FINAL REPORT

TOWN OF STURBRIDGE
COMMERCIAL TOURIST DISTRICT
IMPROVEMENT PLAN

SUBMITTED APRIL 2, 2014

PARE CORPORATION

ACKNOWLEDGEMENT

Commercial Tourist District Improvement Plan

The Town of Sturbridge would like to thank the following individuals who played a significant role in preparing the conceptual design for the Commercial Tourist District Improvement Plan. They contributed in many ways by attending numerous coordination meetings and providing feedback and guidance throughout this important stage of the project.

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INTRODUCTION

Project Purpose

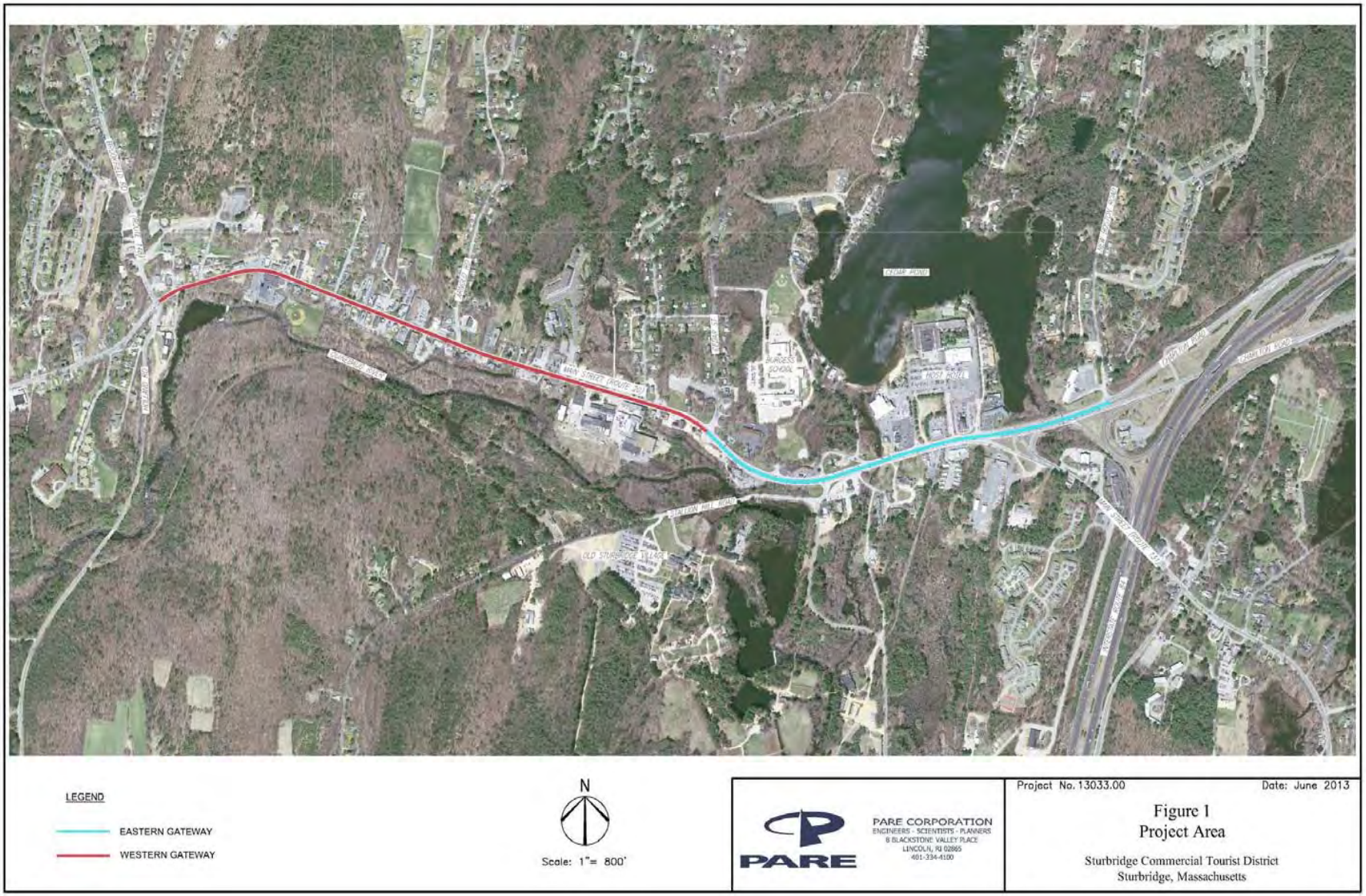
The Town of Sturbridge has embarked on a design project within the heavily visited Commercial Tourist District (CTD) along Main Street (Route 20). The project focusses on creating conceptual design plans for an improved Main Street (Route 20) corridor that will take into consideration the Town's Master Plan, the Commercial Tourist District Revitalization Study, the Sturbridge Reconnaissance Report for the Blackstone Valley/Quinebaug-Shetucket Landscape Inventory, and the Recreation Trails Master Plan. The purpose of the Project is to:

- Improve livability in the corridor by creating a more pedestrian and bicycle friendly area;
- Provide more transportation options including transit;
- Create connections to the Quinebaug River from the District;
- Enhance the attractiveness of the corridor; and
- Encourage economic growth and stability within the corridor.

This project has developed conceptual design plans to be used for obtaining future design and construction funding.

Project Area

The project limits defining the Sturbridge CTD included the Main Street (Route 20) corridor from New Boston Road to Brookfield Road (Route 148). However, after analysis and studying for improvements and due to restrictions with existing conditions, the project limits for our work were revised to extend from Brookfield Road (Route 148) to just east of the Route 20 intersection with Route 131. This corridor consists of two distinct sections referred to as the Eastern Gateway and Western Gateway. Land use through the CTD consists of a variety of commercial and business establishments including hotels, restaurants, professional offices, and retail. Old Sturbridge Village, the largest tourist attraction in the CTD is located just south of Main Street (Route 20) at Stallion Hill Road. The Quinebaug River is located south of the CTD and runs parallel to Main Street (Route 20). A map of the project area is located in Figure 1.


LEGEND
EASTERN GATEWAY
WESTERN GATEWAY
N
Scale: 1"= 800'
PARE
PARE CORPORATION
ENGINEERS · SCIENTISTS · PLANNERS
8 BLACKSTONE VALLEY PLACE
LINCOLN, RI 02865
401-334-4100
Project No. 13033.00
Date: June 2013
Figure 1
Project Area
Sturbridge Commercial Tourist District
Sturbridge, Massachusetts

Previous Studies

Several previous studies were completed for the corridor for which the design of this project was developed from. A brief explanation of each of these studies is found below.

Town of Sturbridge 2011 Master Plan

The Town of Sturbridge 2011 Master Plan recommended a number of improvements along the Route 20 corridor due to safety concerns at several intersections including New Boston Road, Route 131, Stallion Hill Road, Cedar Street, and Arnold Road.

The Master Plan included a recommendation for the reduction of sign clutter on Route 20 between Stallion Hill Road and Route 131 through modifications to the Sturbridge Zoning Bylaws and by eliminating unnecessary street signs and by developing a wayfinding program. The Plan also recommended improvements to pedestrian facilities throughout the corridor, including the addition of sidewalks in the Western Gateway and bringing the entire District in compliance with ADA standards.

Additionally, the Plan refers to the limited off-street and lack of on-street and municipal parking throughout the CTD. The Plan also mentions that many of the existing private parking lots do not have defined curb cuts, creating hazards for both pedestrians and vehicles.

Commercial Tourist District Revitalization Study

The Commercial Tourist District Revitalization Study provides a number of recommendations for improvements throughout the corridor. The Study identifies the following improvements: a traffic signal at Arnold Road as both a vehicular and pedestrian safety improvement; the reduction of travel lane width along the corridor through either the addition of on-street parking, provision of a center turning lane, or the addition of a landscaped median; installing turn lanes at several locations to help mitigate potential crash situations; introduction of vegetation and street trees incorporated into the streetscape; development of wider, continuous sidewalks on both sides of the street to create a pedestrian-oriented CTD; replacement of overhead utilities with underground services; decorative lighting to contribute to the desired CTD atmosphere; introducing a sign and façade program to complement the streetscape initiative by streamlining

signage through the corridor; and integration of the Quinebaug River with the CTD to provide recreational opportunities for residents and tourists alike.

Sturbridge Reconnaissance Report for the Blackstone Valley/Quinebaug-Shetucket Landscape Inventory

Several landscapes within the CTD are covered in the Study including the Quinebaug River, the Fiskdale Mill and Blackington Building, and Old Sturbridge Village. The Study recommends that the purchase, recreational development and conservation of the River Lands be explored. Additionally, it is recommended to work with Fiskdale business owners along the River to explore possibilities for public areas where footpaths already exist.

Project Vision

The goal of this project is the development of conceptual design plans for the CTD. These conceptual design plans will be used to obtain design and construction funding through a variety of funding opportunities. The conceptual designs were prepared with the following vision:

- Create a pedestrian friendly environment.
- Establish a CTD that caters to tourists and local residents alike.
- Offer a variety of shopping opportunities, restaurants, and inns, as well as establishments offering family entertainment during the day & night throughout the CTD.
- Provide adequate parking within short walking distances to these facilities.
- Protect and take advantage of the Quinebaug River.

Community Meeting One was held on May 8, 2013 to introduce the project and receive public input and visioning for the CTD. Participating members of the community were divided into groups of 5-6 people who presented their thoughts on needs, opportunities, and concepts for the Main Street (Route 20) corridor. The more significant results of Community Meeting One are divided into categories and summarized below. The following is a summary of key themes that emerged at the community meeting.

Quinebaug River Access

Participants stressed a desire to access and view the river from the Commercial Tourist district. This included the potential for additional riverfront trails, parks, canoe/kayak access and links between Main Street (Route 20) and the River. Several groups identified preferred locations for River access, including the Millyard Marketplace and Turner Field. Other groups added that connections behind Admiral T.J. O'Brien's, the American Legion, Sturbridge Coffee House, and Old Sturbridge Village would also be desirable.

***Community Meeting One**: Approximately 40 members of the Community shared their thoughts and visions for the CTD at Community Meeting One.*

Walkability

Discussion throughout the meeting continually focused on creating a more walkable, pedestrian friendly environment throughout the CTD. Groups stressed the importance of closing gaps in the existing sidewalks in the Western Gateway. Several groups mentioned that utility poles located within the middle of the sidewalk on the northern side of Main Street create an unfriendly pedestrian experience and suggested relocating the utilities underground. The addition of sidewalks

between New Boston Road and the intersection of Main Street and Route 131 was also mentioned. Several groups stressed pedestrian safety concerns when crossing Main Street, requesting consideration of the installation of additional painted crosswalks and raised crosswalks on Main Street. Crosswalks with textured pavement and sidewalk bump outs to shorten the pedestrian crossing distance and slow vehicles were mentioned as additional improvement options. The desire for crosswalks at Friendly's and the Host Hotel was also expressed by multiple groups.

Traffic Safety Concerns/Traffic Calming

Several traffic safety concerns at various areas throughout the corridor were discussed. Excess vehicle speed was a major area of concern. Many felt as though vehicle speeds contributed to dangerous pedestrian crossing situations and created a hazardous atmosphere for vehicles pulling out onto Main Street. Several traffic calming measures were mentioned as methods to potentially reduce vehicles speeds including roundabouts, street-side landscaping, raised crosswalks, and sidewalk bump outs. Several intersections and business driveways were identified as areas with safety concerns, including New Boston Road, Arnold Street, Cedar Street, the Post Office and Dunkin Donuts.

***Community Meeting One**: Participants used corridor maps to identify improvement opportunities throughout the CTD.*

Parking

Several options for parking within the CTD were discussed. Groups mentioned creating shared parking lots for multiple businesses. There was a general desire to place the shared parking lots behind existing buildings. Additionally, there was some interest in providing street parking for a number of reasons, including ease of business access, reduction of vehicle speeds, and creation of a more "downtown" atmosphere. The Senior Center, Millyard Marketplace, Admiral T.J. O'Brien's, and Old Sturbridge Village were identified as potential locations for shared parking for business and waterfront access.

District Environment / Atmosphere

A general consensus among the meeting participants was that the CTD should be well defined. Participants suggested the installation of some type of attribute that would define the Gateways as well as establishing continuity through the corridor by the use of thematic design features. Several groups stated the importance of maintaining a theme consistent with the rich history of the CTD and the Town of Sturbridge.

Landscaping

Several specific areas were suggested for landscaping improvements, many of which focused on the Eastern Gateway. Landscaping the center median in the Eastern Gateway was identified by many groups as a favorable option. The desire for landscaping improvements in front of the existing MassDOT maintenance facility was noted, as this location is immediately visible upon entering the Town. The relocation of overhead utility wires underground was highlighted by many participants as a favorable improvement. Additionally, the installation of decorative, historic style lighting was mentioned as an option throughout the corridor.

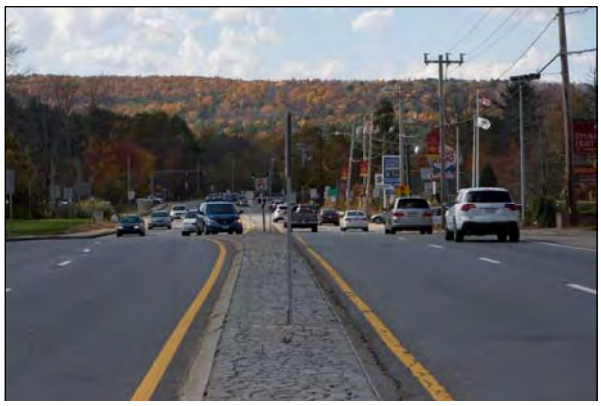
MAIN STREET (ROUTE 20) CORRIDOR

The project limits extend on the Main Street (Route 20) corridor from New Boston Road to Brookfield Road (Route 148). Main Street (Route 20) is classified as an *Urban Principal Arterial* and has a posted speed limit of 35 miles per hour. Main Street (Route 20) is the principal east/west route through the Town of Sturbridge and is owned and maintained by MassDOT. The average daily traffic (ADT) through the corridor is approximately 18,000 vehicles per day. The peak traffic period throughout the day generally occurs between 4:00 p.m. and 6:00 p.m. Traffic volumes also fluctuate throughout the year as the area sees a significant amount of tourism related traffic during the summer months. Several regional events, including the Brimfield Flea Market, also significantly increase traffic volumes along the corridor at various times of the year.

Eastern Gateway

The Eastern Gateway refers to the portion of Main Street (Route 20) from New Boston Road to Cedar Street. Several hotels, chain restaurants and a large liquor store are located along this section of Route 20. Also included in the Eastern Gateway is the entrance to Old Sturbridge Village, the major tourist destination along the corridor.

***Eastern Gateway**: The heavy traffic volumes and width of Route 20 present challenges for crossing pedestrians.*



***Eastern Gateway**: The existing center median presents opportunities for landscaping improvements.*

The roadway generally consists of four lanes (two lanes in each direction) with turning lanes at significant intersections. A raised concrete center median, approximately 6 feet wide, divides eastbound and westbound traffic. Sidewalks are located on both sides of the street from Route 131 to Cedar Street.

The existing cross-section of the Eastern Gateway is depicted in Figure 2.

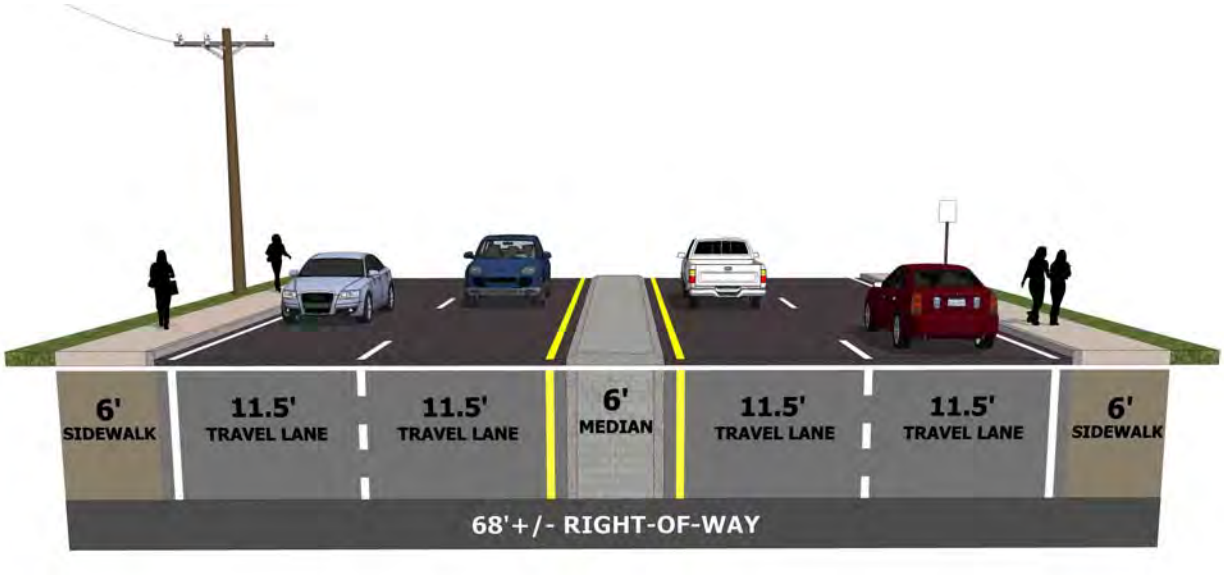


Figure 2: Eastern Gateway- Typical Cross Section

Western Gateway

The Western Gateway refers to the portion of Main Street (Route 20) from Cedar Street to Brookfield Street (Route 148). Land use along the Western Gateway includes a mixture of retail, professional offices, restaurants, and residential uses. The retail businesses along the corridor provide unique shopping experiences for residents and tourists including antique shops and various boutiques.

***Western Gateway**: Wide shoulders along the Western Gateway present opportunities for on-street parking, bike lanes, and expanded sidewalks.*

***Western Gateway**: A variety of businesses line Main Street (Route 20) through the Western Gateway.*

Throughout the Western Gateway, Main Street (Route 20) is a two-lane roadway (one lane in each direction). Shoulders, approximately 6-feet wide, are located along each side of the roadway. Sidewalks are located along the north side of Main Street (Route 20) throughout the entire Western Gateway. On the south side of Main Street, sidewalks are located on approximately one third of the segment. The typical existing cross-section of the Western Gateway is shown in Figure 3 below.

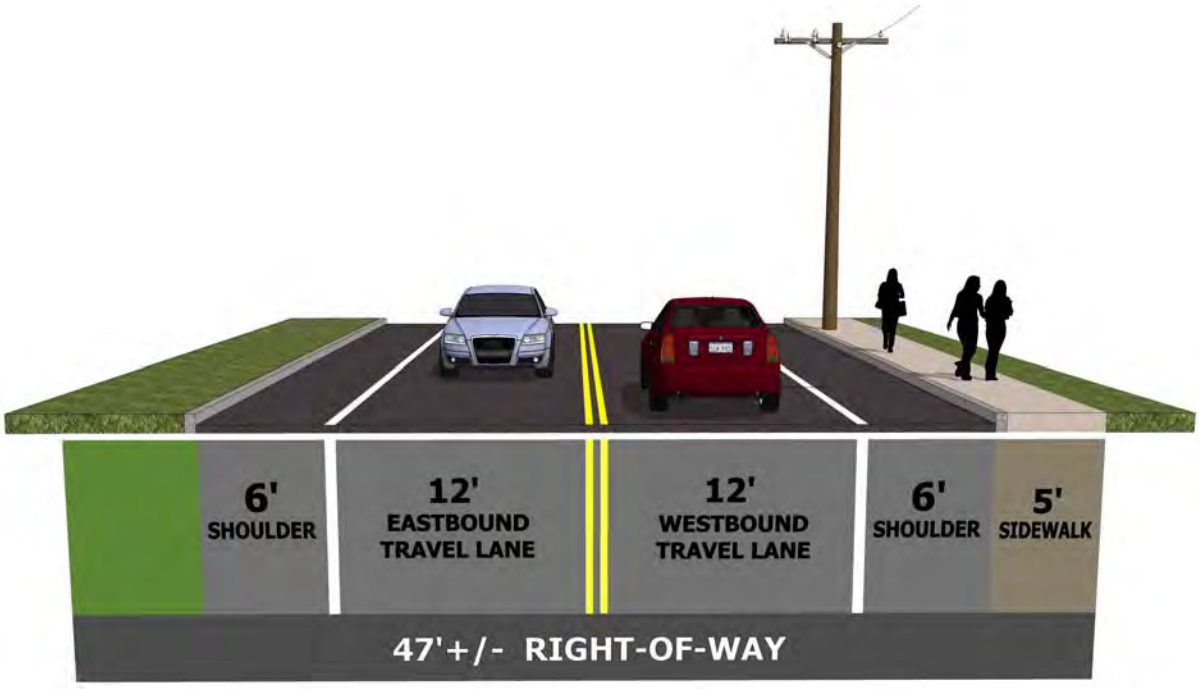


Figure 3: Western Gateway- Typical Cross Section

Major Intersections

The following intersections have been identified as the major intersections along the CTD corridor:

Signalized Intersections:

1. Main Street (Route 20), Main Street (Route 131), & Fairground Road
2. Main Street (Route 20) & Stallion Hill Road
3. Main Street (Route 20) & Cedar Street
4. Main Street (Route 20), Brookfield Road (Route 148), & Holland Road

Unsignalized Intersections:

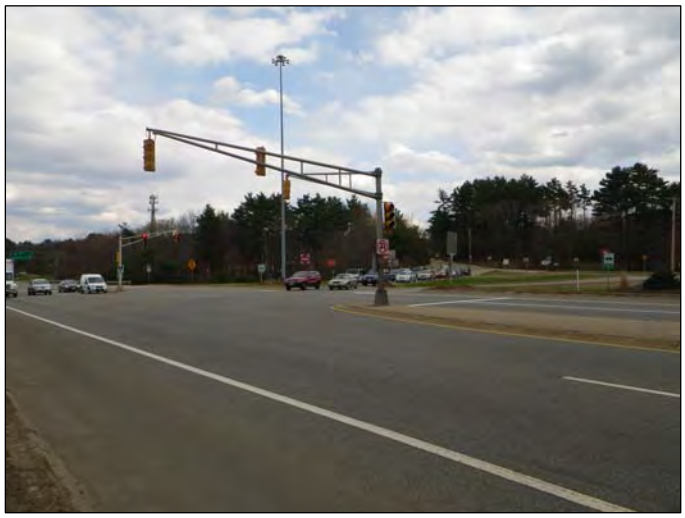
1. Route 20 & New Boston Road
2. Main Street (Route 20) & Arnold Road

Signalized Intersections

Main Street (Route 20), Route 131, & Fairground Road

The intersection of Route 20, Route 131, and Fairground Road forms a four-legged signalized intersection. Route 20 forms the east and west legs, Route 131 forms the southeastern leg, and Fairground Road forms the northern leg. Route 131 approaches the intersection from the southeast, creating a skewed intersection. The northbound approach from Route 131 and the southbound approach from Fairground Road are offset by approximately 350 feet, creating a wide intersection footprint. Route 131 is also served by a set of right-turn channelized lanes. Two sets of traffic signals, one at Fairground Road and one at Route 131, are used to control the intersection.

