

EASTERN GATEWAYS STRATEGY AND IMPLEMENTATION PLAN

APRIL 2019



FITZGERALD & HALLIDAY, INC.
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ACKNOWLEDGMENTS

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TABLE OF CONTENTS

Executive Summary	1
1. Introduction	6
A. Purpose	7
B. Plan Development	7
2. Transportation Conditions	10
A. Transportation Network Overview	12
B. Travel Demand	13
C. Traffic Operations, Parking and Safety	16
D. Bicycle and Pedestrian Environment	22
E. Transit System	28
F. Transportation Issues and Opportunities	31
3. Environmental Conditions	33
A. Environmental Assets and Constraints	35
B. Utilities	36
4. Development Opportunities	37
A. Existing Land Use	39
B. Community Appearance and Design	40
C. Zoning and Future Land Use Policy	42
D. Market Conditions and Trends	42
E. Summary of Findings	44
5. Corridor Vision and Planning Land Use Scenario	45
A. Community Visioning	46
B. Land Use Planning Scenarios	50
C. Future Travel Conditions	56
6. Recommendations	59
A. Development of Recommendations	60
B. Local Recommendations	61
C. Regional Recommendations	77
7. Implementation	107



EXECUTIVE SUMMARY



The purpose of the *Eastern Gateways Strategy and Implementation Plan (Plan)* is to develop pro-active strategies to address current and long-range travel demand surrounding the areas of Route 44 and Route 195 in the Towns of Bolton, Coventry, Mansfield, Tolland, and the University of Connecticut (UCONN). This study is also intended to identify opportunities to build on and enhance transportation system assets and community character.

The study effort focuses on the area that includes Route 44 between Interstate 384 (termination) to Route 195, and Route 195 between Interstate 84 (I-84) at interchange 68 and Route 66.

The development of this *Plan* was sponsored by the Capitol Region Council of Governments (CRCOG) in partnership with the four towns of Bolton, Coventry, Tolland, Mansfield, and with UCONN.

The findings and outcomes of the Route 44 and Route 195 corridor study process highlighted the unique issues along the corridor associated with the anticipated increase of investment in development opportunities, higher education, and research. It was clear that a variety of transportation, economic development, and natural resource priorities needed to be balanced to reach the shared corridor vision, which is as follows:

“Route 44 and Route 195 in Bolton, Coventry, Mansfield, and Tolland are known regionally as eastern gateways in Connecticut that blend rich rural character and scenic viewpoints with cohesive town, village, and educational centers that reflect a sense of community and vibrancy.”

This *Plan’s* recommendations have been developed to strike this balance while still addressing the needs of

stakeholders. To begin this process, the team developed a set of preliminary concepts based on information from the existing conditions analyses, previous reports, best practices research, and the public input received throughout the study.

To confirm that these concepts comprehensively reflect the community’s priorities, the Study Team invited the public to participate in a series of public meetings. The first series of public meetings consisted of “pop-up” events that were held during community events to gain input from the general public on their vision and priorities for the corridor. The pop-up events were held in April and May 2016. The second series of public meetings held in November and December 2016 engaged the public to provide ideas and potential solutions to address the transportation issues and opportunities. A summary of the corridor plan recommendations was presented and discussed at the third and final series of public meetings held in April and May 2018. These meetings engaged the public to provide comments on the proposed concepts and to also provide comments on the priorities of the proposed strategies. Additionally, we received input from various town commissions and committees on the proposed concepts.

Four meetings were held with the Technical Advisory Committee to provide study updates and garner feedback. Continued engagement and transparency throughout the study process allowed the community to stay informed, involved, and to develop a sense of ownership of the study through the opportunity to view updated material on the study’s website and submit comments. The feedback received during all of these events has been taken into consideration in the development of the final recommendations.

The perspective taken throughout this study has simultaneously taken local priorities into consideration while considering the corridors regionally as a cohesive whole. This is in keeping with the corridor’s mission to provide a transportation network that is for all users, efficient and safe, balances local and regional needs for travel, commerce, and education and provides key connections between activity centers. The recommendations are intended to outline an agenda for the four local towns and the region working towards the community vision over time.



Implementation

The recommendations presented in this *Plan* complement current and future planning efforts within the study area, as well as those at a regional and state-wide level. The recommendations focus on improvements that accomplish the vision as defined by the communities.

The recommendations are organized into two categories, local and regional recommendations. The Implementation Table contains a complete detailed listing of all recommendations. It also includes information on priority, time frame, designated local

champions, and order-of-magnitude cost estimates for each. Actual project costs will be dependent on a number of variables, including the year of construction, property and/or environmental impacts, etc.

The priority level of each recommendation was identified based on input from the communities and the Technical Advisory Committee. The priority considered which improvements would be most necessary to address safety and operations, would be transformative to the transportation network, and would most strongly align with the vision.

This *Plan* provides a blueprint for the future of the communities. Upon implementation, this *Plan's* recommendations will provide a transportation network that is for all users, balances local and regional needs for travel, commerce, and education and provides key connections between activity centers making the Eastern Gateway region a special and unique place.

Implementation Table - Local Recommendations

	Purpose	Number	Recommendation Description	Location	Priority	Timeframe	Local Champion	Cost Estimate
Focus Area Recommendations	<ul style="list-style-type: none"> Improve Traffic Operations 	1.1	Route 44 and Quarry Road <ul style="list-style-type: none"> Endorse shared-use path along Route 44 Endorse the long-term safety improvements to the I-384, Route 6, and Route 44 interchange recommended in the Route 6 Hop River Corridor Transportation Study Implement incident management strategies as part of Connecticut's Strategic Highway Safety Plan (SHSP) 	Bolton	High	Short-term	Bolton	\$0
	<ul style="list-style-type: none"> Access Management Enhance Development Centers 	1.2	Route 44 and Route 31/Bread and Milk Street <ul style="list-style-type: none"> Realign Northfield Road and Swamp Road Conduct a study to assess alignment for new connection to Route 44 to create a 4-way intersection 	Coventry	High	Mid-term	Coventry	\$1,477,000
	<ul style="list-style-type: none"> Improve Traffic Operations Access Management, Pedestrian Safety and Mobility 	1.3	Route 44 and Route 31/Main Street <ul style="list-style-type: none"> Add a left-turn lane on Main Street and a receiving lane on Route 44 westbound Realign residential driveway Close Stage Road access at Route 44 Install landscaped median Provide crosswalks and sidewalks Consider shared driveways or relocation of driveways for businesses 	Coventry	High	Mid-term	Coventry Planning and Zoning Commission	\$2,085,000

Implementation Table - Local Recommendations (Continued)

	Purpose	Number	Recommendation Description	Location	Priority	Timeframe	Local Champion	Cost Estimate
Focus Area Recommendations	<ul style="list-style-type: none"> Improve Traffic Operations 	1.4	Route 44 and Route 32 <ul style="list-style-type: none"> Add curb extensions on the southern corners Add left-turn lane along northbound approach of Route 32 Add left-turn lane along westbound approach of Route 44 	Mansfield	Medium	Short-term	Mansfield	\$36,000
	<ul style="list-style-type: none"> Enhance Bicycle and Pedestrian Networks Access Management 	1.5	Route 195 between I-84 and Goose Lane <ul style="list-style-type: none"> Provide sidewalks along the east side of Route 195 and add crosswalks at key intersections Support the Tolland Technology Zone project's proposed shared-use path from Goose Lane to Baxter Street 	Tolland	High	Short-term	Tolland	\$512,000
	<ul style="list-style-type: none"> Improve Traffic Operations 	1.6	Route 195 and Baxter Road <ul style="list-style-type: none"> Add curb extensions on the southwest corner Consider future signalization 	Tolland	Low	Mid-term	Tolland	\$12,000
	<ul style="list-style-type: none"> Improve Traffic Operations 	1.7	Route 195 and Route 32 <ul style="list-style-type: none"> Add right-turn lane along Route 195 southbound Add curb extension on northeast corner 	Mansfield	High	Mid-term	Mansfield	\$181,000
	<ul style="list-style-type: none"> Pedestrian Safety 	1.8	Route 195 between Route 44 and Tower Loop Road <ul style="list-style-type: none"> Conduct a study to assess the feasibility of a sidewalk along Route 195 between Route 44 and Tower Loop Road Install a sidewalk pending results from the feasibility study 	Mansfield	High	Mid-term	Mansfield	\$957,000
	<ul style="list-style-type: none"> Access Management and Pedestrian Safety 	1.9	Route 195 between Riverview Road and North Frontage Road <ul style="list-style-type: none"> Install landscaped medians Restripe pavement markings Provide crosswalks and sidewalks Consider relocation of driveways Provide new transit stop 	Mansfield	High	Mid-term	Mansfield	\$628,000

Implementation Table - Regional Recommendations

	Purpose	Number	Recommendation Description	Location	Priority	Timeframe	Local Champion	Cost Estimate Ranges
Bicycle and Pedestrian	<ul style="list-style-type: none"> Enhance Bicycle and Pedestrian Networks Enhance Development Centers 	2.1	Multimodal opportunities along Route 44: Endorse existing shared-use path planning efforts	Bolton	High	Short-term	Bolton	\$0
		2.2	Multimodal opportunities along Route 44: Extend shared-use path to Route 31	Coventry	Medium	Mid-term	Coventry	>\$1,500,000
		2.3	Multimodal opportunities along Route 195: Endorse existing shared-use path planning efforts	Tolland	High	Short-term	Tolland	\$0
		2.4	Multimodal opportunities along Route 195: Extend shared-use path between Route I-84 and UCONN Campus	Tolland, Mansfield	Low	Long-term	Tolland, Mansfield	>\$1,500,000
		2.5	Provide pedestrian facilities at community centers	All Towns	High	Short-term	All Towns	\$500,000 to \$1,500,000
		2.6	Assess potential for additional bicycle route designations along regional network	Coventry, Tolland, Mansfield	Medium	Mid-term	Coventry, Tolland, Mansfield	\$500,000 to \$1,000,000
Signal Optimization	Improve Traffic Operations	3.1	Optimize signal timings at all signalized intersections	All Towns	High	Short-term	All Towns	<\$500,000
	<ul style="list-style-type: none"> Incident Management Travel Demand Management 	3.2	Upgrade signal operations to include traffic signal preemption	All Towns	High	Short-term	All Towns	<\$500,000
Transit	Enhance Transit Service	4.1	Expand WRTD service and frequency	All Towns	High	Mid-term	All Towns	<\$500,000
		4.2	Build on early success of express bus service	Coventry	Medium	Long-term	Coventry	\$500,000 to \$1,000,000
		4.3	Enhance existing services to unserved areas	All Towns	High	Long-term	All Towns	<\$500,000
Development Sites	Enhance Development Centers	5.1	During the planning and permitting process, communities should incorporate best practices for development sites	All Towns	High	Short-term	Planning & Zoning Commissions	\$0
Special Events	<ul style="list-style-type: none"> Improve Traffic Operations Travel Demand Management 	6.1	Create a Special Event Management Task Force to develop a Special Event Management Plan	All Towns	High	Short-term	Regional & Municipal Working Group	\$0
Corridor Identification	Placemaking	7.1	Create a task force to create a town and corridor identity strategy	All Towns	Medium	Short-term	All Towns	\$0
		7.2	Install consistent design elements at key gateways	All Towns	Low	Mid-term	All Towns	\$500,000 to \$1,000,000
		7.3	Develop wayfinding & signing network for bicyclists and pedestrians	All Towns	Medium	Mid-term	All Towns	\$500,000 to \$1,000,000
		7.4	Coordinate Eastern Gateways wayfinding and signage network with UCONN's wayfinding System Plan	All Towns	High	Short-term	All Towns	\$0

CHAPTER ONE: INTRODUCTION



A. Purpose

The purpose of the *Eastern Gateways Strategy and Implementation Plan (Plan)* is to develop pro-active strategies to address current and long-range travel demand surrounding the areas of Route 44 and Route 195 in the Towns of Bolton, Coventry, Mansfield, Tolland, and the University of Connecticut (UConn). This study is also intended to identify opportunities to build on and enhance transportation system assets and the communities' character. Based on public and stakeholder input, field

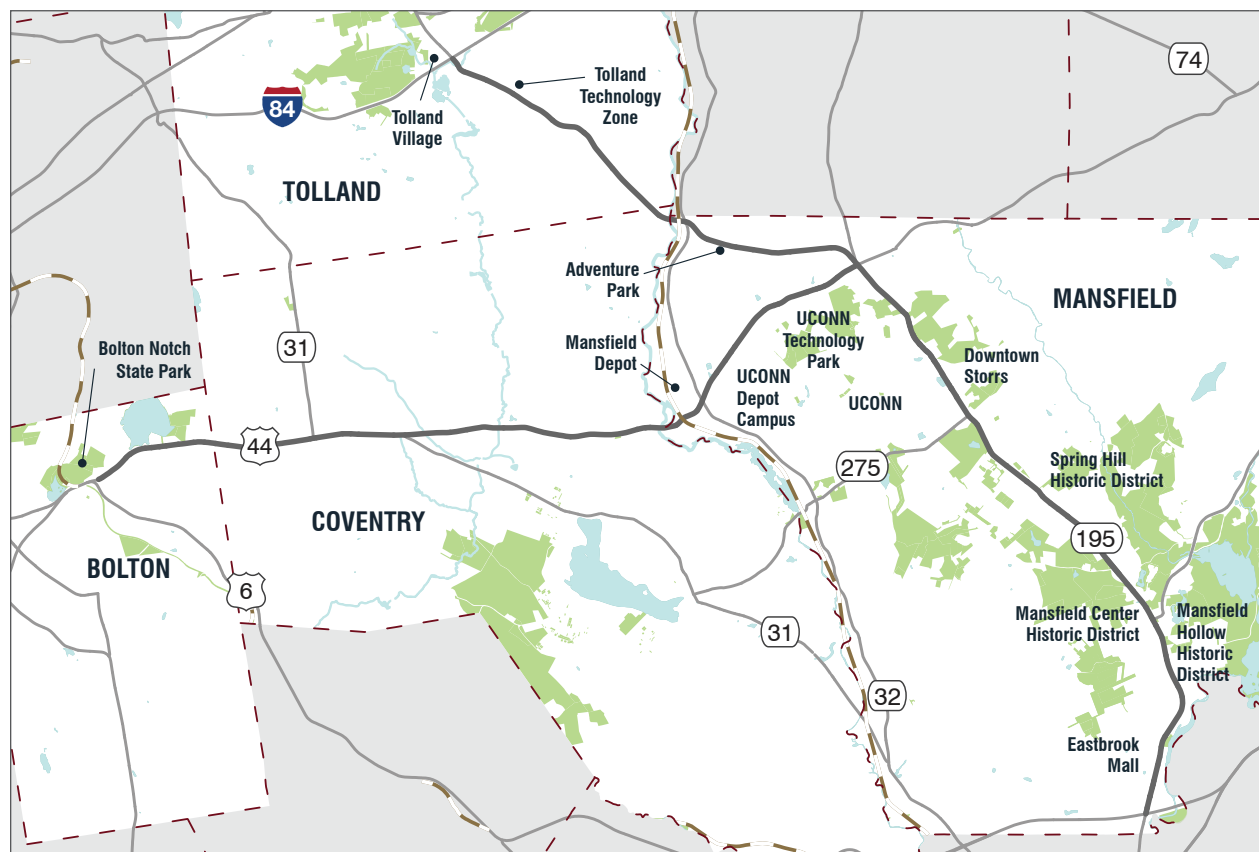
data, existing plans, and innovative design options that are acceptable to stakeholders, the *Plan* will serve as a conceptual plan for future design and construction of improvements or projects within the corridor. The *Plan* will also build on opportunities to enhance a seamless intermodal design along the corridors.

The study effort focuses on the area that includes Route 44 between Interstate 384 (termination) to Route 195, and Route 195 between Interstate 84 (I-84) at interchange 68 and Route 66. The area studied includes Route 44 and Route 195, as described above, as well as the areas that

exist within approximately 1/2 mile of the designated sections of the corridors. The study also considers areas of cohesive development that are anticipated in future planning years.

The *Plan* achieves the following:

- Establishes a vision for the corridors, both locally and regionally,
- Evaluates current transportation and land use conditions and investigates opportunities to make improvements,
- Develops recommendations for transportation and land use aimed to achieve the corridor vision.



Project Area, Source: Fitzgerald & Halliday, Inc., August 2016

B. Plan Development

The development of this *Plan* was sponsored by the Capitol Region Council of Governments (CROG) in partnership with the four towns of Bolton, Coventry, Tolland, Mansfield, and with UConn.

The *Plan* was developed in four phases.

- Phase 1: Existing Conditions
- Phase 2: Vision, Goals, and Objectives
- Phase 3: *Plan* Recommendations
- Phase 4: Implementation Plan

Phases 1 and 2 set the stage and framework for the development of the *Plan's* recommendation and implementation plan. This report utilized and documented available data collected in 2015 and 2016 to build the framework for the existing setting for transportation, environmental, marketing, and land use conditions. The conclusion of Phase 2 defined a future planning scenario that is based on the broad vision for the corridors. Results of these two phases illustrated the existing issues and opportunities. Phase 3 allowed the study team to evaluate the various alternative improvement options and define a set of recommendations that would help

reach the study's vision. Phase 4 outlines key information to aid in the implementation process, including each recommendation's priority level, timeframe, local champion, and cost estimate.

Public Involvement

A proactive and comprehensive public involvement plan was developed and implemented to support the development of the *Plan*. To produce the best possible results, as well as to generate support that is required to accomplish the study's implementation plan, public engagement was embedded into the planning process and the development of the *Plan's* vision, priorities, analysis, evaluation and recommendations. A broad range of community and stakeholder engagement efforts were employed and are briefly described below. These engagement efforts, including meeting summaries, can be found in more detail in the Appendix.

Technical Advisory Committee

A Technical Advisory Committee (TAC) was formed to provide on-going guidance to the Study Team. It consisted of representatives from municipal staff from the Towns of Tolland, Mansfield, Coventry and Bolton, UCONN, and special interest groups. Representatives from CRCOG and CTDOT attended the meetings but did not serve as members on the TAC. The Study Team met with the TAC four times over the study period at key project milestones to report findings and to seek input. The role of the TAC was to:

- Offer information and expertise about local conditions and issues
- Provide a broad range of perspectives
- Brainstorm with the study team on solutions

- Review and comment on study recommendations
- Help raise awareness about the *Plan* efforts to support public events
- Support the consensus of this group within the community

A brief agenda of the meetings is summarized below.

- Meeting #1: Kick-off meeting, review community involvement plan, conduct interactive session to discuss key issues, vision, goals, and performance measures (March 23, 2016)
- Meeting #2: Finalize vision, goals, and performance measures, review existing conditions, determine "preferred land use scenario" for planning purposes (September 20, 2016)
- Meeting #3: Review draft transportation strategies and alternatives (January 31, 2018)
- Meeting #4: Review final recommendations for the Final Strategy and Implementation Plan (August 28, 2018)

Working Groups

Working Groups were formed to allow for more in-depth discussion and analysis on specific topics. These topics

were identified according to the need assessed throughout the development of the *Plan*. The opportunity to bring together key stakeholders for each topic allowed for coordination and communication amongst participants and valuable insights for the Study Team. Working group topics included:

- Future land use planning scenarios
- Transit service, access, and integration
- Bicycle and pedestrian facilities, access, and integration
- Traffic operations, safety, and roadway issues and opportunities

Public Outreach Events

Three public outreach events were held throughout the course of the study with each meeting being held at three locations in the study area, a total of nine meetings.

Public Meeting Series #1 was in the form of "pop up" sessions at three previously planned community events. During each event, the Study Team set up an interactive booth to share information about the study and solicit input from the community about their vision for the corridors as well as the key issues and opportunities. The first event was held at the Earth Day Spring Fling



celebration on April 19, 2016 at the UCONN Storrs campus. The second event was held at Bolton Family Fun Day on Memorial Day, May 30, 2016 at the Center School on Bolton Notch Road. The third event was held at CoventryFest on Saturday, June 25, 2016, at Patriot's Park in Coventry.

Public Meeting Series #2 was the exploration of existing issues and screening of potential alternatives and was held at the Coventry Town Hall Annex on December 1, 2016, Tolland High School on December 6, 2016, and Mansfield Town Hall on December 8, 2016. These sessions were interactive workshops where attendees shared their ideas and helped the Study Team understand how these ideas move towards the future vision for the study area and address the future transportation needs.

Public Meeting Series #3 was a presentation of the alternatives. Participants provided input on the alternatives and also provided input and ranked the importance of each alternative. These sessions were held at the Mansfield Town Hall on April 26, 2018, Tolland Town Hall on May 2, 2018, and Coventry Town Hall Annex on May 3, 2018.

Stakeholder Interviews

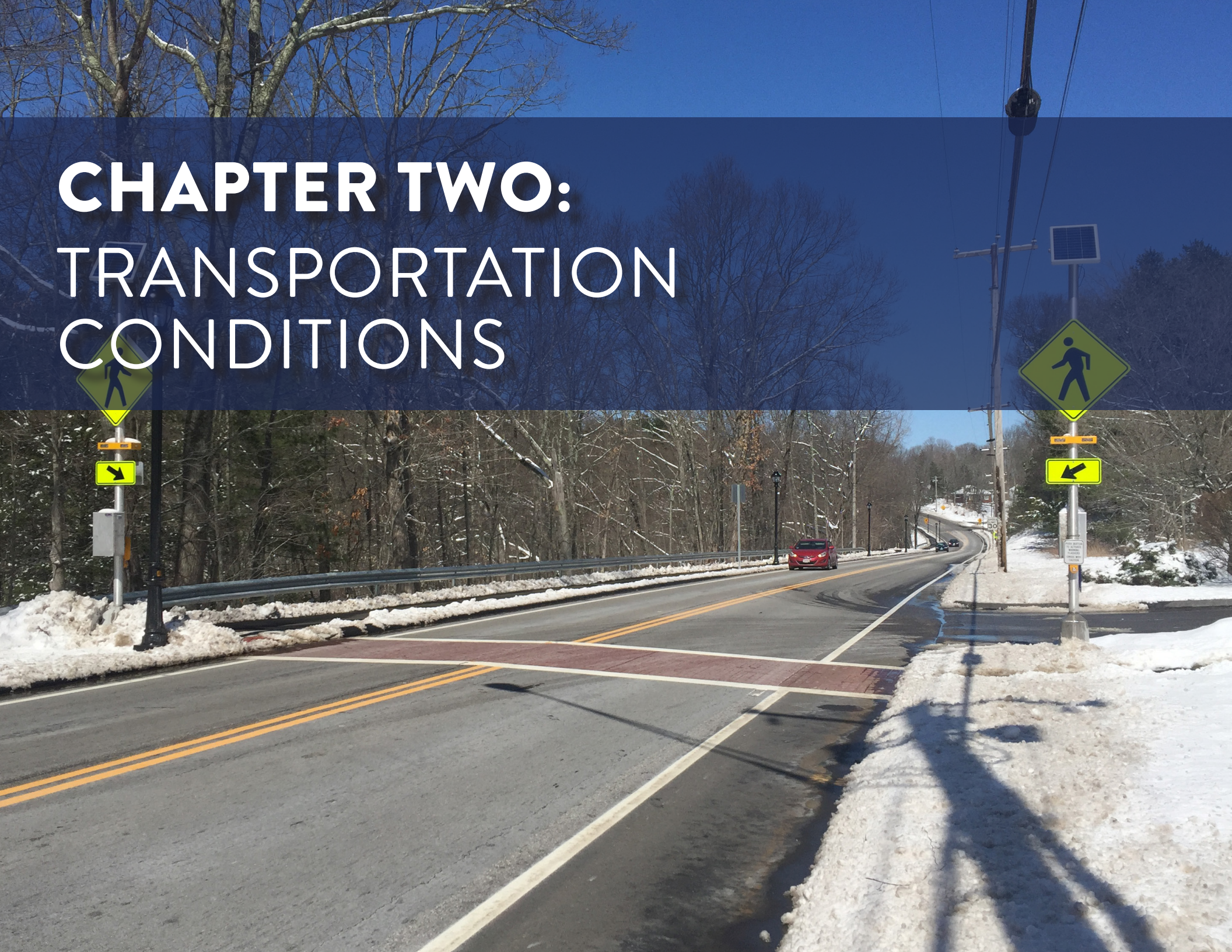
Stakeholder interviews were held in one-on-one and small group sessions that included property owners, emergency responders, local officials, community advocates, and business owners in the study area. These interviews allowed opportunities for specific concerns, issues, and opportunities to be discussed and shared with the Study Team.

Educational and Marketing Material

Educational and marketing materials were developed to provide on-going information and updates throughout the course of the study. A study website, www.cteasterngateways.com, was developed to provide a variety of study information and allow for comments to be received during the entire length of the study. The development and distribution of three newsletters provided project information and status updates. Business cards were developed and distributed to promote the study website and provide contact information.



CHAPTER TWO: TRANSPORTATION CONDITIONS



EXISTING CONDITION ACKNOWLEDGMENT

This report utilized and documented available data collected in 2015 and 2016 to build the framework for the existing setting for transportation, environmental, marketing, and land use conditions. Since the commencement of this study, several projects and services have commenced, that include but are not limited to the following:

- **CTtransit Manchester-Buckland-Storrs Express (Route 913) bus service**, launched in 2017, was designed as an expansion of existing express service to Hartford via I-84.
- **The Four Corners Sanitary Sewer System project** is expected to commence in December of 2018 and anticipated to be completed in December 2019.

A. Transportation Network Overview

The existing roadway network in the study area links a variety of land uses together to easily access neighboring residential, agricultural, and retail destinations as well as the UCONN Storrs campus. The Route 44 and Route 195 corridors create the primary network that carries people and goods through the study area. These roadways are important to the region's overall transportation network.

Key roadways that interconnect with Route 44 and Route 195 were identified for this study effort in cooperation with the towns of Bolton, Coventry, Mansfield, and Tolland, UCONN, and CROG.

Roadway Classifications

The functional classification of a roadway provides the framework for identifying the particular role of a roadway in moving vehicles through a network of highways. Functional classification carries with it expectations about roadway design, including its speed, capacity and relationship to existing and future land use development.

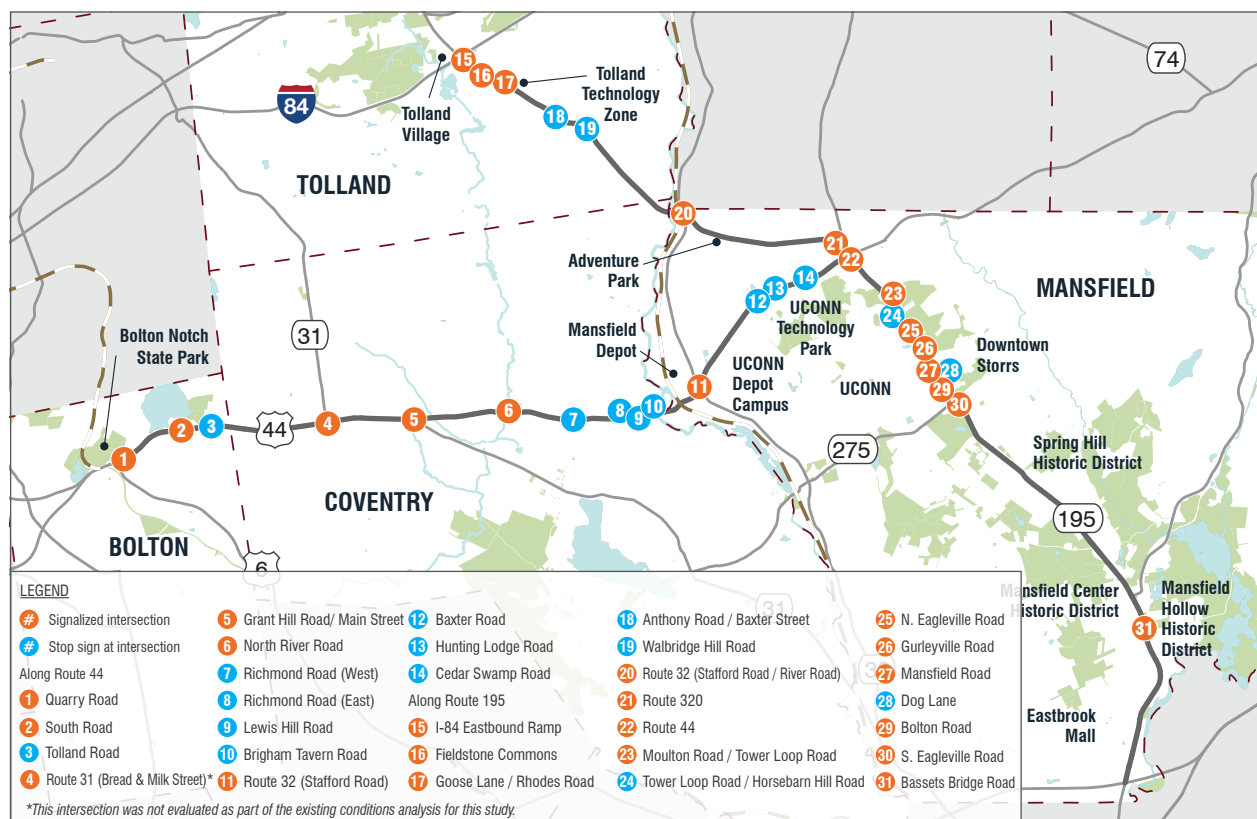
Route 44 and Route 195 are classified as either principal and/or minor arterial by the Connecticut Department of Transportation (CTDOT). Principal arterials are characterized by a capacity to efficiently move large volumes of traffic over extended trip lengths between cities and other activity centers. Minor arterials provide service for trips of moderate length, serve geographic areas that are smaller compared to principal arterials and offer connectivity to principal arterials. Urban/rural arterials are defined by the CTDOT Design Manual as roadways with two or four lanes, either with or without medians.

Route 44

Route 44 is an east-west U.S. Highway that traverses through four states in the northeastern region of the United States. It is a 2-lane rural minor arterial from its intersection with I-384 until its junction with Route 31 West. Between Route 31 and the intersection with Route 195, the road is classified as a primary urban arterial.

Route 195

Route 195 is a north-south Connecticut state highway. It is a 2-lane roadway and is classified as a principal urban/rural arterial roadway between its intersections with I-84 in Tolland and Route 6 in Willimantic. The roadway is classified as urban within the study area, with the exception of the length of road between Bassetts Bridge Road and Spring Hill Road, where it is classified as rural.



Study Area Intersections; Source: Fitzgerald & Halliday, Inc., August 2016

B. Travel Demand

Route 44 and Route 195 serve as eastern gateways to the region and are also the primary roadways to UCONN. Educational facilities such as UCONN have unique travel characteristics compared to typical commuting travel patterns and are considered non-traditional. To better understand the regional travel patterns that affect the study corridors, information about traditional and non-traditional peak travel in the study area was collected from AirSage. AirSage is a software developer that aggregates signaling data from cellular networks (mobile phones and tablets). The data provides the average number of trips taken among various origins and destinations within a specified region. Information about the type of trip (e.g., work commute trip), time of day (AM peak, Midday, or PM peak), and demographic information (e.g., age, income, or vehicle ownership) is also aggregated from the data.

In coordination with CROCOG, 24 zones were identified and customized specifically for this study. For the purposes of this evaluation, the zones are categorized into three different groups:

- Study Area Analysis Zones: Bolton, Coventry, Tolland, Mansfield, and UCONN
- Regional Analysis Zones: West Hartford-Farmington, Hartford, East Hartford, Manchester, Glastonbury, Vernon, Willington, Windham, the XL Center, Buckland Hills, UCONN Farmington, UCONN Hartford, and Rentschler Field
- External Zones: Six larger zones surrounding the study area and regional analysis zones. These include Northwest, Southwest, Northcentral, Southcentral, Northeast, and Southeast Connecticut.

The data was collected between January 20, 2015 and February 19, 2015. The analysis uses the data to illustrate

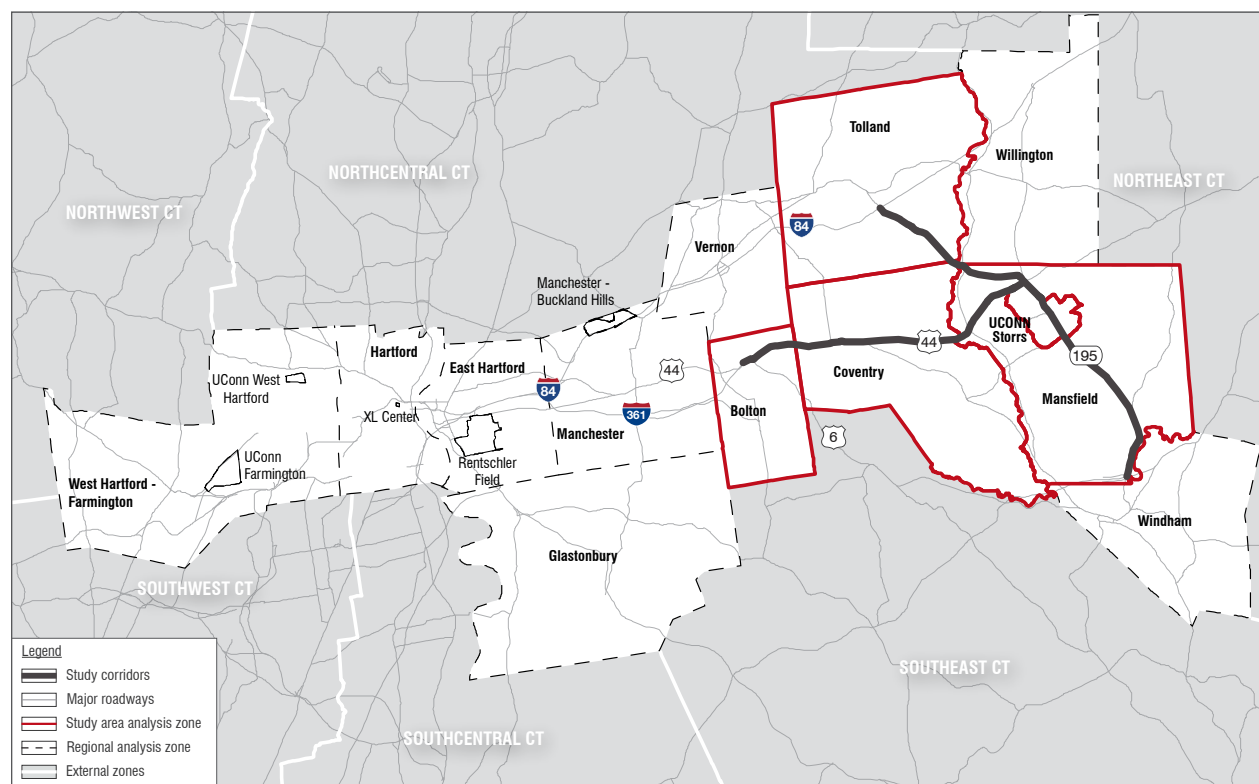
the spatial and temporal travel patterns in both the region as a whole and to/from UCONN. The data does not specify routes, speed, or mode. However, the quantity of trips originating and ending in various locations provide insight into capacity needs.

Regional Travel Patterns

The data included in this analysis represents nearly 11 million average daily trips that originate, end, or pass through analysis zones stretching from Farmington to communities in and around Mansfield. Of these, 18% are commute trips, which is consistent with national averages of work-related travel as a percent of all trips. The busiest

time for traveling in the region is in the PM peak (4:00 PM - 7:00 PM) when more than 700,000 trips are taken per hour, on average. The AM peak (6:30 AM - 9:30 AM) experiences almost as many trips per hour, while average daily trips during the midday period (9:30 AM - 4:00 PM) drop just below 690,000 trips per hour.

Although the total number of trips is relatively similar throughout the peak periods, trip purpose varies by time period. The percentage of trips that were work commute trips for three different periods of the day was as follows: 27% during the AM peak, and 15% during midday, 17% during the PM peak. “Home-based other” trips, which are trips that begin or end at an individual’s residence but



Travel Demand Study Area Analysis Zones; Source: AirSage

not their place of work, increase gradually throughout the day. These trips account for nearly half of all trips in the PM peak.

The majority of all trips within the 24 zones evaluated are local trips. Of the 11 million average daily trips, 8.6 million trips (79% of total trips) are trips that originate and end within the same analysis zone. The remaining trips tend to be trips originating in one zone and ending in a neighboring zone. The top 10 regional origin-destination (OD) pairs, excluding trips that originate and end in the same zone, are in Hartford and adjacent communities such as East Hartford and West Hartford. These trips are assumed to travel on an east-west axis, corresponding to the paths of I-84, I-384, and Route 44.

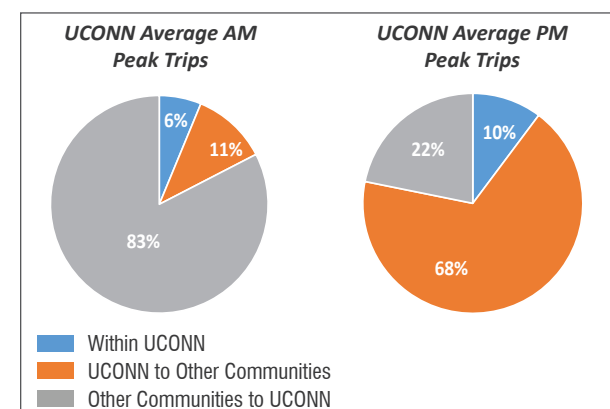
Similar to the regional travel patterns, the second most common trip flow within the study area analysis zones is from one zone to a neighboring zone. The top 10 OD pairs that originate or end in the study area and travel to an adjacent zone are assumed to primarily utilize the study area's major corridors such as Route 44, Route 195, I-84, Route 31, and Route 32.

