Great Streets Downtown Hyannis:

A Walkable Heart for Cape Cod

Acknowledgments

Town of Barnstable

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Foreword

One of the central challenges facing many cities and towns today is how to evolve from a place that is easy to get through into a place that is worth arriving at. These two qualities did not originally exist in conflict; indeed, it was a location's status as a transportation hub that typically caused it to become a city. Maritime ports and railroad junctions invited the commerce that created many historic downtowns, including Hyannis. Only with the advent of the automobile, and its demands for speed and space, did our transportation systems and urban vitality begin to work at cross purposes. What is a town but an impediment along a highway, and what is a highway but an interruption to a town?

This conversation is particularly relevant to Hyannis, which still maintains its status as a principal harbor for people and goods heading to its popular surrounding islands. But how many visitors are tempted to stop? Meanwhile, the widening of Routes 28 and 6 provide a faster path to and from the Cape for those not interested in an urban diversion. How can more Cape Codders be enticed to spend some time and money in "Cape Cod's downtown?"

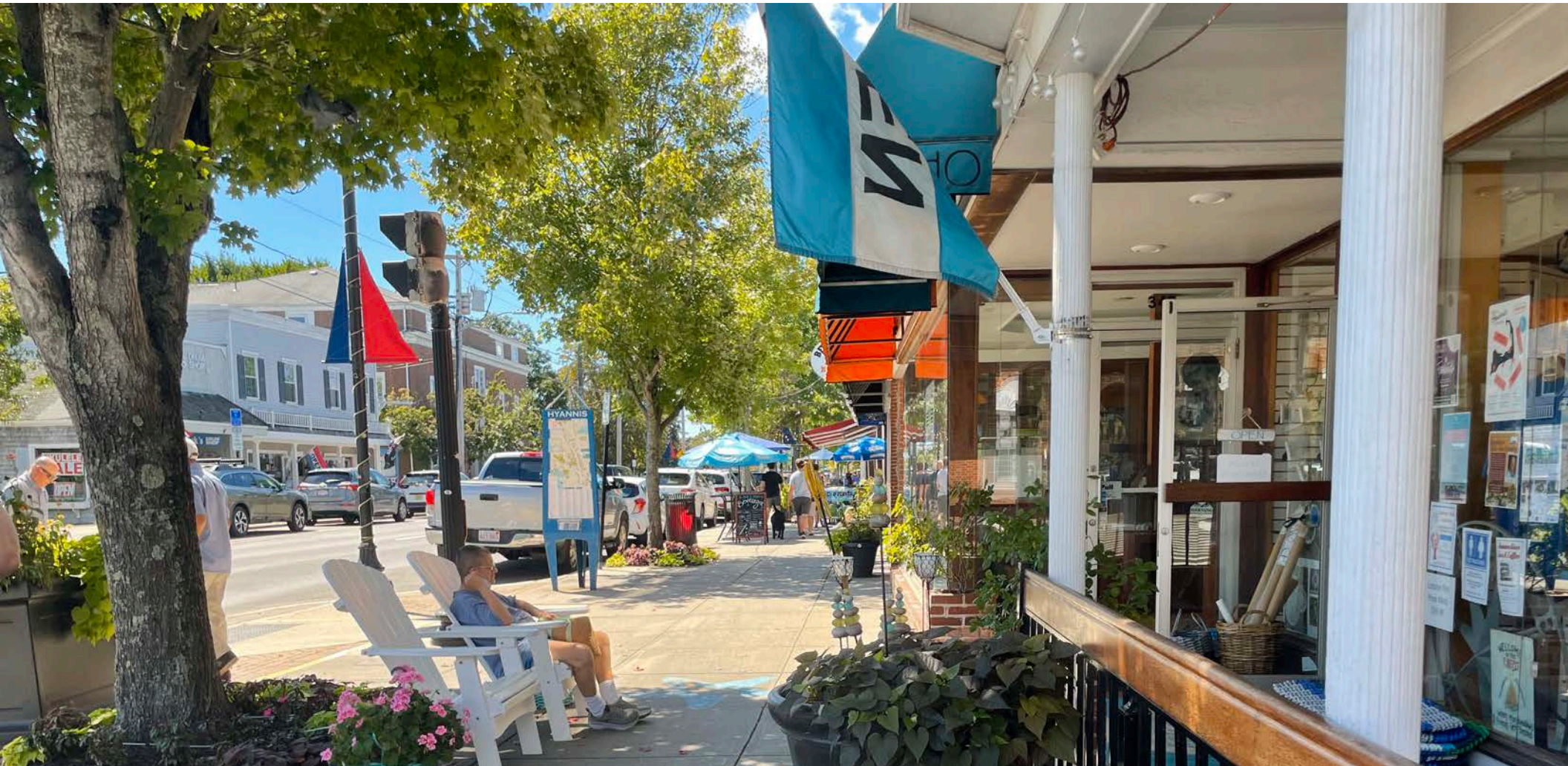
Finally, how can downtown Hyannis be more attractive and useful to the residents of Barnstable? Its current street network of one-way pairs was designed to speed regional traffic through downtown, but at the direct expense of locals, who are forced to maneuver in dizzying circles on almost every trip. In the urban transformation of communities from conduit to destination, the restoration of two-way traffic to highway-style looping networks has proved a powerful tool. Particularly when combined with the replacement of traffic signals with all-way stop signs, eliminating one-way pairs from downtown, and the resulting calmer, more direct traffic patterns, improve safety and comfort for all road users, especially pedestrians—also known as shoppers.

The story of over 100 successful two-way restorations across the US gives us confidence that such a transformation, long contemplated in Hyannis, will bring great benefit to the town and its residents. Combined with other needed traffic-calming improvements, these changes can be expected to have a profound impact on the town's economic and social future.

Downtown Hyannis has persevered despite the challenges of the recent pandemic, with interventions spearheaded by community leaders and a municipal staff not afraid of change. The significant changes proposed in this plan, while not expensive, may seem like an interruption to business as usual. But they are well in keeping with the evolution of a community that embraces innovation as well as history.

-- Jeff Speck, FAICP, FCNU, LEED-AP, Hon.ASLA


Tobacco
Master


HYANNIS
OPEN


bunch

1 Project Overview

- Introduction
- Project Process
- Public Engagement

Great Streets Downtown Hyannis: A Walkable Heart for Cape Cod re-envisions how Hyannis Main Street and the surrounding streets and intersections are designed and how they function, with the objective of making downtown safer and more successful. The project included a robust public engagement process as well as a detailed assessment of walking, biking, driving, and taking transit to and through downtown Hyannis.

Introduction

With Main Street's several blocks of retail, dining, and visitor attractions, the Hyannis Transportation Center serving regional bus routes and CapeFlyer rail service, and the Steamship Authority and Hy-Line ferries to Nantucket and Martha's Vineyard, Hyannis is perfectly positioned to continue to drive visitors' experiences and economic impact. In addition, locally owned and operated shops and a vibrant street environment should contribute to livability for residents.

Downtown Hyannis has persevered despite the challenges of the recent pandemic with innovative interventions spearheaded by community leaders as well as continuing to plan for the future.

Hyannis Great Streets establishes a new network that hinges from and supports a redesigned Main Street, including key components that impact local circulation such as the Six Points intersection and connections to the CapeFlyer and the Harbor.

CONTEXT

This Plan sits within a long history of community planning in Barnstable and Hyannis. Significant recent planning, design, and policy work includes *Gateway Hyannis* (2010), the *Hyannis Parking Study* (2017), the *Downtown Hyannis Wayfinding Plan* (in process), and the *Rapid Recovery Program Plan* (2021). Additionally, the village undertook one of the most comprehensive and unique "pop-up" street pilots in the Commonwealth during the COVID-19 pandemic.

This study is informed by all of these efforts and others, including Ben Thompson's fascinating 1968 plan *Hyannis: Yesterday, Today, Tomorrow*. It also benefits from the leadership of Town staff and the knowledge of many local residents and merchants, received through an iterative and multi-pronged community-input process, further described in the pages ahead.

The project began in the Fall of 2022 and went through an interactive and iterative community process, detailed on the following pages.

Figure 1 Project Area of Influence

PROJECT GOALS

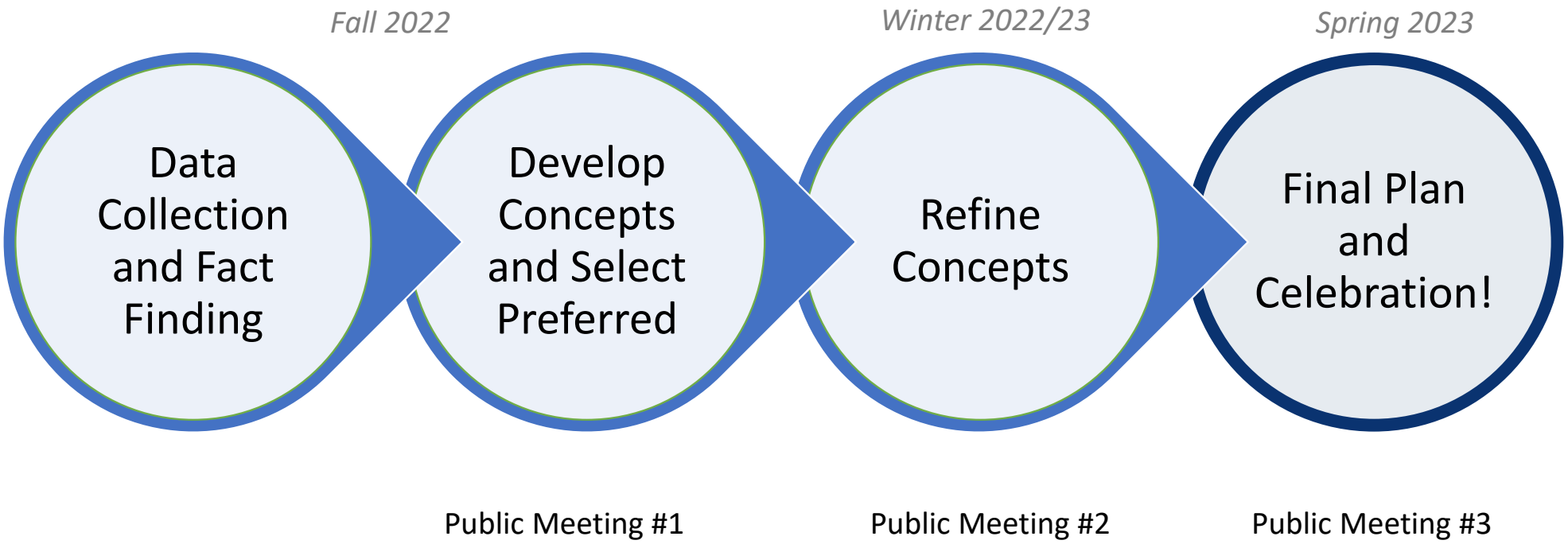
- Enhance the public realm through placemaking in support of economic development
- Emphasize and prioritize people walking
- Address congestion that could increase as residential density is increased
- Employ traffic calming to enhance safety
- Encourage multi-modal transportation

Project Process

At the outset of the project, the team crafted a set of goals that would serve as guides for the design process. This process consisted of these steps:

- **Plan and Data Review.** This process identified where today's network might be falling short of project goals. It also included a review of prior plans to understand what was anticipated for the future.
- **Site Tour.** The team conducted a field visit to document and observe the study area.
- **Existing Conditions Analysis.** The team analyzed traffic data, crash data, and circulation patterns to determine specific challenges downtown.
- **Workshop Week.** The team held a week-long workshop on site, meeting with stakeholders and crafting designs.
- **Public Meetings.** At key points in the process, the team held well-attended public meetings, detailed ahead.
- **Identification of Preliminary Plan Alternatives.** Building from public input and a review of existing conditions, the team developed multiple alternative designs for streets and intersections.
- **Narrowing and Refinement of Alternatives.** With the help of Town staff and community input, the team settled on the preferred alternatives presented here.

Project Timeline



Public Outreach

SUMMARY

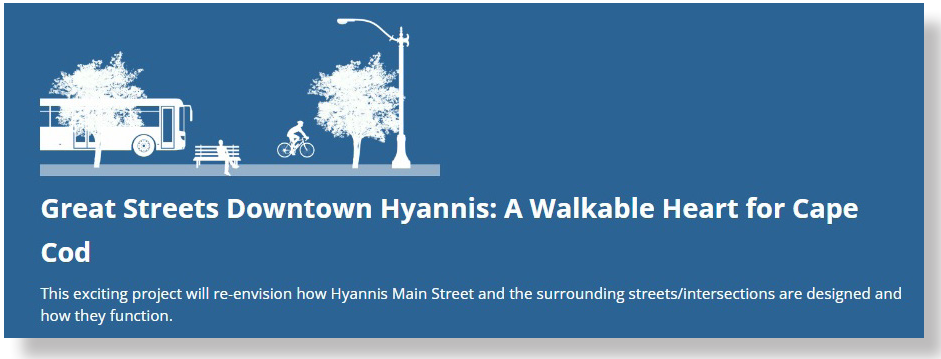
The project included an extensive public outreach process. This effort included public meetings and open houses, a workshop week where the public could drop in to give input, and targeted stakeholder meetings. Specifically:

- **Public Meeting #1,** held in November, 2022, focused on project priorities as well as issues and opportunities in the study area. It also served to introduce the key walkability principles that would be brought to bear on the project.
- **Workshop Week** also took place in November of 2022. At that time the team met with 7 stakeholder groups over 4 days.
- **Public Meeting #2** was held in January of 2023. At this meeting the team presented an array of concept designs for public review and comment. Both public meetings included interactive exercises to elicit ideas from, and ascertain preferences of, those in attendance.
- **Additional stakeholder meetings** including key Town staff occurred as needed.
- **Public Meeting #3,** held in May 2023, served to introduce this report and its final concept designs.

Additionally, the team maintained a web portal (Figure 2) to allow community members to receive updates on the project, view videos of past public meetings, and provide virtual feedback on proposals presented during open houses.

Further, a number of community members reached out to the Town via the email address on the website.

Figure 2 Web Portal and Sample Online Survey



Project updates, surveys, and past and upcoming meeting information were posted on a well-publicized website.


Making Downtown Walkable


MAIN STREET- Street Design Preferences
As the Town of Barnstable considers improvements to Downtown Hyannis, public input is needed on the types of facilities you would like to see.
Please help us by using the stickers provided to vote for the features you think are most important.
Placemaking Tools: Select TWO elements most important to you
Outdoor Seating
Pedestrian Scale Lighting
Programmable Public Space
Public Art
Landmark Elements
Textured/Colored Sidewalk
Crossing Treatments: Select TWO elements most important to you
Leading Pedestrian Intervals / Concurrent Signalization
Pedestrian Island
High Visibility Crosswalk Marking
Textured/Colored Crosswalk
Raised Crosswalk
Pedestrian Only Crossing Signal
WAIT
Sidewalks: Select TWO elements most important to you
Defined Street Tree Planting
Green Infrastructure at Key Areas
Active Frontage Zone (Close to Storefront)
Wider Spaces for Walking
Wider Amenity Zone (Close to Street)
Shade Trees
Great Streets Downtown Hyannis: A Walkable Heart for Cape Cod
Project Kick-off and Open House
Stay informed on the project web page-
https://tinyurl.com/hyannisgreatstreets
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MAIN STREET- Street Design Preferences
As the Town of Barnstable considers improvements to Downtown Hyannis, public input is needed on the types of facilities you would like to see.
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Placemaking Tools: Select TWO elements most important to you
Outdoor Seating
Pedestrian Scale Lighting
Great Streets Downtown Hyannis: A Walkable
Project Kick-off and Open House

PUBLIC MEETING #1 SUMMARY

The first public meeting on November 15, 2022, kicked off the workshop week held in downtown Hyannis. In this meeting, the team reviewed walkability principles, including data and case studies from other communities. After the presentation, the Town held an open house for the public to speak with the project team and give their ideas and opinion on making downtown safer and more successful.

From the open house, it was clear that residents desired a downtown area that prioritized pedestrians and was pleasant to walk through and not overburdened by traffic. Favored features included clear pedestrian routes along active sidewalks, frontage zones close to storefronts, increased outdoor seating, pedestrian scale lighting, and high visibility crosswalks.

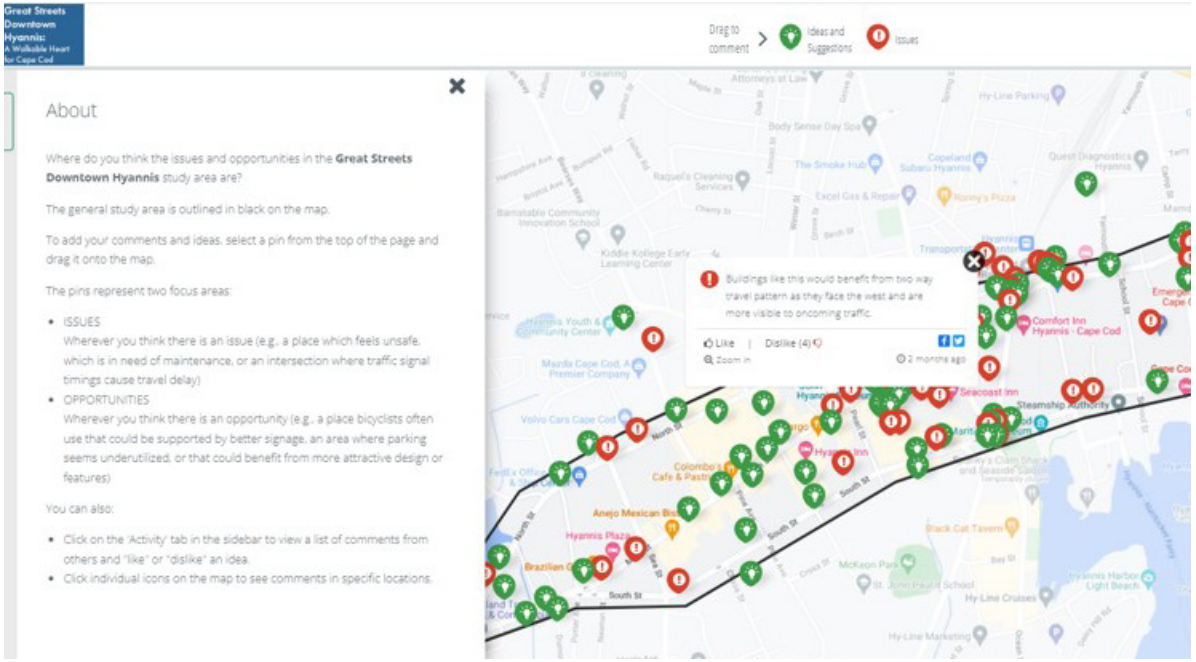
KEY COMMENTS

"When Main Street was two-way in the past, it was much more vibrant!"

"Lots of traffic back-up with ferries and hospital, also back-up with E Main from Yarmouth."

"Getting anywhere from here like North to community center is hard due to no cross walks and missing sidewalks."

"Biking down South Street feels like biking on a highway"



The online version of in-person workshop exercises allowed people to participate on their own time.

WORKSHOP WEEK

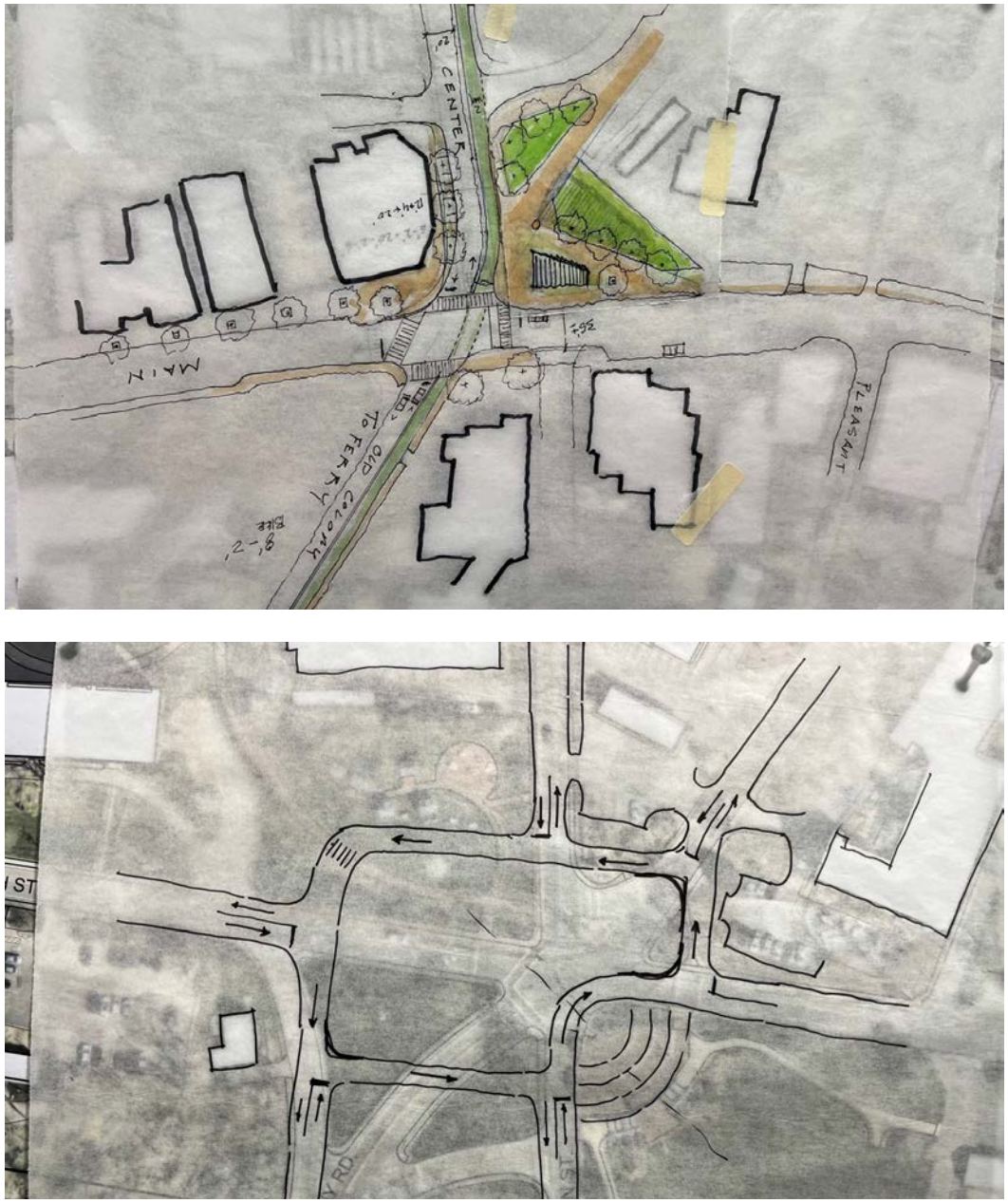
After Public Meeting #1, the team stayed in town for a workshop week. The workshop included the sketching and testing of concepts (Figure 3), bolstered by field walks and more conversations with residents and merchants. There were multiple opportunities for people to drop in and offer additional feedback regarding their vision for downtown Hyannis, and to discuss ideas in more detail.

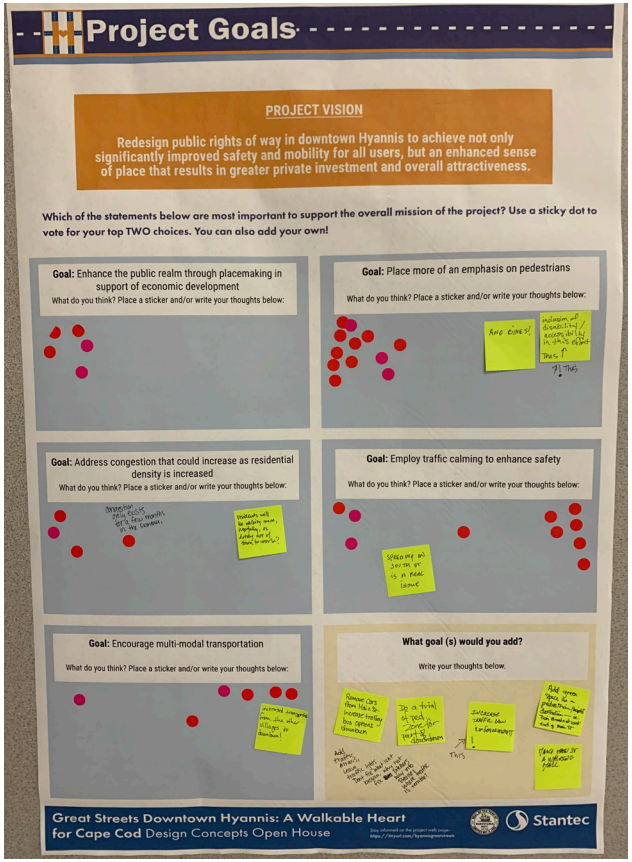
During the week, the team also held focused meetings with key stakeholders. Including:

- Town Staff
- Downtown Residents and Developers
- Downtown Commerce
- Downtown Institutions
- Public Safety
- Regional Transportation

At the conclusion of the week, the team had fully explored, tested, and received input on a wide variety of design concepts and street reconfigurations.