Fairground Road Intersecting Route 20: *Looking to the east.*



No pedestrian crosswalks or controls are provided at the intersection. Sidewalks are located along the southwestern corner of the intersections. The wide intersection design, coupled with the large radius of the Route 131 channelized lanes, create an auto-centric, unfriendly pedestrian environment at this intersection.

Route 131 Intersecting Route 20: *Looking to the southeast.*

Main Street (Route 20) & Stallion Hill Road

The intersection of Main Street (Route 20) and Stallion Hill Road forms a four-legged signalized intersection with Main Street (Route 20) forming the east and west legs of the intersection, Stallion Hill Road forming the south leg, and a jug-handle forming the north leg. The jug handle is located at the intersection to direct westbound traffic into Old Sturbridge Village and residences along Stallion Hill Road.

Stallion Hill Road & Main Street (Route 20): *Looking north.*

Old Sturbridge Village is located on Stallion Hill Road just south of the intersection and the Sturbridge Tourist Information building is located on the northeast corner of the intersection. Sidewalks are located at all corners of the intersection and crosswalks are located across the north, south, and west legs of the intersection. Pedestrian pushbuttons and signal heads are located across the west leg crosswalk, crossing Main Street (Route 20). No pedestrian pushbuttons or signal heads are provided for the north leg or south leg crossings.

Main Street (Route 20) & Cedar Street

The intersection of Main Street (Route 20) and Cedar Street forms a three legged, signalized intersection. Main Street (Route 20) forms the east and west legs of the intersection while Cedar Street forms the north leg. A jug handle is provided on the south side of the intersection to allow for westbound U-turns.

***Main Street (Route 20) & Cedar Street**: Looking to the west.*

***Main Street (Route 20) & Cedar Street**: A pocket park located on the northeast corner of the intersection.*

Sidewalks are located at each corner of the intersection. Pedestrian crosswalks and signals are located across the north leg and west leg of the intersection. Main Street (Route 20) transitions from two lanes to one lane just west of the intersection. Centennial Park is located on the northeast corner of the intersection.

Main Street (Route 20), Brookfield Road (Route 148), & Holland Road

The intersection of Main Street (Route 20), Brookfield Road (Route 148), and Holland Road forms a four-legged signalized intersection. Main Street (Route 20) forms the east and west legs of the intersection while Brookfield Road (Route 148) forms the north leg and Holland Road forms the south leg. This intersection establishes the western limit of the CTD.

Several businesses are located on the northeast corner of the intersection including Mass Motion Dance and Rovezzi's Restaurant. The Holland Mill, situated on the Quinebaug River, is located on the southeast corner of the intersection.

***Main Street (Route 20), Brookfield Road (Route 148) & Holland Road**: Looking to the east into the CTD.*

Sidewalks are located on the northeast and northwest corners of the intersection. No sidewalks are located on the southeastern or southwestern portions of the intersection as guardrail protects the Main Street (Route 20) from the steep embankment to the south. A marked crosswalk is located across the north leg of the intersection but is not accompanied by pushbuttons or pedestrian signals.

Unsignalized Intersections

Main Street (Route 20) & New Boston Road

The intersection of Route 20 and New Boston Road forms a three-legged unsignalized intersection. Route 20 forms the east and west legs of the intersection while New Boston Road forms the north leg. Route 20 transitions from a divided multilane arterial east of New Boston Road to the ramps for the I-84 interchange east of New Boston Road. This intersection forms the eastern limit of the CTD.

***Route 20 & New Boston Road**: Drivers have difficulty entering Route 20 safely from New Boston Road due to the long crossing width and vehicle speeds on Route 20.*

This intersection has been identified by local residents and in the Sturbridge Master Plan as an area of concern, as excessive speeds and heavy traffic volumes on Route 20 make turning movements from New Boston Road onto Route 20 challenging.

A mixed-use development including a hotel, restaurant, and bank, is proposed for the currently vacant parcel on the northwest corner of the intersection. The Massachusetts State Police Barracks is located on the south side of the intersection. There are no pedestrian accommodations at the intersection although a substantially worn desire path can be found along the northwest corner of the intersection.

Main Street (Route 20) & Arnold Road

The intersection of Main Street (Route 20) and Arnold Road forms a three-legged unsignalized intersection. Main Street (Route 20) forms the east and west legs of the intersection while Arnold Road forms the north leg. Arnold Road is stop-controlled while Main Street (Route 20) is uncontrolled. The southbound approach on Arnold Road is split into left and right turn lanes.

***Main Street (Route 20) & Arnold Road**: Vehicles typically have difficulty entering Main Street (Route 20) from Arnold Road during peak traffic periods.*

There are sidewalks across the north side of Main Street (Route 20) at Arnold Road, however no sidewalks are located along the southern portion. Crosswalks can be found across the north and east legs of the intersection. The crosswalk across the east leg leads into the business driveway on the south side of the intersection and is not ADA compliant.

Previous studies have referred to safety concerns at this intersection and have suggested signalization. Signalization of this intersection could improve safety at the intersection and could also create gaps in traffic along the remainder of Main Street (Route 20) to aide vehicles in exiting business driveways and side streets.

Pedestrian Facilities

Sidewalks

Sidewalks are located throughout the majority of the CTD. In the Eastern Gateway, sidewalks are located on both sides of the street from Main Street (Route 131) to Cedar Street. Sidewalk widths through the Eastern Gateway are typically 6 feet. A significant gap exists in pedestrian facilities within the Eastern Gateway, from Main Street (Route 131) to New Boston Road.

Eastern Gateway: *Desire paths along the north side of the eastern gateway show pedestrian use in the area without sidewalks.*

Along the Western Gateway, sidewalks are located throughout the segment on the north side of the Main Street (Route 20). Sidewalks along the north side of Main Street (Route 20) generally vary from 4-6 feet. At several side streets and driveways, sidewalk ramps lead right into catch basins. Utility poles run along the northern side of the Western Gateway, limiting the sidewalk clearance to 3 feet in some locations.

Western Gateway: *Utility poles in the middle of the sidewalk create difficult pedestrian travel.*

Sidewalks along the southern side of Main Street (Route 20) are sporadic. The most significant gap in sidewalk along the southern side stretches from The Yankee Pedlar to Arnold Street. A worn desire path is visible through the majority of grass areas along this section from continual pedestrian use.

Western Gateway: *Sidewalks are not provided through much of the southern side of the Western Gateway although pedestrians frequently travel through the area.*

Crosswalks

A total of eight crosswalks cross Main Street (Route 20) in the CTD. Of these eight crosswalks, two are located at signalized intersections, Stallion Hill Road and Cedar Street. The remaining crosswalks are midblock crosswalks within the Western Gateway. Many of these crosswalks are not ADA compliant as accessibility ramps and detectable warning pads are not installed. Additionally many of these crosswalks lead to areas without sidewalks.

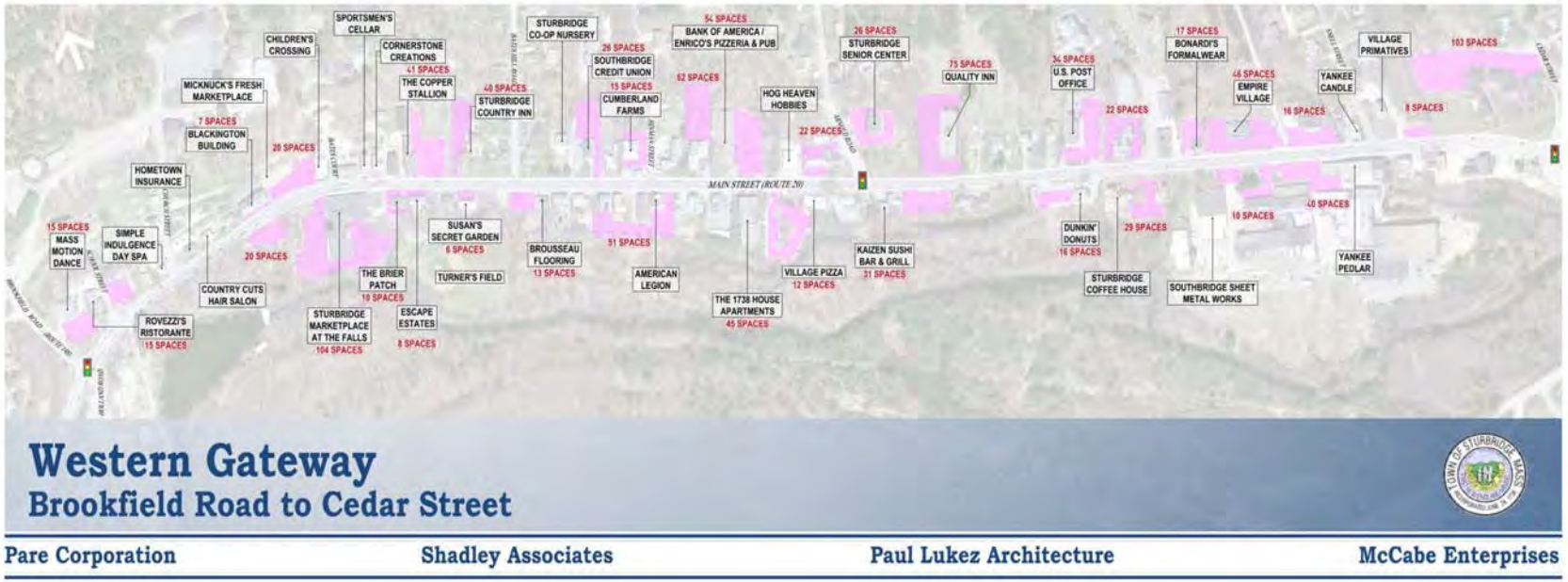
Western Gateway: *Crosswalks leading to locations with no sidewalk or accessible ramps.*

Parking

Parking along the corridor consists mostly of private business lots. No on-street parking is currently allowed along Main Street (Route 20) within the study area. Many businesses have parking lots located in front of their building while others have parking located on the side or behind their buildings. Parking in front of businesses generally creates wide curb cuts, affecting pedestrian safety. Some lots are over capacity while others are underutilized. In some situations, adjacent businesses may benefit from shared parking facilities. Transitioning parking to the rear of business lots will help create a pedestrian friendly environment within the CTD. There is potential for on-street parallel parking in the Western Gateway with the modification of the existing travel lane striping.

Parking: *Parking through the CTD is primarily restricted to private business lots. Introducing shared business parking lots and on-street parking are options for various areas along the corridor.*

A parking inventory has been completed for all major parking facilities within the CTD. Figures 4 and 5 show the location of each major parking lot and the number of the spaces in each lot. Larger parking facilities are concentrated in the Eastern Gateway while many smaller, single business lots are located within the Western Gateway.



Western Gateway
Brookfield Road to Cedar Street

Pare Corporation | Shadley Associates | Paul Lukez Architecture | McCabe Enterprises

Sturbridge Commercial Tourist District
Parking Inventory
Figure 4

Sturbridge Commercial Tourist District
Parking Inventory
Figure 5

Access (Curb Cut) Management

There are several properties on and adjacent to the Main Street (Route 20) corridor with multiple roadway access points. A reduction in access points has been shown to increase corridor safety and creates a more well-defined and continuous pedestrian environment. Additionally, some properties have poorly defined entry and exit points, adding to driver confusion and creating potentially dangerous situations for drivers and pedestrians alike. Other properties with street-side parking require vehicles to back out onto Main Street (Route 20). Given the traffic volumes and vehicle speeds along Main Street (Route 20), this is a potentially dangerous situation.

Access Management: *Some properties, such as the Briar Patch and the Blackington Building, have roadside parking requiring vehicles to back onto Main Street (Route 20), presenting dangerous situations for not only passing drivers, but pedestrians and bicyclists.*

Main Street (Route 20) Vehicle Speeds

A vehicular speed study was conducted on April 1, 2013 on Main Street (Route 20) in the vicinity of Arnold Street. Due to the proximity of signalized intersections, business driveways, turning lanes and their impact on free-flow vehicle speeds, a speed study was not conducted in the Eastern Gateway. These roadway features typically prevent vehicles from reaching free-flow speeds required for accurate speed studies. The posted speed limit in the Eastern Gateway is 35 miles per hour. The speed study in the Western Gateway consisted of collecting 40 vehicle speeds in both the eastbound and westbound direction. The results of the study are summarized in Table 1 below.

Table 1: Western Gateway Speed Study Results

Direction	Posted Speed Limit	Average Speed	Median Speed	85th Percentile Speed	10 MPH Pace Speed	Percent in Pace	Percent of Vehicles over 35 MPH
Eastbound	35	36	36	40	31-40	85	60
Westbound	35	34	34	36	29-38	98	30

The result of the speed study indicates that many vehicles are traveling over the posted speed limit of 35 miles per hour. Additionally, the overall speed of traffic along the corridor is higher than that which would be expected in a pedestrian friendly environment.

Coordination with Transportation Agencies

The project team has coordinated with the Massachusetts Department of Transportation on potential improvements to the corridor. Topics such as the feasibility of roundabouts, raised crosswalks, signalization of intersections, on-street parking, roadway maintenance, and curb extensions were discussed. Based on feedback from the Department, the design improvements for the corridor were developed.

Providing public transit to the corridor is also an improvement that should be considered. Sturbridge is a member of the Worcester Regional Transit Authority (WRTA) but currently has no fixed-route service in Town. Paratransit service is provided through South Central Mass Elderbus, Inc. and serves the elderly and disabled. The potential for introducing a seasonal shuttle service through the corridor has been discussed and should continue to be explored. The shuttle service could be used to transport tourists through the corridor between OSV, hotels, restaurants, and shops and other local destinations within other communities.

Street Trees

Main Street (Route 20) currently has few existing street trees within the CTD. Street trees are defined by trees being within or immediately adjacent to the public right-of-way. There are many trees near the street, and are typically located behind the back of the sidewalk on private property. Dominant species are primarily red maple, sugar maple, red oak, and pin oak as well as a number of ornamental species including crabapples, Japanese maple, and Japanese tree lilac. Since the current sidewalk is located immediately at the street edge in almost all sections of the District, this explains the lack of street trees on public property.

***489 Main Street**: Ornamental pear trees offer some shade from the afternoon sun.*

There are a few instances within the District where the existing sidewalk is located along the edge of the road and a second walkway is located away from the edge of the street, leaving landscaped spaces in between. The northeast corner of the intersection of Main Street and Brookfield Road (Route 148) is one such instance. Here, there is a wedge-shaped swath of lawn and a mix of deciduous trees at various stages of maturity including sugar and red maples, hybrid elm, ash, and ornamental pear. The northwest corner of the intersection of Main Street and Cedar Street presents a similar condition where there is a larger wedge-shaped swath of lawn with a mix of deciduous tree cover including maples, oaks, and London planetrees.

***Northeast Corner of Main Street (Route 20) and Brookfield Road (Route 148)**: Lawn and shade tree planting.*

It should be noted that the large elm tree, located on the south side of Main Street (Route 20) between the electrical utility property and Village Pizza, is a mature street tree with a trunk diameter of approximately three feet. There is no sidewalk in this area.

***Northwest Corner of Main Street (Route 20) and Cedar Street**: Large lawn area and shade tree planting.*

Along various stretches of Main Street (Route 20) there are sections of woodlands including both ends of the District. Additionally, the District has other pockets along the streetscape of naturalized vegetation such as the riparian habitat around the outfall stream from Cedar Pond at the eastern end of the CTD. The woodland at the southeast corner of the intersection of Main Street and Holland Road at the west end of the District contains a mix of deciduous and evergreen trees such as maple, poplar, locust, oak, and spruce as well as abundant understory plant material including honeysuckle. There is no sidewalk or pedestrian travel way along the woodland area at the corner of Holland Road. Instead, the street edge is secured with a metal guardrail and the property is enclosed with a chain link fence and barbed wire. At the eastern end of the District, where the entry and exit ramps for Interstate 84 are located, there is a thick young woodland including various species such as maple, oak, poplar, ash, and white pine as well as a thick understory. This area is fairly inaccessible to pedestrians as there is no sidewalk or any nearby destinations for pedestrians, although a worn desire path does exist. This woodland is adjacent to the southern end of Cedar Pond. Just east of 387 Main Street and Burgess School Road is a riparian environment surrounding the outflow of Cedar Pond into the Quinebaug River. Here, there is lower, mixed vegetation including birch, maple, sumac, and wetland grasses. The stream flows under Main Street with views from the road to the stream as well as Cedar Pond to the north.

***Clockwise**: Large elm tree on south side of Main Street between electrical utility property and Village Pizza; Woodland at the corner of Main Street and Holland Road; Riparian habitat surrounding the Cedar Pond outfall stream; Woodland near the I-84 ramps.*

Buffer Planting

Since the existing sidewalk along Main Street is primarily located immediately at the edge of the road, there are very few buffer areas separating pedestrians from the vehicular way. Where they do exist – on the north side of Main Street just east of School Street and the south side of Main Street adjacent to the Sturbridge Marketplace – they are merely small wedge-shaped lawns or thin lawn strips just a few feet wide.

***Northeast Corner of Main Street and School Street**: Lawn buffer strip between the road and sidewalk.*

***Sturbridge Marketplace**: Thin lawn buffer strip between the road and sidewalk.*

Although there are minimal buffer areas between the existing sidewalk and Main Street, there are buffer areas on the back side of the sidewalk where several parking areas are located. Some of these are planted with deciduous shade trees such as red maple and ash as well as ornamental trees such as crabapples and Japanese tree lilacs, and underplanted with shrubs, perennials, and groundcover. Others are completely devoid of vegetation and are simply mulched. These buffer areas are the primary source of shade for pedestrians traversing the sidewalks, with the exception of shade cover from trees located on private property just behind the sidewalk. In a few locations, there is no vegetative separation between the sidewalk and adjacent parking areas.

***Left to Right**: Buffer planting with Japanese tree lilacs, shrubs, and mulch in front of the Post Office; Buffer planting with low juniper groundcover; no buffer strip between the sidewalk and parking except for paint markings at Micknuck's Market.*

***Left to Right**: Lawn buffer with low stone retaining wall and dying maple; Sparse buffer with trees, shrubs, perennials, and mulch; wide lawn buffer with shade trees, stacked rail fence and benches in front of the Tourist Center*

In addition to planted buffers, wood barrels and occasional terra cotta pots planted with seasonal flowers are interspersed, albeit sparsely, throughout the District streetscape, particularly on public lands. These planters are seen at the northeast corner of the Main Street and Brookfield Road intersection, in front of the Senior Center, at Centennial Park, and in front of the Tourist Center at the corner of Burgess School Road. In front of Georges Plaza on the north side of Main Street in the eastern portion of the District are a few planted wood barrels that are in a state of disrepair.

***Left to Right**: Planted wood barrel with flowers at the corner of Main Street and Brookfield Road; Planted terra cotta pot with flowers in front of Centennial Park; Planted wood barrel in front of Georges Plaza in disrepair.*

Since there is a vast mix of residential, retail, commercial, and industrial properties located within the District, there is an equally vast array of architectural styles and landscape treatments among each of these properties. This results in a lack of an overall aesthetic consistency along Main Street. Landscaped areas in front of residential properties are typically lawns with a few shade trees and plant beds, commercial and industrial properties are generally dominated by parking while areas in front of retail shops are often used as additional display space if not already occupied by parking. As is often the case with private property developed over a long period of time, each parcel appears as if landscape and site planning were determined without consideration of adjacent properties and uses, therefore resulting in a series of disconnected parking areas and landscape and edge treatments. This ultimately translates into a disconnected pedestrian experience of the District.



***Left to Right**: Lawn in front of residential properties; Items for sale in front of the Yankee Pedlar; Paved parking in front of commercial properties.*

Additionally, there are a number of existing edge conditions used as either buffer treatments delineating between existing sidewalk and parking areas, as a separation between public sidewalk and private property, and as a retaining mechanism allowing for sidewalk space against the road. These edge conditions are diverse and prevalent, ranging from stone retaining walls, wood picket fences, stacked rail fences (also known as Battlefield, Snake, or Zig-Zag fences), split rail fences, granite piers with chain, and chain link fences.

***Clockwise**: Wood picket fence in front of the residence at 520 Main Street; White picket fence in front of Simple Indulgence Day Spa; Chain link fence and timber edge in front of Sturbridge Nursery School; Granite piers and chain in front of the Fairgrounds Antique Center; Split rail fence in front of McDonald's; and Stacked rail fence in front of Centennial Park.*

Site Amenities

Site amenities are scarce in the Commercial Tourist District. There are no benches or trash receptacles located within the immediate streetscape. In the adjacent parks are some small seating areas. Three recycled plastic benches are located in the small seating area at the Senior Center and two recycled plastic and metal benches are located at Centennial Park on the northeast corner of the Main Street and Cedar Street intersection. At the Tourist Center at the corner of Main Street and Burgess School Road are a few wood picnic tables and benches and granite block seats are located in the small park on the east side of the Sturbridge Marketplace. There are also no provisions for bicycle parking offered within the Commercial Tourist District. Without these amenities, the streetscape is geared more towards vehicular travel rather than pedestrian and cyclist access and experience. Furthermore, the site lighting within the District consists of typical roadway cobra-head fixtures attached to utility poles, thereby serving primarily the roadway with illumination of the sidewalk as a secondary benefit.



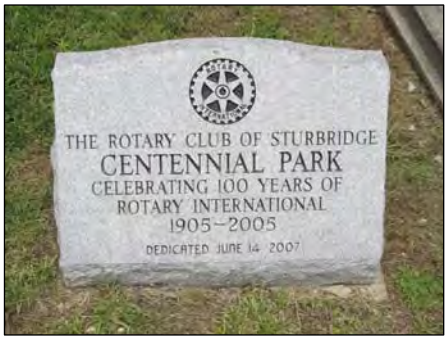
***Left to Right**: Recycled plastic bench (damaged) in front of the Senior Center (similar to Centennial Park); Wood bench at the Tourist Center; Cobra-head roadway light on a utility pole with banner.*

Open Space for Public Use

While the majority of green space within the Commercial Tourist District is located primarily in residential front yards, in front of retail spaces, and within buffer strips between the existing sidewalks and parking areas, there are some larger open space areas available for public use. Below is a description of each of those spaces.