UCONN Travel Patterns

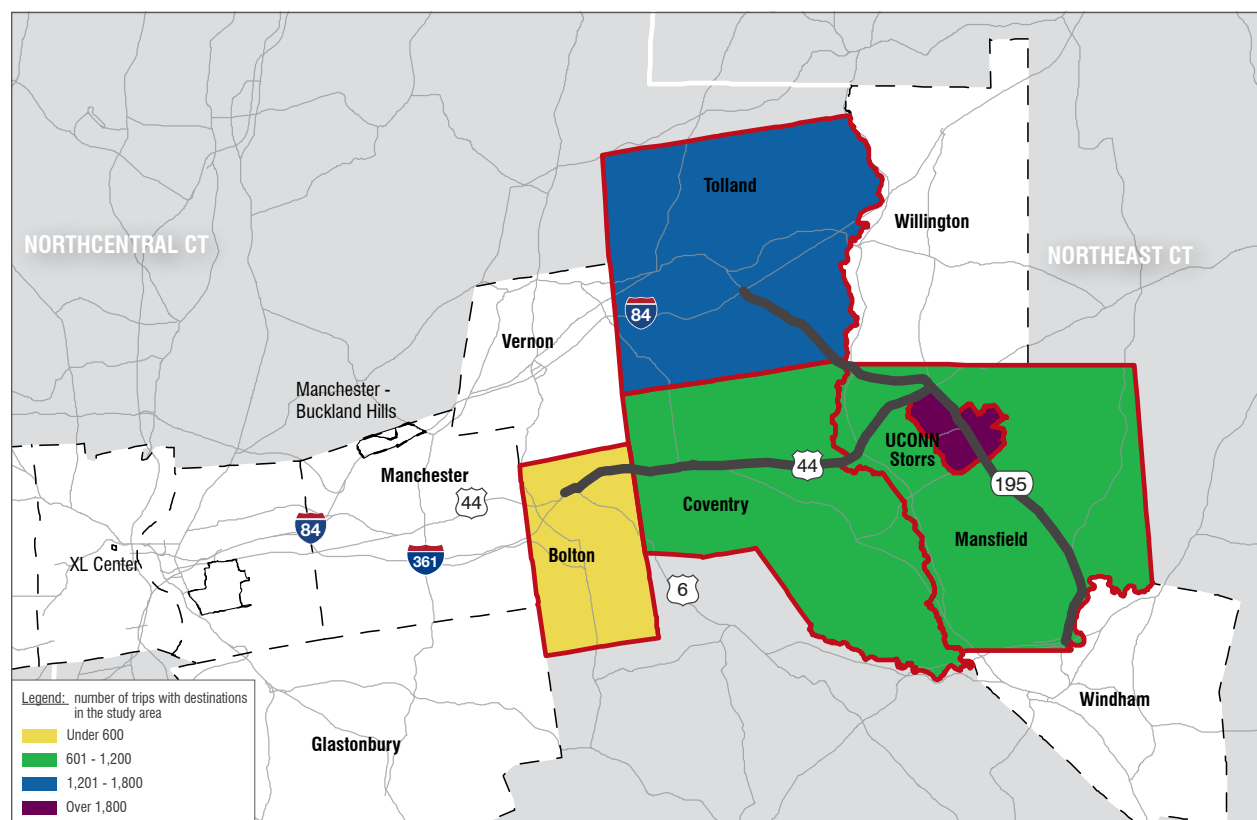
As a major employment center with a large student population, UCONN is a regional attractor and has travel patterns that differ from its neighboring communities and the region as a whole. Although a significant fraction of enrolled students live on or near the campus, UCONN attracts 24,000 average daily trips from other communities. In total, 83% of trips with a destination of UCONN during the AM peak are originating from communities beyond Storrs. During the PM peak, these patterns are reversed.

Trip Characteristics

During the AM peak, 51% of trips traveling to UCONN from other communities are work commute trips, a total of 4,400 trips. This proportion is much higher compared to other communities in the study area. In Bolton, work commute trips make up 25% of trips arriving from other communities during the AM peak. Similarly, fewer than 1,350 work commute trips have destinations in other study area communities during the AM peak. Therefore, UCONN as a destination is generating more work commute trips in comparison to its neighboring communities.



Source: AirSage



Work Commute Trip Destination in Study Area (AM Peak); Source: AirSage

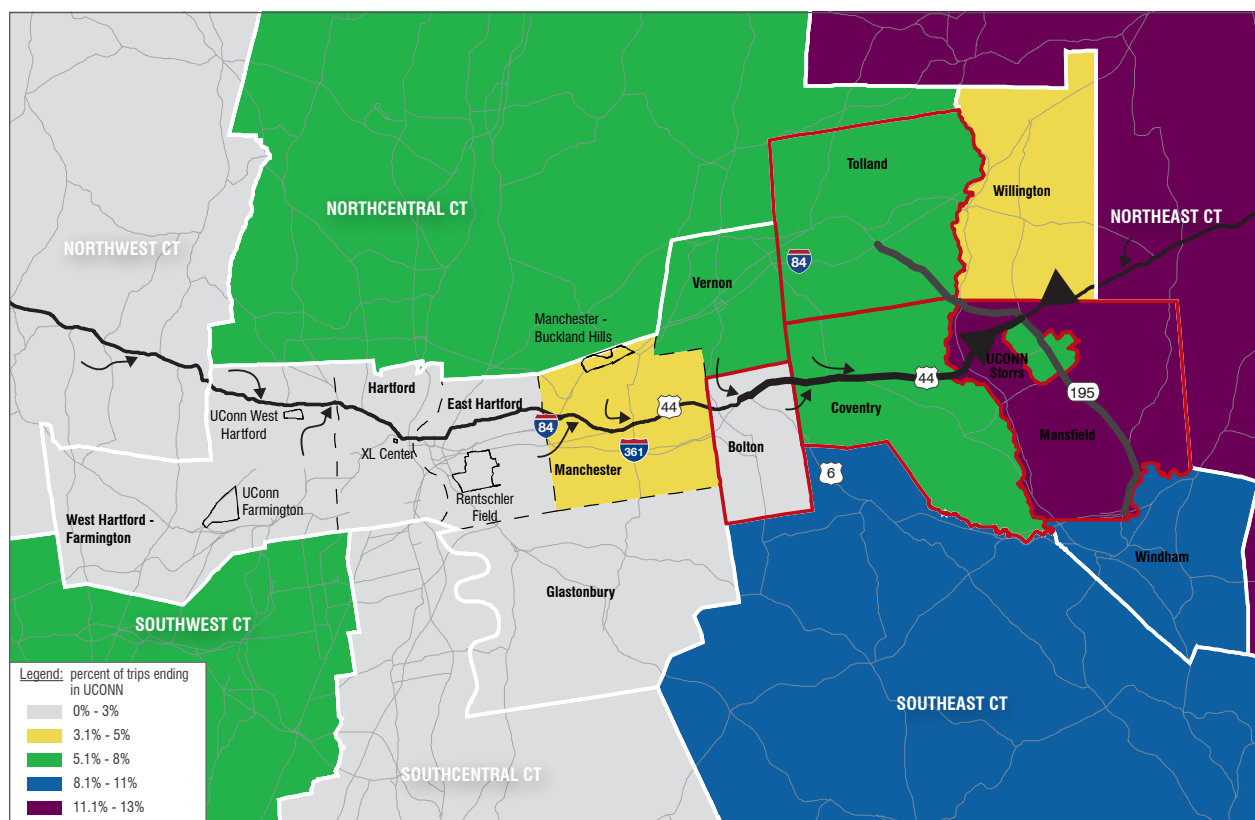
As an educational facility, UCONN has a greater share of 18 to 24 year-olds than other communities in the region. Considering many of the people falling within the age group are students, their travel patterns differ from others. In the region as a whole, the AM and PM peaks experience the most trip activity and the number of trips decrease during the midday. For trips within the UCONN zone, the midday and PM peak experience higher trip activity compared to the morning peak. The majority of classes at UCONN start after the typical morning commute period; the trip activity by the students is reflective of the academic class schedule.

Trip Origin

Trips with a destination of UCONN arrive from locations throughout Connecticut. The most common origins are nearby communities. Mansfield accounts for more than 13% of UCONN's inbound trips during the AM peak. Windham, Coventry, Tolland, and Vernon are other common origins of trips ending at UCONN during the morning peak. Manchester and West Hartford-Farmington represent communities that have a smaller percentage, which average about 5% and 2% of AM peak trips headed to UCONN, respectively. A third of all trips traveling to UCONN during the AM peak originate from Southeast and Northeast Connecticut. Trips from Southwest and Northcentral Connecticut are major trip producers as well.

Trip Destinations

Top destinations for trips beginning at UCONN include the zones immediately surrounding UCONN (Mansfield, Windham, and Northeast Connecticut). Trips to these destinations account for between 7% and 11% average trips leaving from UCONN during the AM peak. Trips to Manchester and West Hartford-Farmington are much



Origins of Trips with UCONN as Destination (AM Peak); Source: AirSage

less common, with 2% and 1% average AM peak trips, respectively. The PM peak is generally more active for trips leaving UCONN for other areas. During the PM Peak, trips heading to Mansfield, Windham, and Northeast Connecticut account for 8% to 14% of trips leaving from UCONN. During this same period, 3% of outbound trips end in Manchester, and 2% end in West Hartford-Farmington, on average.

Special Events

Colleges and universities will generate vehicle traffic due to students, faculty, and staff commuting to the campus

when classes are in session. That traffic is increased by delivery and service personnel, plus other visitors to campus on weekdays and for special events such as move-in day for on-campus housing, graduation, athletic, and theater events. This evaluation included a men's basketball game to better understand trip activity that is reflective of a special event that will generate a higher travel demand beyond a typical day when classes are in session.

Data was collected on two weekday game nights when UCONN was hosting men's basketball games. The men's basketball games attract thousands of visitors to the

university who may not otherwise visit. In comparing the trip distribution on game night relative to the average PM peaks, Coventry, Northcentral Connecticut, Tolland, Southeast Connecticut, and West Hartford-Farmington experience an increase in trips to UCONN relative to non-game nights. Northeast Connecticut, Willington, and Mansfield experience a decrease in trips traveling to UCONN on these nights. In general, the areas to the west of UCONN experience an increase in trips traveling to UCONN on a game night relative to areas north and east of UCONN.

C. Traffic Operations, Parking and Safety

Traffic Operations

Based on historical traffic volume data, daily traffic volumes, in general, have been decreasing over the past 10 years in our study area. Traffic volumes on Route 44 ranged from 16,900 vehicles per day (vpd) just east of Quarry Road to 7,800 vpd just east of Cedar Swamp Road in 2005. Over the last decade daily traffic volumes have remained relatively stable. Changes in economic activity can influence traffic flows; thus, resulting in increases of traffic in some communities while decreasing in other communities within the study area. Along Route 195, daily traffic volumes ranged from 12,500 vehicles per day (vpd) to 17,700 vpd in 2005 to 10,900 vpd – 12,100 vpd in 2015. This is a decrease of approximately thirty-percent (30%) of traffic along the corridor over the nine-year period.

For intersections along the westerly section of Route

44, the morning peak hour occurred from 7:15 AM to 8:15 AM and the afternoon peak hour from 4:15 PM to 5:15 PM. For intersections along Route 44 closer to Route 195, the peak hour occurred later, from 8:00 AM to 9:00 AM and from 4:30 PM to 5:30 PM. Intersections along Route 195 north of Route 44 typically peaked from 7:45 AM to 8:45 AM and from 4:15 PM to 5:15 PM. To the south of Route 44, traffic along Route 195 peaked from 8:00 AM to 9:00 AM. The PM peak hour on Route 195 south of Route 44 varied significantly by location.

On the Route 44 corridor, two of the four signalized intersections evaluated experience heavy levels of vehicle delay during the morning and afternoon peak

hours. These intersections are Route 44 with Quarry Road and Route 44 with Main Street (Route 31).

On the Route 195 corridor, intersections at major junctions such as I-84, Route 32, Route 320, Route 44 and near the UCONN campus currently experience heavy levels of vehicle delay during the AM and/or PM peak hours.

On the Route 44 and Route 195 corridors, several of the unsignalized intersections experience unacceptable levels of operation delay during the AM and PM peaks. This is mainly due to motorists on side streets trying to find gaps in the heavy flow of traffic so they can turn left onto the main corridors.

Average Daily Traffic Volumes 2005 - 2015

Town	Roadway	Location	Average Daily Traffic Volumes			
			2015	2011	2008	2005
Bolton	Route 44	East of Quarry Road	17,000	15,400	16,200	16,900
Coventry	Route 44	East of Lewis Hill Road	8,400	6,700	6,800	7,300
Mansfield	Route 44	East of Cedar Swamp Road	6,800	6,900	7,600	7,800
Tolland	Route 195	North of Baxter Street / Anthony Road	12,100	11,500	14,900	17,700
Mansfield	Route 195	West of Willington Hill Road / Route 320	10,900	11,200	12,000	12,500
Mansfield	Route 275	East of Separatist Road	7,700	7,200	7,000	4,700

Source Fitzgerald & Halliday, Inc., 2015; Connecticut Department of Transportation (CTDOT)

Parking and Circulation

The location, capacity, and operations of parking lots and other facilities in the study area have an impact on where traffic congestion occurs as well as overall traffic flow and operations. Turning movements to and from parking facilities have the potential to create conflict points with through traffic along Route 44 and Route 195. Information for commuter, private, and publicly owned parking facilities (surface lots and garages) with a minimum of 50 parking spaces and direct access onto Routes 44 and 195 was obtained and is summarized in this section. Additionally, parking data at the UCONN Storrs campus was also obtained.

Commuter Parking

There are five commuter parking lots owned and operated by CTDOT in the study area, as well as two in nearby Windham. Each study area community has at least one commuter parking lot that serves travel along either Route 44 or 195. The commuter parking lot in Tolland at the junction of Route 195 and I-84 provides the largest number of parking spaces in the study area. From 2013-2015, the most utilized lot is in Bolton at I-384 with a peak occupancy of approximately 71%. All other commuter lots were below 35% utilized during the same timeframe.

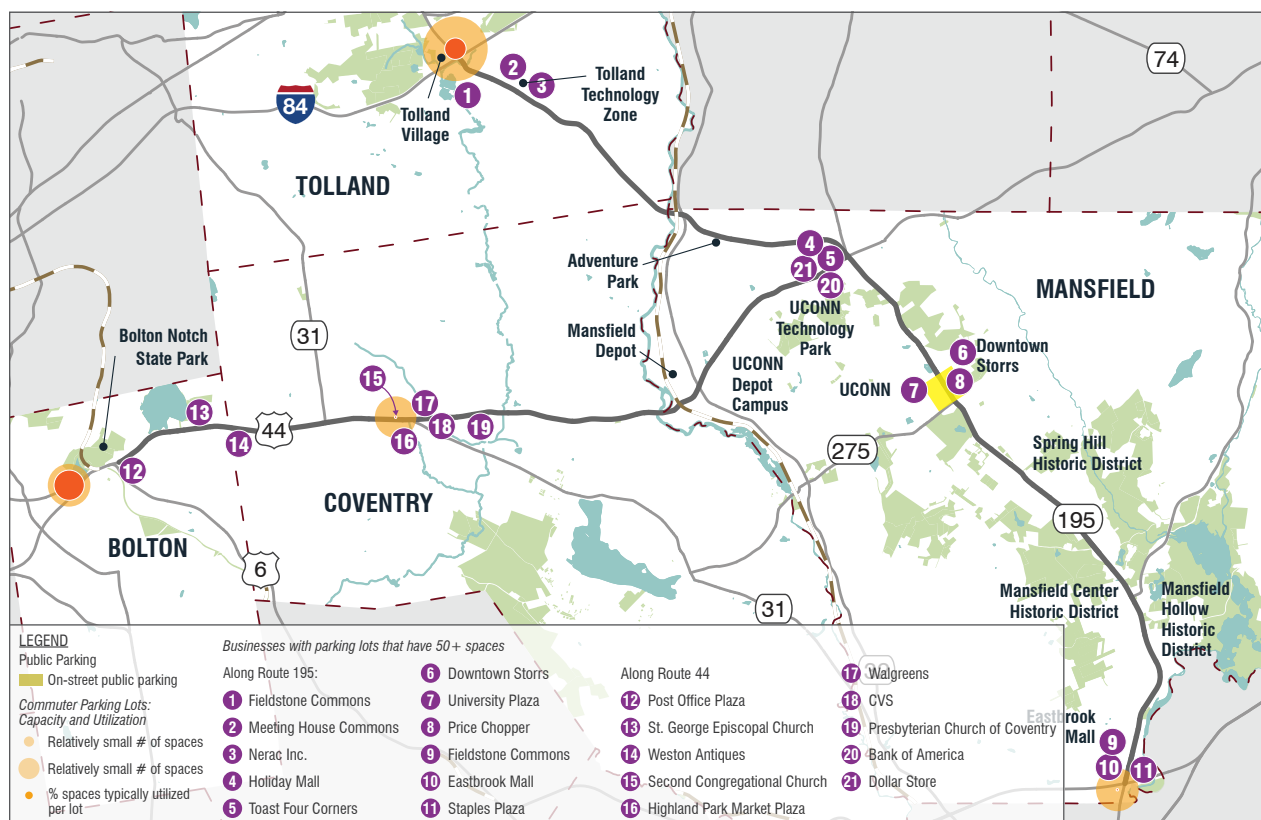
Private Parking

Private commercial parking facilities of 50 or more spaces along Routes 195 and 44 are all located within existing commercial nodes. Occupancy levels at the private facilities were observed on May 26, 2016 via a windshield survey between 1PM and 4PM. It was observed that all private parking facilities were approximately 60% occupied or less.

Public/Municipal Parking

Of the study area communities, only Mansfield has public or municipal parking in the vicinity of Route 44 or Route 195. Tolland, Coventry, and Bolton do not have any municipal lots along the corridor and no on-street parking. Coventry has noted that there is adequate off-street parking available along Route 44 and Route 195, and no demand for on-street parking exists.

Along Route 195 in Mansfield's downtown, there are several public parking options. On-street parking is available along Storrs Road, Dog Lane, Royce Circle, Bolton



Parking Facilities; Source: CTDOT current usage of park and ride lots

Road Ext., Wilbur Cross Way as well as at the municipal complex on South Eagleville Road. Additionally, there are designated public parking spaces in the Dog Lane parking lot as well as Downtown Storrs Parking Garage. The Town owns the garage and it is managed by LAZ parking.

During stakeholder interviews with the Town of Mansfield and representatives from relevant organizations, the following observations about the public parking supply along Routes 195 and 44 in Mansfield were made:

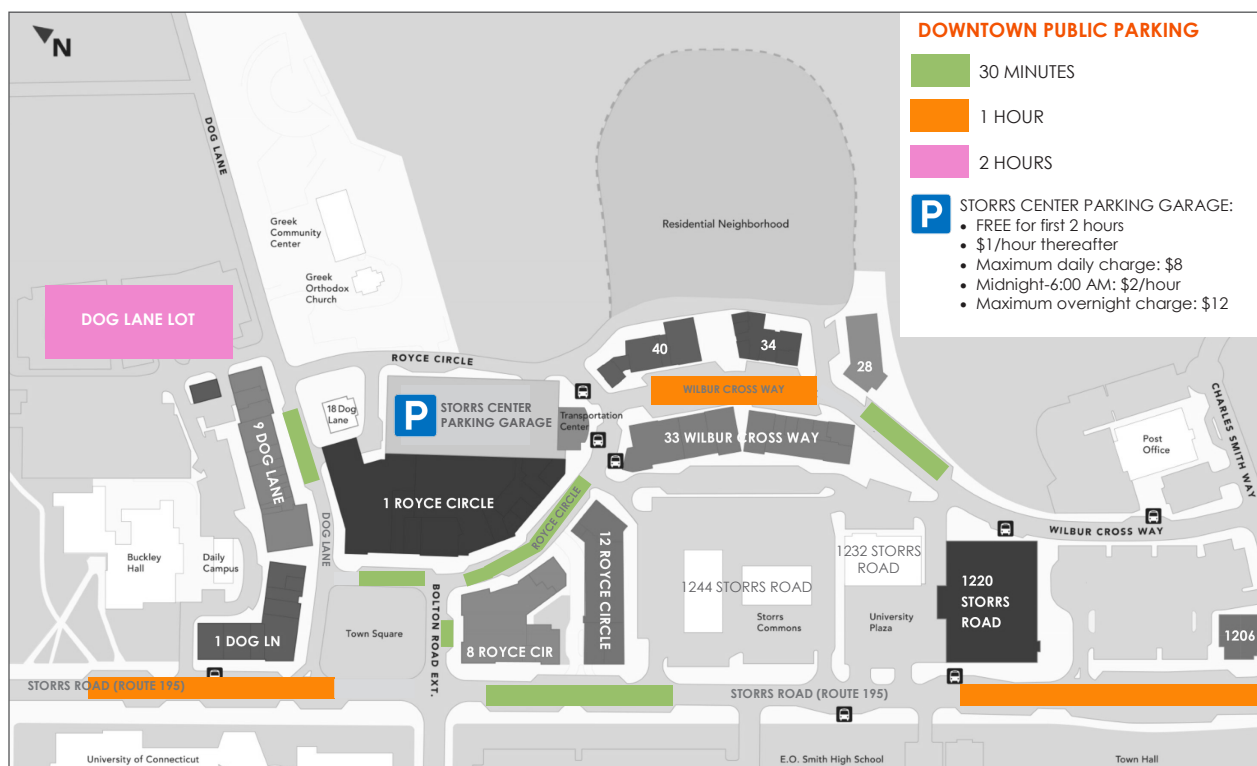
Downtown Parking

- It is challenging to predict what the long-term utilization and demand for downtown public parking will be as the commercial spaces in Downtown Storrs are not yet fully leased.
- The Town of Mansfield continues to evaluate and adjust time limits for on-street parking in Downtown Storrs to better serve businesses and discourage long-term parking in these spaces.
- The Town recently updated its parking ordinance to increase its enforcements of time limits for on-street parking and illegal parking on private property. Previously, the Town could only tow vehicles. Now, parking violations are \$30. Additionally, there is an overnight fee for patrons who desire to park overnight in the Downtown Storrs garage.
- The Downtown Storrs parking garage is intended to meet demand for longer-term parking. The first two levels are targeted for business patrons; the remainder is parking for Downtown Storrs residents and is fully utilized.

Commuter Parking Facilities

Town	Location	Utilization				
		Number of Parking Spaces	2013	2014	2015	Peak Utilization 2013-2015
Bolton	I-384 @ Routes 6 & 44, Bolton Notch	87	47	62	50	71%
Coventry	Route 44 @ 2nd Congregational Church	85	6	6	7	0.08%
Mansfield	Route 195 @ South Frontage Road	87	5	5	4	0.05%
Tolland	I-84 Exit 69 @ Route 74	67	13	14	10	21%
Tolland	I-84 Exit 68 @ Route 195	132	39	38	44	33%
Windham	Route 6 @ Mansfield Hollow Dam	52	6	10	13	25%
Windham	Route 32 @ Town & Country Package	52	9	10	16	31%

Source: CTDOT current usage of park and ride lots

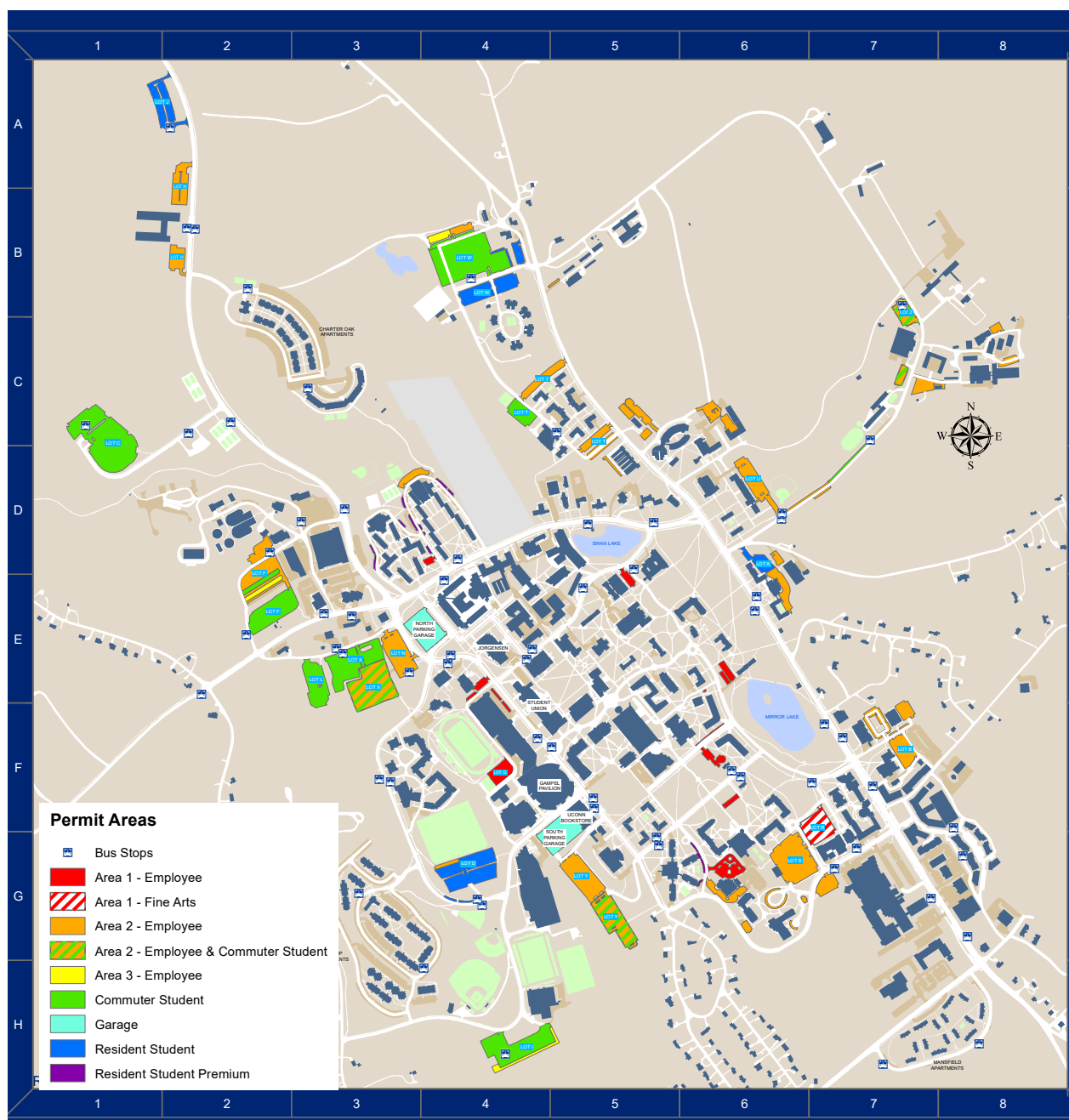


Source: Mansfield Downtown Partnership

UConn Parking

In 2015, UCONN updated its campus master plan. The plan looks at land, buildings, open space, and infrastructure to provide the framework of accommodating future growth and development over the next 20 years. A summary of key elements of UCONN's existing parking and parking strategies, as noted in the plan, are provided below.

- Parking facilities are distributed throughout the campus with the largest parking lots located at the edges of the university. There are a total of 12,917 parking spaces throughout the campus. The University's two parking garages are located within the campus core and provide 2,539 of these spaces.
- Parking permits are sold to students and employees, with rates based on the location of the parking facility (facilities closer to the campus core are more expensive). Annual costs of permits range from \$95 to \$750 for students and faculty.
- Despite recent increases in permit pricing, demand for parking at the most desirable locations continues to exceed supply.
- Approximately 85% of total on-campus parking spaces are utilized during peak periods. However, parking availability is not always provided in locations where demand is highest. There are temporary surges in demand due to special events and shortages in some locations due to parking spaces being utilized for snow storage.
- Limited parking availability in the core campus at peak hours induces additional driving as motorists search for parking spaces, contributing to the University's roadway congestion problem.



UConn Campus Parking Map, Source: UCONN (2018)

- Structured and/or surface parking facilities are planned to accommodate potential growth and displacement due to construction.
- There is a surface parking lot off-campus in Coventry on Route 44 at the Second Congregational Church that is used as a park and ride lot for students. Starting in the fall of 2016, this surface lot was designated as a formal parking facility for UCONN.

UCONN Parking Strategies (2015):

- Implement Transportation Demand Management measures to minimize overall reliance on travel by private automobile.
- Distribute parking facilities along the campus perimeter to reduce the number of vehicles entering the core campus area.
- Invest in smart parking and transportation systems to provide “realtime” parking and transportation service availability information in order to: reduce congestion, increase the use of mass transit and enhance both customer service and operational efficiencies.
- Conduct a wayfinding study to develop and implement a signage program that directs travelers to and from UCONN and guides travelers to appropriate parking facilities to minimize unnecessary travel within the campus area. As of the fall of 2018, the wayfinding study has been completed and a phased implementation of the resulting recommendations is underway.

Crash Summary

As part of the comprehensive analysis of the principal corridors of the four study towns (Bolton, Mansfield, Tolland, and Coventry) a crash analysis was conducted. The crash analysis is intended to assist in the prioritization of potential infrastructure projects by calling attention

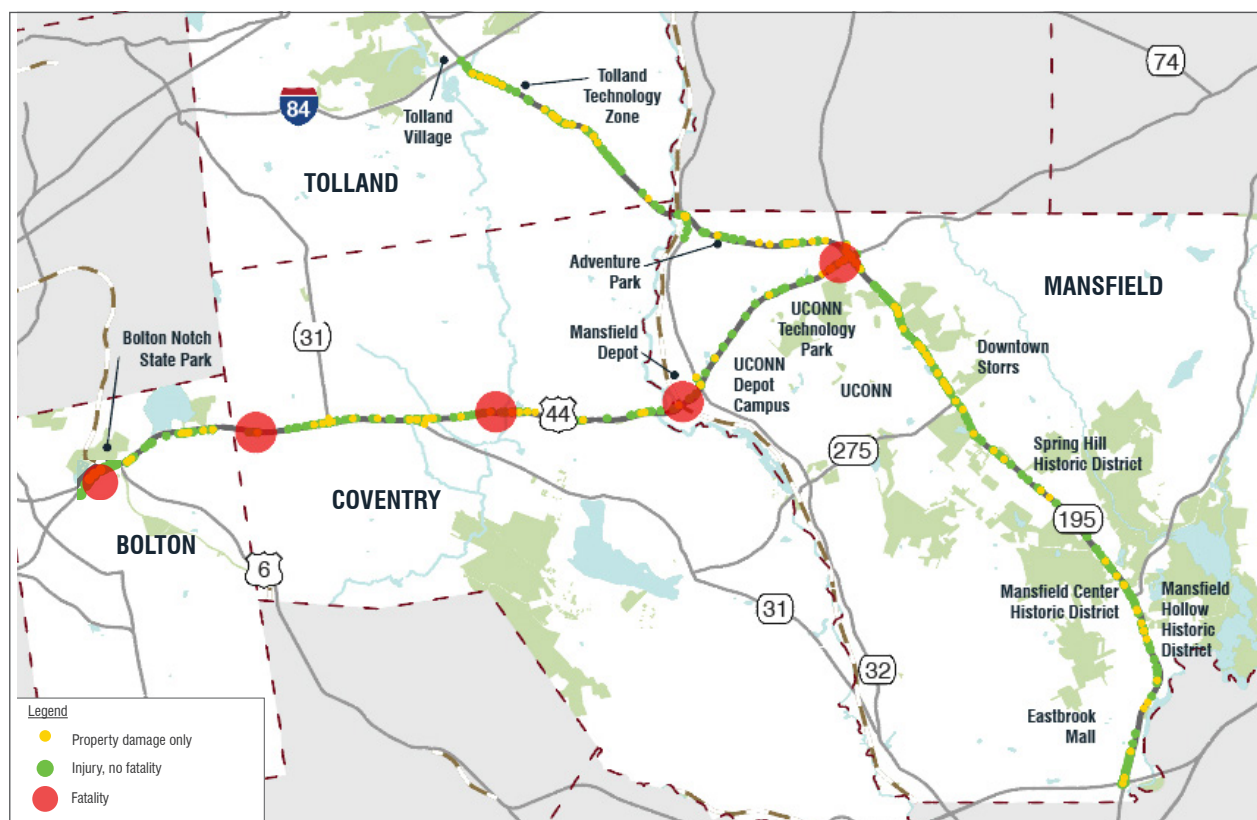
to areas in the four study towns which have higher crash rates as compared with other similar state roads. Additionally, it provides initial guidance towards areas deserving the most immediate investigation and is not intended to provide comprehensive analysis of all crashes within the study towns.

The principal data source utilized in this report is crash data from the Connecticut Crash Data Repository (CTCDR). The CTCDR has obtained their data from CTDOT. The crash data used in this report pertains to the years of 2012-2014, along all state-owned roadways in the four aforementioned study towns. Each crash record contains an approximate

location of where the crash occurred, as well as various characteristics about the crash such as contributing factor, severity, crash type, and light condition.

Other data sources used include 2014 Average Daily Traffic counts (collected by the CTDOT) along the state-owned roadways in the study region, and the Suggested List of Surveillance Study Sites (SLOSSS) report, which calculates average crash rates for particular roadway types.

The crash data was characterized by severity (fatalities and injuries), involvement with pedestrians, and locations where the greatest frequency of crashes have occurred across the study area towns.



Crash Locations by Type; Source: Connecticut Crash Data Repository (CTCDR) (2012-2014)

The locations of the five fatal crashes in the study area during this period and their contributing factors are:

- Route 44 near Gulf Gas Station (Mansfield): failed to grant Right of Way
- Route 44 near Depot Road (Mansfield): under the influence
- Route 44 near N. River Road (Coventry): under the influence
- Route 44 near Cedar Swamp Road (Coventry): failed to grant Right of Way
- Route 384 near Route 44 (Bolton): unknown

The highest concentration of crashes involving an injury appears to be located near the UCONN campus and near the intersection of Route 195 with I-84. The majority of pedestrian-related crashes have occurred near the UCONN campus.

Intersections with higher than average crash rates have been flagged in the SLOSS report and placed on the list of suggested study sites. Nine intersections in the four study towns are on this list of suggested study sites, as listed below:

- Route 44 and the Entrance to Dollar Store (unsignalized)
- Route 44 and Route 195 (signalized)*
- Route 195 and Bassetts Bridge Road (signalized)*
- Route 195 and Route 89 (signalized)*
- Route 195 and Drive to Storrs Commons (unsignalized)*
- Route 195 and Horsebarn Hill Road (signalized)*
- Route 195 and Mansfield Supply Ace Hardware (unsignalized)*
- Route 195 and Shell Gas Station (unsignalized)
- Route 195 and Drive to Meeting House Commons between Fieldstone Commons and Goose Lane (unsignalized)

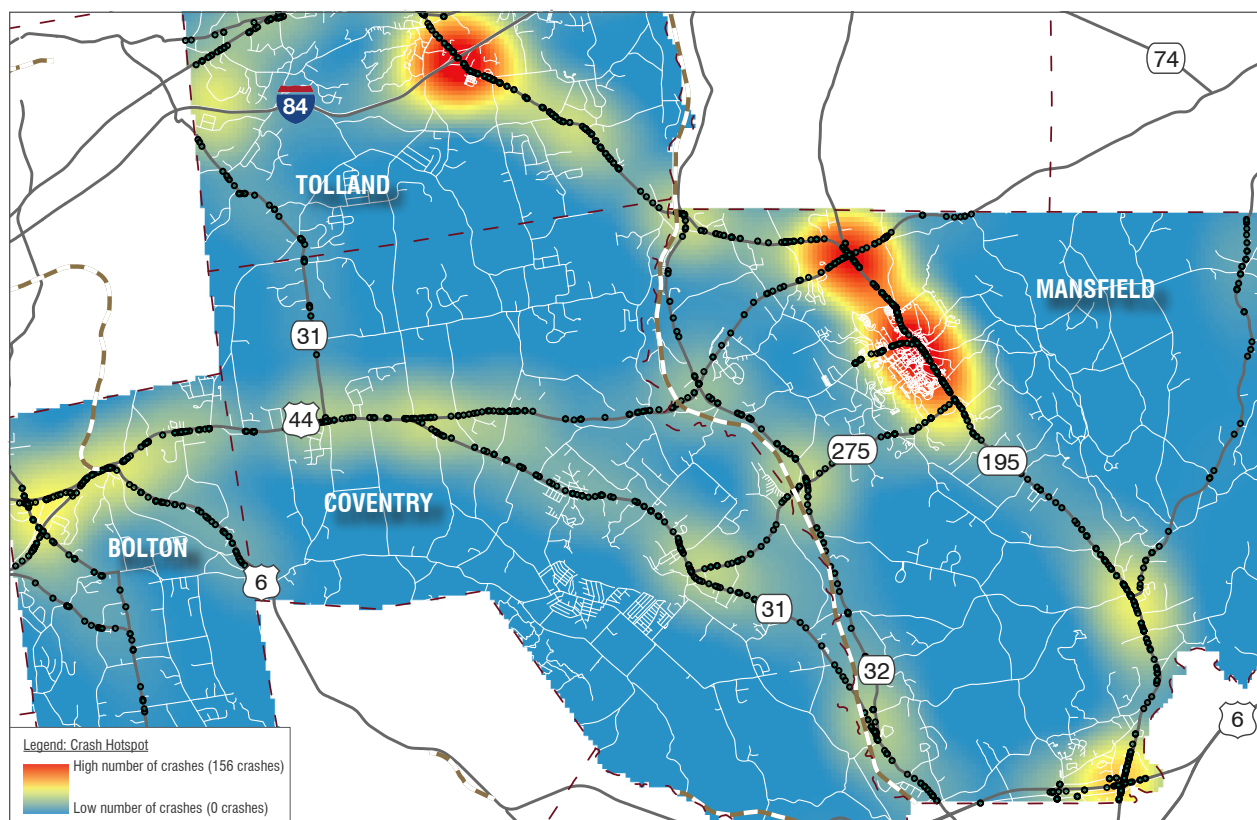
**Intersections are on segments that are identified as having significantly high crash rates.*

The SLOSS report lists critical crash rates based on how many lanes the roadway has and whether the roadway is urban or rural. Three segments were identified as areas with significantly high crash rates. All segments that were identified as having significant crash rates were along Route 195. These segments were:

- Route 195 between Route 44 and Route 430 (North Eagleville Road)
- Route 195 between Route 430 and Route 275 (South Eagleville Road)

- Route 195 between Route 89 (Warrenville Road) and Route 632

A percentage breakdown of severity level, collision type, and contributing factor is shown in the appendix for all segments with significantly high crash rates.



