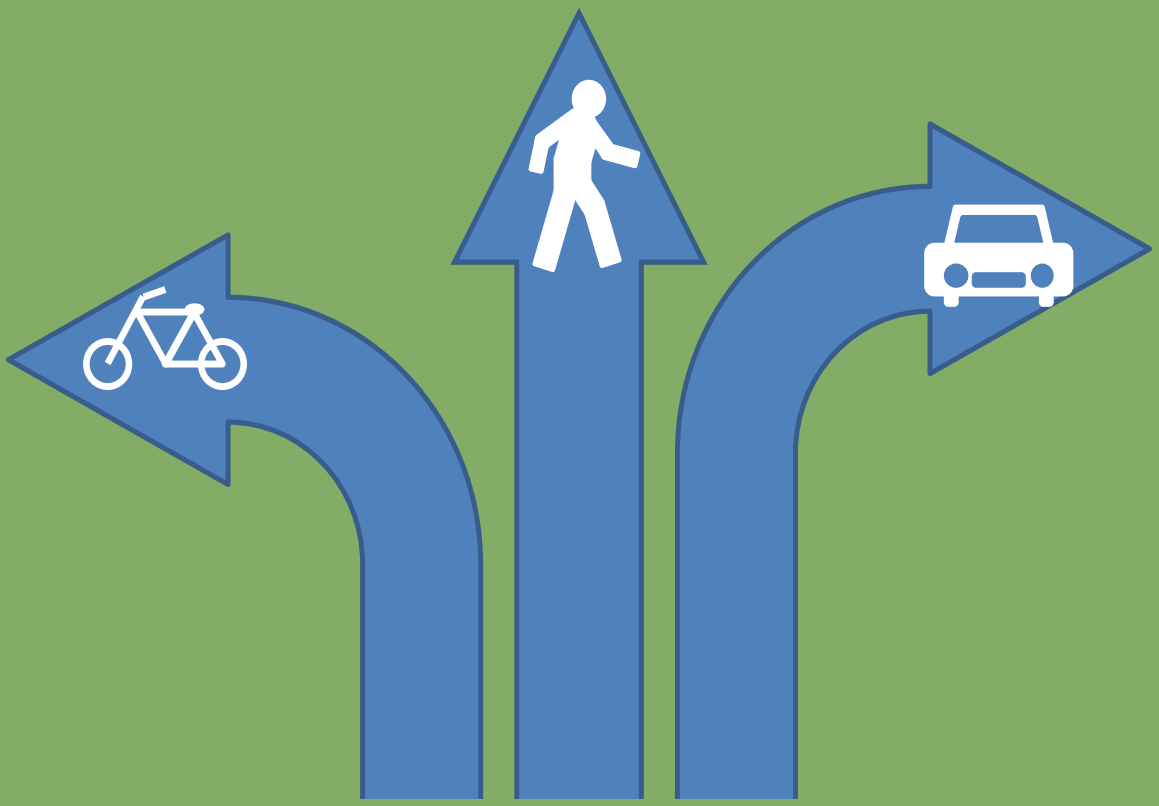
Completing Complete Streets:

Implementation Manual for the Sound Shore Communities



City of Rye
Town of Mamaroneck
Village of Mamaroneck
Village of Larchmont

NYU Wagner
Robert F. Wagner Graduate School of Public Service

Completing Complete Streets:

Implementation Manual for the Sound Shore Communities

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May 2012

The Sound Shore Complete Streets Capstone Team would like to acknowledge and thank the following individuals for their support, guidance, and contribution to this project:

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Table of Contents

List of Graphs and Figures

Chapter One: Executive Summary

In the past decade, local governments throughout the United States have begun the process of reclaiming the public right-of-way as space for users of all modes of travel. While street space has been largely reserved for cars for much of the 20th century, more recent efforts have been aimed at creating safer and more attractive space for pedestrians and cyclists as well, through a variety of street interventions. This concept has been termed complete streets.

Complete Streets support all modes of travel.[1]

Complete Streets: Before and after, N. 130th Street, Seattle.[2]

1 Image: http://www.marinbike.org/News/Bulletin/20111116.shtml
2 Images: Seattle Department of Transportation.

Four neighboring municipalities located along the coast of Long Island Sound in Westchester County, New York - the City of Rye, the Town of Mamaroneck, the Village of Mamaroneck, and the Village of Larchmont, together called the Sound Shore communities (see figure 1.1) - coordinated with the Rye YMCA to engage an urban planning Capstone team from New York University's Wagner Graduate School of Public Service to provide guidance and assist in their own complete streets effort. The 2011-12 team's project builds off of the work of a Capstone team from 2010-11, which produced an introduction to complete streets concepts and preliminary recommendations for site interventions (see figure 1.2). This manual addresses the implementation process, or the "next steps" to building a thorough complete streets effort.

Figure 1.1. The Sound Shore Communities

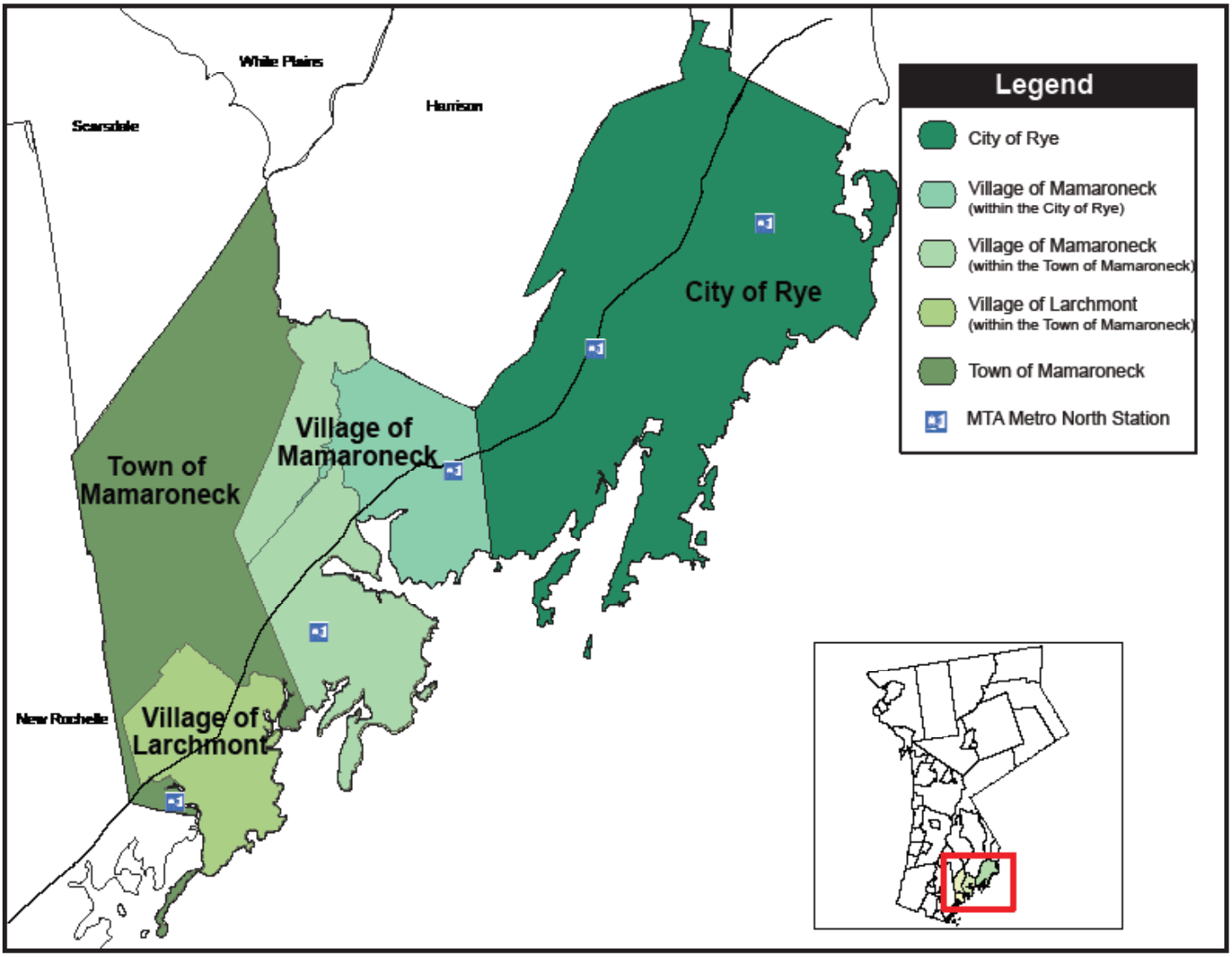
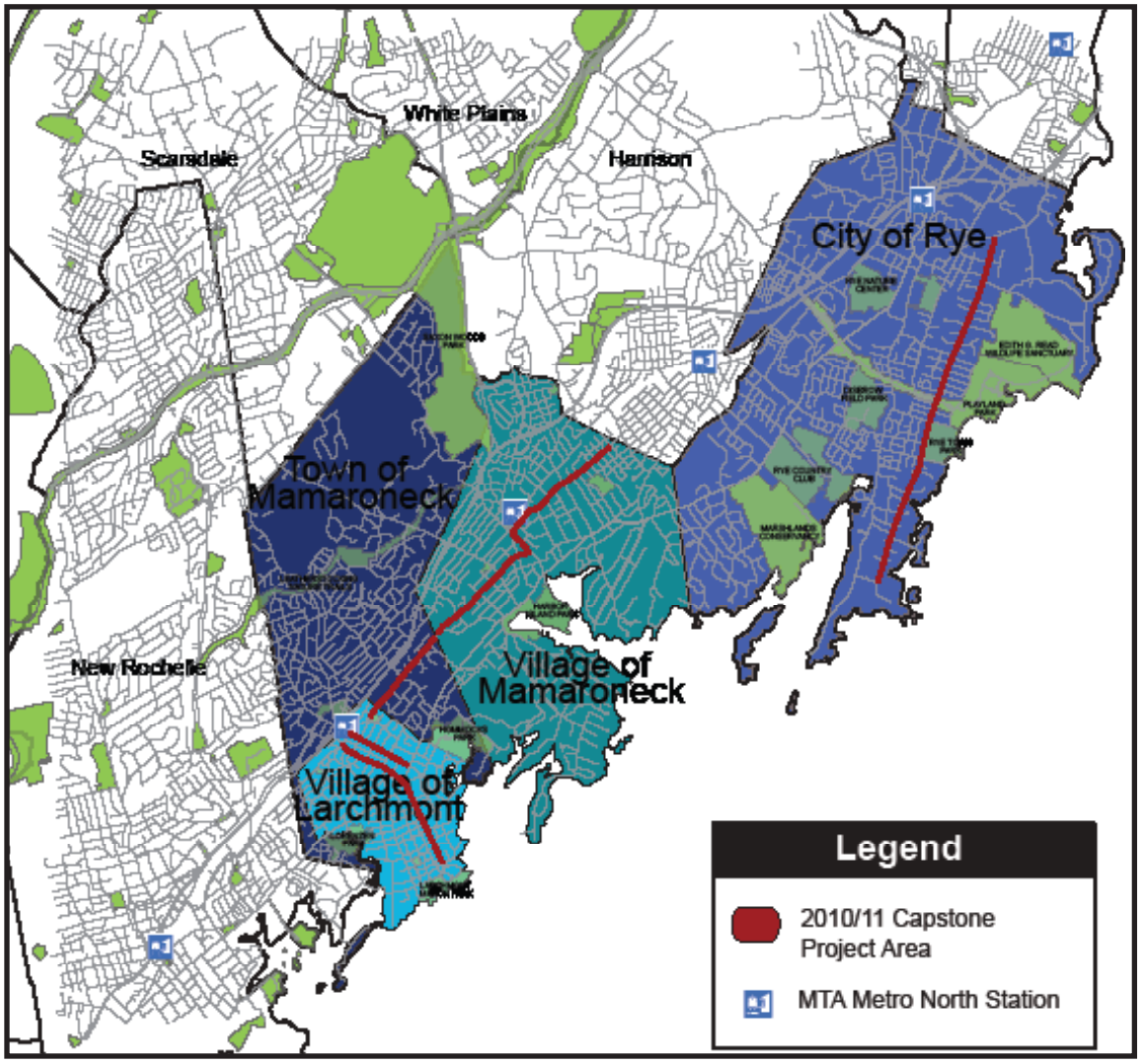


Figure 1.2. Locations identified by the 2010–11 Capstone Team



The Capstone team focused on four elements of the implementation process: policy and law, planning process, public outreach and education, and maintenance and financing. Using best practices learned through research into the complete streets efforts of similar municipalities as well as examples from larger cities where complete streets projects are more common, the team presented a series of recommendations for nurturing public support, building the effort into the government structure, designing a thorough network of interventions, and developing reliable funding resources.

The team also presented recommendations for how to conduct these steps by focusing on one inexpensive, near-term intervention: shared lane markings (commonly called "sharrows") that promote bicycle use in a street's travel lane. Due to the minimal expenditure of resources required to install sharrows, the team believes that they offer an opportunity to serve as a pilot program that will increase the public's understanding of complete streets concepts and act as a springboard for more complex or intensive streets interventions.

Chapter Two: Introduction

Capstone project. As part of the NYU Wagner curriculum, graduate students complete a Capstone project in their final year of study. Student teams are assigned to a client with whom they work throughout the school year to address an identified challenge and propose possible solutions. This project provides a valuable opportunity for students to apply the concepts learned in the classroom in a real world environment and also develop skills pertinent for the workplace, including project management, research, and teamwork skills.

In the fall of 2011, the City of Rye tasked a team of four urban planning students with creating a complete streets implementation manual. The client invited the Town of Mamaroneck, the Village of Mamaroneck, and the Village of Larchmont, who are similarly interested in introducing complete streets to their respective communities, to provide input for the manual as well. The team also worked closely with the Rye YMCA to facilitate coordination between all four communities (the Sound Shore communities).

In the 2010–11 academic year, a Capstone team worked with the Rye YMCA and the Sound Shore communities to identify complete streets funding and policy opportunities, as well as potential sites for complete streets retrofit projects. Building off of their study, the 2011-12 team conducted a comprehensive study of complete streets implementation in four topic areas where potential road blocks to building out a complete streets network exist:

Policy and Law

Planning Process

Public Outreach and Education

Financing and Maintenance

The team also assessed how these communities could institutionalize complete streets concepts in their existing political structures and decision-making systems. Much of the team's study focused on best practices derived from complete streets efforts in other municipalities, particularly those with similar geographic, governmental, and demographic profiles as the Sound Shore communities.

In order to illustrate how a complete streets project can be implemented, this manual includes a sharrows how-to guide, which provides step-by-step guidance for implementing sharrows in the Sound Shore communities. Sharrows are markings on the road that remind drivers to share the road with bicyclists (see figure 2.1). They were made the focus of this guide at the request of the clients because they are simple, inexpensive, and can serve as test projects that expose some of the problems that might arise with larger, more complex complete streets initiatives.

Figure 2.1. Sharrow road markings[3]

Complete Streets. A complete street is a roadway designed to accommodate all roadway users: pedestrians, bicyclists, motorists, and transit users. Complete streets promote access, sustainability, and safety in communities. They can be introduced by retrofitting existing roadways: adding bump outs, bike lanes, street trees, speed humps, refuge islands, crosswalks, and other amenities that allow for safe and comfortable use by a wide range of users (see figure 2.2).

Streets programmed only for motorists often restrict the ability to walk and bike due to perceived and real safety risks. Conversely, complete streets can boost physical activity and allow residents to reap the health benefits of increased exercise. They can also help attract more business to downtown areas by increasing foot traffic and mitigate storm water runoff through the incorporation of green infrastructure, such as planted pedestrian islands.

New York State passed a complete streets resolution which took effect in February 2012. Under this law, state, county, and local transportation agencies must take complete streets design principles into consideration for projects that receive federal and state funding (for the full text of the resolution, see Appendix 1). As of the end of 2010, more than 200 such policies have been adopted by jurisdictions nationwide. The majority of adopters have been small towns and suburban communities with a population of less than 30,000.[4] These policies have transformative power over the decision-making process of transportation and planning agencies: not only do they formalize the intent to provide safe access for all street users, but they also support decision-making and government spending surrounding these goals.

3 Photo from: http://www.jamesbikesgreen.info/2011/05/sharrows-and-passports.html

4 National Complete Streets Coalition, CS Policy Analysis 2010.

Figure 2.2. Examples of complete streets design interventions: sidewalks, bike lanes, planted refuge islands, and crosswalks with bump outs[5]

5 Images from: http://www.healcitiescampaign.org/healthy_zone.html, http://www.gcpvd.org/2009/06/25/you-spin-me-right-round/, and the Capstone team's photo of downtown Rye.

Chapter Three: Methodology

The purpose of this manual is to provide the Sound Shore communities with the proper tools and standards to implement complete streets initiatives in new projects and existing roadway retrofits. Research into complete streets and general development best practices as well as perceptions of the public and municipal officials played a vital role in creating an applicable manual. This chapter discusses the overall manual design and describes the team's methods of data collection and analysis.