Figure 3 Preliminary Sketches from Workshop Week




Project Goals
PROJECT VISION
Redesign public rights of way in downtown Hyannis to achieve not only significantly improved safety and mobility for all users, but an enhanced sense of place that results in greater private investment and overall attractiveness.
Which of the statements below are most important to support the overall mission of the project? Use a sticky dot to vote for your top TWO choices. You can also add your own!
Goal: Enhance the public realm through placemaking in support of economic development
What do you think? Place a sticker and/or write your thoughts below:
Goal: Place more of an emphasis on pedestrians
What do you think? Place a sticker and/or write your thoughts below:
Goal: Address congestion that could increase as residential density is increased
What do you think? Place a sticker and/or write your thoughts below:
Goal: Employ traffic calming to enhance safety
What do you think? Place a sticker and/or write your thoughts below:
Goal: Encourage multi-modal transportation
What do you think? Place a sticker and/or write your thoughts below:
What goal (s) would you add?
Write your thoughts below.
Great Streets Downtown Hyannis: A Walkable Heart for Cape Cod Design Concepts Open House
Stantec

PUBLIC MEETING #2 SUMMARY

The second public meeting was held on January 25, 2023. In this meeting, the team reiterated key issues and ran through all of its first-draft street and network design concepts. The presentation was followed by an open house where residents spoke with planners and gave feedback on the design proposals and participated in exercises soliciting their preferences on a variety of solutions for key locations. Workshop materials were then posted on the project website and public comment was accepted from residents who could not attend the in-person open house.

Key findings from the meeting and the online survey include:

- Prioritizing people walking is a top goal, as is using traffic calming measures to enhance safety.
- Respondents generally supported a short-term proposal to place a mini roundabout at Six Points.
- Most participants liked the insertion of bike lanes into many streets.
- Some participants raised concerns about narrowing driving lanes down to a 10-foot standard, but most understood the danger associated with wider streets.
- While some participants expressed concerns about two-way traffic flow, most supported its return.

Figure 4 through Figure 7 provide a summary of how participants voted on some of the concepts raised. Among those present and visiting online, there was clearly greater interest in walkability, safety, and placemaking than in fighting congestion or improving transit.

KEY COMMENTS

"Speeding on South St. is a real issue."

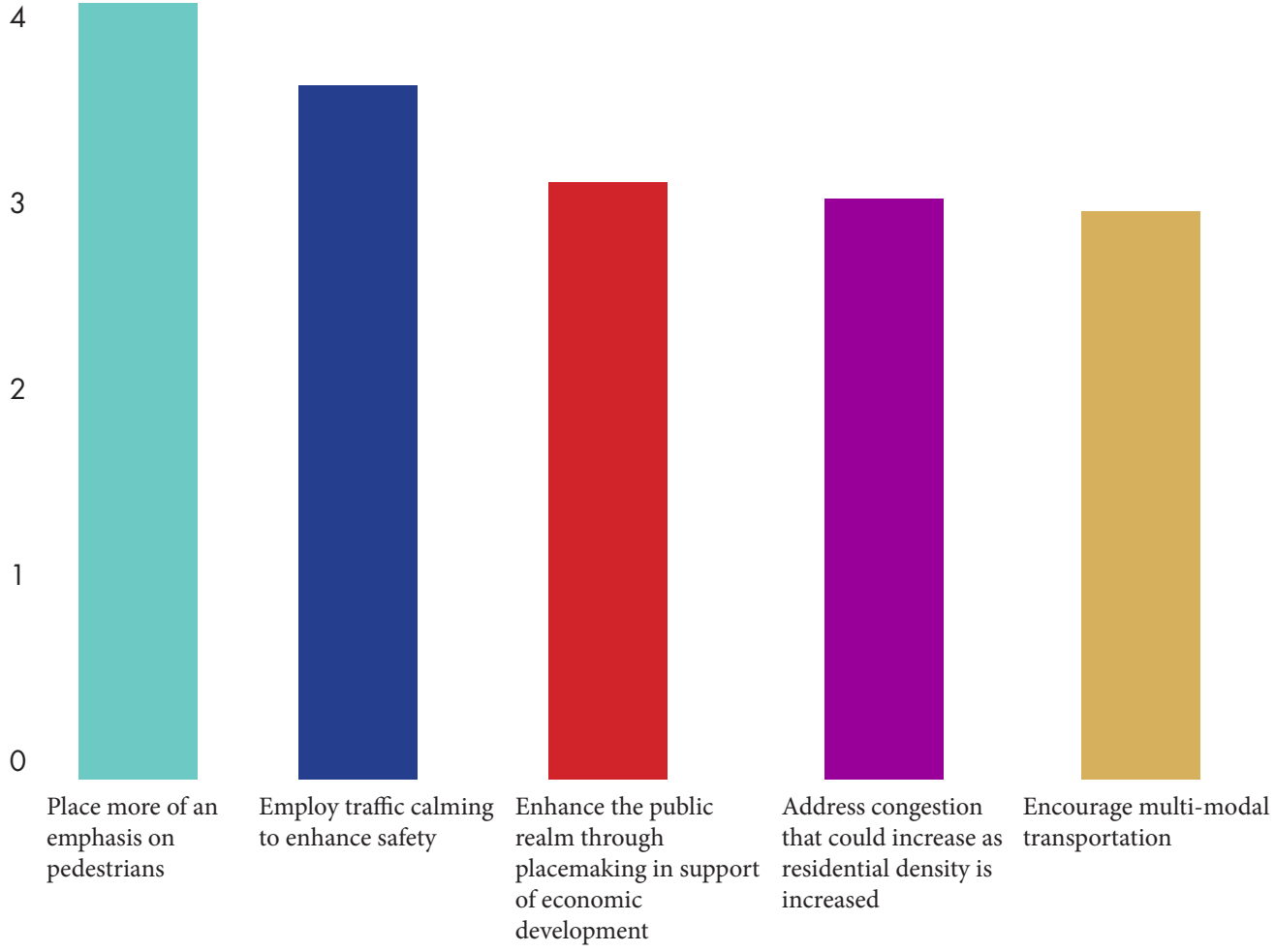
" I really like the idea of making Main St. two way. Recently during a rainstorm at night I found it confusing even though I know the area well."

" Keep [Main Street] one way. Do not allow biking on it. Spruce up the sidewalks"

"[The western gateway] is *really* dangerous now—this would be way better."

" The intersection at High School Road and South Street is a very dangerous one with a history of numerous accidents."

Figure 4 Public Feedback on Goals



Participants were asked to rank the project goals from most important to least important, with a higher number representing most important.

Sample Additional Goal Ideas:

- "Monitored public restrooms need to be open YEAR ROUND for all citizens and visitors."
- "The Town of Barnstable needs to support the establishment of day centers/safe places for the unhoused."
- "A bike lane and more open and clear sidewalks"
- "Additional lighting and security"
- "Add more family friendly interests. And an art focus."
- "Basically make businesses on our Main Street family friendly."
- "I'd just put even more emphasis on multi modal transportation. More options means fewer cars on the road."
- "To move autos and other vehicles through, around, and in the Village in an efficient way."

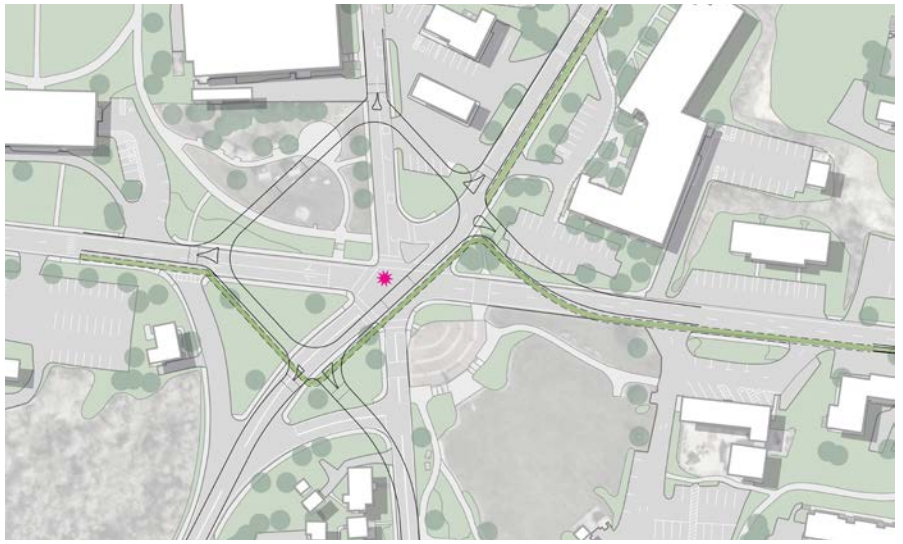
Figure 5 **Public Feedback on Design Proposals- Six Points**

Splitting Ocean and Old Colony

Like: **12**

Dislike: **34**

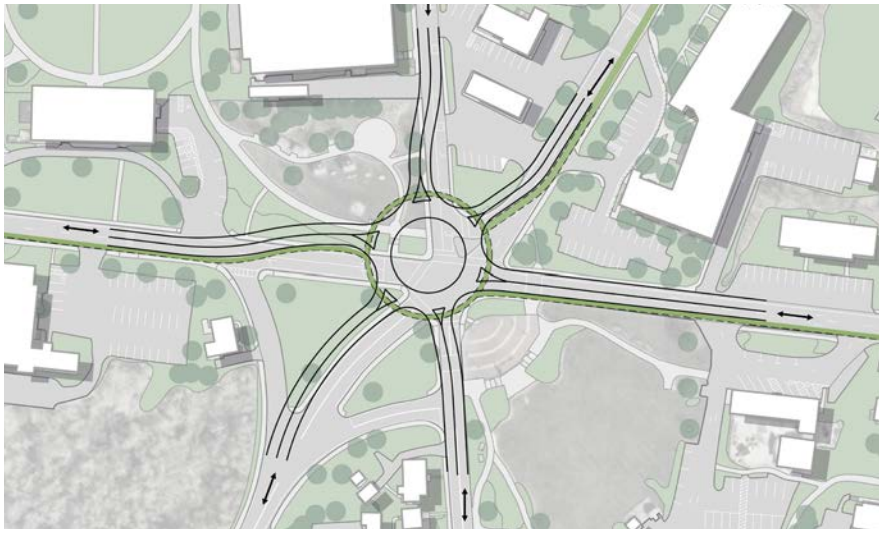
Squareabout



Like: **31**

Dislike: **45**

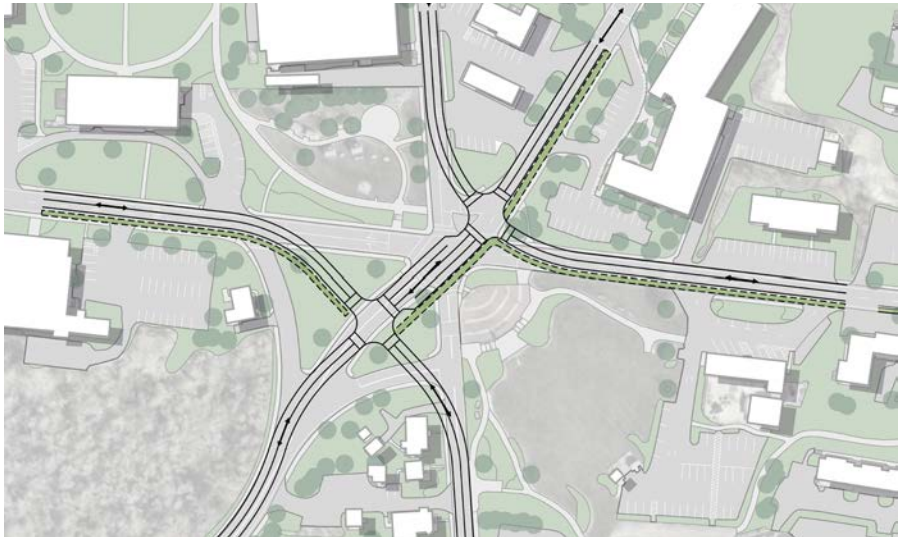
Standard Roundabout



Like: **30**

Dislike: **28**

Central 4-Lane Street



Like: **21**

Dislike: **22**

Figure 6 Public Feedback on Design Proposals- Improving Connections

Center Street / Old Colony at Main

Like: **19**

Dislike: **12**

Like: **34**
Dislike: **15**

Western Gateway

Proposed Curb Extension at High School Road

Like: **16**

Dislike: **11**

Like: **24**

Dislike: **9**

Proposed Pleasant and South Street Intersection

Note: Drawings have evolved slightly since being shared with the public.

Figure 7 **Public Feedback on Design Proposals- Street Modifications**

Street	Approve	Don't Approve
Stevens Street	8	6
Sea Street Extension	15	1
North Street	15	6
South Street	24	16
Main Street	16	32
Bassett Lane	5	7
High School Road	12	6
High School Road Extension	14	2
Winter Street	6	7
Ocean Street	12	11
Center Street	24	3
Old Colony Road	23	5

"The one-way system prioritizes someone from Dennis getting downtown"

"Bring the community together via businesses, transportation (including walking,) the natural environment"

"We have a lot of people from 'elsewhere' drive here on our confusing road patterns."

"Make the area a family friendly walkable, attractive and vibrant destination"


HARBOR OVERLOOK
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FOR LEASE

2 Applying Best Practices to Downtown Hyannis

- Introduction
- Making Streets Great

The streets of downtown Hyannis have the bones to be great again, but many proven best practices must be applied to increase safety, walkability, and livability. These practices are spelled out in this section, which includes recommendations for cost–effective improvements.

Introduction

A SAFE WALK

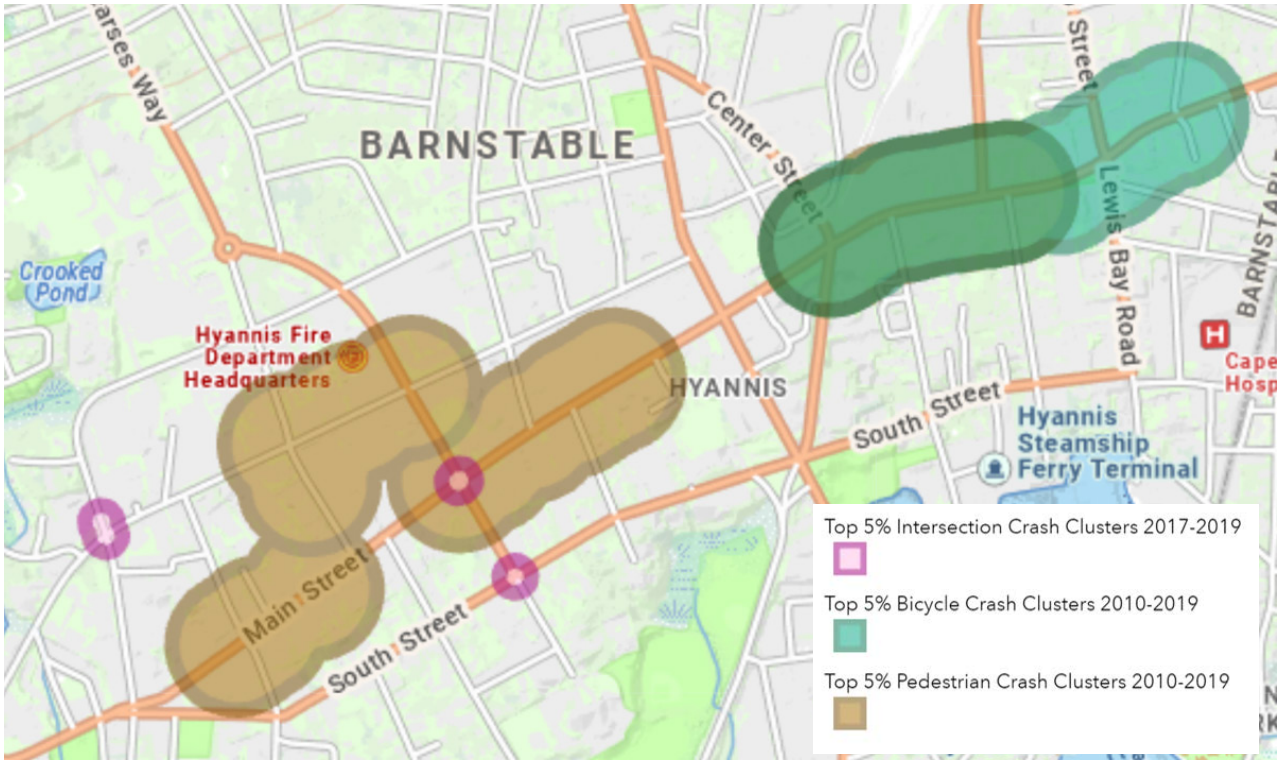
Most people who avoid walking do so because the walk feels dangerous due to the very real threat of vehicles moving at considerable speed near the sidewalk. Statistically, moving automobiles are a much greater threat to people walking than is crime. This is certainly the case in downtown Hyannis, where perceptions of potential crime are largely false while the perception of speeding traffic is accurate.

As Figure 8 shows, downtown Hyannis is no stranger to injurious car crashes. Most of these do not involve pedestrians, but many do, and pedestrian death rates have skyrocketed nationwide over the past ten years, even as driver deaths decline. But all injuries matter, and there are a significant number of them in downtown Hyannis.

Downtown vitality—street life—is dramatically impacted by the speed of vehicles. Whether they know it or not, most pedestrians understand in their bones what Figure 9 suggests: that a person hit by a car traveling at 35 mph is roughly eight times as likely to die than if the car is traveling at 25 mph. Any community that is interested in street life—or human lives—must carefully consider the speed at which it allows cars to drive in places where people are walking.

And in most American towns, the place where people are most likely to walk is the downtown. In fact, in Hyannis, a pandemic-year walking club even drives downtown to stroll. Acknowledging that downtown is the town's primary walking

Figure 8 Crash Clusters in Downtown Hyannis



A number of Barnstable's major crash clusters are located in downtown Hyannis. (Source: MassDOT Highway Safety Improvement Program, https://gis.massdot.state.ma.us/topcrashlocations/)

location opens up real possibilities, as it allows us to have a dramatic impact on walking while impacting driving only minimally. By focusing on vehicle speeds in downtown, we can make walking safer for the most pedestrians with the least amount of driver inconvenience.

Figure 10 tries to make this point clear. It shows how the difference between an attractive and a repellent downtown may be less than a minute of drive time. Would most people be willing to spare 48 seconds each day if it meant that their town was a place worth driving to? Probably.

This logic explains why a growing number of cities have instituted "20 is Plenty" ordinances in their downtowns, and a few have even settled on 18 mph as the target speed. But lowering speed

limits is only the half of it. The more important step is to engineer the streets for the desired speed, which means eliminating wider lanes and other inducements to speeding.

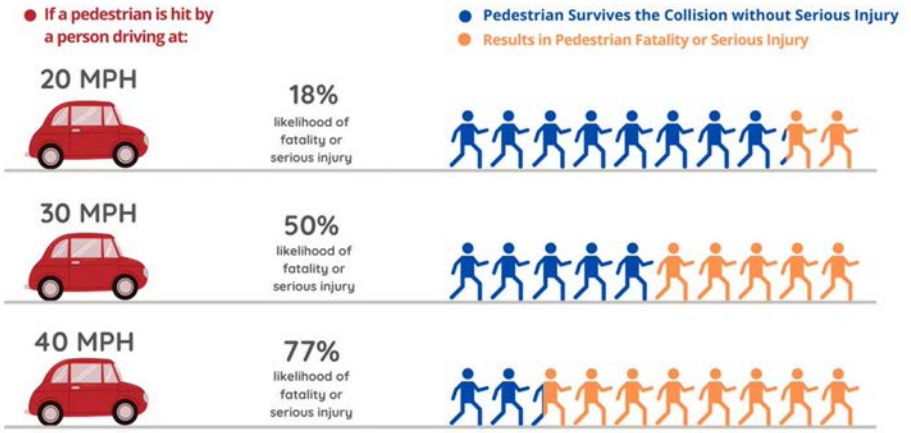
If the key to making a street safe is to keep automobiles at reasonable speeds—and to protect pedestrians from them—we must address the principal factors that determine driver speed and pedestrian exposure. In Hyannis, there are nine:

- 2.1 One-way vs. two-way travel.
- 2.2 The presence of unwarranted signals;
- 2.3 The number of driving lanes;
- 2.4 Lane width;
- 2.5 On-street parking;
- 2.6 Cycle facilities;
- 2.7 The presence of centerlines;
- 2.8 The presence of high-speed geometries; and
- 2.9 Proper pedestrian accommodations.

The understanding of how each of these factors impacts both driver and pedestrian behavior has evolved tremendously over the past few decades. Much of what many traffic engineers were taught in school has been invalidated, and many of the lessons learned are counterintuitive.

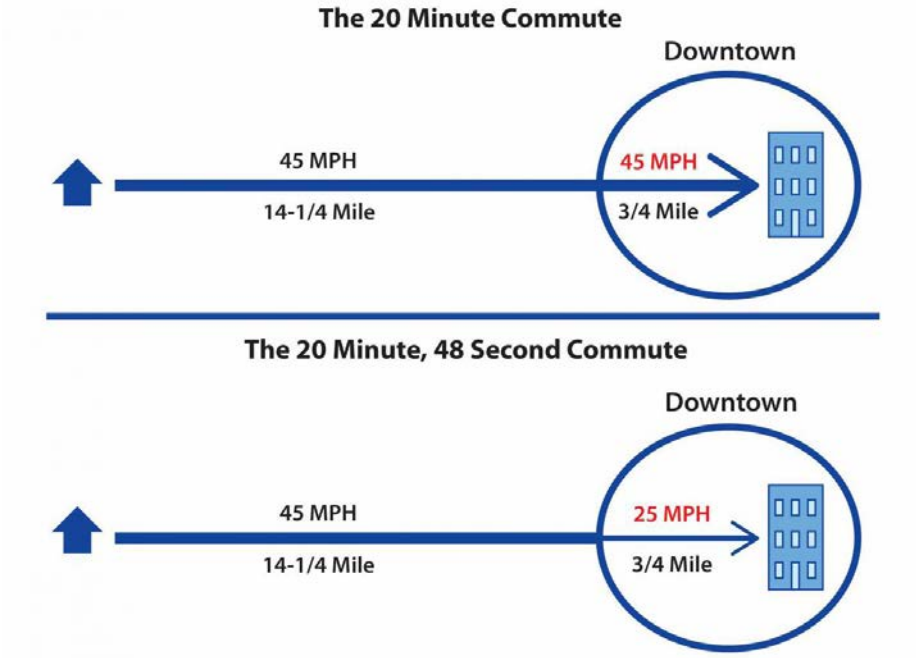
In the sections that follow, each of these nine criteria is discussed at length, in order that current best practices can direct the redesign of downtown Hyannis streets.

Figure 9 Pedestrian Injuries at Impact Speeds



Keeping drivers at or below 25 mph is essential to pedestrian safety in downtown (Source: UK Department of Transport)

Figure 10 Downtown Speeds and Commute Times



A significant change in downtown speeds typically results in a minimal change to commute times. (Source: Nelson\Nygaard)

Making Streets Great

2.1 AVOIDING ONE-WAYS

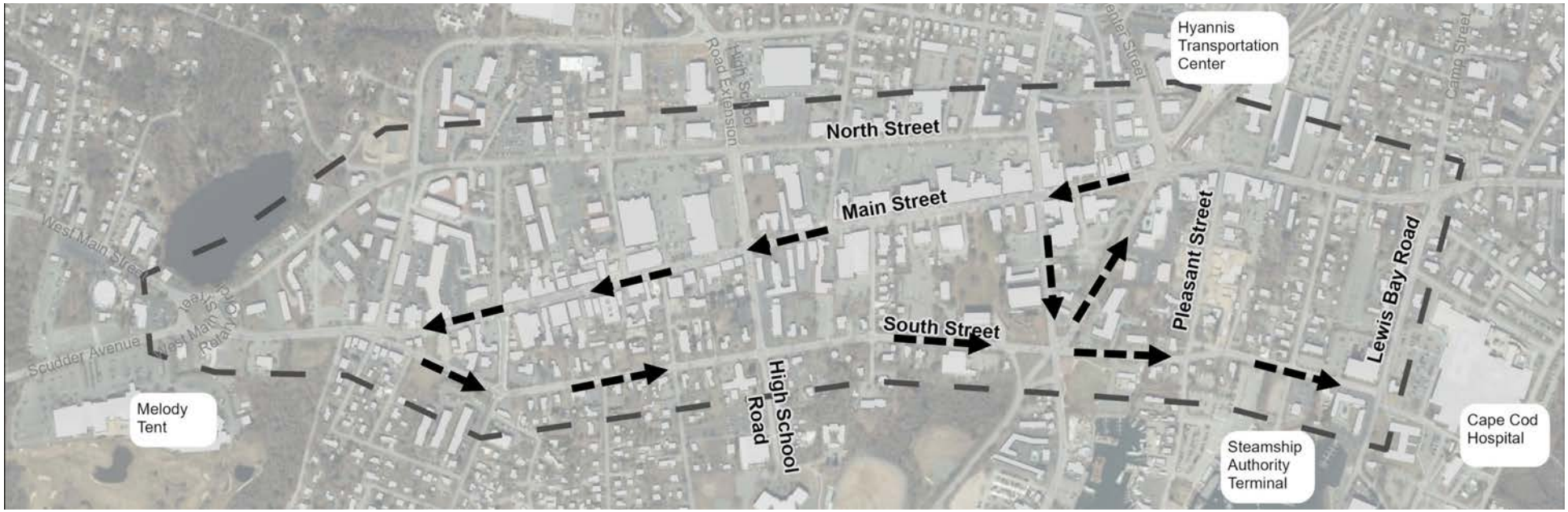
Like many American cities, Hyannis converted its major downtown streets to one-way traffic in the mid-20th century. This transformation, by eliminating the delay inherent in left turns across traffic, helped to speed traffic across downtown. Unfortunately, it did so at the expense of pedestrian comfort and business vitality.