Crash Involving Injuries; Source: Connecticut Crash Data Repository (CTCDR) (2012-2014)

D. Bicycle and Pedestrian Environment

Route 44 and Route 195 have been designed with a primary focus on vehicular traffic, and in general there are few areas along the corridors with facilities for walking and biking.

Bicycle Environment

The existing bicycle community in the study area includes a growing number of commuter cyclists who travel to and from Hartford or UCONN as well as cyclists who travel to destinations such as Bolton Notch State Park for recreational purposes. Additionally, many UCONN students rely on biking as one of their primary modes of transportation.

The existing bicycle facilities in the study area include an On-Road Bicycle Network that has been identified by CROG with input from the towns of Bolton, Coventry, Mansfield, and Tolland in the Regional On-Road Bicycle Network Map Update, 2016. This network is defined as roads that provide effective linkages for bicyclists between towns as well as between the commercial locations within towns. However, it is important to note that the conditions along these routes vary and aren't necessarily appropriate for bicyclists of all ages and abilities. For example, the Town of Mansfield has distinguished between "bicycle friendly routes" and "less bicycle friendly routes" in their town.

Multi-use trails are also a part of the bicycle network. Multi-use trails provide pedestrians and bicyclists a safe and efficient opportunity to travel for both recreational and transportation purposes. Ongoing efforts are being made to further strengthen this network and encourage connectivity both within the study area and to the surrounding region.

Route 44

In general, Route 44 has minimal facilities for bicyclists. There are no on-road facilities between the intersection of Route 6/Route 384 and the intersection of Birch Road. At Birch Road, a multi-use off-road bike path turns onto Route 44 and continues to the intersection with Route 195. It runs along the eastbound side of the corridor, separated by a grass buffer. Few facilities exist to promote bicycling along the corridor.

Additionally, much of the corridor is not well suited for bicycling according to CTDOT's Bicycle Suitability Map, which has been created in 2017 as part of the *Connecticut Active Transportation Plan*. While no areas



along Route 44 were deemed ‘least suitable,’ it should be noted that there are many areas that were categorized as “less suitable.” This is likely because the width of many of the shoulders along the corridor are 3’ or less. One example of this is an area between Richmond Road west and Richmond Road east.

One segment and nine intersections have been identified along Route 44 as part of CRCOG’s regional On-Road Bicycle Network. Potential improvements may be necessary to ensure these intersections are safe for bicyclists. The intersections are listed below, from west to east:

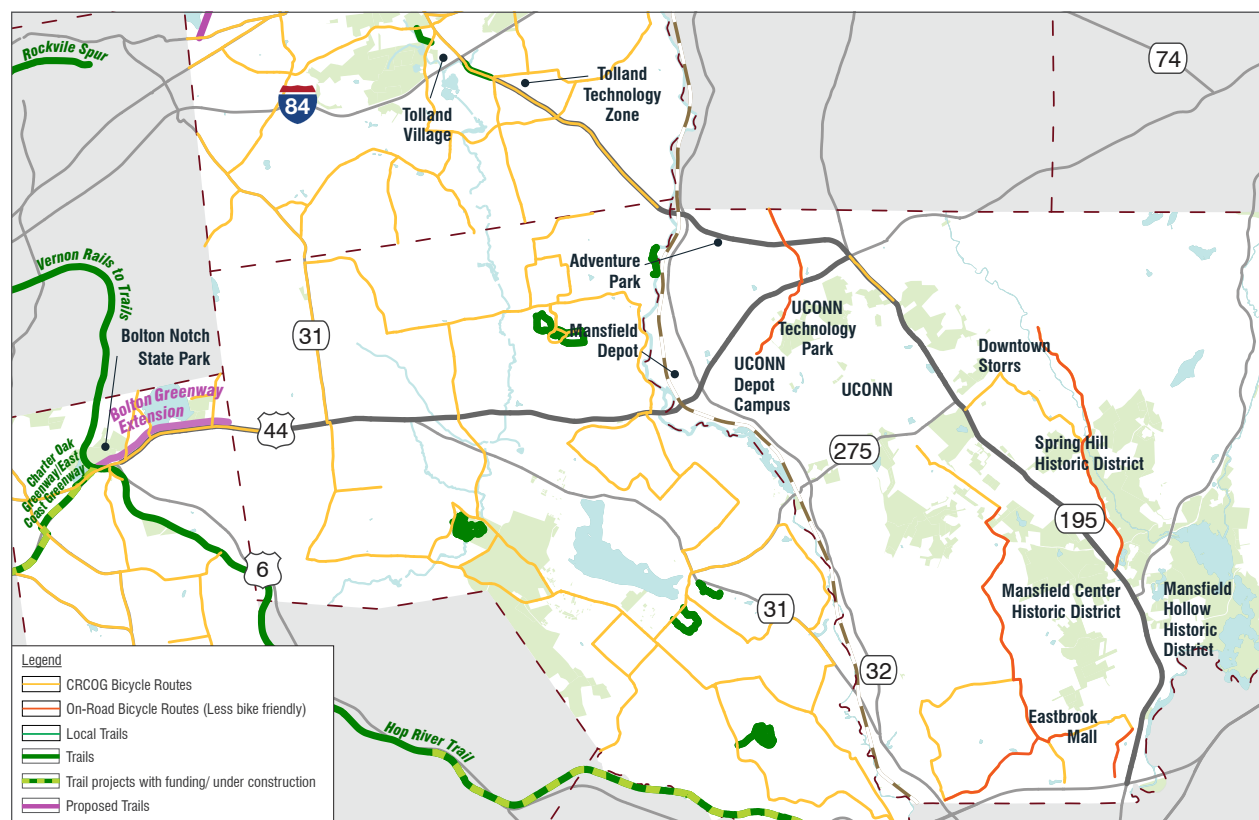
1. Notch Road
2. Quarry Road
3. Vernon Road
4. Tolland Road
5. Bread and Milk Street/ Swamp Road
6. Carpenter Road/ Trowbridge Road
7. Richmond Road
8. Brigham Tavern Road/ Lewis Hill Road
9. Club House Circle/ Latham Road

The segment is between the intersection with Route 6 in Bolton and just west of the intersection with Twin Hills Drive in Coventry. The segment refers to the proposed Bolton Greenway Extension Project that would significantly improve both the bicycle and pedestrian network along this section of the corridor.

The Bolton Greenway Extension Project would provide an off-road 10- to 12-foot trail from Quarry Road to the Coventry town line with a spur down Tolland Road. This trail would be built in Route 44’s right-of-way and

although an on-road route was considered, an off-road option was deemed safer with more multimodal opportunities. The trail would fill in the gaps in the Hop River Trail and connect key nodes within the community, such as the lake, the park system, and various historical resources. There has been some opposition from property owners along the corridor, but the project has the town’s support. A preliminary design report has been completed with a Recreational Trails Grant from the

Connecticut Department of Energy and Environmental Protection (DEEP) but CTDOT will make the final decision as to whether the project moves forward as well as provide funding for construction. While CTDOT has stated the extension’s terminus cannot be Coventry’s town line to avoid any undue pressure on Coventry to continue the trail, Coventry is supportive of the project and a potential extension into their town.



Bicycle Network (Existing, Planned, and Proposed); Source: CRCOG, Towns of Bolton, Coventry, Mansfield, Tolland; UCONN

Another relevant project is the Hop River Trail Extension project that will help close the approximately 2.75-mile long gap between the Charter Oak Greenway and the Hop River State Park Trail. The project will extend the trail from Finley Street to the Hop River State Park Trail in Bolton and include construction of a new bridge over both Route 6 and Route 44. The project, led by CTDOT, has included public involvement efforts with specific outreach to affected property owners. Bolton section of this project was completed (construction) in November 2018.

Route 195

Route 195 varies more in its uses, geometry, and available bicycle facilities but faces many of the same issues with its bicycle environment that exist along Route 44. The shoulders along the majority of the corridor are less than 3 feet, which is too narrow to accommodate a bicyclist safely. This is evident in the bicycle suitability system, which demonstrates how many areas are considered “less suitable.”

There are two segments and five intersections that have been identified as part of the regional On-Road Bicycle Network:

- Segment between I-84 exit ramp in Tolland to intersection of Dimock Road and Johns Crossing Road in Coventry
- Segment between intersection with Route 44 in Mansfield to Moulton Road in Mansfield
- Intersection at Goose Lane/ Rhodes Road
- Intersection at Anderson Road
- Intersection at Latham Road
- Intersection at Hanks Hill Road
- Intersection at Chaffeeville Road

The segment of Route 195 between the intersection with Dimock Road and Johns Crossing Road in Coventry and the intersection with Route 44 in Mansfield is suitable for bicyclists with wide enough shoulders to safely travel in.

The section between the intersection with Route 44 and Moulton Road is the second segment included on CRCOG’s On-Road Bicycle Network. This segment is an important connection between the retail opportunities at Four Corners and Downtown Storrs. Many people, particularly students, bicycle and walk along Route 195 to access Four Corners from Downtown Storrs because it is the most convenient

and fastest route. However, there are serious safety issues that need to be addressed along this segment. The right-of-way along this section is very narrow with limited shoulders and geographic constraints prohibit any widening of the road. Additionally, the geometry includes curves that present sightline issues. Due to these design challenges, previous efforts to address this safety issue have considered encouraging people to travel along an alternative route. The success of such efforts has been limited because people still prefer the fastest route. As a result, this section of the roadway has been identified by stakeholders as one of the most dangerous sections along Route 195.



Bicycle Suitability System; Source: Connecticut Active Transportation Plan sponsored by CTDOT, 2017

The bicycle environment improves along the section of Route 195 that travels through Downtown Storrs. This area was designed to encourage multimodal forms of transportation and includes many traffic calming features such as medians and parallel parking that serve as visual cues for motor vehicles to slow down. There are also connections to a bicycle network that exists within and around the UCONN campus. Multi-purpose paths, dedicated bike lanes, sharrows, signage and pavement markings safely guide cyclists while reminding motorists of their presence.

Downtown Storrs' Nash-Zimmer Transportation Center, located just off Route 195 on Royce Circle, includes numerous bicycle racks around the building's perimeter in covered locations. The center also offers membership to the Bike Commuter Club, which includes indoor bike storage options, key card access afterhours, showers, and lockers.

South of Downtown Storrs, another facility that promotes bicycling in the area is the UCONN Cycle Share program. This program allows students to rent bikes for \$60 to use throughout a semester.

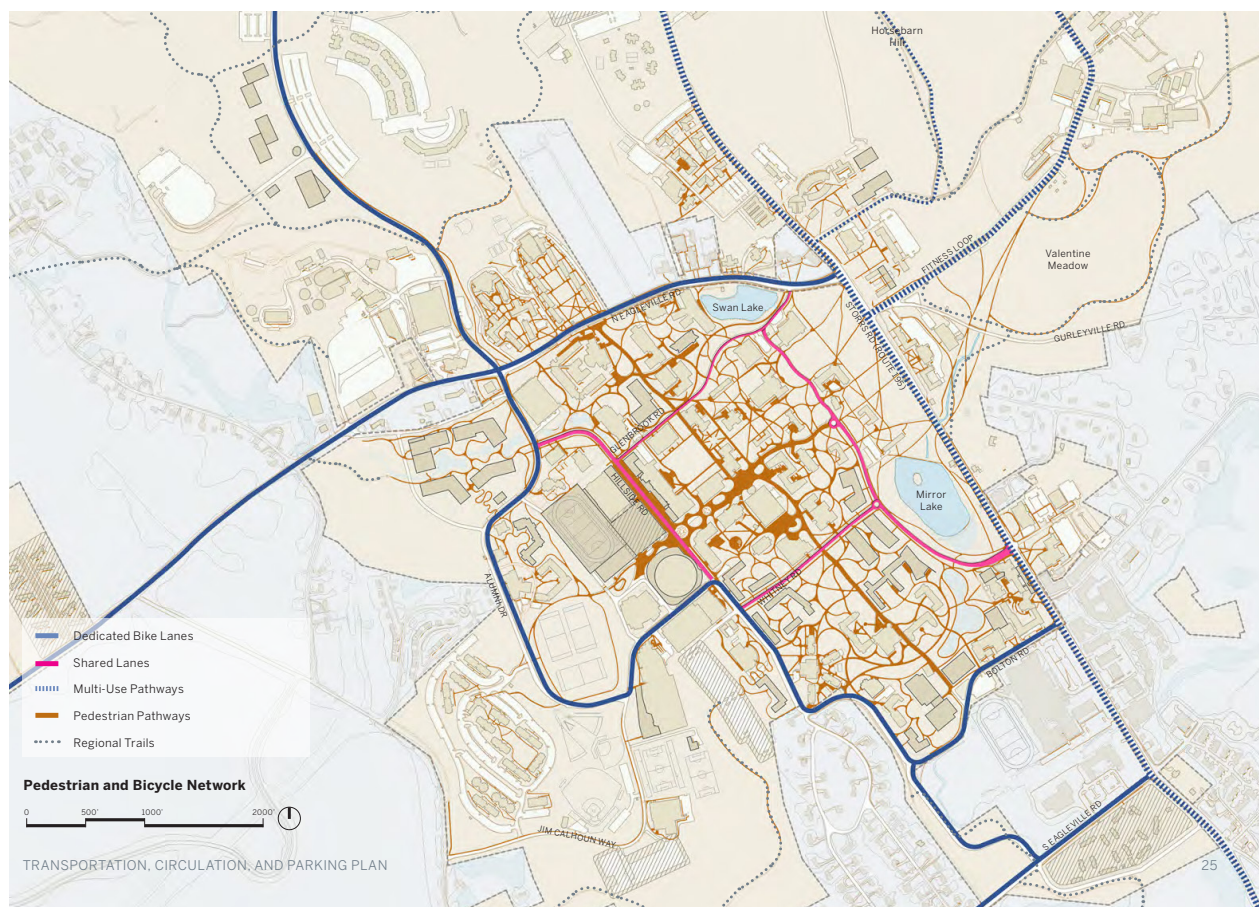
East of Downtown Storrs, the remaining section of Route 195 in Mansfield faces issues of inconsistent shoulder widths and limited facilities. However, the local advocacy group Bike Mansfield is working to improve the bicycle environment throughout the town and engaged in various efforts to successfully do this. In recognition of the Town's efforts, Mansfield was designated as a Bicycle Friendly Community by the American League of Bicyclists in 2017. The necessary attributes required to earn this status include the following:

- Engineering, (i.e., complete streets policy, well-maintained on- and off-street bicycle network)

- Education (i.e., public awareness campaign, regular available seminars and workshops for all ages, etc.)
- Encouragement (i.e., existing active, engaged bicycle advocacy group, events such as Bike Month and Bike to Work Day are well publicized and promoted, etc.)
- Enforcement (i.e., laws exist to require things such as safe passing distance of at least three feet and these laws are strictly enforced, etc.)
- Evaluation/ Planning (i.e., up-to-date and comprehensive bike master plan with designated

funding, bicycle crash studies and a plan to reduce the number of crashes, etc.)

One way that Bike Mansfield is working to improve the town's bicycle environment is through the development of the Bicycle and Pedestrian Master Plan, as previously mentioned. Another initiative the organization is leading with the Town's Parks and Recreation Department is regular workshops that feature programs on bike maintenance, riding techniques and safety, touring, racing, films, and other topics.



UCONN Campus Master Plan: Transportation, Circulation and Parking Plan (Source: UCONN Master Plan, 2015)

Pedestrian Facilities

Overall, pedestrian facilities tend to be focused in pockets with a focus on “activity nodes”, or destinations that attract a high number of people. The areas along the corridors with land uses such as rural residential and agricultural typically attract little to no pedestrian traffic, and as such, there has been limited investment or demand for pedestrian facilities along these areas.

Route 44

As previously stated, the lack of pedestrian facilities along Route 44 in Bolton and Coventry is in response to the limited pedestrian traffic that exists along this stretch of the corridor. The communities along the corridor have typically allocated resources to improve the pedestrian environment to key nodes of activity instead of attempting to build a continuous on-road pathway that would be unlikely to be highly utilized. As such, there are no sidewalk facilities along this corridor in Bolton and few areas with sidewalks in Coventry. There are also few locations and intersections along Route 44 that include crosswalks in addition to the signalized intersections that lack such pedestrian safety features.

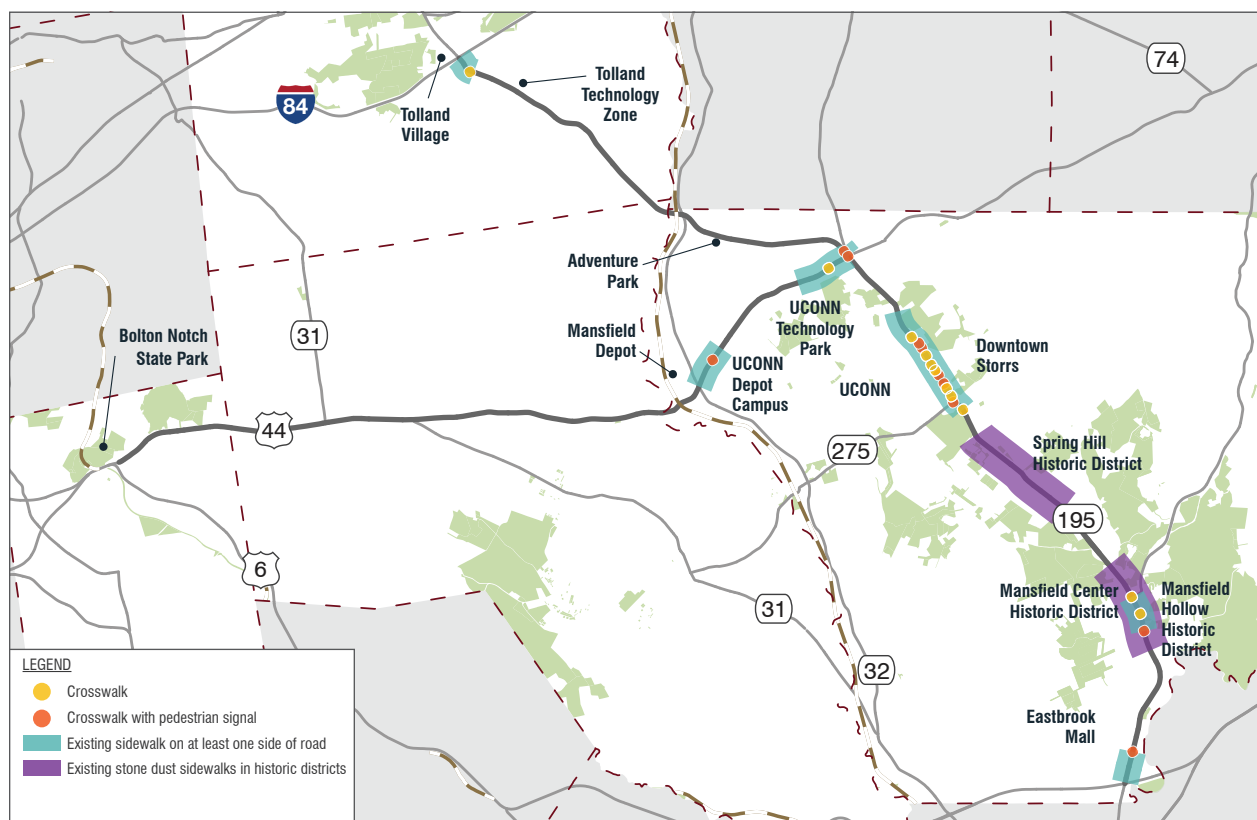
Route 195

Pedestrian facilities along Route 195 vary in accordance with the various land uses along the corridor. The section of Route 195 in Tolland from the intersection with Exit 68 to a spot just past Fieldstone Commons includes a sidewalk on one side of the road that is set back from the road in addition to one crosswalk. In this area, the buildings are set back from the sidewalk, often with a parking lot in front of them; however, these sidewalks do enable safe travel for pedestrian traffic.

Traveling south, the next section of Route 195 does not have any pedestrian facilities until the intersection with Wellington Hill Road, also known as Route 320. Similar to much of Route 44, this is likely because there are few destinations along this segment of Route 195 that attract pedestrian traffic. The sidewalk begins again on one side of the road just before the intersection with Wellington Hill Road, which also includes a crosswalk. Sidewalks in very good condition continue along both sides of Route 195 as the roadway approaches the intersection with Route 44, or Four Corners.

Four Corners has been identified as an opportunity development site that is currently envisioned as a multimodal location that includes design elements to create a comfortable space for pedestrians.

The segment of the corridor between Four Corners and the intersection with Moulton Road was identified by stakeholders as one of the most dangerous sections of Route 195, partly due to the high level of activity that Four Corners attracts. Even though the sidewalk abruptly ends approximately 100 feet south of Four Corners, many



Pedestrian Facilities; Source: Fitzgerald & Halliday, 2016

people, and especially students, continue to walk along this segment of the corridor.

Traveling south, the next section of the corridor is the area surrounding UCONN campus. A wide sidewalk in good condition that is separated from the roadway by a landscaped buffer travels along at least one side of Route 195 throughout the entirety of this section. Additionally, crosswalks exist along most driveways and side streets that intersect with the corridor. The existence of these facilities creates a safe and comfortable experience for pedestrians throughout this section as well as the next section along the Downtown Storrs area.

The Downtown Storrs area includes numerous facilities and amenities that have created an environment that attracts pedestrians. There are wide sidewalks on both sides of the roadway along with numerous streetscape elements, including lighting, benches, trash receptacles, landscaping and more. Additionally, a large pedestrian plaza to the south of Dog Lane has become a destination for people to spend time in throughout the day and during special events. While there are numerous crosswalks in Downtown Storrs, the town of Mansfield has expressed a need for an additional crosswalk at Dog Lane despite the nearby crosswalk at Bolton Road Extension. Another issue in this area that has been identified by UCONN is the need for sidewalks and an improved pedestrian network along the key corridors that connect other key destinations to Downtown Storrs.

South of Downtown Storrs, Route 195 passes through the Spring Hill Historic District and then the Mansfield Center Historic District. While sidewalks do exist along the corridor through these areas, they are constructed with stonedust to maintain the character of the historic districts. As such, the sidewalks are often difficult to see, reducing their effectiveness at providing a visual cue to

motorists to slow down. A paved sidewalk along Route 195 begins again at the intersection with Riverview Road and continues south to the intersection with Route 6/ Mansfield's town line. While crosswalks do exist in this area, the businesses are set very far back from the sidewalk and the streetscape does not create a welcoming environment for pedestrians.

There are many areas along Route 195 between the key nodes of activity described above where the environment

is not suitable for pedestrians with no sidewalks or facilities. While this presents a significant safety issue for any pedestrians that do choose to travel along those stretches of the corridor, there are a few destinations that would attract pedestrian activity; however, it is not likely that there is a high demand for pedestrian facilities along such segments.



E. Transit System

The Eastern Gateways study area is home to two public transit providers. The first, Windham Region Transit District (WRTD) provides service between downtown Willimantic and the Holiday Mall in Storrs, including the UCONN campus, along Route 195. The university also provides its own transit service known as UCONN Transportation Services (UTS). UTS operates routes both on and off campus for free use by anyone.

Transit in the corridors outside of these two services is limited. Peter Pan, a private operator, runs coach bus service to Boston and Hartford with connections to New York from their stops in Downtown Storrs and on the UCONN campus. CTtransit also runs limited express service between Hartford and Coventry along Route 44.

Windham Region Transit District (WRTD)

Windham Region Transit District provides public fixed-route bus and demand response dial-a-ride service for Ashford, Chaplin, Columbia, Coventry, Lebanon, Mansfield, Scotland, Willington and Windham.

Dial-A-Ride and Paratransit

WRTD's Dial-A-Ride service provides trips within the WRTD towns for elderly individuals and those with disabilities. The service operates door-to-door between 8:00am and 4:00pm. A one-way fare is \$4.25 for the general public with reduced and free fares for seniors and individuals with disabilities.

WRTD also provides ADA paratransit along its fixed route service during normal operating hours.

Fixed Route

WRTD also provides fixed route service from Willimantic and Windham to Danielson, Norwich, and Foxwoods Casino. Below is a summary of WRTD routes that do not operate in the study area.

- Route 32 Bus – Runs 7 days a week from Windham and Willimantic to Norwich and Foxwoods Casino for a \$2.75 fare.
- Willimantic City Bus – Runs 6 days a week circulating around Willimantic and Windham for a \$1.25 fare.
- Willimantic to Danielson Bus – Runs 5 days a week from Willimantic and Windham to Danielson for a \$2.75 fare.

Storrs-Willimantic Bus

WRTD has one route that operates in the study area. This route is the Storrs-Willimantic Bus that runs along Route 195 in Windham and Mansfield. It serves downtown Willimantic and UCONN and provides an important link for UCONN staff and students living in Windham and housing developments along Route 195.

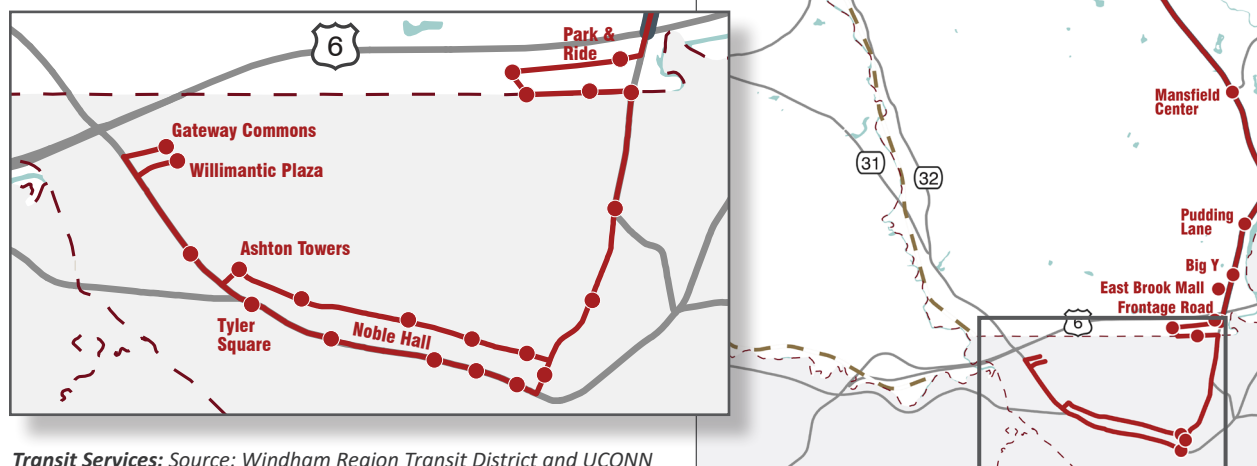
Hours of Operation

The Storrs-Willimantic Bus operates Monday through

Saturday. The first bus from Willimantic departs at 6:00am and the last bus from Storrs departs at 9:00pm on weekdays. On Saturdays the service begins in Willimantic at 8:00am and the last bus departs Storrs at 9:00pm. During the UCONN semester there is additional service between 10pm and 11:30pm Monday through Saturday.

Fare Policy

A one-way cash fare for the Storrs-Willimantic Bus is \$1.25. Fares for passengers with a disability are \$0.75. Seniors, children ages 4 and younger, and passengers transferring from another WRTD local route pay no fare. Students with a U-Pass can ride for free.



Transit Services; Source: Windham Region Transit District and UCONN

Ridership

In fiscal year 2015, annual ridership on the Storrs-Willimantic route totaled 100,554 passengers. Evening trips from Storrs to Willimantic are often filled close to capacity with concentrated boardings at the UCONN campus along Route 195. WRTD does not keep ridership records by trip but did not report overcrowding.

UCONN Transportation Services (UTS)

UCONN Transportation Services provides fixed-route, paratransit, and limited demand-response public transportation service both on and off of the university's campus. The majority of UTS routes stay on or very close to campus and have little effect on the rest of the study area. The service is available to anybody in the area and is not limited to those affiliated with the university.

Accessible Van Service (AVS)

UTS runs a paratransit van service for individuals with a disability or injury that would otherwise prevent them from utilizing the university's fixed route service. This service operates within a 1 mile radius of campus which includes some parts of Routes 195 and 44, most notably near the UCONN main campus and Depot Campus on Route 44. Service hours are 7:00am to 12:00am Monday through Thursday, 7:00am to 10:00pm Friday, 11:00am to 1:00am Saturday for on-campus stops, and 11:00am to 7:00pm Sunday for on-campus stops.

Demand Response

UTS runs a demand-response "Weekend Shuttle" that runs between on-campus stops 11:00am to 7:00pm on Saturday and Sunday. UTS also operates a small demand-response "Late Night Shuttle" service that provides free



Photo Source: UCONN Transportation Services

riders between any on-campus bus stops for faculty, staff and students. It runs after regular shuttle services end on Friday and Saturday nights until 1am.

Fixed Route

UTS provides seven fixed routes that serve the UCONN main campus, nearby Downtown Storrs, student apartments, and Depot Campus on Route 44.

Blue, Red, Green, Yellow, Orange, and Silver routes all remain on or very close to the UCONN campus. These routes run along a short stretch of Route 195 adjacent to campus and do not provide direct service away from the university. They do provide transfer opportunities with WRTD's Storrs-Willimantic route along Route 195.

The Purple route connects the main campus, off-campus student housing, and runs along part of Route 44 from Hunting Lodge Road to UCONN's Depot Campus. The route does not have any stops along Route 44 aside from Depot Campus and does not

provide connections in the study area. The Purple route does stop on Route 195 adjacent to the main campus, providing a transfer opportunity to the WRTD Storrs-Willimantic route.

Hours of Operation

UTS operates its main service from 7:00am to 12:00am Monday through Thursday and 7:00am to 10:00pm on Friday. Limited service on campus is provided late night on Friday and Saturday and during the day on Saturday and Sunday. Limited service is also run during school breaks.

Fare Policy

UTS does not charge a fare. Operating costs are funded through the university. No student or staff ID is required to ride and anybody may use the service free of charge.

Ridership

In 2015, annual ridership on the UTS fixed routes totaled 1,382,466. Average monthly ridership in months that

UConn is fully in session is roughly 185,000. While day-time hours are well-utilized, UTS did indicate their late evening hours are somewhat underutilized. Overcrowding is not an issue.

CTtransit Express Routes

Route 917

CTtransit's Vernon-Tolland Express Route 917 serves Tolland's Exit 68 Park & Ride at the Route 195 and I-84 interchange. The 917 runs weekday service between Tolland and Hartford. Service starts in Tolland at 6:10am with the final trip back from Hartford departing at 6:00pm. This commuter service provides an important link between the northern end of the study area and downtown Hartford allowing commuters to utilize bus transit for their weekday travel.

Route 918

CTtransit's Willimantic-Coventry Express Route 918 stops at the Second Congregational Church Park & Ride in Coventry and the Bolton Park & Ride at the interchange of Routes 44 and 6. The 918 runs weekday service beginning in Bolton at 6:30am with the final trip back



from downtown Hartford at 5:50pm. The 918 provides an important link between Hartford and the southern end of the study area. This connection allows commuters to leave their car for more efficient travel by bus on their weekday commutes.

Private Operators

Peter Pan

Peter Pan operates coach bus service from the UConn campus to Hartford with further connections to New York, Boston, and other destinations. The service is designed to serve UConn staff and students, but can also serve those living within the study area.



Car Sharing

UConn has contracted with ZipCar to provide car-share services to both the local and university community. Vehicles are conveniently positioned throughout the Storrs campus. Those vehicles are available to university community members who are 18 years or older (members of the local community must be 21 years or older).

This transportation option is at an affordable rate 24 hours a day, seven days a week for students, faculty, and staff ages 18 and older. It is also available to members of the local community over the age of 21. UConn members can Zipcar for \$15, with rates for Zipcar vehicles on campus starting as low as \$7.50 per hour and \$69 per day.

Transportation Network Companies (TNCs)

Uber launched its transportation networking (ride-

hailing) service in Connecticut in spring 2015. At that time, and through summer 2015, demand was minimal in the area surrounding UConn. When UConn students returned to session in August 2015, there was a boost of trip requests coming from campus. Uber also noted a smaller spike in demand from Willimantic around ECSU.

Uber's trip volume has grown since the initial boost in August 2015, peaking in early May 2016 which marked the end of the UConn & ECSU spring semesters. During the school year, most of the Uber trips in a given week occur on Thursday, Friday and Saturday evenings from 7:00 PM to 3:00 AM. The average ETAs are about 6 minutes and most trips are local, although some trips to Hartford or New Haven occur each week. The average fare for trips in the area is about \$10-12.

F. Transportation Issues and Opportunities

Evaluation of regional travel patterns indicates that the Greater Hartford area attracts many trips from the study area towns, primarily during the morning commute hours with the reverse trip pattern in the afternoon peak hour. Within the study area, UCONN is the primary attractor of trips and the study corridors experience additional pressure when UCONN has a special event.

Traffic congestion exists during peak commuting hours with operational inefficiencies at key study area intersections. Travel speeds along Route 44 are relatively consistent but travelers experience more delays at major intersections and at connections to Route 6, Route 31, Route 32, and Route 195. Similarly, travelers on Route 195 experience delay at major intersections and connections to I-84, Route 32, Route 44, and Route 6. Additionally, traffic slows dramatically in front of the UCONN campus in Storrs on Route 195 where significant pedestrian activity warrants safe driving behavior. Sections of Route 195 near the UCONN campus are also identified as areas with significantly high crash rates.

While traffic volumes have not increased significantly over the past ten years, delay experienced by travelers in the study areas are attributed to numerous factors, including:

- Current travel demand,
- Geometric conditions of the road such as curves, number and width of travel lanes,
- Width of shoulders,
- Intersection design, and
- Driveway density.

Individuals living within the study area have a limited ability to utilize public transit along the corridors. Important connections to CT*transit* express routes that could provide access to Hartford and Manchester do not currently exist. UCONN has service both on and off of the university's campus; however, the majority of its routes stay on or very close to campus and have little effect on the rest of the study area.

From a non-motorized perspective, bicycle and pedestrian travel in the corridor is limited by the physical geometry of Route 44 and Route 195, such as narrow shoulders along much of the corridors, as well as by the volume and speed of traffic. In addition, the number of driveways and local business access in concentrated areas along the corridors can create an unsafe environment for pedestrians and bicyclists because motorists, turning into these driveways, often do not look for bicyclist and pedestrians using the right-of-way. The study corridors were designed for motorized vehicles and there are minimal facilities for bicyclists and pedestrians. While some improvements have been made, the bicycle and pedestrian environment still presents safety issues and concerns for such users. However, there is a desire from the towns to continually improve these facilities.

While the study corridors have a number of transportation issues and inefficiencies, opportunities to create a more vibrant and connective multi-modal transportation system while maintaining the rural character and natural setting that is so highly valued by the communities exist. Such opportunities include, but are not limited to:

- Signal equipment upgrades and optimization at signalized intersections
- Realignment of skewed intersections that have poor sight lines and operational issues



- Additional turn lanes to accommodate travel demand and improve safety conditions at major intersections and concentrated areas of business development
- Minor Transportation System Management (TSM), or “spot” improvements at key intersections
- Additional sidewalk and bicycle facilities at the potential development sites along the corridors
- Improved access to an adequate sidewalk network and crossing area amenities for persons with disabilities
- Improved transit service and connections to regional routes, i.e. express bus service that utilize Route 195 and Route 44
- Coordination of ongoing study efforts with the *Bolton Greenway Extension Project* and the Mansfield’s *Bicycle Master Plan* to strengthen and enhance the bicycle network in the study area
- Transportation demand management strategies that would target commuters and UCONN students and visitors to provide new and enhanced regional transportation options
- Shared use of park and ride facilities and private parking lots to encourage and promote multi-modal connections
- Use of technology that would enhance the experience of travelers in the region, i.e. parking, real-time information

The Eastern Gateways, Route 44 and Route 195 are indispensable assets that traverse through the study area towns and also serve the region as a whole. The corridors are rich in character and resources and

provide an excellent opportunity to create a strong first impression and immediately establish a community’s visual identity. However, there is currently little to no indication at the key entryways that residents and visitors are about to enter the study area. This reflects a missed opportunity to design the public realm in a way that reflects the character of the communities.

Additionally, there is no clear direction that identifies and directs travelers unfamiliar with the area to UCONN. At the time of this study, there is limited signage along I-84 near the interchange of Exit 68 to utilize Route 195; however, there is no wayfinding signage to direct travelers to utilize the interchange of Exit 67 off I-84 or other routes such as Route 44 and Discovery Drive,

a new access roadway off Route 44 that serves the UCONN Technology Park and leads directly to the center of campus.

Opportunities to enhance the unique identity and character of the area by marking the “edge of town” entry points from the surrounding regions would encourage people to consciously recognize this area as a destination and a distinct, identifiable place. These entry points could further enhance the overall experience in the study area by orienting travelers to UCONN and appropriate parking facilities to minimize unnecessary travel within the campus area, potentially spreading the travel demand and reducing the demand on congested segments along Route 195.



CHAPTER THREE: ENVIRONMENTAL CONDITIONS



EXISTING CONDITION ACKNOWLEDGMENT

This report utilized and documented available data collected in 2015 and 2016 to build the framework for the existing setting for transportation, environmental, marketing, and land use conditions. Since the commencement of this study, several projects and services have commenced, that include but are not limited to the following:

- **CTtransit Manchester-Buckland-Storrs Express (Route 913) bus service**, launched in 2017, was designed as an expansion of existing express service to Hartford via I-84.
- **The Four Corners Sanitary Sewer System project** is expected to commence in December of 2018 and anticipated to be completed in December 2019.

A. Environmental Assets and Constraints

Environmental resources in the study area communities were identified. Resources in this assessment include those that constrain or limit development in some way. While some of the study area towns have conducted their own assessment of developable land based on a local definition of environmental constraints, the resources noted below were used for all four towns for this analysis. This provides consistency of information across all the study area towns with respect to understanding long term development potential.