Research Methods. The team designed a research approach that explores the four topic areas of policy and law, planning process, public outreach and education, and maintenance and financing.

Existing Conditions. In order to understand existing conditions in the Sound Shore communities, the team undertook desk research (primary and secondary), including review of existing codes, processes, and plans relevant to the implementation of transportation projects in the four municipalities. The team collected information available online and in public records, as well as documents supplied by clients.

The team also determined that qualitative interviews were necessary to further understand municipal planning processes. Interviews were selected as an appropriate tool for the team's research and information gathering because they allow for in-depth information gathering and provide insight into the practicalities of project implementation.

A first round of interviews was conducted in-person, in teams of two interviewers, in December 2011. These interviews were conducted with leaders of municipal government in each of the four client municipalities and focused on current processes, policies, resources, jurisdictional issues, and community involvement. Interviews were scheduled with the highest ranking official available, or the official most heavily involved in development processes, such as town and village supervisors, town and village administrators, town managers, mayors, city planners, and traffic committee members.[6]

The team followed-up these in-person interviews with a series of supplementary interviews with additional stakeholders in each municipality in order to fill in gaps in the team's understanding of processes, policy, public opinion, and resources. These additional stakeholder interviews included traffic committee members and public works department staff, among others. These interviews were conducted mainly by telephone in the interest of time and resources.

Best Practices. The Capstone team conducted extensive desk and interview research into nationwide complete streets implementation best practices. Best practices refer to the processes, strategies, and systems that have performed exceptionally well and are widely recognized to improve performance and efficiency in a particular area -- in this case, the implementation of complete streets initiatives. The team's best practices research was integral to informing the recommendations in this manual.

6 For a complete list of all interviewees, please consult Appendix 2.

To determine best practices, the Capstone team researched communities similar in size, climate, and demography to the Sound Shore communities, noting how they have successfully implemented complete streets initiatives or are currently employing innovative means to do so. Sources used to identify appropriate case studies included, but were not limited to, the website of the Complete Streets Coalition (a national advocacy group),[7] local newspapers, search engines, state government websites, the U.S. Federal Highway Administration[8] and other federal agency websites, bike and pedestrian advocacy group websites, prominent blogs such as Streetsblog,[9] and university resources.

Once appropriate communities were identified, further research was done to determine the effectiveness of aforementioned complete streets implementation. The team found that the following communities had particularly effective examples of complete streets implementation that could be applicable to the Sound Shore communities: Batavia, NY; Detroit, MI; Greenburgh, NY; Hartford, CT; Hoboken, NJ; Islip, NY; Lansing, MI; Middletown Township, NJ; Netcong, NJ; New Haven, CT; New York, NY; Northampton, MA; Pasadena, CA; Princeton, NJ; Seattle, WA; and West Windsor, NJ. These case studies helped the team to investigate practices in policy and law, planning process, outreach and education, and maintenance and financing in a real-world context and understand problems and issues inherent in implementing complete streets concepts at the municipal level.

In cases where particularly strong examples of best practices were found, the Capstone team conducted phone interviews with officials of those communities, including town commissioners, traffic engineers, environmental committee members, administrators, and planners. Phone interviews were thought to be an appropriate way of conducting these interviews, because they were time- and cost-effective, convenient for the interviewee, and allowed for follow-up questions and more in-depth discussion than would a questionnaire or survey.

Best practices that the team analyzed and deemed particularly appropriate for the Sound Shore communities were compiled into a best practices memorandum, which was presented to the client in February 2012 at Rye City Hall. The team made a presentation to the client group, including representatives from the Rye YMCA, the City of Rye, the Town of Mamaroneck, the Village of Mamaroneck, and the Village of Larchmont.[10] Feedback at this presentation focused on how to better integrate the recommendations with local context at a time when many communities do not feel they have the resources to initiate large projects. The clients also asked the team to recognize competing interests when making recommendations. The feedback garnered at this presentation helped to guide further research that informed this manual.

7 http://www.completestreets.org/
8 http://www.fhwa.dot.gov/
9 ttp://streetsblog.net/
10 For a full list of attendees, see Appendix 3.

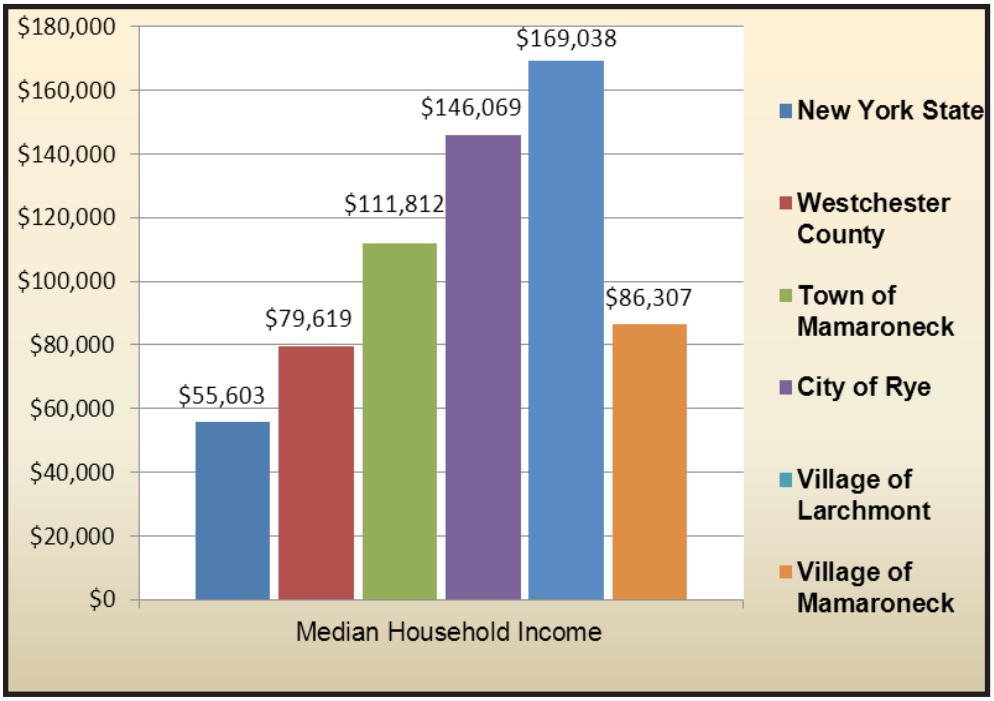
Chapter Four: Existing Conditions

Sound Shore Overview

The Sound Shore communities, consisting of the City of Rye, the Town of Mamaroneck, the Village of Mamaroneck, and the Village of Larchmont, are located on the Long Island Sound in Westchester County in New York State, approximately 25–30 miles north of New York City. Though each (except the Town of Mamaroneck) has a central business district, the municipalities are primarily residential in nature, with high levels of home ownership.

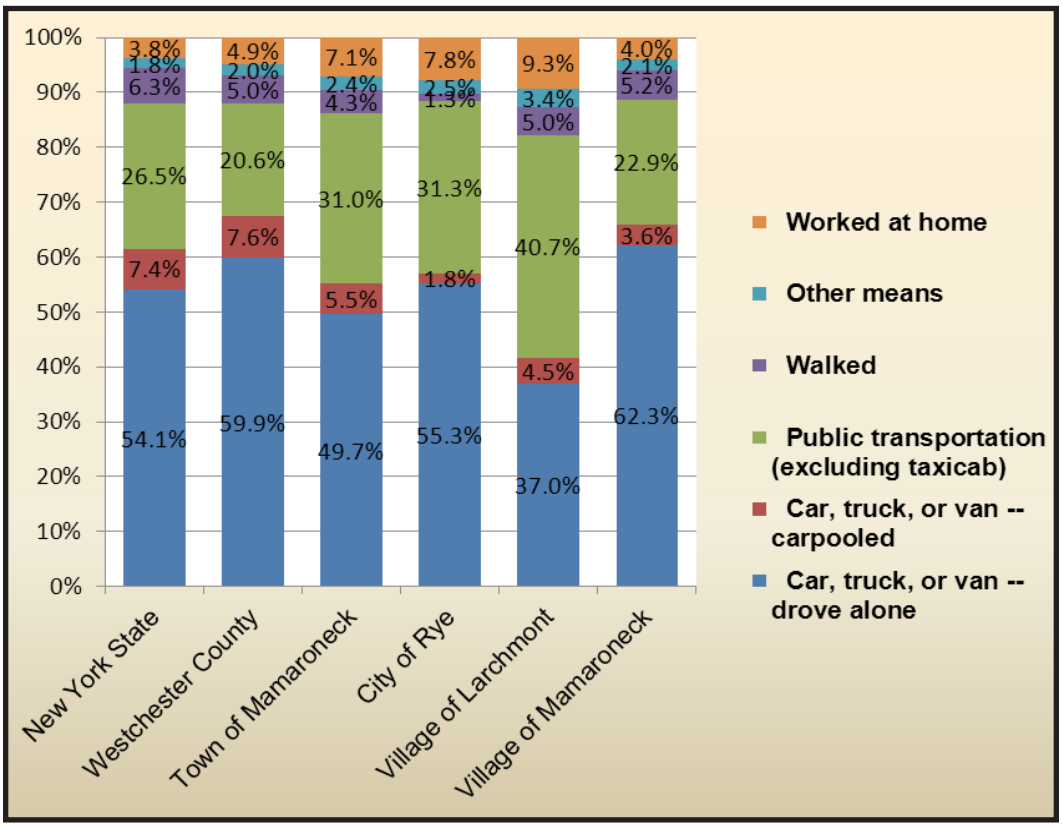
The Sound Shore communities are relatively affluent, with high median income levels (see figure 4.1). These communities are also atypical in their level of car dependency when compared to other low-density communities comprised primarily of single-family housing (see figure 4.2). This can largely be attributed to the Metro North commuter rail line which connects the communities to major employment centers, including New York City, Stamford, and New Haven. Moreover, the three local Metro North stations are located within walking distance of business districts in Rye, Larchmont, and the Village of Mamaroneck, providing opportunities for intermodal connections that do not require a car.

Fig. 4.1: Median Household Income, 2010 Census[11]



11 Source: U.S. Census Bureau, American Factfinder.

Fig. 4.2: Commute Mode, 2010 Census[12]



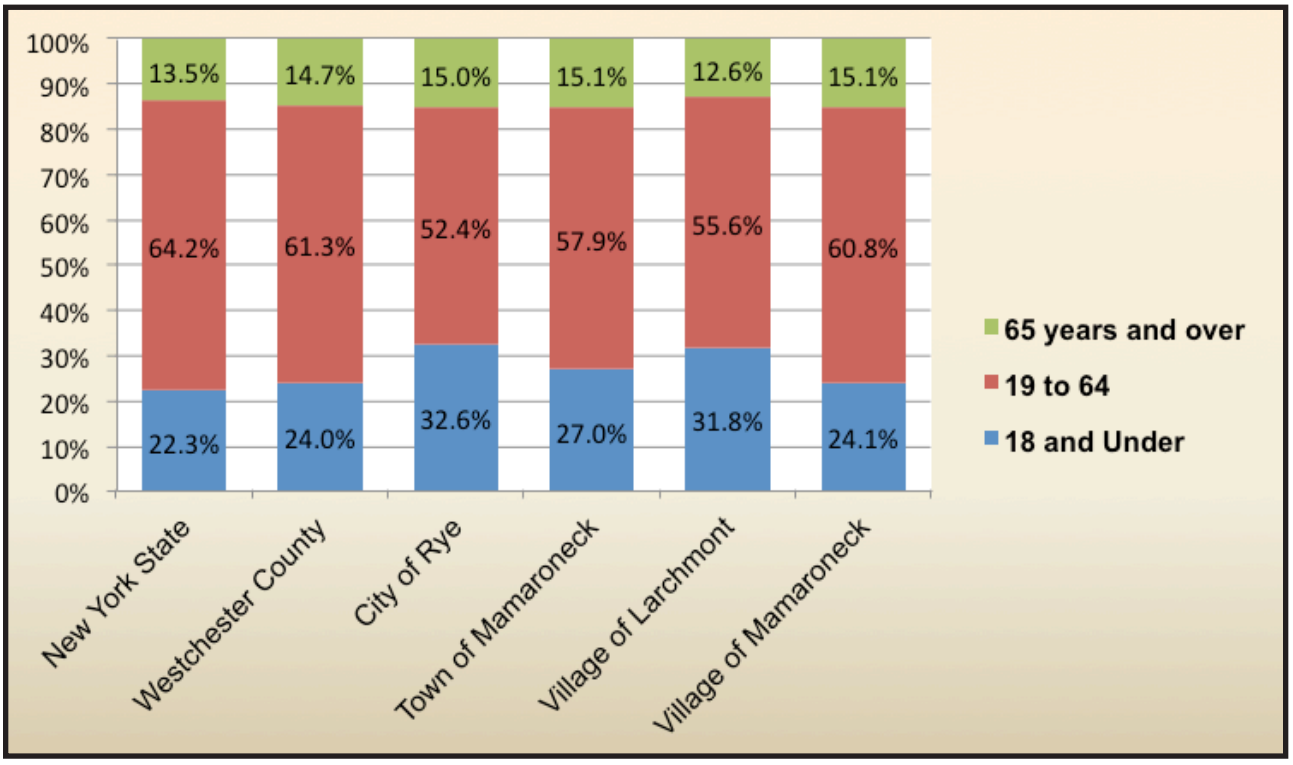
The demographics of the Sound Shore communities have an effect on their transportation needs. First, the four communities have a large population of school-age children (see figure 4.3). Children tend to be at increased risk of traffic accidents when walking and cycling. The National Highway Traffic Safety Administration found in 2009 that 12% of pedestrian fatality victims and 19% of cyclist fatality victims nationwide were under the age of 20.[13] Furthermore, children make many short trips, such as trips to school, which are ideal opportunities for walking and cycling.

Children benefit greatly from increased safety on a community's streets.

12 Source: U.S. Census Bureau, American Factfinder.

13 National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS) Encyclopedia, found at: http://www-fars.nhtsa.dot.gov/People/PeoplePedestrians.aspx and http://www-fars.nhtsa.dot.gov/People/PeoplePedalcyclists.aspx

Fig. 4.3: Population Age Groups, 2010 Census[14]



The communities also contain a large population of senior citizens: residents over the age of 65. Seniors tend to rely on walking for a greater share of their travel and are poorly served by a car-dependent transportation network. Furthermore, they are at greater risk of pedestrian accidents. A study by the Tri-State Transportation Campaign found that, between 2006 and 2008, people over the age of 60 in Westchester County experienced a pedestrian fatality rate of almost five times that of the under-60 population.[15]

Concern for pedestrian safety often serves as the impetus for policies surrounding complete streets, and is a primary driver of interest in complete streets in the Sound Shore communities. While none of the Sound Shore communities has yet passed a local complete streets resolution, there has been interest in doing so in the City of Rye. Although New York State now has a complete streets resolution that promotes "safe access to public roads for all users by utilizing complete street design principles" and requires consideration of complete streets facilities in all projects funded by state or federal sources, it lacks a specific funding mandate, and the full impact of the law on the State's transportation initiatives will not be evident for several years (see Appendix 1 for the full text of the resolution).

14 Source: U.S. Census Bureau, American Factfinder.

15 Tri-State Transportation Campaign, "Older Pedestrians at Risk: Fatalities among Older Pedestrians in Westchester County," 2008, found at: http://www.tstc.org/reports/older10/westchester.pdf

The City of Rye

Purchase Street and Forest Avenue in the City of Rye.

The City of Rye has a population of approximately 15,000 residents and a total land area of six square miles, with 3/5 of the land area dominated by single family homes, 1/5 used for recreation and conservation, and the remaining 1/5 comprising institutions and vacant land.[16]

Government Structure and Planning Process. Because Rye is a city, it possesses a charter granted by the New York State legislature that outlines its government structure, which consists of the mayor, the city council, and the city manager.[17] There are also several citizen-populated advisory boards and commissions. Rye is unique among the Sound Shore communities in having a city planner on staff, in addition to the staff of the building, engineering, and public works departments. The City is currently working on an update to its comprehensive plan.

Capital projects are built according to the capital improvement plan (CIP), which is developed by the city planner based on input from other city departments. Each department head lists priority projects for inclusion in the CIP annually. The CIP is a rolling five year plan that is prepared and presented to the City Council every August, while the budget for CIP projects is voted on by the Council every November. The disassociation of the CIP and budget sometimes results in the allocation of funding towards projects that may not support the broad planning goals of the City. Furthermore, budget approval of projects occurs before conceptual design is performed, with the result that final project scope and cost often differ from the CIP's cost estimates.