For some time now, the Town has been considering reverting some or all of these streets back to two-way traffic, for many reasons. Merchants note, with some humor, the experience of visitors entering downtown from the west, where they are simultaneously greeted by a "Welcome to Main Street" sign and a "Do Not Enter" sign; would-be shoppers are unceremoniously diverted immediately onto South Street instead. It is difficult to estimate how much lost revenue this traffic pattern has caused, but experience in other cities would place that number in the millions.

Additionally, these eastbound drivers are then forced to merge with drivers headed to the

The Welcome to Main Street sign appears just as all visitors are diverted away from it. (Source: Google Maps)

Figure 11 The Current One-Way Network Downtown



steamship terminal who have been forced to loop west to approach the terminal on eastbound South Street, exacerbating traffic near the harbor. In this way, a system that was established to reduce traffic, actually worsens it in many places. In downtown Hyannis, the conversion to one-way traffic was not limited to Main and South Streets but also included Ocean Street and Old Colony Road as well. This scenario begs two questions: which downtown streets would benefit from reversion, and how can we overcome any impediments to completing a comprehensive reversion immediately?

HOW ONE-WAYS WORK

People driving tend to speed on multiple-lane one-way streets, because there is no friction from opposing traffic, and the temptation to jockey from lane to lane. In contrast, when two-way traffic makes passing impossible, the driver is less likely to slip into the "road racer" frame of mind. Additionally, people often don't look both ways before turning onto the one-way street, since all traffic is coming from over only one shoulder. This means that people entering the crosswalk from the opposite direction are not seen until a conflict is imminent.

The absence of opposing traffic on South Street contributes to drivers' propensity for speeding. (Source: Google Maps)

And then, of course, there is the danger of the "salmon swimming upstream." Almost everyone in Hyannis has a story about having seen someone drive the wrong way on a one-way street, evidence that the system is not intuitive for all users.

One-ways also have a history of damaging downtown retail districts, principally because they distribute vitality unevenly, and often in unexpected ways. They have been known to harm stores consigned to the morning path to work, since people do most of their shopping on the evening path home a block away. They can also intimidate out-of-towners, who are afraid of becoming lost, and they frustrate locals, who are annoyed by all the circular motions and additional traffic lights they must pass through.

Learning from the damage wrought by the one-way conversion, dozens of American cities have reverted these streets back to two-way. One such success story, Vancouver, Washington, was famously covered in *Governing* magazine in 2009. Merchants credit a two-way reversion of their one-way main street with the revitalization of a struggling downtown. A similar experience was documented in Savannah, Georgia, where a conversion to one-way traffic on East Broad Street in 1968 resulted in a loss of almost two-thirds of all businesses. When the street was reverted to two-way in 1990, the number of businesses quickly rose by 50 percent.

RECENT EXPERIENCE

A more recently published report on this topic comes from Louisville, Kentucky, and is outlined in a report titled "One Way to Fix Louisville's Declining Neighborhoods," by Professor John Gilderbloom. This paper covers the experience of two Louisville streets, Brook and First, that were reverted to two-way traffic a few years ago, and compares them to nearby streets (Second and Third) that remain one-way.

Here are some of the findings: along the reverted streets, a "significant reduction in crime, accidents, and an increase in property values, business profits, and bike and pedestrian traffic." Specifically, Brook Street saw a 36 percent reduction in car crashes and a 39 percent increase in property value. Car crashes on First Street dropped 60 percent. Meanwhile, on one-way Second and Third Streets, car crashes increased an average of 15 percent. And while crime increased 36 percent on Second and Third Streets, it dropped 23 percent on Brook and First. Revenues to businesses on the converted streets have also risen significantly, with one restaurant doubling its table space.

Louisville is just one of about one hundred American communities that have prominently restored significant portions of their one-way networks back to two-way traffic, with consistently positive results. Worth noting is that many of these reversions, like recently in Lowell and Fitchburg, MA, were met with dire predictions of unsustainable traffic congestion that ultimately failed to materialize. In most cases, residents and merchants were not fully aware of the significant inefficiencies inherent in the one-way network.

GOVERNING

THE STATES AND LOCALITIES

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INFRASTRUCTURE & ENVIRONMENT

The Return of the Two-Way Street

Why the double-yellow stripe is making a comeback in downtowns.

BY ALAN EHRENHALT | DECEMBER 2009

16

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Over the past couple of decades, Vancouver, Washington, has spent millions of dollars trying to revitalize its downtown, and especially the area around Main Street that used to be the primary commercial center. Just how much the city has spent isn't easy to determine. But it's been an ambitious program. Vancouver has totally refurbished a downtown park, subsidized condos and apartment buildings overlooking it and built a new downtown Hilton hotel.

Some of these investments have been successful, but they did next to nothing for Main Street itself. Through most of this decade, the street remained about as dreary

In 2009, Governing Magazine documented some of the benefits of two-way reversion. (Source: Governing Magazine)

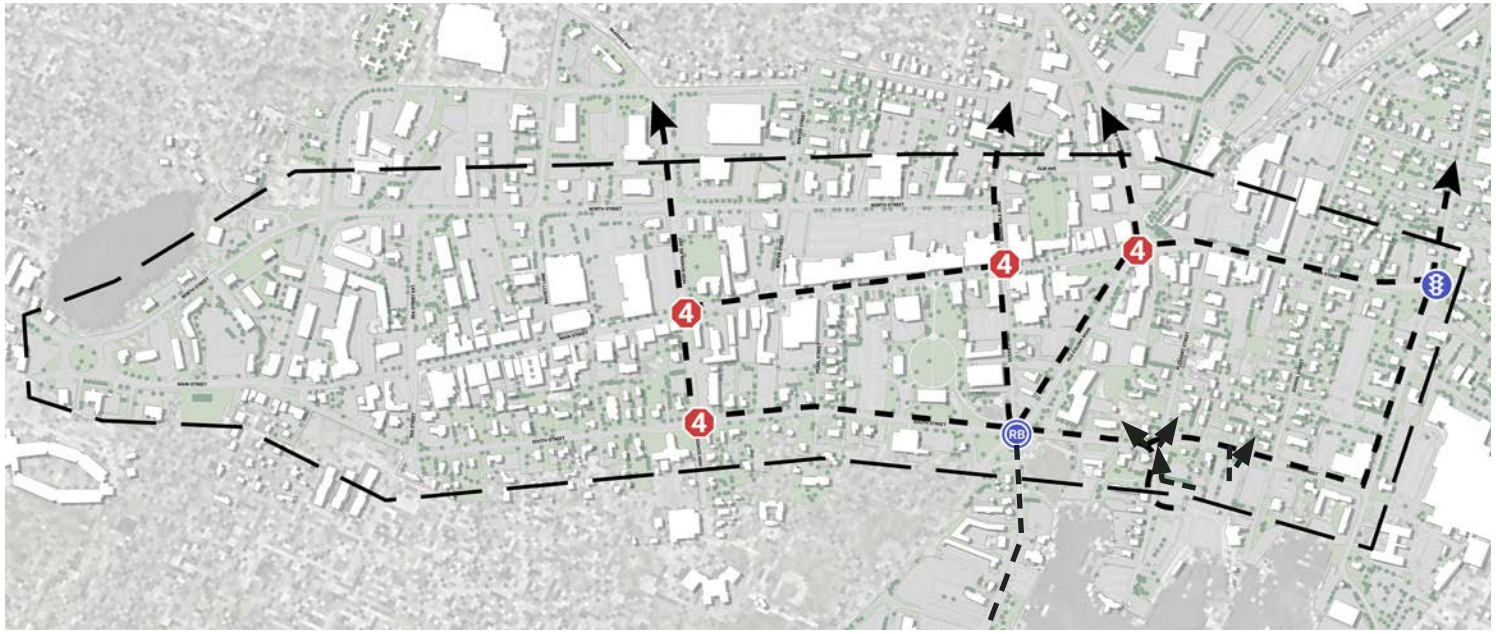
LOOPING AND DOUBLING VS. DISPERSING

Eliminating left turns across traffic is the one efficiency introduced by one-way travel. In a porous street network of many small blocks, this efficiency often outweighs the looping and doubling-back that one-way systems require for people to get to their destinations. However, in large-block systems like Hyannis, otherwise short trips can be lengthened dramatically, especially among visitors who may get lost. Even more impactful can be the way that big-block one-way systems, rather than dispersing trips in multiple directions at all intersections, limit choice in a way that causes key intersections to become a necessary component of many trips that could otherwise avoid them. In Hyannis, this condition is epitomized by the way that so many trips end up concentrated at the three intersections of Main & Ocean, Main & Old Colony, and Ocean/South/Old Colony, aka "Six Points."

Figure 12 Trips Through Downtown Hyannis in One-way Network

The one-way system requires an inordinate number of trips to rely on a few key intersections.

Figure 13 Trips Through Downtown Hyannis in Two-Way Network

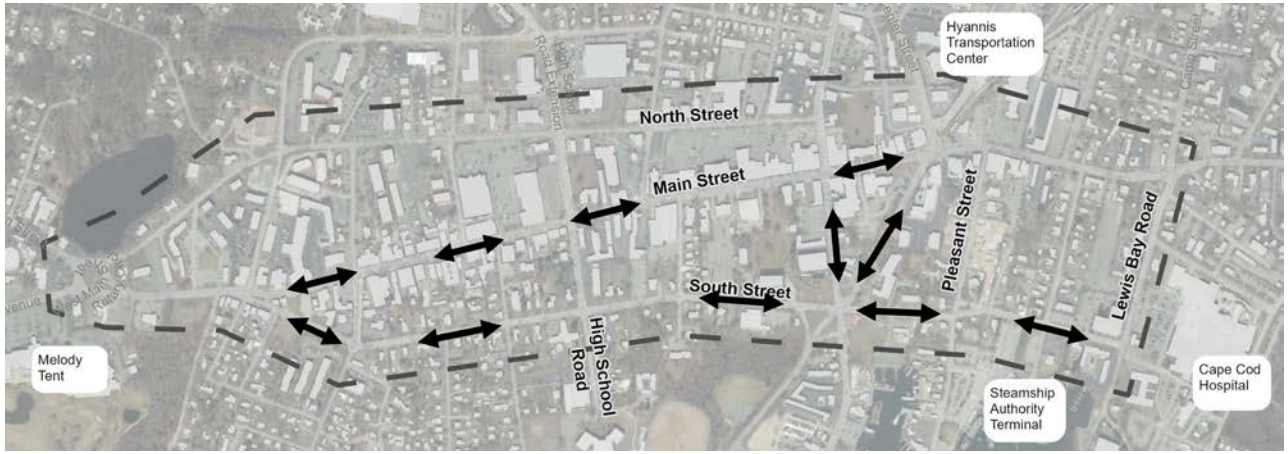


The same trips as above, redistributed through a two-way network.

A MORE RATIONAL AND LEGIBLE NETWORK

Which downtown streets would benefit from the restoration of two-way traffic? One small street segment, Pine between Main and South Streets, is only one lane wide, contains no retail addresses, and does not experience much speeding. Two-way travel here is likely to cause a lot of headaches. But the four principal one-ways downtown—Main, South, Ocean, and Old Colony—all demonstrate the worst characteristics of multilane one-way travel. While the principal conversation in the past has surrounded just Main and South, a focus on safety and efficiency directs us to revert Ocean and Old Colony as well.

Figure 14 Trips Through Downtown Hyannis in Two-Way Network



Proposed changes to street direction downtown.

In terms of phasing the work, it would seem tempting to complete this work in two steps: Main and South first, with Ocean and New Colony to follow. This approach is not recommended for several reasons. First, it is much simpler in the public consciousness to change a traffic pattern once rather than twice. Residents and visitors will only be asked to relearn their routes once.

Second, a two-step reversion is much more expensive. The greatest outlay surrounding reversion is the modification of traffic signals. When two intersecting streets change their direction of flow, the signals at their intersection must be modified each time a street is changed, so it is much cheaper to revert both streets at once. However, that point will become moot, as this Plan also recommends (ahead) the removal of all traffic signals at the intersections of Main, South, Ocean, and Old Colony. This change will be made possible in part by the two-way reversion; while two-lane one-ways generally require signals at major intersections, two-lane two-ways do not. This aspect of the reversion is a hidden bonus. Not only does replacing signals with stop signs save lives, it gives the Town a reserve of signal equipment that can be used in other locations when the demand arises. This is effectively money in the bank that can be used in part to balance the costs of restriping.

Another motivation to make these changes comprehensively and quickly can perhaps be found in New Albany, Indiana. In 2014, New Albany commissioned a plan like this one that ultimately recommended reverting its entire downtown grid from one-way to two-way traffic. The City studied and debated these recommendations for several years, but finally completed them all in the summer of 2017. Skeptics, including a local trucking company, were quickly silenced as a struggling downtown came back to life. Hundreds of new apartments have been built and, at least until COVID, new businesses were opening. One citizen, Kate Rosenbarger, described it this way:

> "A last but significant benefit of two-way reversion accrues to first responders. The looping and wrong-direction diversion of one ways can add life-and-death seconds to a safety call, and crash rates are notably higher on one-ways than two-ways. Public safety officials who have experienced two-way reversions often comment that the modified street at work gives them more ways to approach a reduced number of incidents. In a recent interview, New Albany Police Chief Todd Bailey told reporters that he has "never

seen a better scenario for public safety. Speeds have been reduced, crashes are down, and response time to calls for service is far better than it has ever been."

Similar experiences have occurred in Oklahoma City, Cedar Rapids, and wherever else these two-way restorations have been completed, a list that now includes nearly 100 American cities and towns. It can be stated with confidence that every one of these reversion proposals was met with considerable skepticism from both traffic engineers and citizens, as was the case in Hyannis. Yet, among all of these projects, no record can be found of anything except the most positive outcomes. This gives us the confidence to recommend this solution in Hyannis.

A yard sign in New Albany, Indiana. (Source: Jeff Speck)

THE CHALLENGE OF SIX POINTS

Only one location presents a hurdle in the restoration of two-way traffic to Hyannis' four principal one-way streets: the intersection of South Street with Old Colony and Ocean, also known as Six Points. This intersection, which is already congested at times due to ferry activity, receives six lanes of inbound traffic and gives off six lanes of outbound traffic. That condition will not change with the two-way reversion. However, as currently configured, the intersection signal needs only a three-phase cycle, since the number of cross-motions is limited by the one-way pairs. If reverted to two-way this would become up to a six-phase cycle to safely accommodate opposing left turns, reducing the intersection's capacity. Replacing the signal with an all-way stop sign would not be recommended, given the confusion that would result at a six-point intersection. Resolving traffic flows at this location therefore requires a new configuration.

Significant reshaping of the intersection is of course a cost concern, and is also limited by the presence of a large utility pole quite close to traffic in the northern splitter island, which carries high-tension lines along with all typical overhead utilities. Any short-term, low-cost resolution to the Six Points traffic challenge needs to dodge this pole. A longer-term solution can be more ambitious and indeed makes good sense as a near-future investment to optimize the Walk to the Sea and downtown's connection to the Harbor generally.

More than half a dozen long-term solutions for six points were modeled and shared with the community, as will be discussed ahead. As a short term-solution, it seems clear that a small oval roundabout is capable of resolving the new traffic patterns in this location. Quite distinct from a conventional New England rotary, a low-speed modern roundabout welcomes lower speeds that are compatible with frequent pedestrian crossings. With this new facility in place, a full one-way reversion can be accomplished quickly and at low cost while a more lasting and valuable solution is developed.

For the longer term, many creative alternatives were considered, narrowed down, and shared with the community. Three emerged as favorites, with no one solution rising above the others in popularity. These are shown in Figure 17 through Figure 19 with key features noted.

Figure 15 Six Points Today

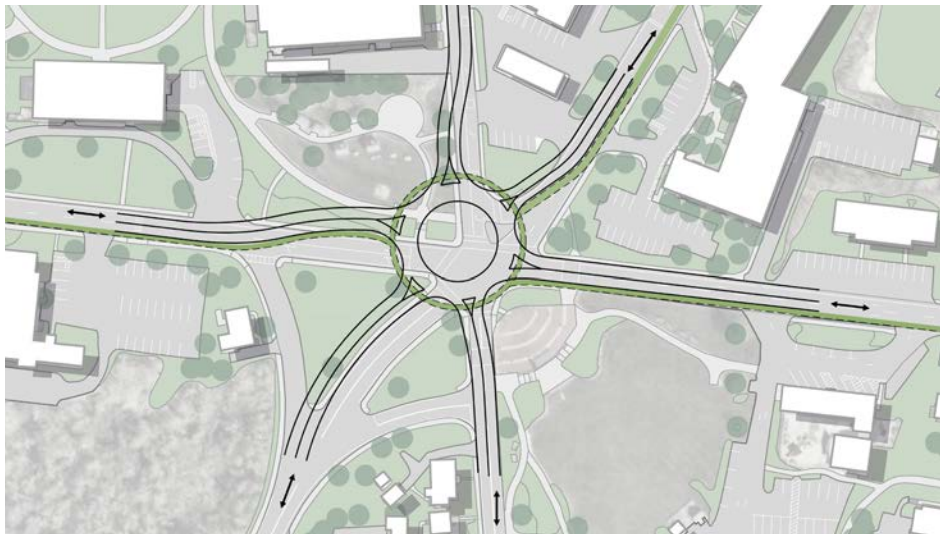
Proper systematic restoration of two-way traffic demands a redesign of Six Points, where three major one-ways converge. It is worth noting that the two grass triangles to the south comprise about a half acre of wasted space, serving no civic function.

It is clear that each of these longer-term options has its strengths and weaknesses, but all are preferable to the current car-centric configuration, with its difficult pedestrian crossings and large unused grass islands. Selecting among them is not a goal of this Plan, but it is hoped that the above discussion will inform the process to reach a final solution for Six Points in the months ahead.

Figure 16 Short Term Six Points

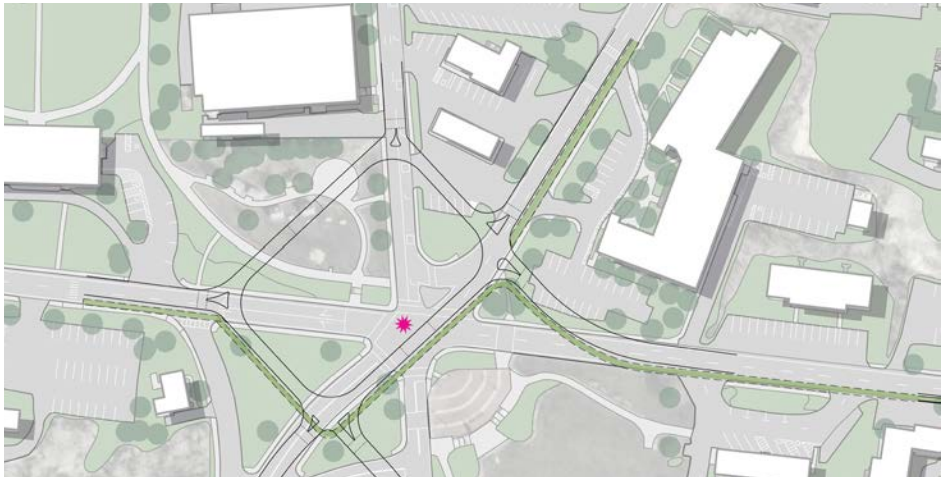
The proposed short-term roundabout at Six Points has a mountable center to accommodate the largest vehicles. It does not require the relocation of any utilities.

Figure 17 Standard Roundabout



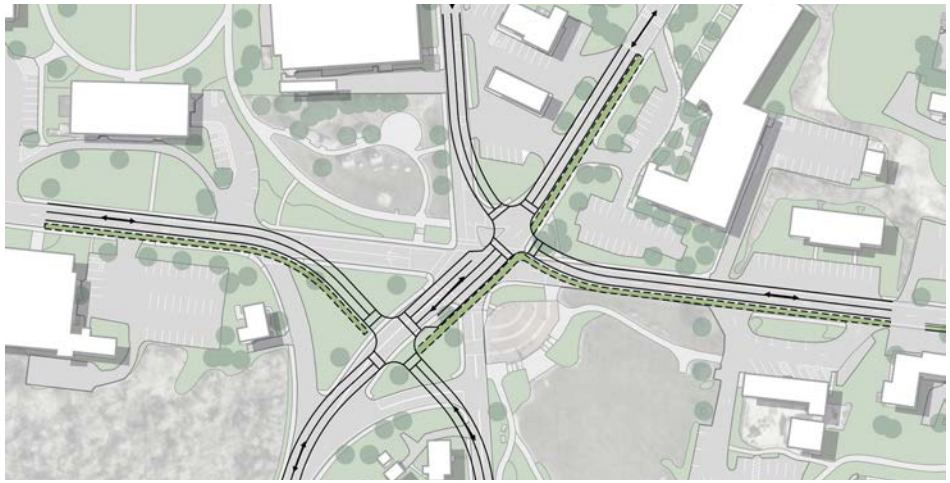
This most conventional option places a standard modern roundabout at Six Points. This solution requires partial erosion of the Walkway to the Sea's green, and has the disadvantage of requiring pedestrians to cross just as many streets and to go some distance out of their way.

Figure 18 Squareabout



This most artful solution requires reconfiguration of the Harbor Overlook but replaces it with a more dramatic and amenitized spatial progression to the harbor. Effectively a square roundabout, or "squareabout," it would require no signals.

Figure 19 Central 4-Lane Street



This most expedient solution concentrates all traffic on a single central 4-lane street that would require signals at both ends but allows the current Walkway to the Sea to remain unchanged. Preliminary analysis suggests that this solution would handle somewhat fewer cars per hour than the other alternatives.

THE WESTERN GATEWAY

As noted, one of the most counterproductive aspects of the current one-way system is the fork at the western end of Main Street, where would-be downtown visitors are shunted over to South Street instead. A good number of one-way conversions in American downtown begin with forks of this type, and many can be difficult to resolve. Hyannis is one of the lucky ones: it can be reverted to two-way traffic with ease, at low cost, and in a manner that contributes markedly to placemaking downtown.

Noteworthy in the current configuration is the presence of a triangular traffic island and the absence of driveway curb cuts on the southern flank between Potter Avenue and South Street. The island, informally known as Sherman Square, includes the Paul Howland Sherman Jr. Memorial Stone, but is unusable as a gathering space. Nor would anyone choose to occupy such a small space flanked by three lanes of traffic.

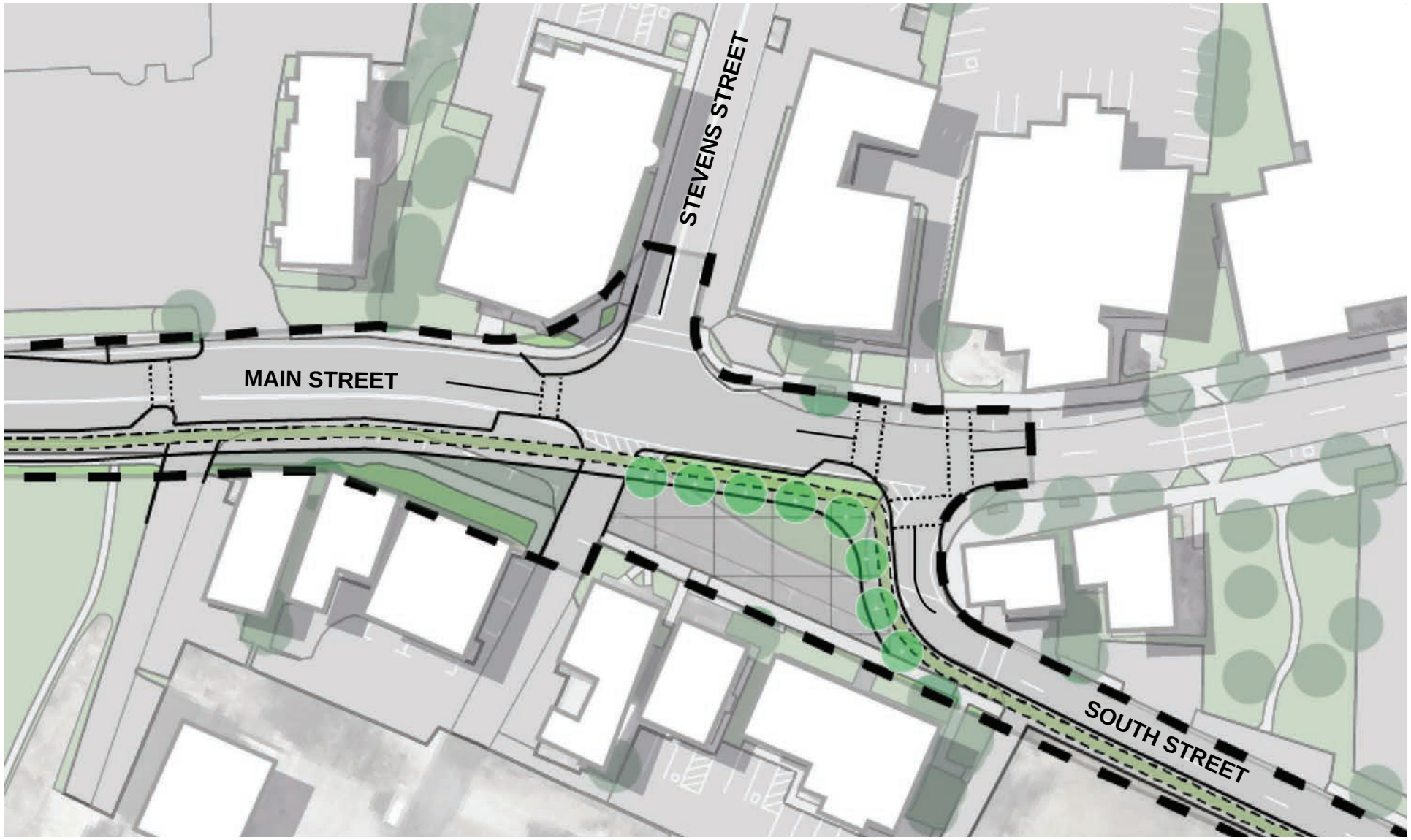
The proposed reconfiguration is shown in Figure 21. By creating a T intersection where South Street begins at Main Street, it establishes the primacy of the Main Street axis, keeping eastbound drivers on Main unless they wish to avoid downtown. This reconfiguration requires a slight trimming of the traffic island, but then allows about 150 feet of South Street to disappear, adding about 5000 SF of new public space in a location where it is likely to be well used, enfronting the LoveLiveLocal Collective and other businesses. This new space can be created temporarily in the street, protected by movable planters. In the long run, it should be paved and landscaped as Hyannis's next downtown plaza, to include the Memorial Stone, existing gateway sign, new open space, outdoor seating and more, all shaded under a proper edge of street trees.