Resource Considerations for Development (resources which limit development but do not prevent it or for which there is policy to avoid development):

- Floodplains
- Aquifers/public drinking water supplies
- Farmlands
- Historic sites and properties

Constraints to Development (areas that cannot be developed due to environmental conditions):

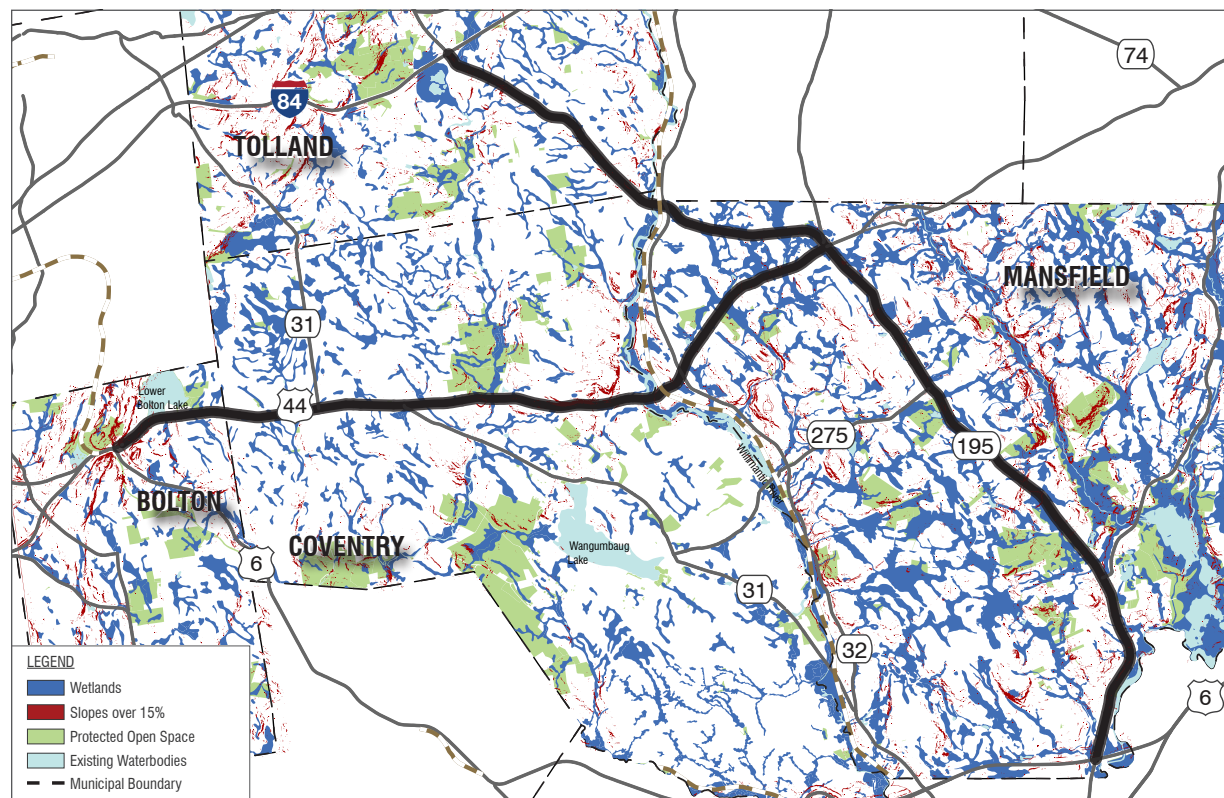
- Steep slopes (>15%)
- Water/wetlands
- Preserved open space – parks/land trust

There are numerous areas of water and wetlands that intersect with Route 44 and Route 195. This occurs in both the rural areas of these corridors as well as within the village, town center, and commercial nodes. As such, water bodies and wetlands represent the most significant constraint to development along the study roadway corridors. Although Route 44 and Route 195 have rolling topography along their lengths, the grades

are generally not steep enough to limit development adjacent to them. Additionally, there are a number of areas of preserved and protected open space. These areas cross Route 44 and 195 corridors in narrow bands which would not have a significant impact on development potential in any one area of either corridor.

Among those resources which should be considered for protection in the course of development, farmlands and historic sites appear to have greatest potential to be impacted. There are pockets of active agriculture along both Route 44 and Route 195, but particularly along

Route 44 in Coventry and Bolton. Historic districts and properties that are listed on the National Register of Historic Places (NRHP) occur in Bolton, Coventry and Mansfield. A summary of the NRHP districts and a detailed list of all historic properties are provided in the Appendix.



Constraints to Development, Source: CTDEEP; CRCOG; Towns of Bolton, Coventry, Mansfield and Tolland; UCONN (Please view the towns' POCDs for a full understanding of all constraints to development.)

B. Utilities

Water and sewer service areas within the study area communities were identified. Within the last year, Bolton completed a sewer project that traverses along Route 44 and into Vernon. The system encompasses all of Route 44. There are no water lines in Bolton.

There are no sewer services along the Route 44 corridor in Coventry. Coventry has received approvals from the Department of Energy & Environmental Protection (DEEP) and Office of Policy and Management to extend its sewer service area from the Bolton town line to approximately Twin Hills Drive on Route 44. Bolton has installed public sewers on Route 44 up to a short distance from the town line and Coventry wishes to connect to the system. Bolton and Coventry are in negotiations on an inter-municipal agreement between their respective Water Pollution Control Authorities.

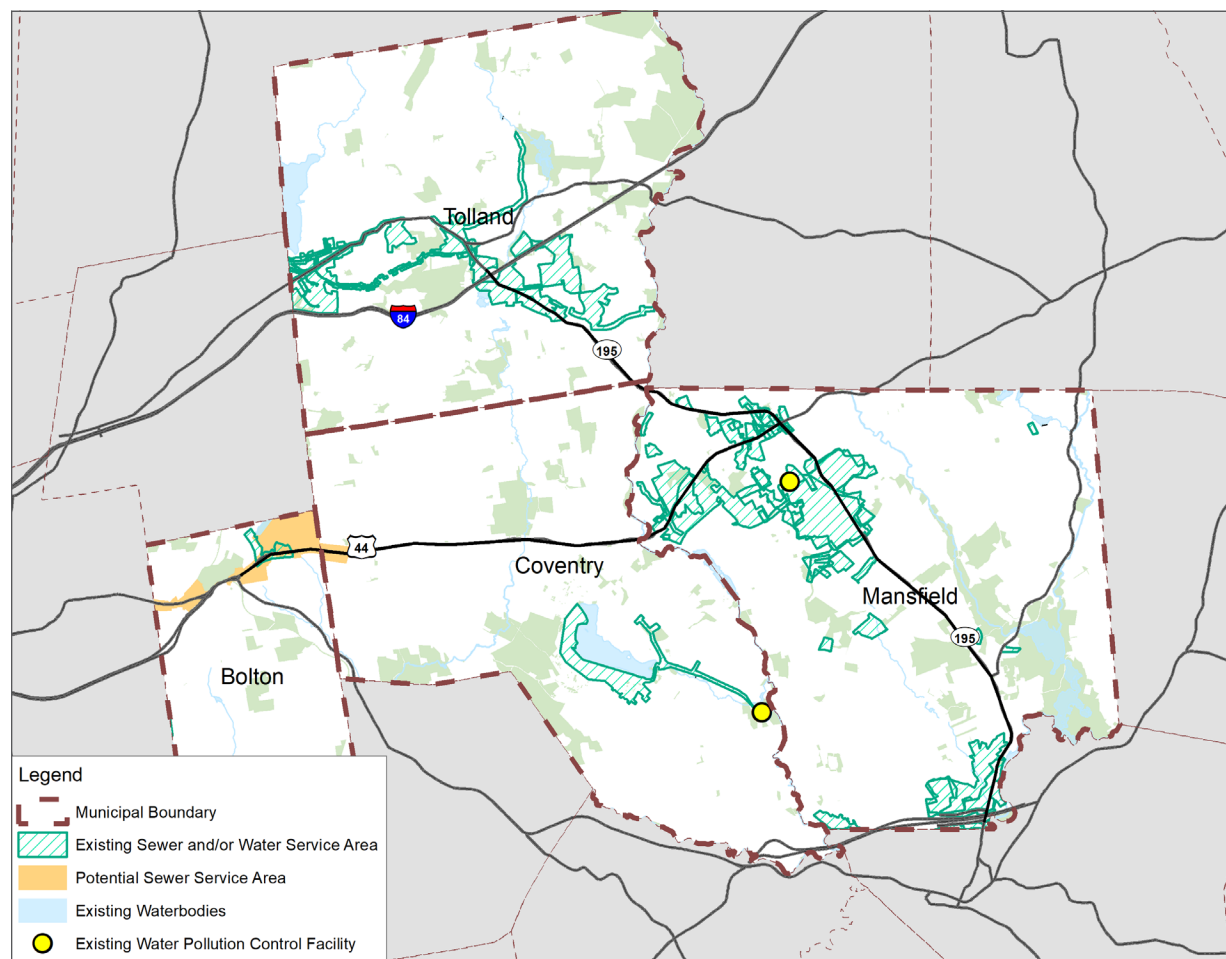
Water and sewer lines serve many of the business zones in Tolland and also includes some residences in the corridor. Tolland has sewer service to the gateway area which is also their focus area for new and infill development to create a cohesive town center. Water service in this part of Tolland is provided by the Town. Both water and sewer service extends down Route 195 to the Baxter Street / Anthony Road intersection. Connecticut Water Company (CWC) recently installed a water transmission line for its supply in the corridor.

Mansfield has historically relied primarily on on-site wells and septic systems to serve its water and sewer needs. UCONN has maintained its own separate water supply system and sewage treatment plant with sewer system to meet campus needs. In 1989, the Town and UCONN entered a water and sewer

agreement whereby UCONN extended these services to municipal facilities and senior housing complexes adjacent to campus.

In 2011, UCONN developed a water conservation plan in partnership with the DEEP, and subsequently worked

with the Town and CWC to resolve issues. The Town and UCONN each now have separate agreements with CWC for water supply. Construction on the pipeline connecting UCONN and Mansfield to CWC's Shenipsit Reservoir was completed in late summer 2016.



Utilities, Source: CRCOG; Towns of Bolton, Coventry, Mansfield and Tolland; UCONN



CHAPTER FOUR: DEVELOPMENT OPPORTUNITIES

EXISTING CONDITION ACKNOWLEDGMENT

This report utilized and documented available data collected in 2015 and 2016 to build the framework for the existing setting for transportation, environmental, marketing, and land use conditions. Since the commencement of this study, several projects and services have commenced, that include but are not limited to the following:

- **CTtransit Manchester-Buckland-Storrs Express (Route 913) bus service**, launched in 2017, was designed as an expansion of existing express service to Hartford via I-84.
- **The Four Corners Sanitary Sewer System project** is expected to commence in December of 2018 and anticipated to be completed in December 2019.

The amount of future development that will be realized will depend largely on physical land characteristics, zoning, and market forces. This section describes the land use and marketing conditions to gain an understanding of how existing and potential future land use conditions influence travel on Route 44 and Route 195 as well as the regional transportation system overall.

A. Existing Land Use

The study area overall is largely rural with small commercial clusters or mixed-use town or village centers at key roadway intersections. Mansfield is the most heavily developed of the study area communities and most notably with the University of Connecticut (UConn) main campus situated adjacent to the downtown. General land use patterns in the study area were identified. The existing land use patterns for each community are summarized in the following sections.

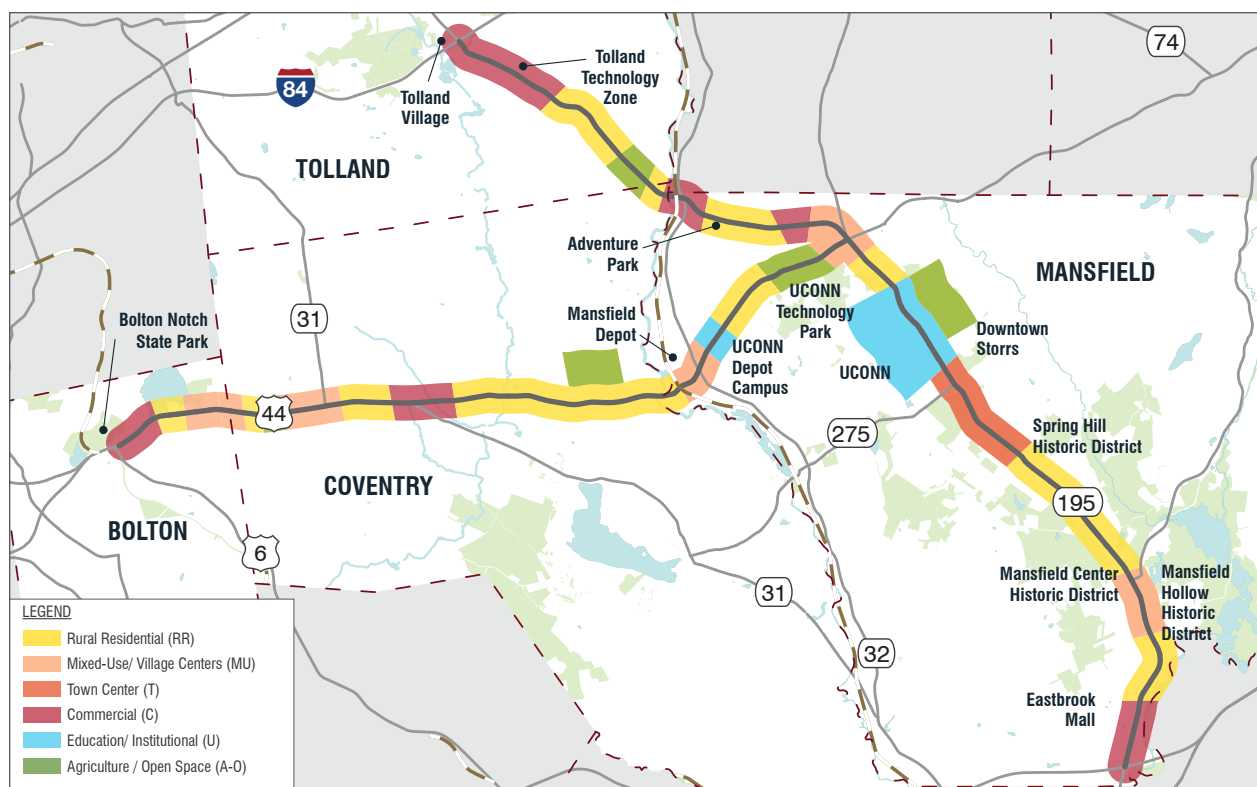
Bolton

The town is predominantly rural and undeveloped with commercial activity concentrated along Route 44 and Route 6. The 2008 Route 44 Corridor Study estimated that there are approximately 720 acres in the Route 44 Corridor buffer or study area in Bolton. Of that, approximately 1/3 or 33% of the corridor is residential and the remainder is either used for or zoned for mainly commercial use.

Coventry

Coventry is a rural community that is predominantly residential and undeveloped. The 2010 Plan of Conservation and Development (POCD) found that 50.5 % of the land in Coventry was in residential use and approximately another 37% was open space or undeveloped. Only 2.7% of Coventry's 24,505 acres is in commercial use. That commercial activity is focused primarily in the downtown or Coventry Village and at the junction of Route 44 with Route 31. The town's Open Space Working Group reported in 2013 that 11.6% of the town is permanently protected open space.

Over time, commercial development that has occurred in Coventry has mostly concentrated along Route 44. The broad land use pattern along Route 44 is one of rural and residential stretches interspersed with clusters of commercial land use, primarily at major roadway intersections. There are three commercial nodes within Coventry. These commercial nodes are along Route 44 at the Bolton town line, and its intersection with Route 31 (Bread and Milk Street) and Route 31 (Main Street). Opportunities for growth have been identified at these locations, pursuant to the Town's Plan of Conservation and Development.



General Land Use Patterns, Source: Fitzgerald & Halliday, Inc., August 2016

Tolland

The 2009 POCD for Tolland best describes land use in the community as follows:

“Tolland is just under 26,000 acres in size. The most prevalent land use is residential – mainly single family residences. Conversely, roughly 8,400 acres of land is vacant land... Almost 5,000 acres of land in Tolland is open space and most of that open space is permanently protected from development. Meanwhile, 1% of Tolland’s land area is used for commercial and industrial purposes and 6% falls under the “other” category which includes roads.”

The limited amount of vacant commercial land in Tolland is located along the Route 195 corridor in the study area. In the study area, that commercial activity extends from the intersection of Route 195 with I-84 eastward to approximately Anthony Lane and the vicinity of the Tolland Technology Campus Zone. The Technology Campus Zone is an area zoned for a mix of technology-related business and includes approximately 105 acres of land on either side of Route 195. The Tolland Village Area, an area zoned for mixed use development is located at the northern end of the study corridor.

East of the commercial segment of Route 195, the corridor is predominantly rural and low-density residential at the roadway with areas of open space and undeveloped land beyond that to the north and south.

Mansfield

Overall, Mansfield is a rural and low-density residential community with a well-developed town center. The UCONN campus along Route 195 is also at its center with the densely developed downtown adjacent to the

campus to the south. Mansfield’s 2015 POCD, Mansfield Tomorrow, states that Mansfield has approximately 29,000 acres of land. The following percentages are based on the Town assessment records:

- 12%: Occupied by UCONN
- 31%: Agriculture and open space
- 36%: Single family housing
- 4%: Multi-family housing
- 2%: Commercial land use

The Route 195 corridor in Mansfield crosses the community from northwest to southeast. It is rural and low-density residential at its western end and transitions in the Four Corners area to a commercial node. Traveling south, the corridor has a small pocket of low-density residential uses and then passes through the UCONN campus edge and Mansfield’s downtown including the new Downtown Storrs mixed-use development. Continuing south along the corridor, the Route 195 corridor becomes rural and residential again until it reaches a village center at Mansfield Center and Mansfield Hollow and then the big-box/franchise commercial cluster where Route 195 meets Route 6.



Similarly, Route 44 in Mansfield transitions from the commercial cluster at its junction with Route 195 to an area to the southwest of low-density single-family homes then passes the edge of the UCONN Depot campus and enters Mansfield Depot, a small village center. Southwest of Mansfield Depot, the corridor again becomes rural with some open spaces mixed with single family homes.

B. Community Appearance and Design

The study area is a scenic one where both residents and visitors value the vistas, historic features, and natural resources that add to local quality of life. The purpose of the assessment of the visual setting is to characterize its components as viewed from the Route 44 and Route 195 corridors and identify where sensitive visual resources occur. This information will inform the recommendations of how and where to make changes to these roadways in a context sensitive manner.



Route 44 and Route 195 overall have rural scenic qualities of rolling topography, trees and natural growth along the roadway edges, rural setting with a low density of development, and views of hills and valleys. In this context, with the exception of the vicinity of the more heavily developed commercial nodes, Route 44 and Route 195 generally integrate into the landscape; the single lane of pavement in each direction helps to create a sense of perspective and define the scenic views rather than dominate them. Based on the above evaluation steps, the notable location-specific scenic viewsheds along Route 44 and Route 195 are listed below.

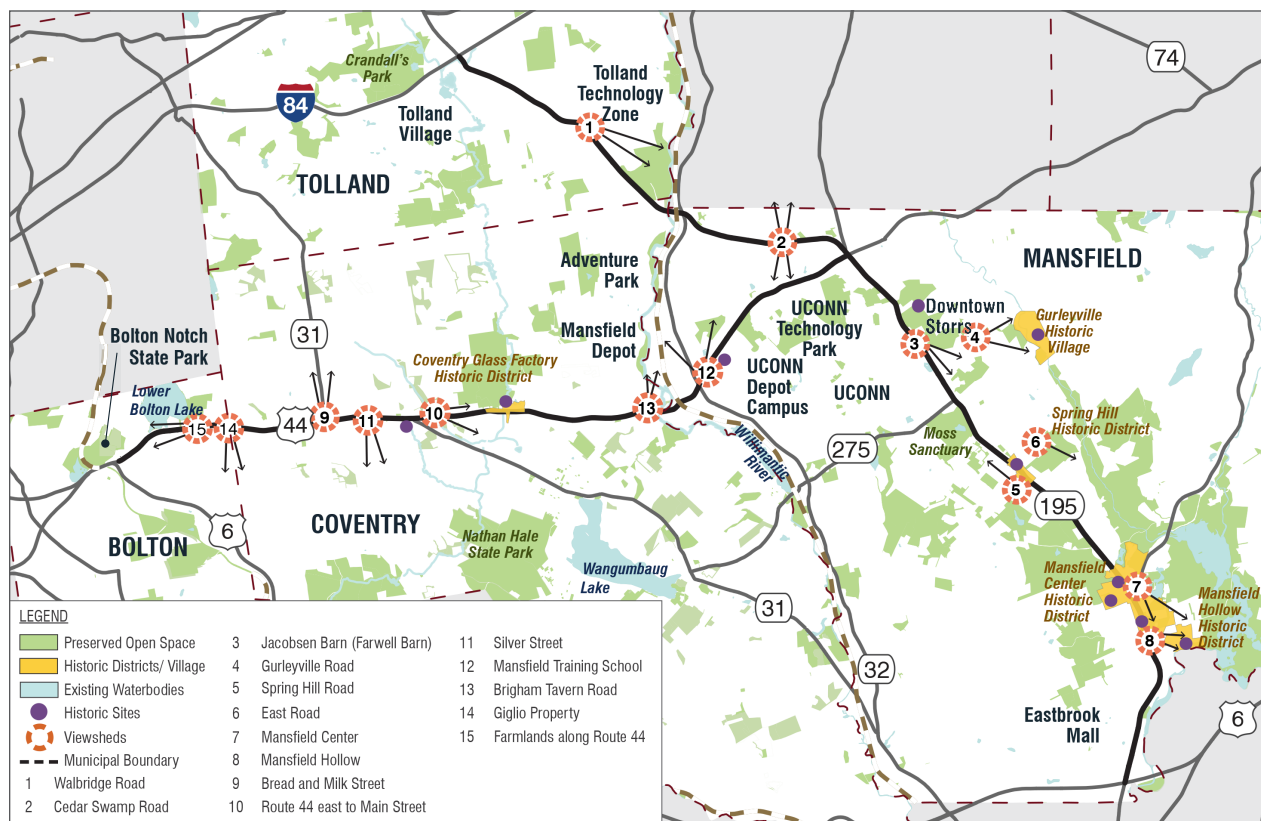
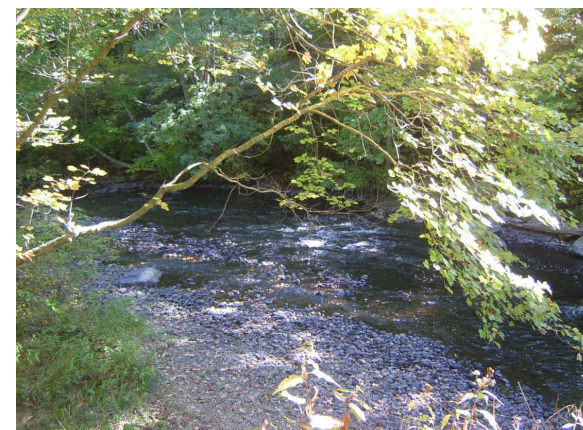
Route 44 (significant vistas from northeast to southwest)

- Bread & Milk Street-Looking north from Route 44 to Zeya Drive
- Route 44- Looking east from Perrachio's farm to Main Street
- Silver Street- Looking south from Route 44 to South Street
- From Mansfield Training School past UCONN Depot Campus to Mansfield Depot
- Brigham Tavern Road- Looking north from Route 44 along the Willimantic River
- Giglio Property- Route 44 at the Bolton line with Coventry looking south
- Farmlands along Route 44 in Bolton from Town line with Coventry to the vicinity of Bolton Lake and Quarryville Cemetery

Route 195 (significant vistas from west to east)

- Walbridge Hill Road looking southeast down long rolling hill to the Willimantic River
- Cedar Swamp Road, views north and south at Cedar Swamp in Mansfield

- View at historic Jacobsen barn looking northeast
- Gurleyville Road at Gurleyville historic village
- Spring Hill Road – Spring Hill Historic District
- East Road in Mansfield south to Mansfield Center – rolling topography
- Mansfield Center with cemetery and other historic properties
- Views towards historic Mansfield Hollow near Bassets Ridge Road



Scenic Vistas and Viewsheds Along Study Corridors, Source: Towns of Bolton, Coventry, Mansfield and Tolland; UCONN (Please view the towns' POCDs for a full understanding of all elements featured on this map.)

C. Zoning and Future Land Use Policy

The land use vision and policy of each of the study area communities will be a fundamental influence on the potential for change to the character, location, and intensity of development along Route 44 and Route 195. At the regional level, CRCOG provides a vision and future development policies for the region as a whole.

The *Capitol Region Plan of Conservation and Development (2014-2024)* expresses the long-term vision for the region with the goal of creating more sustainable “Vibrant. Green. Connected. Competitive” communities throughout it. The plan recognizes the region is a mix of urban, suburban and rural communities and its policies are founded on the following major themes:

- Focus new regional development in areas in which existing and planned infrastructure can support that development.
- Support efforts to strengthen and revitalize Hartford, the Capitol Region’s central city, and also support the revitalization of older, urbanized areas throughout the region.
- Develop in a manner that respects and preserves community character and key natural resources.
- Implement open space and natural resource protection plans that acknowledge and support the multi-town nature of our natural systems.
- Support the creation of new employment, housing opportunities, and transportation choices, to meet the diverse needs of our region’s citizens.
- Encourage regional cooperation in the protection of natural resources, the revitalization of urban areas, and economic development.

Town	Bolton	Coventry	Mansfield (with Uconn)	Tolland
Population 2015	5,033	12,696	25,917	15,244
% Age 0- 19	16%	25%	34%	27%
% age 20-35	14%	15.50%	40%	13%
% age 36-64	45.50%	48.50%	17%	45.50%
% age 65 and older	18%	13.50%	9%	14%
Median Age	47	43	20.9	43.5
Average Household Size	2.6	2.8	2.5	2.8
Median Household Income	\$100,158	\$89,948	\$63,391	\$108,088

Source: ESRI/US Census 2012-2016

Each municipality’s POCD articulates the land use vision and policy. The relevant policies from each community and other planning documents that support or add detail to the findings of each POCD are summarized in the Appendix.

D. Market Conditions and Trends

Demographic Overview

The demographics of an area are a fundamental factor influencing what markets there will be for goods and service businesses in a given geography. Household income and family size and age make-up will be indicators

for how income might be spent for both essential items and as disposable income. The area of the UCONN campus is shown as a distinct geography to reflect the data relative to the student body there.

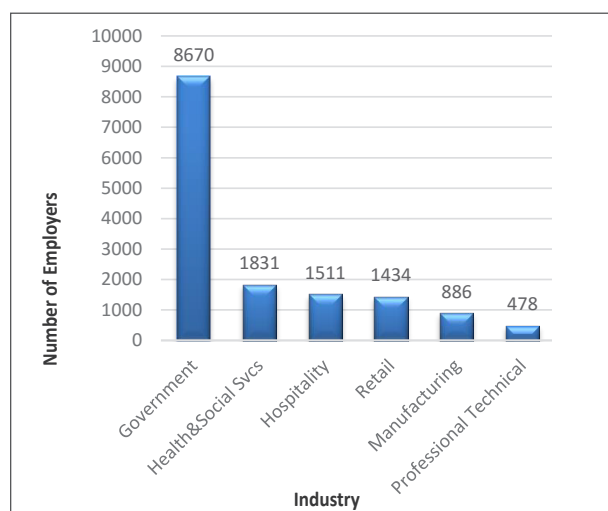
As the table indicates, the three communities of Bolton, Coventry and Tolland have comparable demographic make-ups. The data suggests that the population is spread out among the age ranges. The median age is in the mid-40s. Mansfield’s demographic profile indicates a higher percentage of population between the ages of 0 and 35 compared to the other communities. This is due to the UCONN student population which also influences the median age. Median household income is somewhat lower than it is in the surrounding study-area communities, yet household size is comparable.

Population by Age

The projected change in population characteristics were identified. Overall, in Bolton, Coventry, Tolland, and non-UCONN geography for Mansfield the number of children (ages 1-19) is expected to decline while the adult population will be aging. The strongest growth will be in the age 65-84 age-bracket. In the vicinity of the UCONN campus, where student housing is concentrated, the population distribution by age cohort is expected to remain essentially constant, with some decline in total population in that area.

Employment and Employers

Institutions such as schools, hospitals, and social service agencies (including UCONN) are the major source of employment in the study area. There are approximately 1,000 businesses with 17,600 jobs in the Eastern Gateway Communities. Aside from UCONN, most employers in the study area have fewer than 10 employees. There are 29,885 employed persons in the study area, with approximately \$905 million in annual wages.



Leading Industries Employment, Source: NP analysis of 2015 CT LMI QCEW data (Note: Government industry includes UCONN)

Housing and Real Estate

It is important to remember that all real estate market reviews reflect a snapshot in time and can be influenced by the seasonality of the market. For example, in markets where student housing plays a major role in setting rental prices, rents typically vary significantly during the May next year rental period versus a mid-semester timeframe when there is significantly less demand. Accordingly, the focus should be on the relative prices of the market compared to other areas versus the specific referenced numbers.

A snapshot of the market for housing in the study area communities in 2014 shows trends in housing prices. West of Mansfield prices average around \$140 per sq. ft., east of Mansfield prices fall to around \$120 per sq. ft. Sales within the study area communities are comparable to those in the rest of the CROG region.

Rents

Rents in the region are within the present market averages of around \$600 per bedroom. Rents in close proximity to I-84 and Hartford tend to be above present market averages. Increasing supply in Manchester is impacting rents in that area.

The housing data suggests that the demand for housing in the study area is comparable to that within the CROG region overall. Coventry had the strongest market for new units and home sales in 2014. Yet, as the population ages in Bolton, Coventry, and Tolland it can be expected that, consistent with national trends, many of those over age 65 will be downsizing and/or moving to rental housing in closer proximity to town centers where services are more readily available. As such, the demand for rental units may increase over time and the number of existing owner-occupied houses that are offered for sale will also grow. The data suggests there is not a strong future demand for new single-family residential development in the study area.



Snapshot of Home Prices

Retail and Restaurant Demand

Retail and restaurant market potential is usually measured by a supply demand gap analysis. This analysis uses the ESRI estimated expenditure potential based on the resident incomes of the trade area and the estimated sales collected from a variety of sources. The difference between the two is the gap analysis. A positive number indicates a potential demand for retail. A negative number indicates that the area has more sales than the local market can support on its own. These numbers are inexact and should be viewed with caution. They are indicative of potential demand but do not necessarily translate into net new retail space. It is important to remember that the retail world is segmented by price point, format and merchandise offerings. This means the cost of goods offered must be within the price ranges that are acceptable and attractive to local consumers. Also the impact of omni-channel retail (retail goods sold by catalog, store, online, or other methods) are not factored in these sales estimates. Several major categories of goods such as electronics and clothing face major competition from online sales channels (e.g. approximately 1/3 of consumer electronic sales occur

online). Therefore, translating the sales gap into physical space potential is problematic and the estimates should be approached cautiously. The following square footage numbers represent maximum potential for the purposes of planning and not actual developable space.

The potential demand for commercial development in the study area (in the form of new retail and restaurant square footage) was estimated by considering types of retail available within a 5-minute and then 15-minute drive time. A central location within the study area in Mansfield was utilized as the start point for that 5 or 15-minute drive. The analysis found that:

At 5 minutes' drive-time approximately \$21million in unmet retail and restaurant demand was identified; This translates into (using \$250 per sq. ft. retail sales) approximately 84,000 sq. ft. of potential retail and restaurant activity

At 15 minutes' drive-time, unmet retail demand equals approximately \$246million; depending on the sales per sq. ft. metric, this translates into somewhere between 700,000 and 980,000 sq. ft. of potential new retail and restaurant space which could be supported. This estimate of potential may be optimistic, however, as it is not adjusted for future demographic changes. In addition, at 15 minutes' drive-time, the significant increase in spending potential indicates that the retail potential is not being driven by the core market but by outlying residents. These outlying residents particularly for areas approaching Hartford have access to a range of retail options. For example, competition from other regional centers; major retail clusters such as that at Buckland Hills will compete with any local retail offerings and impact the potential success of new local retailers.

E. Summary of Findings

Land use patterns in the study area can be expected to remain stable over time. Changes to those overall patterns in terms of the density, intensity, and locations of new development will be limited. This will be due to the convergence of the following factors:

- Local policy to limit growth outside of existing development nodes along with targeted technology zones/parks and to retain agriculture and rural character,
- Zoning in place to implement the documented land use policy,
- Environmental constraints which limit developable area,
- Location of most development opportunity sites in existing commercial nodes or town and village centers,
- Limited change or expansion anticipated to water and sewer service areas, and
- Potential development sites, both new and where infill or redevelopment might occur, were identified through stakeholder interviews and a field review. Significant development that can affect traffic and travel patterns is likely to be focused mostly at existing intersections at development nodes.

The amount of future development that will be realized will depend largely on physical land characteristics, zoning, and market forces. Factors that will affect future attraction for development can be expected to include:

- Existing and potential changes to zoning particularly as they relate to allowable mix of land uses and density,
- Other zoning parameters that impact development footprint and size including design guidelines, parking flexibility, lot coverage allowed, and building height limitations,
- How market demand is pro-actively captured; meaning the extent to which the towns promote economic development in the current commercial nodes and village/town centers and invest in infrastructure and zoning to support that,
- Community opposition or support for individual development proposals,
- The extent to which retail and restaurant offerings can stand-apart from competing offerings at regional retail outlets,
- The extent to which the four towns can each leverage future success at the UCONN Technology Park towards their desired local growth, and
- The need to protect rural character with scenic values along the roadway between nodes and town/village centers.



CHAPTER FIVE: CORRIDOR VISION AND PLANNING LAND USE SCENARIO



A Technical Advisory Committee (TAC) visioning exercise was conducted to focus on a variety of topics and ask the committee members to write their three top words or phrases that describe what they value most about the corridors today on one notecard and what they would want to see in the future on a second notecard. These cards were collected at the end of the activity and were organized into categories to

The first event was held at the Earth Day Spring Fling celebration on April 19, 2016 at the UCONN Storrs campus. The study's table was one of approximately 40 exhibitors/food tents at the fair. Many attendees expressed enthusiasm about the study, and 119 people offered their views on transportation, land use, and economic development. Sixty-four (64%) percent of those who offered opinions about their vision for the future of the region were UCONN

Mixed Land Uses
Preservation & conservation
Attractive streetscape
Efficient travel
Technology
Safety
High traffic volume
Accessability
Sense of community
Sustainable design
Knowledge healthy change
Neighborhoods
Trees
Less traffic
Rural character
Economic development
Scenic viewpoints
Opportunities
Millennials
Public open space
Downtown & village character
Services and businesses
Downtown
Services and businesses
Public open space
Millennials
Opportunities
Downtown & village character
Mixed-use development
Parking availability
Walkability
Bikeability
Transit
Defensive design
Green design
Green infrastructure
Green buildings
Green spaces

Technology

Connectivity

Vibrant atmosphere

Sense of community

Bikeability

Public open space

Neighborhoods

Traffic management

Bike trails

Less traffic

Economic development

Walkability

Transit

Accessibility

Attractive streetscape

Efficient travel

Safety

Sustainable design

Multimodal

Downtown & village character

Farming viability

Unique towns

Managed access points

Dispersed design

Dispersed development

Rural character

Next Gen & beyond



students who lived on campus. Eleven percent (11%) of the participants were UCONN students who lived off campus. Twenty-five percent (25%) were non-students that were UCONN staff or faculty or visitors of the event. Off campus and non-student participants lived in 22 different towns.

The second event was held at Bolton Family Fun Day held on Memorial Day, May 30, 2016 at the Center School on Bolton Notch Road. The study's table was one of a dozen community tables at the fair. Seventy-five (75) people participated in the exercise. Of those that participated 84% were Bolton residents and the remaining were frequent visitors from surrounding communities.

The third event was held at CoventryFest held on Saturday, June 25, 2016, at Patriot's Park in Coventry. The study's table was one of two dozen at the fair. Thirty-six (36) people participated in the exercise. Of those that participated, 75% were residents of Coventry and the remaining were frequent visitors.

A tally of the priorities identified by pop-up event attendees is shown in the table on the right.

Results from the pop-up events visioning exercise indicated that agricultural land, open spaces, town centers, and village development are high priorities. There was no dominant priority in the transportation category. However, participants in Coventry and Bolton showed strong support for transit though the results do not really identify it. Bolton specifically had a number of bicycle advocates from a local group participate in the exercise. Growing sustainable and neighborhood businesses and tourism are key priorities for economic development.