While board approval, or approval from any committees, is not required for individual projects once they are in the CIP, the committees and the Council often review projects before they are implemented and committee member sentiment can influence the pace of project implementation. The Board of Architectural Review (focused on the preservation of local character) reviews nearly all projects, while the Planning Commission and Zoning Board review those projects that have site plans (some of which may relate to streets), and the Traffic Commission reviews most transportation-related projects.

Recent Projects. Of all of the municipalities in the Sound Shore, Rye has been most active in pursuing complete streets initiatives. In 2010, a mayor-appointed Shared Roadways Committee was created to identify potential policy and project opportunities for making streets safer and considering all users in the development of future projects. Since finishing their task and drafting a complete streets resolution, the committee is now dissolved, but is discussing the possibility of creating a permanent committee that

16 http://www.ryeny.gov/history.cfm

17 http://www.dos.state.ny.us/lg/publications/Local_Government_Handbook.pdf#page=63, page 55.

would advise the Council on complete streets projects.

Rye has recently completed several projects to make their streets more complete. In 2010, a road diet was implemented on Boston Post Road, which involved decreasing the number of traffic lanes to calm traffic and allow for the inclusion of shoulders and a painted center median. The following year, improvements were made to the Purchase Street/Locust Avenue intersection, including the planting of street trees and the addition of bump-outs, which shorten pedestrian crossing distance and make pedestrians more visible to motorists at crosswalks. This project followed a pilot program that involved replacing stoplights with stop signs at three locations on Purchase Street, an effort that resulted in reduced traffic speeds. Public response to these projects has been positive overall, with the exception of business owners' complaints over the loss of parking on Purchase Street during construction.

Complete Streets Goals and Opportunities. Rye has secured a grant from the Rye YMCA to implement sharrows on Forest Avenue. Rye has also been working closely with Westchester County on designs for pedestrian and cyclist improvements on Playland Parkway.

The Rye Shared Roadways Committee has conducted extensive analysis of existing roadway conditions and outlined detailed recommendations for specific complete streets projects in Rye. The Committee's report serves as a useful resource for prioritizing future complete streets efforts.

Finances. Like many other municipalities, the recent recession has had a significant impact on the City's budget. There is very little money for capital projects, with the majority of City funds going towards core service provision and maintaining public facilities in a state of good repair.

Typically, the operating budget includes sidewalk repair and repaving of streets, according to the Pavement Management Plan, which was developed by an outside consultant. However, this year's operating budget lacked funding for sidewalk repair, so the City is relying on homeowners for sidewalk maintenance. The City also receives funding for repaving from CHIPS (Consolidated Local Streets and Highway Improvement Plan, administered by the New York State Department of Transportation). In the past, the City matched the amount of CHIPS funding received, but was unable to do so this year.

The City is planning to propose a bond for capital projects in November 2012. Specific projects have not yet been identified, but flood control and complete streets projects may be included. Bond commitments are subject to the City's debt ceiling as stated in the city charter, which has not been raised in decades. A $19.9 million school expansion bond was defeated in late 2011.

Rye does not have a grant writer on staff so grant application preparation is absorbed by other staff members, when possible. Occasionally, a private engineering firm may apply for a grant on behalf of the City. However, in the past, the City has found grants to be expensive to administer and highly restrictive.

Public Engagement. The current City Council has indicated that pedestrian safety is a priority. However, complete streets concepts are unfamiliar to many council and committee members, as well as the general public, resulting in resistance to their implementation.

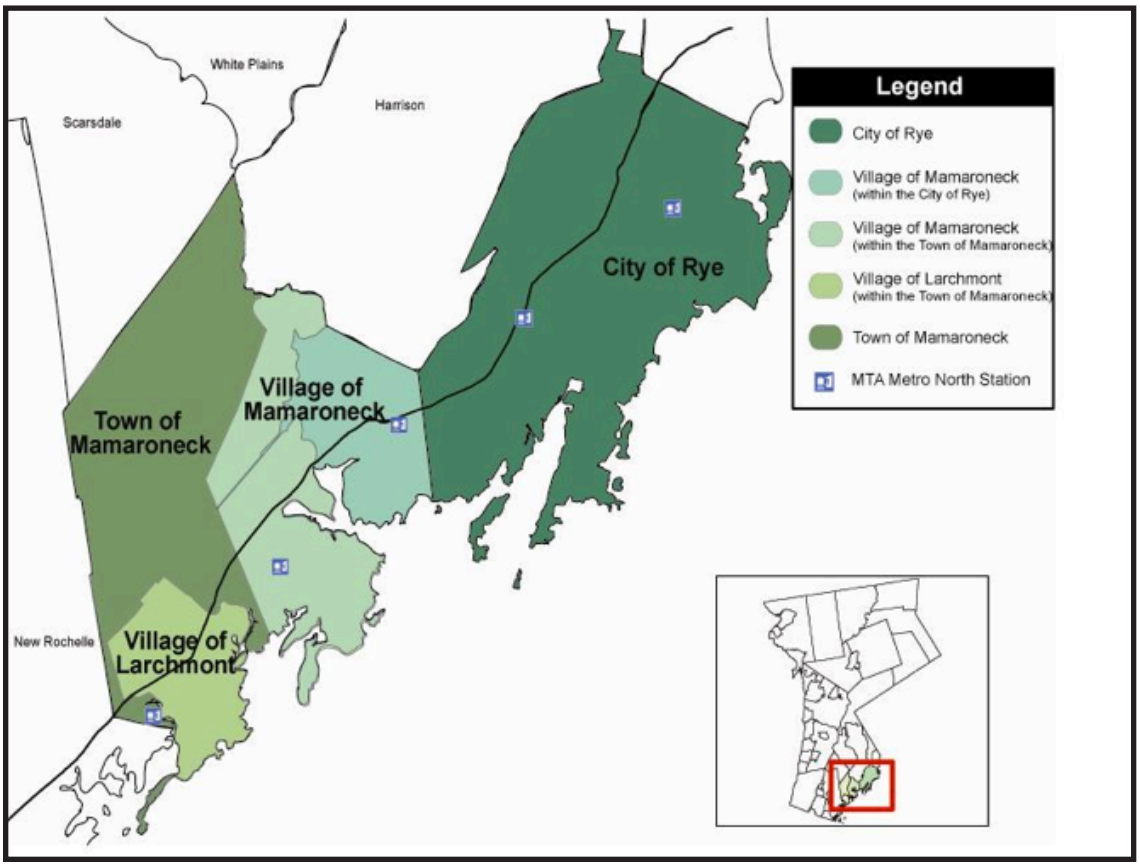
While recent traffic accidents have triggered an interest in making streets safer for all users, many residents are resistant to new paradigms. Other sources of public resistance to complete streets concepts include: a lack of awareness of the difficulties inherent in walking or cycling on particular city streets; reluctance to encourage more recreational cyclists who have earned a reputation in the city for not obeying traffic laws; and a general fear of change.

Town of Mamaroneck

Palmer Avenue in the Town of Mamaroneck.

The Town of Mamaroneck, with a population of just under 30,000 residents, has a total area of approximately 14 square miles, 6.6 of which are land and include the entire Village of Larchmont and part of the Village of Mamaroneck, west of the Mamaroneck River (the rest of the Village of Mamaroneck is located within the City of Rye). While the majority of the Town's population lives within the two villages, most of the land area lies in unincorporated sections of the town (see figure 4.4).[18]

Figure 4.4 The Town of Mamaroneck Includes the Village of Larchmont and part of the Village of Mamaroneck



18 www.townofmamaroneck.org/about.htm

Government Structure and Planning Process. The Town of Mamaroneck is a self-governing subdivision of New York State, with its own elected officials and laws. Finances are managed under the direction of the Town Supervisor and four council members, serving two- and four-year terms, respectively. The council members and Town Supervisor make up the Town Board, which is vested by the State with control of legislation, appropriation of funds, and decision-making on local polices. The Board approves budgets and authorizes tax collection to fund the budget.[19] In addition to the Supervisor and the Board, the Town of Mamaroneck also has a Town Administrator, who serves as the CEO of the Town. The Administrator oversees the implementation of Board policies and manages the day-to-day operations of the town, as well as proposing the annual budget and advising the Board on policy.[20]

In the Town of Mamaroneck, new projects can be undertaken in a variety of ways. If they are not built into the capital improvement plan, new projects often begin either with a proposal by staff of the Town or by the Town Board. Occasionally, projects are proposed by members of the public and considered by the Board. Regardless of where project suggestions originate, the town staff provides the Board with background information on potential projects and sites. The staff and Board will then work together to determine project parameters. Often at this stage, various Town advisory and policy-making committees will review or study the issues pertinent to the project. Potential projects are often discussed at Board meetings, which are open to the public. However, most projects undertaken by the Town are related to maintenance, rather than capital improvements, so public outreach around new projects is not typically a concern. The Board then approves or denies a project based on the information presented by Town staff and recommendations by relevant committees. If a project is approved, the Town submits a request for proposal - proposals are reviewed, a contract is awarded, and the project is implemented.

Recent Projects. The Town of Mamaroneck has completed several projects that could fall under the heading of complete streets. In 2000, curbs, sidewalks, landscape amenities, painted crosswalks, and lighting were added to the downtown area of Myrtle Boulevard, North Chatsworth Avenue, Madison Avenue, and Washington Square using a federal Community Development Block Grant. These interventions were intended to encourage pedestrian activity.

In 2007, pedestrian crossings were improved at the intersection of North Chatsworth Avenue and Myrtle Boulevard. The roadway was repaved, parking space markings were improved, a dedicated pedestrian signal was added, and a designated turn lane was removed because it was determined to hinder pedestrian crossing. A sign was also added to further alert vehicles that they are prohibited from turning during a pedestrian walk signal. This 60-foot wide, two-lane road was narrowed by inserting a six-foot grass median. A Community Development Block Grant also funded these improvements. The Town's engineer reports that despite having to wait up to an extra minute at the stop light due to the designated pedestrian crossing signal, members of the community are generally happy with the change, and particularly like the beautification aspect of the median.

Additionally, funds from the capital budget were expended in 2009 to add four-foot sidewalks and improved, channelized crosswalks at the Hammocks School. The Town has also created and maintained a number of recreational trails in recent years.

Complete Streets Goals and Opportunities. While the Town is inarguably car-centric, with approximately 55% of its workforce commuting by private vehicle each day, it does have a strong public transit contingent as well, with 31% of residents in the Town commuting via public transit. While this number is high for Westchester County, where approximately 20% of residents commute via

19 www.townofmamaroneck.org/bac/town_supervisor_and_town_board.html
20 www.townofmamaroneck.org/administrator/overview.html

public transit,[21] officials in the town have expressed interest in increasing this percentage by making improvements to major transit hubs in the area. Additionally, Town officials have expressed interest in easing the ability for residents to use alternate transportation modes, such as bicycling and walking, through complete streets initiatives.

Finances. As in many of the other communities in the area, resources are limited in the Town of Mamaroneck. While the Town does have a capital improvement plan, most of the funding and planning for improvements revolves around maintenance, not around new or visionary projects. The majority of funding for discretionary projects is in the form of grants. When the Town does undertake a grant-funded project, the Town uses its own staff or in-kind services for project labor in order to make the funds stretch further. While grants are an excellent option for new or discretionary projects they do not ensure long-term funding, and require a time-consuming application process. The Town does not have dedicated grant-writing staff, and therefore must rely on a collaborative effort on the part of staff members to apply for grants.

Public Engagement. While resources and funds are a significant issue in the Town for any project, visionary projects such as complete streets foster other concerns that can be even more difficult to address. Currently, the Town does not have any processes, programs or tools in place to foster community engagement and education. However, administrators in the Town have identified the need to institute a process of increased public education around pro-active projects to ensure public buy-in and support. Not only is this important to the Town in order to accomplish its goals and improve quality of life, but public buy-in is essential to securing future funding for forward-looking projects.

Village of Mamaroneck

Halstead Avenue in the Village of Mamaroneck.

The Village of Mamaroneck, with a population of 18,929 as of 2010,[22] is located partially within the Town of Mamaroneck and partially within the City of Rye. In New York State, a village is a municipal organization formed to provide services to residents while remaining part of an existing town or city. Residents therefore pay taxes to both the village and the town/city.[23]

21 2010 Census American Factfinder, Profile of Selected Economic Data: 2010, Westchester County.
22 2010 Census American Factfinder, Profile of General Population and Housing Characteristics: 2010, Village of Mamaroneck.
23 http://www.dos.state.ny.us/lg/publications/Local_Government_Handbook.pdf#page=63, page 67

The Village covers 6.7 square miles, 3.5 miles of which are water. It contains 55 miles of roadway.[24]

The Village of Mamaroneck faces many of the same streets management and transportation issues as the other municipalities of the Sound Shore, although the demographics of the Village are slightly different: 24% of the population is under the age of 18, the lowest of the four municipalities and roughly in line with the Westchester County average.

Government Structure and Planning Process. Like most villages in New York State, the Village of Mamaroneck operates under a Council-Manager form of government, in which policy is set by an elected five-member Board of Trustees (consisting of the Mayor with four Trustees, one of whom also acts as Deputy Mayor) and administrative functions are overseen by the Village Manager, who is appointed by the Board. The annual budget is prepared by the Manager and approved by the Board.

Recent Projects. In the past ten years, the Village has made several pedestrian improvements to its downtown business district along Mamaroneck Avenue, including sidewalk bump-outs and shortened crosswalks. Although there were initial concerns over the loss of streetside parking spaces, the projects have been well-received by storeowners due to improved pedestrian conditions and increased foot traffic. More recently, the Village's transportation-related work has been primarily devoted to regular street maintenance.

Complete Streets Goals and Opportunities. The Village administration has identified the Mamaroneck train station as the primary transportation concern and seeks to improve access to it in order to provide a more active transportation hub. The Metropolitan Transportation Authority, which owns the station, has not indicated any intention of investing in major upgrades or intermodal improvements, so the Village is considering local actions that can be taken. The Village is also seeking ways to activate the downtown business district, particularly along Mamaroneck Avenue.

Finances. As in the other Sound Shore communities, funding resources are limited in the Village. Much of the funding the Village receives for transportation is devoted to repaving and other street maintenance. The main source of funding is the Consolidated Local Streets and Highway Improvement Program (CHIPS). Because the village sits at the bottom of the drainage basin, flooding is a major concern and the village requires heavy investments in flood control measures, which are not funded by county or state agencies.

The most pressing infrastructure need in the village is the sewer system, which is rapidly approaching the end of its useful life and is in need of major upgrades. In the last decade, $3.5 million was invested in sewer repairs and improvements, and another $4-5 million is expected to be invested in the next five to ten years. This represents a major budget constraint, as it will utilize much available infrastructure funding. The Village has also identified renovations to the aging police department facilities and Village Hall as local priorities, although neither project has advanced beyond the discussion stage.

Public Engagement. The Village features a local community that is very active in government, with strong communication between the government and residents. The local community is well informed of government actions through a variety of means: LMCTV (the local community TV network that broadcasts Board meetings and other government events), an active Village website, and an email chain maintained by the Village Manager's office that reaches approximately 1,000 residents. The local community has been very receptive to complete streets-style improvements in the past, as evidenced by the successful implementation of sidewalk upgrades in the downtown business district. The downtown business community would likely be an active partner in complete streets initiatives. Likewise,

24 http://www.village.mamaroneck.ny.us/Pages/MamaroneckNY_WebDocs/about

the ongoing update to the Village's waterfront revitalization program has attracted strong public participation, and is an important precedent for future initiatives.

Village of Larchmont

Larchmont Avenue in the Village of Larchmont.

The Village of Larchmont, located within the Town of Mamaroneck, has approximately 6,000 residents.[25] It shares a school system with the Town of Mamaroneck and the Village of Mamaroneck.

Government Structure and Planning Process. The Village does not have a city planner on staff, nor does it have a village manager or supervisor. Instead, the Village relies on a volunteer, four-member Board of Trustees, as well as the Mayor, for leadership, law-making, and village planning guidance. In addition to the Board of Trustees, several committees review and approve projects. These committees include the Traffic Commission, the Planning and Zoning Committee, the Board of Architectural Review, the Recreation Committee, and the Environmental Committee. Unlike the other committees, which must appeal to the Board of Trustees for law and code changes, the Traffic Commission has the authority to change traffic codes as necessary.

The Board of Trustees, along with the Mayor and the various committees, initiates projects and reviews those projects brought forward by the public at public hearings. The Board of Trustees and each committee hold separate public hearings. These hearings tend not to be well-attended, but are televised. Input from the public is always advisory, with the Board of Trustees and the committees having final approval of all initiatives.

Recent Projects. Larchmont sees moderate amounts of cycling, and has recently installed bike racks at the train station, which have been well-received. This may be due to the high cost of a station parking permit, which is approximately $750 per year.