Also worth noting is how the excess width of Main Street in this location—to be discussed ahead—allows for the extension of the curb west of Potter Avenue and the inclusion of a sidewalk-level cycling facility. Controlled by an all-way stop sign, the reconfigured Main/South intersection would predispose eastbound drivers to enter downtown at a more sociable speed.

Figure 20 Existing Western Gateway

The existing road network where Main Street and South Street diverge.

Figure 21 Proposed Western Gateway



The proposed road network creates a true gateway to Main Street, while adding valuable open space, room for outdoor dining, a safe protected bicycle lane, and a significant increase in nearby on-street parking.

2.2 REPLACING UNWARRANTED SIGNALS WITH ALL-WAY STOPS

For many years, cities inserted traffic signals at their intersections as a matter of pride, with the understanding that a larger number of signals meant that a place was more modern and cosmopolitan. Recently, that dynamic has begun to change, as concerns about road safety have caused many to question whether signals are the appropriate solution for intersections experiencing moderate traffic. Research now suggests that all-way stop signs, which require motorists to approach each intersection as a negotiation, turn out to be much safer than signals. Unlike with signals, no law-abiding driver ever passes through the intersection at more than a very low speed. There is considerable eye-contact among users. While people driving slow down, they never have to wait for more than a few seconds to get through, and people walking and biking are generally waved through first.

Figure 22 Existing Signalized Intersections

There are currently 9 signalized intersections in the study area. Many are already unwarranted and could be replaced by stop signs today.

THE EVIDENCE

While it would be useful to have more research, the one study on this subject is conclusive. It is described in Persaud et. al.: "Crash Reductions related to Traffic Signal Removal in Philadelphia" (1997). This study recounts the 1978 removal of 462 traffic signals due to a 1977 state ruling stating that signals were not warranted on intersections with an annual average daily traffic of less than 9,000 on the major street or less than 2,500 on the minor street. 199 of these signals had adequate data to make it into the study, and 71 non-converted intersections were identified as a control group.

In almost all cases, the signals were replaced by all-way stop signs. The overall reduction in crashes was 24 percent. Severe injury crashes were reduced 62.5 percent overall. Severe pedestrian injury crashes were reduced by 68 percent. While some pedestrians and drivers prefer signalized intersections, this data is too conclusive to ignore. Until a contradicting study is completed, municipalities should be compelled to conduct an audit of current signalization regimes to determine which signals may be eliminated.

When converting signals to stop signs, communities are faced with the choice of two-way and all-way stops. Clearly, if one street contains tremendously more traffic than the other, a two-way stop makes more sense. However, there is no doubt that all-way stops should be used wherever they do not pose an undue burden, as they are considerably safer. In studying the conversion of two-way stops to 4-way, "the collective results of numerous published studies of such conversions established that crashes are reduced by approximately 40 – 60%, and injury crashes are reduced by 50-80%." (Hauer, 1985)

ADDITIONAL OUTCOMES

One great byproduct of converting signals to stops is money saved: stop signs are much cheaper to install and maintain than signals, with no bulbs to replace or signal arms to upgrade. This fact is important to keep in mind as one considers the conversion of downtown streets from one-way to two-way. The principal cost of these reversions is signal reorientation. However, as noted previously, while signals are almost always required where multilane one-ways intersect, they are often not required where two-lane two-ways intersect. Moreover, when two-lane two-ways cross at a 4-way stop sign, there is no need or use for left-turn lane pockets, and that pavement can be used instead for parking or cycling.

A word is also needed about the driver experience that accompanies the replacement of signals with all-way stops. It is true that, compared to a network of signals, a network of stop signs result in a drive that is interrupted by more pauses. But these pauses are all quite brief. Never does the driver have to sit and wait for a light to turn from red to green. Such waits at signalized intersections are often 30 seconds long or longer, and, across a network, can add up to a lot of time wasted. Surprisingly, more stops can mean a quicker commute.

As reported by KRQE in Albuquerque in 2018, stop signs have been found to improve both safety and traffic flow downtown. (Source: KRQE, https://www.youtube.com/watch?v=v3MLZkZdjjk)

APPLICATION TO DOWNTOWN HYANNIS

Modifications to the nine traffic signals in the study area can be categorized as follows:

- Within the one-way network: Four intersections on Main Street where it meets Old Colony, Ocean, High School Road, and Sea Street; one intersection at South and Sea Streets. Two-way reversion will allow the removal of signals at all of these intersections.
- Six Points: A unique condition, resolvable in the short run by a roundabout and in the long run by a more complete reconfiguration.
- 2-lane meets 2-lane: Two intersections on North Street at Bassett Lane and Winter Street. Signals here can be replaced by all-way stop signs with no other reconfiguration. In fact, this modification could be tested immediately.
- 3-lane meets 2-lane: A unique condition, where North Streets meets High School Road. Signals here can be replaced by all-way stop signs with the removal of the center turn lanes on High School Road, a recommendation made ahead in the next chapter.
- 3-lane meets 3-lane: Also unique, where Main Street meets Lewis Bay Road. This intersection sits where traffic volumes are higher and hospital access is paramount. It should likely remain signalized, but with its timing modified to optimize a new two-way system.

Figure 23 consolidates the above proposals for changed intersection controls in downtown.

It is to be expected that the removal of eight out of nine downtown traffic signals will be met with some resistance and also legitimate concern that unanticipated changes could cause confusion and potential collisions. Although previous similar conversions have not led to a temporary increase in crashes, it is recommended that each intersection conversion begin by changing all signals to flashing red lights, installing flashing stop signs on former wrong-way approaches, and adding traffic pattern warning signs and message boards in advance of all intersections as the all-way stop signs are introduced. The signals should be bagged and only removed after a trial period.

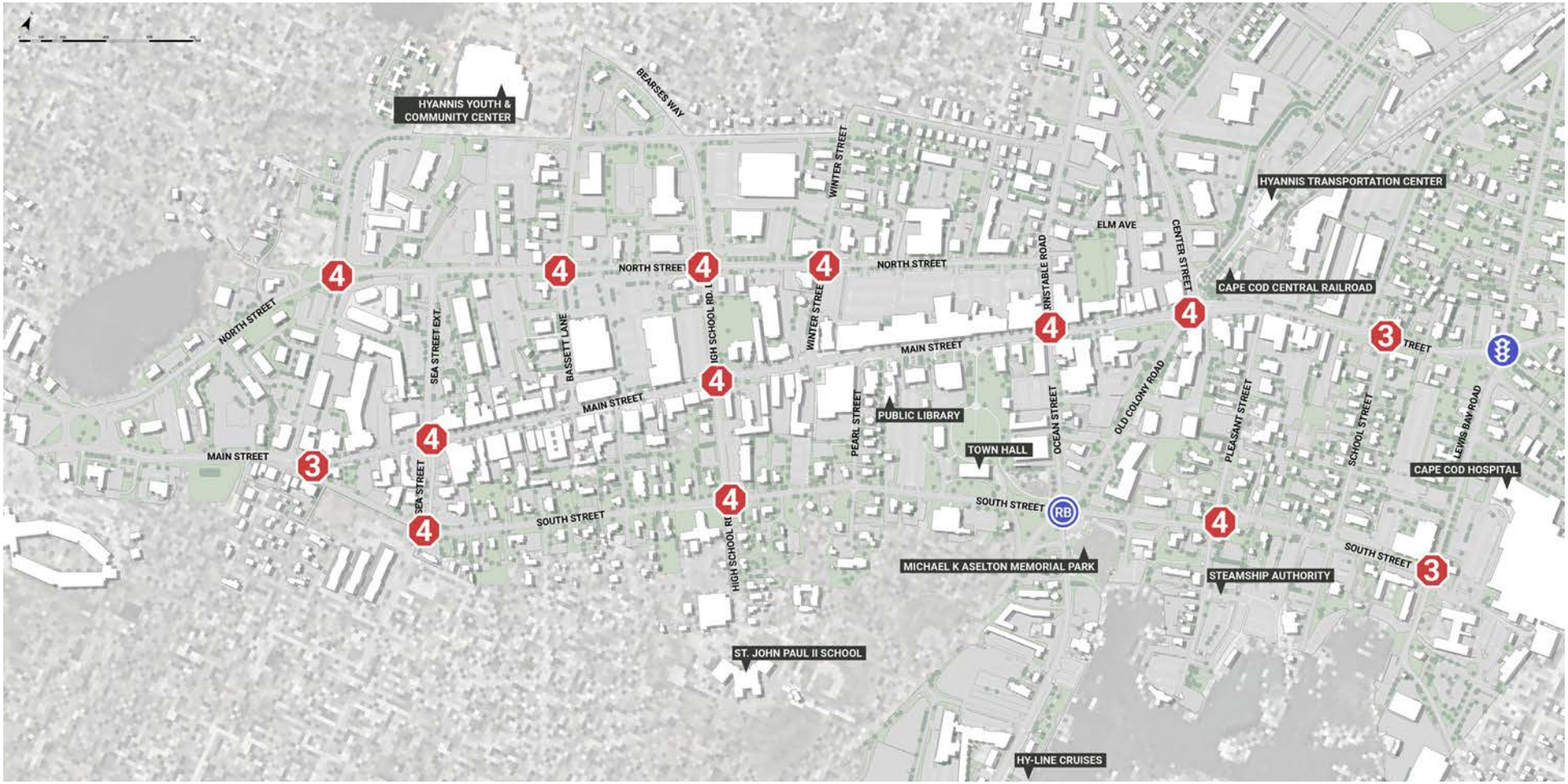
An enlightening experience can be found in Albuquerque, where a similar study caused the replacement of nine downtown signals with all-way stop signs. According to local news reports, a negative public reaction caused the City to revert three of these intersections back to signals. This was followed by an even stronger negative public reaction and complaints about increased traffic. As the City's Department of Municipal Development noted, "a stop light has the tendency to build up quite a few cars, whereas a stop sign only builds them up one or two at a time."[1]

Residents also confirmed that the stop signs made them feel safer. One abutter commented that "it reduces accidents because people will slow down for a stop sign, while they'll run through a yellow to beat the red."

Reversing the reversal, the City reinstalled the all-way stop signs and removed the bagged lights a few months later.

1 https://www.krqe.com/news/city-reinstalls-downtown-stop-signs-to-reduce-congestion-speeding/

Figure 23 Proposed Stop Signs and Signalized Intersections



This Plan recommends removing all traffic signals within the study area with the exception of the one at Main Street and Lewis Bay Road. This plan shows the recommended stop control conversions with the number of stopped approaches. Many existing stops in downtown would remain and are not shown unless changed.

2.3 THE PROPER NUMBER OF DRIVING LANES

The more lanes a street has, the faster traffic tends to go, and the further pedestrians have to cross. A few downtown Hyannis street segments have more lanes than they need to satisfy the demand upon them. Other lanes become unnecessary when signals are replaced by all-way stops. Removing these unnecessary driving lanes will free up valuable pavement for more valuable uses, such as curb parking, bike lanes, and expanded sidewalks.

Within the study area, street segments containing more than two lanes are as follows:

- Barnstable Road approaching Main Street (where it becomes Ocean Street), where a second southbound lanes has been added.
- Center Street approaching Main Street (opposite Old Colony Road), where a second southbound lane has been added.
- Old Colony Road approaching Main Street, where a third northbound lane has been added.
- Main Street approaching Center Street, where both an extra westbound lane and a right-turn lane have been added.
- High School Road north of Main Street, where a continuous center left-turn lane has been added.

As it approaches Center Street in front of the Transit Center, Main Street holds 4 lanes in 67 feet of asphalt. Both the number and width of lanes can be reduced. (Source: Google Streetview)

With the exception of High School Road, all of the extra lanes above exist to maximize flow through the one-way network. In these locations, eliminating the extra lanes is made possible by two factors. First, instituting a two-way system takes pressure off the widened roads, since alternate nearby paths in the same direction become available. Second, replacing a signal with an all-way stop sign creates a condition where a second or fourth lane is inappropriate. At all-way stop signs, each approaching leg of traffic takes its turn from a single lane; additional lanes only cause confusion.

High School Road, in contrast, was widened less due to the one-way network than out of a desire to improve the efficiency of its signalized intersections. But these two intersections—at Main Street and North Street—do not experience traffic volumes that justify a third lane, just as they don't mandate signals over stop signs. Once again, replacing signals with all-way stop signs makes a left-turn lane both unnecessary and inappropriate.

Each place where an extra lane can be removed

creates an opportunity to rededicate right-of-way to a more beneficial use, typically bike lanes or parking. The street sections in Part II document before-and-after conditions for each of these segments. These changes are made principally with paint rather than new construction, with one exception below.

THE EASTERN GATEWAY

Approaching Center Street, the removal of two westbound lanes from Main Street—made possible by the signal-to-stop-sign conversion—coupled with right-sizing some overly wide lanes (see next page`) remarkably result in almost 40 feet of asphalt width that can be put to more productive use. This could not happen in a better location. The Main/Center intersection, in addition to being uniquely unwelcoming to pedestrians and cyclists, is also the site of the Hyannis Transportation Center and the eastern gateway to downtown. As the traffic pattern changes, that extra width can be used to bring back missing parallel parking while adding about 30 feet of depth to the north curb. As a final touch, a gateway building can be placed on the plaza to terminate vistas from four directions, prominently announcing the presence of the train station in downtown.

Figure 24 - Proposed Eastern Gateway

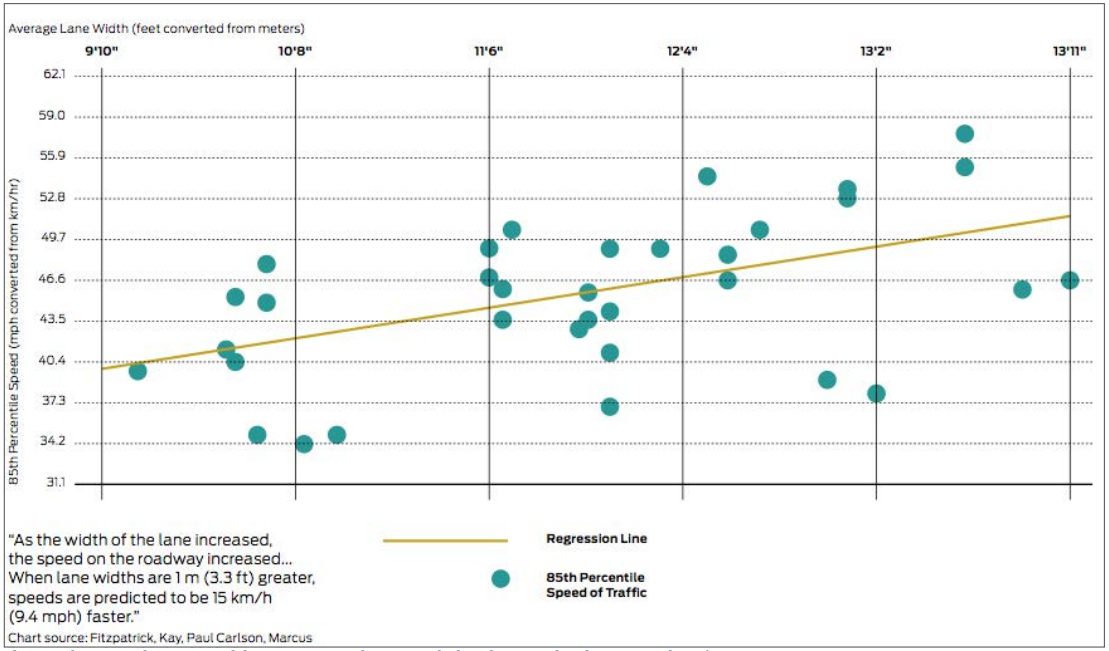
Eliminating extra lanes and excess lane width from Main Street makes room for the extension of the Transportation Center curb to create a gateway plaza. A gateway monument at the corner would receive views from four directions.

2.4 LANES OF THE PROPER WIDTH

Different-width traffic lanes correspond to different travel speeds. A typical American urban lane is 10 feet wide, which comfortably supports speeds of 35 mph. A typical American highway lane is 12 feet wide, which comfortably supports speeds of 70 mph. Drivers instinctively understand the connection between lane width and driving speed, and they speed up when presented with wider lanes, even in urban locations. For this reason, any urban lane width in excess of 10 feet encourages speeds that can increase risk--especially to people walking.

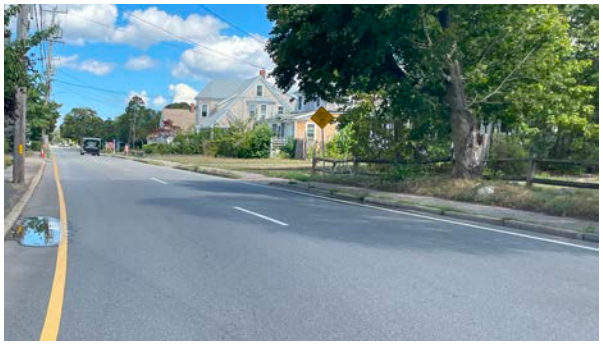
Many streets in downtown Hyannis contain lanes that are 12 feet wide or more, and drivers can be observed approaching highway speeds when using them. It is surprising to learn, then, that the correlation between lane width and driving speed, crash frequency, and crash severity is a very recent discovery of the traffic engineering profession, and contradicts decades of conventional wisdom within that profession. Even today, many traffic engineers will still claim that wider lanes are safer. This understanding is accurate when applied to highways, where most people set their speeds in relation to posted speed limits. But on downtown streets, most people drive not the posted speed but the speed which feels comfortable, which is faster when the lanes are wider. Fortunately, a number of recent studies provide ample evidence of the dangers posed by lanes 12 feet wide and wider (see Figure 25).

Figure 25 Travel Lanes and Vehicle Speed



Studies show that wider travel lanes correlate with higher vehicle speeds. (Source: NACTO, Transportation Research Record)

In acknowledgment of this body of research, numerous organizations and agencies, like NACTO (The National Association of City Transportation Officials), have endorsed 10-foot lanes for use in urban contexts. NACTO's *Urban Street Design Guide* lists 10 feet as the standard, saying, "Lane widths of 10 feet are appropriate in urban areas and have a positive



Lanes on North Street are 12 feet wide, a highway standard. Highway-style shoulders make them functionally even wider.

impact on a street's safety without impacting traffic operations." They add: "Narrower streets help promote slower driving speeds which, in turn reduce the severity of crashes."

Most streets in downtown Hyannis exceed the 10-foot standard as shown in Figure 26, and this Plan attempts to remedy all of them to the degree possible. The solution for each street can be seen in the street sections provided in Part II. The proper outcome depends on a street's location, connectivity, and excess width: in some cases, one or several bike lanes will fit; in others, a flank of on-street parking can be added. Determining the optimal distribution of biking and parking was an important technical challenge for this Plan.

Main Street is one of several streets that has a little bit of extra room in it, thanks to 12-foot lanes, but this is not enough to add a bike lane. To encourage slower speeds, this Plan recommends inserting an additional white stripe two feet beyond each parking lane, visually narrowing the path of travel to 20 feet. Similarly, Stevens Street has overly wide lanes as well as highway-style shoulders, and it also lacks a sidewalk on its east flank. In this case, both shoulders can be enlarged and combined to create a safer walking zone on that east side.

It is important to note that, with rare exceptions—most already discussed for the long-term—this Plan does not recommend the moving or rebuilding of curbs. Restriping streets at their existing curb-to-curb width is the proper way to make the most change for the least cost.

Also worthy of mention is the fact that many key streets downtown are only about 6 or 7 feet too wide. This leads to the bike plan described later in this Plan (page 52), in which eastbound and westbound protected biking across downtown must be split between two streets. This is not an ideal scenario, but it allows a comprehensive bike network to overlay on the existing streets without limiting motor vehicle access at all.

An SUV and a truck demonstrate that 10 foot lanes provide ample passing room, even against a narrow parking lane. (Source: Speck & Associates)

Figure 26 Existing Lane Widths in Downtown Hyannis

Streets in Downtown Hyannis today generally have lane widths that encourage higher speeds.

ADVISORY LANES

Ten feet is the proper width for a busy driving lane in a downtown area. However, most of our communities are also made up of streets with narrower lanes. Most local streets carry relatively few driving trips; on these, a clear zone of as little as 12 feet can handle traffic in two directions if space is available in a bike lane or among parked cars for opposing traffic to pass.

Although streets of this type can be found throughout New England, none are located in our study area. However, one street segment, High School Road south of Main Street, presents a location where a two-way shared travelway makes sense. With two 11-foot lanes plus shoulders, it is designed more like a rural highway than a neighborhood street, and it sits on a key cycling route for students at the Saint John Paul II School at its southern terminus. It is a prime candidate for a street design approach currently growing in popularity, called "Advisory Lanes."

Advisory Lanes refers to a street configuration where a narrow central travelway handles traffic in both directions, flanked by bike lanes that provide ample room for opposing traffic to pass. The bike lanes provide a safe location for cycling; drivers are naturally cautious about swinging into them on the rare occasion when both a cyclist and oncoming traffic are present. Lacking a centerline, they encourage slower speeds than a standard designated-lane striping regime.

WHAT ARE SKINNY STREETS?

The City of Portland requires most newly constructed residential streets to be 20 or 26 feet wide, depending on neighborhood on-street parking needs. In the past, residential streets were required to be as wide as 32 feet. To achieve the benefits described below, the City reduced residential street widths.

Why create skinny streets in neighborhoods?

Allowing newly-paved residential streets to be narrower provides many benefits to area residents. Skinny streets help preserve neighborhood livability, while improving access to homes. Some benefits are:

Maintain neighborhood character.

Construction of a wide paved street to replace a narrow unimproved road can change a neighborhood's atmosphere. Skinny streets reduce the impact on slopes and contours, on yards and on neighborhood self-image.

Lower construction costs.

Construction of narrower streets costs less. This means that residents who want to improve existing streets are able to do so for less money and developers can create new neighborhood streets less expensively.

Save vegetation & trees.

In existing neighborhoods, narrower paving widths reduce the need to cut trees and shrubs along the street.

20 feet — 26 feet

Reduce stormwater runoff.

Paved streets are a major source of stormwater runoff. Pollutants from autos, as well as fertilizer, pesticides and other contaminants, are collected in stormwater, which flows into storm sewers. Eventually, this dirty water reaches area streams and rivers. Reducing pavement reduces stormwater runoff and allows more water to soak directly into the ground.

Encourage traffic safety.

Narrower streets discourages non-neighborhood traffic and force drivers to slow down.

Encourage better land-use.

As stewards of our natural resources, we know that streets aren't the best use of existing undeveloped land. With skinny streets, in new developments we have more room to house our growing population while reducing the amount of land reserved for traffic use.

Who decides on a street's width?

If you live on an unimproved street, you may be considering forming a Local Improvement District (LID) to complete your street. With an LID, you and the other property owners on your street would pay for improvements, and the City would be responsible for future maintenance.

In that case, you and other participating property owners can help design what your street will look like. Collectively, you can decide if you want parking on one or both sides of the street. This will determine how wide the street will be.

In new neighborhoods, developers will select the street width they believe to be most appropriate within the city guidelines.

Can emergency vehicles reach my home?

The Fire Bureau participated in exercises in older neighborhoods with narrow streets. The Bureau found that street widths based on skinny street guidelines will provide adequate access for emergency vehicles.