Additionally, responses were categorized either

Topic	UConn Earth Day Spring Fling	Bolton Family Fun Day	CoventryFest
Land Use Vision			
Agricultural Land Open Spaces	105	8	23
High Density Mixed-Use Town Centers with Streetscapes	83	2	1
Rural Residential	32	46	28
Low Density Mixed-Use Villages	26	44	13
Suburban Residential	7	9	10
Moderate to High-Density Commercial Clusters Focused at Major Intersections	6	1	1
Transportation Priorities			
Increase Parking Options in Walkable Areas	87	27	27
Reduce Congestion	75	41	26
Improve Bicycle Facilities	64	56	14
Increase Transit Options	62	18	14
Improve Pedestrian Amenities	48	9	24
Improve Safety	41	17	15
Economic Development			
Growing Sustainable Business	112	51	18
Encourage Agricultural and Nature-Based Tourism	73	1	26
Reduce Sprawl by Concentrating Development in or Near Town Centers	34	47	3
Attract and Retain Neighborhood Businesses Along the Corridor	31	21	31
Maximize Competitiveness in Technology Sector	24	38	12
Establish an Identity within the Region and State for these Corridors	15	10	2

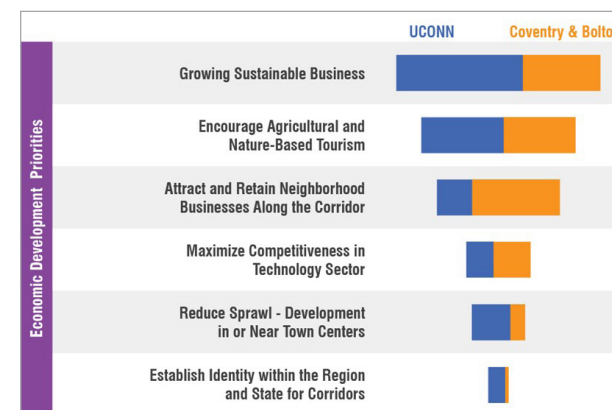
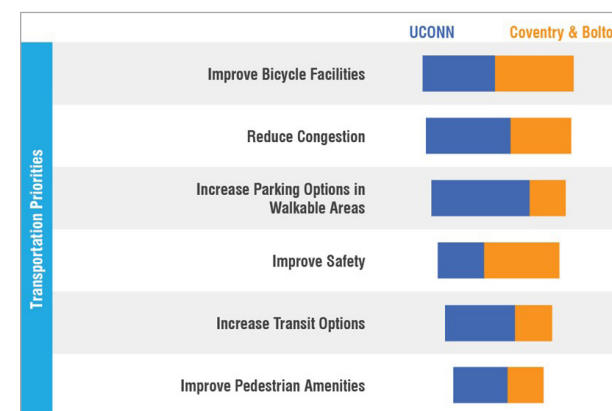
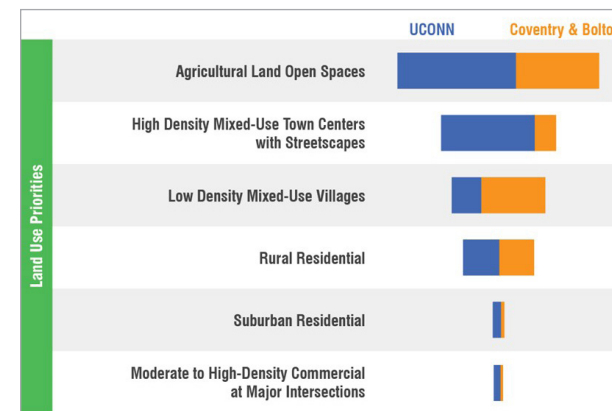
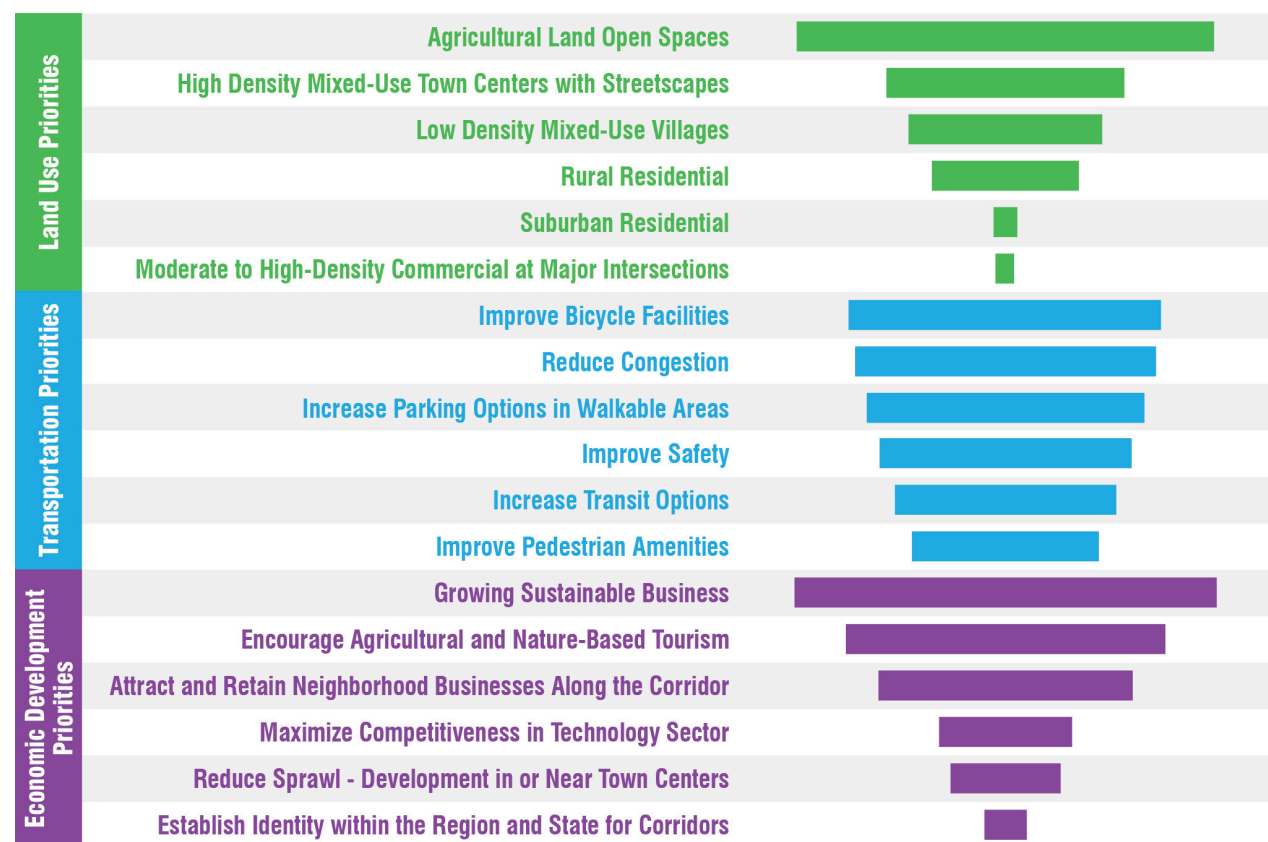


as town-based or university-based to understand the perspective of vision and priorities based on if respondents were considered a permanent resident or a temporary resident within the study area. Results from the exercise indicated that agricultural land use is a priority and is a desire value for all respondents. High density is desired in areas where there currently is more dense development (UCONN – Downtown Storrs area) and low density is desired in the rural and Village areas, replicating existing land use patterns.

Relative to transportation, the desire to see bicycle facilities, a reduction in congestion, and improved

pedestrian facilities were ranked as a priority by all respondents. More parking options and transit options are desired by university-based participants. Improving safety was a high priority for town-based respondents.

Growing sustainable businesses is a common theme and priority shared by all participants. Tourism was also a shared priority. Focused and centered development in town centers and an established identity are slightly more desirable to university-based participants.



The Vision

The variety of visioning outreach events helped the study team articulate a shared vision for the corridor that was developed from a wide variety of residents and other stakeholders. A summary of the corridor vision is provided to the right.

In keeping with this vision, the study team will develop recommendations for these corridors that will provide a transportation network for all users that is efficient and safe, balances local and regional needs for travel, commerce, and education, and provides key connections between activity centers.

In order to achieve the vision for the corridors, future infrastructure improvements and development will be guided by the following principles:



Balance the overall transportation system in the corridor between local needs for travel and the need to safely and efficiently move people and goods along Route 44 and Route 195 as part of a regional network.



Promote a transportation system that provides opportunity for travel by a variety of means (walking, bicycling, and transit, in addition to the automobile).



Create a multi-faceted transportation system that conveniently links the community nodes to one another and contributes to community character and accessibility within the community nodes.



Preserve valued community and natural resources and safeguard land identified for preservation.



Encourage economic development consistent with the scale and character of existing community nodes.



Place priority on re-use of previously developed sites and locating new development in community nodes to encourage sustainable growth that utilizes existing resources whenever possible.



Pursue a compact, mixed-use pattern of development for community nodes that preserves or creates walkable neighborhoods and village character.

Vision

Route 44 and Route 195 in Bolton, Coventry, Mansfield, and Tolland are known regionally as eastern gateways in Connecticut that blend rich rural character and scenic viewpoints with cohesive town, village, and educational centers that reflect a sense of community and vibrancy.



B. Land Use Planning Scenarios

Overview

The vision expressed for Route 44 and Route 195 reflects the way that stakeholders would like to see the character of the corridor evolve. The question becomes, what pattern and mix of land uses would accomplish the vision while still being considered feasible in the context of existing land use conditions, the environment, and economic climate? Second, what does this mean for the transportation system and the vision for how that should function? How land is used is a major factor affecting travel demand and patterns in the corridor. As new land development patterns occur, travel demand and travel modes used are impacted and may change. Consequently, it is essential as part of the corridor planning process to explore potential patterns of land use and articulate potential scenarios for the future.

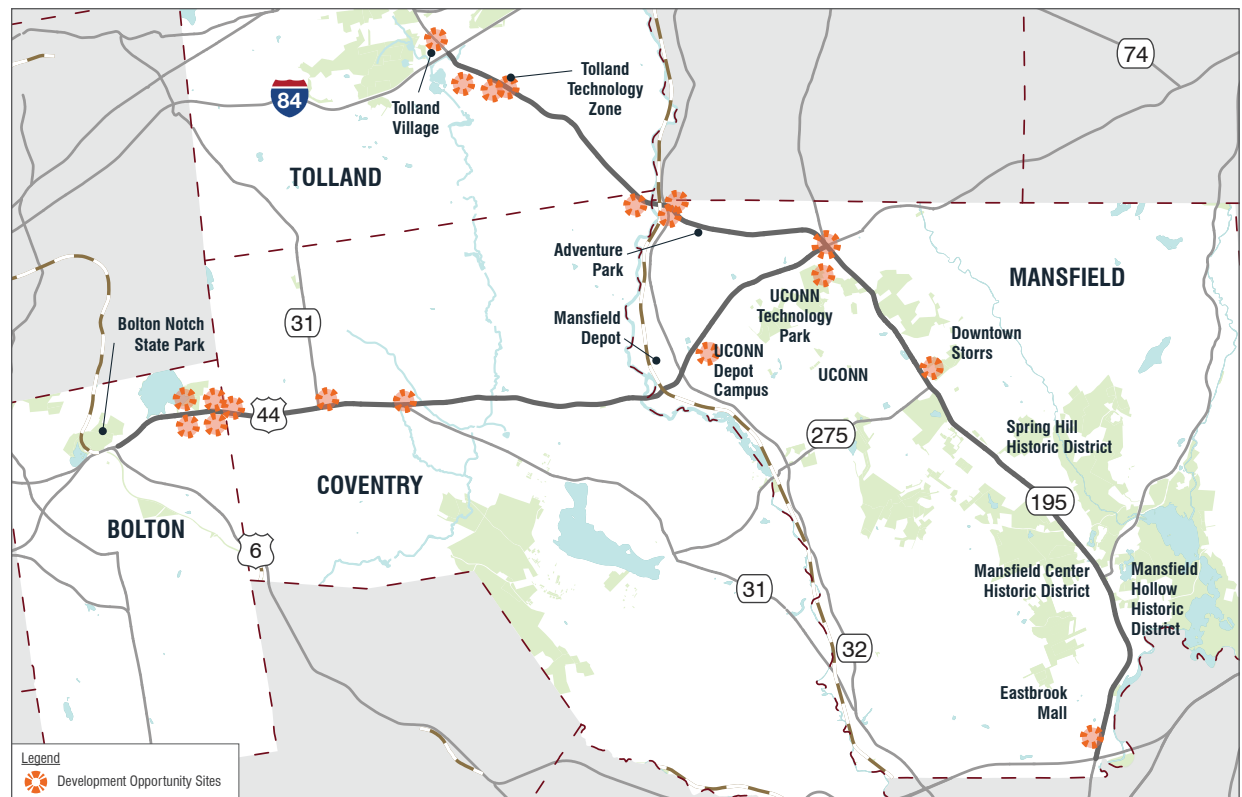
Land use and the transportation system each influence one another in a dynamic way. Where there is sound, safe, and convenient access, development has a greater opportunity to flourish. Conversely, where the pattern of land use follows best practices for development and growth, congestion can be better managed on the roadways by using alternate means of travel such as walking, bicycling, and transit. A Land Use Planning Scenario was developed for the study that embodies these objectives and offers a framework for guiding decision-making on both future development approvals and transportation system enhancements.

Land Use Planning Scenarios

Two land use planning scenarios were evaluated for future transportation planning purposes. These two scenarios include:

Status Quo Scenario: This scenario reflects increased population and employment over time and small-scale local planned development in the communities. The planned developments, by nature, are anticipated to be low traffic generators.

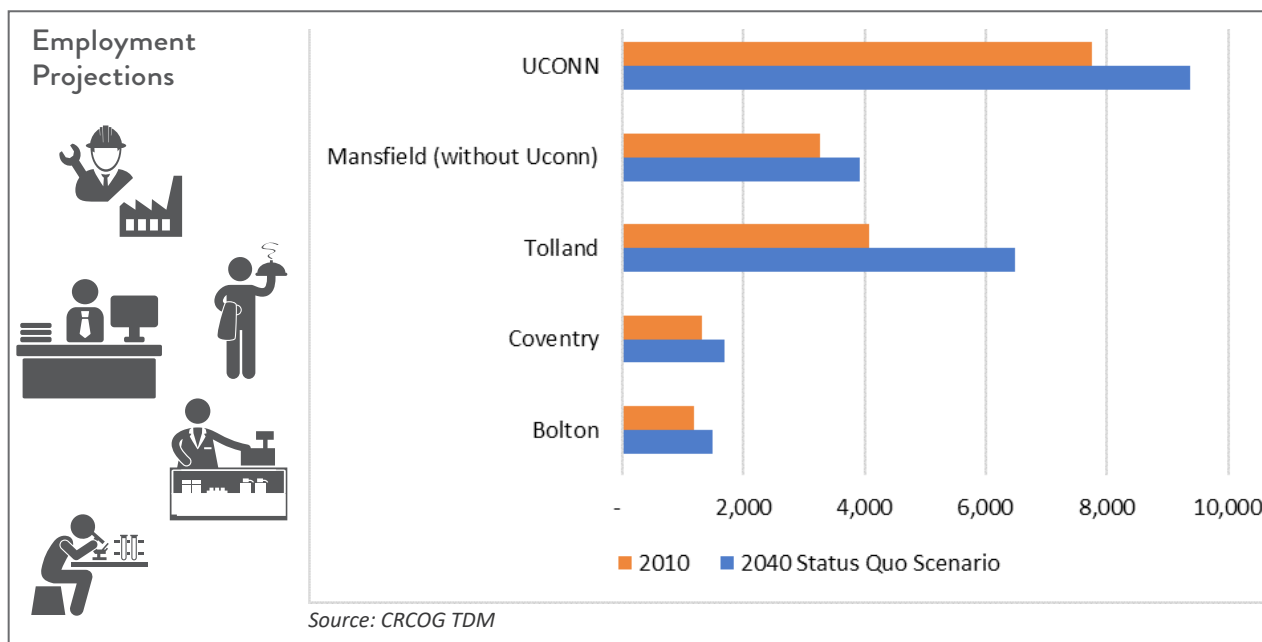
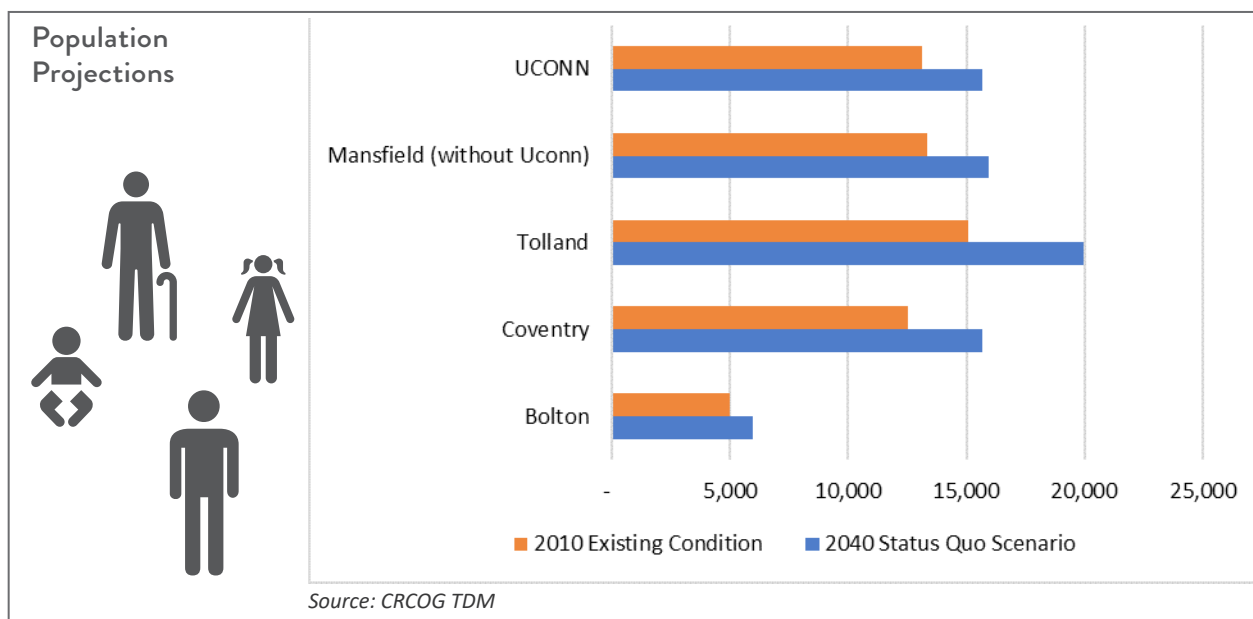
Vision Scenario: This scenario incorporates the increased population and employment over time along with a robust land use plan that considers large-scale mixed-use developments, research and development uses, and a potential increase in student enrollment at UCONN as considered in its *2015-2035 Campus Master Plan*.



Development Opportunity Sites, Source: Towns of Bolton, Coventry, Mansfield and Tolland; UCONN, Fitzgerald & Halliday, Inc.

Status Quo Scenario

The Status Quo Scenario considers forecasted population and employment in the towns along with local small-scale development. Population projections for the study area towns show an anticipated increase of approximately 24% from 59,000 persons under the 2010 existing condition to 73,000 persons under the 2040 Status Quo Scenario. Employment projections demonstrate an estimated increase of approximately 30% from 17,500 to 23,000. The towns have identified several potential development sites, both new and where infill redevelopment might occur. These potential developments are anticipated, in general, to be low-traffic generators.

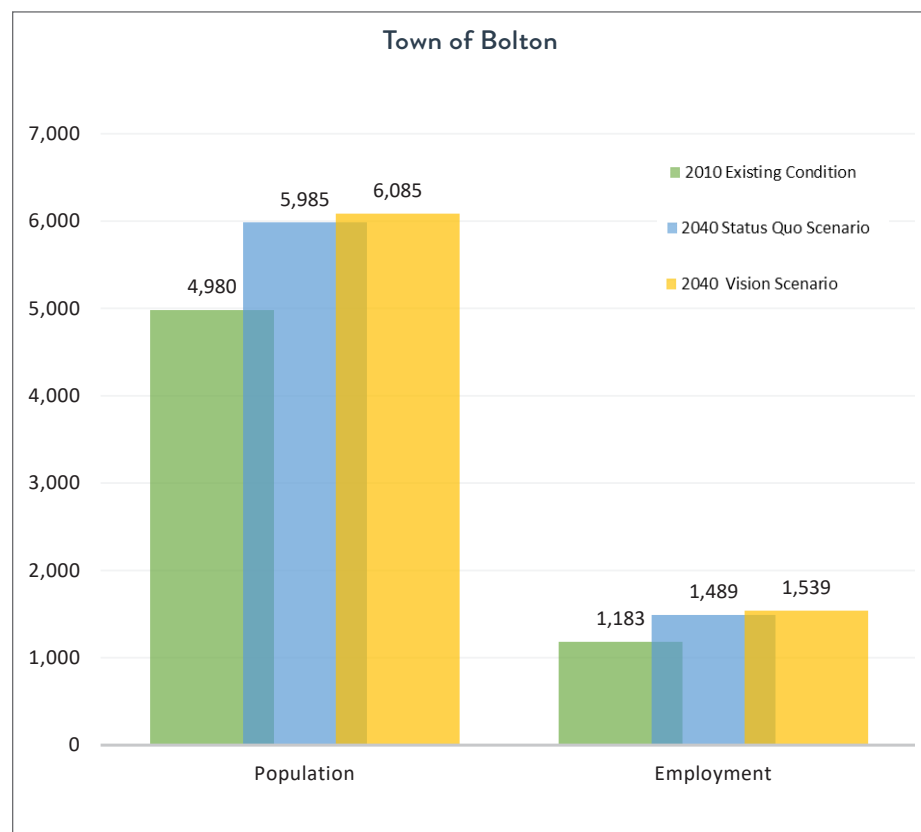


Vision Scenario

The Vision Scenario considers normal regional growth and future planned developments that are considered to be significant traffic generators. These more robust land use development plans were considered through discussions with the towns and members of UCONN Transportation Services, and were identified as:

Bolton

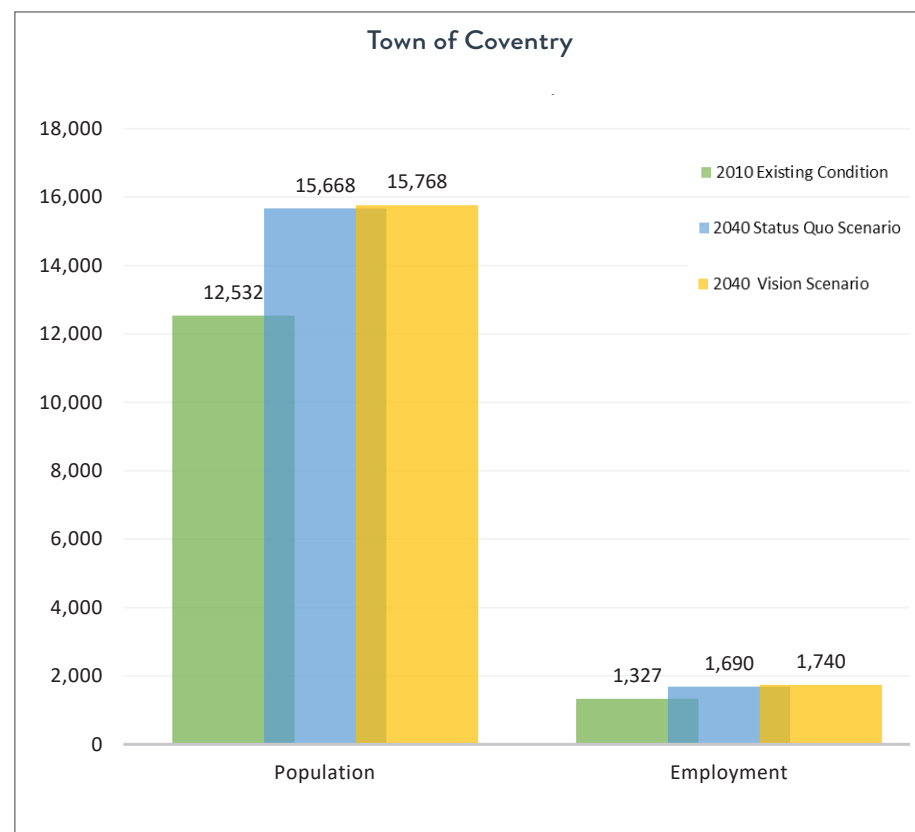
A residential development is being planned near the Route 44 and I-384 interchange. It is estimated that this will cause the population in Bolton to increase by up to 100 persons over and above what is already projected in 2040. Employment is projected to increase in 2040 by 50 persons as a result of a planned mixed-use development adjacent to the Bolton and Coventry town line. Refer to the Coventry section to the right for additional information.



Town of Bolton Projections, Source: CRCOG TDM

Coventry

A mixed-use development is being planned on six parcels adjacent to the Coventry and Bolton town line off Route 44, referred to as the Coventry-Bolton Gateway Development. The proposed development is comprised of a mixed-use of residential, agricultural tourism, retail, restaurants, medical, and recreational uses. As a result of this development, it is estimated that employment will increase by up to 100 persons over and above what is projected in 2040. For purposes of this evaluation, the projected increase of employment is distributed evenly between the towns of Bolton and Coventry.

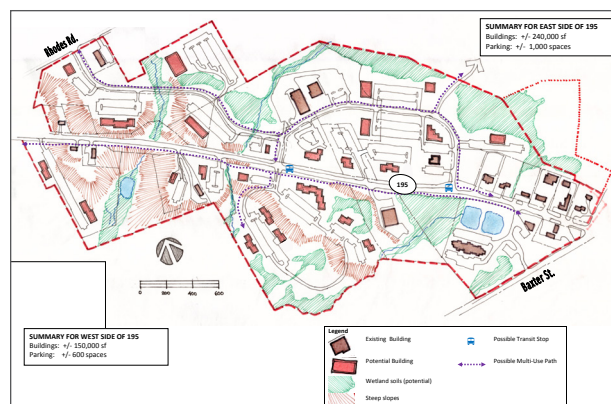


Town of Coventry Projections, Source: CRCOG TDM

Tolland

The Tolland Technology is zoned to support a mixture of commercial uses and might support up to 75,000 square feet (sq. ft.) for a Research and Development Center on the west side and 50,000 sq. ft. of office, 60,000 sq. ft. for a Research and Development Center, and 15,000 sq. ft. of amenity retail and services on the east side. By 2040, it is anticipated that 50% of this development will be built. Therefore, this planned development is estimated to increase employment by 437 employees over and above what is already projected in 2040.

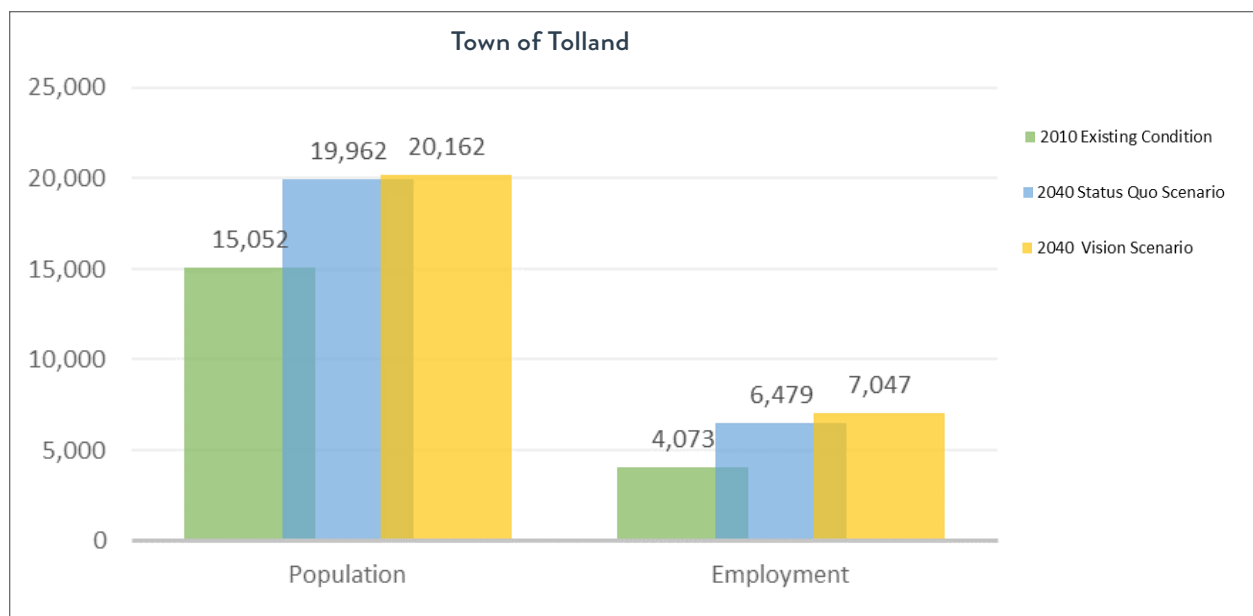
For the purposes of this study, Tolland Village is a mixed-use residential development that is anticipated to increase population by 200 residents. Additionally, 12,000 sq. ft. of retail and 10,000 sq. ft. of restaurants are planned. It is estimated that this will create an increase of 131 employees over and above what is already projected in 2040.



Tolland Technology Conceptual Plan, Source: Town of Tolland
*Draft for discussion purposes only as of July 2012

Program	Description	Metric	Employment
West Side	150,000 sqft R&D	405 sqft/employee	370
East Side			
	100,000 sqft office (suburbs)	304 sqft/employee	329
	60,000 sqft R&D	405 sqft/employee	148
	15,000 sqft amenity retail / services	588 sqft/employee	26
TOTAL(FULL BUILD)			873
50% BUILD			437

Tolland Technology Zone Program Development, Source: Town of Tolland



Town of Tolland Projections, Source: CROG TDM

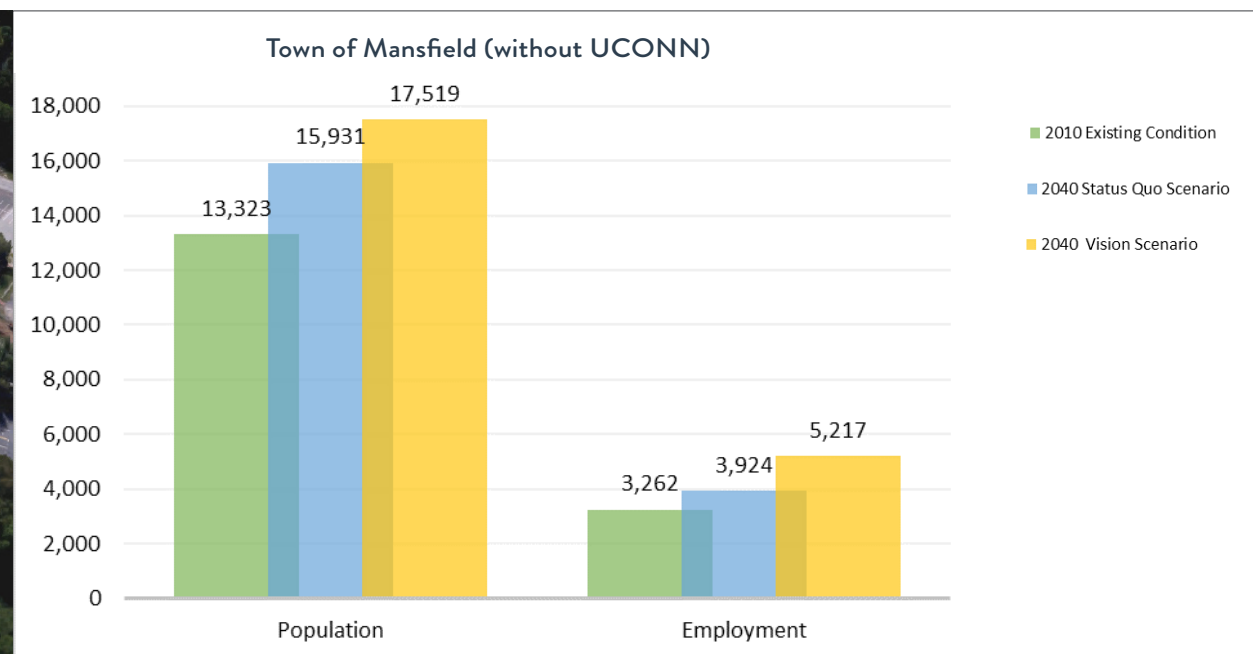
Mansfield

The Four Corners development has the potential to consist of a 100,000 sq. ft. hotel/conference center (modeled after a similar facility at the University of Georgia), 31,000 sq. ft. of office, 25,000 sq. ft. of restaurants, 138,000 sq. ft. of retail and service uses, and 635 residential units.

It is estimated that this development could result in an increase of 1,588 persons and 1,293 employees in addition to what is already potentially projected in 2040 for the town of Mansfield, excluding UCONN.

Program	Description	Metric	Employment
Hotel & Conference Center	65,000 sqft 100 keys 35,000 sqft conference rooms <i>Modeled after UGA Conference Center</i>	1,000 sqft/employee	90
Office Space	131,000 sqft office space	221sqft/employee	593
Restaurants	25,000 sqft	100 sqft/employee	250
Retail / Service	138,000 sqft	383 sqft/employee	360
TOTAL			1,293
Residential	635 units	2.5 persons/unit	1,588

Four Corners Program Development, Source: Town of Mansfield



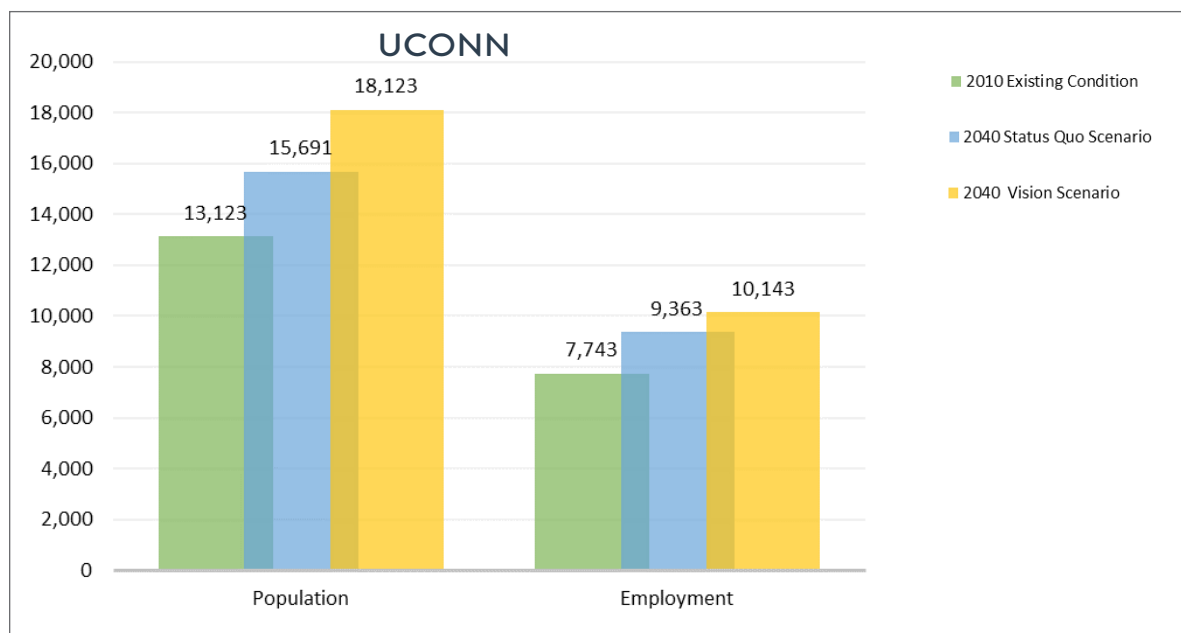
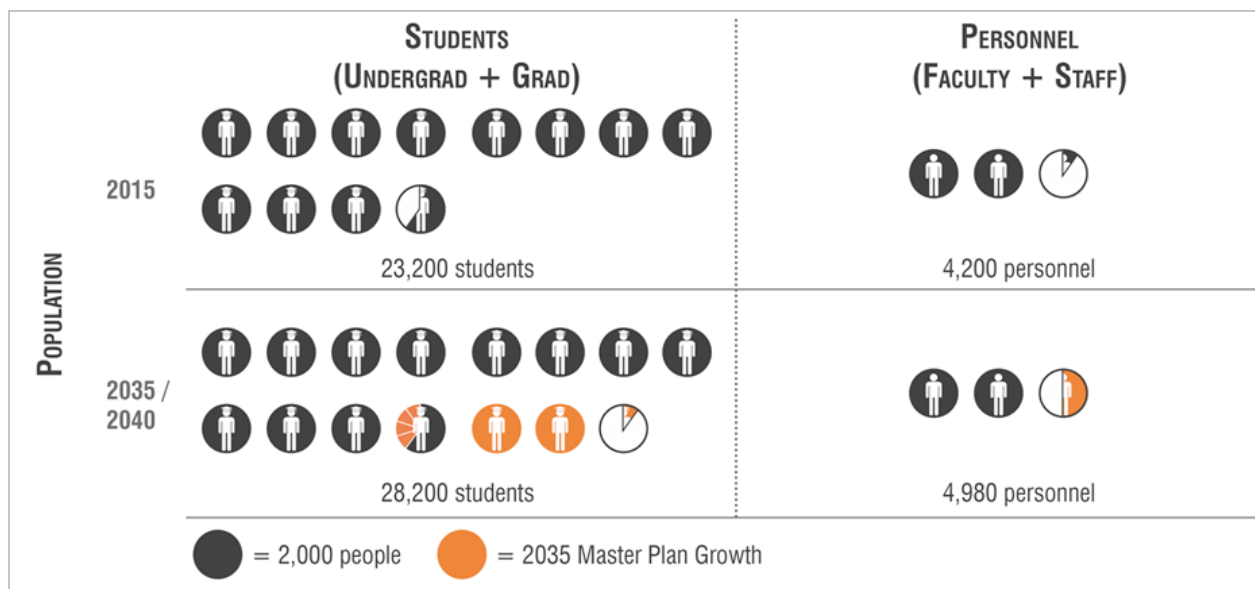
Town of Mansfield Projections, Source: CRCOG TDM

UCONN

UCONN's 2015-2035 Campus Master Plan was utilized for this study as a reference to estimate a potential increase of student enrollment over time. While UCONN is not realizing such growth, the projections considered in its Master Plan – an increase of 5,000 students and 780 personnel (staff and faculty) by the year 2040 – was used for the purpose of this study and evaluation, including the Vision Scenario.