Senior Center: The Senior Center is located on the north side of Main Street just east of Arnold Street. The building itself is set back from Main Street significantly beyond the adjacent properties. This allows for a large area of lawn and mature deciduous shade trees facing Main Street. There are a few benches located away from the street near the front entrance to the Senior Center. These, however, feel as if they are intended for use by those using the Senior Center. In contrast, there is a small seating area located adjacent to the existing sidewalk in the southeastern corner of the Senior Center property. This area consists of a low, semi-circular stonewall, three recycled plastic benches, a crushed stone pavement, and low planting including hostas, wintercreeper, and juniper.

Centennial Park: Centennial Park consists of a small seating and planting area located on the northeast corner of the intersection of Main Street and Cedar Street. Two recycled plastic and metal benches are located around a circular area paved with brick pavers and surrounded by a mix of tree and perennial planting including pin oak, crabapples, sugar maples, birch, and black locust. The park is separated from Main Street by a low stacked rail fence. This location is where Main Street transitions from a divided four-lane road on the east side of the District to a two-lane road on the west side of the District.



Sturbridge Marketplace: The Sturbridge Marketplace is an old brick mill building that has been converted into a variety of retail spaces. On the east side of the marketplace is a small pocket park adjacent to Main Street. This park consists of several granite block seats arranged in a circle around crushed stone pavement and surrounded by a mix of tree, shrub, and perennial planting including red oak, red maple, inkberry holly, shrubby cinquefoil, hydrangea, and ornamental grasses. Two large interpretive panels are located in the center of the park and offer information to visitors about the Quinebaug River, although it is not visible from this park, as well as information about Fiskdale Village. An ornamental clock is also located on the edge of the park.

Turner's Field: Turner's Field is set back from Main Street behind several properties and adjacent to the Quinebaug River. It is just southeast of the Sturbridge Marketplace and is accessed by a narrow loop drive from Main Street. The site is dominated by a baseball field with a set of bleachers and players' benches. This site is used for active recreation and does not offer any amenities for passive use.

Tourist Center: The Sturbridge Tourist Center is located on the northeast corner of Main Street and Stallion Hill Road and adjacent to Burgess School Road to the east. The site consists of a small information building, a separate building with restroom facilities, a parking area, and a small pavilion with wood picnic tables facing Main Street. A few wood benches are located in the lawn area adjacent to the pavilion. A variety of shade trees including sugar and Norway maples line Main Street along the Tourist Center property. A low stacked rail fence, like the fence at Centennial Park, runs along Main Street.

Existing Trail Access

The Quinebaug River is located south of Main Street (Route 20) and primarily runs parallel with the street in a woodland habitat through the western half of the CTD. There is a short trail that provides direct access to the river's edge near one of the two dams as well as along the edge of the pond just above the dam. This trail is accessed by a short wooden footbridge located at the southwest corner of the parking lot next to the Sturbridge Marketplace. The entry is not marked with any signage and the lush vegetative growth surrounding the footbridge disguises the entry to passersby who are not familiar with the river's proximity to the District. This access point sits at a significantly lower elevation and is several hundred feet away from Main Street. The first half

of the trail below the dam is a packed dirt path roughly two to three feet wide. The trail then follows a short, but steep, embankment up to the top of the dam where there is a level area offering a view of the falls as well as the pond above the dam. A narrow worn path through lush vegetation winds along the edge of the pond and then disappears. While the path may continue further, the overgrown nature of the vegetation prevents access. There is a diversity of native flora along the river edge including a mix of mature shade trees such as maple, oak, white pine, birch, and beech, and a mix of shrubs and groundcover such as summersweet, various ferns, and dogwood. Patches of poison ivy are also prevalent along sections of the trail. Besides the trail itself, there are no site amenities offering seating or other conveniences for visitors.



***Left to Right**: Footbridge to the Quinebaug River looking towards the parking lot at Sturbridge Marketplace; Dirt trail near the river; Clearing beside the riverbank.*



***Left to Right**: The falls at the dam; View of the Pond from the trail above the dam; The trail gets lost in the lush vegetation along the waterfront.*

Waterfront Access

Although the only trail and trail access point to the Quinebaug River within the Commercial Tourist District is located near the Sturbridge Marketplace, there are additional areas within the District where access to the river and its tributaries is available. For instance, Turner's Field is located immediately adjacent to the river and there is a clearing behind the backstop directly to the river's edge. The outfield and the first base line of the field are separated from the riverfront by a chain link fence. Again, there is no signage at Main Street indicating access to the river here and visitors to the District are unlikely to encounter this river access. A parking area directly

south of the intersection of Main Street and Cedar Street abuts a stream or canal that flows into the Quinebaug River. But, again there are no site amenities for pedestrians at this location. Only views are offered, as the embankment is too steep for access.

***Left to Right**: View of the Quinebaug River from the edge of Turner's Field; View of an algae-covered stream or canal seen from Main Street (between 475 Main Street and Dunkin Donuts).*

While the Quinebaug River and its tributaries are not generally visible from Main Street, there is another stream or canal that flows into the Quinebaug River that is visible from Main Street across an area of lawn between 475 Main Street and Dunkin Donuts. There are no amenities for visitors here since it is private property, but still remains worthy of note due to its proximity and visibility from Main Street.

In addition to the river on the south side of the Commercial Tourist District, there is a Great Pond (defined as ponds larger than 10 acres) known as Cedar Pond. Cedar Pond is located north of Main Street (Route 20) in the eastern edge of the District. There does not appear to be visible signage along Main Street indicating access to this natural resource. The town maintains a recreational park with basketball courts, playground, skate park, and beach offering access to the pond. This area is located on Cedar Pond Road, approximately a half mile north of the Cedar Street and Main Street intersection. It is marked at the end of Cedar Pond Road with a sign that reads "Town of Sturbridge Recreation Area." While relatively close to Main Street, Cedar Street does not have any sidewalks connecting to this park. There is an additional access point to the southern end of the pond located off Burgess School Road (approximately 1/10 mile north of the Tourist Center). This, however, consists of a narrow dirt driveway with no parking, no sidewalks, and no pedestrian amenities.

***Left to Right**: The Cedar Pond Recreation Area off of Cedar Pond Road (Left). Additional waterfront access off of Burgess School Road (Right); Map of the Cedar Pond area showing public waterfront access in relation to Main Street (Route 20) (Bottom).*

Although there are several natural resources located within Sturbridge's Commercial Tourist District, they are not readily accessible to the public, particularly the visiting public, although their unique presence within the District has the potential to contribute to the experience of visitors and residents alike.

Eastern Gateway

The initial architectural / urban design impression when entering the eastern gateway of Main Street (Route 20), which runs through Sturbridge's CTD, is the lack of any urban design elements or architectural form and identity. The first quarter-mile of Route 20 from Interstate 84 to Fairground Road is characterized by little to no significant street presence from buildings, signs or designed street elements. There is little to suggest that you are entering the Sturbridge CTD, and little to support the character and identity that residents and tourists have come to associate with Sturbridge.

The first major intersection, Main Street (Route 20) and Route 131, is dominated by a wooded area screening views of Cedar Lake to the North, along with a guardrail and a grassy shoulder. To the south are several ramps and a wide expanse of grass leading to more wooded areas and the MassDOT maintenance facility located on Quinebaug Road. Again, there is a lack of buildings, hardscaping or landscaping that announces entry to Sturbridge, other than a small brown traffic sign (<25 s.f.) indicating right lane exit to Old Sturbridge Village in a quarter-mile. This sign is mostly lost in the visual noise of traffic lights, other traffic signs, numerous lanes of traffic, and vegetation.

At Fairground Road, Main Street (Route 20) becomes dominated by auto-centric urban form, architecture, site design, and uses. The uses are primarily commercial, mostly hospitality and service businesses, including hotels, fast-food restaurants, gas stations, and the Host Hotel. Parking lots and driveways are the dominant street front presence, with most buildings set back from Main Street behind parking spaces or access lanes. The majority of building entrances often address the parking lots to the side, rather than the street.

There are some examples of traditional New England architectural elements and details, but the majority of the buildings reflect the design guidelines of the national brands they house. Very few of the buildings speak to the unique character, geography and identity of Sturbridge. For tourists entering Sturbridge, the architecture of the eastern gateway is good and bad: the types of services typically needed by tourists are readily available and understandable by auto; however,

this important entrance gives the impression of a highway rest stop rather than a sense of arrival to a uniquely Sturbridge experience.

There is minimal pedestrian infrastructure other than interrupted sidewalks with no buffer from the 4-lane highway. There are no crosswalks at the driveways, intermittent crosswalks across side streets, and long stretches of Main Street (Route 20) with no crosswalks. Most businesses do not have a clear entry approach for pedestrians. There are banner signs high atop light and telephone poles set back from the road, but no other consistent street design features.

Old Sturbridge Village Intersection

Approaching the Tourist Information / Old Sturbridge Village "Jug Handle" from the east, Main Street (Route 20) begins to lose some of its density. On the south side are fields, lawns, and businesses that are set back off of Route 20 and accessed from a side street. The intersection of Main Street (Route 20) and the access to Old Sturbridge Village Road / Stallion Hill Road is perhaps the most important entry / navigational experiences for tourists to Sturbridge, yet there are no significant pieces of architecture, ornamental hardscaping, landscaping, or signage anchoring this intersection. There is one small (< 25 s.f.) state traffic sign with the words "Old Sturbridge Village" and a directional arrow leading to the jug handle, but it too is lost in a tangle of signs and overgrown vegetation. An attractive designed sign leads to the Tourist Information building within the jug handle, but it is mostly recognizable after one has passed the jug handle entrance. There is also a small Old Sturbridge Village sign on the southwest corner of the intersection, though it has limited navigational value for autos or pedestrians.

Architectural form and style are largely lost from the Old Sturbridge Village intersection on the east to Cedar Street intersection on the west. A strip center provides the dominant architectural feature in this section. There is some nice landscaping in this area, but no dominant site or street elements to bridge the architectural gaps.

There are no pedestrian connections to the Tourist Information building other than through the parking lot. There are no pedestrian connections from Main Street (Route 20) to the Tourist Information building. The pedestrian connection to Old Sturbridge Village is an asphalt path that is unprotected from the street by a buffer or a curb. The path forces crossing across Stallion Hill Road without a crosswalk.

Main Street (Route 20) continues to Cedar Street with little street front presence with long sections of lawn or vegetation. There is a strip center and gas station abutting the road just past the jug handle, followed by several hundred yards where entrances and sometimes entire businesses are hidden from view because of grade changes or because the buildings were sited turning their back to the highway. The pedestrian connections are unclear, and a visitor new to the Sturbridge CTD would have a hard time finding these businesses or deciphering that they were public establishments.

Western Gateway

West of Cedar Street to Brookfield Road, the architectural and urban form becomes more attractive and pedestrian friendly, with greater density, a better rhythm with shorter distances between businesses, better street presence with smaller setbacks from the road, a decrease in road width, clear entrance paths and a diversity of design types and businesses. However, many of the newer buildings or strip centers located in this section suffer from the same issues as the eastern section of the corridor: unclear pedestrian access, parking lots abutting the street, and entrances turned from the street and toward a side parking lot, for example, the Marketplace Building.

The architectural forms, styles, and elements become more interesting between Cedar Street and Brookfield Road. Homes and businesses with traditional New England styles, materials and details mix with handsome old mill buildings and newer commercial buildings that uses appropriate details and materials. In many cases, residences and mill buildings have been adaptively re-used for businesses. There is a mix of hospitality, retail, cultural, recreational, light industry and professional service uses along this section of the corridor. The sizes of the buildings are well suited to the narrower road and the more human scale of this section of the CTD.

While much of the architecture and urban design of the Western Gateway is improved from the Eastern Gateway, the pedestrian infrastructure breaks down. In the Eastern Gateway, the pedestrian infrastructure is uncomfortable, unattractive and lacking crosswalks; however, it is at least consistent. In the Western Gateway, the sidewalk is interrupted and non-existent in large sections. Some of the most attractive buildings and businesses on the corridor lack a sidewalk and/or a clear pedestrian entry. Where sidewalks exist, they lack buffers, and often have utility

poles located directly in the path of travel, making handicap accessibility nearly impossible. Just as with the Eastern Gateway of the CTD, the Western Gateway lacks consistent design elements to provide a cohesive and unifying identity.

One of the main issues for the western corridor is visual connection and identity for residential and mill buildings that have been repurposed for commercial use. These buildings have attractive design features and have been nicely renovated. In several cases, the original site design was kept, which is problematic because residential and industrial site design have greater degrees of privacy than commercial site design. Visitors new to Sturbridge may not realize that these buildings have public uses and businesses, because they understand them as homes or warehouses. These adaptively reused buildings also lack the large openings and transparency that people have come to expect with commercial and public uses, making them even harder to understand as public buildings.

The first phase of the intercept survey was conducted in May and June 2013, during the shoulder season. The intercept survey entails a short seven question survey of persons "on the street" in Sturbridge in the Commercial Tourist district. Data was collected on four days, included one during the Brimfield Fair, and on both weekdays and Saturdays. Intercept surveys were conducted during weekend mornings, weekday mid-day and weekday late afternoon. During the Brimfield Fair, interviews were also conducted in the morning. 204 surveys were conducted, half were undertaken during the spring, and the balance in the summer. Spring and summer are shoulder seasons for Sturbridge tourism. Intercept surveys were not conducted during the fall, during the tourist high season, due to the project schedule. A copy of the survey can be found in the Appendices.

Gender

Slightly more women than men patronize the Sturbridge Commercial Tourism District (CTD). 55.7% of the persons interviewed were female and 44.3% of respondents were male in the spring. In the summer, there was a 5% increase in the number of male customers patronizing the district. Many customers visit and patronize the district as a couple. Interviewers found that the male person often responded for the couple.

Figure 6: Commercial District Patrons – Spring 2013

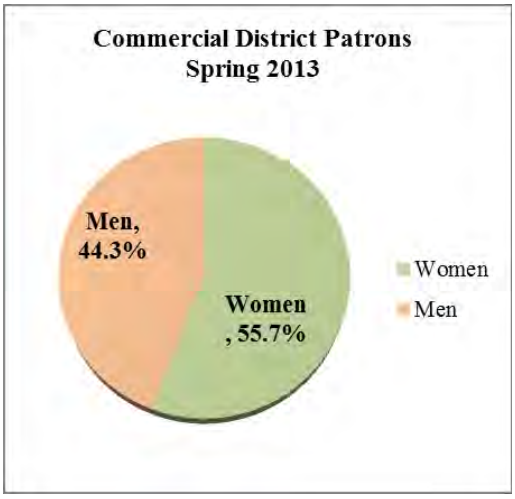
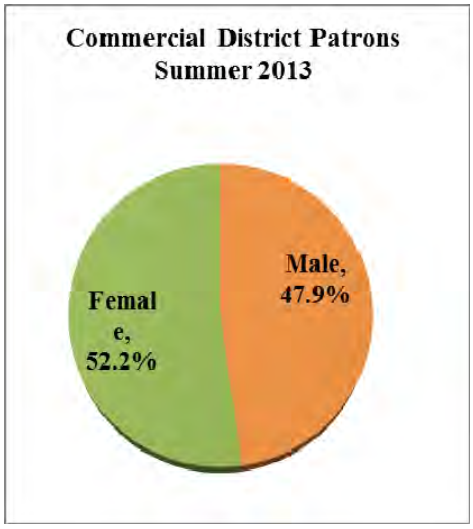


Figure 7: Commercial District Patrons Summer 2013

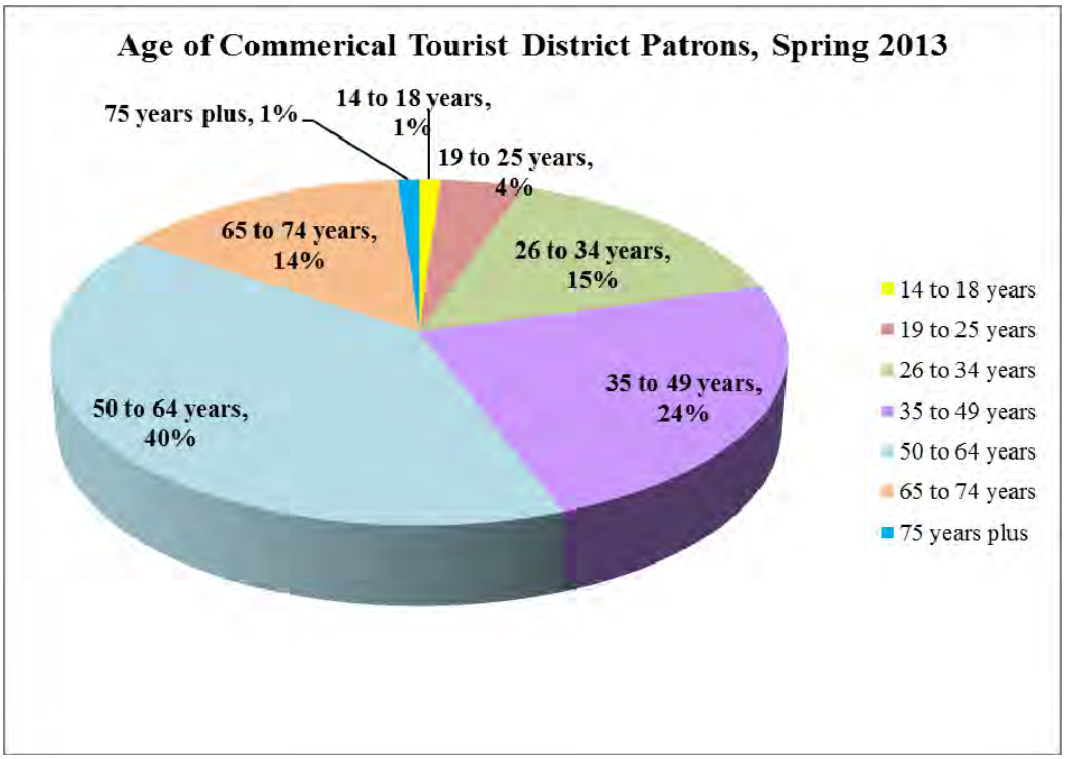


Source: 2013 Intercept Survey, McCabe Enterprises

Age

The age of respondents was estimated by survey interviewers. The largest segment, 40%, of patrons of the Sturbridge CTD is the 50 to 65 years of age category. Nearly one-quarter (24%) of the patrons are between 35 and 49 years. Fifteen percent of the survey respondents were over 65 years of age and another segment of fifteen percent were between 26 to 34 years of age based on preliminary results in the first phase of the intercept survey.

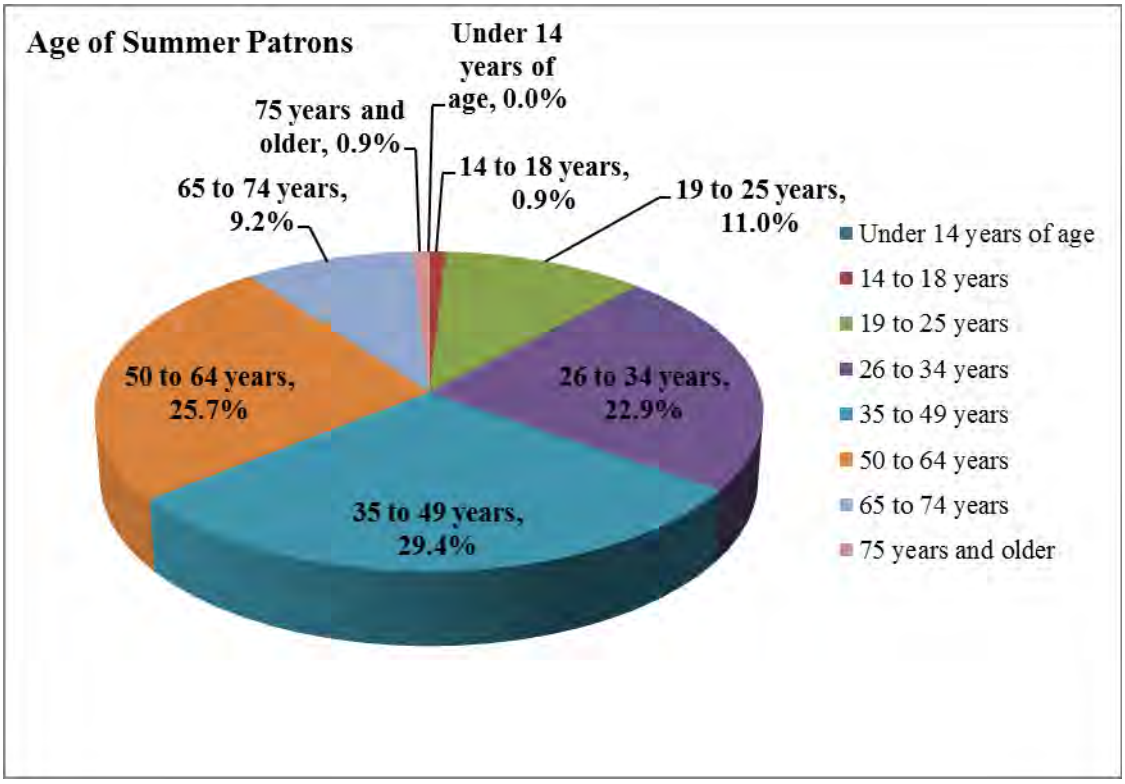
Figure 8: Age of CTD Patrons, Spring 2013



Source: Intercept Survey, McCabe Enterprises

Summer patrons of the District are decidedly younger. Although there is age diversity amongst persons using the Sturbridge Commercial Tourist District for both seasons, the spring shoulder season is decidedly older. The largest segment in the summer is the 35 to 49 year old segment which comprised nearly one-third of visitors (29.4%). The second largest segment was the 50 to 64 year old segment with 25.7% of survey respondents. The third largest segment, over one-fifth of respondents (22.9%), included persons 26 to 34 years of age.

Figure 9: Age of Summer Patrons



Source: Intercept Survey, McCabe Enterprises

Purpose for Being in the Sturbridge CTD

Shopping was the number one reason survey respondents cited for being in the Sturbridge Commercial Tourist district. Two out of five persons (40.2%) responded shopping. One out of every four persons (26%) mentioned Food and Eating. Shopping, food and eating were the leading reasons for being in the CTD. Very few people reported that they were also going to or had visited either Old Sturbridge Village or the Brimfield Fair.

Unlike the spring, nearly half (45.5%) the survey respondents in the summer indicated they were in the Commercial Tourist District for food and eating. Approximately one-third (32.1%) mentioned shopping, and another third (37.5%) stated other. Other included special events, such as the car show and Toto the Cat, a children's book event.