How Can I Learn More About SKINNY STREETS?

The City of Portland's Office of Transportation has set up the Local Streets Outreach Program. If you would like more information, or if you're interested in a presentation about skinny streets, please contact

(503) 823-7046

The City of Portland, Oregon created this brochure to encourage the construction of new Yield Streets in the 1990s.

Cars are only six feet wide. Advisory Lanes on lower High School Road will provide a central travelway of 15 feet bounded only by painted bike lanes. This will provide ample room for free-flowing traffic but in a configuration that will make the street safer for all users and much more welcoming to people walking and biking.

High School Road encourages high speeds with its highway-like geometry and is uncomfortable to people walking as well as biking. (Source: Google Streetview)

Advisory Lanes in Eastern Road, Scarborough, Maine. (Source: advisorybikelanes.com)

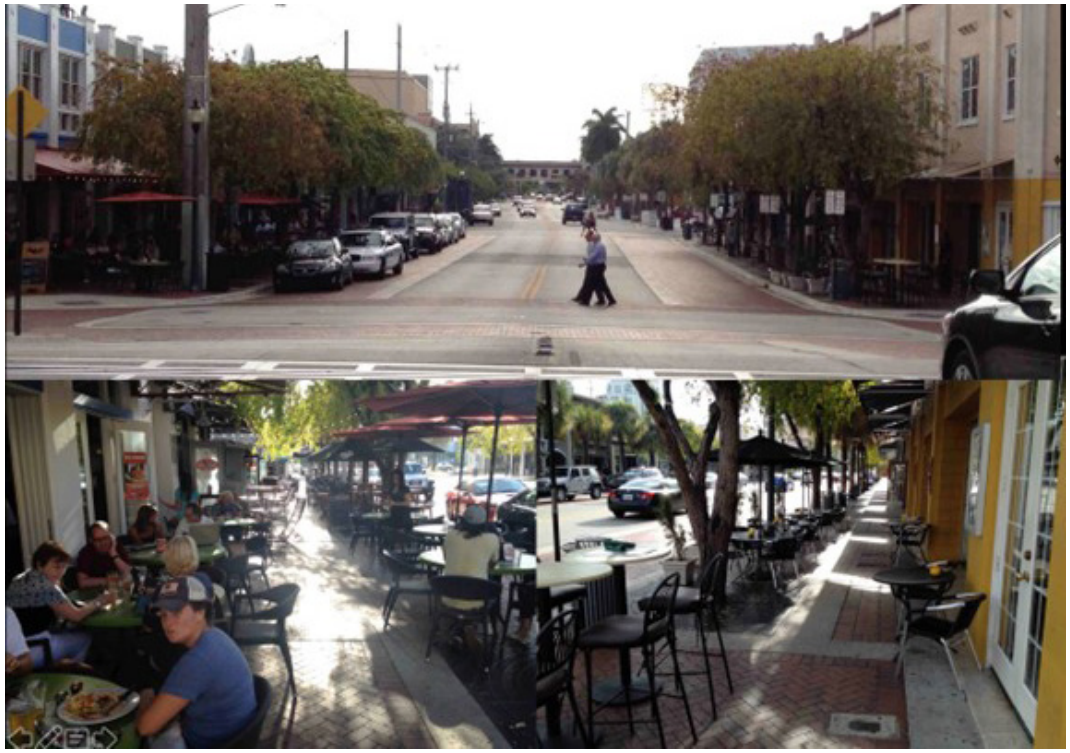
2.5 CONTINUOUS ON-STREET PARKING

Curb parking provides an essential barrier of steel between the roadway and the sidewalk that is often necessary if people walking are to feel fully at ease. It also causes people driving to slow down out of concern for possible conflicts with cars parking, opening doors, or pulling out. On-street parking also provides much-needed life to downtown sidewalks, which are occupied in large part by people walking to and from cars that have been parked a short distance from their destinations.

On-street parking is also essential to successful shopping districts. According to the consultant Robert Gibbs, author of *Urban Retail,* each on-street parking space in a vital shopping area produces between $150,000 and $200,000 in sales.

Several streets in downtown Hyannis lack a significant amount of their potential on-street parking due to driving lanes that are either too wide or too many in number. Bringing missing parking back will contribute markedly to the safety and success of downtown.

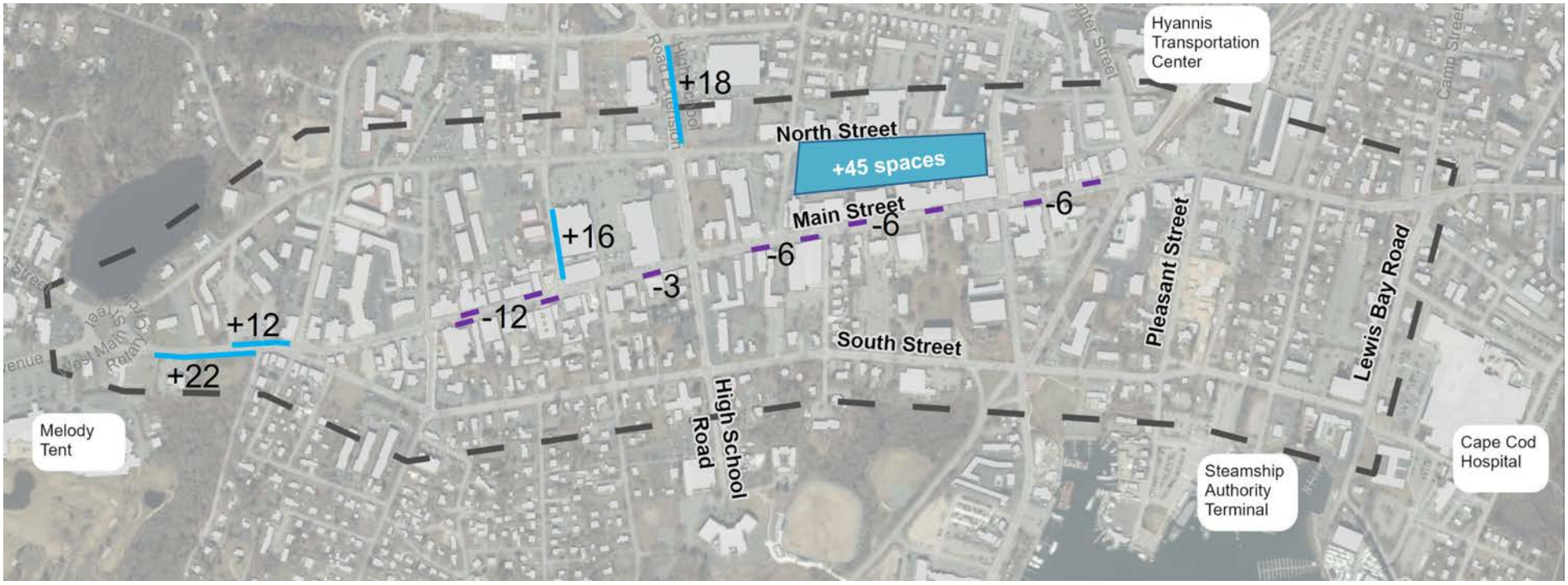
The strategy of this Plan is to distribute cycling facilities and new curb parking in a way that optimizes both, while also ensuring that ample loading zones are provided on Main Street to make up for the loss of its second westbound lane, often used for deliveries. As indicated in Figure 27, 33 parking stalls should be removed from Main Street to provide loading zones. But 68 new stalls can be added, mostly on cross streets—Bassett Lane and High School Road—for a net gain of 35 spaces. Incidentally, 22 of these spaces are provided at the west end of Main Street, approaching the South Street split, where an excessively wide pavement currently welcomes high-speed driving into downtown.



Fort Lauderdale: Parking was only allowed on one side of Himmarshee Boulevard until corrected by a study like this one. Sidewalk dining was only successful on the parked side of the street. (Source: Speck & Associates)

As in many similar places, downtown Hyannis suffers from perceptions of inadequate parking provision, when in fact it has ample parking but lacks adequate wayfinding. Even during high season, many dozens of downtown's 13,600 parking stalls sit empty a short walk from the heart of Main Street. Happily, improved wayfinding is being pursued separately from this Plan (see next page), as well as a concept to improve the North Street lot, which will add at least another 45 spaces. Meanwhile, it is encouraging to note that restoring two-way traffic downtown will make access to parking considerably more convenient, eliminating much of the looping now required to find a space.

Figure 27 Proposed Downtown Parking and Loading Zones

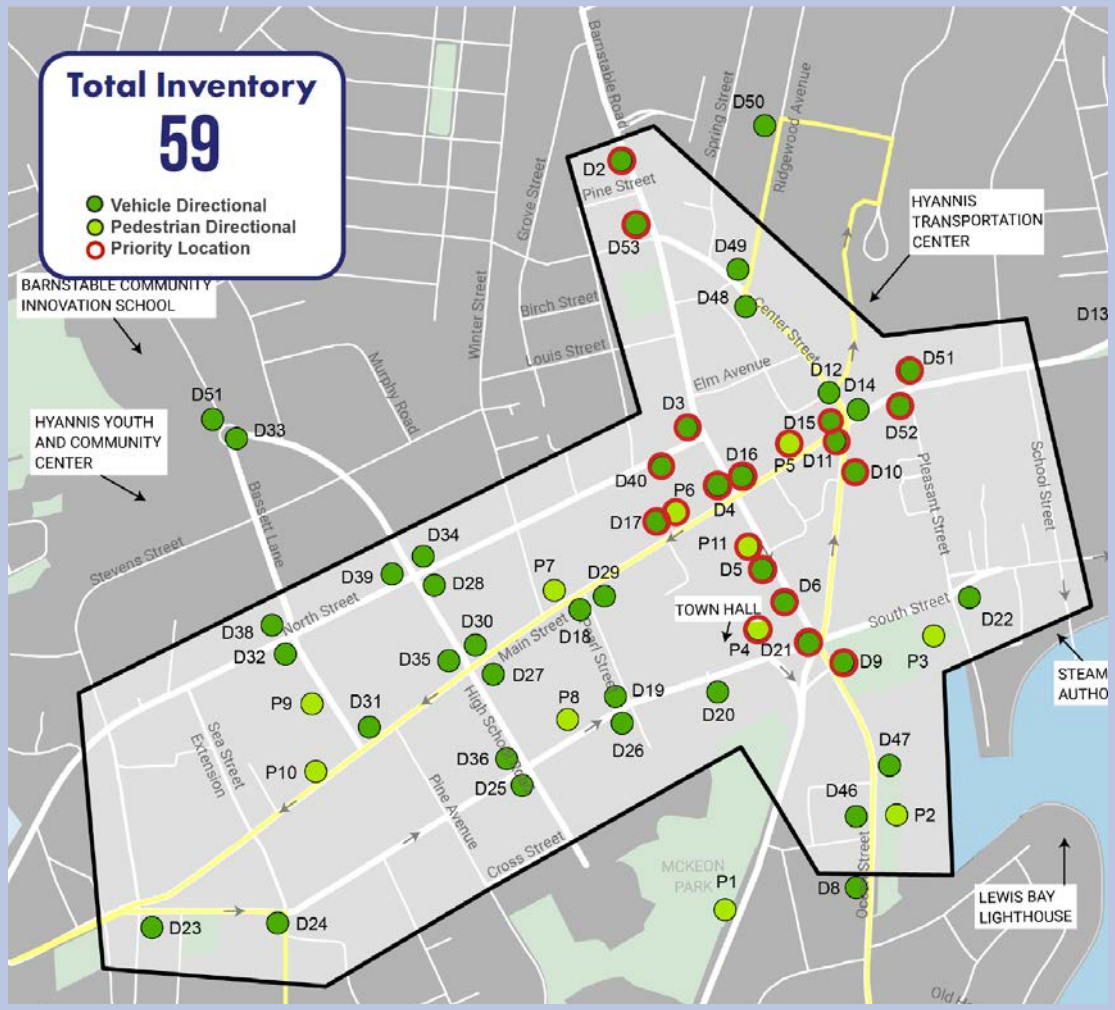


Purple lines represent parking lost to new loading zones; blue lines represent new parking added. (Source: Stantec)

Wayfinding Study

The Town was the recent recipient of a Department of Housing and Community Development (DHCD) planning grant to develop a new wayfinding system for Hyannis' downtown. Downtown is replete with wayfinding signage of various generations and styles, ranging from colorful pedestrian arrows to traditional vehicular directions, to unique placemaking and informational signs and kiosks. However, all previous efforts were of limited geographic and typological scope, resulting in a colorful but often confusing and contradicting palette of signs, with many notable gaps remaining.

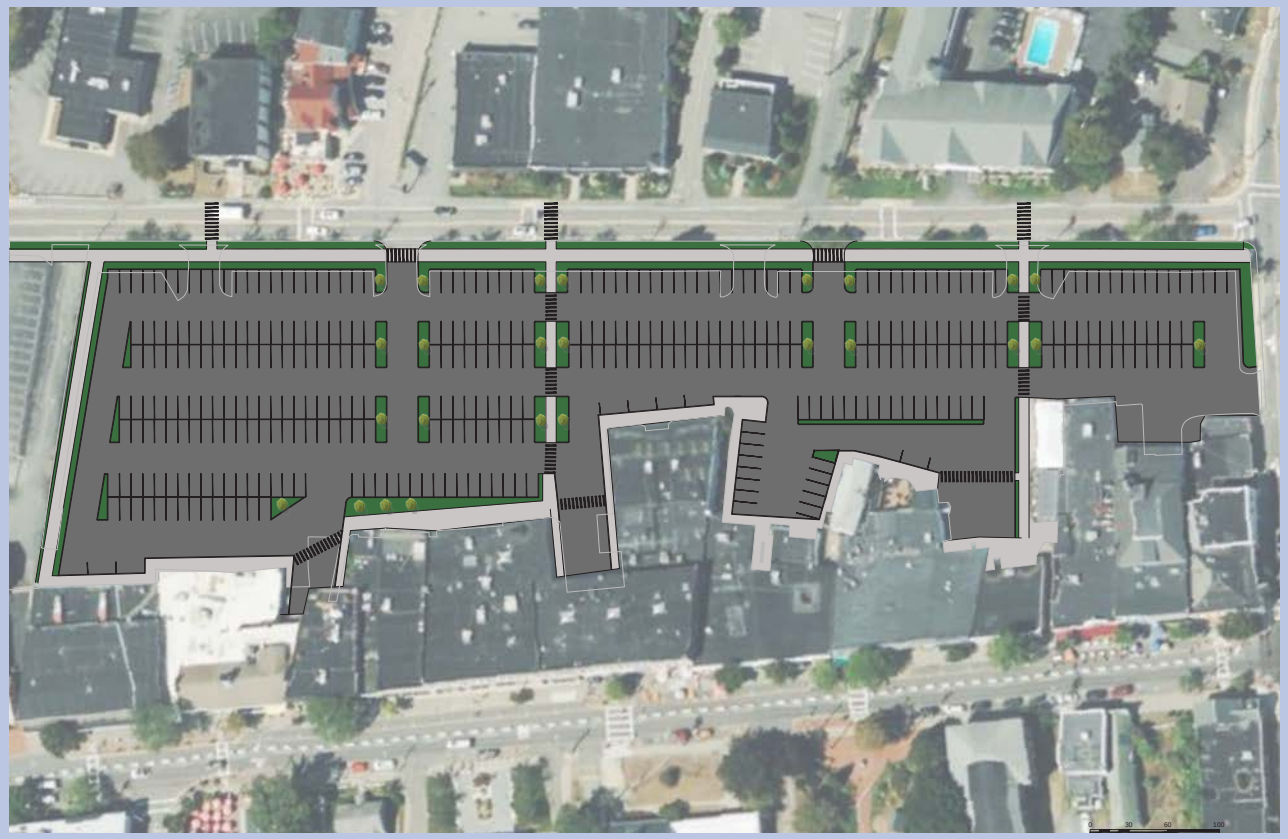
The wayfinding study identified these inconsistencies and developed a clear process for comprehensive and consistent signage across the entire downtown. The effort worked with stakeholders, local institutions, and Town staff to identify key destinations, appropriate signage design elements, detailed placement maps, and draft fabrication documents, as well as a process for revising installation plans and designs so that future updates can be readily fabricated and installed. As this study is implemented, upcoming revisions and installations will begin to create an attractive and cohesive whole that helps make visiting Hyannis simpler and more enjoyable.



North Lot Redesign

The North Street Lot is downtown Hyannis' main parking reserve and a common gateway to downtown for many visitors, especially when convenient longer-term off-street parking is desired. While often heavily used in the summer months, it is not the best place to begin a visit to Main Street, for a number of reasons. The lot itself needs new paving and drainage, and it has no pedestrian accommodation, few trees, and insufficient lighting. It's connections to Main Street through public walkways and private arcades are not obvious to newcomers, and approaches to these connections are often blocked by loading vehicles and trucks.

The conceptual plan shown here could be completed during a surface restoration project and includes a number of significant benefits, including: new paving, drainage, lighting, and bike parking; new shade trees, landscaping and green infrastructure for stormwater infiltration; new marked and protected walkways tying the lot to Main Street as well as North Street crosswalks; a new multi-use path along North Street; and notably an increase in total parking supply, thanks to a more efficient layout. Ultimately, this or a similar reconfiguration can bring great benefits to users, Main Street businesses, and Barnstable's overall efforts to improve Hyannis' downtown in a resilient manner.



2.6 INCLUDING BIKE LANES

Cycling is the largest planning revolution currently underway. . . in only some American cities. The news is full of American cities that have created significant cycling populations by investing in downtown bike networks. Another good reason to institute such a network is pedestrian safety: bikes help to slow cars down, and new bike lanes are a great way to use up excess road width currently dedicated to oversized , speed-inducing driving lanes. When properly designed, bike lanes make streets safer for people who are biking, walking—and driving.

This was the experience when a cycle track (protected two-way bike lane) was introduced on Prospect Park West in Brooklyn, NY. A 3-lane one-way street was converted to 2 lanes, parked cars were pulled 12 feet off the curb, and a cycle track was inserted in the space created. As a result, the number of weekday cyclists tripled, and the percentage of speeders dropped from about 75 percent of all cars to less than 17 percent. Injury crashes to all road users went down by 63 percent from prior years. Interestingly, car volume and travel times stayed almost exactly the same—the typical southbound trip became 5 seconds faster—and there were no negative impacts on streets nearby.

Additionally, bike lanes are good for business. A study in Portland, OR, found that customers arriving by bike buy 24 percent more at local businesses than those who drive. And merchants along 9th Avenue in New York City showed a 49 percent increase in retail sales after buffered bike lanes were inserted.

New York has dominated the biking headlines in recent years because of its investment under Mayor Bloomberg in a tremendous amount of cycling infrastructure. But many smaller cities are making significant cycling investments as well, with the goals of reducing car dependence, achieving higher mobility at lower cost, and especially attracting young entrepreneurial talent. More than half of the states in the US already have buffered bike lanes as part of larger downtown networks.

The insertion of a cycle track on this Brooklyn street dramatically improved safety for all road users without reducing daily car through-put. (Source: NYC DOT)

A LOW-STRESS NETWORK

Experience in a large number of cities is making it clear that the key to bicycle safety is the establishment of a large biking population—so that drivers expect to see them—and, in turn, the key to establishing a large biking population is the provision of a useful bike network, one that safely gets riders of all ages--the so-called "8 to 80" crowd-- where they need to go in a low-stress environment.

What constitutes "low stress" depends on the type of street which the bike facility is located in:

- For higher-speed multilane roads, an impassible barrier is needed for cyclists to feel safe, or the bike lane is placed up at sidewalk level. Fortunately, no streets within the study area will invite high speeds after the proposed restriping is completed.
- For moderate-speed roads, a "buffered" bike lane is desired. This facility places a striped zone several feet wide between the bike lane and driving lanes. Within that striped zone, plastic breakaway "flex-posts" or lower "armadillo"-style dividers further protect the cyclist (Figure 29). Such armadillos are recommended for Hyannis, to be removed each winter and replaced in the spring. Almost all the bike lanes proposed in this Plan are buffered in this way. Most are two-way facilities but, given limited available space, east-west travel split between one-way lanes in South Street and North Street--neither of which is wide enough for two-way buffered biking. This network will require a little practice to learn, but soon it will provide cyclists with a convenient way to traverse downtown quickly without being tied up in Main Street activity.
- In a few odd instances, there is need for a bike lane or lanes, but there is inadequate

Figure 28 Existing Bike Network

There are currently almost no cycling facilities in downtown Hyannis.

Figure 29 "Armadillo" Bicycle Protection

space to provide a buffer. Specifically, the Advisory Lanes on High School Road—already discussed previously— and along Ocean Street, where an extra 5 feet of road width can be eliminated by inserting a single unbuffered bike lane. This lane is redundant to the larger network, but it will expand choice while reducing speeding. Ideally, this lane would receive the "Copenhagen treatment" and have a 3-inch asphalt lift, halfway up to sidewalk level for greater protection. Cars (and bikes) can still mount this zone and enter the bike lane but only with noticeable effort.

- Finally, every bike network includes Shared Streets, places where traffic moves so slowly that cyclists can easily mix with cars. When Main Street is reverted to two-way travel with narrower lanes and greater visibility of the existing, and the design further encourages slow speeds with curb extensions at key crosswalks, it should invite speeds closer to 15 mph, such that cyclists will not be seen as unduly impeding traffic. In this location, the presence of cyclists should be welcomed and announced with prominent sharrow markings in the roadway. Importantly, this less protected axis is available as an option, but many cyclists will instead prefer the buffered lane in addition to the east and west lanes spanning downtown on South and North streets respectively.

The facility types described above, especially buffered lanes, combine to create the network shown in Figure 31. As noted, it has been inserted into existing roadways without any meaningful reduction in access or traffic flow for cars and trucks. Built mostly of paint, it requires limited construction beyond the insertion and seasonal removal of armadillos in the buffer zones.

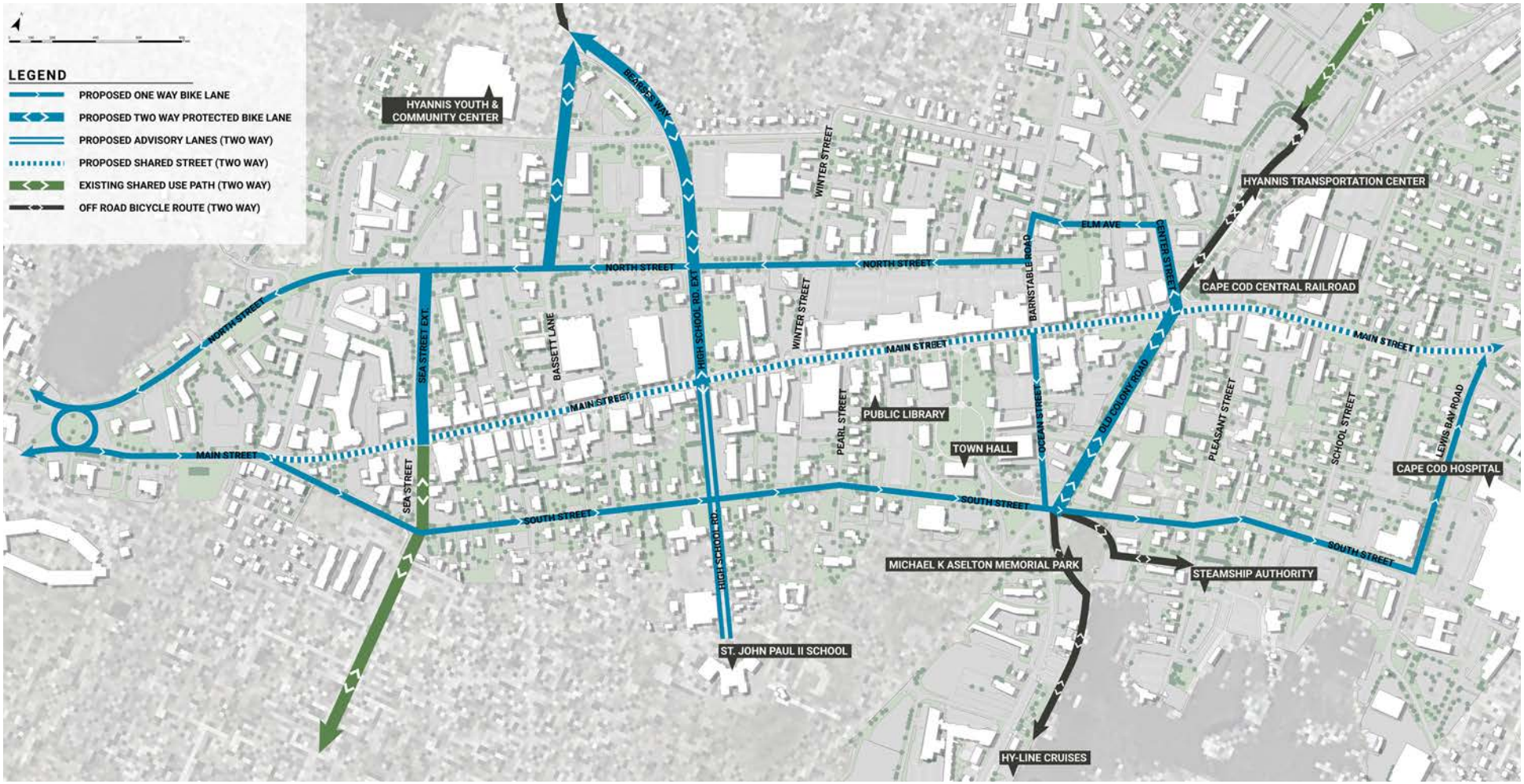
Figure 30 Proposed Traffic circle Accommodation for Bicycles

The traffic circle west of downtown must be carefully modified to welcome cyclists.