Since the number of students does not directly correlate with the number of trips by a 1:1 ratio, it was necessary to understand the nature and characteristics of student trips. As UCONN offers housing options for its undergraduate and graduate students, it is anticipated that a portion of that population will live on-campus and will not need to commute. Additionally, parking permits are only available for students with 54 or more earned academic credits and assigned University housing. Therefore, in coordination with UCONN Logistics Administration and presuming a deficit of on-campus housing by 2040, the following assumptions were made regarding trips by students and personnel:

- 70% of the potential net increase in student enrollment will live off-campus and commute, or seek alternative modes of transportation
- Any additional commuting students are assumed to originate from the same locations as they currently do (i.e., no presumption of new housing development or redistribution of home locations)
- The average trip rate per student (one-way) is 0.75 and per personnel is 1.0
- Morning trips are reciprocated in the afternoon



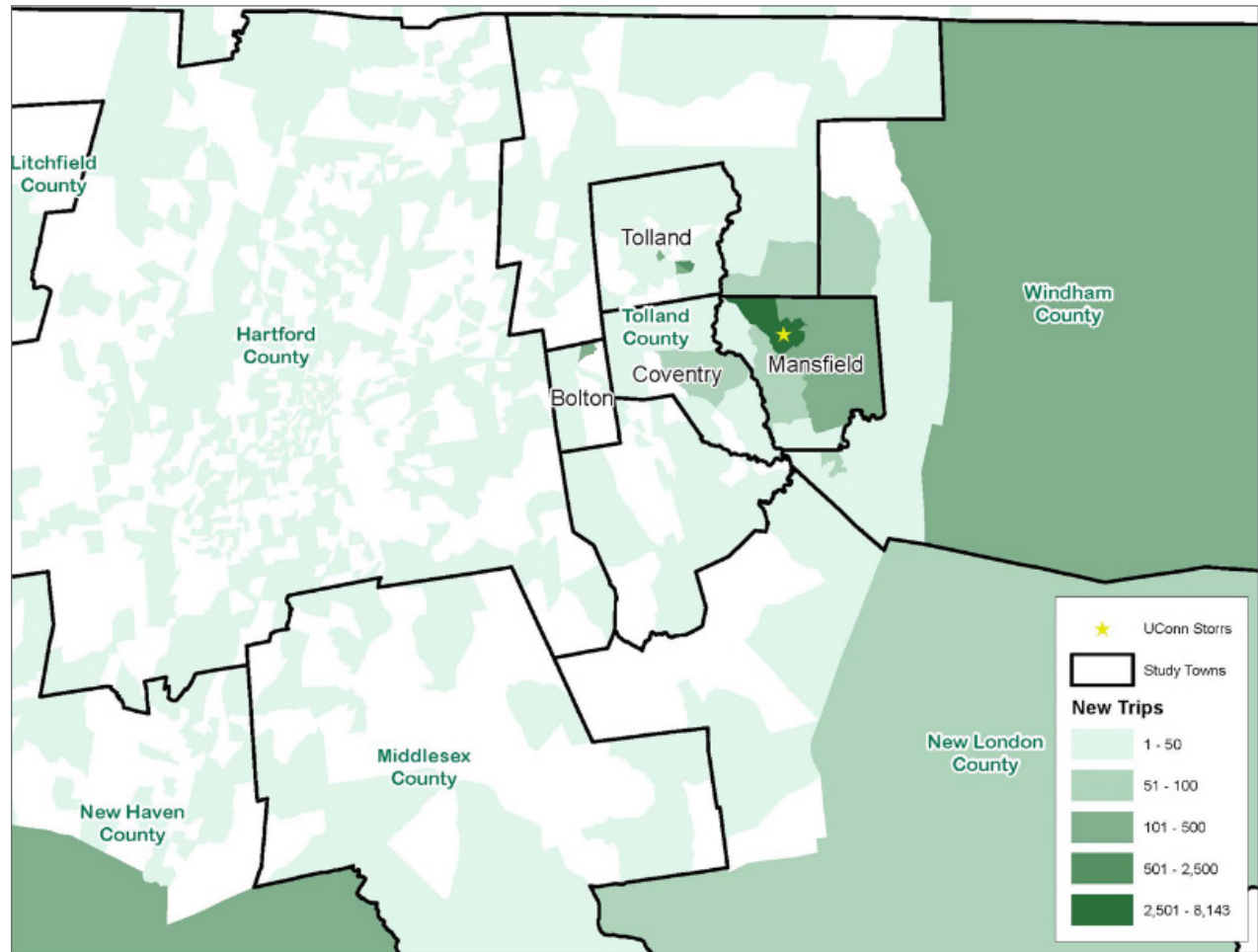
UCONN Projections, Source: CRCOG TDM

C. Future Travel Conditions

Understanding the potential increase in travel demand in the region and along the Route 44 and 195 corridors is essential to identifying potential strategies and recommendations that will support the 2040 vision. First, an estimate of new daily vehicle trips that originate, end, or pass through our study area was calculated from the travel demand model outputs. Secondly, a focus on the Route 44 and Route 195 corridors was assessed to calculate the daily and peak hourly vehicle trips on the study area corridors.

Vehicular Travel Demand

CRCOG's 2040 travel forecasts provide an indication of new travel demand that would be generated based on achieving the vision of the corridors. Comparing the 2040 Status Quo Scenario to the 2040 Vision Scenario, the trip data exported from this analysis indicates an increase of 14,200 new daily vehicle trips in the region and study area as a result of the robust development anticipated under the vision scenario. The analysis does not identify which roads are being used; however, it provides a general context for the increase in travel demand that will either have an origin or destination in the study area towns. It is assumed that these trips will reciprocate their trip; therefore, an additional 7,100 vehicle trips will either start or end their trip in one of the four study areas towns.



New Daily Vehicle Trips – 2040 Vision Scenario, Source: CRCOG

Background traffic growth rates for daily vehicle trips on Route 44 west of Route 195 ranged from 23% to 27% over the 30-year period from 2010 to 2040. On Route 195 from the I-84 interchange to Route 32, traffic is anticipated to increase by 17% and between Route 32 and its intersection with Route 44, traffic will increase by 10%. Traffic along Route 195 between Route 44 and Route 275 (South Eagleville Road) is anticipated to increase by 8%. South of South Eagleville Road, traffic on Route 195 will increase between 18% and 20% over the 30-year period. This results in an increase of daily trips on the corridors in the range of 1,000 vehicles per day (vpd) to 4,000 vpd.

Future peak hour vehicle trips for each land use planning scenario at the study area intersections was developed from the travel demand model. It is anticipated that there will be an increase of operational inefficiencies at study area intersections along the corridors.

Status Quo Scenario: Compared to the existing condition, delay on the Route 44 corridor will increase under the status quo scenario. Study area intersections on Route 44 between the I-384 and Route 6, Route 44 interchange and North River Road will experience some congestion and delays under the status quo scenario. Additionally, vehicles traversing through the intersection of Route 44 with Baxter Road will also experience some delay. On the Route 195 corridor, travelers will also experience congestion and delay between Baxter Street and Gurleyville Road. *(Note: Baxter Road and Baxter Street are two different roads. Baxter Road is located in Mansfield and Baxter Street is located in Tolland.)*

Vision Scenario: The increased travel demand under the vision scenario, in general, will increase delay along the corridors without any improvements. However, vehicle delay is anticipated to be less at the intersection of Route 44 and Route 195 (Four Corners) compared to the Status Quo Scenario. Travelers on Route 195 are forecasted to use Baxter Road and Discovery Drive as a desired path, therefore reducing some of the traffic volume at Four Corners. However, the use of Baxter Road as an alternative may have impacts on the residential character of that road and traffic calming may be necessary to help mitigate such impacts.



Traffic Growth Percentage Between 2010-2040, Source: CRCOG

Multimodal Travel Demand

There are limited existing facilities for walking and biking, in general, along the corridors. Improvements to these environments are an important component to reducing congestion and managing traffic in order to maintain the rural character and natural setting along these corridors.

Studies completed in regions across the country lend credibility to an increase in walking and bicycling due to a rise in the quantity and quality of facilities that support these modes of transportation. As referenced in the CROCOG Regional Pedestrian and Bicycle Plan, 2008, the region can anticipate a reasonable mode shift to walking and bicycling resulting in emissions reduction and fuel costs savings. The region has the potential to shift between 5,000 and 10,000 commuters to bicycling, a portion of which would occur in the Eastern Gateways study area. Additionally, it is estimated that a 10% increase in bicycling and walking would also occur for non-work trips that are less than 5 miles. These estimates do not include proximity of transit service; therefore, with improved transit service throughout the corridors, the mode shift to walking and bicycling will increase if walk/transit and bike/transit trips are considered.



CHAPTER SIX: RECOMMENDATIONS



A. Development of Recommendations

The findings and outcomes of the Route 44 and Route 195 corridor study process highlighted the unique issues along the corridor associated with the anticipated increase of investment in development opportunities, higher education, and research. It was clear that a variety of transportation, economic development, and natural resource priorities needed to be balanced to reach the shared corridor vision, which is as follows:

“Route 44 and Route 195 in Bolton, Coventry, Mansfield, and Tolland are known regionally as eastern gateways in Connecticut that blend rich rural character and scenic viewpoints with cohesive town, village, and educational centers that reflect a sense of community and vibrancy.”

This Plan’s recommendations have been developed to strike this balance while still addressing the needs of stakeholders. To begin this process, the team developed a set of preliminary concepts based on information from the existing conditions analyses, previous reports, best practices research, and the public input received throughout the study.

To confirm that these concepts comprehensively reflect the community’s priorities, the Study Team invited the public to participate in a series of public meetings. The first series of public meetings consisted of “pop-up” events that were held during community events to gain input from the general public on their vision and priorities for the corridor. The pop-up events were held in April and May 2016. The second series of public meetings held in November and December 2016 engaged the public to provide ideas and potential solutions to address the transportation issues and opportunities. A summary of

the corridor plan recommendations was presented and discussed at the third and final series of public meetings held in April and May 2018. These meetings engaged the public to provide comments on the proposed concepts and to also provide comments on the priorities of the proposed strategies. Additionally, we received input from various town commissions and committees on the proposed concepts.

Four meetings were held with the Technical Advisory Committee to provide study updates and garner feedback. Continued engagement and transparency throughout the study process allowed the community to stay informed, involved, and to develop a sense of ownership of the study through the opportunity to view updated material on the study’s website and submit comments. The feedback received during all of these events has been taken into consideration in the development of the final recommendations.

Organization and Approach

The perspective taken throughout this study has simultaneously taken local priorities into consideration while considering the corridors regionally as a cohesive whole. This is in keeping with the corridor’s mission to provide a transportation network that is for all users, efficient and safe, balances local and regional needs for travel, commerce, and education and provides key connections between activity centers. The recommendations are intended to outline an agenda for the four local towns and the region working towards the community vision over time.

As such, the recommendations have been organized into two main geographic categories: local focus area improvements and regional improvements.



B. LOCAL RECOMMENDATIONS

Detailed focus area improvements were developed for priority areas in each of the four towns based on need as identified by the communities. These recommendations focus on transportation improvements to the study area's roadways and include intersection modifications, network enhancements, improved access ways, and access management strategies.



Signal Operations

These strategies include, but are not limited to, the addition of a signal at a stop-sign controlled intersection, modifying signal phasing, coordinating signals, and optimizing signal timings.



Intersection Modifications

Modifications to the geometry of the intersection to improve traffic flow and safety could include, but are not limited to, adding lanes or modifications to lane assignment, reconfiguring or realigning the intersection, installing a roundabout, bump-out, or signage, restriping and enhancing pavement markings.



Bicycle and Pedestrian Improvements

For bicycling, creating a network of facilities (paths, lanes, and enhanced roadway shoulders) are strategies considered. Pedestrian improvements include, but are not limited to, installing pedestrian countdown signals, and painting and maintaining crosswalks. Detailed information and description of best practices for the bicycle and pedestrian environment can be found in Section B of this *Plan*.



Access Management

Access management considers techniques used to control the location, spacing, design, and operation of driveways, median openings, interchanges and street connections to a roadway. These techniques include but are not limited to, consolidating, modifying, or relocating driveway access points, closing median openings, installing landscaped medians, etc.

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The overall objective is to improve traffic operations and flow while enhancing safety and better accommodating other modes of travel. Each focus area improvement includes

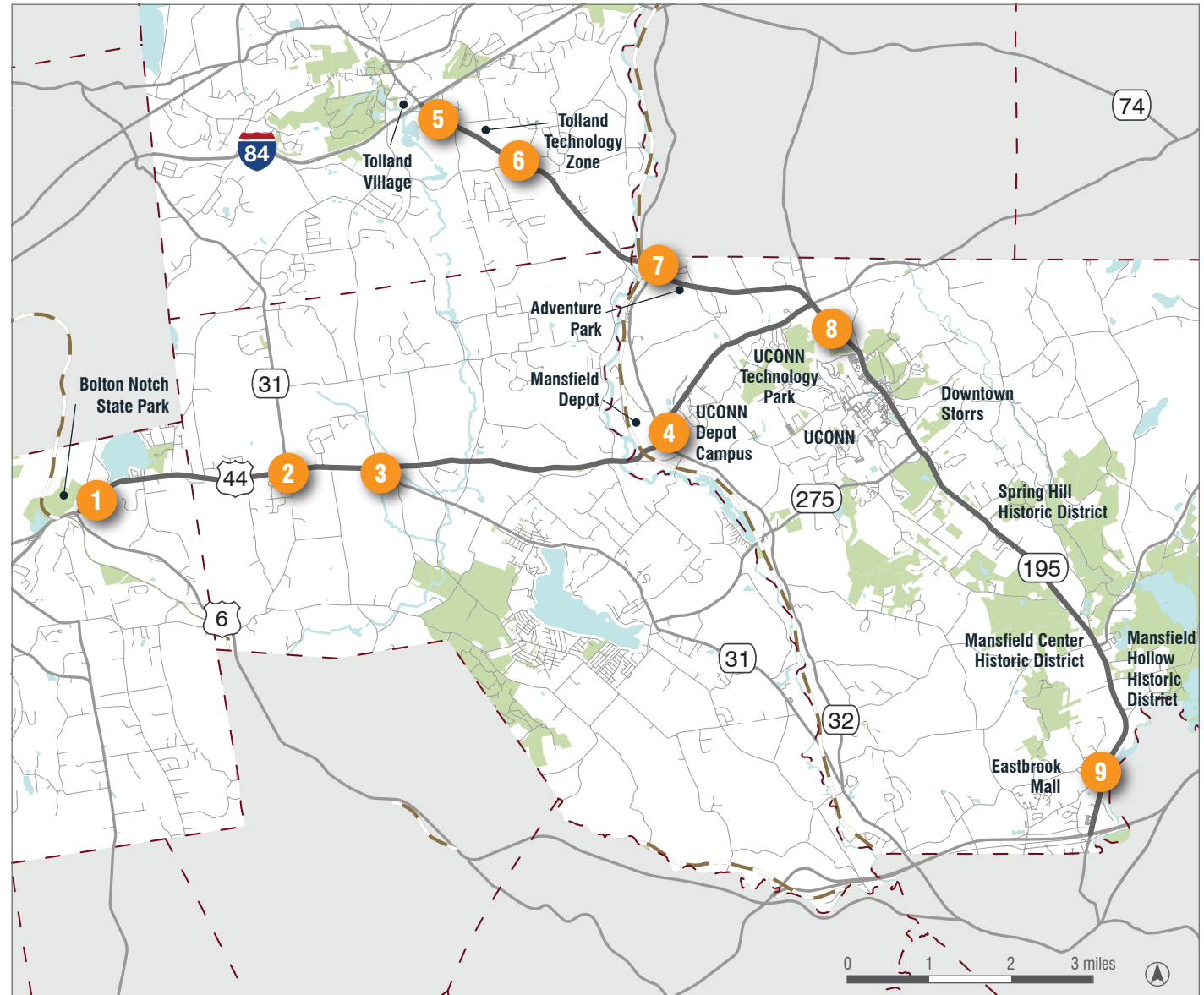
a description of the recommendation, an illustrative concept plan, cost estimates and implementation timeline. While not specifically noted in this section, upgrading and optimizing all signal timing and phasing at all study area signalized intersections is recommended and described in Section B of this *Plan*.

The concept plans are intended for planning-level decision making and to assess the impact that the improvements could have on enhancing the Eastern Gateways corridors in accordance with the study's mission. The concept plans are not final design and do not consider property and/or environmental impact; therefore, further engineering, analysis, and design is needed prior to implementation.

Cost estimates are based on the conceptual level of detail reflected in the *Plan*. Actual project costs could be different depending on more detailed engineering, analysis, and design changes to construction cost items, year of construction, property and/or environmental impact, and other unforeseen risks. The implementation timeline takes numerous variables into consideration, including the priority level, ease of implementation and cost estimate.

1. LOCAL FOCUS AREA IMPROVEMENTS

- 1 Route 44 and Quarry Road (Bolton)
- 2 Route 44 and Route 31/Bread and Milk Street (Coventry)
- 3 Route 44 and Route 31/Main Street (Coventry)
- 4 Route 44 and Route 32 (Mansfield)
- 5 Route 195 between I-84 and Goose Lane (Tolland)
- 6 Route 195 and Baxter Street (Tolland)
- 7 Route 195 and Route 32 (Mansfield)
- 8 Route 195 between Route 44 and Tower Loop Road (Mansfield)
- 9 Route 195 between Riverview Road and North Frontage Road (Mansfield)



1.1 Route 44 and Quarry Road (Bolton)

The interchange zone of I-384 with Route 6 and Route 44 stretches from just west of Morancey Road to Quarry Road. Roadways in this zone are designed to allow for higher speed travel. The interchange zone requires quick decision making on the part of motorists as they weave, merge and diverge to access the appropriate lanes heading to their destination. This leads to confusion, especially for first-time visitors to the area. Access to/from Notch Road is challenging in addition to access to/from the commercial driveways at the Post Office Plaza which are not aligned with Quarry Road. Additionally, the high travel demand at the convergence of these three major thoroughfares contributes to congestion and delay. This is further increased when there is an incident in or near the interchange zone.

The overall reconfiguration of the I-384, Route 6, and Route 44 interchange has not been funded as proposed in the January 2013 *Route 6 Hop River Corridor Transportation Study*. Due to current lack of overall project funding, DOT has proposed some interim short-term safety improvements. This *Route 6 Study* included intersection improvements of Notch Road onto I-384 just prior to the split into Route 6 and Route 44 and the construction of a shared-use path along the northern side of Route 44 from west of the intersection of the Route 6/44 interchange to the intersection with Quarry Road. No funding sources have been identified as of the summer of 2018 to initiate preliminary design or construction for this project. The Town of Bolton's highest transportation priority is to improve overall safety and connectivity between routes and modes in this area while maintaining the traffic capacity and mobility. Although the short-term interim measures have support, they do not address the identified needs of the proposed larger interchange construction project.

This study endorses the long-term safety improvements to the I-384, Route 6, and Route 44 interchange, as identified in the January 2013 *Route 6 Hop River Corridor Transportation Study*. This endorsement includes the proposed shared-use path along Route 44 which is described in more detail in Recommendation 2.1.



Preferred Bolton Notch Concept - Route 6 Hop River Corridor Transportation Study, January 2013 (Image credit: CRCOG)

The Recommendation

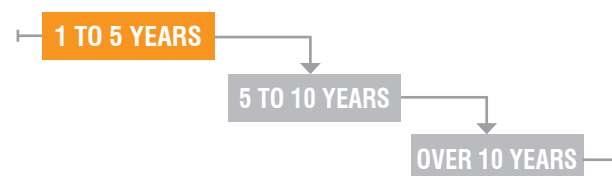
- Endorse shared-use path along Route 44
- Endorse the long-term safety improvements to the I-384, Route 6, and Route 44 interchange recommended in the *Route 6 Hop River Corridor Transportation Study*
- Implement incident management strategies as part of Connecticut's Strategic Highway Safety Plan (SHSP)

Cost



- Endorsement of the study in this recommendation does not require a cost.
- Estimated costs noted in study:
 - *Route 6 Hop River Corridor Transportation Study*, 2010 estimate for Notch Road Extension and Route 6/44 Improvements: \$25 million

Timeline



1.1 Route 44 and Quarry Road (Bolton)

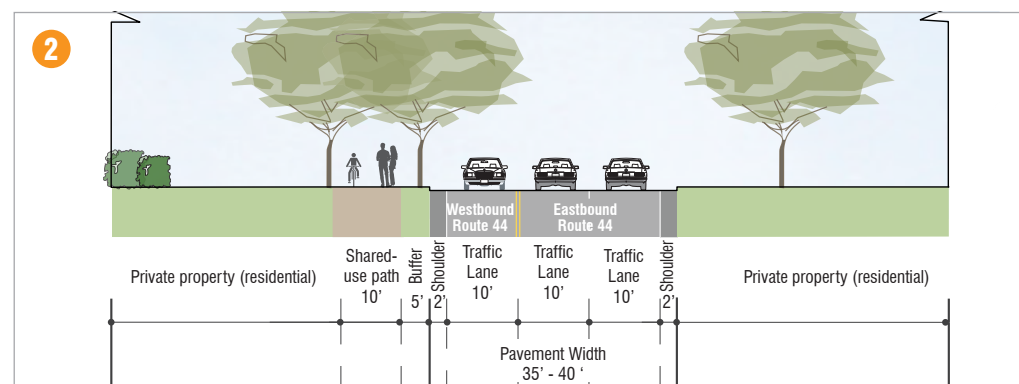
Concept Plan



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study. (Image credit: Town of Bolton)



Notch Road Relocation (Image credit: Town of Bolton)



Typical cross section for shared-use path on north side of Route 44

1.2 Route 44 and Route 31/Bread and Milk Street (Coventry)

The current configuration of Northfield Road and Swamp Road as offsets from Bread and Milk Street present challenging operations. The current configuration results in a high number of turning movements in close proximity on the short segment on Route 44 between Northfield Road and Swamp Road. Travelers on Bread and Milk Street are controlled by signal operations; however, travelers on Northfield and Swamp Roads are controlled by stop signs. These travelers experience long delays to turn onto Route 44 due to limited gaps during peak commuter periods.

Additionally, the Town of Coventry has identified the northwest corner of the intersection as a potential site for future development. Route 31/Bread and Milk Street provides local and regional access with a direct connection between I-84 and Route 44. Realigning Northfield Road and Swamp Road at this intersection will enhance safety, reduce the number of turning conflict points and reduce vehicle delay. While the alignment of a new connection to Route 44 has not been determined, a study to fully evaluate and assess the environmental and property impacts for various alignments should be undertaken. The Town has begun coordination with CTDOT and is inquiring about Local Transportation Capital Improvement Program (LOTICIP) funding to assist with advancing the proposed concept.

The Recommendation

- Realign Northfield Road and Swamp Road
- Conduct a study to assess alignment for new connection to Route 44 to create a 4-way intersection
- Upgrade signal operations



View from Route 31 / Bread and Milk Street at intersection with Route 44

Cost



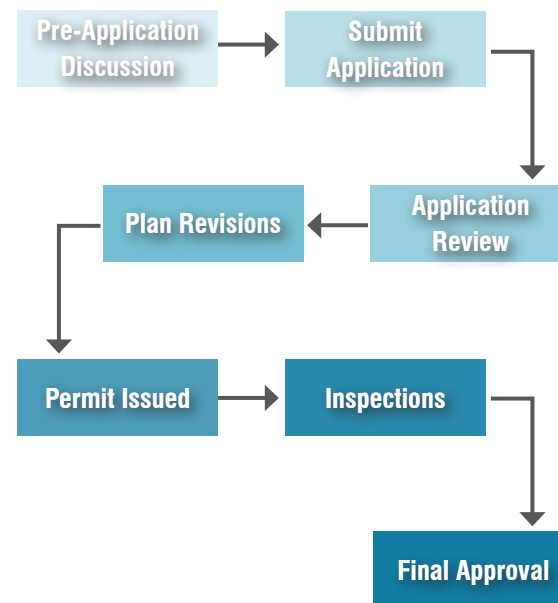
- Potential environmental impacts and property takings could increase cost

Timeline



General Permitting Process

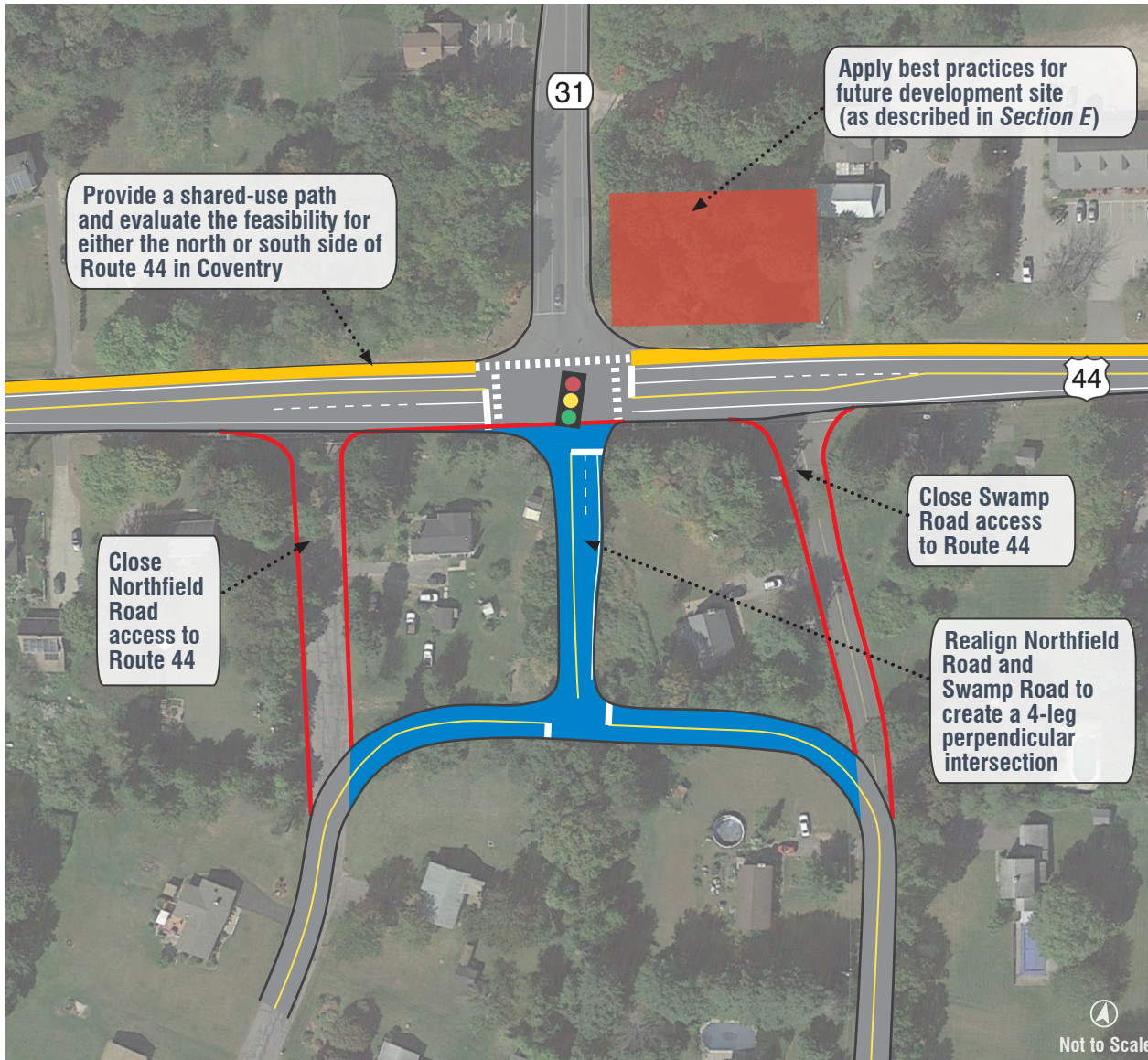
While each permit application is unique based on the permit type, the general process for obtaining a permit for a development may include the steps as outlined in the graphic. Some projects may require authorization from multiple departments and/or a board or commission. Each town has its specific regulations, legal obligations, and requirements for proposed developments.



NOTE: For specific details on the legal obligations of the applicant/developer and the Town, please review the Town, State or Federal regulations that apply to your specific application.

1.2 Route 44 and Route 31/Bread and Milk Street (Coventry)

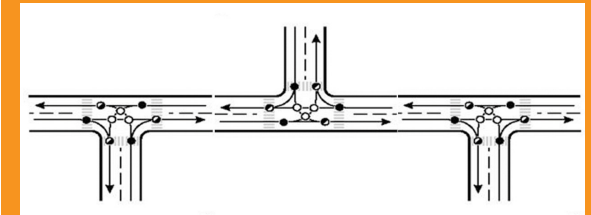
Concept Plan



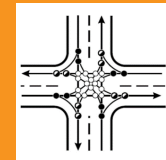
This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.

A conflict point is the point at which the paths of two through or turning vehicles diverge, merge, or cross. The diagrams below compare traffic conflict points associated with the current configuration to the proposed concept.

Vehicle Conflict Points
Current Configuration



Vehicle Conflict Points
Recommended Configuration



1.3 Route 44 and Route 31/Main Street (Coventry)

Route 44 intersects with Route 31/Main Street approximately 1 mile east of Route 31/Bread and Mile Street. It is a signalized, four-legged intersection that is surrounded by a mix of residential, commercial, and service-based uses. In particular, there is a high demand of travel from Route 31 northbound to Route 44 westbound. As a result, additional capacity to accommodate this travel pattern in the future will improve operations.

Additionally, there is an opportunity to address the access management issues that exist in this area due to the high frequency of driveways in close proximity to one another and to the intersection. Consolidating, relocating, and/or closing of driveways were some strategies considered. The most easterly driveway of Highland Plaza and the two drives of the Save N' Go gas station are within approximately 400 feet, just west of the Route 44/Route 31 intersection. Vehicles turning left into the Plaza from Route 44 westbound block through moving vehicles and create additional delay in this area. This area is noted by the Town of Coventry as a safety concern due to the number of rear-end collisions on the north side of Route 44. Travelers use Stage Road as a way to get onto Route 44 westbound from Grant Hill Road without having to use the signalized intersection. Closing access to Route 44 from Stage Road would reduce the number of conflict points in this area.

With a nearby commuter Park and Ride lot, this area has also been identified as a key opportunity to promote a multimodal commercial activity center. This can be accomplished with the provision of bicycle and pedestrian facilities as shown in the concept plan. Traffic calming features such as landscaped medians would also provide a visual cue to motorists to slow down and create a more aesthetically pleasing and comfortable environment.

Examples of Traffic Calming Strategies

Raised Medians

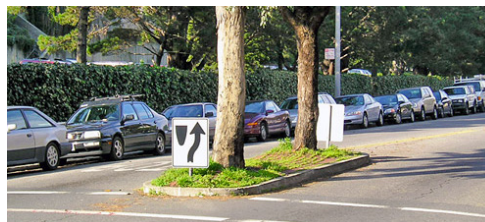
Islands that replace the centerline and narrow the travel lanes

Benefits:

- Decreases pedestrian crossing distance
- Narrows roadway
- Provides opportunity for additional streetscape amenities
- Allows two-stage pedestrian crossing

Considerations:

- Available right-of-way
- Access management impacts



Landscaping treatments

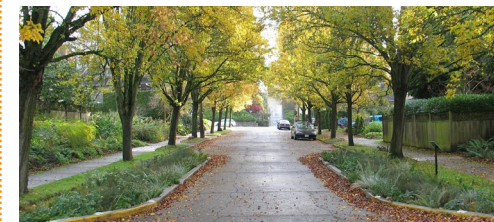
Includes street trees, planters, and shrubbery

Benefits:

- Provides visual cue to motorists
- Provides shade for pedestrians
- Improves aesthetics and environmental conditions for all
- Provides opportunity for additional streetscape amenities

Considerations:

- Maintenance costs
- Potential sightline issues near intersections
- Uprooting can cause cracks in sidewalk and trail surfaces



The Recommendation

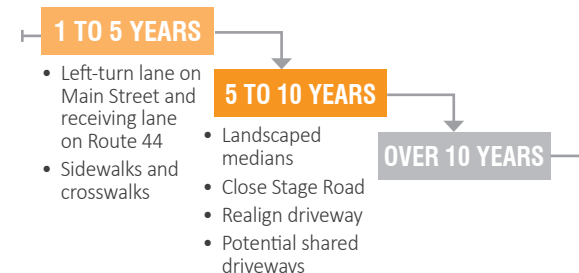
- Add a left-turn lane on Main Street and a receiving lane on Route 44 westbound
- Realign residential driveway
- Close Stage Road access at Route 44
- Install landscaped median
- Provide crosswalks and sidewalks
- Consider shared driveways or relocation of driveways for businesses

Cost



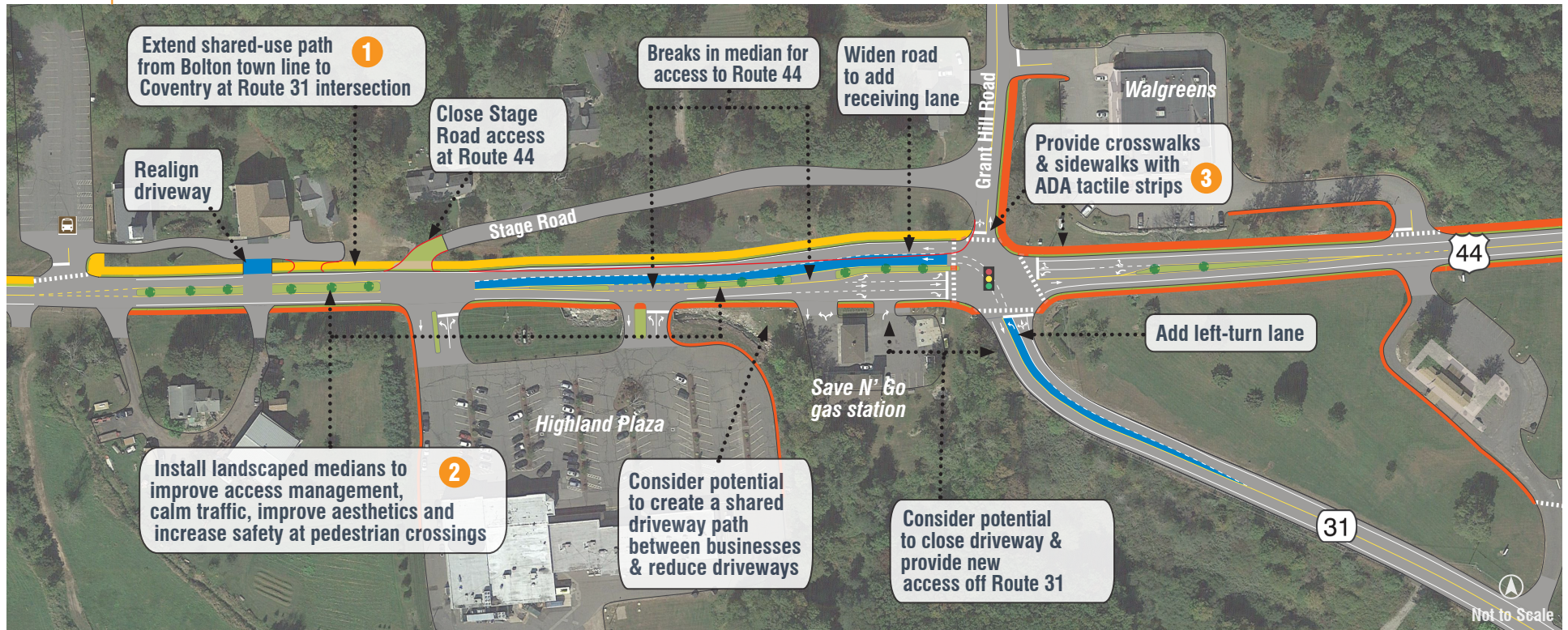
- Estimate does not include sidewalks or landscaped medians in private parking lots
- Recommendation could be implemented incrementally to reduce upfront cost

Timeline



1.3 Route 44 and Route 31/Main Street (Coventry)

Concept Plan



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.



Image credit: Tahoe Regional Planning Agency



Image credit: Barrio Planners Incorporated



Image credit: NACTO

1.4 Route 44 and Route 32 (Mansfield)

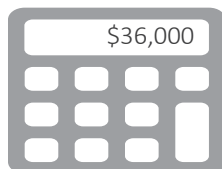
The intersection of Route 44 with Route 32 currently is a four-legged intersection, one lane in each direction that is controlled by a signal. A heavy demand of travel on the Route 32 northbound approach is anticipated under the future scenarios. An evaluation of a roundabout and adding turn or through lanes were considered to improve future operations. Results from the evaluation of the roundabout concluded that a roundabout would require a significant amount of land area and would not fit in the general context of the environment. The evaluation of additional lanes yielded that a left-turn lane on the Route 32 northbound and Route 44 westbound approaches would improve operations and would have the least impacts to the surrounding environment. These additional lanes would also have a dedicated left-turn signal at the light. Also, adding curb extensions would increase pedestrian visibility at the intersection through improved sight lines and reduce vehicle turn speeds by physically and visually narrowing the roadway.

Additionally, it is recommended that the signal at this intersection be upgraded to receive a higher intersection priority. This would cause the signal to flash red whenever updates need to be made, allowing the intersection to operate as a four-way stop in the meantime.

The Recommendation

- Add curb extensions on the southern corners
- Add left-turn lane along northbound approach of Route 32
- Add left-turn lane along westbound approach of Route 44

Cost



- This cost is dependent on CTDOT granting the Town an exception to allow for 10' travel lanes and narrower shoulders than what is required in CTDOT's current Highway Design Manual. If an exception was not granted, this segment of the road would need to be widened and costs would increase.

Timeline



Concept Plan



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.

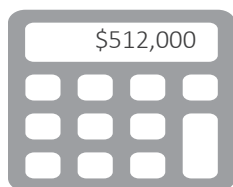
1.5 Route 195 between I-84 and Goose Lane (Tolland)

Route 195 from its intersection with the I-84 ramps to Goose Lane is surrounded by a mix of residential, commercial, and service-based uses on both sides of the roadway. As a result, there is a high density of driveways in this segment. Intersection improvements along this section and at key intersections were recently constructed by CTDOT. These improvements included modified lane assignments, landscaped median, and signal operation improvements. The addition of sidewalks along the east side of Route 195 is a high priority for the Town of Tolland and would greatly improve pedestrian access to and from the surrounding residential areas and businesses. Other multimodal improvements include the endorsement and potential extension of the proposed shared-use path within the Tolland Technology Zone.

The Recommendation

- Provide sidewalks along the east side of Route 195 and add crosswalks at key intersections
- Endorse planned shared-use path from Goose Lane to Baxter Street
- Pending future community need, widen existing sidewalk from I-84 ramp to Goose Lane to become a shared-use path

Cost



- Does not include sidewalk widening to create a shared-use path from I-84 ramp to Goose Lane.