Figure 10: Why People are in CTD - Spring

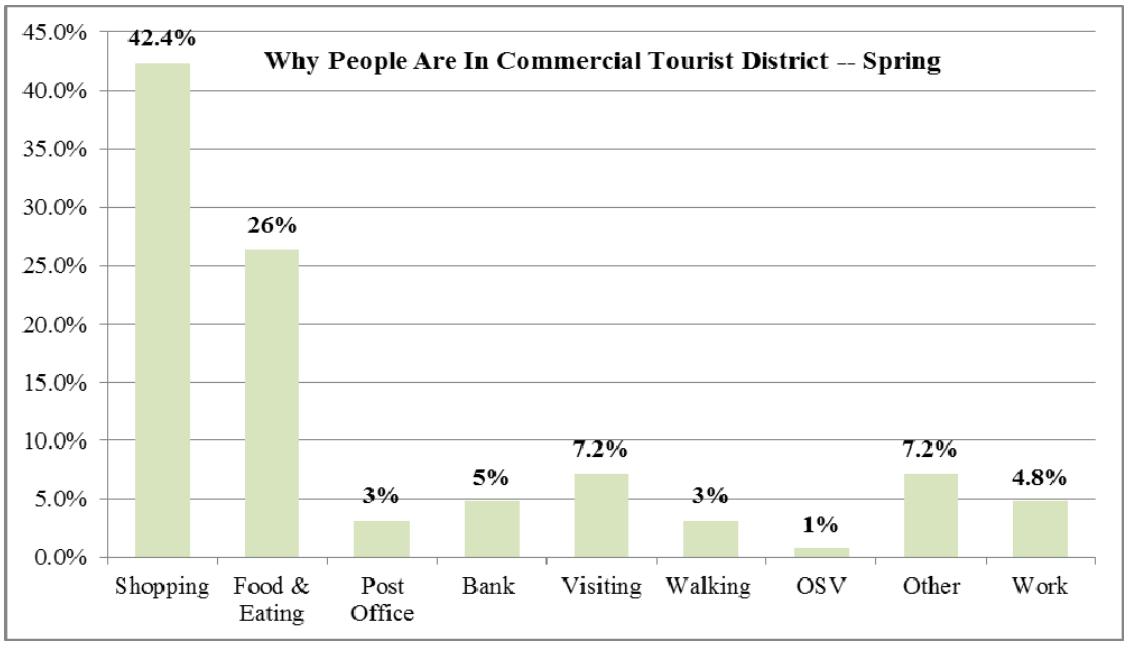
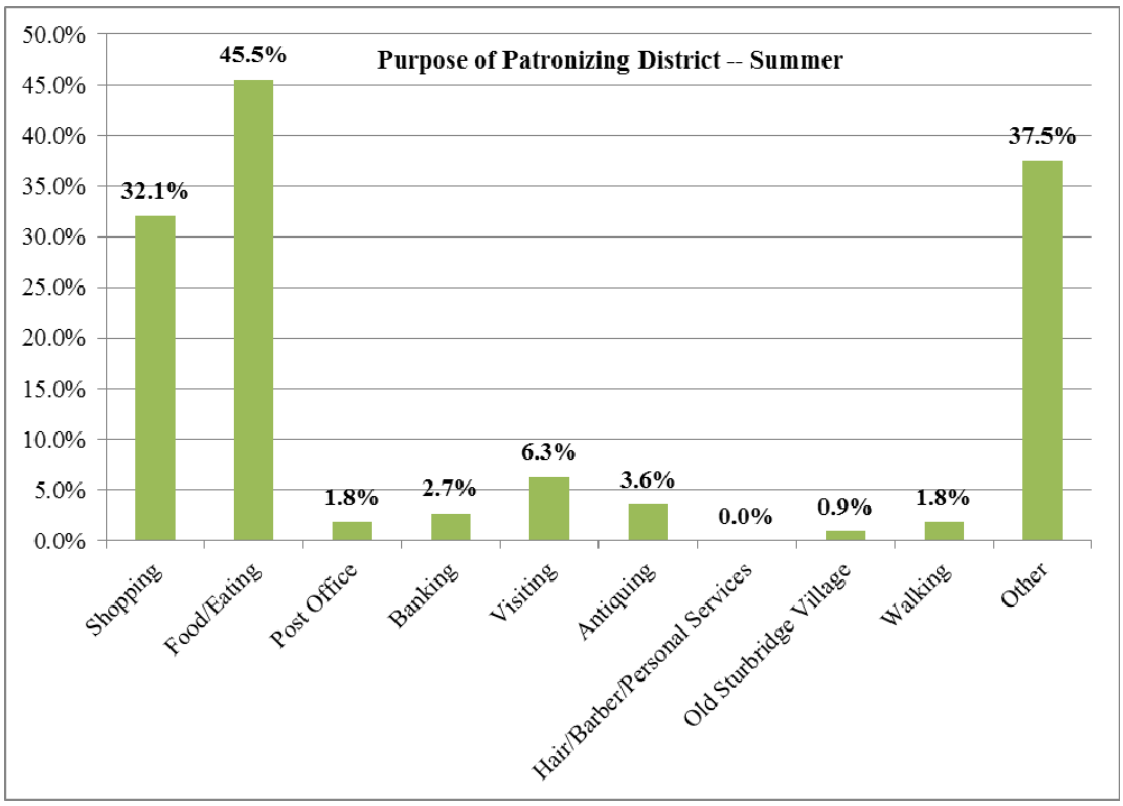


Figure 11: Purpose of Patronizing District - Summer

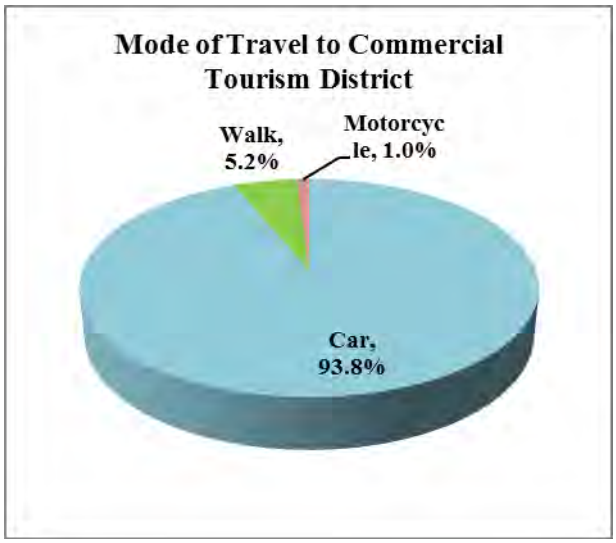


Source: Intercept Survey, McCabe Enterprises

Mode of Travel to Sturbridge Commercial Tourist District

Figure 12: Mode of Travel to CTD

The vast majority (93.8%) of people interviewed came to the Sturbridge Commercial Tourist District by car. Another 5.2% walk. People walking were walking as a travel mode and as an activity. The mode of travel to the district is consistent in both the spring and summer seasons.



Source: 2013 Intercept Survey, McCabe Enterprises

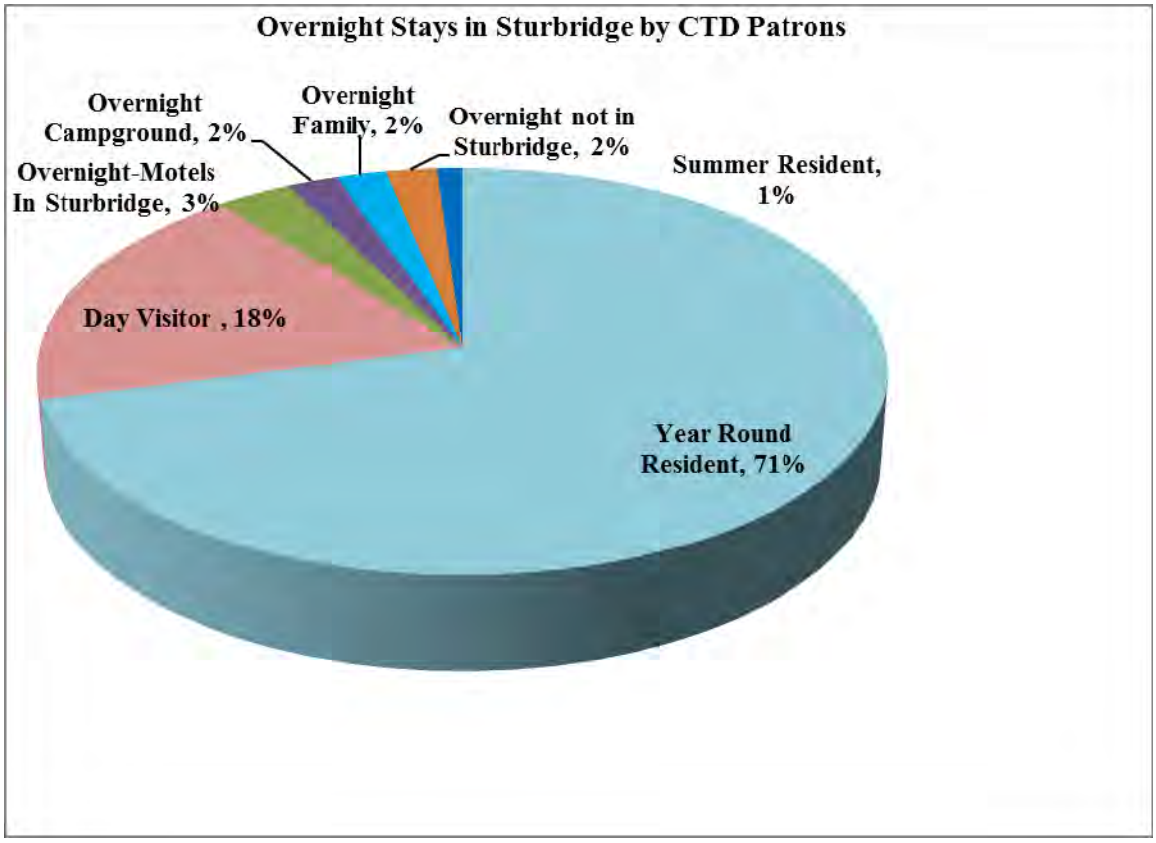
Spending in the Sturbridge CTD

Survey respondents were asked how much they anticipated spending in Sturbridge the day of the interview. Responses in the spring season ranged from nothing to as high as $400.00. The median response was $30.00. The mean average response was $57.40. In the summer the average expenditure was $73.33, with a median expenditure of $40.00 in the summer. Summer patrons reported spending a low of $0.00 to a high of $1,000.00. The results of the Sturbridge CTD Intercept survey for average summertime expenditures are similar to the spending patterns the Massachusetts Office of Travel & Tourism (MOTT) reports for visitors to Worcester County.

Overnight Stays

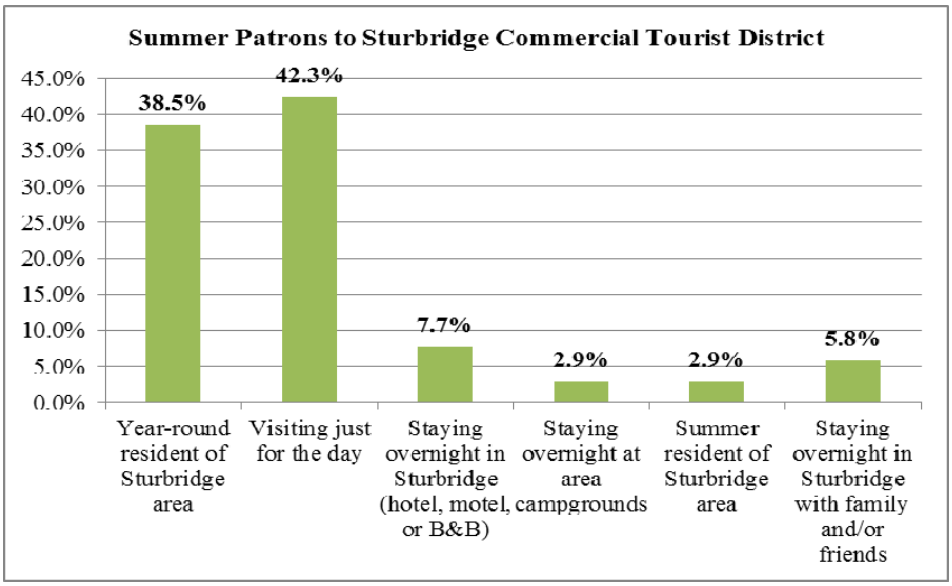
Over two-thirds (71%) of persons surveyed in the Sturbridge Commercial Tourist District were Sturbridge area residents. The next largest segment was day visitors (18%).

Figure 13: Overnight Stays in Sturbridge by CTD Patrons



Source: 2013 Intercept Survey, McCabe Enterprises

Figure 14: Summer Patrons to Sturbridge CTD

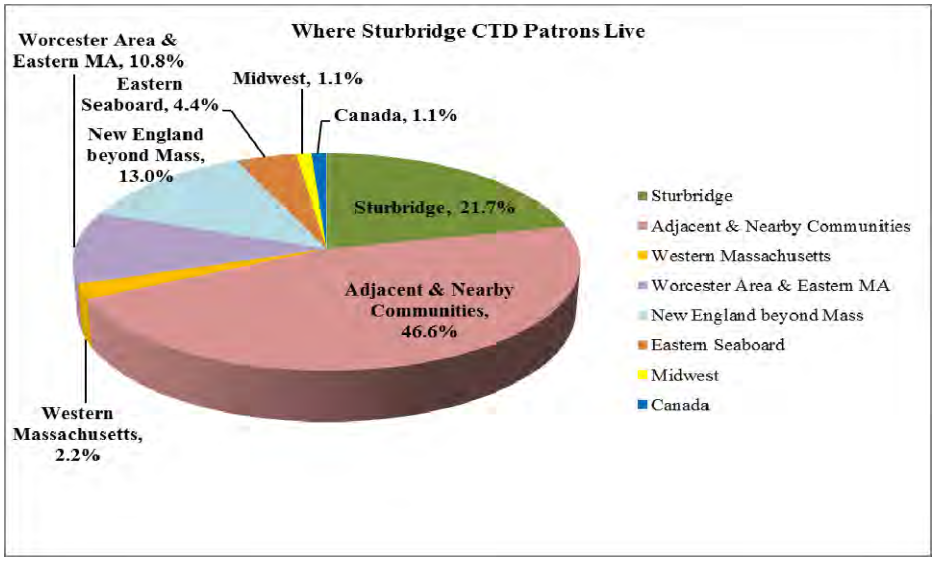


Source: 2013 Intercept Survey, McCabe Enterprises

Residency of CTD Patrons

Survey respondents were asked to identify the zip code where they lived. Patronage in the summer and spring seasons were similar. A large segment of Sturbridge CTD patrons were from the greater Sturbridge area, particularly Sturbridge, Fiskdale and west of Sturbridge. Just over one in five (21.7%) patrons resides in the Town of Sturbridge, and two-thirds of Sturbridge residents using the CTD are from the Fiskdale zip code. The CTD is a commercial area that services not only Sturbridge residents and tourists, but also area residents from the surrounding towns, particularly municipalities on the western arc around Sturbridge, such as Holland, Brimfield, Wales, Warren, and Brookfield. One quarter (24.1%) of patrons in the CTD is from the western arc. The towns abutting Sturbridge (Brimfield, Brookfield, Charlton, East Brookfield, Holland, Southbridge, Union CT, Warren, MA and Woodstock, CT) generate 34.8% of the visitors to the Sturbridge CTD. Municipalities which are one town away (such as North Brookfield, West Warren, and Spencer) generate another 12% of the users of the Sturbridge CTD.

Figure 15: Where Sturbridge CTD Patrons Live



Source: 2013 Intercept Survey, McCabe Enterprises

General Comments and Suggestions

Survey respondents were asked if they had suggestions for improvements to the Sturbridge Commercial Tourist District. Although many declined to offer comments, traffic was the number one issue that generated comments and suggestions. Many commented that traffic was too busy and congested, particularly during the Brimfield Fair. Others commented about the difficulty turning in and out of driveways, streets and parking areas along Main Street and the Route 20. The second most frequent topic was the need for additional stores and activities in the district. Suggestions included additional small stores (in contrast to large chains), antique shops, CVS, entertainment and sporting-type uses, and specialty stores. Others commented on the difficulty and safety of walking in the district. Some just liked Sturbridge the way it is, and have been coming for years. The top five topic subjects were:

1.Traffic
2.Suggestions for new stores and uses
3.Walkability
4.Like It the Way it Is; Very Nice
5.Brimfield Fair.

Some persons offered comments in several topic areas. A complete list of the survey comments are in the Appendix.

DATA COLLECTION

To develop our conceptual plans, design concepts were prepared collected and analyzed to determine the feasibility and viability of options. As part of our study of the corridor, it was necessary to collect the following data:

Field Reviews

Multiple field reviews were conducted throughout the corridor to gather a variety of information and data. The majority of the field reviews were performed in order to prepare the Existing Conditions report.

Count Data

In order to perform an analysis on the performance of the traffic operations within the Main Street (Route 20) corridor, traffic counts were performed at a variety of locations throughout the corridor. The data collected included Automatic Traffic Recorded (ATR) counts along Main Street (Route 20) and manual turning movement counts at each of the significant intersections throughout the corridor. The data collection periods are summarized below.

ATR Data:

- Main Street (Route 20) East of Stallion Hill Road – 48 Hours (July 24, 2013 – July 25, 2013)
- Main Street (Route 20) East of Stallion Hill Road – Brimfield Fair Week (September 4, 2013 – September 8, 2013)

Intersections:

- Main Street (Route 20) & Route 148 – (7:00 – 9:00 a.m. & 4:00 – 6:00 p.m.)
- Main Street (Route 20) & Arnold Road – (6:00 a.m. – 6:00 p.m.)
- Main Street (Route 20) & Cedar Street – (7:00 – 9:00 a.m. & 4:00 – 6:00 p.m.)
- Main Street (Route 20) & Stallion Hill Road – (7:00 – 9:00 a.m. & 4:00 – 6:00 p.m.)
- Main Street (Route 20) Route 131, & Fairgrounds Road – (7:00 – 9:00 a.m. & 4:00 – 6:00 p.m.)

Crash Data

Crash data was collected from the Sturbridge Police Department from January 2011 through October 2013 and from MassDOT from January 2009 through December 2011. Data obtained from the Sturbridge Police Department included the written account of the crash while data from MassDOT contains only a summary of the crash report with little information on the cause of the collision. The crash data was reviewed and summarized. A description of the crash patterns observed at various locations throughout the corridor can be found in the Analysis section of this report.

Speed Studies

Speed data was collected in both the Eastern Gateway and Western Gateway. A speed study in the Western Gateway was performed on April 1, 2013 on Main Street (Route 20) in the vicinity of Arnold Street. The speed study in the Western Gateway consisted of collecting 40 vehicle speeds in both the eastbound and westbound direction. The results of the study are summarized in Table 2 below.

Direction	Posted Speed Limit	Average Speed	Median Speed	85th Percentile Speed	10 MPH Pace Speed	Percent in Pace	Percent of Vehicles over 35 MPH
Eastbound	35	36	36	40	31-40	85	60
Westbound	35	34	34	36	29-38	98	30

Table 2: Western Gateway Speed Data

Vehicle speeds in the Eastern Gateway were collected as part of the Automatic Traffic Recorder (ATR) count data perform in September, 2013. This data was collected east of the jughandle at the intersection of Main Street (Route 20) and Stallion Hill Road. The Eastern Gateway speed study results are shown in Table 3.

Direction	Posted Speed Limit	Average Speed	Median Speed	85th Percentile Speed	10 MPH Pace Speed	Percent in Pace	Percent of Vehicles over 35 MPH
Eastbound	35	33	33	39	31-40	68%	31%
Westbound	35	30	31	37	26-35	60%	22%

Table 3: Eastern Gateway Speed Data

In the Western Gateway, most vehicles appeared to travel at or around the speed limit of 35 miles per hour. In the Eastern Gateway, the majority of vehicles were observed traveling below the speed limit. In general, vehicle speeds in the Western Gateway were higher than those in the Eastern Gateway. The presence of the signalized intersections in the Eastern Gateway appears to reduce vehicle speeds. Vehicles are typically either accelerating after having just stopped at an intersection or slowing down as they approach a red light. In the Western Gateway, there are no traffic signals between the signalized intersection at Cedar Street and the signalized intersection at Route 148. Secondly, roadway widths in the Eastern Gateway are narrower than in the Western Gateway. The lack of wide shoulders and the presence of the raised median in the Eastern Gateway present a narrowing effect that may slow vehicles. In the Western Gateway, drivers have wide shoulders that enable them to travel at higher speeds comfortably.

Business Coordination

As part of the conceptual design process, the project team reached out to several businesses to present our ideas and to receive feedback from the business owners. The meetings were scheduled jointly and in some cases individually. Based on feedback at the meetings considerations for design opportunities were investigated. The results from the meetings were typically favorable.

The one area which resulted in further investigations was to investigate further the jug handle and entrance to Old Sturbridge Village. Based on the meeting it was requested that the feasibility of a roundabout be investigated and also the possible addition of a left turn lane for Route 20 westbound traffic making the movement to visit Old Sturbridge Village.

Working Group Meetings

Throughout the development of the project, the PARE design team worked closely with the CTD Working Group to advance the project through the conceptual design phase of the project. Over the course of the development of the conceptual plans there were six meetings with the Working Group which focused on presenting findings of our analyses, presenting viable alternatives and selecting the preferred alternative for advancement of the design which were eventually presented to the public for feedback.

Community Meetings

In addition to the Community Meeting No. 1 which was held on May 8, 2013 to introduce the project and receive public input and visioning for the CTD, there were two other community meetings held to keep the public informed and to receive input before making a final presentation.

Community Meeting No. 2 was held on September 25, 2013. The main focus of the meeting was to recap the previous work that was completed and previously presented, an update on the data collection process, the alternatives that were investigated for the cross-sections for the Eastern Gateway corridor and Western Gateway corridor, for the geometric redesigns at specified intersections and the presentation of alternatives for site furnishings and amenities. As part of this meeting, there was a Group Exercise held towards the end in which the public was allowed to further review the alternatives for the designs and to comment on what hey conceived to be the positives and negatives of the alternatives presented.

Based on feedback from the Community and continuing to work with the Working Group, the design team developed a preferred alternative. This preferred alternative for the entire corridor was presented at the Community Meeting No. 3 on December 4, 2013. In addition to discussing the design components of not only the roadway corridor but also access to the Quinebaug River, economic numbers for the area in addition to projects costs and funding alternatives were provided.

Agency Coordination

As part of this design process, coordination efforts were held with Town of Sturbridge Public Works Department and the Massachusetts Department of Transportation District 3 office. Overviews of the potential design components throughout the corridor were provided to each agency and feedback was provided and taken into consideration for the designs.