Complete Streets Goals and Opportunities. Larchmont Avenue and Chatsworth Avenue are the village's primary thoroughfares and both are under the jurisdiction of the Village, except at

25 2010 Census American Factfinder, Profile of General Population and Housing Characteristics: 2010, Village of Larchmont.

intersections with Boston Post Road, which is state-owned. These streets both contain two wide lanes that are often treated as four lanes by drivers. Palmer Avenue is another north-south thoroughfare that is county-owned, though the Village is in charge of its maintenance.

The Department of Public Works recently purchased a cold plane and hot box, which will allow for the repair of minor potholes or small sections of roadway without repaving the entire street. This is expected to free up funds that can then be directed towards other desirable projects.

Finances. The most significant barrier to implementing complete streets projects in the Village of Larchmont is a lack of financial resources. While public support for improving the safety of the Village's roads is strong, funding for capital projects is difficult to obtain. The city also lacks the manpower necessary to initiate a complete streets education campaign.

Grant-writing is occasionally performed by volunteers or board or committee members, but a lack of paid staff inhibits grant-writing activity. While there are a number of potential government partners (e.g., the Safe Routes to School Committee, the Parent-Teacher Association, and the senior center), these groups have so far not played a major role in obtaining financial resources for safety projects.

Public Engagement. While there is general public support for road safety projects, there are a number of misconceptions about complete streets that hinder implementation. One primary source of resistance is the perceived cost of these initiatives. Another is a fear of change, since the village's roads have remained largely the same since 1945. The result of these public perceptions is that decision-making remains stagnant for long periods of time.

One example of a longstanding proposal that has yet to move forward is the installation of parking meters in the downtown area. While the revenue generated by such meters would be a welcome addition to the Village's funding streams, the initial cost of installation, as well as fears of inconvenience, have hindered implementation of the project.

The most prevalent traffic complaints in the Village are motorist speeding, dangerous left-turn behavior by motorists, and lack of safety for cyclists, particularly children. While a robust network of sidewalks makes pedestrian safety less of a concern, school areas are perceived as unsafe for children walking from home or from a vehicle when dropped off, due to traffic congestion. A lack of available parking is also a perceived problem, although the Village center contains seven parking lots in addition to on-street parking. The issue is not total parking capacity, but that drivers must often park farther away from their destinations than desired. Furthermore, in no part of town is it legal to park for more than a few hours, which is a difficulty for employees working downtown.

The Village Clerk maintains a database of email addresses and mailing addresses that can be used to disseminate information and maintains the Village's website.

Conclusion

Despite local interest in creating more complete streets in the Sound Shore communities, municipal representatives cited a number of hurdles to their implementation, including jurisdiction over local streets, liability, funding, and public sentiment.

Liability. The legal doctrines controlling a government's management of public facilities, including the public right-of-way, are crucial to the successful implementation of complete streets initiatives. If done without the proper legal considerations, projects and policies can be delayed or overturned by the courts. Generally, municipal liability on streets is increased only when streets are not built according to national standards outlined in the Federal Highway Administration's Manual on Uniform Traffic Control Devices.

The issue of liability in accidents or personal injuries is important, but as a general principle, a government is not subject to liability claims under the doctrine of Sovereign Immunity (which holds that government bodies cannot be sued without their consent, absent particular circumstances), except in cases where the government provision of services or facilities was defective. Upon receiving "prior written notice" of an unsafe condition (such as a sidewalk in disrepair), the municipality is liable if it does not take action to rectify the situation. However, in the absence of prior written notice, claims of governmental negligence leading to personal injury can be defended against through demonstrations of thorough review and careful planning prior to the introduction of a public project. The boundaries of Sovereign Immunity and its application to streets management are determined by state law, and can be provided by a municipality's legal counsel or law department.[26]

An added legal consideration is Article 78 of the New York State Civil Practice Laws and Rules, which allows community members to challenge the decision of a municipal government or agency in court (sometimes referred to as a "taxpayer lawsuit").[27] The standard for a decision or project to be overturned pursuant to Article 78 is that it is undertaken in an "arbitrary or capricious" manner. In order to avoid such a finding, an agency or municipality must demonstrate that its decision was made in service of a legitimate governmental purpose (such as public health or safety) and was the result of a well-considered plan. Prior experience has suggested that such considerations are not difficult to achieve based on the normal governmental decision-making process, and courts are reluctant to overturn local decisions.

The New York City Department of Transportation (DOT) was recently the subject of an Article 78 challenge concerning the redesign of Prospect Park West in Brooklyn that included the introduction of a bike lane. The complaint challenges that DOT's claims of the project's traffic calming benefits were misleading and that its decision-making process was incomplete and flawed.

The challenge is still being adjudicated. However, expert opinion has suggested that it is unlikely to succeed in court based on the difficulty in proving the "arbitrary and capricious" standard that is required. One article, citing the opinion of Roderick Hills, Jr., of the New York University School of Law, explained: "'Frankly, getting factual findings overturned on arbitrary and capricious review is almost impossible,' he said. 'You just have to have some kind of finding.' In other words, the plaintiffs' attempt to cast doubt on safety improvements by cherry picking crash and injury data won't matter in court. Legally, what matters is that DOT has safety statistics in the first place" (http://www.streetsblog.org/2011/03/23/law-profs-ppw-lawsuit-unlikely-to-succeed/).

Funding. Funding for roadway projects in the Sound Shore communities comes primarily from grants and the general tax base. State law limits yearly property tax increases to 2% or the rate of inflation,

26 An overview of relevant liability issues can be found in "A Primer on Legal Liability," Liability Aspects of Bikeway Desig nation, National Center for Bicycling & Walking, April 1986, (pages 3-7).

27 For the full text of Article 78, see: http://codes.lp.findlaw.com/nycode/CVP/78

whichever is less.[28] However New York State does allow cities, towns, and villages to initiate special benefit assessments in order to fund local improvements.[29]

Public Sentiment. Though safety is a high priority for the residents of the Sound Shore communities, there is also a pervasive resistance to change. This resistance can be attributed to numerous factors, including unfamiliarity with the complete streets movement, limited funding, and prevailing mentalities regarding behaviors of roadway users.

Unfamiliarity, especially, can lead to an imbalanced perspective on complete streets and a focus on the negative rather than the positive outcomes. Building complete streets therefore requires a change in attitude among the public.

The Sound Shore communities have already begun to engage the public through events that familiarize residents with walking and cycling in their communities. For example, Rye hosted a family bike festival in the summer of 2011 in honor of the creation of the East Coast Greenway. For several years, the Sound Shore communities have held "walk to school" days. The Sound Shore communities share a number of community groups, including the Rye YMCA and Safe Routes to School Committees, that offer promising opportunities for partnerships on outreach events.

Ownership of Roads. The Sound Shore Communities do not have full control over the surface streets within their boundaries, some of which are owned by Westchester County (see figure 4.5) or New York State. The Westchester County Department of Public Works "requires road permits prior to any construction, repair, maintenance or alteration of any drainage, sewer, water pipe, conduit or serviceable item which is on, above or underneath any county road or its right-of-way.

28 http://governor.ny.gov/citizenconnects/?q=reforminggovernment/1
29 http://www.dos.state.ny.us/lg/publications/Local_Government_Handbook.pdf

Figure 4.5 Streets owned by Westchester County[30]

City of Rye

Road Name	From	To
Park Ave.	Harrison Line	Boston Post Rd.
Theo. Fremd Ave./ Wappanocca Ave.	Harrison/Rye Line	Purchase St (NY120)
Midland Ave.	Playland Parkway	Port Chester/Rye Ln.
North Street\Hammond Rd.	Boston Post Road	Theo. Fremd Ave
North Street	Theo. Fremd Ave	Harrison Line
Playland Pkwy Access Rd	North Street	Theo. Fremd Ave
Thruway Access Road	North Street	Playland Pkwy
Playland Parkway & Sb Ent Ramp	C.R. 147/148	Playland Pkwy
So. Ridge St.	Purchase St.	High St.

Town of Mamaroneck

Road Name	From	To
Murray Avenue	Myrtle Blvd.	Weaver Street
Palmer Avenue	Mamaroneck Tn/Village Ln	Mamaroneck Avenue
Palmer Avenue	New Rochelle Line	Larchmont Line

Village of Mamaroneck

Road Name	From	To
Mamaroneck Avenue	Mamaroneck Ave	Old White Plains Rd
Palmer Avenue	Mamaroneck Ln/Village Ln	Mamaroneck Avenue
Mamaroneck Ave Bridge	Harrison Line	South Abutment
Mamaroneck Avenue	Old White Plains Rd	Mt. Pleasant Ave.

Village of Larchmont

Road Name	From	To
Palmer Ave.	Larchmont Ave.	Larchmont/Mamaroneck Town Ln
Palmer Ave.	Mamaroneck Town Line	Larchmont Ave.

30 http://publicworks.westchestergov.com/road-information/county-roads

The roads owned by New York State are restricted-access highways, on which complete streets interventions are ill-suited. The State Department of Transportation is, however, a source of transportation-related funding, including administering funds provided from federal sources through The Transportation Enhancement Program (TEP) and the Statewide Transportation Improvement Program (STIP).

In 2011, New York State enacted a complete streets law (S05411.A/A8366) mandating that all projects that are undertaken by the State Department of Transportation or receive DOT funding must include consideration of the needs of all users and possible complete streets interventions.[31] Because the law is relatively new, and because it does not include a mandate for funding complete streets projects, the impact of the law on projects undertaken by local municipalities is difficult to judge at this time. However, the State DOT is required to submit a report demonstrating its introduction of complete streets considerations by 2014; the DOT's progress in this area, particularly as it affects funding decisions, should be monitored closely.

31 The full text of the law can be found in Appendix 1.

Chapter Five: Best Practices

The successful realization of complete streets concepts by a municipal government requires the integration of streets management practices, community outreach efforts, budgetary processes, approvals protocols, and policy formation. There is considerable risk that the effort will produce isolated, low-impact interventions or that it will be abandoned before the full public benefits -- health, public safety, environmental protection, and economic development -- are realized. The creation of a network of complete streets should be treated as a long-term goal that will be carried out by multiple government administrations.

Impediments to the formation of a full complete streets process come in two forms: apprehension to undertake a reshaping of the transportation network and practical difficulties in designing and financing the infrastructure improvements. The team has identified four areas in which these impediments may be encountered:

Policy and Law

Planning Process

Public Outreach and Education

Financing and Maintenance

This chapter will review measures that have been taken by other municipal governments to overcome these challenges during their own complete streets programs. Its focus is on municipalities that have similar characteristics to the Sound Shore communities in terms of size, demographics, urban geography, and governmental resources. Much of the examples are therefore from the New York/New Jersey/Connecticut tri-state area as well as New England. Where appropriate, practices that are best illustrated by examples from larger cities or from areas outside the northeast have been included.

Law and Policy

Policy and legislation are drivers of all government actions and should therefore be consistent with a municipality's vision for its built environment.

Establishing Complete Streets as a Local Priority

In many municipalities, streets management practices have been heavily weighted in favor of car travel: setting speed limits, reducing traffic congestion, and providing parking. Overall experiences with managing streets to be accommodating to walking or cycling may be limited within the various responsible bodies, increasing the likelihood of resistance to a new complete streets approach. Therefore, putting the full weight of the body politic behind the effort early on is vital to its successful implementation. In many municipalities, this has been accomplished through a local complete streets resolution, which acts as a statement of principles that instructs local government agencies and legislators to include complete streets considerations into all decisions regarding streets and traffic management.

The National Complete Streets Coalition has identified 10 fundamental policy elements that should be included in a complete streets resolution (See Appendix 4), the first being a clear vision statement that explains "how and why the community wants to complete its streets."[32] This is crucial to establishing the public benefits to be obtained through complete streets interventions: safety, health, environmental protection, and economic development.

Complete streets resolutions may commit the local government to devote a portion of local, state, and/or federal funding for transportation projects to complete streets initiatives; however, such funding commitments should only be considered if it is determined that they can be met consistently given existing resources. Complete streets resolutions usually instruct local agencies to pursue complete streets interventions only when circumstances are conducive to multi-modal travel.

Planning Process

For a complete streets effort to be successful, it must be focused on creating an interconnected network of pedestrian and cyclist facilities. While implementation may be localized on individual road segments and intersections, interventions should work in unison to provide full mobility benefits. Therefore, extensive city-, town-, or village-wide planning is needed.

Incorporating Complete Streets Goals into Comprehensive Plans

In order to ensure consistency in process, policy, implementation, and funding, municipalities committed to complete streets goals should embed complete streets language into their comprehensive plans. The standardization of policies laid out in comprehensive plans guides municipal funding decisions, ensures that complete street initiatives become standard practice in the private development process, and signals to county and state agencies that these goals should be considered during all road projects on streets of any jurisdiction within the municipality's limits. Municipalities in New York State are required to update their comprehensive plans every ten years. However, an amendment to the plan can be made at any time.

32 "Policy Elements," National Complete Streets Coalition, http://www.completestreets.org/changing-policy/policy-elements

Establishing Non-Motorized Travel Plans

One California study shows that facilities for non-motorized travel are twice as likely to be included in a project when a non-motorized travel plan is in place.[33]

The plan should be based on specific benchmarks for what the municipality hopes to achieve with complete streets in terms of safety, public health, or other public benefits (e.g., a 20% reduction in crashes, a 50% increase in walking to school, a 30% increase in biking to work, etc.).[34] A full inventory of roads and travel space informs this planning process. Data for this inventory can be collected in a variety of ways:

1) Needs assessment (see Appendix 5 for an example)
2) Road safety audits (formal safety performance examinations of existing or future roads by an independent audit team)[35]
3) Bike demand and pedestrian demand generator, covering potential future demand as well as current use[36]
4) Bikeability/walkability checklist

While some of these methods require technical expertise, others, such as a bikeability audit using a checklist, can be performed by volunteers, or even serve as a community outreach event. Often, these exercises will result in the focus of complete streets facilities at activity generators, such as transit stops, schools, and shopping districts.

The existence of an overall plan will avoid ad hoc project building, channel project resources to the most appropriate locations, and result in a robust, interconnected network of complete streets facilities. Furthermore, data collection will demonstrate that the municipality is acting in a rational and considered manner when judging where dangerous or unfavorable conditions exist, which will support the municipality in case of future legal challenges by proving that interventions were not conduced in an arbitrary or capricious manner.

Netcong, NJ

In a 2010 review of complete streets legislation, the National Complete Streets Coalition rated Netcong's complete streets resolution among the best examples of a local resolution. Netcong's resolution received the highest possible mark for specifying that all possible street users would be considered in transportation initiatives: "pedestrians, bicyclists, public transportation riders and drivers, emergency vehicles and people of all ages and abilities, including children, youth, families, older adults, and individuals with disabilities." The resolution was also cited for including a clear and definitive statement that complete streets interventions would be considered in all future projects involving the local transportation network: "the needs of all users should be incorporated into all planning, design, approval, and implementation processes for any construction, reconstruction, or retrofit of streets, bridges, or other portions of the transportation network, including pavement resurfacing, restriping, and signalization operations if the safety and convenience of users can be improved within the scope of work" (National Complete Streets Coalition, "Complete Streets Policy Analysis 2010: A Story of Growing Strength").

Creating Independent and Appointed Advisory Groups

In order to formalize complete streets consideration into the planning process, governments may establish a Bike/Pedestrian Advisory Committee (BPAC) that reviews projects and is advisory to the municipality's planning board. Often, BPACs review only those projects that already include a bike/pedestrian facility component. However, a BPAC should review every project that has any

33 See the full study at: http://apps.mtc.ca.gov/meeting_packet_documents/agenda_668/Routine_Accommodation_Ped_Bike_Study_6-06.pdf

34 For more about measurable goals, see http://www.bikewalk.org/pdfs/takingsteps.pdf, page 19.

35 See http://safety.fhwa.dot.gov/rsa/guidelines/documents/FHWA_SA_06_06.pdf

36 See http://hobokennj.org/docs/transportation/City-of-Hoboken-Bicycle-and-Pedestrian-Plan-Final.pdf, page 18.

transportation component, in order to identify complete streets opportunities.[37]The BPAC can use a predetermined list of complete streets criteria to uniformly analyze project proposals for opportunities to incorporate crosswalks, bike lanes, signage, bump-outs, etc.[38] Projects should be reviewed early (at the 30% design phase or earlier) in order to best incorporate complete streets design changes.

Additionally, governments should recognize and work closely with independent advocacy groups that work to promote bicyclist and pedestrian welfare in the community. Many stakeholders in a community, including parents of small children, business owners, and homeowners, stand to benefit from complete streets initiatives, and are able to not only maintain momentum for interventions throughout the process, but to inform it through localized knowledge of existing conditions. Those municipalities that have an active bicyclist/pedestrian advocacy group tend to be most successful in implementing complete streets initiatives. An independent advocacy group is well-positioned to conduct effective public outreach.