Timeline



Benefits of Facilities to Promote Bicycling and Walking

Reduce Congestion

Bicycling and walking can help to reduce roadway congestion. Many streets and highways carry more traffic than they were designed to handle, resulting in gridlock, wasted time and energy, and driver frustration. Bicycling and walking require significantly less space per traveler than driving. Roadway improvements to accommodate pedestrians and bicyclists typically also enhance safety for motorists by lowering speeds, better organizing traffic, and reducing the potential for collisions.



Reduce Pollution

According to the U.S. Environmental Protection Agency, transportation is responsible for nearly 80 percent of carbon monoxide and 55 percent of nitrogen oxide emissions in the United States. Although cars are much cleaner today than they were in years past, if total traffic volumes continue to grow, air quality will deteriorate. In 2010, World Watch Magazine estimated that, "a bicycle commuter who rides four miles to work, five days a week, avoids 2,000 miles of driving and (in the U.S.) about 2,000 pounds of CO₂ emissions, each year. This amounts to nearly a five percent reduction in the average American's carbon footprint." (World Watch Magazine, <http://www.worldwatch.org/node/6456>, 2010).



Improve Health

Bicycling and walking provide people with a way to stay physically active and promote good health. Both activities increase the health of the heart and cardiovascular systems and provide resistance to obesity related health problems such as strokes, diabetes, and cancer. Research shows that keeping physically active can reduce the risk of heart and circulatory disease by as much as 35 percent and risk of early death by as much as 30 percent.



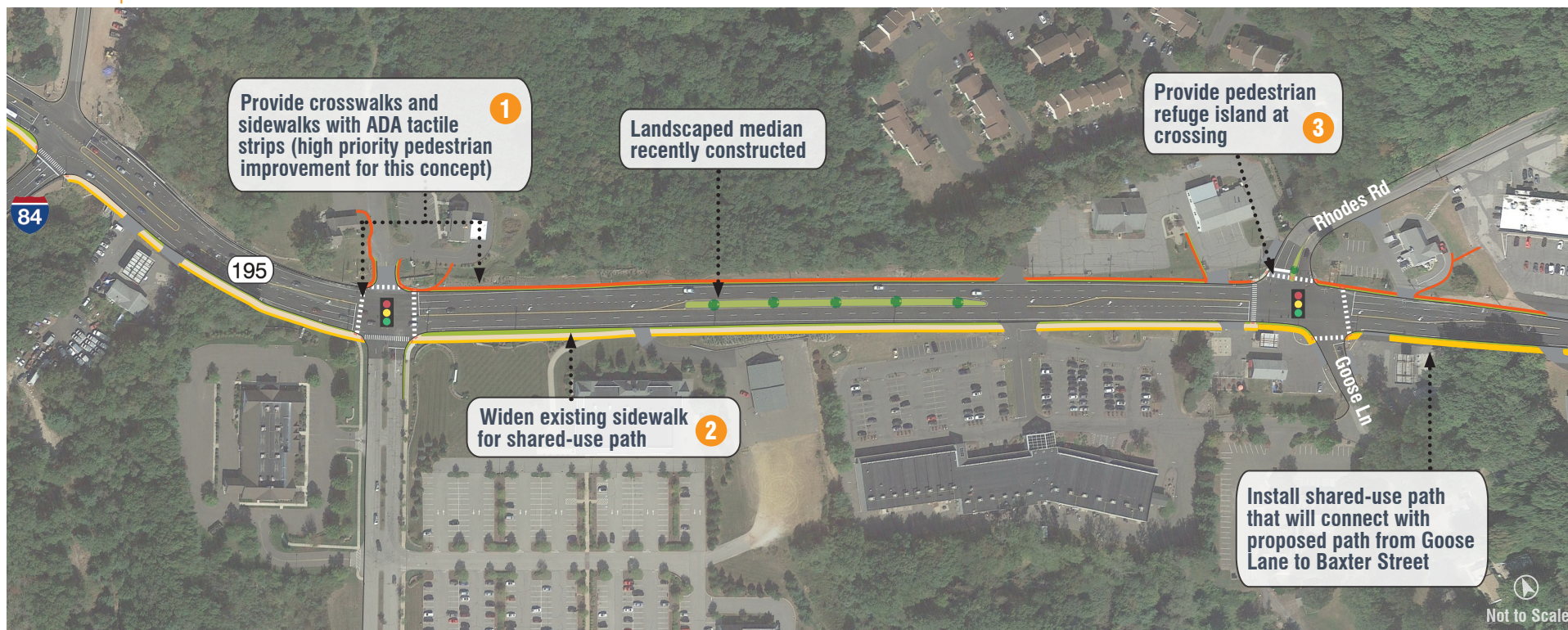
Promote Economic Development

Bicycle and pedestrian facilities have been shown to have a positive economic impact on local communities by enhancing shopping districts, boosting spending at local businesses, generating tourism, and increasing home values. For example, a 2013 study in Sonoma County, CA found that increased bicycling and walking in the area aided the region's business vitality, employment base, and property valuation. Furthermore, homes near walkable and bikeable trails enjoy premiums of between five percent to ten percent, according to an analysis by Headwaters Economics, a research group focused on community development and land management issues.



1.5 Route 195 between I-84 and Goose Lane (Tolland)

Concept Plan



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.



Image credit: Ability Tools Blog



Image credit: Tahoe Regional Planning Agency



Image credit: Flickr user Richard Drdul

1.6 Route 195 and Baxter Street (Tolland)

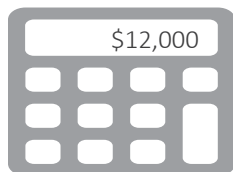
The intersection of Route 195 with Baxter Street is a four-legged intersection with one lane in each direction. It is stop-sign controlled for travelers on Baxter Street. Travelers experience delays turning onto Route 195 from Baxter Street due to the heavy demand of travel on Route 195. Under the future scenarios, it is anticipated that travel demand will increase along Route 195 and delays will increase for those traveling on Baxter Street to access Route 195. While it is not anticipated that future traffic volumes will reach the levels to warrant signalization based on industry standards, traffic volumes at this intersection should be monitored over time to assess the specific time when signalization would be warranted. Additionally, adding a bump-out would narrow the pavement width across the eastbound approach of Baxter Road. This will improve the pedestrian access and intersection alignment through improved sight lines and reducing vehicle turn speeds.

Concept Plan

The Recommendation

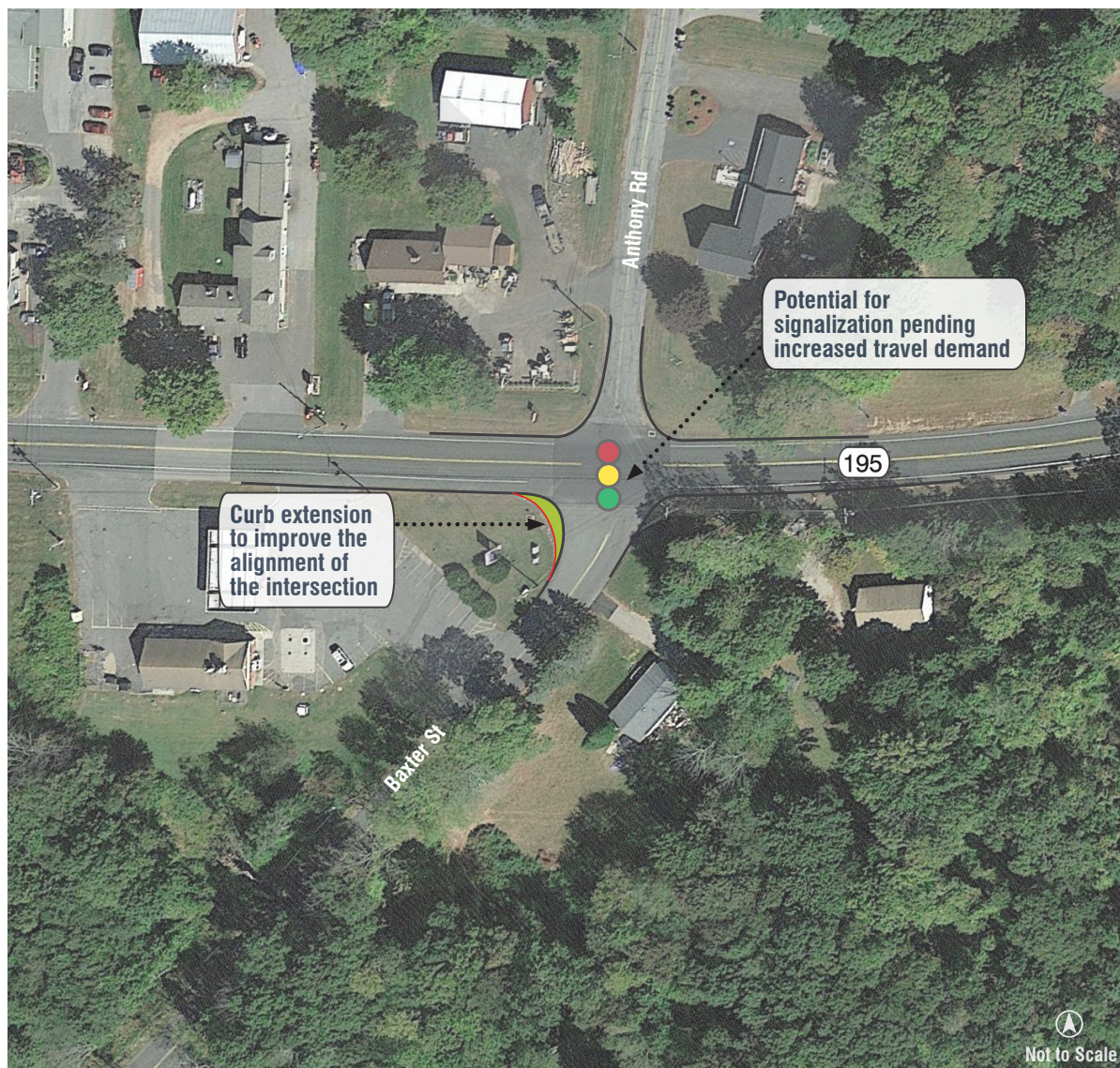
- Add curb extensions on the southwest corner
- Consider future signalization

Cost



- This cost estimate does not include the installation of a signal.

Timeline



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.

1.7 Route 195 and Route 32 (Mansfield)

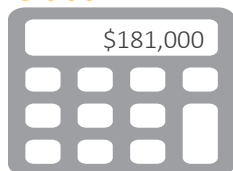
The intersection of Route 195 with Route 32 is a four-legged signalized intersection with one travel lane in each direction. Route 32 serves local and regional travel providing another north-south connection in the area. Left turning lanes are provided on each approach to support the travel demand between these routes. The land use surrounding the immediate intersection consists of a gas station, a local school bus transportation company, and professional office/retail. There is a high travel demand at this location, and long vehicle delays are anticipated under the future scenarios.

An evaluation of a roundabout and adding turn or through lanes were considered to improve future operations. Results from the evaluation of the roundabout concluded that a roundabout would require a significant amount of land area and would not fit in the general context of the environment. Adding a right-turn lane on Route 195 southbound would allow southbound travelers on Route 195 desiring to turn onto Route 32 an opportunity to move out of the main traffic flow. This additional capacity at the intersection would benefit travelers and would reduce overall delay anticipated at the intersection. Also, adding a curb extension would increase pedestrian visibility and reduce vehicle turn speeds.

The Recommendation

- Add right-turn lane along Route 195 southbound
- Add curb extension on northeast corner

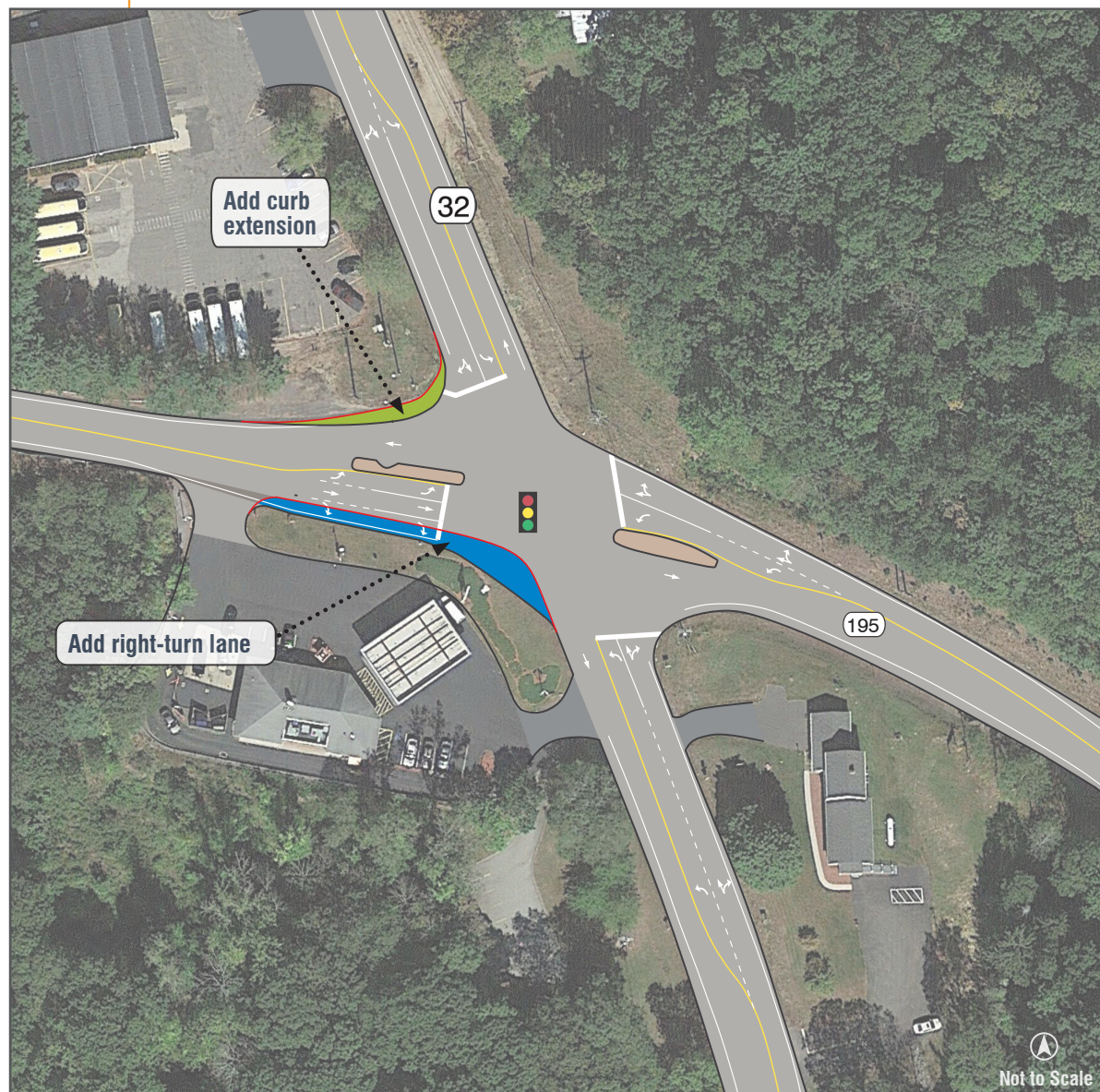
Cost



Timeline



Concept Plan



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.

1.8 Route 195 between Route 44 and Tower Loop Road (Mansfield)

Route 195 between its intersections with Route 44 and Tower Loop Road is surrounded by primarily residential and farm land uses. This segment is between the commercial development area, known as Four Corners, and UCONN's main campus. This segment of Route 195 is one travel lane in each direction with narrow shoulders and varying topography. Currently, there are no pedestrian facilities within this segment. It is observed that pedestrians walk this stretch of roadway during the day and evenings to patronize the businesses at Four Corners. Due to the narrow shoulders, pedestrians are often observed walking in the travel lane. Improving mobility options and accessibility to/from UCONN and Four Corners will be an asset to this area.

The Recommendation

- Conduct a study to assess the feasibility of a sidewalk along Route 195 between Route 44 and Tower Loop Road
- Install a sidewalk pending results from the feasibility study

Cost

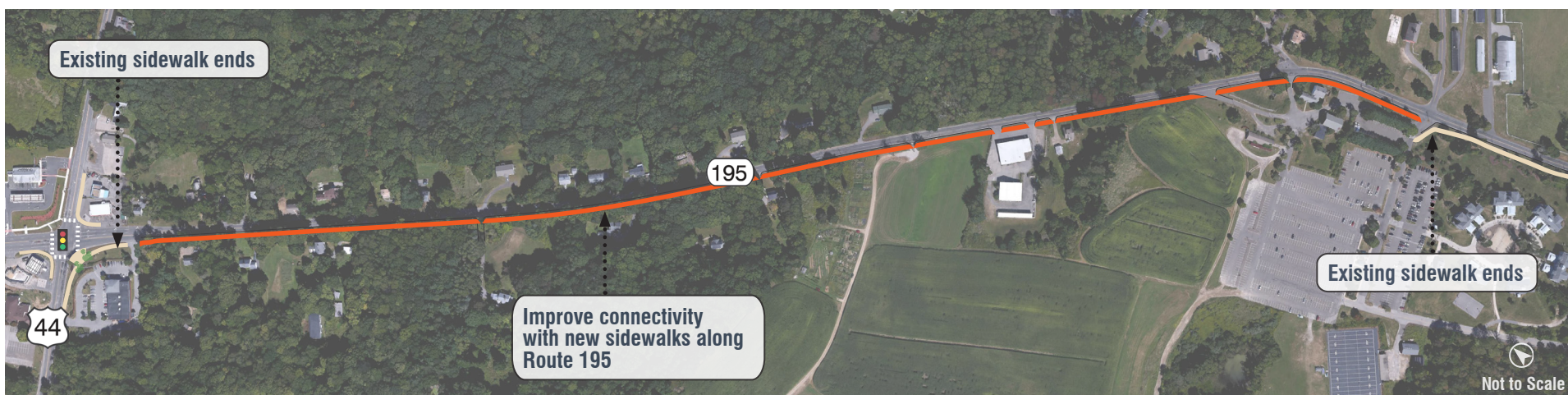


- Assumes \$30,000 feasibility study
- Does not include potential additional costs due to grade, environmental impacts or other challenges that may result from the study

Timeline



View from Route 195 northbound between Tower Loop Road and Route 44



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.

1.9 Route 195 between Riverview Road and North Frontage Road (Mansfield)

The segment of Route 195 between Riverview Road and North Frontage Road, which includes East Brook Mall, is surrounded by big box retail stores and shopping centers with smaller commercial properties. There are several transitions from two travel lanes to one travel lane and vice versa on this segment of roadway. Motorists must make quick decisions to merge and diverge for travelers accessing and maneuvering in and out of the businesses' driveways.

There is an opportunity to address the access management issues that exist in this area due to the frequency of driveways. Relocating driveways and installing landscaped medians were strategies considered. Additionally, there are concerns about access to/from McDonalds. Restriping pavement markings to provide clearer direction to travelers would improve safety and access without significantly changing the context and character of the roadway.



View from Route 195 southbound, north of McDonald's entrance

The Recommendation

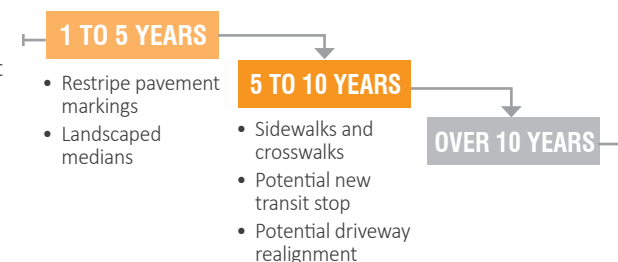
- Install landscaped medians
- Restripe pavement markings
- Provide crosswalks and sidewalks
- Consider driveway realignment
- Evaluate need for transit stop

Cost



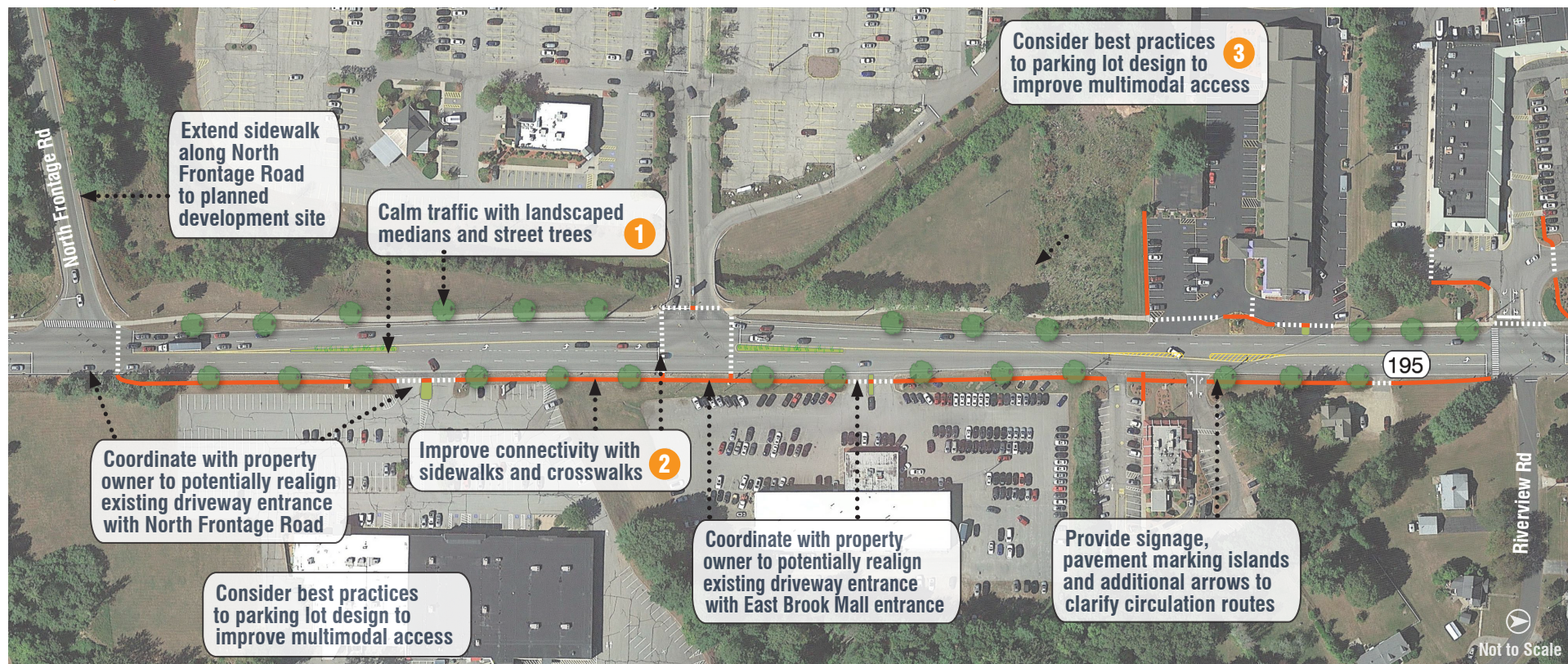
- Sidewalk extension along North Frontage Road and those shown within private parking lots concept plan are not included in this cost estimate
- Potential driveway realignment not included since it is dependent upon coordination with property owners
- Potential transit stop not included since it is dependent upon coordination with transit agencies

Timeline



1.9 Route 195 between Riverview Road and North Frontage Road (Mansfield)

Concept Plan



This alignment is only conceptual. Exact alignment and impacts to be evaluated in a future study.



Image credit: Asakura Robinson Company



Image credit: NACTO



Image credit: San Mateo Countywide Water Pollution Prevent Program

C. REGIONAL RECOMMENDATIONS

In addition to the focus area concepts, broader regional recommendations have been identified for implementation across both corridors. These recommendations have been organized thematically into six thematic sections. Each recommendation includes a description of the recommendations, visual illustrations as appropriate, cost magnitude and implementation timeline.

The cost magnitude for each regional recommendation is intended to allow for comparison among them. Actual project costs will be dependent on a number of variables, including the year of construction, property and / or environmental impact, and more.

As with the local focus area improvements, the cost magnitude contributed to the determination of the implementation timeline for each recommendation. Other factors that were considered for this column were items such as the priority level as well as potential property or environmental impacts.



Bicycle & Pedestrian Improvements

For bicycling, the *Plan* includes off-road and on-road multi-use paths, designated bicycle routes, extension of the Bolton Greenway Extension Project, and connection to the Hop River Trail Extension. The overall objective for these recommendations is to create a network of facilities (paths, lanes, enhanced roadway shoulders) that will enable safe travel along the length of Route 44 and Route 195 in the study area by bicyclists.

The *Plan* includes pedestrian improvements that include filling sidewalk gaps and upgrading pedestrian amenities in high activity nodes. Recommendations pertaining to increasing pedestrian safety at intersections include

installing pedestrian countdown signals, and painting and maintaining crosswalks at specified intersections. The overall objective is to create a more walkable, human-scale, environment within all the activity centers along the corridor.



Signal Operations

This section includes recommendations to improve mobility along the study area corridors by upgrading the signal operations at all signalized intersections.



Transit Service Improvements

The transit options build on and complement the existing local and regional services. The overall objective for transit improvements is to improve the local transit service, improve connections to regional routes, and support the safe and efficient operation of transit vehicles within the corridors. This means expanding operations to increase service times and frequency, enhancing park and ride facilities, and adding new transit routes to build connectivity and increase travel options as an alternative to travel by automobile.



Best Practices for Future Development

The amount of future development that will be realized will depend largely on physical land characteristics, zoning, and market forces. Significant development that can affect traffic and travel patterns is likely to be focused mostly at existing intersections at development nodes. Utilizing best practices for site design that embody the

principles of sound planning, engineering, and design will enable the development of future sites to support the vision and future planning of the communities. A variety of tools and strategies are recommended to help promote development that meets the mission of the *Plan*.



Special Event Management

UConn is a regional attractor and generates vehicle traffic due to students, faculty, and staff commuting to the campus when classes are in session. Additionally, special events such as move-in day for on-campus housing, graduation, athletic, or theater events generate a significant amount of additional traffic that have travel patterns that are different from typical commuting periods. The overall objective is to improve the coordination among the various stakeholders and to improve traffic flow and operations along the corridors during a special event.



Corridor Identification

Having a clear vision and purpose for the main thoroughfares in this part of the region will help give it a distinguishable and recognizable identity. Establishing an identity, creating gateways for the corridors and having some consistent design elements add to the towns' character and environment and will build a community cohesion for residents and the travelers' experience in the area.

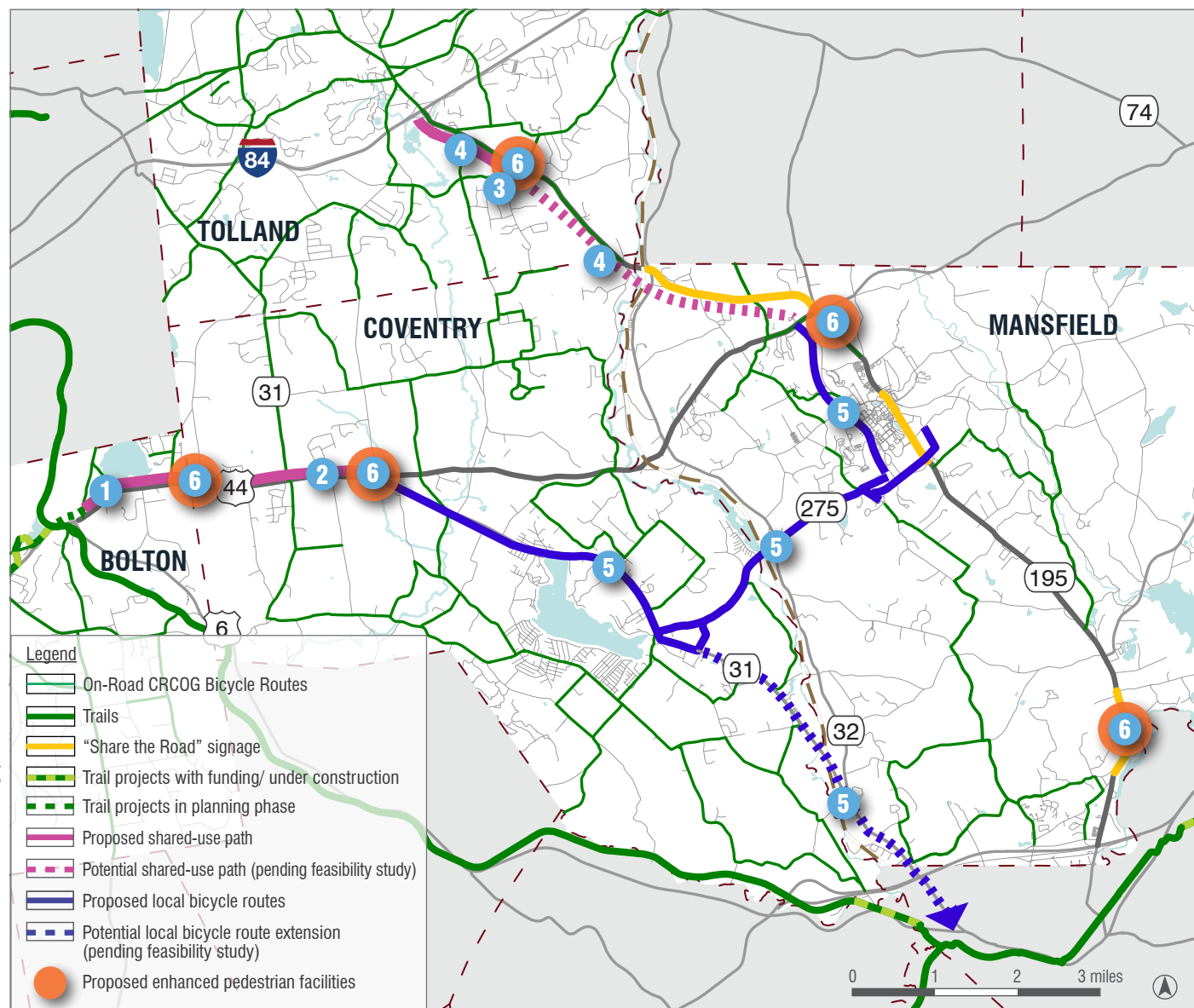
2. BICYCLE AND PEDESTRIAN IMPROVEMENTS

Route 44 shared-use path opportunities

- 1 Endorse existing shared-use path planning efforts
- 2 Extend shared-use path to Route 31 (Coventry)

Route 195 multimodal opportunities

- 3 Endorse existing shared-use path planning efforts
- 4 Extend shared-use path between Route I-84 and UCONN Campus
- 5 Assess potential for additional bicycle route designations along regional network
- 6 Provide pedestrian facilities at community centers



2. BICYCLE & PEDESTRIAN IMPROVEMENTS

Bicycling and walking provide great value to the quality of life and mobility in the towns along the study corridors. There is an opportunity to build upon the existing facilities for bicyclists and pedestrians that travel along the corridors today and strengthen the multimodal connectivity on both a local and regional level. This is an important component to reducing congestion and managing future traffic while maintaining the rural character and natural setting along these corridors.

While there are limited facilities for bicycle travel along Route 44 and Route 195, a safer and more connected bicycle environment would accommodate existing cyclists and encourage additional people to bicycle. Pedestrian facilities tend to be focused in pockets around “activity nodes”, or destinations that attract a high number of people. There is a need for additional sidewalk facilities to support potential future development and provide connectivity between activity nodes that are desirable and accessible for pedestrians.

Recommendations to enhance the environment for bicyclists and pedestrians will fill in the gaps along the corridors and provide connections to key development nodes within the community as well as to cultural and recreational resources in the study area, such as The Adventure Park at Storrs and the Hop River Trail.

Many of the recommendations included in this section reference shared-use paths. Please refer to the call-out box to the right for additional information on shared-use paths. Bicycle and pedestrian facility recommendations are also identified and illustrated in specific segments of the corridors as presented in *Section A: Focus Area Improvements* and as described in *Section E: Best Practices for Future Site Development of this Plan*.

Shared-Use Paths

Many of the recommendations included in this *Plan* reference shared-use paths. Shared-use paths are facilities designed for bicyclists, pedestrians and other modes of active transportation. They have a designated exclusive right-of-way that is separated from automobile traffic except at crossings, such as at intersections with cross streets and driveways or mid-block crossings. Shared-use paths are typically designed for two-way travel and can be placed in a variety of locations, such as along roadways or within parks.

A snapshot of key characteristics and considerations for the design of shared-use paths are listed below. However, it’s important to note that these characteristics reflect typical situations; local conditions may vary and engineering judgment should be applied.

Width: 10 feet is the recommended width for two-directional travel. 14 feet should be considered when there are high volumes of bicycle and pedestrian traffic and/or steep grades. 8 feet can be considered under limited conditions, such as along a short distance where there is a physical constraint such as an environmental feature.

Buffer area: Minimum of 5 feet buffer is recommended when a shared-use path is adjacent to a roadway. If space is limited and buffer is under 5 feet, a suitable physical barrier is recommended. The barrier should be a minimum of 42 inches high and should not impede sight lines.

Surface: Hard, all-weather pavement surfaces are generally recommended; other options such as crushed aggregate, sand, clay or stabilized earth may be appropriate on rural paths that are primarily rural or as an interim implementation strategy.

Drainage: Provide enough drainage areas to prevent offsite stormwater run-off and environmental impacts; manholes and bicycle-compatible drainage grates should be flush with surface of the pavement on all sides.

Crossings are a key consideration as they represent points of potential conflict with other modes of transportation.

Source: AASHTO Guide for Development of Bicycle Facilities 4th edition 2012

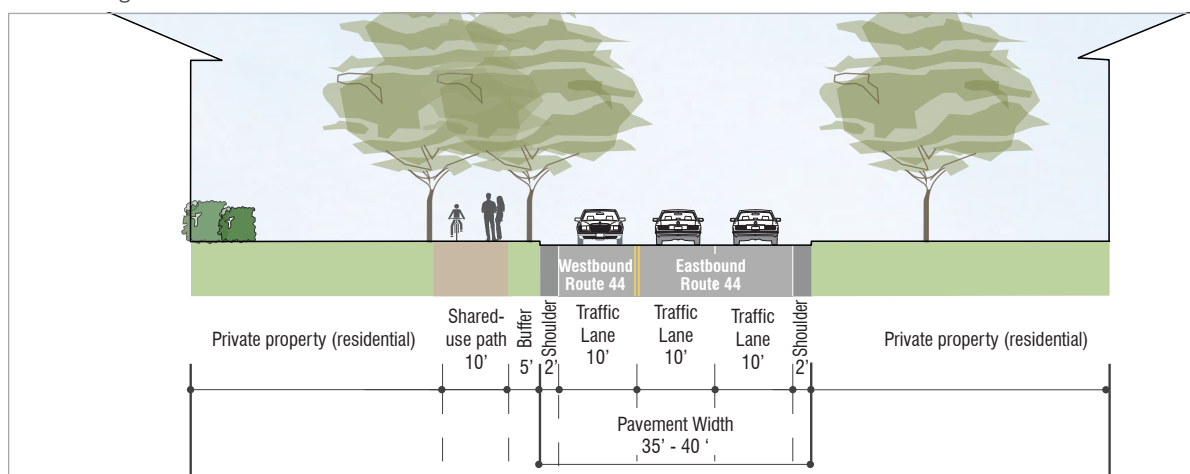


2.1 - Endorse existing shared-use path recommendations (Bolton)

Previous and ongoing planning efforts have focused on the potential for a shared-use path along Route 44 in Bolton. These efforts are key to building a regional network that provides multimodal opportunities and encourages safe travel for bicyclists in the study area.

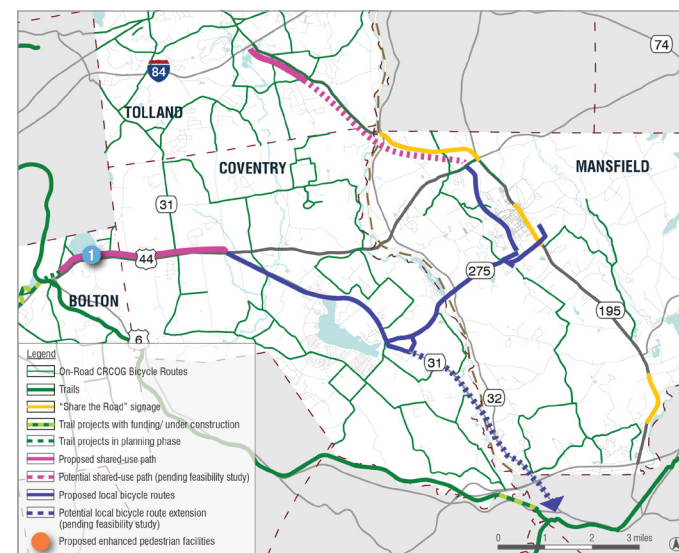
The January 2013 *Route 6 Hop River Corridor Transportation Study* proposed an overall reconfiguration of the I-384, Route 6, and Route 44 interchange which has yet to receive funding. In the interim, CTDOT is proposing to implement various short-term improvements, such as intersection improvements of Notch Road onto I-384 just prior to the split into Route 6 and Route 44. This *Route 6 Study* has also included the construction of a shared-use path along the northern side of Route 44 from west of the intersection of the Route 6/44 interchange to the intersection with Quarry Road. This would provide a connection to the planned terminus of the Charter Oak Greenway Shared-Use Path Extension, which is part of the East Coast Greenway, at the Hop River Trail at Bolton Notch State Park. The proposed alignment for the shared-use path has received strong public support. Additional consideration is being given to potential options to calm traffic and decrease speeds at the I-384, Route 6, and Route 44 interchange to further improve safety for bicyclists and pedestrians in this area. No funding sources have been identified as of the summer of 2018 to initiate preliminary design or construction for this project.