ANALYSIS

Crash Analysis

Crash data was collected from the Sturbridge Police Department from January 2011 through October 2013 and from MassDOT from January 2009 through December 2011. A description of the crash history at each significant location/intersection along the study corridor is included below.

Main Street (Route 20) & Brookfield Road/Holland Road (Route 148)

A total of seventeen (17) crashes were reported at the intersection of Main Street (Route 20) and Route 148 throughout the five-year review period. The majority of crashes were low in severity with only three (3) resulting in injury. Rear end and angle collisions were the most prevalent at the intersection with four (4) each. Each of the angle collisions involved permitted left turn movements. Three (3) sideswipe collisions in the same direction occurred as through moving vehicles tried to pass left turning vehicles. No other significant trends in the crash data were observed. One bicycle collision occurred at the intersection but appeared to be the fault of the cyclist.

Main Street (Route 20) & Arnold Road

A total of nineteen (19) crashes occurred at the intersection of Main Street (Route 20) and Arnold Road. The majority of crashes were low in severity with only four (4) resulting in injury. Twelve (12) of the crashes reported at the intersection were rear ends collisions. These typically occurred on Main Street (Route 20) during periods of heavy traffic. Four (4) of the rear end collisions on Main Street (Route 20) occurred when a vehicle that had stopped for a pedestrian in the crosswalk was struck from behind. Two (2) head on collisions and two (2) angle collisions occurred, resulting from vehicles from Arnold Road turning onto Main Street (Route 20). One pedestrian collision occurred when a vehicle performing left turn from Arnold Road struck a pedestrian within the marked crosswalk across Main Street (Route 20).

Main Street (Route 20) & Cedar Street

A total of forty-five (45) collisions were reported at the intersection of Main Street (Route 20) and Cedar Street. The majority of crashes were low in severity with only five (5) resulting in injury. Twenty-two (22) of the crashes reported at this intersection were rear end collisions,

which are typical at signalized intersection. A total of ten (10) angle collisions were reported. Each of these involved vehicles performing a left turn movement at the intersection. Additionally, ten (10) sideswipe collisions in the same direction were reported. These primarily occurred at the 2-1 lane reduction in the westbound direction just west of the intersection.

Main Street (Route 20) & Stallion Hill Road

A total of thirty-four (34) collisions were reported at the signalized intersection of Main Street (Route 20) and Stallion Hill Road. The majority of these collisions, twenty-two (22), were rear end collisions, typical at signalized intersections. It should be noted that several of the rear end collisions involved vehicles performing an eastbound U-turn. A total of six (6) angle collisions and five (5) sideswipes in the same direction were also reported. The angle collisions primarily involved vehicles making turning movement at the intersection while the sideswipe collisions were the result of lane changing maneuvers in close proximity to the intersection.

Main Street (Route 20), Route 131, & Fairgrounds Road

A total of forty-nine (49) crashes were reported at the signalized intersection of Main Street (Route 20) Route 131, and Fairgrounds Road. The majority of these collisions, thirty-six (36), were rear end collisions. Eight (8) angle collisions were also reported. Two (2) crashes of unknown type, a pedestrian collision, a head on collision, and a sideswipe in the same direction were also included in the data.

Route 20 & New Boston Road

The intersection of Route 20 and New Boston Road had a total of twelve (12) collisions reported. Angle crashes were the most common type observed with a total of six (6). The angle collisions appeared to primarily involve vehicle making a left turn from Route 20 into New Boston Road, not vehicles exiting from New Boston Road on Route 20.

Main Street (Route 20) & Dunkin Donuts

The intersection of Main Street (Route 20) and Dunkin Donuts (469 Main Street) was also the site of a significant number of collisions along the corridor. A total of twelve (12) collisions occurred within the vicinity of Dunkin Donuts including eleven (11) rear end collisions and three (3) sideswipes in the same direction. The rear end collisions involved vehicles slowing along Main

Street (Route 20) in the area near Dunkin Donuts but not necessarily vehicles turning into Dunkin Donuts. The sideswipes in the same direction involved vehicles traveling westbound bypassing stopped or slowing vehicles turning left into Dunkin Donuts. Only one (1) angle collision occurred resulted from a vehicle exiting Dunking Donuts turning into traffic on Route 20.

Main Street (Route 20) & Cumberland Farms

Another location along the Main Street (Route 20) corridor that experienced a significant crash history was Main Street (Route 20) at Cumberland Farms (506 Main Street). A total of fifteen (15) crashes occurred in the vicinity of Cumberland Farms. Eight (8) of the crashes were rear collisions while the remaining seven (7) were rear ends. The angle crashes were primarily caused by vehicles exiting Cumberland Farms failing to yield to traffic on Main Street (Route 20), resulting in broadside, angle collisions. Rear end collisions occurred when the leading vehicle slowed either during a turning movement or due to heavy traffic conditions. One of the rear end collisions resulted when the leading vehicle slowed for a pedestrian crossing Main Street (Route 20) in the marked crosswalk.

Main Street (Route 20 & Other Locations

A total of ninety-nine (99) collisions occurred at other locations along the Main Street (Route 20) corridor. No other significant trends in the crash data were determined. The remaining locations included areas such as Bank of America, Bates Hill Road, Church Street, McDonald's, Micknuck's Marketplace, School Street, Snell Street, and Sturbridge Coffee House. A variety of collision types occurred at these various locations, including rear end collisions during periods of heavy traffic, angle collisions involving vehicles exiting and entering various business driveways, loss of control collisions, and sideswipes in the same direction during lanes changing maneuvers. Additionally, three (3) pedestrian collisions were reported at the locations of Sal's Pizza, Burger King, and Church Street. Two (2) bicycle collisions were reported in the vicinity of the MassDOT Maintenance Facility and the Host Hotel.

Traffic Analysis

The traffic count data that was collected at each of the intersections was used to perform capacity analyses at each of the study intersections. The peak hour traffic volume during the morning and afternoon peak periods was analyzed at each intersection under the existing conditions. Table 4 summarizes the results of the analysis.

Table 4: Traffic Analysis

		AM Peak Hour		PM Peak Hour	
		LOS (Delay sec./veh.)	**95th Percentile Queue Length (feet)**	**LOS (Delay sec./veh.)**	**95th Percentile Queue Length (feet)**
Main Street (Route 20) & Brookfield Road/Holland Road (Route 148)					
Northbound	Approach	A (4.0)	21	B (12.5)	33
Southbound	Approach	B (18.6)	#295	D (42.9)	#280
Eastbound	Left	B (15.8)	20	B (18.3)	42
	Thru/Right	C (22.4)	169	B (10.1)	150
	Approach	C (21.9)		B (11.0)	
Westbound	Left	B (15.5)	25	A (8.7)	33
	Thru/Right	C (21.1)	159	C (22.7)	589
	Approach	C (20.6)			
Intersection		**B (18.9)**		**C (23.1)**	
Main Street (Route 20) & Cedar Street					
Southbound	Left	D (41.7)	113	D (41.7)	99
	Right	B (10.5)	20	B (12.5)	19
	Approach	C (34.3)		D (36.2)	
Eastbound	Approach	A (7.4)	170	A (4.9)	100
Westbound	Approach	A (6.1)	75	B (10.0)	213
Intersection		**B (10.5)**		**B (10.3)**	
Main Street (Route 20) & Stallion Hill Road					
Northbound	Left	27.4 (C)	31	47.6 (D)	90
	Right	9.9 (A)	21	9.1 (A)	29
	Approach	16.6 (B)		25.8 (C)	
Southbound	Left	29.7 (C)	41	43.7 (D)	122
	Thru/Right	27.6 (C)	39	35.7 (D)	87
	Approach	28.7 (C)		40.4 (D)	
Eastbound	Approach	4.4 (A)	94	5.2 (A)	113
Westbound	Approach	3.8 (A)	38	8.8 (A)	154
Intersection		**7.6 (A)**		**12.9 (B)**	
Main Street (Route 20) & Fairgrounds Road					
Southbound	Left/Thru	43.4 (D)	20	42.1 (D)	26
	Right	0.2 (A)	0	0.2 (A)	0
	Approach	23.4 (C)		25.0 (C)	
Eastbound	Left/Thru	20.0 (C)	302	12.9 (B)	140
	Right	7.9 (A)	131	2.5 (A)	39
	Approach	16.4 (B)		8.7 (A)	
Westbound	Approach	0.6 (A)	0	1.3 (A)	m14
Intersection		**10.1 (B)**		**4.6 (A)**	
Main Street (Route 20) & Route 131					
Northbound	Left	41.8 (D)	145	88.1 (F)	#284
	Right	8.7 (A)	65	9.7 (A)	65
	Approach	26.7 (C)		63.8 (E)	
Eastbound	Approach	11.6 (B)	375	5.7 (A)	165
Westbound	Left	55.8 (E)	#212	108.5 (F)	#276
	Thru	17.4 (B)	181	14.0 (B)	203
	Approach	26.3 (C)		33.0 (C)	
Intersection		**20.6 (C)**		**36.2 (D)**	

 # - 95th percentile volumes exceed capacity

m – Queue length metered by upstream signal

Main Street (Route 20) & Brookfield Road / Holland Road (Route 148)

The intersection of Main Street (Route 20) and Route 148 operates at LOS B during the a.m. peak hour and LOS C during the p.m. peak hour. During the a.m. peak hour, the greatest delay is experienced by the westbound approach to the intersection with an average delay of 21.9 seconds per vehicle. The southbound approach experiences a significant queue length. The southbound approach to the intersection has a heavy left turn volume during the a.m. peak period as commuters head eastbound on Route 20 to reach I-84. During the p.m. peak hour, the southbound approach experiences the greatest delay with an average delay of 42.9 seconds per vehicle. The westbound approach also experienced a significant amount of delay as the westbound volumes on Route 20 are highest during the p.m. peak. Both peak hours analyzed operate at an acceptable LOS.

Main Street (Route 20) & Cedar Street

The signalized intersection of Main Street (Route 20) and Cedar Street operates at LOS B during both the a.m. and p.m. peak hours. During both peak hours, the southbound approach to the intersection experiences the greatest delay, operating at LOS D. The intersection operates at an acceptable LOS during both peak periods analyzed.

Main Street (Route 20) & Stallion Hill Road

The signalized intersection of Main Street (Route 20) and Stallion Hill Road operates at LOS A during the a.m. peak hour and an LOS of B during the p.m. peak hour. The intersection experiences minimal delay during the a.m. peak hour due to the minimal amount of traffic approaching the intersection from the minor approaches, Stallion Hill Road and the Route 20 jughandle. The intersection operates at an acceptable LOS under the existing conditions.

Main Street (Route 20) & Fairgrounds Road

The signalized intersection of Main Street (Route 20) and Fairgrounds Road operates at LOS A during the a.m. peak hour and LOS B during the p.m. peak hour. The intersection experiences minimal delay due to the low traffic volumes turning to and from Fairgrounds Road at both peak periods.

Main Street (Route 20) & Route 131

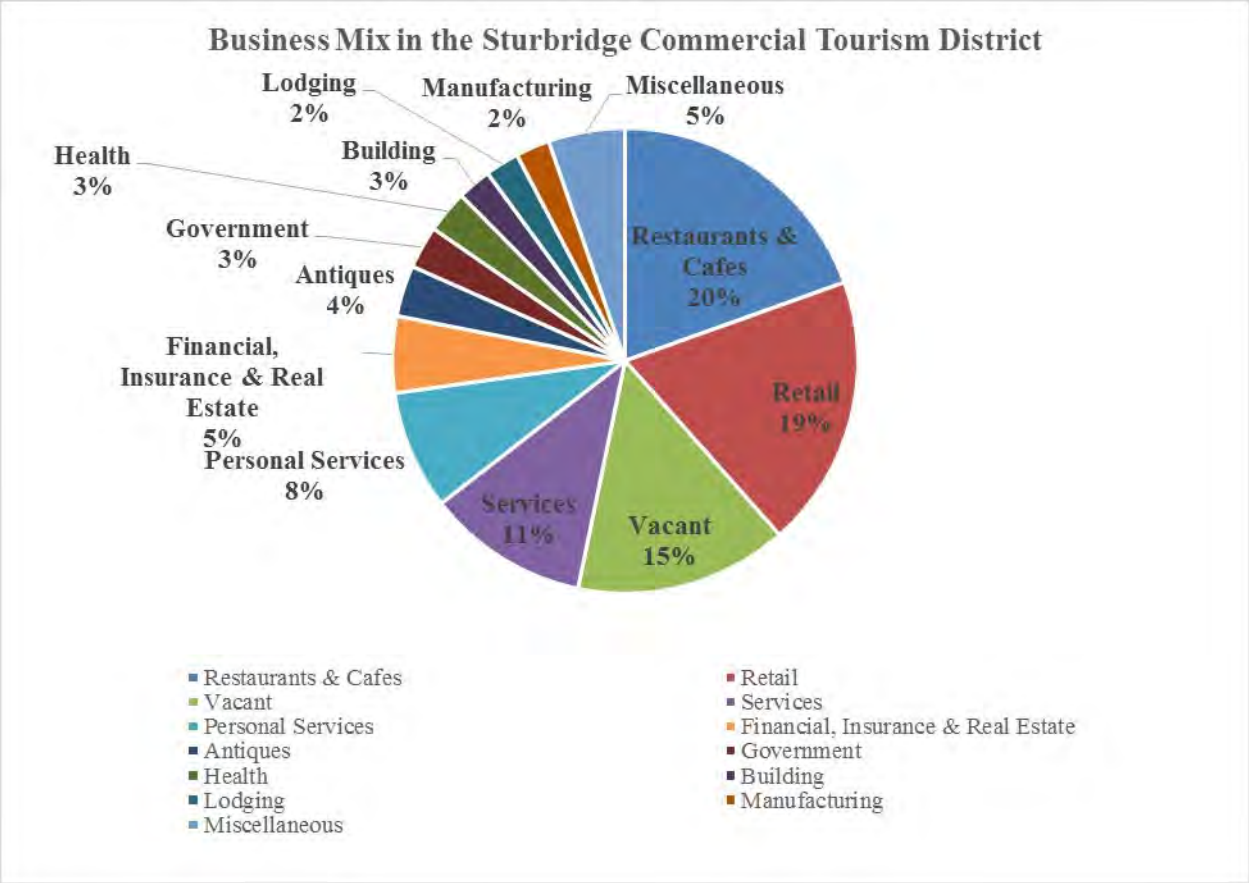
The signalized intersection of Main Street and Route 131 operates at LOS C during the a.m. peak hour and LOS D under the p.m. peak hour. Two turning movements at the intersections experience extensive delay under the a.m. and p.m. peak hour conditions. The westbound left, from Route 20 onto Route 131, turn operates at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour. The northbound left, from Route 131 to Route 20 westbound, operates at LOS D during the a.m. peak hour and LOS F during the p.m. peak hour.

Economic Analysis

As part of the development of the corridor plan for streetscape and roadway improvements, a review of economic conditions was undertaken, including a market assessment. The desire for additional and new retail offerings and services was the number two suggestion in the Intercept Survey. An inventory of businesses and uses in the corridor found that there are 144 businesses and services in the CTD. It also revealed that the Sturbridge CTD has numerous vacancies for a vacancy rate of 14.9%. While the vacancy rate is high, it is also an opportunity for the Town, property owners and business people to repopulate the existing spaces with new uses.

The principal uses currently in the CTD are restaurants and cafes, followed by retail. However, much of the retail in today's CTD is small shops, some of which have frontage on Main Street and some are more hidden at the rear or back of a series of shops. For the average driver along Route 20, many shops have low or minimal visibility. Since car is the primary mode of travel for patrons, many retail offerings can easily be overlooked. Moreover, the CTD is just over two miles long, it is easy for patrons to overlook and be unaware of retail and service offerings in the district. Although the retail and service activities are dispersed throughout the district, Sturbridge has a good mix of uses to build upon. The mix of uses as to number of businesses found in the CTD is shown in Figure 16.

Figure 16: CTD Business Mix



The Sturbridge Commercial and Tourism District (CTD) functions as Sturbridge's historic commercial area serving both visitors and local area residents. As part of the economic analysis, the trade area for the Sturbridge CTD was identified. The trade area is the geographic area where a business district's customers originate. Although businesses may highlight that they have customers who come from a great distance, the trade area looks at principal sources of customers who patronize the district, not the outliers. Business districts often have a primary or core trade area, as well as a secondary trade area – in other words, there is an inner circle where the majority of customers live or work, and a secondary ring where additional customers reside. A business district's trade area is the sum of its parts. Although each business and store in a district is unique and relies on its own customers, businesses are located within a district, such as the Sturbridge Commercial Tourism District or shopping center, in part so that they can more easily attract shoppers from the existing customer base that is patronizing their neighbors. Although the trade area for each business may vary, the analysis is concerned with the trade area of the district as a whole. Businesses which draw from a larger trade area can be beneficial for the district as a

whole, if the customers from these businesses can be induced to patronize nearby business. Connectivity, particularly sidewalks, help encourage customers to patronize adjacent shops and services.

Based on the Intercept survey conducted in spring and summer 2013, nearly half of the current local patrons of the CTD come from Sturbridge (21.7%) and the nearby communities to the west, such as Holland, Brookfield, and Brimfield (24.1%). The local market that businesses appear to be capturing is Sturbridge and the "western arc" communities which are depicted below in Figure 17.

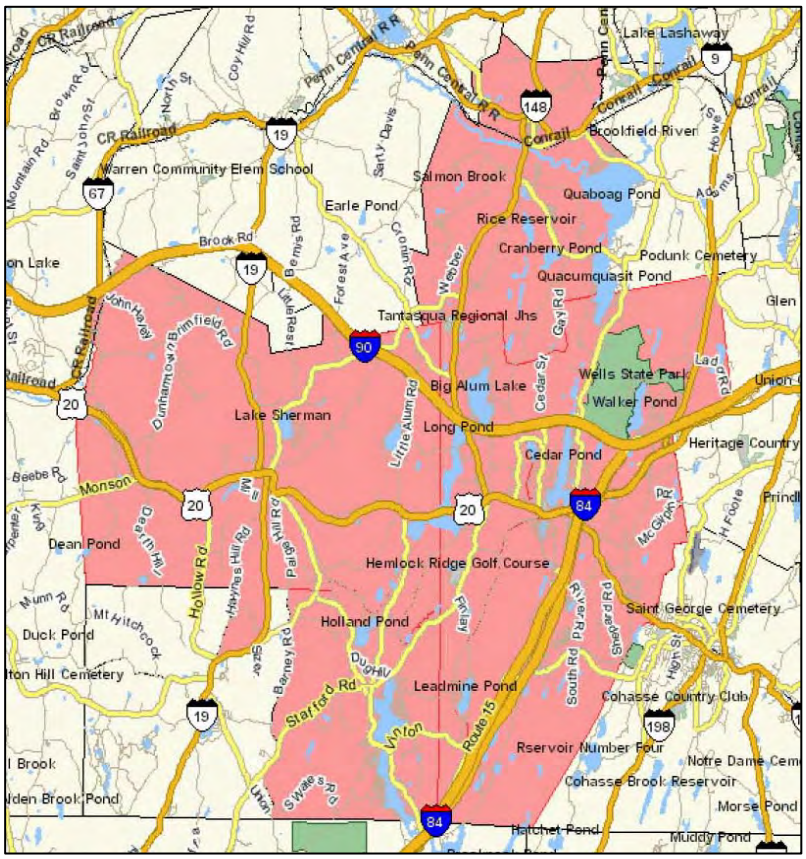


Figure 17: Primary Local Market for Sturbridge Commercial District. The primary zip codes depicted in pink form the primary local retail market for the Sturbridge Commercial District.

Map Source: Nielsen/Claritas, 2013.

Sturbridge and the western arc communities comprise the primary market for local customers. Most of these customers are within five miles of the CTD. CTD patrons also come from other communities within five to ten miles. Over one-third of customers come from adjacent communities, and another 12% come from one-town away. The Sturbridge CTD and local businesses in addition to serving the primary residential market of Sturbridge and the western arc, should focus on serving the larger five-to ten mile radius surrounding the CTD. This population

segment could fairly easily become regular year-round patrons for the Sturbridge CTD. Figure 18 depicts the two, five and ten-mile radial areas around the Sturbridge CTD.

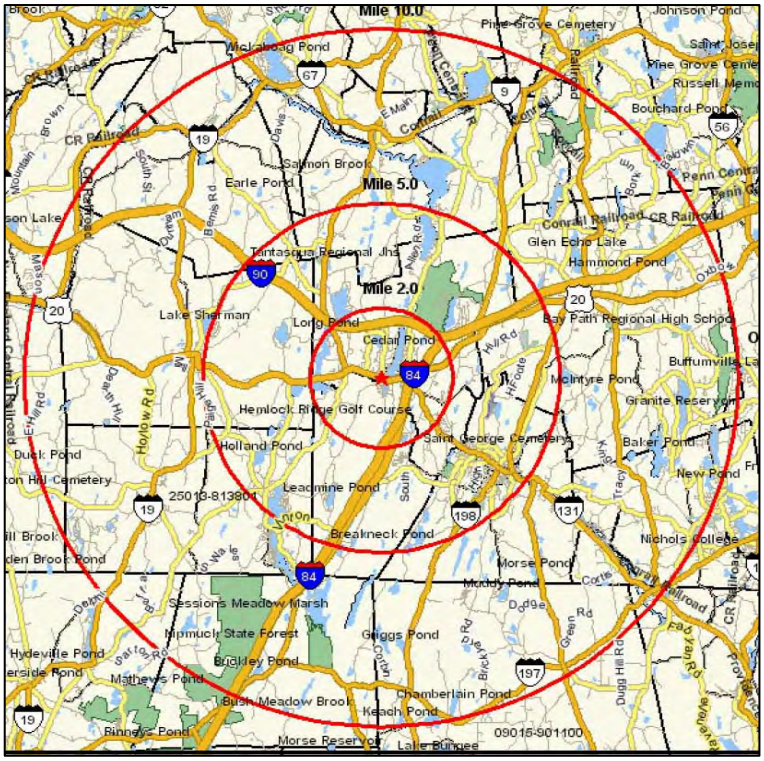


Figure 18. Target Market for Local Patronage of Sturbridge Commercial Tourism District.

Map Source: Nielsen/Claritas, 2013.

An assessment of the residential purchasing power for retail goods and food within the two-mile, five-mile and ten mile areas of the Sturbridge CTD are noted in Table 5. Overall there is $1.2 billion of retail demand from residential customers within a ten mile radius. Existing stores and services in the ten mile area capture $839 million of the residential purchasing power, creating an opportunity for CTD businesses to compete and potentially capture another $391.7 million of retail sales.

Table 5 Residential Purchasing Power for Retail and Food.