West Windsor, NJ

The town has a very active bicyclist/pedestrian advocacy group (http://wwpba.org) that helps to support maintenance activities by alerting the town to areas where signage is lacking, trees need pruning, or there are general breaks in the bike lane network. The group is especially critical to public outreach efforts, particularly in working with homeowners when a new sidewalk is proposed. The advocacy group, as a party of concerned citizens rather than a governmental body, is effective at meeting with homeowners directly and garnering their support of the "greater good" of a connected sidewalk network, thus avoiding perceived strong-arming by the government.

Public Outreach and Education

In many cases, public resistance is a major impediment to successful complete streets implementation. Residents can be skeptical of the necessity of complete streets interventions, worried about added cost, or frustrated by the potential for disruption during construction. Because residents wield considerable power in swaying elected officials and disrupting the planning process, and may also be asked to bear some of the cost of complete streets projects in the form of higher taxes or other charges, public buy-in is a crucial component of any effort. The goal of outreach and education programs is to disseminate the public benefits that result from complete streets interventions and to dispel misconceptions concerning their risks.

Detroit, MI

Detroit uses a complete streets Facebook page (http://www.facebook.com/pages/Complete-Streets-in-Detroit) to not only disseminate information, but also to rally support for complete streets. Maintained by Michigan Trails and Greenways Alliance (MTGA), the Facebook page gives updates on national and local complete streets news. Citizens are able to comment on the page's posts, providing MTGA with valuable feedback. The setup of a Facebook page is a quick and simple process and can be easily added onto any comprehensive complete streets education campaign to better broadcast information across a wide audience.

Initiating a Complete Streets Education Campaign

Raising awareness through education is the first step in involving community members in the process of enhancing safety for all road users. Education efforts can address not only personal responsibility, but also the particular dangers faced by various users - pedestrians, cyclists, and motorists. Complete streets concepts should be integrated into the everyday language of the community by talking about the successes of past initiatives, as well as current and future plans. Gathering input from the public prior to launching an educational campaign will ensure that outreach efforts are focused on the issues that are most divisive.

Campaigns can be carried out in partnership with local community

37 For a study about complete streets project review in California, including information about BPACs, see http://apps.mtcca.gov/meeting_packet_documents/agenda_668/Routine_Accommodation_Ped_Bike_Study_6-06.pdf, particularly page 30.

38 For an example of a detailed checklist, see ftp://ftp.dot.state.pa.us/public/PubsForms/Forms/D-310.pdf

organizations. Such partnerships help to rally support, build credibility, and earn the public's trust. Partnerships built around common interests can bring attention to a variety of causes (e.g., medical practices can speak to the health benefits of walking and cycling, bicycling advocacy groups can focus on cycling education, or the police department can assist with a road safety campaign).[39]

Education campaigns should involve a combination of events, give-aways, print media coverage, and other tools. Social media resources, such as Facebook and Twitter, are a great addition to any such campaign, offering a way to disseminate information quickly and keeping residents informed of local complete streets initiatives as well as current practices from across the nation. Making this information readily accessible can boost engagement and interest and act as a platform for the city to promote its complete streets efforts.

Educating the Public through Visualization and Experiential Learning

New Haven, CT

Residents of New Haven were invited to participate in a walking audit tour of the Hill neighborhood, followed by a hands-on workshop to discuss findings from the audit and potential solutions for traffic calming and improved accommodations for pedestrian and cyclists. The city's Department of Traffic and Parking Director led the tour. The walking audit was sponsored by the Board of Alderman and the Southern Connecticut Regional Council of Governments (SCROG) and was one of New Haven's first steps in creating a complete streets toolkit.

Residents walked along busy arterial streets, as well as on streets that contain schools and hospitals, so that problems could be noted and solutions proposed to create a more inclusive space. According to a consultant who helped design the tour, "The idea is to create an atmosphere of self-enforcement. Lights and signs often fuel driver anger and fuel speed problems, and themselves do not solve them." The observations from the tour became a starting point for New Haven to examine measures that needed to be included in the complete streets toolkit to create user balance and mitigate traffic problems.

Since seeing is believing, it is essential that community members are able to visualize the need for complete streets. While giving a presentation on complete streets concepts to residents is a good start, it is certainly not the only way to inform and involve citizens. Pilot projects, walking audits, workshops, car-free days, and visual tools allow residents to personally experience the safety shortcomings of incomplete streets and better understand how complete streets can improve their streets and neighborhoods. While residents are often already familiar with some traffic problems based on their own daily activities, helping them to envision these same problems from the perspective of other road users is a powerful educational opportunity.

Local citizen groups make ideal partners in organizing tours and car-free days. For example, the local historical society can host walking or cycling tours of historic sites, while a downtown merchants' association can host a weekend street closure that invites pedestrians and cyclists to experience the town on two feet (or wheels) while tasting local restaurant fare.

39 Phone interview with Jim Travers, Director of Transportation, Traffic, and Parking, City of New Haven, CT. January 26, 2012.

Maintenance and Financing

The costs associated with building and maintaining complete streets projects is a serious concern for many municipalities. However, with a dedicated policy in place, most municipalities find that complete streets facilities add little cost to their transportation budgets.[40] Incorporating complete streets concepts into strategic plans and budgets from the beginning, rather than treating them as project add-ons, allows for funding possibilities through capital project and routine maintenance budgets. When extra revenue is required to meet the costs of complete streets initiatives, user fees can be generated through parking districts and business improvement districts.

The Village of Larchmont, NY

The Department of Public Works recently purchased a cold plane and hot box, which will allow for the repair of minor potholes or small sections of roadway without repaving the entire street. This is expected to free up funds that can then be directed towards other, desirable projects.

Identifying Low-Cost Projects and Utilizing Local Resources

Municipalities can identify low-cost projects that can be implemented quickly, and efficiently using in-house knowledge and skills, volunteer expertise, and in-kind donations. Low-cost projects involving mostly paint and other inexpensive materials can serve as effective pilot projects for communities that are new to complete streets. Using existing resources as efficiently as possible can free up funds for additional projects.

Community advocates are an excellent resource to help identify opportunities for these types of projects, while municipal staff, such as engineers, can evaluate suggestions for suitability. Recruiting volunteers within the community to help inform the public about road marking changes, to help with planting, or to otherwise lend their knowledge or skills can help make projects happen when staff resources are stretched.

While these types of projects are low-cost, they can provide significant benefits for the community by increasing pedestrian and cyclist safety and increasing the attractiveness of public areas. Projects that utilize already available local resources are an excellent way to introduce residents to complete streets without expending significant resources.

Eastchester, NY

The Town of Eastchester installed 14 sharrows on California Road in 2010. The Town's Environmental Committee initiated the project, garnered buy-in from Town officials, and secured creative funding sources for the low-cost project.

The Environmental Committee was able to use its discretionary funds to purchase one high quality sharrow stencil from a road stencil manufacturer for $165. The cost of eight gallons of paint – purchased by the town - was $40. In order to use in-house labor resources, the Town Supervisor agreed that municipal staff could paint the sharrows one at a time at their convenience. The Environmental Committee worked to create a flexible environment in which the painting team could carry out the painting.

Being creative with committee funds and flexible with labor allowed Eastchester to lay down their pilot sharrow project very quickly, and has paved the way for the expansion of its sharrows network, by demonstrating the low-cost, high-impact, yet minimally invasive nature of this intervention.

40 See: http://www.completestreets.org/complete-streets-fundamentals/factsheets/costs/

Establishing Dedicated Funding Mechanisms

Municipalities should create self-sustaining, designated funds for building and maintaining complete streets projects through user fees. Two options for generating funds out of private monies include business improvement districts (BIDs) commercial parking benefit districts.

A business improvement district is a formal organization comprised of property owners and commercial tenants committed to promoting business development and improving an area's quality of life. BIDs deliver supplemental services such as capital improvements, beautification for the area, sanitation and maintenance, and promotional programs, and are funded by a special assessment paid by property owners within the district.

In many communities, BIDs are formed when a group of merchants or property owners in a geographically contiguous area apply to the municipality for such a designation. Those applying for the designation must define the boundaries of the BID, create goals, designate the types of services it plans to provide, and plan for its funding through the special assessment. Typically, the municipality in which the BID is located collects the special assessment and distributes the revenue back to the BID organization for dispersal in accordance with its goals.[41]

BIDs represent an innovative approach to funding new infrastructure projects, implementing new policy, and creating an efficient mechanism for service delivery and maintenance. By creating a safe, multimodal, and attractive environment, business owners increase their customer base and help to attract economic growth.[42] Given the limited funding many municipal governments face at this time, encouraging BID formation can help to jump-start and maintain complete streets initiatives in downtown and commercial areas.

Commercial parking benefit districts are another innovative best practice for municipalities looking to raise money for various projects, including complete streets facilities. In such a district, the city or town returns all or a portion of the revenue generated through parking meters or permits to an entity representing the district for extra maintenance, security, beautification, and complete streets development.

Pasadena, CA

In Pasadena, parking meters have been used to revitalize the historic downtown. Meter rates are set at the market (unsubsidized) rate for on-street parking, which has led to increased municipality revenue and ensured more available parking for all users.

In 2001, the meters in Pasadena's parking benefit district generated net revenue of $1.2 million dollars, or $1,712 per meter.

Parking benefit districts in commercial areas increase parking space turnover, reduce congestion, encourage walking, and when priced correctly, generate significant funds that can be earmarked partially or wholly for complete streets projects such as improvement to pedestrian areas and signals, creation of amenities for cyclists, providing street furniture, increasing lighting, cleaning and maintaining sidewalks, and planting trees and landscaping. Additionally, designating the funds derived from a commercial parking benefit district for public amenities that will help to attract customers will help to allay the fears of some merchants that charging for parking, or increasing the cost of parking, will reduce patronage.[43] The designation or administration of funds can be managed by the local BID if one has been created.

41 New York City Small Business Services. *Help for Neighborhoods.* http://www.nyc.gov/html/sbs/html/neighborhood/bid.shtml. Accessed 1/23/12.

42 See http://www.kingstonnycalendar.org/2011/08/15/complete-streets-would-mean-a-more-walkable-vibrant-town

43 Kolozsvari, Douglas and Donald Shoup. *The High Cost of Free Parking.* March, 2005. The Planners Press of the American Planning Association.

Debt Financing: Bonds

For construction of large-scale complete streets projects, such as sidewalks, permeable pavement, bump-outs, bike paths, or pedestrian refuge islands, issuing general obligations (GO) bonds may be appropriate. GO bonds are backed by the "full-faith and credit" of the issuing government. For local municipalities, this means the municipality has pledged to levy enough taxes to repay the principal and interest. GO bonds typically have low, tax-exempt rates of interest and grant localities immediate funding for projects while spreading the cost over a long period.[44]

This process requires the municipality to have significant public support, as the issuance of GO bonds must pass a vote, often a ballot measure. In order to achieve public support for complete streets and traffic calming initiatives, municipalities should have a consistent policy of education, and should have complete streets goals written into the comprehensive plan and stated as a municipal objective.

Finding Grants and Other Public Financing Methods

Once appropriate complete streets projects are identified, the municipality should investigate the availability of state and federal funds and grants for such initiatives. Projects should be identified in advance of searching for funding. These funds can come from traditional surface transportation funding as well as newer complete streets or environmental funding. Some projects may also be eligible for grants pertaining to elderly welfare, parks and recreation, and public health. For an abridged list of grant opportunities, see Appendix 6.

44 Securities Industry and Financial Markets Association. http://www.investinginbonds.com/learnmore.asp?catid. Accessed 3/25/2012.

Chapter Six: Recommendations

The recommendations listed here offer a range of actionable steps towards complete streets implementation. While project implementation is never a strictly linear process, the recommendations are listed here according to their priority importance. There are many challenges to making changes to city, town, and village roadways, from NIMBYism to lack of funding. However, garnering public support for complete streets concepts early on can pave the way for future project support and budget allocations. It is therefore suggested that general public education (not to be confused with project-specific public outreach) be treated as the primary step in carrying out a complete streets agenda.

Because of the challenges inherent in complete streets implementation, these recommendations have been divided into short-term and long-term steps. Short-term steps are generally lower-cost and require less manpower than long-term steps. However, long-term steps should be pursued when possible to ensure the creation of a robust network and community culture of complete streets in the future.

1) **Educate.** Convey to the public the importance of complete streets. Complete streets advocates for the consideration of all roadway users when streets are constructed or retrofitted. It is therefore essential that roadway users gain an understanding of each other and the particular dangers and obstacles faced by different modes of transportation.

First Steps

- ✓ Form a resident advocacy group. The municipal traffic committee or other governmental body should gather a group of community cyclists, environmentalists, pedestrian advocates, traffic engineers, and transportation planners who can champion the concept of complete streets among their fellow residents. The group must be action-oriented and focused on achieving complete streets goals.
  - As governmental staff is limited, this group of dedicated volunteers can organize and conduct public education events and campaigns.
  - As a non-governmental group, a resident action group can advocate for complete streets concepts in the community in a non-threatening, peer-to-peer manner.
  - An advocacy committee can be proactive, rather than reactive, as well as sensitive to community climate more easily than government committees.
  - A joint action group could serve all four municipalities of the Sound Shore.

Education campaigns can be simple or resource-heavy.

Easy: social media, news blasts

Medium: presentations at public meetings, outreach to schools, joint programs with community groups

Advanced: interactive websites, safety pledges

- ✓ Begin a complete streets education campaign focused on safe driving, cycling, and walking habits, using online experience-sharing portals, such as Facebook and Tumblr, in addition to in-person outreach events. The resident advocacy group can spearhead this effort.
  - Part of implementing complete streets is ensuring that all users are doing their part to self-enforce and maintain safety on the roadways. These campaigns should be designed to raise awareness of complete streets in the community.
  - Take advantage of partnerships and the resources they have to offer. Focus on partnerships that share a common goal -- whether that goal is to promote health, safety, or environmental benefits of complete streets.
  - Shrink the change: motivate action by making the goal feel easily obtainable. This can be achieved by championing the steps already taken to make streets more complete, helping to emphasize that the municipality already has a head start and breaking the unfamiliarity barrier.[45]
  - Engagement is particularly important in a time of constrained resources. Having the public's support can lead to increased participation and manpower in helping to realize different initiatives.
  - Keep residents updated with complete streets initiatives through social media outlets.

- ✓ Organize walking and biking tours. The municipal government can initiate these events, drawing on community partners for support.
  - Many residents have never experienced their own community's streets by foot or bicycle. Encouraging them to do so can open their eyes to the challenges that users of these modes face.
  - Ideally, these tours would include problem areas as well as areas that already work well for pedestrians or cyclists.
  - Partner with local interest groups to plan fun, engaging events. For example, the local historical society could conduct a bike tour of local historical sites, while the merchant's association could organize a walking tasting tour of local restaurants.

Next Steps

- ✓ Hold car-free days. Close down a road or downtown area to cars for one weekend day, allowing pedestrians and cyclists to experience their streets in a new way (see figure 6.1).
  - These events serve as a platform to promote the idea that streets are public spaces to be enjoyed by all users. They also promote exercise and community engagement.
  - Events can be organized in conjunction with local businesses or other partners.
  - Many municipalities include bike helmet fittings, safety demonstrations, exercise classes, food booths, and give-aways as part of their car-free days.

45 For more about this and other change techniques, see the book *Switch: How to Change When Change is Hard* by Dan Heath and Chip Heath.

Figure 6.1. Seattle's "Car Free Day"[46] and New York City's "Summer Streets"[47]

- ✓ Conduct walking or bicycling audits. These can be conducted by the municipal planning department, department of public works, resident action group, an outside consultant, schools, or other community partners. This is an ideal opportunity to involve youth, such as high school students, in complete streets education.
  - Directly involve residents in the complete streets planning process by asking them to participate in an audit of existing streets.
  - Walking audits can help to diversify perspectives so that pedestrians, bicyclists, and motorists will have consideration for others when using the road.
  - Plan a route for the audit that includes the municipalities' major arterial roads and points of interests, including schools.
  - Data collected can be delivered to the planning or engineering department to inform complete streets project prioritization.

2) **Institutionalize.** Make complete streets goals a part of day-to-day governmental processes.

First Steps

- ✓ Enact a local complete streets resolution.
  - A resolution will establish complete streets as a local priority and will instruct relevant agencies to add complete streets considerations to their regular operations.
  - The passing of a resolution will help to allay liability concerns surrounding complete streets projects, as it demonstrates thoughtful government action that supports an agreed-upon public benefit.
- ✓ Form a Bike-Pedestrian Advisory Committee.
  - Committee membership should include all types of road users to offer a balanced perspective on roadway use.
  - Such a committee would serve an advisory role in project approvals.

Next Steps

- ✓ Integrate complete streets into the municipal comprehensive plan.
  - Inclusion of language regarding complete streets in the comprehensive plan can help establish complete streets as a planning priority.
  - Comprehensive plans are updated every ten years, allowing for regular updates to be made easily. However, they can be easily amended at anytime, requiring few resources to do so.