That said, one location does require special attention; the traffic circle at the west end of Main Street. Here, both motor vehicle and bicycle flows through the downtown are resolved and must be integrated with care; traffic circles are notoriously uncomfortable for cyclists. The concept in Figure 30 represents a first pass at a more detailed plan for providing a highly visible and partially buffered bike lane at the perimeter of this circle.

It has been commented that not many people cycle in downtown Hyannis today. But suggesting that few people bike in a place without a good network is like saying that you don't need a bridge because nobody is swimming across the river. In fact, even during off season, cyclists are observed struggling to traverse downtown safely. This circumstance gives us reason to expect that these proposed improvements will have a profound impact. Once most cyclists can get to most destinations with minimal stress, we are likely to witness the growth of a significant cycling population in downtown Hyannis.

Figure 31 Proposed Bike Network



This proposed comprehensive bike network provides low-stress access to most addresses downtown.

BIKE RACKS MATTER TOO

As bike ridership downtown increases, so will demand for bike parking. This demand will best be met by a combination of individual bike racks throughout the downtown and on-street bike corrals in the areas with the most cycling customers. Because cyclists are reported to be better spenders than drivers—and much safer bar patrons—it will behoove the Town to invest in these facilities.

Locating and specifying bike racks and corrals is beyond the scope of this Plan, but bike parking is an issue that will require considerable attention in the years ahead. The Town should consult best practice guidance produced by the Association of Pedestrian and Bicycle Professionals to avoid the pitfalls of wave, radiator or other ill-conceived rack styles.

2.7 REMOVING CENTERLINES

Another way to limit speeding in downtown Hyannis is to remove centerlines from two-way streets. A recent British study found that removing the centerline from six well-used streets effectively lowered driving speeds by an average of 7 MPH. It was found that--like wide lanes--centerlines give drivers confidence that they have a clear path, resulting in more speeding.

An important caveat to consider here is that centerlines can be an important indicator that a street it two-way rather than one-way. As it converts Main, South, Ocean, and Old Colony from one-way to two-way, the Town should stripe centerlines at each intersection so that turning drivers are not confused. But these centerlines should not continue more than 50 feet from the intersection, to limit mid-block speeding.

Unlike centerlines, striped parking spaces slow drivers by giving the impression of a constricted roadway. Whether it is marked with a continuous stripe or as individual spaces, white paint at the edge of the parking lane should be a standard feature in all parked streets.

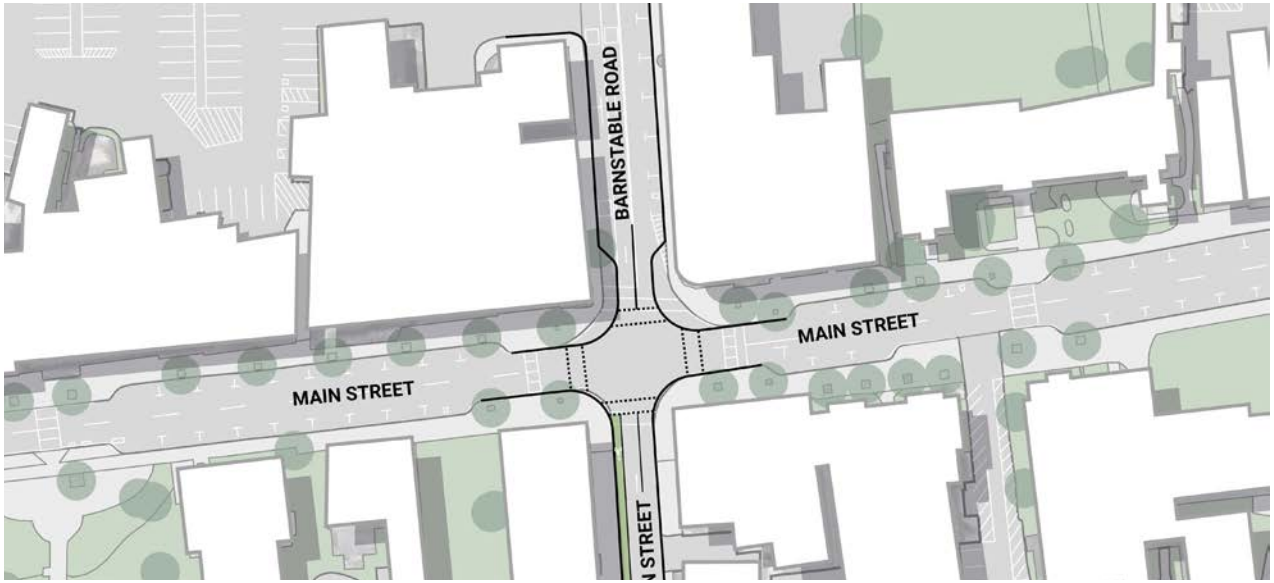
Removing centerlines from this and other British streets reduced driving speeds an average of 7 mph. (Source: Google Streetview)

2.8 AVOIDING HIGH-SPEED GEOMETRIES

Walkable environments can be characterized by their rectilinear and angled geometries and tight curb radii. Wherever highway-like swooping geometries are introduced, cars speed up, and pedestrians feel unsafe. The street network of any urban area should never be shaped around a minimum design speed, but rather should be designed to accommodate vehicles no larger than those that use it regularly.

A number of intersections on Main Street are shaped around larger vehicles than necessary, which invites all drivers to speed around those corners. In addition to the Main/Center/Old Colony intersection already discussed, Main Street's intersections with Barnstable Road, High School Road, and Winter Street should all receive "neckdowns" to discourage high-speed turns. These should be marked temporarily with a bright epoxy paint as an extension of the sidewalk; eventually, as budget becomes available, the curbs should be moved to the proper locations. Proposed profiles for painted curb extensions are shown in Figure 32, Figure 33, and Figure 34. The shape of rebuilt curbs should be designed to accommodate the turning motions of the largest vehicles that will be using it on a daily basis. Fire trucks should be expected to swing into the opposing lane before making a tight right turn, and oversize commercial trucks should be expected to make three-point turns to reach any destinations that are not frequently serviced--only the harbor terminals warrant regular truck accommodation.

Figure 32 Proposed Curb Extension at Barnstable Road



Large curb radii not only allow speeding; they communicate a rural, highway-style engineering vocabulary that puts drivers in a higher-speed frame of mind. The same is true of shoulders striped at the edges of roads. These are a rural, high-speed detail not appropriate for urban areas. The majority of the streets in downtown Hyannis currently contain shoulders; this Plan eliminates almost all of them, except where they can serve the purpose of constricting driving lanes to the proper width.

One other site in the study area presents an opportunity for calming traffic. Where Pleasant Street meets South Street is an important location because Pleasant Street is the best path from train to ferry. That intersection is now configured with excess pavement surrounding a traffic island (Figure 35), which can be simplified and made more walkable by eliminating the slip lane and attaching the island to the adjoining block.

This change would add about 4,000 square feet to the size of the green, which could then be used to hold play equipment or another amenity. As shown in Figure 36, the existing driveways could easily be brought to South Street through this area. Worth noting is how, once two-way traffic is restored, this expanded green will sit at the termination of a 1,000-foot vista along South Street from the east, making it an ideal location for a vertical monument.

Figure 33 Proposed Curb Extension at High School Road

Suggested painted curb extensions on High School Road.

Figure 34 Proposed Curb Extension at Winter Street

Suggested painted curb extensions on Winter Street.

Figure 35 Existing Pleasant and South Street Intersection

Excess pavement at an important intersection.

Figure 36 Proposed Pleasant and South Street Intersection

Removal of the unnecessary slip lane creates an expanded green.

2.9 PROPER PEDESTRIAN ACCOMMODATIONS

This last section covers some details regarding crosswalks and signals that should not be allowed to slip through the cracks. Some of these items are well known, while others are a little more obscure.

WIDE, HIGH-CONTRAST CROSSWALKS

While one-of-a-kind, eye catching crosswalks should not be discouraged, most crosswalks should be freshly-painted, high-visibility ladder (or "continental" style) crossings, at least 10 feet wide and as much as 16 feet at mid-block locations. The typical downtown Hyannis crosswalk is either a rather minimalist ladder or simply two bars on either side of the crossing path. As repainting occurs, these should be replaced with the solid-white-bars of a modern crossing that is more easily seen by approaching motorists (Figure 37). Every leg of every intersection should include a crosswalk; pedestrians shouldn't have to cross three streets to safely cross the street.

CURB EXTENSIONS

Already present in some locations on Main Street, curb extensions in the parking lane provide a safe refuge for pedestrians, shorten the crossing distance and thereby the exposure to cars, and limit the speeds of vehicles as they turn corners. Also called bulb-outs, they have become a standard component of safe street design and should be deployed whenever a corner with on-street parking is rebuilt or mid-block improvements are being made.

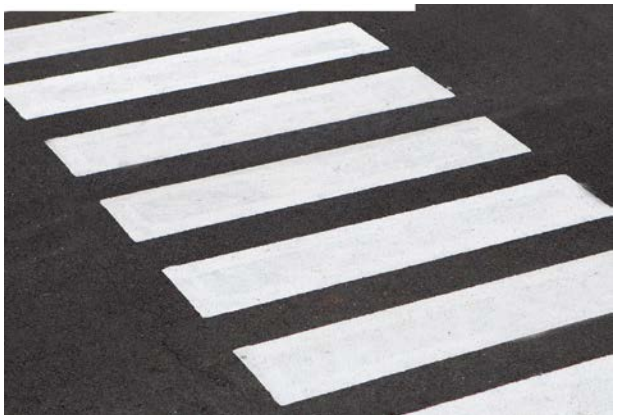
CONCURRENT SIGNALIZATION

This Plan calls for the elimination of every signal within the study area except for the one at Main Street and Lewis Bay Road. For this intersection--and others throughout Barnstable--it is recommended that the Town use a concurrent signalization regime with Leading Pedestrian Intervals (LPIs). Concurrent signalization cycles, rather than breaking out separate pedestrian-only "exclusive" phases that often require long wait times to occur, instead, green-light vehicles and pedestrians at the same time to proceed in parallel, much the same way that many people do anyway when they're frustrated waiting for an exclusively phased signal.. This approach avoids pedestrian frustration, especially when crossings are short, as they are in a downtown setting, and the practice is made safe through the use of the LPI.

LEADING PEDESTRIAN INTERVALS

The LPI gives pedestrians the walk sign a few seconds before the vehicle traffic light turns green, allowing them to claim the crosswalk and be clearly seen by waiting motorists before the crosswalk is encroached by turning vehicles. A study of LPIs found that they cut the number of turning-movement crashes by 28% and reduced crash severity by 64%. LPIs should be used at all signalized Barnstable intersections that have significant pedestrian volumes.

Figure 37 High Visibility Crosswalk



SHORT SIGNAL CYCLES

Long signal phases are effective at moving large "platoons" of vehicles and can aid a heavy directional traffic flow at peak times. However, when a street is not congested, they create a lot of wasted time as drivers sit waiting to cross empty streets. And pedestrians get the worst deal of all, forced to choose between standing idly at street corners or crossing against the light, perhaps dangerously. Most full signal cycles should be less

than 60 seconds long to minimize wasted time. On a long street, drivers may encounter more red lights, but waits are always shorter. This may result in a minor drop in efficiency during heavy traffic, but a major increase in efficiency for crossing traffic and pedestrians.

AVOIDING PUSH BUTTONS

Most pedestrian crossing-signal push-button requests ("beg buttons") actually do nothing--either being broken or broken so frequently, the jurisdiction in charge just makes the pedestrian phase come up automatically. Those that do work are typically indicative of a car-centric environment in which pedestrians are second-class citizens. Most walkable places don't have them. Instead, the pedestrian crossing phase always arises automatically and typically concurrently with the vehicular phase, enhanced by an LPI as mentioned above.

Postscript

THE ANATOMY OF A CRASH

Summarizing the previous nine sections, it can be said that safe streets are characterized by having no more than one lane in each direction, no additional turn lanes, all-way stop signs instead of signals, 10-foot lanes (or narrower), on-street parking where appropriate and/or buffered bike lanes where appropriate, no centerlines, tight corner radii, and wide, high-visibility crosswalks. Each of these factors matters, and all have been brought to bear in the individual street restriping proposals that follow in Part II.

A final example helps to bring these points home. During the week of the principal design workshop, a local merchant shared with the team a video of a recent pedestrian crash at the corner of Main and Ocean Streets. The pedestrian was not badly injured, but this type of collision—a left turn across a crosswalk—is the most common cause of pedestrian injury and death.

Reviewing this crash, it is at first easy to blame the participants. The car likely had a green left arrow, which means that the pedestrian faced a Don't Walk signal. The driver should have been more attentive, and the pedestrian shouldn't have jaywalked. But, as often happens in real life, humans make mistakes. Perhaps there were other factors at play?

As Jessie Singer makes clear in her recent award-winning book, *There Are No Accidents*, most "human error" and "bad luck" can more accurately be understood as resulting

A pedestrian is hit by a driver while crossing Ocean Street along Main Street. (Source: Merchant security video)

from environmental factors. In this case, the environment was one that has been conclusively shown to increase the risk of crashes, injury, and death. Specifically, the driver was turning from a two-lane one-way street into a two-lane one-way street. This means that they were turning from a 24-foot-wide-zone into a 25-foot wide zone. There was no opposing traffic on either Main Street or Ocean Street to constrict or otherwise slow the driver. There was a signal at the intersection rather than a stop sign, so the driver passed through it at considerable speed.

Contrast that street design with the one proposed in this Plan. When traffic is reconfigured and the streets restriped, the driver will turn from a two-way street to a two-way street. Ocean Street will have a southbound bike lane as well. So, the turn will be from a 10-foot-wide-zone into a 10-foot-wide zone, requiring considerable care. There will also be opposing traffic headed west on Main Street and cross-traffic heading north on Ocean Street, further demanding caution. Finally, and perhaps most importantly, there will be an all-way stop sign at the intersection, meaning that the driver will be stopped before the turn or, at worst, be rolling through the intersection slowly.

Any one of these factors—a narrower approach, a narrower target lane, opposing traffic, or an all-way stop sign—might have been enough to prevent the crash above. All of them together almost certainly would have kept that pedestrian out of harm's way.


The Little Sandwich Shop
Breakfast
Lunch
Catering

3 Street Modifications

The following section describes the street-by-street changes that together comprise Great Streets Downtown Hyannis. Most changes can be made with "quick build" interventions at low cost, and are recommended for immediate implementation.

MAIN STREET

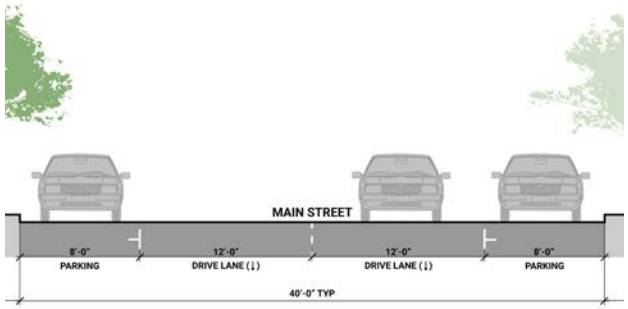
Summary

EXISTING- Main Street is a one-way, westbound street with two oversized travel lanes and on-street parking. The street has a centerline and no bicycle facilities.

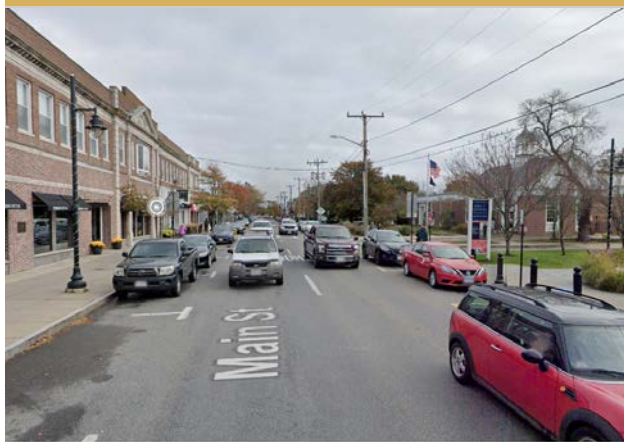
PROPOSED- The revised design turns Main Street into a two-way street, narrows travel lanes to the 10-foot standard, removes the centerline and shoulders, and inserts sharrow emblems in the travel lanes.

Characteristics	Existing	Proposed
Travel Lanes	2 (EB: None) (WB @ 12')	2 (EB @ 10') (WB @ 10')
Centerline	White Dashed	None
On-Street Parking	8'	8'
Bicycle Facilities	None	Sharrow emblems every 100-200'
Shoulders	None	2 @ 2'

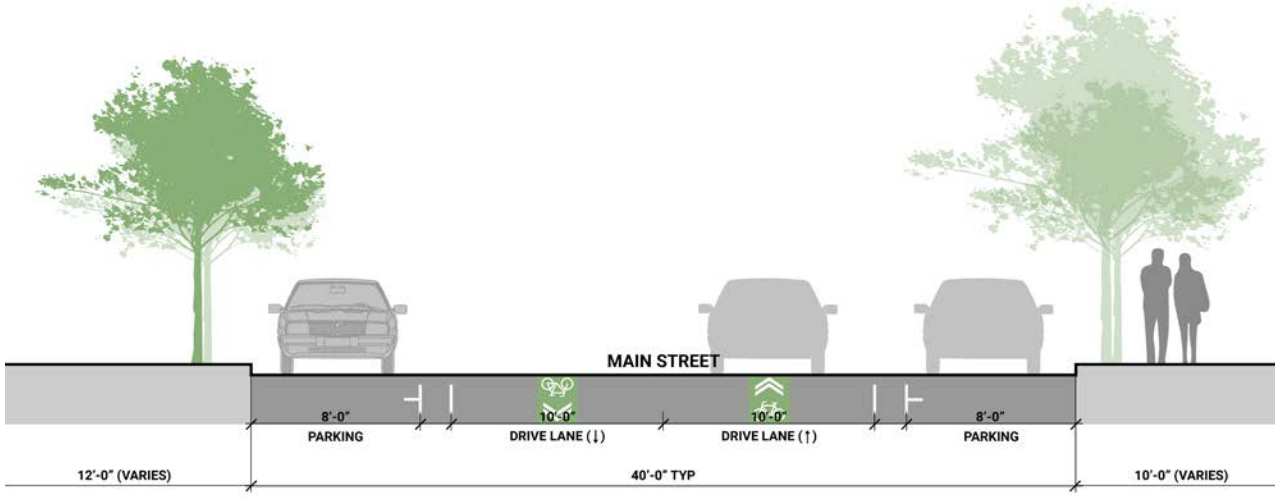
Existing (Facing East)



Main Street Today



Proposed (Facing East)



MAIN STREET- CURB EXTENSIONS

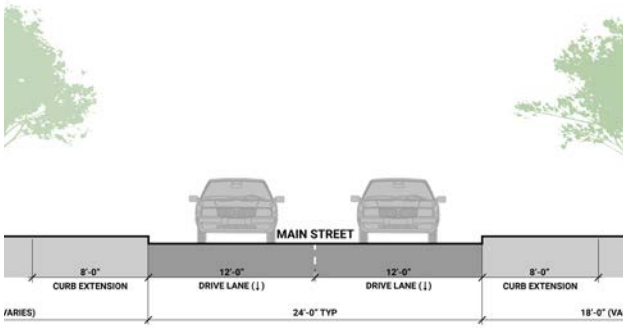
Summary

EXISTING- At certain locations, Main Street is a one-way, westbound street with two oversized travel lanes and curb extensions. The street has a centerline and no bicycle facilities.

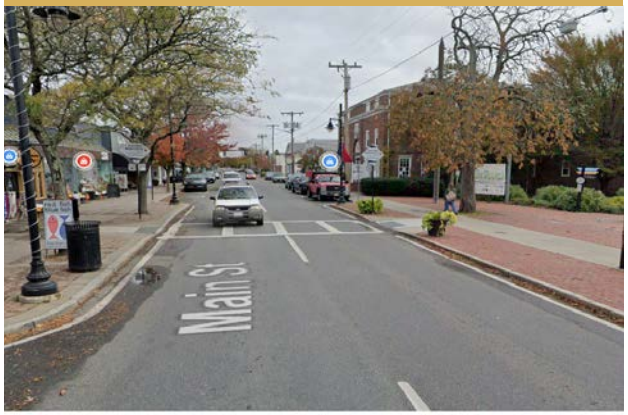
PROPOSED- The revised design turns Main Street into a two-way street, narrows travel lanes to the 10-foot standard, removes the centerline, and broadens the shoulders.

Characteristics	Existing	Proposed
Travel Lanes	2 (EB: None) (WB @ 12')	2 (EB @ 10') (WB @ 10')
Centerline	White Dashed	None
On-Street Parking	None	None
Bicycle Facilities	None	Sharrow emblems every 100-200'
Shoulders	None	2 @ 2'

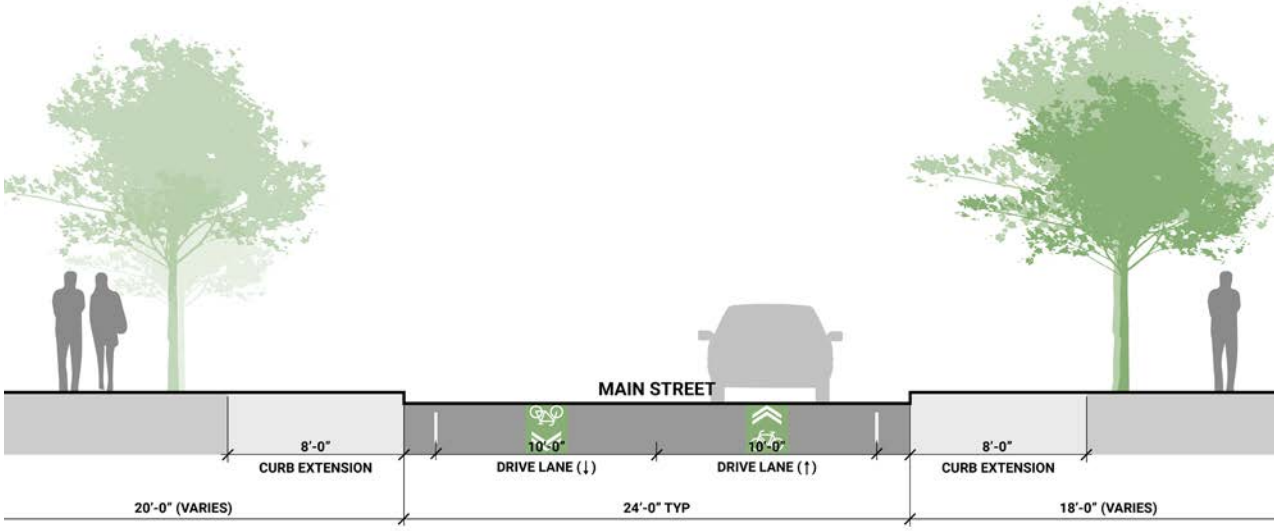
Existing (Facing East)



Main Street Today



Proposed (Facing East)



SOUTH STREET

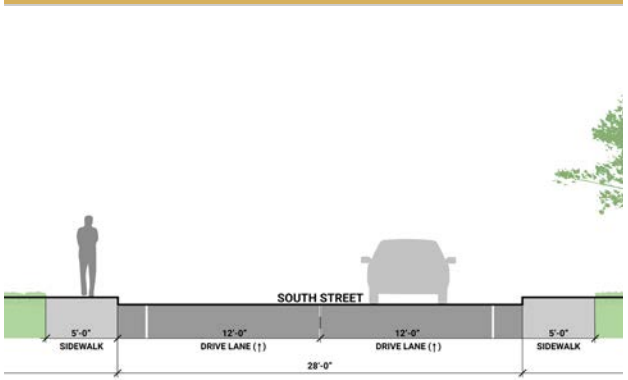
Summary

EXISTING- South Street is a one-way, eastbound street with two oversized travel lanes and shoulders. The street has a centerline and no bicycle facilities.

PROPOSED- The revised design turns South Street into a two-way street, narrows travel lanes to the 10-foot standard, removes the centerline and shoulders, and inserts an eastbound bike lane on the north flank.