	Residential Retail Demand	Residential Retail Supply	Residential Opportunity
Within 2 Mile Radius	$ 93,301,000	$154,391,000	($ 61,091,000)
2 to 5 Mile Radius	$375,124,000	$313,648,000	$ 61,476,000
5 to 10 Mile Radius	$762,372,000	$371,080,000	$ 391,292,000
Within 10 Mile Area	$1,230,797,000	$839,118,000	$ 391, 679,000

Source: McCabe Enterprises and Nielsen/Claritas, 2013.

Based on a detailed review of expenditure categories and the typical size of retail stores and services, there appears to be opportunities for the Sturbridge Commercial Tourism District to support sporting goods stores; hobby, toys and games stores; clothing; miscellaneous retail; and some additional limited service eating establishments, based on the characteristics of the residential market, as noted in Tables 6 and 7. Visitors to Sturbridge help strengthen the retail market. Shopping is a leading activity for day trippers and tourists. The visitor market can help offset reduction in retail sales from brick-and-mortar type stores in the Sturbridge CTD from online sales. Local businesses should also explore how to augment sales through their own online marketing. Visitors to Sturbridge and the Sturbridge brand could help build an online customer base.

Table 6: Sturbridge & the Western Arc Market's Support for Potential Stores Types

Store Type	Consumer Expenditures	Retail Sales	Opportunity Gap	Average Sales Per SF	Supportable SF based on Demand	Median Store Size	Potential Stores
Sporting Goods	2,583,054	792,489	1,790,565	$265	6,757	10,000	1
Hobby, Toys, Games	1,493,725	1,268,301	225,424	$180	1,252	3,000	
Gift, Novelty & Souvenir Stores	1,353,841	3,028,550	(1,674,709)	$200	(8,374)	4,000	
Clothing	16,572,576	5,123,041	11,449,535	$400	28,624	3,000	10
Other Miscellaneous Store Retailers	5,184,014	1,047,257	4,136,757	$250	16,547	2,400	7
Full-Service Restaurants	16,761,117	22,398,096	(5,636,979)	$410	(13,749)	10,000	
Limited-Service Eating Places	14,689,999	12,349,388	2,340,611	$300	7,802	2,000	4
Drinking Places – Alcoholic Beverages	1,733,966	211,448	1,522,518	$430	3,541	3,000	1

Table 7: Potential Store Types supported by a Trade Area within 5 miles of Sturbridge CTD

Store Type	Consumer Expenditures	Retail Sales	Opportunity Gap	Average Sales Per SF	Supportable SF based on Demand	Median Store Size	Potential Stores
Sporting Goods	3,597,090	804,800	2,792,290	$265	10,537	10,000	1
Hobby, Toys, Games	2,140,695	1,271,318	869,377	$180	4,830	3,000	2
Gift, Novelty & Souvenir Stores	1,846,182	2,969,978	(1,123,796)	$200	(5,619)	4,000	
Clothing	22,782,466	7,220,033	15,562,433	$400	38,906	3,000	13
Other Miscellaneous Store Retailers	7,156,724	1,259,814	5,896,910	$250	23,588	2,400	10
Full-Service Restaurants	23,569,342	27,234,996	(3,665,654)	$410	(8,941)	10,000	
Limited-Service Eating Places	20,722,963	17,007,345	3,715,618	$300	12,385	2,000	6
Drinking Places – Alcoholic Beverages	2,446,034	752,050	1,693,984	$430	3,939	3,000	1

The visitor market is an important component the economic health of the Sturbridge Commercial Tourism District. Over 300,000 persons visit Sturbridge annually. Approximately 1 in 8 persons (13%) interviewed during the Intercept Survey were visitors. Visitors spend an average of $65 plus daily when coming to Sturbridge. In FY2010, visitor expenditures for Sturbridge was $19.4 million for retail, food, recreation and entertainment based on MOTT and MA Department of Revenue (DOR) data.

Visitors also generate taxes paid to the Town of Sturbridge in the form of rooms and meals taxes. Sturbridge in 2010 adopted the local option meals tax, which now contributes to the Town's general fund. In FY2010, room taxes generated $746,431 for Sturbridge and meals taxes generated $112,181 (for the first six month period). In FY2013, revenues from rooms and meals taxes contributed over $1 million to the Town. Figure x illustrates room and meals tax revenue generated in Sturbridge. It appears that these hospitality-related taxes are leveling in Sturbridge, however they are growing statewide. In a highly competitive market place for visitors discretionary time and dollars, Sturbridge appears to be a plateau, and in need of refreshment to be more competitive.

Figure 19: Sturbridge Local Room & Meals Tax Revenue, 2010-2013

To enhance the visitor experience and the local expenditures of dollars in Sturbridge, efforts should be made to increase the duration of the visit to Sturbridge. Packaging of activities with guides as to what to do, and the location of visitor attractions, such as Old Sturbridge Village, hotels, shopping, the Quinebaug River and the Last Green Valley, Westville Lake and Brimfield Lake, local area golf course, local foods and orchards should be developed and publicized. An interpretative walk along the Route 20/Main Street corridor could introduce visitors and residents to local history, natural features, as well as retail and restaurants. Sturbridge already has many assets that fall within the top ten domestic visitor activities noted in the sidebar.

Domestic Visitor Top 10 Activities

1. Visit Relatives –29.3%
2. Visit Friends—19.2%
3. Shopping – 17.3%
4. Fine Dining – 14.8%
5. Beaches – 16.1%
6. Rural Sightseeing—13. %
7. Urban sightseeing-12.7%
8. Historic Places/Churches 7.3%
9. Museums—7.3%
10. State/National Parks – 7.**5%**

Most businesses within the Sturbridge CTD need to rely on both visitors and local residents as part of their customer base.

The visitors' experience could be further enhanced with a more robust visitor center that functions as an attraction. The visitor information center in Sturbridge should be a gateway to Sturbridge and also include interpretative exhibits. It should be more than an information/brochure stop. The center should be a gateway/welcoming/ interpretative center for Old Sturbridge Village, as well as the US Army Corp of Engineers' recreational facilities, and the MA Department of Conservation & Recreation's area resources, such as Wells State Park; the Quinebaug River/Last Green Valley Heritage Corridor; and trails information.

Redevelopment

Selective redevelopment could enable the re-use of existing structures and appropriate infill development. The redevelopment opportunities within the Sturbridge CTD include the mill site at the corner of Holland Road and Main Street. Access to the River and overlooks need to be incorporated in any redevelopment of this site. This is a gateway location to the western arc communities as well as to the Quinebaug River. This site requires carefully planning so that any development could be an enhancement to the river.

Several older residential structures are vacant and are for sale in the district. These properties could be rehabbed and incorporate both residential and retail uses. Some vacant properties are strategically located and could become a part of a larger parcel enabling new construction as the market is strengthened. Credit tenants will be needed to support new construction. Retention of the small town, rural character will be key challenges in major redevelopment

Action Steps

The action steps for strengthening the economic health of the Sturbridge Commercial Tourism district include:

- strengthening the walkability and travel to, through and within the CTD;
- enhancing the streetscape and visual appearance of the CTD;
- recruiting and retaining desirable uses that serve both local area residents and visitors;
- widening the breath of activities, including passive and active recreational uses of the Quinebaug River;
- strengthening the visitor appeal with packaging and enhanced marketing of retail and hospitality services and visitor activities.

- consider making the Visitor's Center an attraction;
- continuing a program of promoting shared-use parking and developing a parking guide; and
- selectively redeveloping sites along the corridor.

Desirable new uses include retail, recreational, entertainment uses, businesses that offer experiences, as well as mixed-use development.

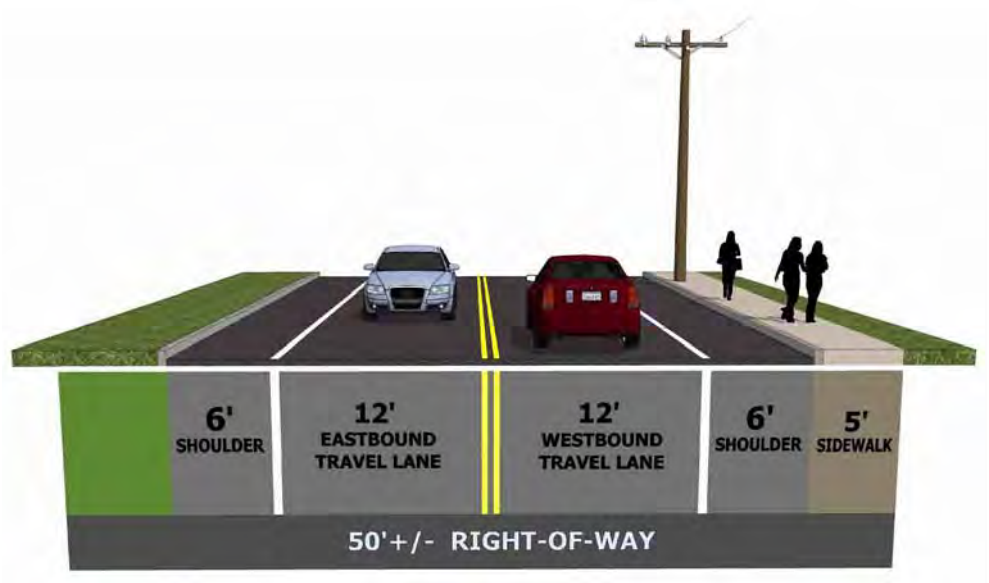
- Retail shopping, gifts, antiques, and clothing (children, women, men's), and unique shops.
- Recreational uses and services that potentially could take advantage of the Quinebaug River. In time, potential uses include a bike shop (or an expanded bike shop that is more visible); kayak; hiking/walking stores; fishing and sporting goods.
- Entertainment-type uses. This could include entertainment activities, such as comedy club, "how-to" type shops, such as pottery painting, cooking schools, etc. Many entertainment-type uses could be part of the offering of existing businesses, whether it is comedy evenings 2 or 3 times a week at existing food/bar establishments, or cooking activities at restaurants, etc.
- Experiential-businesses, such as recreational or entertainment uses.
- Mixed use properties should be encouraged with residential and professional offices located on upper levels.

To enhance the visibility and to make it easier for the visitor and local area customer, consideration of possibly concentrating certain types of uses, so as to create small clusters of similar types of business through-out the corridor would be beneficial. The eastern Gateway should focus on visitor-related uses and hospitality. Businesses on the Western Gateway from the jug handle to Arnold Street should serve both residents and visitors. This is a transitional area between the visitor area on the Eastern Gateway and the predominantly "local" area on the western edge. This section of Main Street could include a mix of retail, hospitality and food/restaurant uses on the ground level. Then on the Western Gateway from Arnold Street to Brookfield/Holland Road, there should be a mix of businesses that serve residents of Sturbridge and communities to the west, as well as visitor serving businesses on the ground level.

Western Gateway

Several alternatives for the typical cross section of the Western Gateway were created based on feedback from Community Meeting I and several Working Group Meetings. The alternatives that were developed are described below.

Figure 20: Western Gateway - Existing Cross-section



The existing cross-section of the Western Gateway consists of one 12-foot travel lane in each direction and with approximately 6-foot wide shoulders. Sidewalk is located along the northern side of Main Street (Route 20) throughout the Western Gateway and is typically five to six feet in width. Sidewalk is located on the south side of Main Street (Route 20) in two locations, from Snell Street to Cedar Street (approximately 850 feet) and from Bates Hill Road to Village Pizza (approximately 800 feet). There is also a small portion of brick sidewalk in poor condition in front of the Millyard Marketplace. Based on roadway plans received from MassDOT, the typical public right-of-way width within the Western Gateway is 50 feet.

Figure 21: Western Gateway – Alternative I

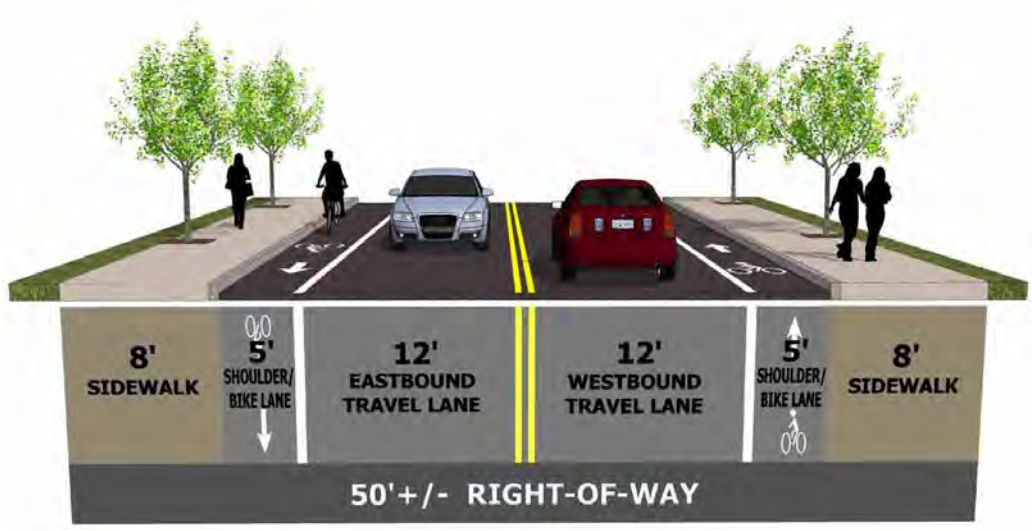
Alternative I would primarily consist of adding sidewalk to the southern side of Main Street (Route 20) and slightly widening the sidewalk on the northern side of the roadway. Six foot shoulders would remain, and could be striped as dedicated bike lanes. Pedestrian facilities throughout the Western Gateway would be improved with the addition of the sidewalk along the southern side of Main Street (Route 20) additionally; the widening of the sidewalk along the northern side of the roadway would minimize the existing ADA conflicts with the existing utility pole locations.

Figure 22: Western Gateway – Alternative II

Under Alternative II, sidewalk would be added to the southern side of Main Street (Route 20), the existing sidewalk along the north side of Main Street (Route 20) would be widened to 10 feet, and an 8-foot wide parking lane would be added in the westbound direction. This alternative would provide a more inviting pedestrian environment with the addition and widening of sidewalks. The introduction of street parking may also reduce travel speeds, improving vehicle and pedestrian safety. Consequently bicyclists would not have a separated facility and would be encouraged to share the road with vehicles as "sharrows" would be placed in each travel lane.

This alternative was considered after initial review with the Working Group Committee, however, based on discussions with MassDOT, Alternative II was eliminated. Existing MassDOT regulations do not allow street parking on State owned and maintained roadways.

Figure 23: Western Gateway - Alternative III

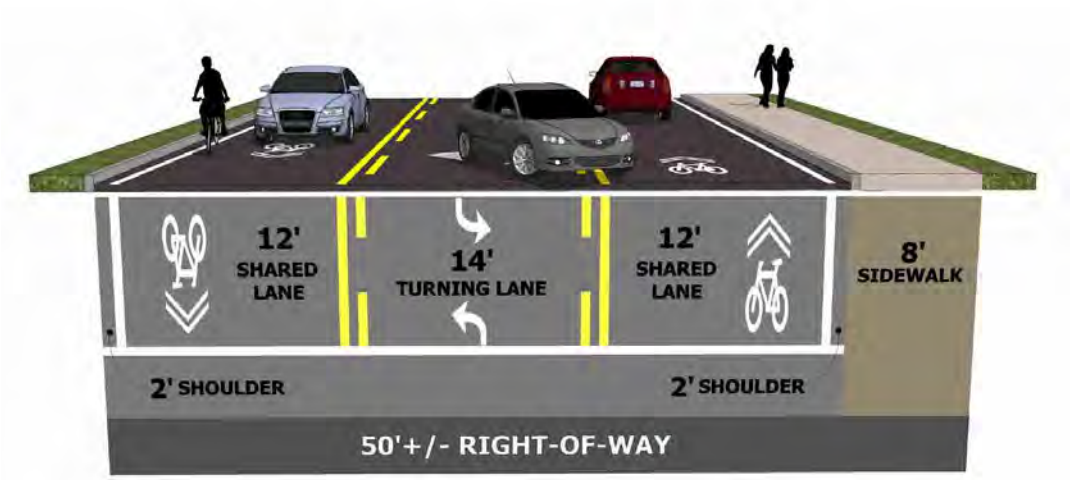


Under Alternative II, an 8-foot wide sidewalk would be added to the southern side of Main Street (Route 20), the existing sidewalk along the north side of Main Street (Route 20) would be widened to 8 feet. Each direction of travel would have a 12-foot wide travel lane and 5-foot wide bike lane. The 8-foot wide sidewalk on each side of the roadway would be accompanied by street trees placed on the outside of the sidewalk where appropriate. The placement of trees on the outside of the sidewalk allows the tree's route systems to expand into the pervious material away from the roadway.

Under Alternative III, both pedestrian and cyclists would experience an increase in service with the addition and widening of the sidewalks and the introduction of dedicated bike lanes. Alternative III would have little impact to vehicular traffic as the existing 12-foot wide travel lanes would be maintained.

Based on the feedback received from the design team during Working Group Meetings and Community Meeting II, Alternative II is the preferred alternative.

Figure 24: Western Gateway - Alternative IV

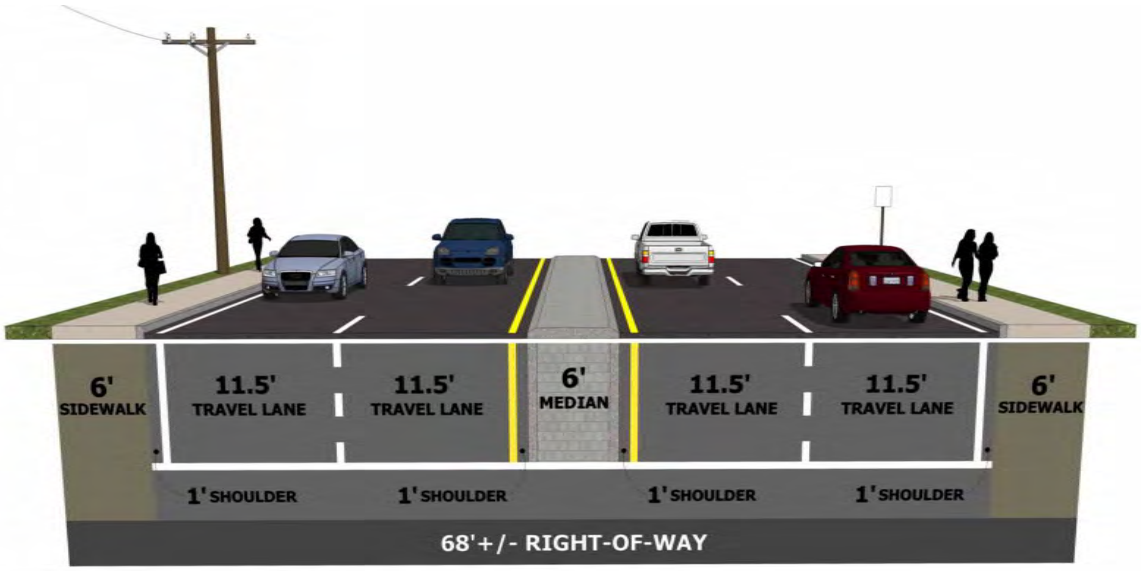


A Two-way-left-turn-lane (TWLTL) would be included in the Western Gateway under Alternative IV. The TWLTL would allow left turning vehicles on Main Street (Route 20) to queue within the TWLTL, minimizing the impact to through moving traffic. This would provide an advantage to vehicular traffic through the corridor. However, limited right-of-way would not allow for dedicated bicycle facilities and sidewalk along the southern side of the roadway.

Eastern Gateway

Several alternatives for the typical cross section of the Eastern Gateway were created based on feedback from Community Meeting No. 1 and several Working Group Meetings. The alternatives that were developed are described below. Similar to the Western Gateway, the alternatives were established to have minimal right-of-way impacts. The typical cross-sectional right-of-way was determined based on construction plans received from MassDOT for Contract No. 9363.

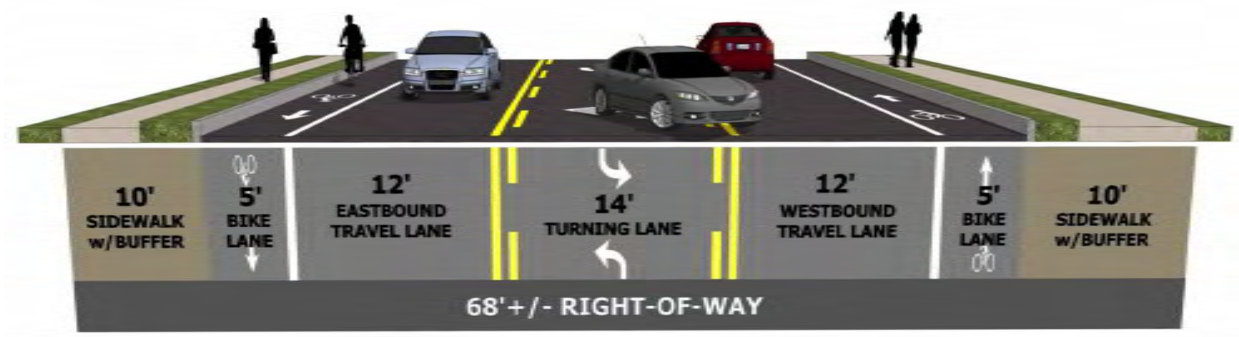
Figure 25: Eastern Gateway - Existing Cross Section



The existing cross-section of the Eastern Gateway fluctuates significantly throughout the approximately 0.75 mile long stretch of roadway. The existing cross-section shown in the above figure represents the minimal width of the cross-section extending from Cedar Street to Stallion Hill Road. East of Stallion Hill Road, the cross-section tends to widen as necessary to accommodate widening of the roadway for turning lanes and signalized intersections.

Under the existing cross-section, 6-foot sidewalks are located along both the north and side sides of the roadway throughout the Eastern Gateway. A raised median, composed of slope faced granite curb and pavers, is located throughout the Eastern Gateway. The median has a curb to curb width of 6 feet but does widen at some locations where is offsets turning lanes.

Figure 26: Eastern Gateway - Alternative I



The first alternative that was considered was removal of the raised center median and center travel lanes and placement of a two-way-left-turn-lane (TWLTL). Implementation of this alternative would also allow for 5-foot wide bike lanes in each direction and wider sidewalks. This alternative would have the greatest benefit for pedestrian and bicycle transportation but would likely be difficult to implement for several reasons. Studies have shown that the . However, multiple lane approaches to each signalized intersection would likely be required to maintain acceptable level of service and traffic flow through the corridor. This would results in only minor portions of Main Street

Additionally, removal of the raised median and widening of the sidewalk would require the repositioning of the existing curb line, and construction of both sidewalk and roadway, resulting in a costly alternative.