46 http://sdotblog.seattle.gov/2009/09/22/go-car-free-and-dont-stop/

47 http://www.streetsblog.org/2010/08/09/this-week-biking-goes-mainstream-summer-streets-iii-part-2/

- Mention of complete streets in the comprehensive plan can smooth the way for projects on streets over which the municipality does not have jurisdiction, as county and state DOTs will consider a town's comprehensive plan when making street improvements.

3) **Prioritize.** Determine the best locations for complete streets interventions. Having a formal process in place for project selection will help channel resources to the most-warranted projects and avoid "arbitrary and capricious" liability. It will also help in building an interconnected network of complete streets.

First Steps

✓ Conduct an audit of the existing street/sidewalk network.
- Audits can be conducted by government staff (planning department, department of public works, engineers), an outside consultant, a resident advocacy group, or the general public, as discussed in recommendation #1.
- If the general public is involved, walking/biking audits can serve the dual purposes of data collection and public education.

✓ Create a project selection checklist for use by government bodies during project approvals.
- Establishing criteria regarding the most effective interventions for a given street condition will ensure the best use of municipal resources and project success. See Appendix 10 for an example of a project selection checklist for sharrows.

A Walking Audit conducted in New Haven, CT.[48]

Next Steps

✓ Create an overall complete streets plan.
- Based on data collected in the streets audit as well as an analysis of activity generators and high-opportunity locations, an overall plan for the municipality's network of complete streets can be established.
- While it will take many years to build out a robust network of complete streets, an overall plan helps to guide its development in a systematic manner.

4) **Fund.** Once specific complete streets projects have been identified, seek funding for them through a variety of means. Building projects into the municipal capital budget can serve to mitigate some of the financial impact, however, in light of current financial realities, the capital fund may be insufficient or allocated elsewhere. A creative and flexible approach to funding is required to allow for the implementation of new projects and initiatives.

First Steps

✓ Focus on low-cost projects that involve mostly paint and labor, rather than those that involve curb realignment or other expensive interventions.
- Often, paint and other inexpensive materials can be used to create temporary pilot

48 Image: http://www.newhavenindependent.org/index.php/archives/entry/complete_streets_begins_in_the_hill/

projects that can be built out in a more permanent way in the future.

- Sharrows, crosswalks, pedestrian refuge islands, and road diets all offer ways of better accommodating pedestrians and cyclists within the existing roadbed width.
- Signal-timing changes to allow greater crossing time, repair of existing sidewalks and curbs, and adding signage at crosswalks can greatly improve conditions for pedestrians without significant outlays of capital funds.

Painting Sharrows on a road in Eastchester, NY cost approximately $200 for a stencil and paint.[49]

✓ Seek in-kind donations, opportunities to borrow supplies, volunteer labor, and the utilization of existing staff for complete streets project construction.

- Stencils can be shared among municipalities.
- Department of public works staff can be called upon to paint or install complete streets amenities during slow work periods.

✓ Pursue government and non-profit funding sources, such as grants.

- Hundreds of federal, state, not-for-profit and private grants are available that can be applicable for a wide range of complete streets interventions.
- Existing staff, board members, resident advocacy group members, and staff from community groups can all be called upon to assist with grant-writing efforts.
- For a comprehensive list of available grants and places to look for grants, see Appendix 6.

Next Steps

✓ Create dedicated funding streams.

- Business Improvement Districts (BIDs) are a valuable tool for municipalities with a central business district or "downtown" commercial and retail area. BIDs provide a mechanism for businesses and other property owners to collectively fund improvements in their district through special assessments that can be used for beautification, complete streets construction and maintenance, and investments in economic development. For more on how to create a BID, see Appendix 7.

49 Photo: http://dannyscycles.com/about/local-bicycle-advocacy-pg176.htm

A vibrant commercial area includes amenities for pedestrians, cyclists, and transit users.[50]

- Parking Districts are an innovative way for municipalities to raise money for various projects, including complete streets facilities. In such a district, the city or town uses all or a portion of the revenue generated through parking permits or meters -- which are priced to reflect market demand -- for complete streets construction and maintenance. Well-priced parking results in greater parking space turnover, which benefits businesses and their customers, while encouraging the use of alternate modes of travel. For more on creating a parking district, see Appendix 8.

Parking meters can generate significant revenue when prices are set at or close to market rate.[51]

5) **Inform.** Once particular projects have been identified and funded, it is important to conduct project-specific public outreach through the use of charettes (collaborative workshops), public meetings, printed materials, and social media in order to maintain transparency and public involvement throughout all stages of a project.

6) **Evaluate.** Post-construction evaluation of projects is an important, but often overlooked, step. Promoting project successes is key to garnering support for future projects. Statistical data (such as reduction in number of cars speeding, increase in number of cyclists, etc.) can be an effective means of making the case for future complete streets interventions.

50 Image: http://www.nybc.net/advocacy/complete-streets
51 Image: http://www.gomonews.com/m-parking-mobile-commerce-makes-parking-more-profitable/

Chapter Seven: Sharrows How-to Guide

Introduction

The preceding chapters have outlined how a municipal government can enact a comprehensive complete streets program through a variety of initiatives, with the understanding that specific projects or initiatives are best designed by local elected officials and residents.

Funding constraints and competing infrastructure needs in the Sound Shore communities suggest that some complete streets interventions are long-term projects, rather than immediate local priorities. Projects that require extensive engineering or alteration of sidewalks, curbs, or stormwater drainage systems are most costly. In contrast, shared-lane markings, or sharrows, are an intervention that can produce considerable benefits with a minimal expenditure of resources.

This chapter will act as a step-by-step guide to implementing sharrows in the Sound Shore communities, using the methods recommended in this manual for an overall complete streets process. This includes identifying proper locations for sharrows, structuring public outreach around sharrow use and benefits, and using sharrows as a springboard for future interventions. The City of Rye has already secured a grant to install sharrows; this initiative should be treated as a pilot program for the Sound Shore communities that will reveal the most effective methods of introducing future complete streets projects.

About Sharrows

The term “sharrows” refers to a marking on a roadway that reminds users of the shared nature of the public right-of-way. The markings notify drivers to anticipate bicyclists, while reinforcing the direction and space of travel for bicyclists. Because of their placement, sharrows direct cyclists to ride far enough away from parked cars to avoid being hit by opening car doors when on-street parking is present.

"Dooring" is a serious hazard for cyclists.[52]

A typical sharrow symbol.[53]

Because sharrows serve as a reminder to drivers to be prepared to pass bicycles, they often result in reduced vehicle speeds, more attentive driving, and an overall reduction of collisions between cars and bicycles.

There are several possible designs, but sharrows typically depict a bicycle with directional arrows or chevrons and are painted at a regular intervals along a street's travel lane.[54]

Sharrows can enhance quality of life in a community in a number of ways:

1. Making bicyclists feel more secure may encourage more bicycle use, resulting in improved physical fitness and a reduction in car use.

2. Bicyclists may more often choose to travel in the road rather than on a sidewalk, resulting in better pedestrian conditions, which support the health and safety benefits of walking.

3. Sharrows in central business districts may attract more users and lead to increased patronage for local businesses and greater downtown vibrancy.

4. Strategic placement of sharrows may direct bicyclists down particular routes in a way that improves the quality of life in a municipality (for example, toward underused recreational space).

52 Image: http://staff.washington.edu/yasuhara/

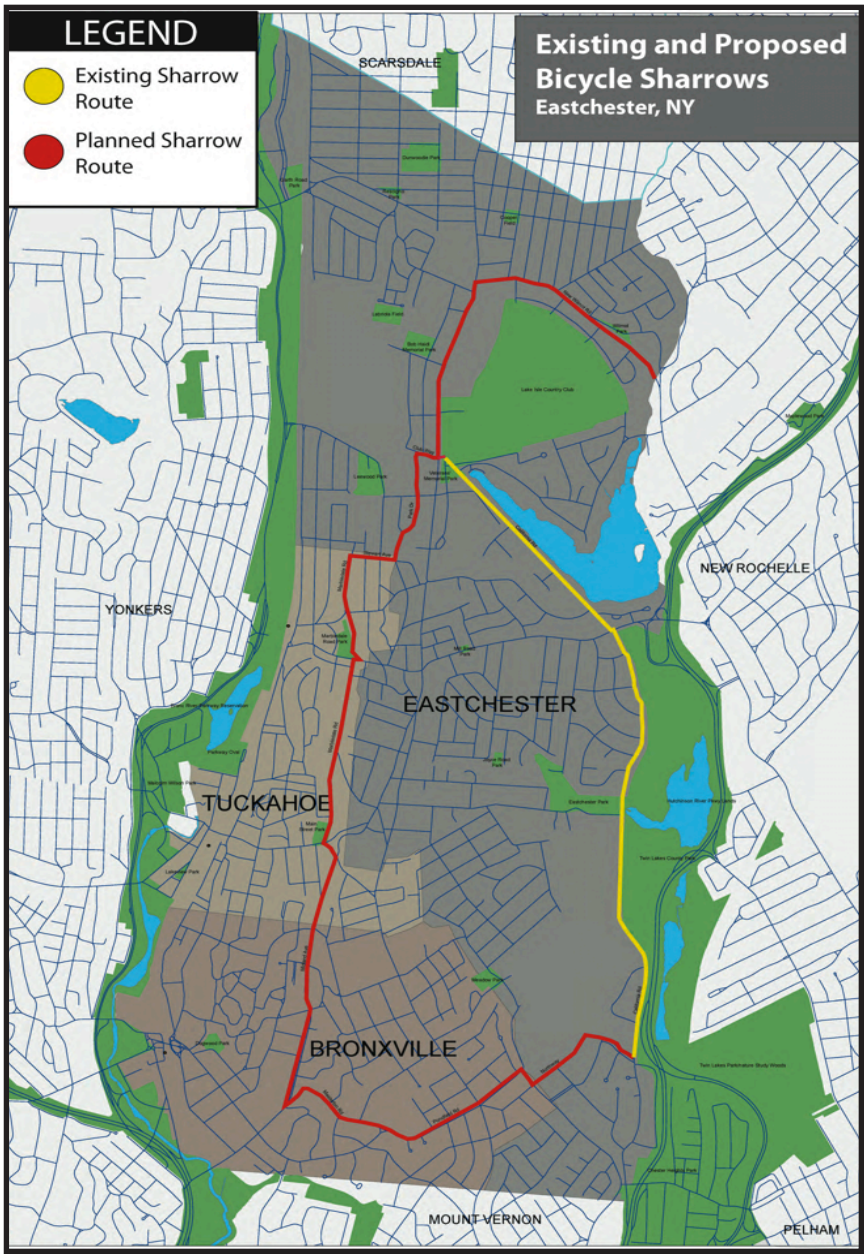
53 Image: http://www.indyweek.com/citizen/archives/2010/08/04/trust-the-sharrow-its-the-answer-to-everything-from-high-speed-rail-to-the-national-debt

54 Images: http://mobikefed.org/social-tags/traffic-signs, http://portlandafoot.org/w/Sharrow, http://nancyfriedman.typepad.com/away_with_words/2011/11/word-of-the-week-sharrow

The Town of Eastchester recently installed sharrows on California Road. The location was selected for a variety of reasons, including proximity to recreational biking routes and connectivity with neighboring municipalities. The local Traffic and Parking Advisory Committee and police department both agreed that the sharrows did not introduce any safety concerns. The sharrows were painted by employees of the Town's Department of Public Works. Because the process was not time-consuming, the DPW allowed workers to take on the painting during periods of down time. Fifteen sharrows were painted, with minimal material costs: the sharrow stencil and high-quality road marking paint together cost approximately $200.

The California Road sharrows project has been received positively by local residents, encouraging the Town to expand the sharrows network in the future (see figure 7.1). This can be considered an instructive example of how to introduce sharrows locally. The Town of Eastchester encourages staff from nearby municipalities to visit California Road, and Peter McCartt, Chair of the Eastchester Environmental Committee has indicated his willingness to assist the Sound Shore communities in pursuing sharrows projects. The communities of the Sound Shore are invited to borrow Eastchester's sharrow stencil.

Figure 7.1: Proposed sharrows network in Eastchester, NY



A study by the Federal Highway Administration (FHWA) outlined some of the specific ways in which sharrows produce positive safety outcomes:[55]

1. "The markings may help indicate a preferred path of travel and thereby improve bicyclist positioning relative to parked motor vehicles when riding in shared lanes with on-street parking."

2. "The markings may help improve spacing or operations when motorists pass bicyclists on streets both with and without parking."

3. "The markings may help improve bicyclist positioning relative to the curb or other hazards along the roadway edge, including unsafe drain grates or uneven pavement."

4. "The markings could be used where bicyclists need to take control of the lane, such as on a section of steep downgrade where they need more operating space and where there is inadequate width to provide a sufficiently wide bicycle lane. They could also be used in a shared lane situation or in a narrow lane situation where bicyclists need to move away from the door zone or other hazards."

5. "The markings may reduce bicyclist wrong-way and sidewalk riding, which can cause collisions."

6. "The markings may increase the distance from motor vehicles in the travel lane to parked motor vehicles or to the curb in the absence of bicyclists, providing more operating space for bicyclists."

For recommendations regarding sharrow design and placement, see Appendix 9.

Sharrows can be installed on streets of light to medium traffic volume.[56]

55 http://www.fhwa.dot.gov/publications/research/safety/pedbike/10044/10044.pdf, pg. 2.

56 Images: http://www.cleveland.com/roadrant/index.ssf/2010/11/cleveland_heights_rolls_out_sh.html; http://la-bike.org/glendale/?p=974

Sharrow Installation Process

For sharrows to achieve their full public benefit potential, they must be introduced as part of a full implementation process. This process assures that they are placed in strategically effective locations and that all road users (drivers, bicyclists, and pedestrians) understand their purpose.

Pre-Installation

1. *Educate the public about the importance of accommodating cyclists on roadways.*

Conduct an education campaign on safe driving and biking habits through workshops, online tutorials, or social media forums. Current supporters (bicycle enthusiasts, public health advocates, supportive residents) can act as early adopters and outreach facilitators. Possible outreach activities include bike tours, street audits, or "car-free" days. Resident advocacy groups and community partners can assist in education efforts.

2. *Build support for sharrows within government.*

Consult with appropriate governing bodies (Council, Board, or Mayor) to address any legislative concerns as well as with staff to address practicalities, such as materials, labor, and construction scheduling. Liability concerns can be addressed by consulting with legal counsel and reviewing roadway standards (FHWA Green Book, NY State Highway Design Manual). A review of current traffic data (accidents, congestion, average speeds) may also be useful in demonstrating need or opportunity for sharrows.

3. *Prioritize streets and select sites for sharrows.*

Under optimal conditions, a municipality would be able to place sharrows on every appropriate street to create a complete bicycle network. However, the practical considerations of cost and time require sharrows to be used selectively. Therefore, a system of prioritization must be used to assess all streets for the appropriateness and effectiveness of sharrows, based on the following criteria:

a. The street is capable of comfortably accommodating bicycle riders, is open to local traffic (i.e., it is not a restricted-access highway or a high-speed arterial road), and has a speed limit of 35 mph or less.
b. The street carries traffic volumes that are significant enough to create a potentially dangerous condition for cyclists.
c. The street's travel lanes are too narrow to accommodate separated bike lanes.[57] Dedicated bike lanes are preferable when space allows, however sharrows can be considered as an intermediary intervention until resources for dedicated bike lanes are secured.
d. The street has strong potential for use by bicyclists due to its proximity to a *use generator* (school, transit hub, recreational space, or business corridor). A consideration of use generators will guide prioritization of streets based on bicycle use potential rather than current preferences. Use generators should also be considered for opportunities to add bicycle parking, as this will enhance the usefulness of the sharrows network. Those destinations that already have bicycle parking can be treated as priority locations for sharrow route connections.

A sharrow prioritization checklist can be created based on these criteria (see figure 7.2 and Appendix 10).

57 http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/chapter3/3_lanewidth.htm

Figure 7.2. A partial evaluation of potential sites for sharrows. These sites were identified by the 2010-11 Capstone team as priority sites for complete streets interventions. This chart shows how they might be analyzed for their suitability for accommodating sharrows. The criteria listed here represent portion of a full recommended evaluation checklist, which can be found in Appendix 10.

	Forest Avenue (City of Rye)	Halstead Avenue (Village of Mamaroneck)	Palmer Avenue (Town of Mamaroneck)	Larchmont Avenue (Village of Larchmont)
Speed Limit </= 35 MPH	X	X	X	X
Route to Use Generator(s)	X	X	X	X
Proximity to Existing Bicycle Lanes or Routes	X	X	X	
Crossing of Center Line Allowed (i.e. broken line)				
Travel Lane < 12 ft.	X	X	X	

Bicycle rack near use generators, Fairfax County, VA.[58]

58 Image: http://fabb-bikes.blogspot.com/2007_11_01_archive.html

4. *Obtain funding for sharrows installation.*

Determine availability of funds from existing resources (e.g. capital improvements budget or maintenance budget) or apply for outside funds or grants, using existing staff or volunteers from resident advocacy groups or community partners for grant-writing efforts. Seek out borrowed resources, such as stencils, or in-kind donations of material and labor from other municipalities or private groups. For example, the Town of Eastchester has offered to lend a sharrows stencil to nearby munciplaities.