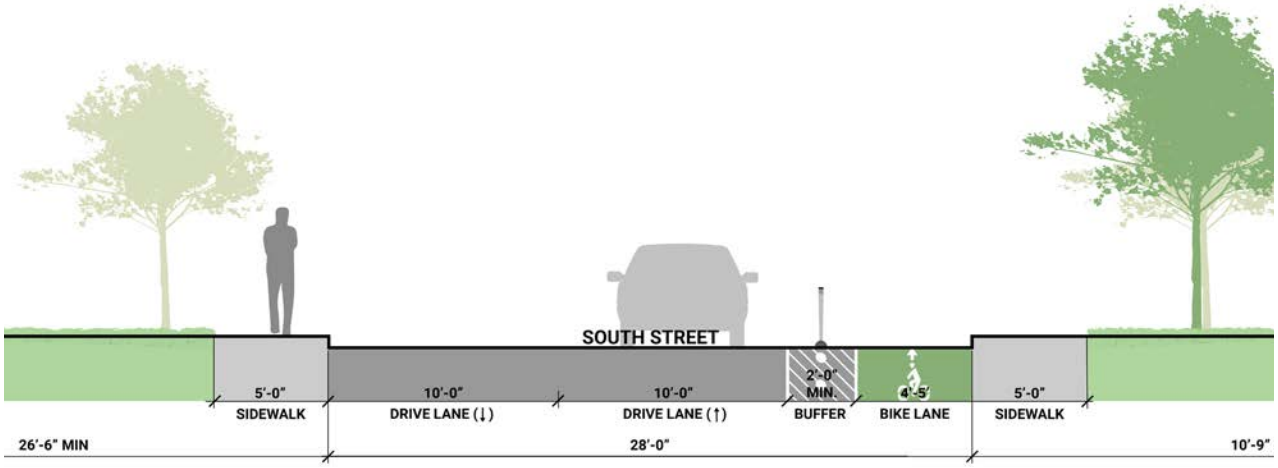
Characteristics	Existing	Proposed
Travel Lanes	2 (EB @ 12') (WB: None)	2 (EB @ 10') (WB @ 10')
Centerline	White Dashed	None
On-Street Parking	None	None
Bicycle Facilities	None	4'-5' bike lane with 2' buffer
Shoulders	2 @ 2'	None

Existing (Facing East)



South Street Today

Proposed (Facing East)



OLD COLONY ROAD

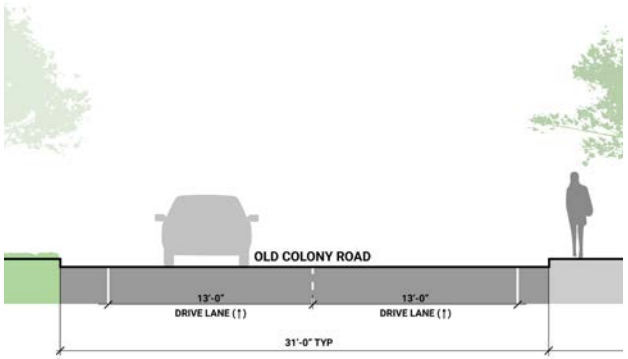
Summary

EXISTING- Old Colony Road is a one-way, northbound street with two oversized travel lanes. The street has a centerline and no bicycle facilities. The west side of the street is missing a sidewalk.

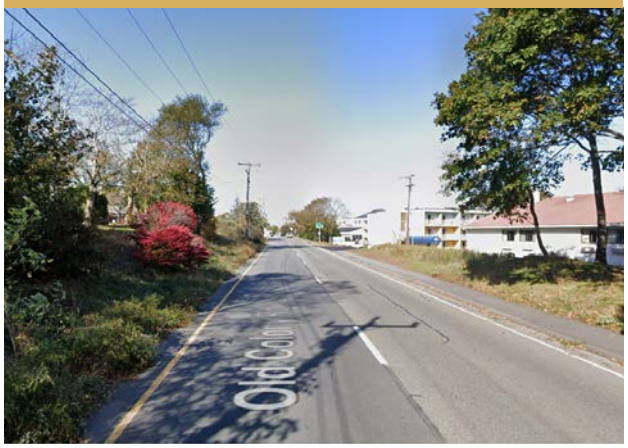
PROPOSED- The proposed design turns Old Colony Road into a two-way street, narrows travel lanes to the 10-foot standard, removes the centerline and shoulders, and inserts a two-way cycletrack on the east flank.

Characteristics	Existing	Proposed
Travel Lanes	2 (NB @ 13') (SB: None)	2 (NB @ 10') (SB @ 10')
Centerline	White Dashed	None
On-Street Parking	None	None
Bicycle Facilities	None	10' two-way cycletrack with 2' buffer
Shoulders	2 @ 2' 6"	None

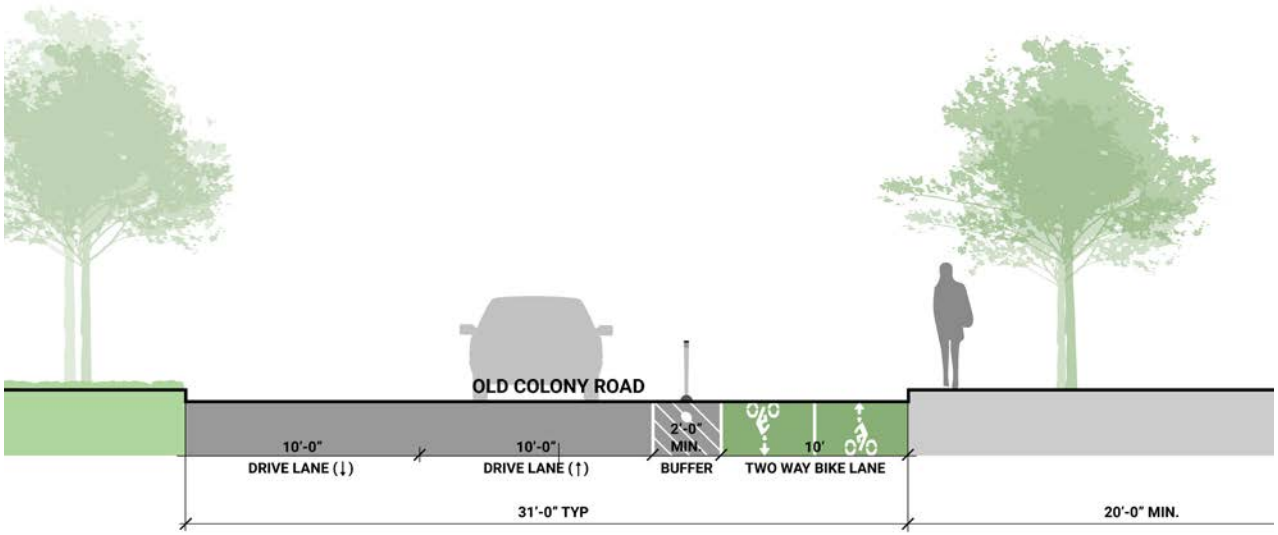
Existing (Facing North)



Old Colony Road Today



Proposed (Facing North)



HIGH SCHOOL ROAD

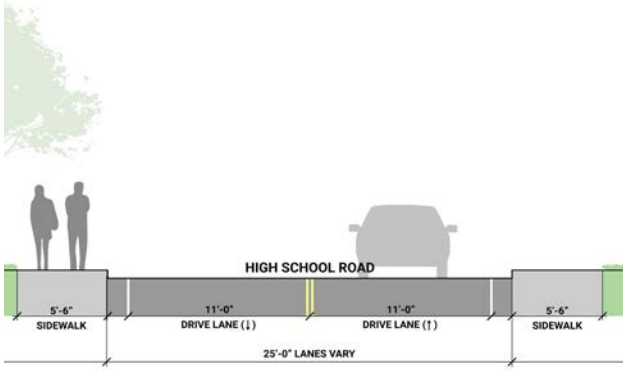
Summary

EXISTING- High School Road is a two-way street with two oversized travel lanes and shoulders. The street has a centerline and no bicycle facilities.

PROPOSED- The revised design replaces the two travel lanes with a two-way advisory lane (without centerline) and widens both shoulders into proper bike lanes.

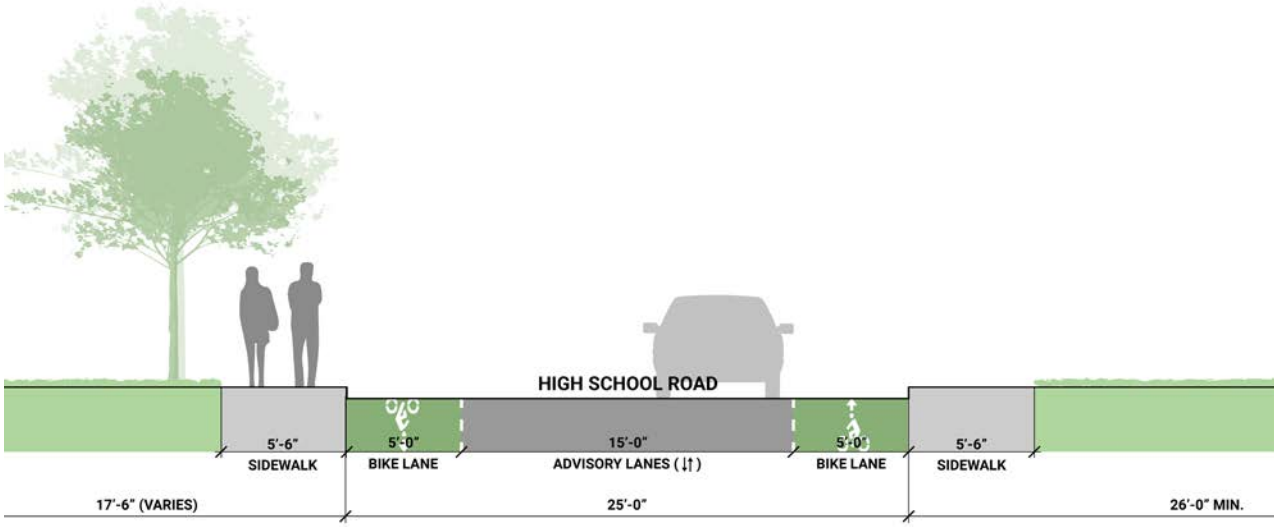
Characteristics	Existing	Proposed
Travel Lanes	2 (NB @ 11') (SB @ 11')	1 (Combined Lane Width @ 15')
Centerline	Solid Yellow Double	None
On-Street Parking	None	None
Bicycle Facilities	None	5' Advisory Bike Lanes
Shoulders	2 @ 1' 6"	None

Existing (Facing North)



High School Road Today

Proposed (Facing North)



HIGH SCHOOL ROAD EXTENSION

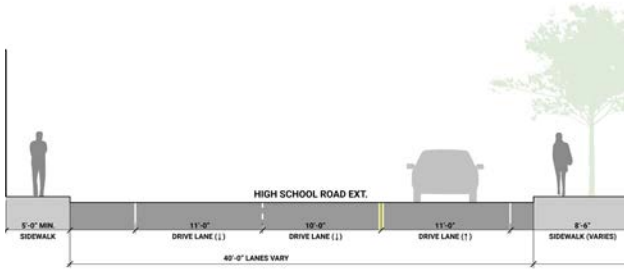
Summary

EXISTING- High School Road Extension is a two-way street with three oversized travel lanes and shoulders. The street has a centerline, lane marking, and no bicycle facilities.

PROPOSED- The revised design removes a travel lane and narrows them to the 10-foot standard, removes the centerline and shoulders, and inserts on-street parking and a two-way bike facility on the east flank.

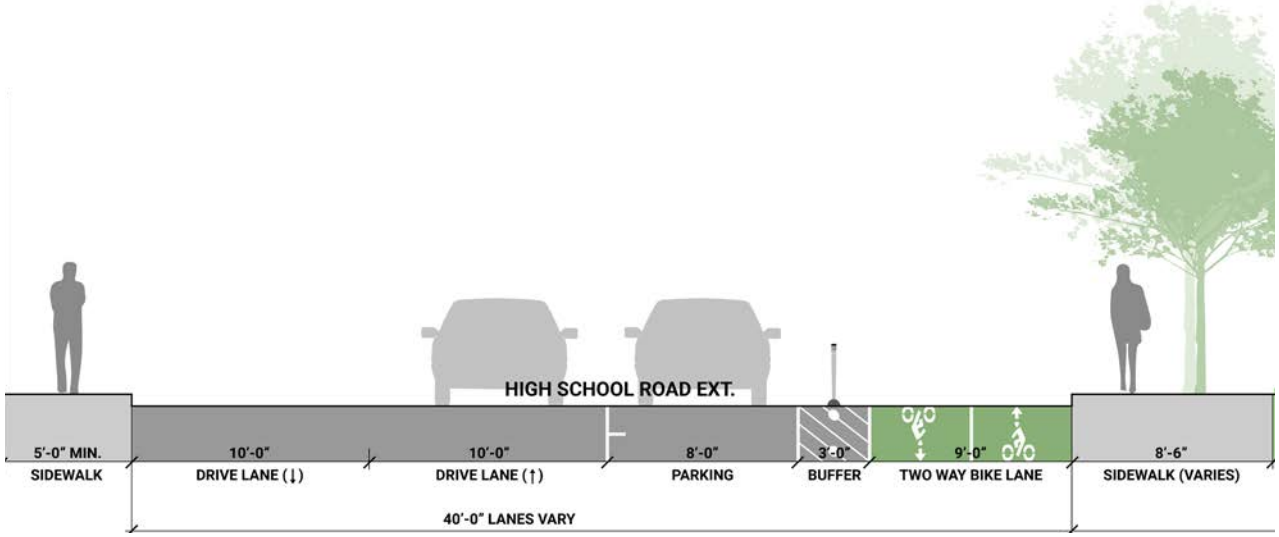
Characteristics	Existing	Proposed
Travel Lanes	3 (NB @ 11') (NB @ 10') (SB @ 11')	2 (NB @ 10') (SB @ 10')
Centerline	Solid Yellow, White Dashed	None
On-Street Parking	None	8' east flank
Bicycle Facilities	None	9' two-way cycletrack with 3' buffer
Shoulders	2 @ 4'	None

Existing (Facing North)



High School Road Extension Today

Proposed (Facing North)



OCEAN STREET

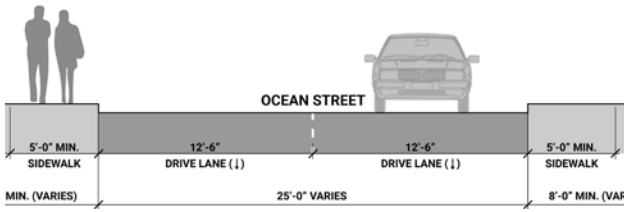
Summary

EXISTING- Ocean Street is a one-way, southbound street with two oversized travel lanes. The street has a centerline and no bicycle facilities.

PROPOSED- The revised design turns Ocean Street into a two-way street, narrows travel lanes to the 10-foot standard, removes the centerline, and inserts a bike lane on the west flank.

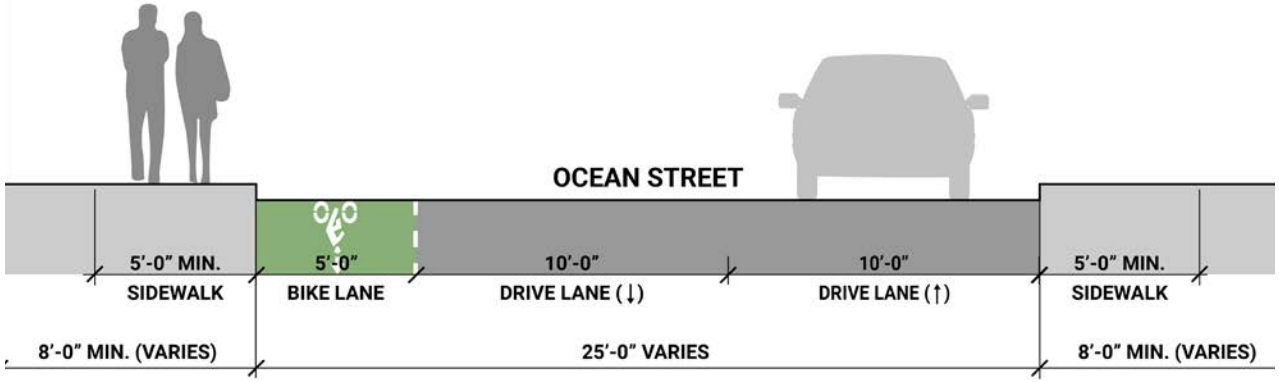
Characteristics	Existing	Proposed
Travel Lanes	2 (NB: None) (SB @ 12' 6")	2 (NB @ 10') (SB @ 10')
Centerline	White Dashed	None
On-Street Parking	None	None
Bicycle Facilities	None	5' Bike Lane
Shoulders	None	None

Existing (Facing North)



Ocean Street Today

Proposed (Facing North)



SEA STREET EXTENSION

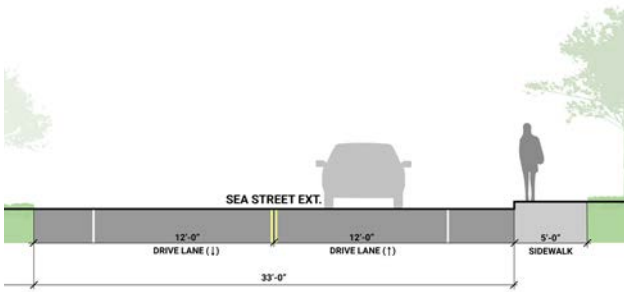
Summary

EXISTING- Sea Street Extension is a two-way street with two oversized travel lanes and shoulders. The street has a centerline and no bicycle facilities. The west side of the street is missing a sidewalk.

PROPOSED- The revised design narrows travel lanes to the 10-foot standard, removes the centerline and shoulders, and inserts a two-way bike facility on the east flank.

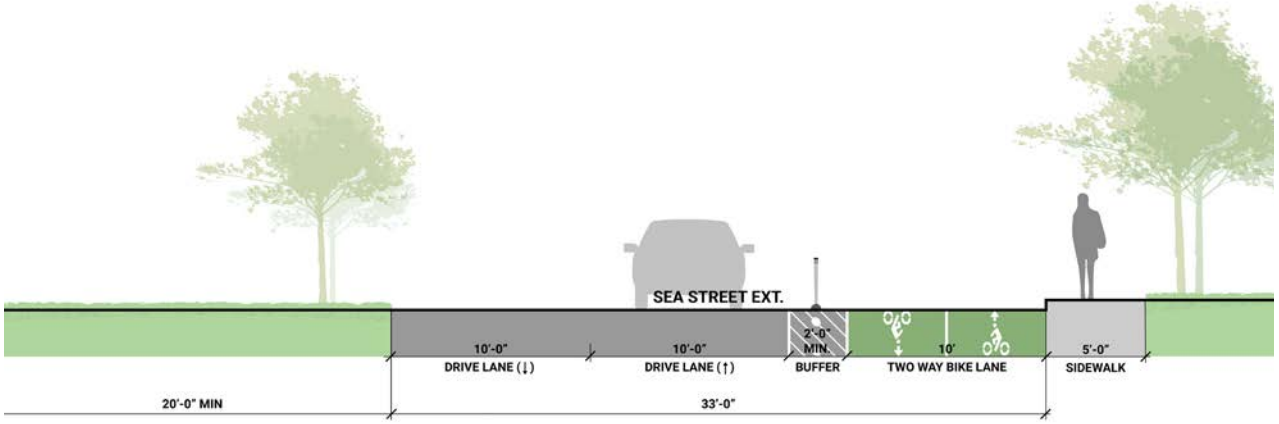
Characteristics	Existing	Proposed
Travel Lanes	2 (NB @ 12') (SB @ 12')	2 (NB @ 10') (SB @ 10')
Centerline	Solid Yellow Double	None
On-Street Parking	None	None
Bicycle Facilities	None	10' two-way cycletrack with 2' buffer
Shoulders	2 @ 4' 6"	None

Existing (Facing North)



Sea Street Extension Today

Proposed (Facing North)



STEVENS STREET

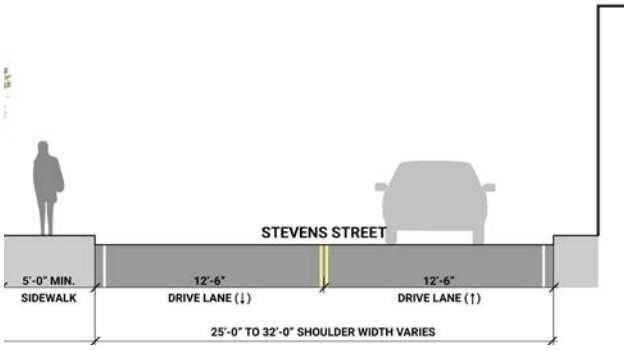
Summary

EXISTING- Stevens Street is a two-way street with two oversized travel lanes and shoulders. The street has a centerline and no bicycle facilities. The east side of the street is missing a sidewalk.

PROPOSED- The revised design narrows travel lanes to the 10-foot standard, removes the centerline, and widens both shoulders.

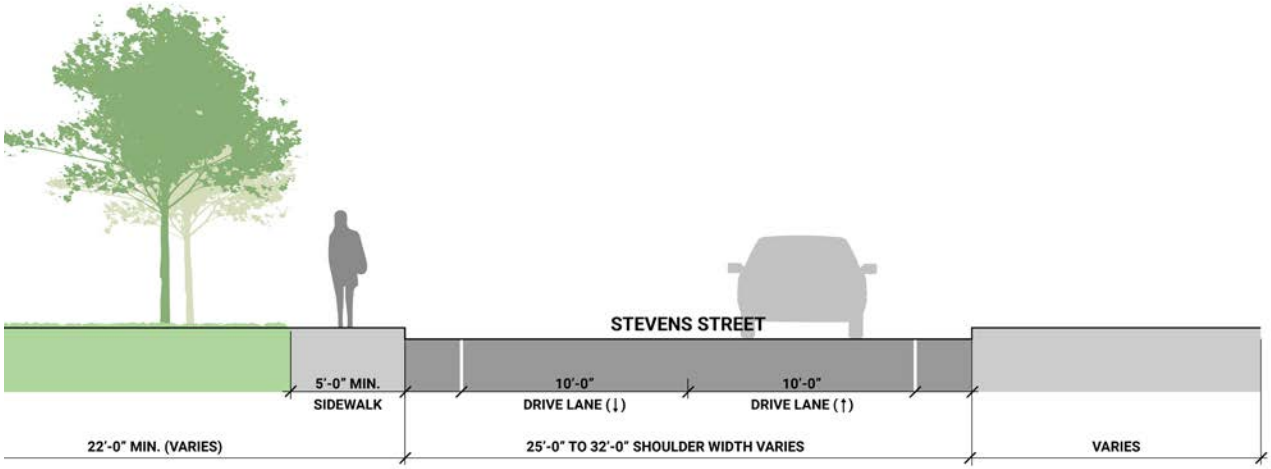
Characteristics	Existing	Proposed
Travel Lanes	2 (NB @ 12' 6") (SB @ 12' 6")	2 (NB @ 10') (SB @ 10')
Centerline	Solid Yellow Double	None
On-Street Parking	None	None
Bicycle Facilities	None	None
Shoulders	2 @ 1' 9"	2 @ 4' 3"

Existing (Facing North)



Stevens Street Today

Proposed (Facing North)



NORTH STREET

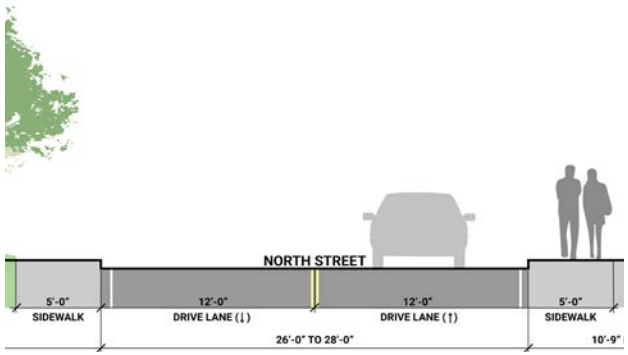
Summary

EXISTING- North Street is a two-way street with two oversized travel lanes and shoulders. The street has a centerline and no bicycle facilities.

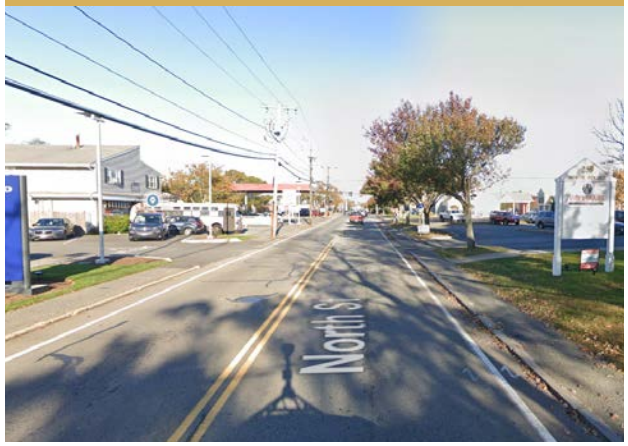
PROPOSED- The revised design narrows travel lanes to the 10-foot standard, removes the centerline and shoulders, and inserts a westbound bike facility on the north flank.