Figure 27: Eastern Gateway - Alternative II

Alternative II would maintain the existing curb line of the Eastern Gateway and include primarily streetscape and striping improvements. The 6-foot wide sidewalks on both sides of the roadway would remain. The two 11.5-foot wide ravel lanes in each direction would be reconfigured to an 11-foot wide inner travel lane and a 12-foor wide outer lane. The 12-foot wide outer lane would be accompanied by "sharrow" lane markings, providing a visual queue for drivers that bicycles are allowed full access of the travel lane. Alternative II would also include landscape improvements to the center median. The landscape improvements would consist of a combination of street trees and decorative pavers. Decorative lighting would also be included with the median with appropriate offsets between street trees and lamp posts.

Alternative II would be the most cost-effective alternative as the existing curb line and median alignment would be maintained. No right-of-way acquisitions would be required. The additional landscaping elements would provide an inviting corridor to visitors as they enter the Sturbridge CTD and help establish a more pedestrian friendly environment. The introduction of vertical landscaping elements within the median may also acts a vehicle slowing mechanism to help reduce speed and improve vehicle and pedestrian safety through the corridor.

Based on responses from member of the Working Group and member of the Sturbridge Community during Community Meeting II, Alternative II was selected as the preferred alternative for the Eastern Gateway.

Main Street (Route 20) & Brookfield Road/Holland Road (Route 148)

Geometric improvements were considered at the intersection of Main Street (Route 20) and Brookfield road/Holland Road (Route 148) as part of the Sturbridge CTD study. Based on comments from the Working Group and feedback from Community Meeting I, the intersection was analyzed for conversion to a single lane roundabout. Conceptual plans for a roundabout at the intersection are shown in Figure XX.

Figure 28: Route 20 & Route 148 – Alternative 1 Roundabout

The performance of the current intersection geometry and signal operation was compared to the performance under the roundabout alternative. The results are shown in Table 8.

Table 8: Capacity Analysis Results

		Existing Signalized Intersection		Roundabout Alternative	
		Delay (sec/veh) / LOS	**95th Percentile Queue Length (veh)**	**Delay (sec/veh)**	**95th Percentile Queue Length (veh)**
AM Peak Hour (7:45 – 8:45)					
NB	**Approach**	4.0 (A)	2	10.6 (B)	1
SB	**Approach**	18.7 (B)	#15	11.4 (B)	3
EB	**Left**	15.8 (B)	1		
	Thru/Right	22.4 (C)	9		
	Approach	21.9 (C)		14.2 (B)	3
WB	**Left**	15.5 (B)	2		
	Thru/Right	21.1 (C)	8		
	Approach	20.6 (C)		8.6 (A)	2
Intersection		**19.1 (B)**		**10.4 (B)**	
PM Peak Hour (4:30-5:30)					
NB	**Approach**	12.5 (B)	2	8.5 (A)	1
SB	**Approach**	42.9 (D)	#14	13.5 (B)	3
EB	**Left**	18.3 (B)	3		
	Thru/Right	10.1 (B)	8		
	Approach	11.0 (B)		12.3 (B)	3
WB	**Left**	8.7 (A)	2		
	Thru/Right	23.7 (C)	30		
	Approach	22.7 (C)		34.1 (D)	15
Intersection		**23.1 (C)**		**24.1 (C)**	

Main Street (Route 20) & Arnold Road

Traffic signal warrants were reviewed for the intersection of Main Street (Route 20) and Arnold Road to determine the need for installation of a traffic signal. Conclusions were made based on the traffic count data, crash history, and field observations.

Traffic signal warrants are provided in the Manual on Uniform Traffic Control Devices, 2009 Edition, (MUTCD) as a means of justification for the installation of a traffic signal. The study completed for the warrant analysis should include an analysis of the intersection, the existing or proposed volumes, and existing traffic and safety operations at the location. Nine signal warrants are available, at least one of which should be met prior to consideration of signalization. While they are useful indicators of the need for a signal, the satisfaction of a traffic signal warrant or warrants should not in itself require the installation of a traffic signal. The nine available traffic signal warrants are as follows, and a discussion of each as it pertains to the intersection of Main Street (Route 20) and Arnold Road.

- Warrant 1, Eight Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network
- Warrant 9, Intersection Near a Grade Crossing

Warrant 1, Eight Hour Vehicular Volume

The Eight Hour Vehicular Volume warrant, Condition B, is intended for use at a location where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. Per Table 4C-1 “Condition B – Interruption of Continuous Traffic” provided in MUTCD, the major street approaches to the intersection, Main Street (Route 20), should be a minimum of 750 vehicles per hour for eight hours of the day and the volume on the minor street approach to the intersection should be a minimum of 75 vehicles per hour for eight hours. Based on the counts

completed at this intersection, Main Street (Route 20) satisfies the warrant for 12 hours of the day, while Arnold Road satisfies the warrant for no hours of the day. Based on the traffic count data, this warrant is not satisfied, therefore Warrant 1 is not met.

Warrant 2, Four-Hour Vehicular Volume

To satisfy Warrant 2, the volumes on the major and minor street approaches to the intersection should fall above the applicable curve provided Figure 4C-1 in MUTCD for at least four hours of the day. From the count data, none of the peak four hours of traffic volumes at the intersection falls above the threshold curve. As such, Warrant 2 is not satisfied. The graph for Warrant 2 is attached to this memorandum.

Warrant 3, Peak Hour

The Peak Hour warrant is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor street suffers considerable delay when entering or exiting the major street. Similar to Warrant 2, this warrant is satisfied when volumes from both the major and minor street approaches plot above the applicable curve provided Figure 4C-3 in MUTCD. From the count data, both the a.m. peak hour traffic volumes and p.m. peak hour traffic volumes plot below the threshold curve. Therefore, Warrant 3 is not satisfied.

Warrant 4, Pedestrian Volume

The Pedestrian Volume warrant is intended for use in areas where the major street vehicular volume is so heavy the pedestrians experience excessive delay in crossing the roadway. Figure 4C-5 “Warrant 4, Pedestrian Four Hour Volume” provided in MUTCD, the minimum pedestrian volume that would satisfy this warrant is 175 pedestrians per hour. Based on the results of the counts, minimal pedestrian activity was observed throughout the day. Therefore, this warrant is not met.

Warrant 5, School Crossing

Warrant 5 is intended for use in areas where school children crossing the roadway is the primary reason for consideration of a traffic signal. For this warrant to be considered there has to be a minimum of 20 schoolchildren utilizing the crossing during the highest crossing hour. With no school located in the vicinity of the intersection, a crosswalk is not warranted.

Warrant 6, Coordinated Signal System

This warrant is intended for use when progressive movement along a corridor is dependent upon installation of a traffic signal at an intersection where it may otherwise not be warranted. Arnold Road is approximately one half mile from the closest signalized intersection at Cedar Street. With the limited number of signals along the corridor and the spacing between Arnold Road and the adjacent signals, this warrant is not met.

Warrant 7, Crash Experience

The Crash Experience warrant is applicable for locations where the severity and frequency of crashes are the primary reasons to consider signal installation. Five crashes with a 12-month period that can be considered susceptible to correction with the installation of a traffic signal are required to meet this warrant. Crash data for the Main Street (Route 20) corridor was collected from the Town of Sturbridge Police Department and MassDOT. Based on the crash data collected, this intersection did not have the required crash history to warrant signalization. The intersection only experienced two (2) angle collision and two (2) head on collisions within the five year period which could be considered as susceptible to correction with signalization of the intersection. Warrant 7 is therefore not met.

Warrant 8, Roadway Network

The Roadway Network warrant applies at the intersection of two major roadways to encourage concentration and organization of traffic flow. For this warrant to be considered the vehicular volume at an intersection must be over 1,000 vehicles per hour during the peak hour of a typical weekday and meet Warrants 1, 2 or 3 during an average weekday. From the count data, Warrants 1, 2 or 3 are not met as discussed above. Therefore, Warrant 8 is not met.

Warrant 9, Intersection Near a Grade Crossing

Warrant 9, Intersection near a Grade Crossing, is to be used when none of the criteria of the other eight signal warrants are met, but the proximity of the intersection to a grade crossing is the primary reason to consider a traffic signal. As there are no nearby rail crossings, this warrant is not applicable.

Main Street (Route 20) & Cedar Street

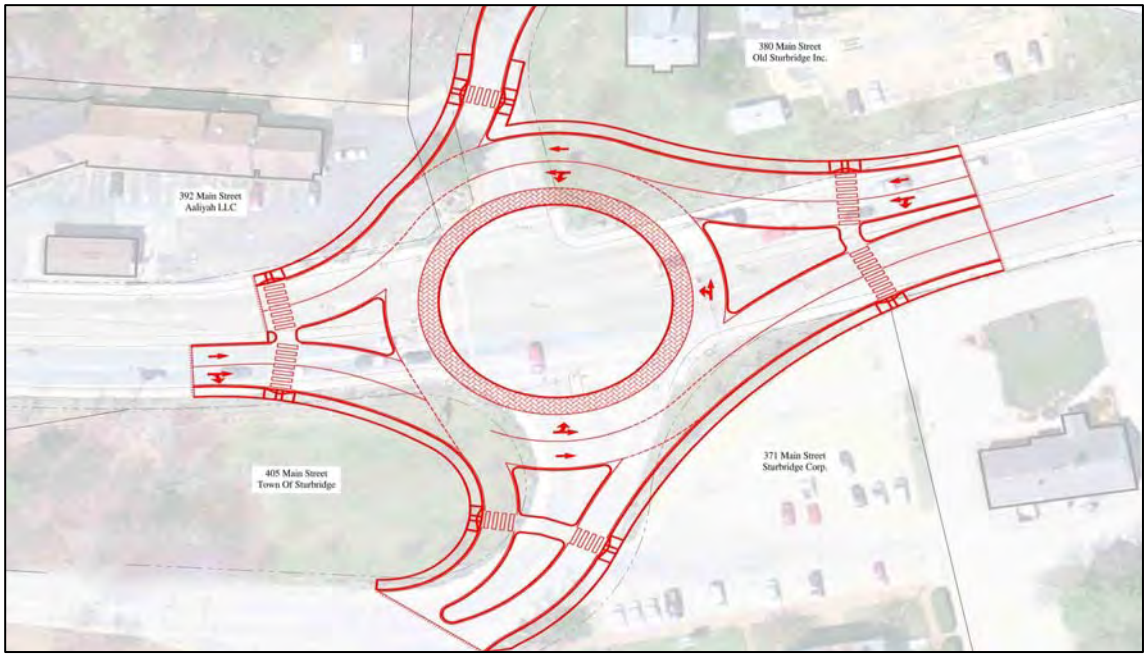
Based on the existing performance of the signalized intersection at Main Street (Route 20) and Cedar Street, the right-or-way restrictions within the vicinity of the intersection and horizontal and vertical alignment of the approaches to the intersection, geometric improvements at the intersection were not considered. The signalized intersection current operates at LOS B during both the a.m. and p.m. peak hours.

Several crash patterns, however, were observed at the intersection. Numerous rear ends collisions were observed within the crash data, however rear end collisions are typical at signalized intersections and generally low in severity. A significant amount of sideswipes in the same direction were observed in the westbound direction just west of the intersection where there is a reduction from one to two lanes Main Street (Route 20). Additionally, a number of angle collisions were observed involved the permitted left turn at the intersection. This occurred with Main Street (Route 20) & Stallion Hill Road.

Based on comments from the Working Group, feedback from Community Meeting I, and discussions with Old Sturbridge Village (OSV), several concerns regarding the geometrics and operation of the existing intersection were presented. The majority of the concerns surrounded the westbound jughandle at the intersection. The jughandle was described as confusing, especially to those visiting Sturbridge and unfamiliar with the area. When heading westbound on Route 20, visitors have to make a right turn into the jug handle prior to reaching Stallion Hill Road. Many visitors miss the left turn and are forced to reverse direction at Cedar Street. The problem is exacerbated by limited wayfinding signage into OSV.

A roundabout option was initially investigated at the intersection. A roundabout at the location would present a focal point within the corridor and provide wayfinding advantages to OSV. The roundabout would also present landscaping opportunities that could embody the colonial OSV theme. A conceptual footprint of the roundabout is shown in Figure 29.

Figure 29 Old Sturbridge Village/Stallion Hill Road – Preferred Design Alternative



The roundabout alternative would have significant impact on adjacent properties and require significant land takings. The skewed approach from Stallion Hill Road also presents geometric challenges at the intersection, making roundabout

Based on comments received during Working Group Meeting No. 4, an investigation into the potential of adding a westbound left turn lane at the intersection of Route 20 and Stallion Hill Road has been prepared. Considerations for adding the left turn lane included intersection geometry, traffic operations, right-of-way implications, way-finding to Sturbridge Village, and landscaping opportunities.

Although a center median currently exists at the intersection, the roadway would have to be widened to accommodate the turning lane. The existing median is 6 feet wide. In order to establish a 12-foot wide left turn lane, the roadway would have to be widened to the north or south.

The existing north leg (jug handle) would have to remain to serve U-turning westbound traffic on Route 20. Because of the median throughout the Eastern Gateway and the right turn only restriction placed on all the businesses driveways on the north side of Route 20, there is a substantial amount of traffic that uses the jug handle to travel east on Route 20. While smaller

vehicles could potentially use the proposed westbound left turn lane for U-turns, larger truck traffic would not be able to complete this movement. The jug handle would have to remain to serve U-turning traffic and traffic for the Burgess School.

Traffic operations with the existing intersection geometry were compared to those with the proposed westbound left turn lane. The analysis was performed using traffic count data collected during peak traffic periods on Wednesday, July 31, 2013. Level of service (LOS) criteria was used to compare operations under both scenarios and is summarized in Table 1. LOS is a quality measure based on vehicle delay experienced at an intersection. Six LOS are defined, from A to F, with A representing the best operating conditions and F representing the worst operating conditions.

Table 9: Capacity Analysis Results

		Existing Geometry		**Westbound Left Turn Lane**	
		Delay (sec/veh) / LOS	**95th Percentile Queue Length (veh)**	**Delay (sec/veh)**	**95th Percentile Queue Length (veh)**
AM Peak Hour (7:45 – 8:45)					
NB	**Left**	27.4 (C)	2	26.9 (C)	2
	Right	9.9 (A)	2	1.6 (A)	0
	Approach	16.6 (B)		11.3 (B)	
SB	**Left**	29.7 (C)	3	29.7 (C)	3
	Thru/Right	27.6 (C)	2	N/A	
	Approach	28.7 (C)		29.7 (C)	
EB	**Approach**	4.4 (A)	5	10.2 (B)	9
WB	**Left**	N/A		28.7 (C)	3
	Thru	3.8 (A)		3.8 (A)	2
	Approach	3.8 (A)	2	6.9 (A)	
Intersection		**7.6 (A)**		**10.4 (B)**	
PM Peak Hour (4:15-5:15)					
NB	**Left**	47.6 (D)	5	45.6 (D)	5
	Right	9.1 (A)	2	9.4 (A)	2
	Approach	25.8 (C)		25.1 (C)	
SB	**Left**	43.7 (D)	7	45.2 (D)	7
	Thru/Right	35.7 (D)	5	0.1 (A)	0
	Approach	40.4 (D)		42.9 (D)	
EB	**Approach**	5.2 (A)	6	11.7 (B)	10
WB	**Left**	N/A		36.4 (D)	5
	Thru	8.8 (A)		9.6 (A)	13
	Approach	8.8 (A)	8	11.5 (B)	
Intersection		**12.9 (B)**		**15.1 (B)**	

N/A – Not Applicable

Adding the left turn phase to the intersection slightly increases the overall vehicle delay at the intersection during both the a.m. and p.m. peak hours. The eastbound approach is expected to experience the greatest increase in delay. The intersection operates under an acceptable LOS under both the existing alternative and the left turn lane alternative.

Right-of-way would likely have to be obtained for the roadway widening from Old Sturbridge Village, who owns the property on the northeast corner of the intersection.

One of the major concerns regarding this existing intersection geometry is the impact it has on accessibility and way-finding to Old Sturbridge Village. Under the existing geometry, drivers heading westbound on Route 20 must turn right into the jug handle to reach OSV located on the south side of the intersection. The route to OSV is poorly signed and counter intuitive to westbound drivers. Introducing the left turn lane would allow drivers to avoid having to use the jug handle and provide a more direct route to OSV.

Widening the roadway would eliminate some of the green space on the north side of the intersection on the existing Visitor's Center property. The center median would likely be removed at the intersection to accommodate the left turn lane as well, eliminating the median as a potential landscaping improvement area.

Main Street (Route 20) & Route 131

Geometric improvements were considered at the intersection of Main Street (Route 20) and Route 131 as part of the Sturbridge CTD study. Based on comments from the Working Group and feedback from Community Meeting I, the intersection was analyzed for conversion to a single lane roundabout. Conceptual plans for a roundabout at the intersection are shown in Figures 30, 31, and 32.

Figure 30: Route 20/Route 131 Intersection – Preferred Design Alternative

Figure 31: Route 20/Route 131 Intersection – Preferred Design Alternative

Figure 32: Route 20/Route 131 – Preferred Design Alternative

SIGNAGE AND WAYFINDING

Signage throughout the Route 20 CTD has been identified as an issue both as part of this study and within other documents such as the 2011 Sturbridge Master Plan and Sturbridge CTD Improvement Plan. Two concerns with the existing signage consistently emerge throughout the previous studies and public comments. Sign clutter on Route 20 and the need for better wayfinding signage throughout the corridor and specifically to Old Sturbridge Village has been documented. The following memorandum summarizes the existing signage through the corridor and provides recommendations for reducing sign clutter and improving wayfinding to Old Sturbridge Village.

Existing Signage

The existing signage along the corridor consists of wide variety of sign sizes and styles. Signage consists of everything from large, distinct signs for chain restaurants and hotels like Friendly's and Motel 6 to engraved wooden signs with multiple business placards. Business signage plays a major role in the landscape of the corridor.

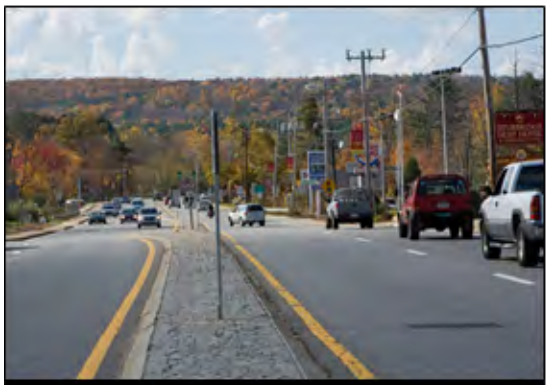
Some of the business signs are attractive and meet the traditional colonial style associated with Sturbridge as seen below in the photos. Other signs are unattractive, in poor condition, and not compliant with the latest Sturbridge Zoning Bylaws.


Attractive signage within the Sturbridge CTD

Many of the commercial properties within the CTD house multiple businesses. Multi-tenant commercial property signage generally consists of large signs with multiple placards, each with the name of a single business within the property. Some of the text on these signs is small and difficult to read. Others contain more information than can be grasped in a passing vehicle. Examples of multiple business signs are shown below.


Signs with multiple businesses within the Sturbridge CTD

Several locations within the corridor experience sign clutter, in particular, the Eastern Gateway. Businesses along the northern side of the Eastern Gateway tend to have large scaled signage that dominates the landscape within the area. Some of the properties have multiple signs, adding to the clutter and confusion.




Sign clutter in the Sturbridge CTD

In addition to the business signage that extends throughout the corridor, directional, regulatory and warning signs are also spread throughout the corridor. The majority of these signs are required based on the Manual of Uniform Traffic Control Devices, however, there are some signs that are no longer readable and can be removed or replaced.

The photo to the right shows an image of a faded, illegible sign that should be removed or replaced. It is recommended that the Town coordinate with MassDOT to remove or replace traffic signs that are no longer legible or necessary.

The Town of Sturbridge Zoning Bylaws Chapter 22 – Signs has recently been amended. Areas of the Bylaws relevant to this study include prohibited signs, lighting of signs, sign area, and setback distance from the roadway. Signage within the CTD, among other districts within the Town, is given specific square footage requirements based on the type of sign.

Examples from other communities could potentially be used by the Town of Sturbridge to enhance their sign related bylaws. The town of Conway, New Hampshire is one community that has adopted a comprehensive, thorough and user friendly signage guide that is attached to this memo. Unique sections included within North Conway's sign guide include:

- A section of pedestrian oriented off-site commercial sign to encourage pedestrian activity within their Commercial District.
- A sign incentive program which allows businesses to have increased square footage when meeting all other requirements.
- Easy to follow commercial sign regulations and diagram.

Similar sections could be included within the Town of Sturbridge Signage Bylaws, focusing on increasing pedestrian and bicycle activity, providing incentives to businesses for meeting various criteria, and preparing easy to follow restrictions and guidelines.

Wayfinding Signage

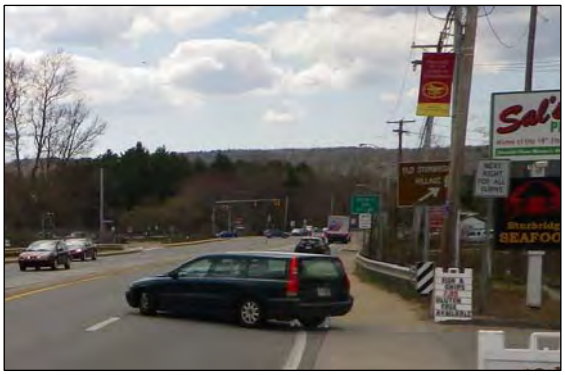
Illegible Signage within the Sturbridge CTD

Wayfinding signage has been identified as an area for improvement throughout the corridor. Specifically, wayfinding to Old Sturbridge Village (OSV) has been a concern. The difficulty in wayfinding to OSV can be attributed to the lack of signage, the

placement and design of signs, and the confusion surrounding traffic movements at the jug handle at the Route 20/Stallion Hill Road intersection.

Westbound drivers are first met by a sign to OSV as they proceed through the intersection of Route 20 and Route 131. The sign is situated within the intersection and is lost among other guide and regulatory signs. Additionally, drivers traveling through this location are more likely to be viewing the traffic signal adjacent to the OSV sign rather than the OSV sign itself.

OSV Signage at Route 131



OSV Signage approaching jug handle

Westbound drivers are then directed to the right with an OSV sign approximately 200 feet east of the entrance to the jug handle at Stallion Hill Road. This sign gets lost in the adjacent business signage.

An informational sign is located at the entrance to the jug handle with placards reading “Tourist Information Center” and “Old Sturbridge Village”. The text on the sign is small and difficult to read. Additionally the sign is situated away from the roadway.

Finally, there is sign for OSV on the southwest corner of the Route 20/Stallion Hill Road intersection. This sign is noticeable for eastbound drivers approaching OSV, however, it serves no directional purpose for westbound drivers. Westbound drivers must enter OSV from the jug handle and do not see this sign until they are traveling through the intersection having already committed to entering Stallion Hill Road.