The Environmental Committee of Eastchester, NY has offered to let the Sound Shore communities borrow a sharrow stencil.

After they are painted, sharrows will degrade due to normal wear and tear and will need to be regularly replaced. A study by the Los Angeles Department of Transportation, which tested a variety of paint materials, determined that sharrows painted with normal road paint degraded over six months (see http://ladotbikeblog.files.wordpress.com/2011/06/ladot_slm_final_report_062211.pdf, page 16-17). However, that case occurred on a street with an unusually high traffic volume. In Eastchester, where the sharrows were painted on a street with moderate traffic volumes, they are expected to last three years. The use of thermoplastic, instead of paint, is more expensive, but a durable solution once sharrows have been tested and deemed successful.

5. *Announce installation and inform residents.*

Utilize a variety of outlets for information dissemination to ensure public is fully aware of the installation, as well as its purpose and use. Flyers or postcards (see Appendix 11 for examples), email news blasts, newspaper notices, announcements on the municipal website, and public meetings are all effective means of keeping the public informed. Resident advocacy groups and community partners can assist in outreach efforts.

Post-Installation

6. *Conduct post-installation evaluation and education.*

Demonstrate proper use of sharrows and build confidence in their safety benefits by conducting rider workshops, which can be led by a resident advocacy group, community partner, police department, or local bicycle shop staff. Collect post-installation data (bicycle and car traffic counts, average speeds) and compare to pre-installation data if available. Survey local residents and users to gauge satisfaction with installation and identify possible follow-up actions.

7. *Publicize data and user comments to demonstrate effectiveness of sharrows and build support for future complete streets projects.*

Publicizing success of early projects is one of the most effective ways of garnering support, both in government and in the public at large, for further complete streets projects.

Chapter Eight: Conclusion and Next Steps

This manual has offered a number of short-term and long-term recommendations for the effective implementation of a complete streets program in the Sound Shore communities. Short-term, low-cost projects, such as sharrows, are an important first step towards building momentum for carrying out a long-term complete streets strategy. However, installing individual projects is not enough to institutionalize complete streets concepts in municipal government or create a culture that supports complete streets initiatives in the community. Local legislation, comprehensive planning, and municipality-wide educational efforts must all support a complete streets cause if long-term success in the building out of a robust network of complete streets is to be achieved.

The Sound Shore communities are far from alone in desiring to make their streets safer and more livable. Municipalities nationwide have embarked on complete streets initiatives of varying scales. Although the challenges faced by municipalities may be unique, the experiences of others can serve as replicable examples of how to successfully implement a program of complete streets in the Sound Shore communities. The team found that staff members of nearby municipalities were willing and eager to share their experiences with implementing complete streets. The Sound Shore communities are encouraged to reach out to their neighbors for guidance, advice, and potential collaborative partnerships.

Changing a decades-old model of designing roadways exclusively around cars will not happen quickly or easily. However, the many public benefits associated with creating public rights-of-way that support multiple modes of travel are significant: enhanced accessibility and equity, increased safety for all road users, environmental sustainability, support for active living and physical fitness, and economic development. A complete streets program therefore represents an important initiative that can have a wide-ranging, transformative impact on a local environment. The role of transportation in shaping a municipality's quality-of-life is often overlooked, but complete streets provides a model for making the Sound Shore communities safer, healthier, and more economically robust.

APPENDICES

Appendix 1: Text of New York State Complete Streets Resolution

BILL NUMBER:S5411[59]

TITLE OF BILL:
An act to amend the highway law, in relation to enabling safe access to public roads for all users by utilizing complete street design principles

PURPOSE:
Enable safe access to public roads for all users by utilizing complete street design principles

SUMMARY OF PROVISIONS:
Section 1. Amends the highway law by adding a new section 331.

Subdivision (a) requires all state, county and local transportation facilities that receive both federal and state funding are subject to department of transportation oversight to consider safe travel on the road network by all users of all ages, including motorists, pedestrians, bicyclists, and public transportation users through complete design features.

Subdivision (b) Complete street design features shall include but not be limited to: sidewalks, paved shoulders suitable for use by bicyclists, lane stripping, bicycle lanes, share the road signage, crosswalks, pedestrian control signalization, bus pull outs, curb cuts, raised crosswalks and ramps and traffic calming measures while recognizing that the needs of users of the road network vary according to a rural, urban and suburban context.

Subdivision (c) provides for exceptions to the use of complete street
design features.

Section 2. requires a best practice report to be published by the Department of Transportation no later than two years after the bill becomes law

Section 3. Effective date

JUSTIFICATION:
According to the National Highway Traffic Safety Administration (NHTSA), 4,092 pedestrians were killed by motorists in 2009 - an average of one death every two hours. 19 percent of these fatalities were people ages 65 and older. In addition, the NHTSA stated that over 59,000 pedestrians were injured by motorists in 2009, an average of one injury every 9 minutes in 2009.

Complete street design principles include sidewalks, paved shoulders suitable for use by bicyclists, lane stripping, bicycle lanes, share the road signage, crosswalks, pedestrian control signalization, bus pull outs, curb cuts, raised crosswalks, ramps and traffic calming measures designed to allow pedestrian and motor traffic to easily coexist. A Federal Highways Administration safety review found that streets designed with these features improve safety for all users, enabling pedestrians to cross busy roads in two stages, improving bicycle safety and reducing left-turning motorist crashes to zero.

The potential to reduce carbon emissions by encouraging to lower-carbon modes of transportation is undeniable. The 2001 National Household Transportation Survey found 50% of all trips in metropolitan areas

59 http://open.nysenate.gov/legislation/bill/S5411-2011

are three miles or less and 28% of all metropolitan trips are less than one mile, easy to walk, bike, or utilize mass transit. Yet 65% of the shortest trips are now made by automobile, in part because of incomplete streets that make it dangerous or unpleasant for other modes of travel. Complete streets would help convert many of these short automobile trips to multi-modal travel. Simply increasing bicycling from 1% to 1.5% of all trips in the U.S. would save 462 million gallons of gasoline each year.

This legislation would ensure that complete streets design principles are utilized where they would be most needed, most effective, and most beneficial to improve safety for all who use our roadways.

2011-2012 Regular Sessions
I N SENATE
May 18, 2011

Introduced by Sens. FUSCHILLO, DILAN, DIAZ, GRISANTI, LARKIN, LITTLE, OPPENHEIMER, PERKINS, SAMPSON, VALESKY -- read twice and ordered printed, and when printed to be committed to the Committee on Transportation

AN ACT to amend the highway law, in relation to enabling safe access to public roads for all users by utilizing complete street design principles

THE PEOPLE OF THE STATE OF NEW YORK, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

Section 1. The highway law is amended by adding a new section 331 to read as follows:

S 331. CONSIDERATION OF COMPLETE STREET DESIGN. (A) FOR ALL STATE, COUNTY AND LOCAL TRANSPORTATION FACILITIES THAT RECEIVE BOTH FEDERAL AND STATE FUNDING AND ARE SUBJECT TO DEPARTMENT OF TRANSPORTATION OVERSIGHT, THE DEPARTMENT OR AGENCY WITH JURISDICTION OVER SUCH FACILITIES SHALL CONSIDER THE SAFE TRAVEL ON THE ROAD NETWORK BY ALL USERS OF ALL AGES, INCLUDING MOTORISTS, PEDESTRIANS, BICYCLISTS, AND PUBLIC TRANSPORTATION USERS THROUGH THE USE OF COMPLETE STREET DESIGN FEATURES IN THE PLANNING, DESIGN, CONSTRUCTION, RECONSTRUCTION, RESTRIPING AND REHABILITATION, BUT NOT INCLUDING RESURFACING, MAINTENANCE OR PAVEMENT RECYCLING, OF SUCH FACILITIES.
(B) COMPLETE STREET DESIGN FEATURES ARE ROADWAY DESIGN FEATURES THAT ACCOMMODATE AND FACILITATE SAFE TRAVEL BY ALL USERS, INCLUDING CURRENT AND PROJECTED USERS, PARTICULARLY PEDESTRIANS, BICYCLISTS AND INDIVIDUALS OF ALL AGES AND ABILITIES. THESE FEATURES SHALL INCLUDE, BUT NOT BE LIMITED TO: SIDEWALKS, PAVED SHOULDERS SUITABLE FOR USE BY BICYCLISTS, LANE STRIPING, BICYCLE LANES, SHARE THE ROAD SIGNAGE, CROSSWALKS, ROAD DIETS, PEDESTRIAN CONTROL SIGNALIZATION, BUS PULL OUTS, CURB CUTS, RAISED CROSSWALKS AND RAMPS AND TRAFFIC CALMING MEASURES; AND RECOGNIZE THAT THE NEEDS OF USERS OF THE ROAD NETWORK VARY ACCORDING TO A RURAL, URBAN AND SUBURBAN CONTEXT.

EXPLANATION--Matter in ITALICS (underscored) is new; matter in brackets [ ] is old law to be omitted.
LBD11543-01-1

S. 5411 2
(C) EXCEPTIONS TO PARAGRAPH (A) OF THIS SUBDIVISION SHALL BE PERMISSIBLE ONLY AFTER THE COMMISSIONER OR AGENCY WITH JURISDICTION OVER THE PROJECT, AND

AFTER PUBLIC INPUT, DEMONSTRATES, WITH SUPPORTING DOCUMENTATION WHICH SHALL BE AVAILABLE TO THE PUBLIC, THAT ONE OF THE FOLLOWING EXISTS:

(I) USE BY BICYCLISTS AND PEDESTRIANS IS PROHIBITED BY LAW, SUCH AS WITHIN INTERSTATE HIGHWAY CORRIDORS; OR
(II) THE COST WOULD BE DISPROPORTIONATE TO THE NEED AS DETERMINED BY FACTORS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: LAND USE CONTEXT; CURRENT AND PROJECTED TRAFFIC VOLUMES; AND POPULATION DENSITY; OR
(III) DEMONSTRATED LACK OF NEED AS DETERMINED BY FACTORS, INCLUDING, BUT NOT LIMITED TO, LAND USE, CURRENT AND PROJECTED TRAFFIC VOLUMES, INCLUDING POPULATION DENSITY, OR DEMONSTRATES LACK OF COMMUNITY SUPPORT.

S 2. (a) No later than two years after the effective date of this act, the department of transportation shall publish a report showing how transportation agencies have complied with section 331 of the highway law and changed their procedures to institutionalize complete streets design features into planning, project scoping, design and implementation of the required highway and road projects. The report shall include, but not be limited to a discussion of the review of and revisions to various guidance documents regarding lane width, design speed, average daily traffic thresholds, level of service and roadway classification. The report shall also show any best practices that transportation agencies utilized in complying with section 331 of the highway law.
(b) In establishing such best practices, consideration shall be given to the procedures for identifying the needs of the mix of users, including primary and secondary users and the identification of barriers, and summary of the documentation required by paragraph (c) of section 331 of the highway law regarding why transportation agencies could not comply with paragraph (a) of section 331 of the highway law. The department of transportation shall consult with transportation, land-use and environ mental officials, including representatives from:

(i) Counties, cities and towns;
(ii) Metropolitan planning organizations;
(iii) Public transit operators;
(iv) Relevant state agencies; and
(v) Other relevant stakeholders, including, but not limited to, repre sentatives from disability rights groups, aging groups, bicycle and pedestrian advocates, and developers.

S 3. This act shall take effect on the one hundred eightieth day after it shall have become a law.

Appendix 2: List of Sound Shore Municipal In-Person Interviews:

Rye YMCA
Gregg Howells, Executive Director

City of Rye
Christian Miller, City Planner

Town of Mamaroneck
Steven Altieri, Town Manager
Nancy Seligson, Town Supervisor
Town of Mamaroneck Traffic Committee

Village of Mamaroneck
Richard Slingerland, Village Manager
Norm Rosenblum, Mayor

Village of Larchmont
Maria Stanton, Traffic Committee

Appendix 3: List of Attendees at Best Practices Presentation

- The Rye YMCA was represented by Executive Director Gregg Howells and Dinah Howland.
- From the City of Rye, City Planner Christian Miller, Council Member Susan Keith, William Connors of the Rye Police Department, Daniel Allen of the Rye Committee on Sustainability and Steve Cadenhead and Maureen Gomez from the Rye Shared Roadways Committee were present.
- From the Town of Mamaroneck, Mary Stanton and Town Administrator Stephen Altieri were present as well as Stephen Kling, a local bicycle advocate.
- The Village of Mamaroneck was represented by Village Manager Richard Slingerland and Assistant Village Manager Daniel Sarnoff.
- From the Village of Larchmont, Traffic Committee Member Maria Stanton was present.

Appendix 4: Policy Elements

An ideal complete streets policy:[60]

- Includes a vision for how and why the community wants to complete its streets
- Specifies all users, including pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses, and automobiles.
- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- Is adoptable by all agencies to cover all roads.
- Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
- Directs that complete streets solutions will complement the context of the community.
- Establishes performance standards with measurable outcomes.
- Includes specific next steps for implementation of the policy.

60 From: http://www.completestreets.org/changing-policy/policy-elements/

Appendix 5: Needs Assessment

Needs Assessment and LOS[61]

The New Jersey Bicycle Manual provides a section with respect to land use and location factors to assist in recognizing the potential for non-motorized travel.

- Does the highway serve an activity center, which could generate bicycle trips?
- Is the highway included on a county or municipal bicycle master plan?
- Will the highway provide continuity with or between existing bicycle facilities?
- Is the highway part of a mapped bike route or utilized regularly by local bicycle clubs?
- Does the highway pass within two miles of a transit station?
- Does the highway pass within two miles of a high school or college?
- Does the highway pass within 1/2 mile of an elementary school or middle school?
- Does the highway pass through an employment center? If so, is there a significant residential area within a three-mile radius?
- Does the highway provide access to a recreation area or otherwise serve a recreation purpose?

If any of the listed criteria is yes, the highway facility has the potential of attracting less experienced bicycle riders and/ or large numbers of advanced riders. Designated facilities are then desired. If none of the criteria is met, minimum bicycle compatible roadway design is recommended.

61 From: http://policy.rutgers.edu/vtc/bikeped/reports/bicyclereview23.pdf

Appendix 6: List of Grant Opportunities

Surface Transportation Program
http://www.dot.gov/citizen_services/grants_loans/index.html
Eligible projects include pedestrian, bicycle and safety projects as well as environmental projects. Most projects require a 20% funding match.

Transportation Enhancements (TE)
www.enhancements.org
Eligible projects include pedestrian, bicycle, safety, scenic, historical, and environmental (including run-off reduction) projects. Educational programs and activities related to transportation are also eligible. Most projects require a 20% match in funding.

Congestion Mitigation and Air Quality (CMAQ)
https://www.dot.ny.gov/divisions/engineering/environmental-analysis/mobil6/microscale-air-quality-analysis
Project must reduce air pollutants from transportation-related sources. Includes provisions for bike and pedestrian facilities.

Safe Routes to School
https://www.dot.ny.gov/divisions/operating/opdm/local-programs-bureau/srts
Projects must improve hazardous road and sidewalk locations or features, reduce traffic speeds, or other highway safety problems. Includes bicycle and pedestrian infrastructure and signage. Projects can include safety and educational campaigns.

Recreational Trails Program
www.fhwa.dot.gov/environment/rectrails/index.htm
Monies for projects to develop and maintain recreational trails and trail-related facilities for motorized and non-motorized trail uses.

Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users
http://www.fhwa.dot.gov/safetealu/factsheets.htm
Encompasses a wide variety of grants that can be applied to complete streets interventions.

Title 23, Section 402 Funds
www.nhtsa.gov
Eligible projects include highway and roadway safety improvements.

Center for Disease Control and Prevention: Nutrition and Physical Activity Program Kids Walk-to-School
http://www.cdc.gov/nccdphp/dnpa/kidswalk/
Eligible projects include those that increase pedestrian safety, mobilize communities to work together around safe routes to school, and education to increase walking and riding to school.

Transit Capital Investment Program Section 5309
http://fta.dot.gov/grants/13093_3558.html
Senators and Congressional Representatives may sponsor and direct funding to a particular transit project.

Public Transportation Rural Programs, Federal Section 5311
https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/rural-programs/5311
Capital and operating assistance grants to increase accessibility to amenities in non-urban areas.

Job Access and Reverse Commute Program
https://www.dot.ny.gov/divisions/policy-and-strategy/public transportation/specialized-transportation/5316-5317
Eligible projects focus on easing commutes for low-income workers.

Section 5317 New Freedom Program
https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/specialized-transportation/5316-5318
Eligible projects assist individuals with disabilities.

Transit State Dedicated Fund (SDF) Program
https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/funding-sources/SDF
NYS monies available for local capital needs for transit other than the MTA.