Characteristics	Existing	Proposed
Travel Lanes	2 (EB @ 12') (WB @ 12')	2 (EB @ 10') (WB @ 10')
Centerline	Solid Yellow Double	None
On-Street Parking	None	None
Bicycle Facilities	None	4′-5′ bike lane with 2′ buffer
Shoulders	2 @ 1' 6"	None

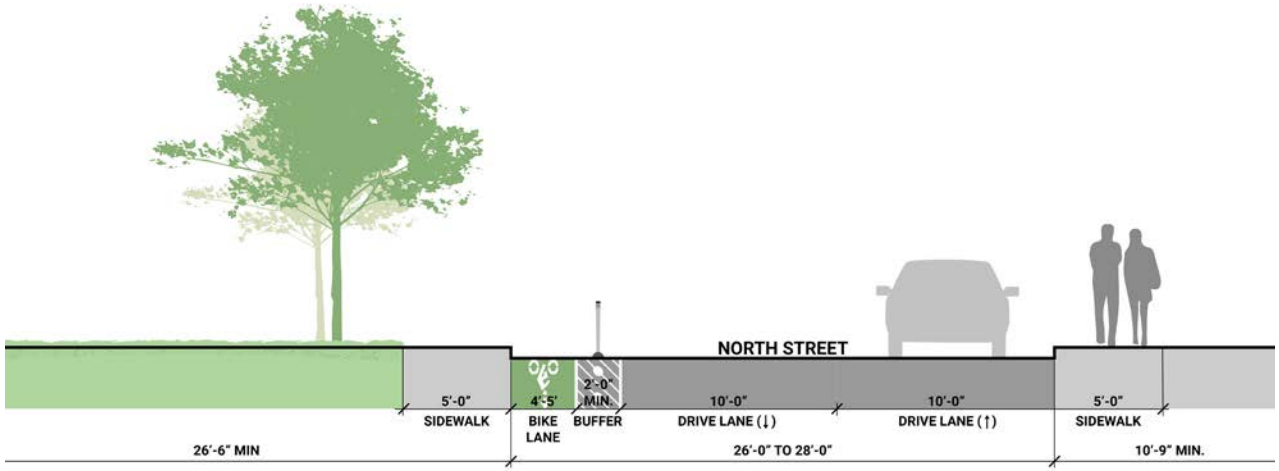
Existing (Facing East)



North Street Today



Proposed (Facing East)



BASSETT LANE

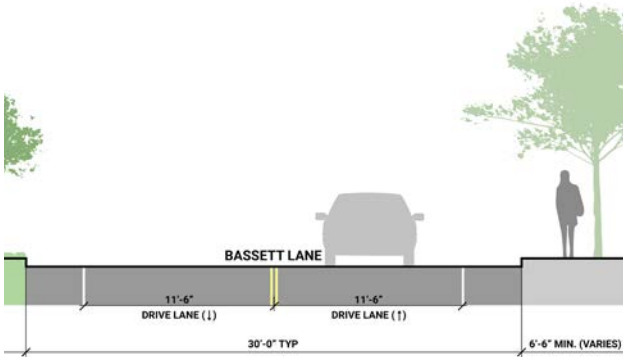
Summary

EXISTING- Bassett Lane is a two-way street with two oversized travel lanes and shoulders. The street has a centerline and no bicycle facilities. The west side of the street is missing a sidewalk.

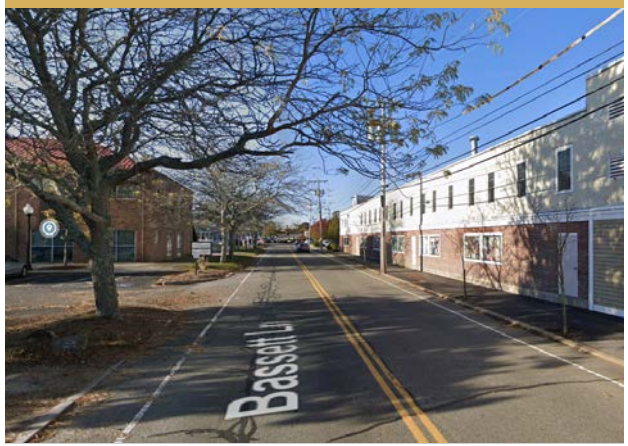
PROPOSED- The revised design narrows travel lanes to the 10-foot standard, removes the centerline and shoulders, inserts on-street parking on the east flank south of North Street, and a two-way cycletrack north of North Street.

Characteristics	Existing	Proposed
Travel Lanes	2 (NB @ 11' 6") (SB @ 11' 6")	2 (NB @ 10') (SB @ 10')
Centerline	Solid Yellow Double	None
On-Street Parking	None	10' east flank south of North St
Bicycle Facilities	None	8' two-way cycletrack with 2' buffer north of North St
Shoulders	2 @ 4' 6"	None

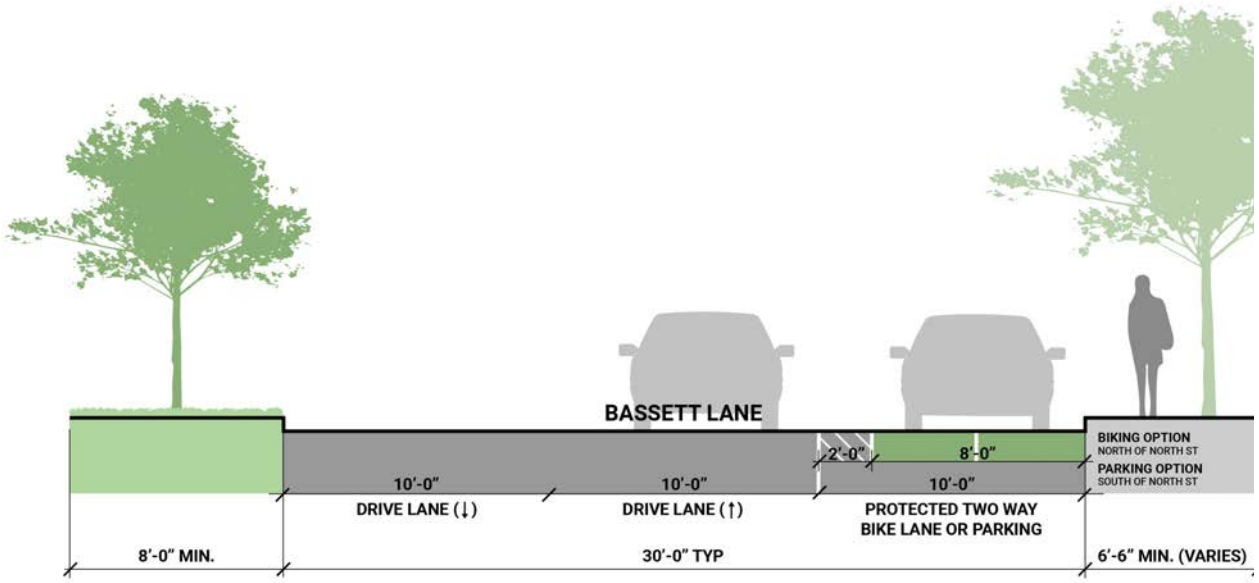
Existing (Facing North)



Bassett Lane Today



Proposed (Facing North)



WINTER STREET

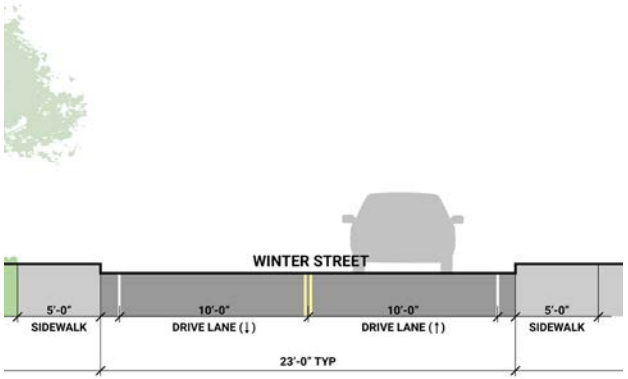
Summary

EXISTING- Winter Street is a two-way street with two travel lanes and shoulders. The street has a centerline and no bicycle facilities.

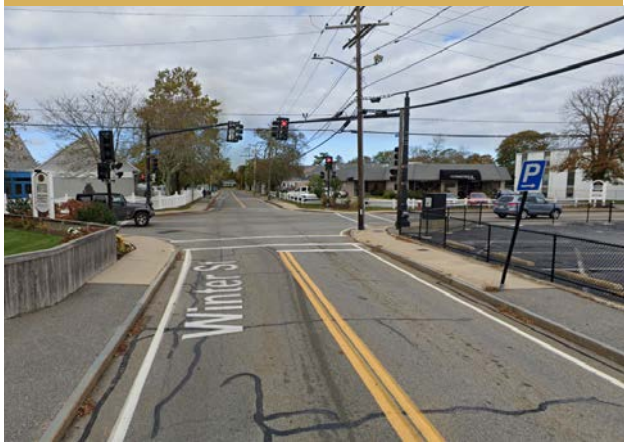
PROPOSED- The revised design removes the centerline.

Characteristics	Existing	Proposed
Travel Lanes	2 (NB @ 10') (SB @ 10')	2 (NB @ 10') (SB @ 10')
Centerline	Solid Yellow Double	None
On-Street Parking	None	None
Bicycle Facilities	None	None
Shoulders	2 @ 1' 6"	2 @ 1' 6"

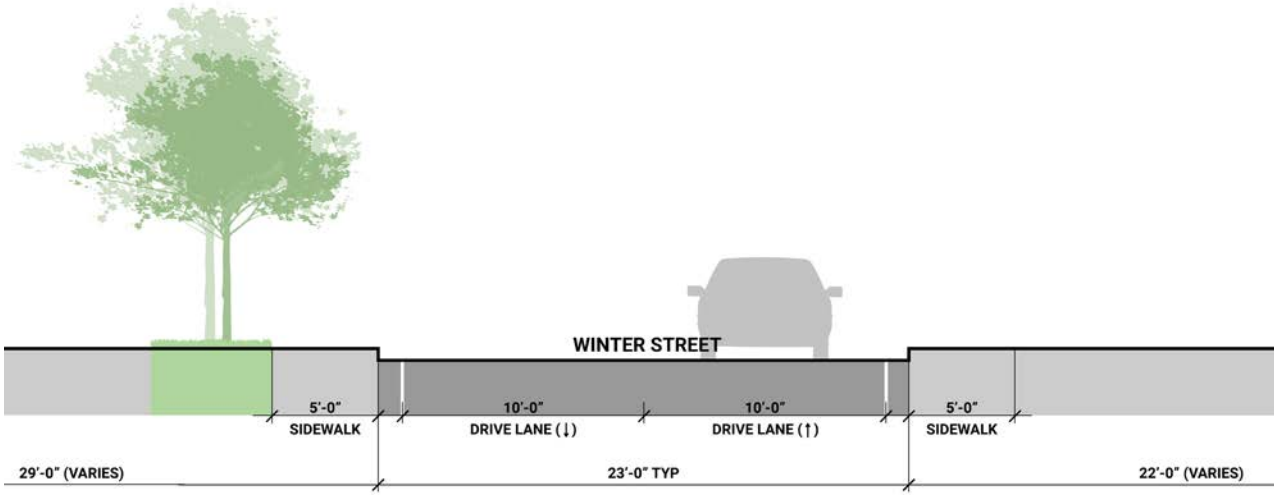
Existing (Facing North)



Winter Street Today



Proposed (Facing North)



CENTER STREET

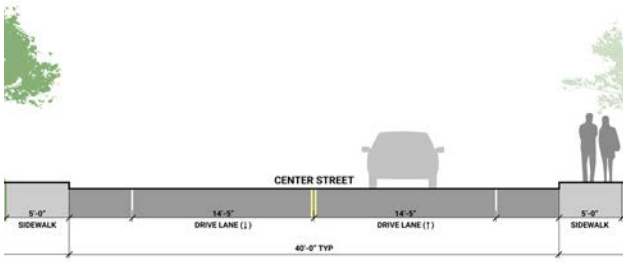
Summary

EXISTING- Center Street is a two-way street with two oversized travel lanes and shoulders. The street has a centerline and no bicycle facilities.

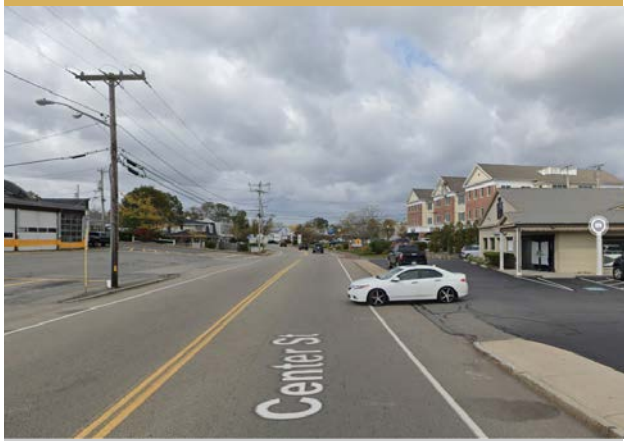
PROPOSED- The revised design narrows travel lanes to the 10-foot standard, removes the centerline and shoulders, inserts on-street parking and a two-way bike facility on the west flank.

Characteristics	Existing	Proposed
Travel Lanes	2 (NB @ 14' 5") (SB @ 14' 5")	2 (NB @ 10') (SB @ 10')
Centerline	Solid Yellow Double	None
On-Street Parking	None	8'
Bicycle Facilities	None	10' two-way cycletrack with 2' buffer
Shoulders	2 @ 5' 7"	None

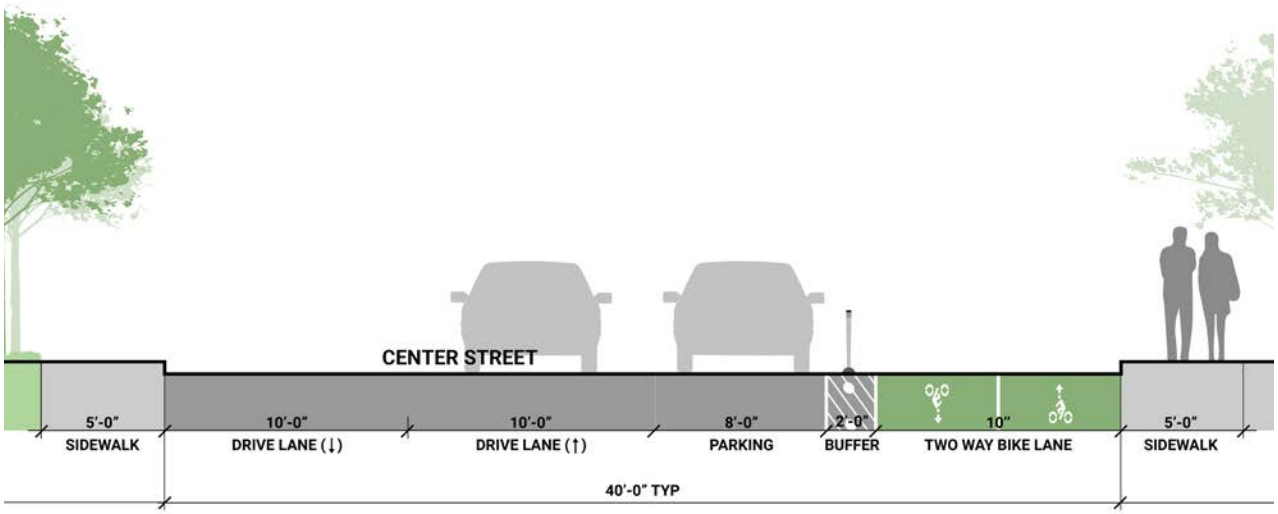
Existing (Facing North)



Center Street Today



Proposed (Facing North)




GUINNESS

4 Implementation

- Other Supplementary Recommendations
- Timeline/Funding Sources

This final section includes additional strategies that are complimentary to the core strategies in this document. It also includes an overview of phasing for these changes, together with resources to support implementation.

Supplementary Recommendations

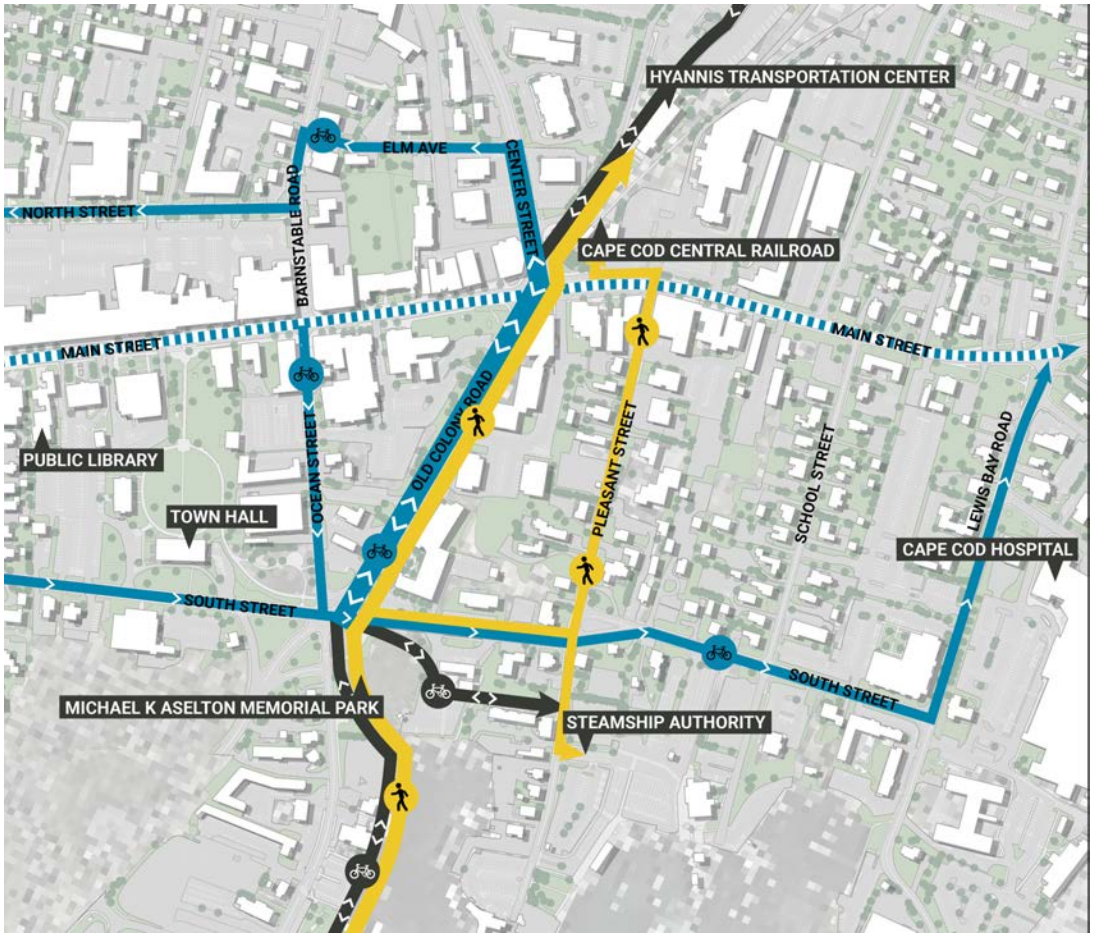
Through the course of the Workshop Week, the community, Town Staff, and consultant team developed additional strategies to support the core goals of this plan. These are presented here for consideration as the Town moves forward.

WALKING CONNECTION FROM TRANSPORTATION CENTER TO FERRY ROUTES

Between trains and relatively frequent buses from Boston to the Transportation Center, many visitors arrive in Hyannis without cars. These people should be presented with an attractive way to get to the ferries without adding vehicles to Barnstable's streets.

A relatively pleasant walk exists between the Center and these terminals, but is not currently signed (Figure 38). The route to the Steamship goes through Aselton Memorial park and Pleasant Street park. The route to Hy-Line also uses the park and then a walk along the harbor. By adding quality wayfinding and signage and potentially coordinating disseminating this information with the various transportation authorities, the Town can better establish this connection.

Figure 38 Walking Route to Ferry Terminals



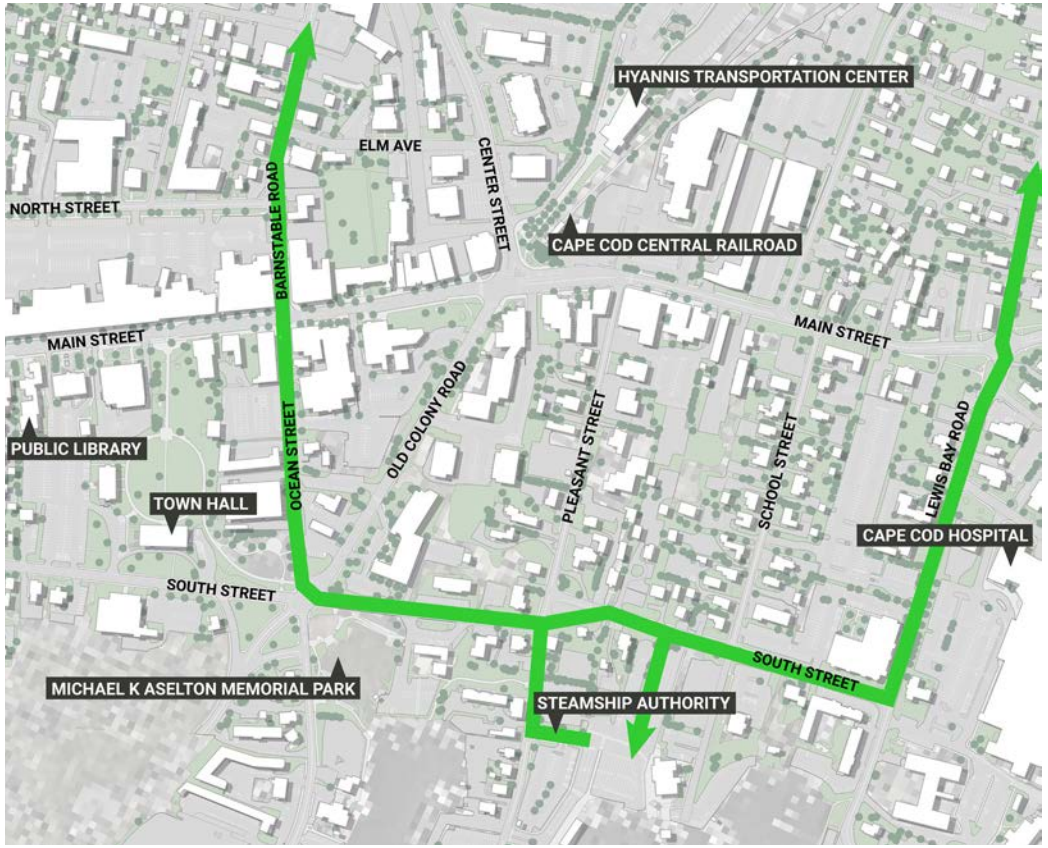
TRUCK ROUTE TO FERRY

Trucks need access to the ferry terminals to bring supplies to the islands. Today, their large presence on small roads like Pleasant Street can be disruptive.

However, in a two-way system, trucks have better options. Drivers can use Lewis Bay Road to South Street to get to the Steamship Authority Terminal. Conversely, trucks can also turn left from the Steamship Authority Terminal onto South Street and use Ocean Street to get back up to Route 28.

The Town can use signage to encourage trucks to use these routes. It may be wise to arrange a roundtable to discuss this issue with large operators.

Figure 39 Truck Route from Ferry Terminals



Timeline and Funding

Below is an outline of phasing for the Great Streets project. Not included, but essential, will be continued coordination with stakeholder groups such as emergency services, local merchants, Town historic districts, Main Street Hyannis, etc.

Short-Term

1. Two-Way to One-Way
- All changes in paint
- Requires #2, below
- Includes restriping and curb adjustment at Western Gateway

2. Convert Signals to Stop Signs
- In short-term, can cover signals to eventually remove

3. Implement Loading Zones
- Restriping streets will result in a net addition of parking

4. Stripe Bicycle Facilities
- Deploy armadillos/stanchions for vertical separation April-November

5. Pilot Curb Extensions
- Temporary materials include paint and bollards

6. Six Points Short-Term Solution
- Implement quick-build roundabout

7. Crosswalk Improvements
- Restripe crosswalks to bold "ladder style," 10-foot-wide crossings

Potential Funding Sources:

- MassDOT Shared Streets & Spaces (if another round becomes available)
- MassDOT Complete Streets Funding Program
- Community One Stop (Massachusetts)

Medium-Term

Add Bicycle Parking
- Consider seasonal addition of 'bicycle corrals' in on-street parking spaces

Western Gateway Rebuild
- Move curb and create plaza

Implement Pleasant/South Design
- Move curb to close off slip lane

Begin Six Points Redesign Process
- Select preferred alternative
- Full engineering and construction documentation

North Lot Upgrades
- Restripe lot and add plantings to increase capacity

Potential Funding Sources:

- MassDOT Shared Streets & Spaces (if another round becomes available, for bicycle parking in particular)
- Community Connections Funding Program (for bicycle parking)
- MassDOT Complete Streets Funding Program
- Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (for Six Points planning)
- Massachusetts Transportation Improvement Program (TIP)

Long-Term

Main Street Curb Extensions/Changes
- Move curbs at intersections to create more space for people

Six Points Redesign
- Reconstruct Six Points to preferred alternative

Potential Funding Sources:

- Reconnecting Communities Grant (Federal)
- Community One Stop (Massachusetts)
- Pilot Program for Transit-Oriented Development (TOD) Planning (Federal, for Six Points)
- Port Infrastructure Development Grants (Federal, for Six Points)
- Massachusetts Transportation Improvement Program (TIP)

Stantec

SPECK & ASSOCIATES LLC