Tourism signage at jug handle

OSV Signage at Stallion Hill Road

Two alternatives for improving wayfinding to OSV should be considered by the Town. The first would be to maintain the existing roadway layout and enhance signage to OSV from I-84. The existing signage is poorly placed and difficult for drivers to see. Forming a strategy for placement of new, highly visible, attractive signage clearly directing vehicles to the existing jughandle is the first OSV wayfinding improvement alternative. This could include replacing the old standard guide signs with brown backgrounds with new, more strategically placed and informative recreational and cultural interest roadway signage.

In addition to improving the signage to OSV a westbound left turn lane at the Route 20/Stallion Hill Road intersection could be considered. Poor signage and the fact that visitors to OSV have to use the jug handle to make a left turn into OSV is confusing. Visitors have to turn right to make a left turn which is counterintuitive to typical traffic operations and confusing especially for first-time visitors. A westbound left turn lane with proper signage would provide a more traditional approach into OSV and aid in reducing driver confusion at the intersection.

Tourism signage at Visitor's Center

Additional tourism related signage is limited throughout the corridor. An existing sign on the Visitor's Center property directs drivers exiting Stallion Hill Road to shopping, lodging, and dining. However, the sign is set back approximately 50 feet from the roadway and is difficult to see. Its location is also not viewable for the majority of traffic in the area travelling along Route 20.

Other tourist and lodging directional information is located on the westbound approach to Route 131. The information is provided on standard service related highway signing with blue backgrounds. This signage is shown below.

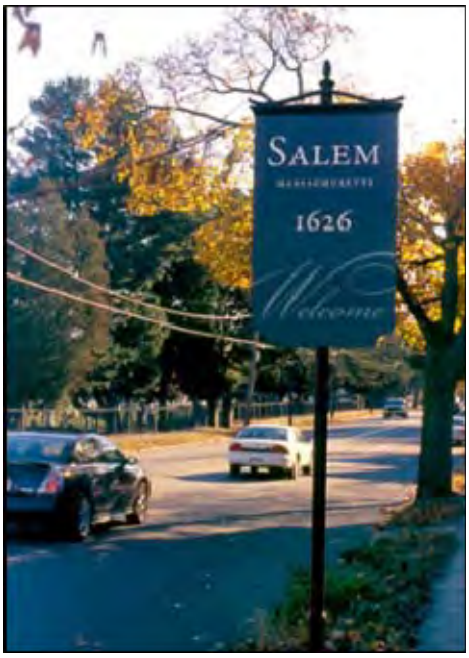
Lodging informational signage

Tourist informational signage

Additional tourism related signage is recommended throughout the corridor. Signage could potentially include guidance to the "Restaurant District", "Shopping District", "Public Parking", and various river access points for recreational activities. This signage could be provided on the traditional blue background informational signage or with decorative signage unique to the Sturbridge CTD.

There are many examples of district specific wayfinding signage from other tourism oriented communities. Examples from Newport, Rhode Island, and Salem Massachusetts and shown below.

Tourism oriented wayfinding, Newport, RI (Source: Roll Barresi & Associates)



Tourism oriented wayfinding, Salem, MA (Source: Roll Barresi & Associates)

STREET LIGHTING

Some of the goals established for street lighting within the CTD include:

- The desire to improve illumination levels, particularly at crosswalks, without over-illuminating the street.
- Using ornamental light fixtures to contribute to the overall character of the street.
- To minimize "clutter" along the street, using street lighting as a possible means, and
- To utilize LED's to improve efficiency and to reduce cost.

Based on these goals, the design team investigated the possibility of replacing the existing "cobrahead" lights on the utility poles with ornamental arms and luminaires, and then supplementing these lights with pedestrian scale lights. Using the existing utility poles would not require additional light poles along the street. With the Town's permission, NGrid was contacted to see if it would be allowed for ornamental arms and luminaires to be mounted on their utility poles. The response from NGrid was as follows:

> The Town would need to execute a Service Agreement and take service on the S-5 rate for the energy consumption as well as pay a discontinuance amount for the removal of the company's streetlights. NGrid does not approve or disapprove the Town's selection of luminaire but they do need to make sure that it is attached according to the items listed below.
>
> Installing decorative lights along Route 20 on NGrid wood distribution poles is acceptable from a Standards point of view but the standards have no bracket option that is designed for mounting to a round wooden pole.
>
> For this installation to be approved, the following provisions must be met:
>
> 1. Sturbridge must find an aluminum bracket designed for mounting to a wooden distribution pole. The bracket chosen must be approved by NGrid Standards Engineering prior to purchase or installation.
> 2. Attachment to the pole must be accomplished by means of one (or two) 5/8" galvanized machine bolts together with two (or more) 1/2" galvanized lag screws.
> 3. The bracket must not take more than 24 inches of vertical space on the pole.

4. A 6- inch clearance in any direction shall be maintained between any hole drilled into the pole and any other existing hole.

5. The luminaire must include ownership ID labels and ANSI wattage labels. (Municipal Lighting Standard #10 - page 4 of 13).

6. NESC clearances to NGrid primary and secondary conductors, and communications utilities must be adhered to. (Municipal Lighting Standard #10 - page 5 of 13).

7. The street light supply conductors must be #10 AWG stranded copper with RHH/RHW/USE2 insulation and mechanical protection must be installed. (Municipal Lighting Standard #10 - page 6 of 13).

8. The bracket must have a grounding bolt sufficient to accept a #4 AWG copper grounding conductor. (Municipal Lighting Standard #10 - page 7 of 13)

9. A two pole in-line fused disconnect must be installed so as to establish electrical separation from the NGrid secondary conductors. (Municipal Lighting Standard #10 - page 8 of 13)

10. Final connections to NGrid secondary conductors shall be made by National Grid crews.

The above ten provisions are based on National Grid having no ownership or maintenance responsibilities for these lights.

Based on this information there are several reasons why the consultant team does not recommend this approach.

- NGrid has never allowed this before. There would be unforeseen costs and schedule delays to work out the details for this strategy.
- Mounting ornamental arms and luminaires on utility poles that will continue to carry many wires may not achieve the aesthetic goal for the lighting.
- The S-5 rate for energy consumption may not take into account the full savings that are achieved using an LED lamp.

The design team is recommending that the Town purchase and install new street lights along the Main Street corridor, and install meters and pay NGrid for the electricity used. This presumably would have a high capital / initial cost, and a lower maintenance cost for the town, with less maintenance and electricity consumption due to the use of LED's.

Because the overhead wires and utility poles have such a significant impact on one side of the street, we recommend installing ornamental roadway lights on the side of the street with no utility poles, and then supplementing with pedestrian scale lights on the opposite side of the street and where necessary for improved illumination. Images of the proposed lights are below.

Proposed

Ornamental Lights

LANDSCAPING

Throughout the study process, an important factor for the project was the overall aesthetics and the amenities that would ultimately be incorporated into the design. Items and options that were felt to be appropriate with the characteristics of the corridor were provided for review by the Working Group and the public. Landscape amenities for such items as Ornamental Traffic Signals, decorative pedestrian pavement for the sidewalks, edge treatments, benches, trash receptacles, bicycle parking post and landscaping options were presented and selected. The preferred option for each is shown below.

Ornamental Traffic Signals, Pedestrian and Roadway Lights, and Landscaping

Decorative Pedestrian Pavement – Stamped Concrete Border

Benches – Wood or Recycled Composite Slats with Metal Arms and Legs

Trash Receptacle

And

Bicycle Parking Post

UTILITY UNDERGROUNDING

Throughout the conceptual study phase process, the desire by the Community to underground the utilities, in particular in the Western Gateway, was an item that was overwhelmingly agreed to be considered as the project goes forward. Although agreed it is a costly investment it is a recommendation that the Community felt should seriously be considered going forward. An initial cost for the undergrounding of utilities is approximated at $1.5 million per mile.

COSTS AND FUNDING

A preliminary cost estimate (found in the Appendix) was prepared for the preferred design based on the preferred design selected. The preferred conceptual design plans are provided under a separate cover. The overall cost of the project (based on current dollars) is approximately $13 million if done as one project. If the availability of funding is limited, it is recommended that this project be advertised and constructed in phases. Recommended phases could include:

- *Western Gateway (Route 148 to Cedar Street)*
  - Costs are estimated for this phase at approximately $6.9 million.
  - Includes the following major work items:
    - New and wider decorative sidewalks on the north side of the road
    - New, decorative sidewalks on south side of the road
    - Undergrounding of utilities
    - Decorative lighting
    - Street trees and plantings
    - Roadway Improvements
    - Drainage Improvements
    - Curb removal and resetting
    - New granite curbing where necessary

- *Eastern Gateway (Cedar Street to Route 131)*
  - Costs are estimated for this phase at approximately $3.5 million.
  - Includes the following major work items:
    - New and wider decorative sidewalks
    - Decorative lighting
    - Street trees, plantings and pavers
    - Roadway Improvements
    - Intersection Improvements at Stallion Hill Road
    - New crosswalk at Sturbridge Host Hotel

- *Route 20 & Route 131 Intersection*
  - Costs are estimated for this phase at approximately $2.8 million.
  - Includes the following major work items:
    - New roundabout
      - Roadway realignment
      - Roadway Construction
      - Drainage Improvements
    - Median and island plantings
    - Decorative lighting

Several opportunities are available and should be considered for the funding of the Route 20 Corridor CTD Project. Sources initially identified include the following:

- *State Transportation Improvement Program (TIP)*
  - It is a prerequisite to go through the TIP Process in order to be eligible for Federal Funds
  - TIP uses a mix of Federal & State funds
  - These dollars may be available for enhancement related projects

- *MassWORKS*
  - Annual funding round available in September
  - Typical Grant Awards are between $2 million to $10 million
  - This type of funding requires local private investment
  - The use of local contributions enhance competitiveness for receiving Grant

- *OTHER OPPORTUNITIES*
  - Funding for Recreation & Trails
  - Tourism Sources

Appendix A

Intercept Survey

Location_____ Date_____

Gender: ☐Female ☐Male

Day: S M Tu W Th F S

AGE			
	☐ Under 14yrs	☐ 14 to 18 yrs	☐19 to 25 yrs
	☐ 26 to 34 yrs	☐ 35 to 49 yrs	☐50 to 64 yrs
	☐ 65 to 74 yrs	☐ 75 yrs &	

TIME		
	☐ Early Morn'	☐ Morning
	☐Noon Time	☐ Early Aftn
	☐ Late Aftn	☐ Evening

We are working with the Town to do an improvement study for Route 20 in Sturbridge. We are talking to people using Sturbridge today, and could you help us by answering a few questions? It will only take a couple of minutes. Thank you!

1. Why are you on Main Street, Sturbridge today?

☐ Shopping ☐ Food/Eating ☐Post Office ☐ Bank ☐ Visiting ☐ Antiquing
☐Hair/Barber ☐ Walking ☐ OSV ☐ Other_____

2. How did you get to Main Street, Sturbridge today?

☐ By Car ☐ Walked ☐ Bicycle ☐ Other_____

3. Will you be shopping or eating out elsewhere today? ☐ Yes ☐ No

3a. If yes, where?_____

3b. Will/did you be going to the Old Sturbridge Village today? ☐ Yes ☐ No
3c. Will/did you be going to the Brimfield Fair today? ☐ Yes ☐ No

4. How much do you anticipate spending in Sturbridge today? $_____

5. Could you tell us the zip code of where you live? ___ ___ ___ ___ ___

If you live in the Sturbridge area, could you please tell me the closest street corner/ intersection to where you live?_____

6. Have you or will you be staying overnight in Sturbridge during this visit?

- ☐ **Year-round resident of Sturbridge area**
- ☐ **Visiting just for the day**
- ☐ **Staying overnight in Sturbridge (hotel, motel, B&B)**
- ☐ **Staying overnight at area campgrounds**
- ☐ **Staying overnight not in Sturbridge**

7. What suggestions do you have to improve this portion of Sturbridge?_____

_____

_____

_____

Thank you for your time and help! Sturbridge Commercial Tourism District Project Intercept Survey 2013

Appendix B

Intercept Survey Comments

Traffic

- Need a third line added to provide a turn/passing lane.
- Traffic only busy during Flea Market.
- Traffic is heavy, would like more lanes.
- Dunkin Donuts is causing backup in morning- needs a drive up.
- Brimfield Fair causing back up to Wal-Mart.
- Travel on one side at a time to run errands in order avoid difficult time with getting in/out on Route 20. Traffic light near route 148 needs left hand turn arrow. Divided highway near Sturbridge Village is a good idea.
- Route 20 has lots of congestion. Hard to exit from stores.
- Lights are need, but not sure where.
- Traffic is heavy between 4:30- 6:00 PM. Travel on Route 20 difficult at that time.
- Traffic. Turning left either way is difficult.
- Better management of traffic; 3rd lane in the middle. Going west when it goes from 2 lanes to 1 lane is difficult
- More cops during flea market – traffic-wise.
- Traffic on weekends. Flea market traffic is insane. Need middle lane for turning. Left turns cause traffic problems. It takes 15 minutes in the morning am commute to go from light at 148 to the MassPike.
- Speed limit is too fast. Loose business because of difficult entry/exit flow into stores. Need slower speed limit from Route 146 to plaza with Subway Shop.
- Re-direct Flea Market traffic. Widen Route 20. Don't like rotary. Need traffic lights near coffee shop area. Need traffic calming – no one gives a break to enter/exit into Route 20.
- Traffic lights in area near coffee shop.
- Has heard parking lanes would be added and thinks that would be a bad idea! Route 131 loop around is bad; it's confusing. Need green arrow for left turn west to east. Should have a traffic light at Arnold Road and Route 20 at Senior Center.
- Route 20 should be two lanes each way through town; but doesn't think it could be done now.
- Route 20 should be a double lane. Speed limit should be raised by ten miles.
- Less police.
- Should be two lanes of traffic. Doesn't like median near village. Would like a bike lane.
- Traffic flow onto Route 20 – can't get out on Route 20. Need a light at intersection where Senior Citizen Center is located. Accidents have occurred at this intersection.
- Heard Route 20 was going to be narrowed – that makes no sense. There is not enough space to put in parking behind buildings.
- Need traffic signals at route 148. Level of service not acceptable. One lane is too narrow for volume of traffic. Need two lanes with bike lane, but bike lane could be

designed waivered. A bike path is parallel. Need engineering study for Arnold road. Possibly a rotary at Cedar Street.

- Biggest problem with traffic is between 4 and 6 pm. You can't get out. Sometimes one has to wait 10 minutes. Need a light at Crescent Gate.
- Crosswalks and sidewalks on both sides of the road
- Stoplight at the corner with Crescent Gate and the Stageloft Theater!
- improving walking
- SLOW DOWN TRAFFIC & THE NOISE
- Traffic – getting in and out of places
- Slow down the speeds. Trucks – well all cars -- are going fast
- Enforce the speed limit
- Make walking easier – sidewalks; things not close enough together
- Intersection near Country Curtains – People frequently do U-turns. Speed on roadway is too fast coming off the Pike.
- Cedar Street Intersection cuts down to two lanes, traffic gets backed up; needs left hand turn lane.
- At Bank of America location- left turn out is difficult.
- (Out of State Visitor Comment) Won't go past entry area i.e. past divided road area because traffic is a disaster- especially going to Brimfield Fair.
- Likes jug handle. Would like more alternate routes.
- Likes Divided Road area coming into Sturbridge.
- Too busy during Brimfield Fair days.
- Doesn't like how U-turn is set up.
- Open up Route 20 – too congested.
- Copes by avoiding traffic during busy times.
- Traffic is bad with Flea Market in town. Not sure if more lights would help.
- Turning into Yankee Spirit Plaza is difficult– traffic moves very fast coming in from highway.
- Entering/Exiting into Route 20 for businesses is difficult.
- 5:00-6:30 Pm period traffic is very congested.
- Need more lights by Senior Center.
- Need to make two lanes travel both ways on Route 20.
- Divided highway down at Sturbridge Village is bad for walkability in Sturbridge. Town needs to be more business friendly. Too many regulations.
- Need more sidewalk cafes. Improve walkability. Need more things to walk to. Traffic is very busy. Need more signage near crosswalks to warn drivers of pedestrian traffic.
- Subway – better parking

- Congestion is a problem especially during Flea Market- Avoids travel in area during those times.
- Doesn't like rotary.
- Entrance is hard to enter into at Yankee Spirits. Speed limit should be lower. Walkability on route 20 – Have young family, won't walk with stroller on walks on route 20.
- Route 20 – should be wider, faster.
- U-turns cause confusion- not enough signage.
- Traffic too heavy.
- Roundabouts are an issue.
- Doesn't like double lanes entering Sturbridge. Need more Businesses on route 20 – small independents not chains. More restaurants. Rents are high for businesses – hard on small businesses.
- Traffic is difficult to get in and out of businesses on Route 20 – has trouble at Cumberland Farms and Southbridge Credit Union – need lights. Traffic Light systems between Sturbridge and Brimfield should be coordinated during Brimfield Fair days. They used to be and traffic flowed better.
- Walkability- better walking conditions.
- 8:00-8:20 AM is very busy with traffic on Route 20- Route 20 is only route out of town. It is difficult to enter/exit plaza at Subway sub shop.
- Avoids coming in summer because of traffic- (out of state visitor)

Landscaping/Corridor Atmosphere

- Place utilities underground. Make a bike path. Improve walkability- provide benches for walkers. No restroom areas, these need to be added.
- Façade improvements needed.
- We like it; had a good time in Sturbridge. You can see the stars here.
- Improve the aesthetics and the maintenance.
- Clean it up.
- Make it more visually appealing
- Make it pretty and historic.
- Nice and scenic.
- Nice little town; no complaints
- It's good; I like it
- More Trees, More Plants
- Install a decorative arch over the street that is decorated for the holidays
- Thinks turning Turner's Field into parking lot is wrong – believes it's the oldest baseball field in country- has historic value.

Business

- Like coming here. Like range of prices.
- Type of business- bead store (Charlton Mills used to sell beads.)
- Would like an Aldi's store- Food Grocery store. Papa Gino's restaurant.
- No drive thru(s)
- Would like to see a Red Robbin restaurant.
- Allow new Cumberland Farms. Add a drive-thru at Dunkin Donuts
- We like it. It's been like this for years.
- Not really; How to access OSV would be helpful.
- Drive thru at Dunkin Donuts. Traffic is hectic. People get mad because of no drive
- Dunkin Donuts needs a drive thru. Traffic.
- More businesses;
- Would like better restaurants – i.e. Steakhouse
- Open later
- Events that encourage people to walk, such as a restaurant week or taste of Sturbridge
- Would like a bookstore.
- More shops to interest people- but not more restaurants.
- More antique shops- Shop need to able to use A-frame signs to announce sales and specials - be more business friendly. Loss of businesses is hurting tourism.
- More parking for tourists. Better signage for small businesses. Taxes are high.
- More shops – more retail. Would like to see a hotel i.e. Host offer two/three day packages to encourage longer stays. Walkability on Route 20 is poor.
- Would like a Casino—would provide entertainment and jobs for the area. Would like a Christmas Tree Shop.

Other

- Duck Race
- No opinion- make do with the way it is.

Appendix C

Costs

Sturbridge CTD Improvement Project
Draft Cost Estimate Summary
November 20, 2013

PARE CORPORATION

	Roadway Segment									
Item	**1) Route 148 to Church Street**	**2) Church Street to Bates Hill Road**	**3) Bates Hill Road to Arnold Road**	**4) Arnold Road to Stageloft Theatre**	**5) Stageloft Theate to Cedar Street**	**6) Cedar Street to Stallion Hill Road**	**7) Stallion Hill Road to Fairgrounds**	**8) Route 20 & Route 131**	**Projectwide Items**	**Item Total**
Concrete Sidewalk with Brick Trim	$43,725.54	$149,704.38	$161,562.15	$138,587.72	$195,653.25	$15,563.33	$202,323.24	$99,308.84	-	$1,006,428.44
R&D Sidewalk	$3,235.56	$10,577.78	$13,937.78	$7,342.22	$16,675.56	$1,742.22	$10,453.33	$4,728.89	-	$68,693.33
Granite Curb (new)	#N/A	$55,640.28	$25,812.50	$60,229.17	$39,005.56	$13,193.06	#N/A	$174,664.58	-	$368,545.14
Granite Curb (R&R)	$23,008.33	$45,319.44	$69,722.22	$36,604.17	$79,831.94	#N/A	$107,023.61	#N/A	-	$361,509.72
Remove Drainage Pipe / Install Drainage Pipe	$25,549.63	$167,350.07	$63,874.07	$25,549.63	$25,549.63	#N/A	$38,324.44	$127,748.15	-	$473,945.63
Remove and Replace Drainage Structure	$5,450.00	$43,600.00	$27,250.00	$10,900.00	$10,900.00	#N/A	$65,400.00	$65,400.00	-	$228,900.00
Repaving	$117,891.60	$140,718.65	$147,942.40	$118,469.50	$238,094.80	$185,794.85	$397,595.20	$115,580.00	-	$1,462,087.00
Decorative Traffic Signal Equipment	$137,500.00	#N/A	#N/A	#N/A	$137,500.00	$137,500.00	#N/A	#N/A	-	$412,500.00
Removal of Paved Roadway	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	$69,680.00	-	$69,680.00
Full Depth Roadway Construction	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	$279,142.64	-	$279,142.64
Site Furnishings and Amenities	$24,900.00	$24,400.00	$0.00	$0.00	$35,650.00	$30,900.00	$33,900.00	$44,800.00	-	$194,550.00
Lighting	$112,600.00	$207,800.00	$216,400.00	$181,800.00	$262,600.00	$188,000.00	$274,400.00	$220,400.00	-	$1,664,000.00
Planting	$29,750.00	$20,025.00	$9,900.00	$6,300.00	$21,300.00	$53,950.00	$68,800.00	$171,300.00	-	$381,325.00
Total	**$524,000.00**	**$866,000.00**	**$737,000.00**	**$586,000.00**	**$1,063,000.00**	**$627,000.00**	**$1,199,000.00**	**$1,373,000.00**	**$197,000.00**	

Project Subtotal	$7,172,000.00
15% Misc.	$1,076,000.00
Police Details	$1,600,000.00
M&P of Traffic (10%)	$718,000.00
10% Mobilization	$718,000.00
15% E&C	$1,693,000.00
Project Total	$12,980,000.00

Phased Construction Breakdown		
Phase 1 - Western Gateway		$6,577,000.00
Phase 2 - Eastern Gateway		$3,550,000.00
Phase 3 - Route 20 & Route 131		$2,847,000.00
Burying Utilities		$3,000,000.00
	Total	**$15,974,000.00**