NYS DOT Consolidated Funding Application
http://nyworks.ny.gov/
Funding available for transportation and public infrastructure, environmental improvements, business assistance, community revitalization, and sustainable planning assistance.

Parks Grant Program
http://nysparks.com/grants/parks/default.aspx
Eligible projects preserve, rehabilitate, or restore lands, waters, or structures used for park, recreation or conservation purposes.

Local Safe Streets and Traffic Calming Fund (LSSTC)
https://www.dot.ny.gov/regional-offices/region10/other-topics/lsstc
Monies available for local communities to encourage increased walking and cycling and reduce traffic speeds through education and infrastructure.

Transportation Investment Generating Economic Recovery (TIGER) Grant
http://www.dot.gov/tiger/
Eligible projects include multi-modal and multi-jurisdictional projects that increase livability and sustainability and help in economic recovery.

AASHTO Technical Assistance Programs
http://www.transportation.org/Default.aspx?siteid=37&pageid=1631
Offer technical assistance for a variety of projects, particularly environmental in nature.

New York State Scenic Byway Program
https://www.dot.ny.gov/display/programs/scenic-byways
Funds may be used for “construction along scenic byways of a facility for pedestrians and bicyclists.”

National Scenic Byways Program
http://www.bywaysonline.org/grants/
Eligible projects are related to scenic byways and are awarded based on merit each year.

General Highway Safety Grants
http://www.safeny.ny.gov/overview.htm#grant
Eligible Projects improve highway safety services including pedestrian safety.

New York and Connecticut Sustainable Communities
http://www.sustainablenyct.org/
Eligible projects help to create sustainable communities along major transit lines in the New York-Connecticut region.

Appendix 7: How to Create a BID

Steps to creating a Business Improvement District:

1. Analyze the appropriateness of a BID for the neighborhood and write a statement of need to be submitted to the municipality and business and land owners in the proposed district.

2. Create a database of property owners and commercial tenants within the potential district, including tax information, property uses, and contact information on each property.

3. Circulate a petition among potential property owners and tenants to guage support and interest. Most municipalities require a threshold of local businesses to agree to the district and assessment before implementation of the district can commence.

4. Form a steering committee made up of varied interests in the area (business and property owners, commercial tenants, local elected officials and representatives of community organizations) and create a vision for the district including boundary definition, resource needs, and set a plan for BID implementation.

5. Draft a District Plan determining service and improvements, budgets, and assessment formulas. Submit to municipal government for Board approval.

6. Send out informational packages and schedule first meeting for BID members. Plan to hold regular public meetings to discuss BID business.

7. Special Assessment Districts can be an alternative to BIDs in residential areas, or for individual projects. This practice works best when it can be shown that the planned improvement has a direct benefit to a specific area of the community as opposed to the community as a whole, such as flood mitigation. Before deciding to pursue an assessment district option, the municipality should devote time to educate and develop a consensus among the property owners who will be directly impacted. If the district is created, then the property owners within the district will receive a separate tax bill from the community to pay for their share of the assessment. This assessment can be used either to pay for a specific project in a single tax year or for the repayment of bonds over a period of years.

Appendix 8: How to Create a Parking District

Steps to Creating a Parking Benefit District

1. Studies of parking space occupancy and price sensitivity must be conducted. Municipalities should aim to price parking to ensure an 85% occupancy rate.

2. Create a plan of how to implement infrastructure and/or administer enforcement. Outline capital costs of infrastructure that may be required and identify funding source.

3. Elected officials must pass municipal ordinance detailing boundaries and regulation of the district, as well as management and earmarking of funds derived from the scheme.

Appendix 9: Design and Placement of Sharrows

Because they are only street markings, the placement requirements are fairly minor but should be considered nonetheless:

1. The FHWA's Manual of Uniform Traffic Control Devices (MUTCD) recommends that sharrow markings be placed 11 feet from the pavement edge or curb on streets with parallel parking and four feet from the pavement edge or curb on streets with no parking. However, FHWA has acknowledged that there is room for adjustment to these standards: "Placement of the sharrows 10 ft from the curb (instead of 11 ft) was not a problem."[62]

2. There are no standards for how widely spaced sharrow markings should be. The National Organization of City Transportation Officials (NACTO) recommends that sharrow markings should be placed every 50 to 100 feet on high-traffic streets and no more than 250 feet on low-traffic streets.[63] With 250-foot spacing, a car travelling at 30 miles per hour (44 feet per second) would pass a sharrow marking every five or six seconds, which can effectively serve sharrows' purpose of increasing a driver's awareness of possible bicyclists; therefore, 250-foot spacing can be considered an effective benchmark. At least one sharrow marking should appear between each intersection.

3. NACTO also recommends that sharrows not be placed on any streets with a speed limit higher than 35 MPH, as the differential in speeds may require a more dramatic intervention, such as a dedicated bike lane. A bicycle will generally travel no faster than 15 MPH (St. Petersburg, FL, study by UNC Highway Safety Research Center.[64]

3. A study by the LA DOT notes that sharrows are best suited to two-way roads with dashed centerlines, allowing vehicles to pass cyclists where appropriate.[65]

5. The benefits of sharrows can be amplified by other measures, such as shared lane signage.[66] Where possible, these reinforcing signs should be included in a full street treatment. Similarly, the addition of bicycle parking space or racks at use generators can further encourage bicycle use.

Image: http://laist.com/2010/03/10/sharrows.php

62 http://www.fhwa.dot.gov/publications/research/safety/pedbike/10044/10044.pdf
63 http://nacto.org/cities-for-cycling/design-guide/bikeway-signing-marking/shared-lane-marking/
64 http://katana.hsrc.unc.edu/cms/downloads/FDOT_BA784_ExaminationBicycleCountsSpeedsInstallationBikeLanesStPetersburgFlorida.pdf
65 http://ladotbikeblog.files.wordpress.com/2011/06/ladot_slm_final_report_062211.pdf, page 32
66 See: http://www.nyc.gov/html/dcp/html/bike/sign.shtml

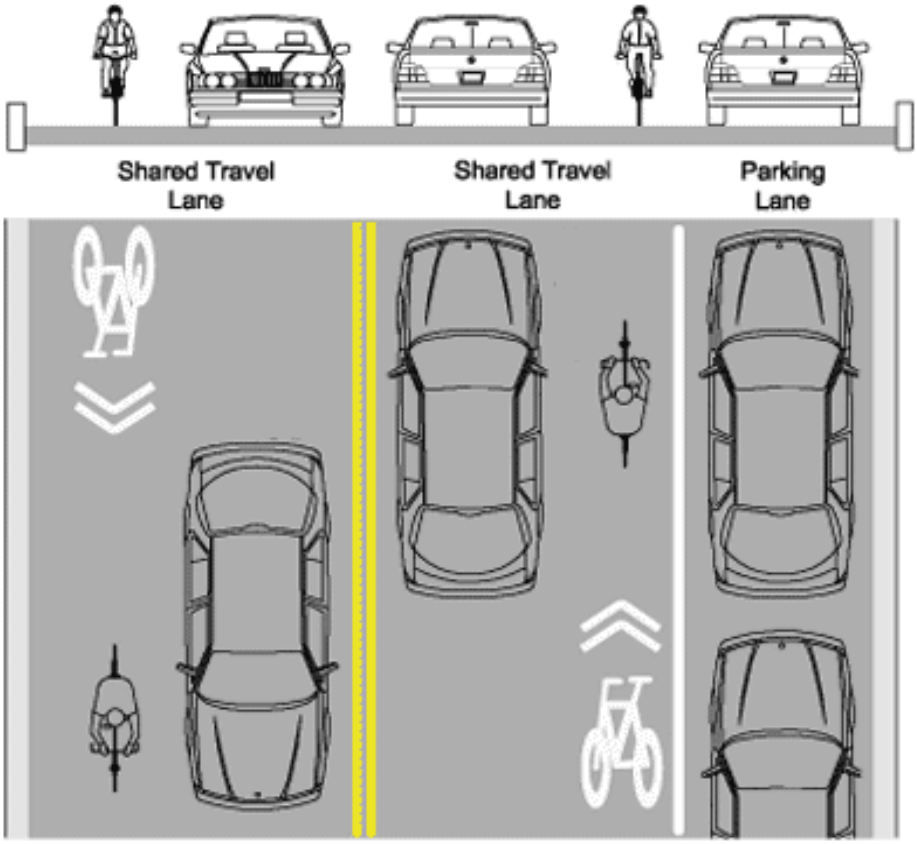


Image: http://www.seattle.gov/transportation/sharrows.htm

Appendix 10: Checklist for Sharrows

Sample Sharrows Site Checklist

Street: **From:** [intersection] **To:** [intersection]

Distance: **On-Street Parking:** Yes No

Recommended By: **Reviewed By:** **Date:**

Street Conditions	
Open to Bicycles (not restricted-access)	
Speed Limit < 35 MPH	
Travel Lane (distance from curb or parking line to median) < 12 ft	
Sidewalks	
Surrounding Conditions	
Moderate Car Traffic (i.e. not a side street)	
Route to Use Generator(s)	
Close Proximity (< 8 Miles) to Use Generator(s)	
Connection to Existing Bicycle Lanes or Routes	
Crossing of Center Line Allowed (i.e. broken or dotted line)	
Route to Neighboring Township or Municipality	
Preferred Bicycle Route Explain:	

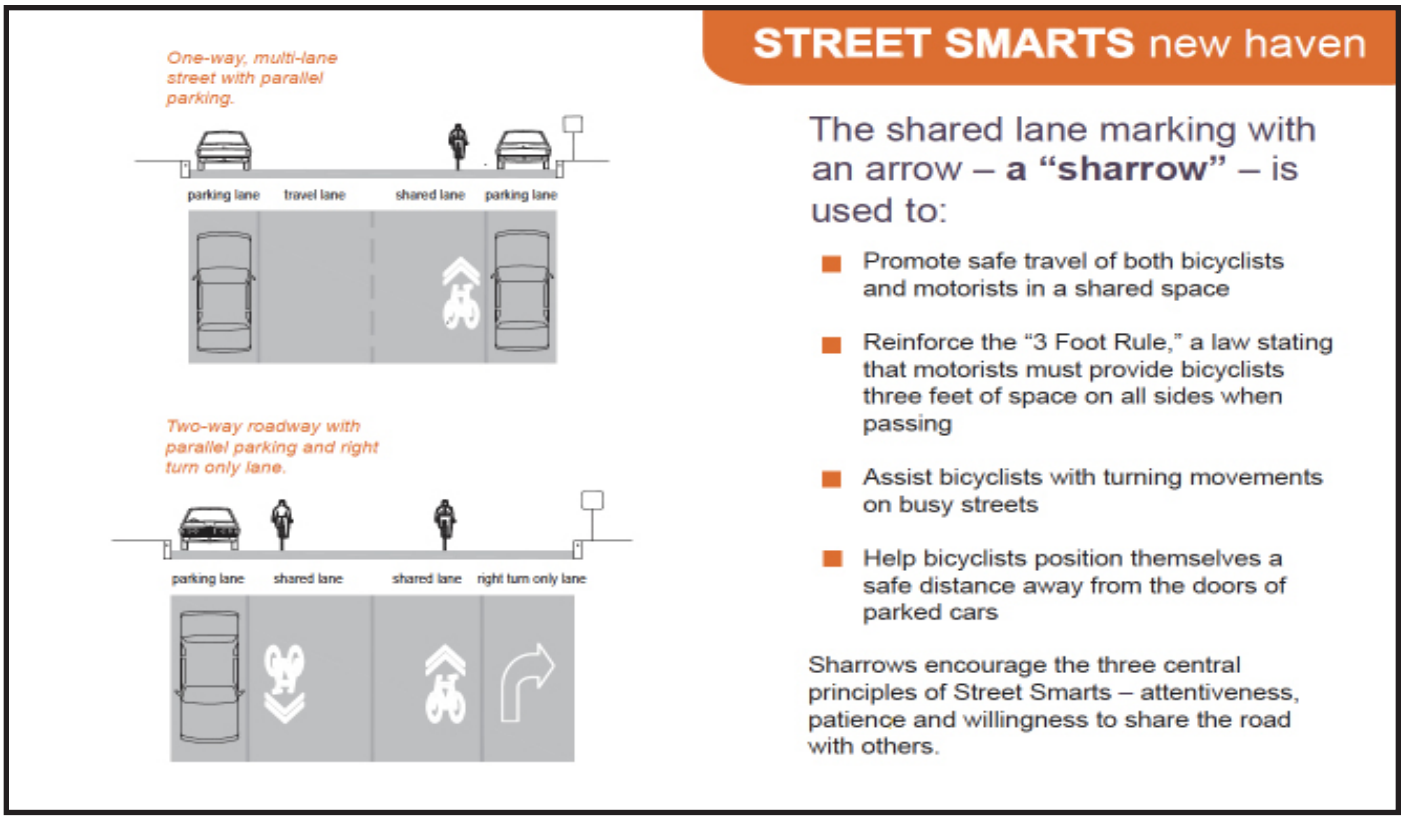
Score (1 pt. each):

Nearby Use Generators (School, Public Facility, Transit Hub, Recreational Space, etc.):

Name Address/Intersection

Appendix 11: Examples of Print Materials for Sharrows Outreach

Postcard sent to residents in New Haven, CT[67]



67 http://www.cityofnewhaven.com/streetsmarts/index.asp

Princeton Township

and

Borough of Princeton

SHARED LANE MARKINGS:

a Guide on Sharrows

In Princeton

General Safety Tips:

For Bicyclists:

- You have a right to share the road; the same laws that apply to drivers apply to bicyclists
- Obey all traffic signals
- Use hand signals to indicate turns and stops
- Ride with traffic
- Always wear a helmet; install bell
- Use front and back lights at dusk and night
- Ride defensively and anticipate hazards

For Drivers:

- Pass bicyclists with caution and with plenty of room, at least 3 feet!
- Do not pass bicyclists if turning right immediately
- On-street parking: look behind for passing bicyclists before opening car door
- Reduce speed when passing bicyclists, especially on narrow roadways

Borough of Princeton

One Monument Drive
Princeton, NJ 08542
(609) 924-3118

Office Hours: Mon-Fri
9:00 am—5:00 pm

Princeton Township

400 Witherspoon Street
Princeton, NJ 08540
(609) 924-5704

Office Hours: Mon-Fri
9:00 am—5:00 pm

What is a Shared Lane Marking / Sharrow?

These are shared-lane markings, or sharrows, a fusion of "share" and "arrow."

Sharrows are used on streets that are too narrow to accommodate a dedicated bike lane and they communicate to drivers and bicyclists that a street is meant to be shared by both groups.

As bicycling increases in Princeton, drivers will continue to become more familiar with bikes sharing the streets, and these markings act as a way to remind drivers to expect to see bicyclists.

More information on sharrows may be found at:

http://www.princetontwp.org/ and
http://www.princetonboro.org/

Disclaimer:
This safety information is a compilation from multiple sources and the Borough and Township disclaim any responsibility for injury or damages based on negligence due to the accuracy of the information. The Borough and Township recommend you familiarize yourself with a route, its condition, existing traffic, your bike and all other conditions that may affect your safety. Please obey all laws and bike carefully.

What Do Sharrows Mean for Bicyclists?

- Assists bicyclists with on-street positioning in a shared lane with on-street parking;
- Help reduce the chance of a bicyclist's getting "doored" and avoid other hazards like curb debris and storm drains;
- To assist bicyclists with positioning in traffic lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane;
- To alert motorists of the location bicyclists are likely to occupy within the travel lane;
- To encourage safe passing of bicyclists by motorists;
- To reduce the incidence of wrong-way bicycling;
- To help decrease adverse interactions between bicycle and car; and
- To help reduce sidewalk riding by bicyclists and avoid conflicts with pedestrians.

What Do Sharrows Mean for Drivers?

- Sharrows help alert other road users to expect bicyclists to occupy travel lanes.
- Bicylists are not required to move to the right, and may move to the left to pass slower moving vehicles, make a left turn, or to avoid debris, drains, or other hazardous conditions on the right. Moving to the left of the lane to avoid car doors is permitted by the law.
- Drivers must share the road with bicyclists except where bicycle traffic is prohibited. Bicyclists can ride on any street in New Jersey except for interstate roadways. Bicyclists are like motor vehicle traffic and allowed on streets regardless of whether there is a marking or sign for them, unless stated otherwise.
- As Princeton has many out-of-town visitors, sharrows are an important reminder to drivers to share the road and be aware of bicyclists.

Where are the Sharrows?

The sharrow markings will be installed along these road segments (orange segments:

- Harrison Street from Faculty Road to Mt. Lucas Road
- Witherspoon Street from Nassau Street to Valley Road
- Nassau Street from Harrison to Bayard Lane
- Paul Robeson Place/Wiggins/Hamilton Avenue from Bayard Lane to Snowden Lane


SHARE
THE ROAD