Another relevant project is the *Bolton Greenway Extension project*, which was led by the Town of Bolton and funded by a Connecticut Department of Energy and Environmental Protection's (CT DEEP) Recreational Trails Program Grant. This project studied the feasibility of a shared-use path extension along Route 44 from its intersection with Quarry Road to the Coventry town line with a spur trail to the existing parking area at Indian Notch Park. The effort confirmed the project's feasibility and determined the shared-use path's alignment through this section of Bolton should be along the northern side of Route 44 due to constraints on the southern side related to wetlands, grades, and existing cemeteries.



Typical cross section for shared-use path on north side of Route 44

Location



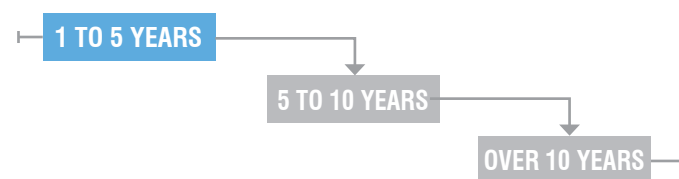
Local and Regional Bicycle and Pedestrian Improvements

Cost



- Endorsement of the plans & studies in this recommendation does not require a cost.
- Estimated costs noted in those studies & plans:
 - *Route 6 Hop River Corridor Transportation Study*, 2010 estimate for Bolton Notch Pedestrian and Bicycle Improvements: \$300,000
 - *Bolton Greenway Extension project*, 2015 estimate for shared-use path construction, right-of-way impacts, legal expenses, etc.: \$2,662,000

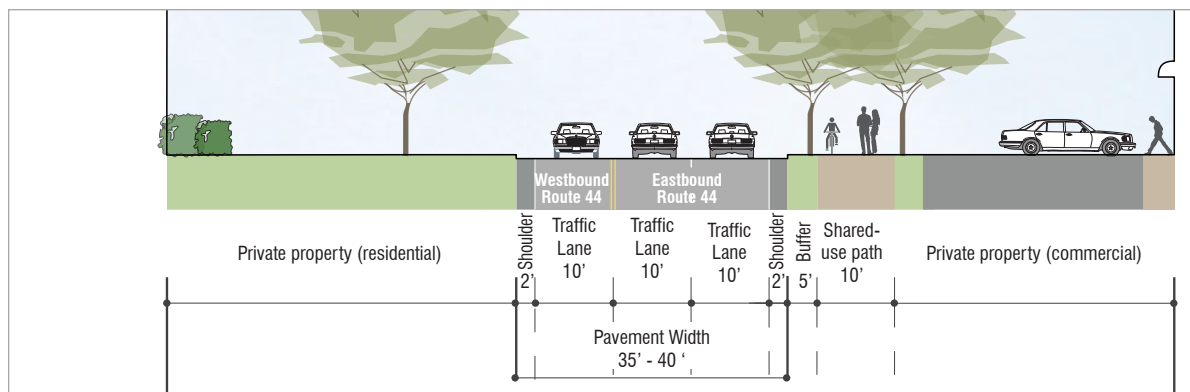
Timeline



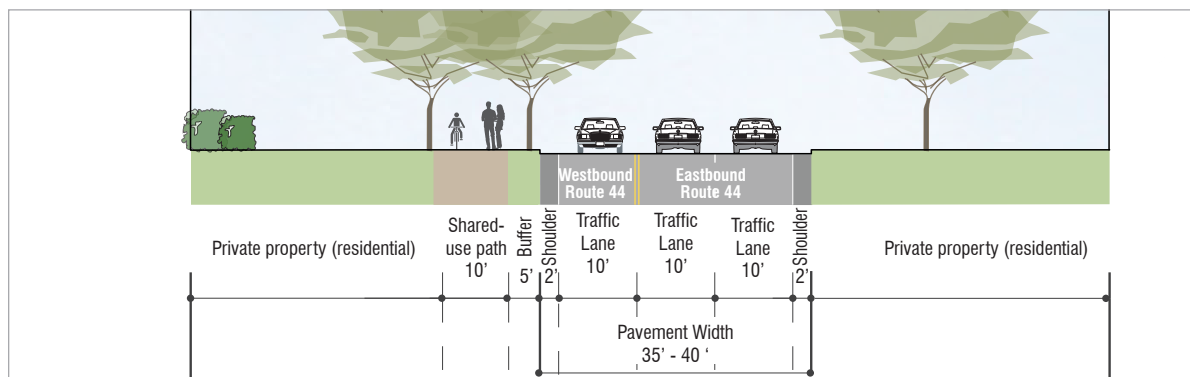
2.2 - Extend shared-use path to Route 31 (Coventry)

The *Bolton Greenway Extension* project proposes a shared-use path along the northern edge of Route 44 with a terminus at the town line with Coventry. CTDOT does not typically encourage trail extension projects that terminate at an adjacent town line so as to avoid any undue pressure on that town to continue the facility. However, the Town of Coventry has expressed support for the project in addition to the potential continued extension of the shared-use path into Coventry. Such an extension would increase connectivity and multimodal opportunities both between and within the towns, thereby enhancing a sense of community and support for the local businesses along Route 44.

While the Town of Bolton already determined its portion of the Route 44 shared-use path to be aligned to the northern side of the corridor, the Town of Coventry should consider the shared-use path extension along both the northern and southern side of the corridor. There is a high number of driveways along the southern side of the corridor and while this would increase the number of potential conflict points with motorists, many of those driveways are local businesses. A southern alignment could improve access to such establishments.

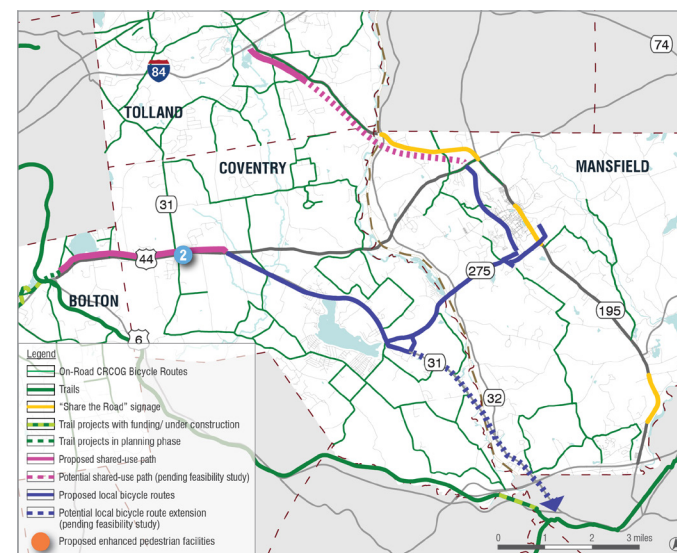


Typical cross section for shared-use path on south side of Route 44



Typical cross section for shared-use path on north side of Route 44

Location

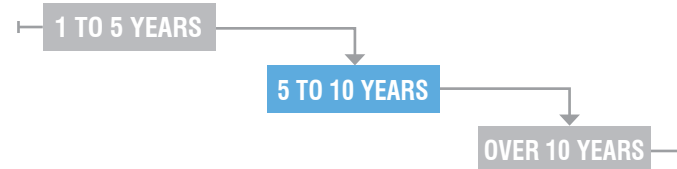


Local and Regional Bicycle and Pedestrian Improvements

Cost



Timeline



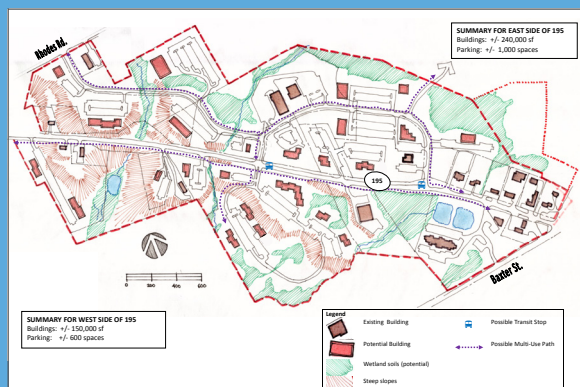
2.3 - Endorse proposed shared-use path along Route 195 between Goose Lane & Baxter Street

Concept plans for the Tolland Technology Zone project include a proposed shared-use path between Goose Lane and Baxter Street. This recommendation endorses this shared-use path and recognizes the opportunity it presents to strengthen the bicycle and pedestrian network.

Tolland Technology Zone

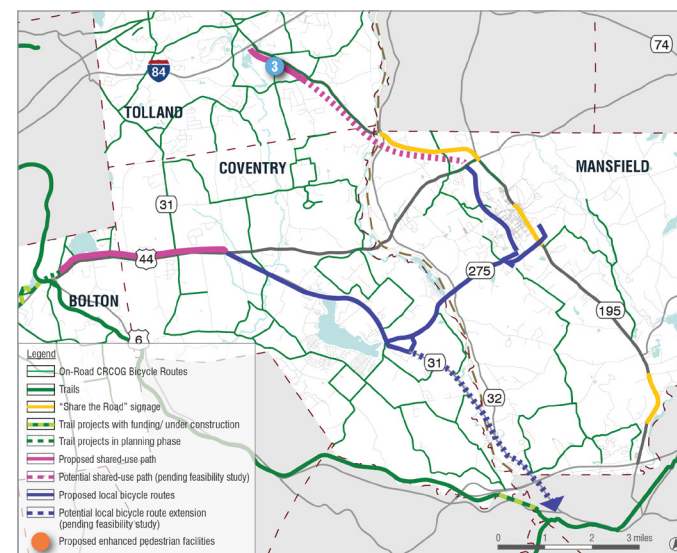
“The Planning and Zoning Commission re-zoned a portion of Merrow Road (Route 195) as a “Technology Campus Zone”. The intent is to better position Tolland to capture anticipated growth in the science and technology sectors spurred by UCONN. The guiding principles for development in this zone include: (1) Emulate a campus form with multiple buildings sharing parking and other amenities, (2) Encourage coordinated development between property owners, (3) Protect natural resources, (4) Promote sustainable design, and (5) Provide pedestrian connections and pathways.”

-Town of Tolland, Department of Planning and Development



Tolland Technology Zone Concept Plan (Image credit: Planimetrics)

Location



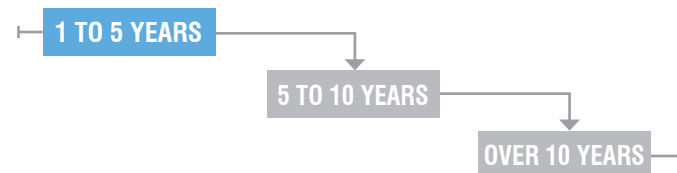
Local and Regional Bicycle and Pedestrian Improvements

Cost



- Endorsement of implementing plan in this recommendation does not require a cost.

Timeline



2.4 - Assess shared-use path extension on Route 195 to the north between I-84 and Goose Lane (Tolland) and from Baxter Street to UCONN campus (Tolland – Mansfield)

The extension of the shared-use path that is included in the Tolland Technology Zone concept plan to I-84 to the north and UCONN campus to the south would significantly strengthen the regional multimodal network. North of Tolland Technology Zone, there is an existing sidewalk along the west side of Route 195 between the I-84 ramp and Goose Lane. Widening this sidewalk to accommodate shared-use for bicyclists and pedestrians will enhance the multimodal opportunities along Route 195.

South of Tolland Technology Zone, a future study is recommended to evaluate the feasibility of an off-road and/or on-road shared-use path for bicyclists and pedestrians to enhance the connectivity and multimodal opportunities between Tolland and Mansfield along Route 195. It is possible that this connection's alignment might include a combination of segments with different alignments. It is recommended that the community be involved in the consideration of potential alignments to ensure the path safely and conveniently provides connections to the destinations bicyclists and pedestrians want to travel to along the route. Potential constraints that should be considered as part of the study include the existing roadway's right-of-way and geometry as well as environmental constraints, such as grade and impacts to drainage from stormwater run-off, if such a path is paved.

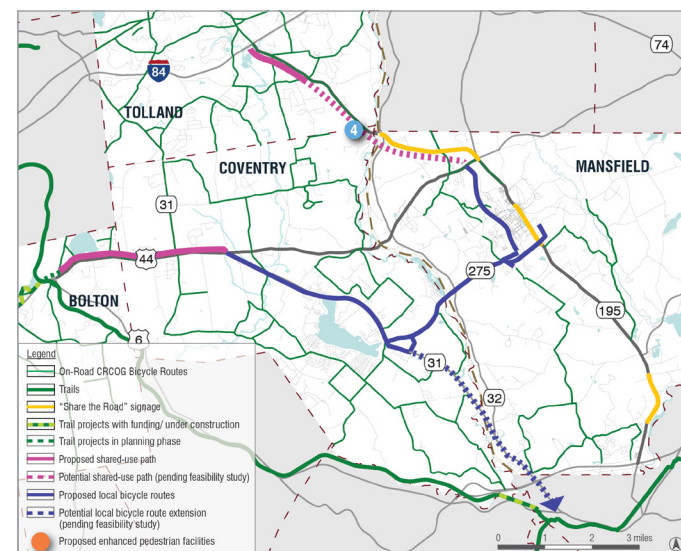


View from Route 195 southbound, south of intersection with Fieldstone Commons



View from Route 195 southbound between Baxter Street and Walbridge Hill Road

Location



Local and Regional Bicycle and Pedestrian Improvements

Cost



Timeline



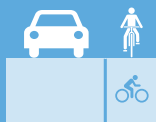
2.5 - Conduct a study to assess potential local bicycle route designation (Coventry and Mansfield)

A study should be conducted along Route 275, Discovery Drive, and Route 31 to assess the potential to designate these roads as local bicycle routes. The study would determine which roadways could incorporate design elements to allow a bicyclist to safely travel along that road. It is possible for a roadway to include a combination of design elements along various segments. Variables to consider include the roadway's traffic volume and existing right-of-way. Additionally, further evaluation of the intersection of Route 275 with Route 32 is needed. There are public concerns about the traffic operations and safety. Traffic operational improvements at this location should be considered as part of the enhancement for regional multimodal improvements along these routes.

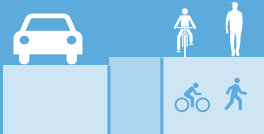
Examples of potential design options are described in the call-out box below. All local bicycle routes should include appropriate signage, as described in further detail in *Section G: Corridor Identification* within this chapter.

Potential Design Options for Designated Bicycle Routes

SEPARATED BICYCLE LANES designate portions of a thoroughfare for the preferential or exclusive use of people bicycling. Bicycle lanes come in a variety of designs and configurations, including advisory, conventional, buffered, protected, contra-flow and two-way. Each type ranges in level of user comfort, depending on traffic characteristics and the level of separation between cyclists and motor vehicles.



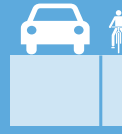
SHARED-USE PATHS Are facilities designed for bicyclists, pedestrians and other modes of active transportation. They have a designated exclusive right-of-way that is separated from automobile traffic except at crossings, such as at intersections with cross streets and driveways or mid-block crossings. Shared-use paths are typically designed for two-way travel and can be placed in a variety of locations, such as along roadways or within parks.



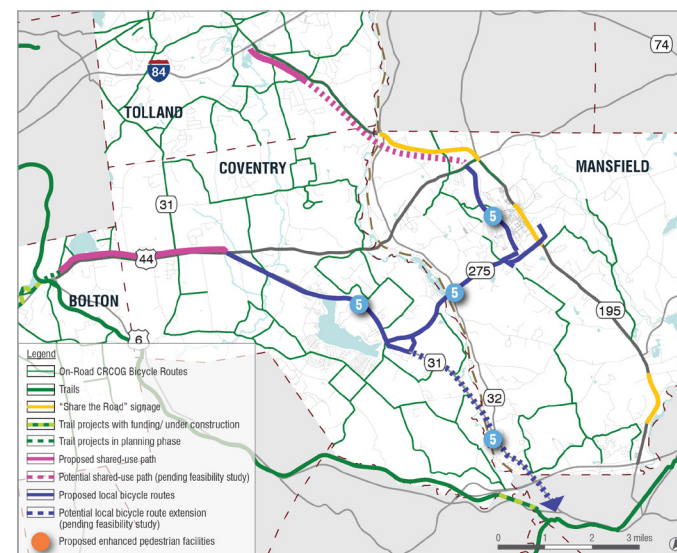
SUPER SHARROWS, or center-running bike lanes, are a pavement marking used to indicate a shared lane for people bicycling and people driving. The pavement markings are intended to emphasize that “taking the lane” is permitted along the entirety of the route. Communities across the United States, such as Boston, MA, have begun using such pavement markings and are seeing positive results.



SHOULDER WIDENING is a strategy employed on roadways where the travel lane is deemed to be excessively wide, which is over 11' on arterial streets and over 10' on rural collectors according to the FHWA. Repainting the pavement lines on such roads to narrow the travel lane and widen the shoulder both calms traffic by sending a visual cue to motorists to slow down and clearly delineates a protected space within the shoulder where bicyclists can travel.



Location



Local and Regional Bicycle and Pedestrian Improvements

Cost



- Cost estimate assumes a range of improvements from shoulder widening to construction of a shared-use path

Timeline



2.6 - Provide pedestrian facilities at commercial centers (all towns)

Improvements to the pedestrian environment are recommended in locations that attract a high amount of pedestrian traffic today or are expected to do so in the future as a result of planned development. Commercial destinations that have pedestrian facilities enhance the area's walkability and also support local businesses.

It is recommended that sidewalks be provided at activity centers to provide pedestrians with continuous pathways which allows convenient and safe connections to various key destinations. Intersections within these areas should be designed to formally regulate the interactions between the pedestrian and the motorist. Crosswalks should be provided at all key intersections and pedestrian countdown timers and audible signals should be installed at signalized intersections to enhance safety and reduce jaywalking. Such facilities should also adhere to the Americans with Disabilities Act (ADA) design guidelines to ensure they are accessible to all users. ADA-compliant facilities include features such as tactile warning strips and curb ramps where a crosswalk connects to a sidewalk.

Streetscape improvements, such as the addition of seating, street trees, or lighting, should also be considered for these commercial centers. Improvements to the streetscape can lead to significant benefits for the surrounding area that improve the overall quality and livability of the community. A streetscape that is clean, inviting, and aesthetically pleasing coupled with safety enhancements encourages walkability and leads to increased community interactions on both a local and regional level.

Snapshot of Best Practices for Pedestrian Environment

It is recommended that all new crosswalks should be continental crosswalks, and this design should be incorporated into existing maintenance programs that already include crosswalk repainting. Continental crosswalks are widely considered safer since they are more effective at alerting motorists that they are approaching a pedestrian crossing. Such crosswalks feature two-foot wide yellow or white painted stripes paired with a stop line set back from the crosswalk to reduce vehicular encroachment into the crosswalk.

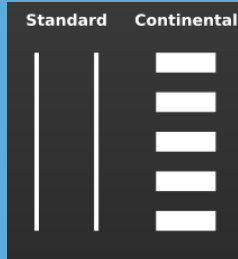
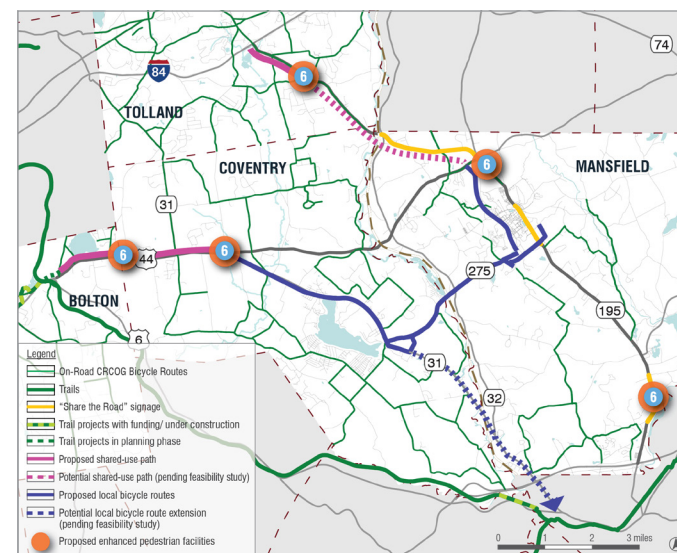


Image credit: NACTO



Image credit: NACTO

Location

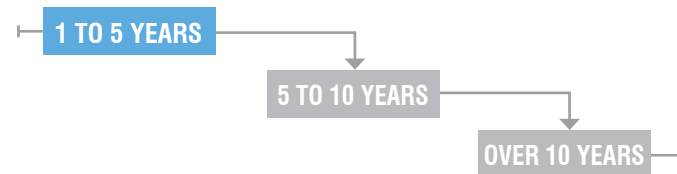


Local and Regional Bicycle and Pedestrian Improvements

Cost



Timeline



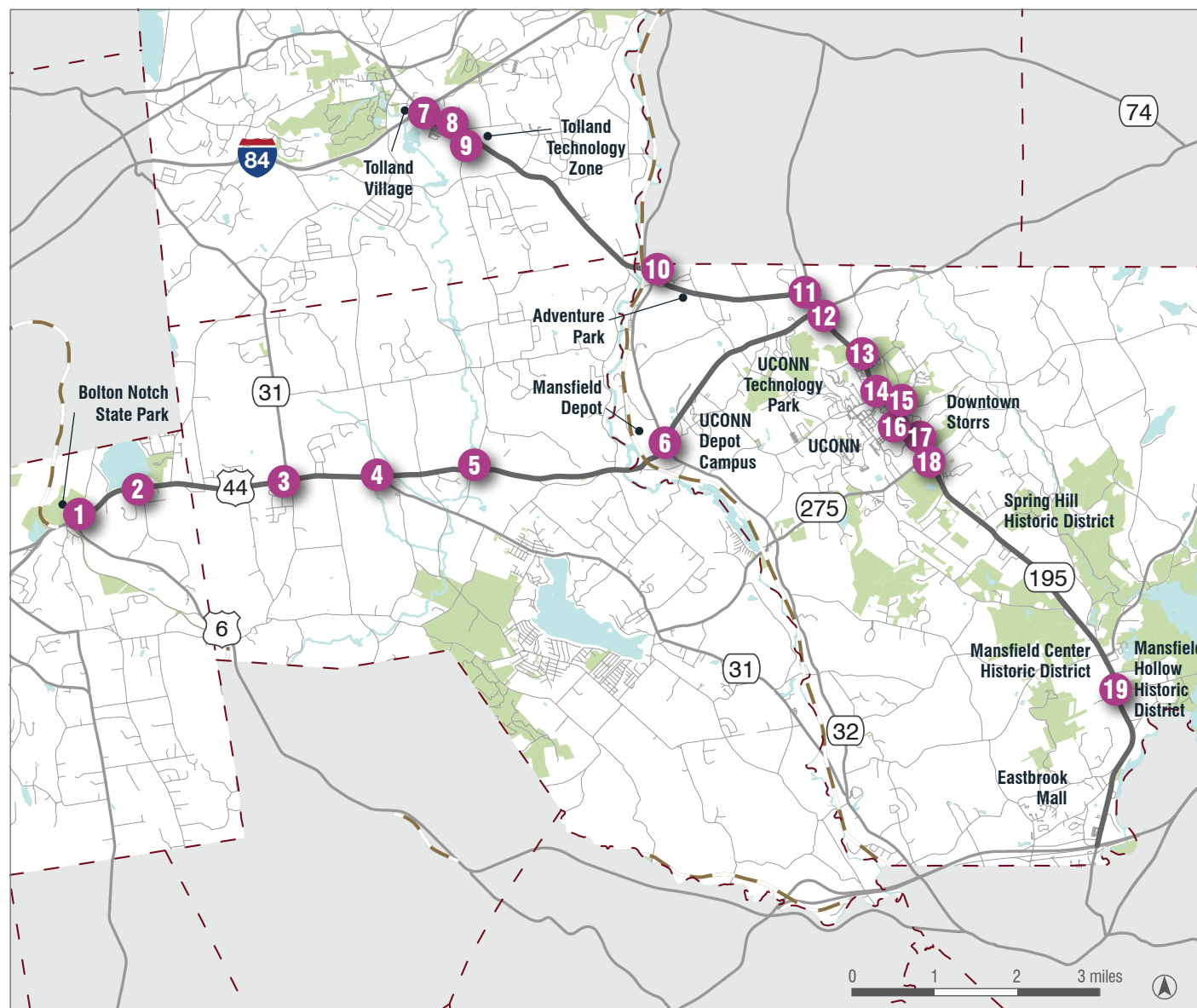
3. UPGRADE SIGNAL OPERATIONS

Along Route 44

- 1 Quarry Road
- 2 South Road
- 3 Route 31 (Bread and Milk Street)
- 4 Grant Hill Road/Main Street
- 5 North River Road
- 6 Route 32 (Stafford Road)

Along Route 195

- 7 I-84 Eastbound Ramp
- 8 Fieldstone Commons
- 9 Goose Lane / Rhodes Road
- 10 Route 32 (Stafford Road / River Road)
- 11 Route 320
- 12 Route 44
- 13 Moulton Road / Tower Loop Road
- 14 N. Eagleville Road
- 15 Gurleyville Road
- 16 Mansfield Road
- 17 Bolton Road
- 18 S. Eagleville Road
- 19 Bassets Bridge Road



3.1 Upgrade Signal Operations

Traffic signals are one of the primary controls of vehicles at intersecting pathways. The extent to which travelers incur vehicle delay is dependent on a number of factors, such as but not limited to, traffic volume, capacity, and quality of the signal timings. Poor signal timings can result in significant delays that could otherwise be avoided, or at the very least be minimized. The results of congestion typically include driver delay and frustration, increased air pollution, wasted fuel, and lost productivity. The concept of traffic signal optimization is a strategy that is used particularly on corridors where travel demand is expected to increase, shift or change. Optimizing signal operations will improve travel conditions on the major corridors without significant impacts to the minor traffic flows. Optimizing signal operations may include, but are not limited to, modification to signal phasing, addition of left-turn arrows, revised phasing patterns, modified pedestrian phasing, and/or modified cycle lengths, etc.

Upgrades to signal operations should include traffic signal preemption, also referred to as traffic signal prioritization. The purpose of this system is to activate the traffic signal for an approaching emergency vehicle, halting conflicting traffic and allowing the emergency vehicle the right-of-way. In the event of an emergency, this system will help to reduce emergency response times and enhance traffic safety.

Additionally, the traffic signal preemption system can help support transit priority. Signal operations are programmed to calculate a bus's expected arrival time at an intersection and either extend a green light or shorten a red one. The preempted traffic light returns to normal operation within a cycle or two. The benefits of this type of signal operation improves the reliability of transit service, as vehicles are no longer as susceptible to being held up in traffic. This means more predictable wait times and fewer missed connections for passengers.

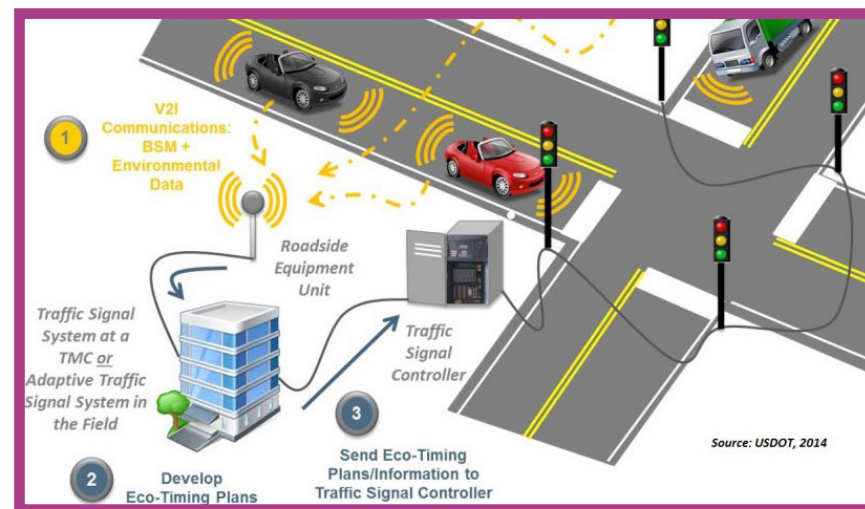
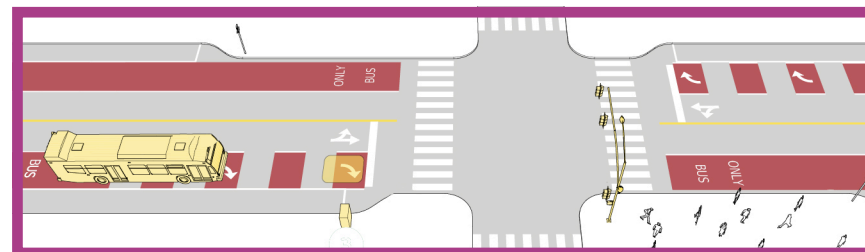


Diagram of the AERIS Eco-Traffic Signal Timing application (Image credit: USDOT)



Active Transit Signal Priority (Image credit: NACTO)

The Recommendation

- Optimize signal timings at all signalized intersections
- Upgrade signal operations to include traffic signal preemption

Timeline



Emergency Vehicle Preemption (EVP) (Image credit: EVIEWS Safety Systems, Inc.)

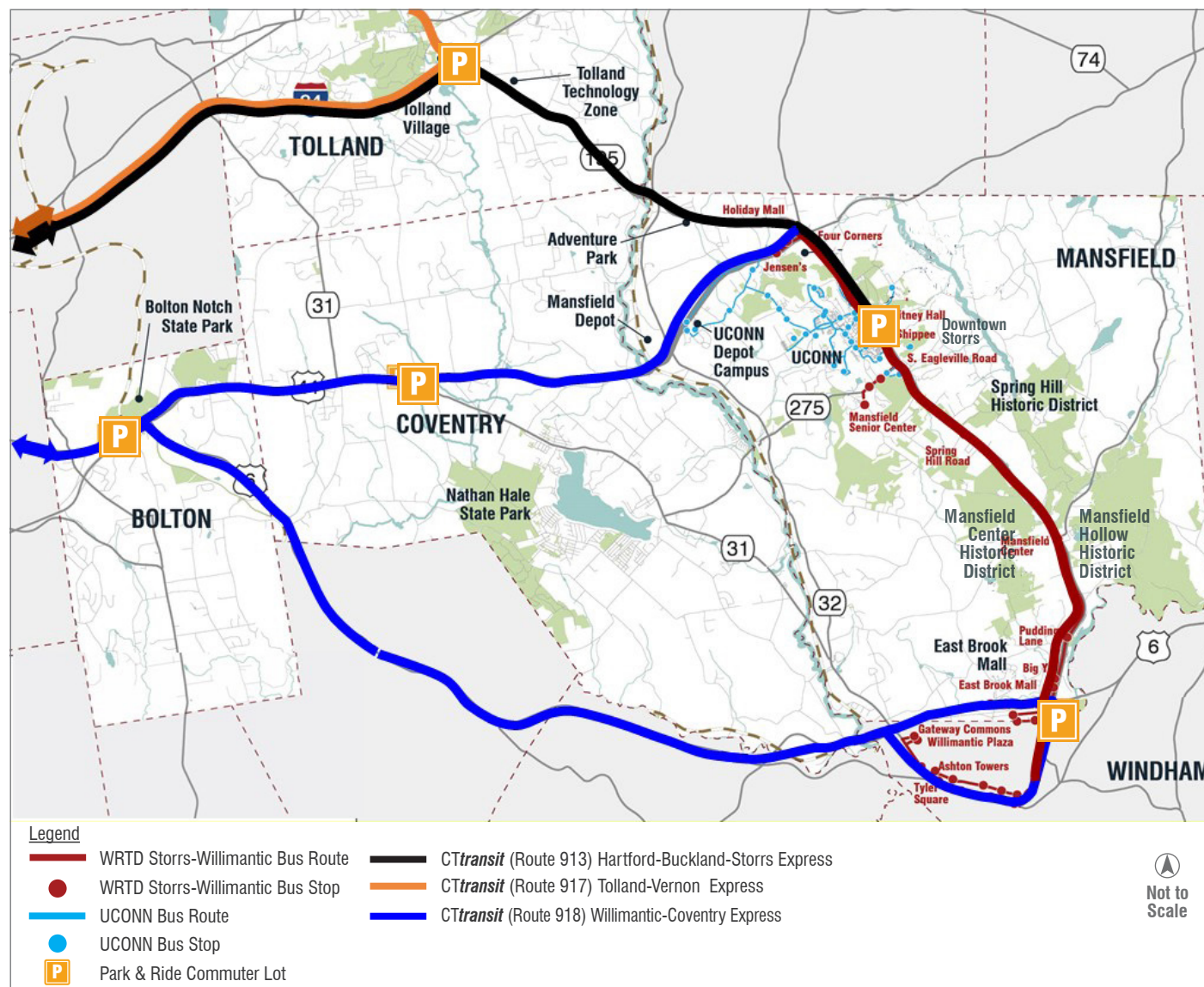
4. LOCAL AND REGIONAL TRANSIT SERVICE IMPROVEMENTS

Throughout the study process, public and stakeholder feedback consistently reaffirmed the value and potential of expanded transit services in the region. Opportunities for increased transit and multimodal travel can build upon existing services and hubs, including UCONN and the intermodal center, park and ride express services to Hartford, and Windham Region Transit District (WRTD) local bus services in the Route 195 corridor.

Transit is most effective when services and frequencies mirror the travel needs of residents and visitors. At the same time, density of population and activity is a major driver of ridership, and the study area features a diverse mixture of activity nodes and rural character. Balancing this mix of land use and trip densities is a challenge for transit service; however, the services currently operating in the region demonstrate the value and potential to further unlock transit's potential.

Three recommendations focus on opportunities to build on the existing networks and services to position the study area for sustainable and targeted growth in the coming decades:

- Increase WRTD service span and frequency
- Expand existing express bus service
- Extend existing service to unserved areas



Existing Local and Regional Transit Service

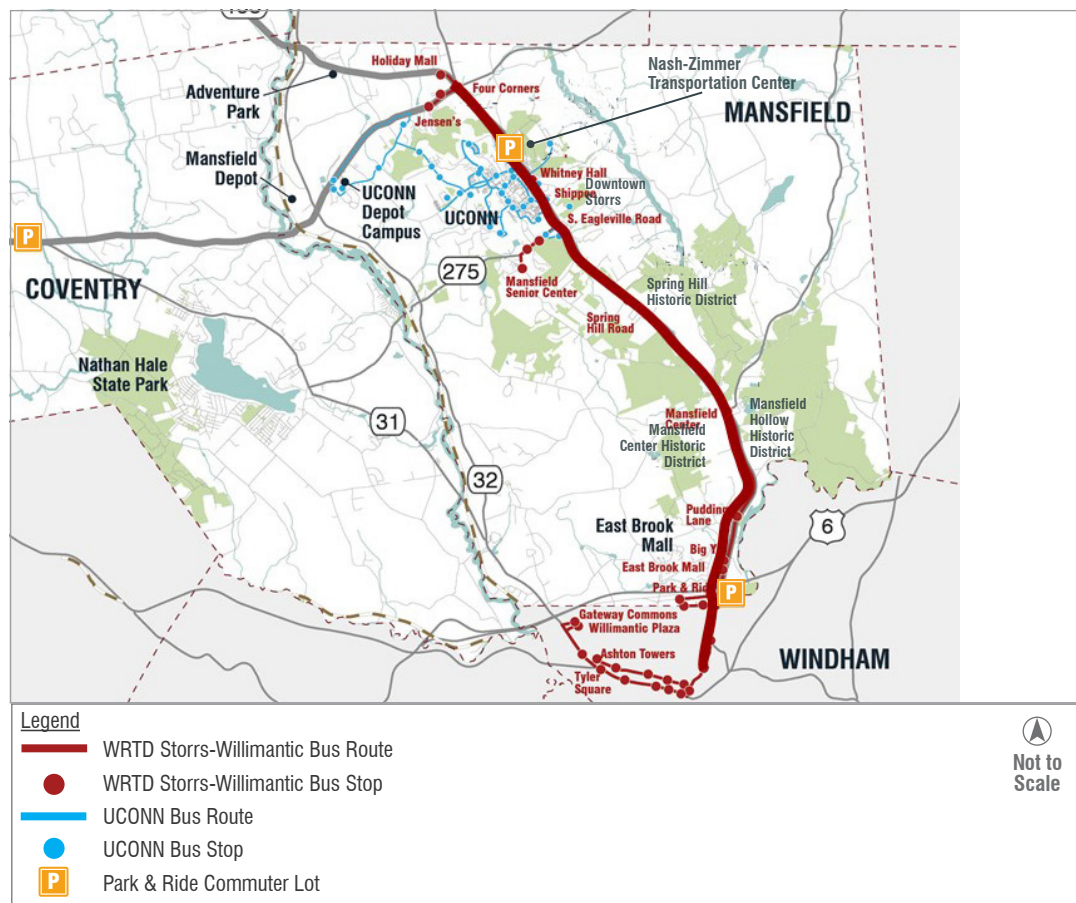
4.1 - Increase WRTD Service Span and Frequency

Local transit service on the Route 195 corridor provides a valuable mobility option for employment and other trips serving UCONN and the Nash-Zimmer Transportation Center in Storrs. The Storrs-Willimantic Route offers weekday service from approximately 6:00am to 10:00pm (with a later evening trip during the academic year) but limited Saturday service and no service on Sundays.

Expanding service frequency and span on weekdays and Saturdays, along with an introduction of Sunday service, would increase the utility of the system for current customers and open new opportunities for increased ridership within WRTD and through connections to other regional services.

Evening service on weekdays is particularly important to match academic and work schedules at UCONN with housing in Windham. A more robust and regular schedule of service on Saturdays would likewise offer a more viable transportation option throughout the Route 195 corridor and in conjunction with regional express services as well as the local UCONN transportation network.

Location



Existing Local Transit Service

Cost



- Cost estimate reflects annual operating costs

Timeline

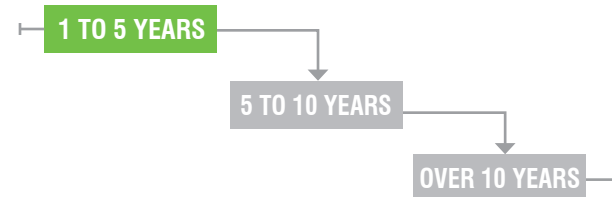


Image credit: WRTD

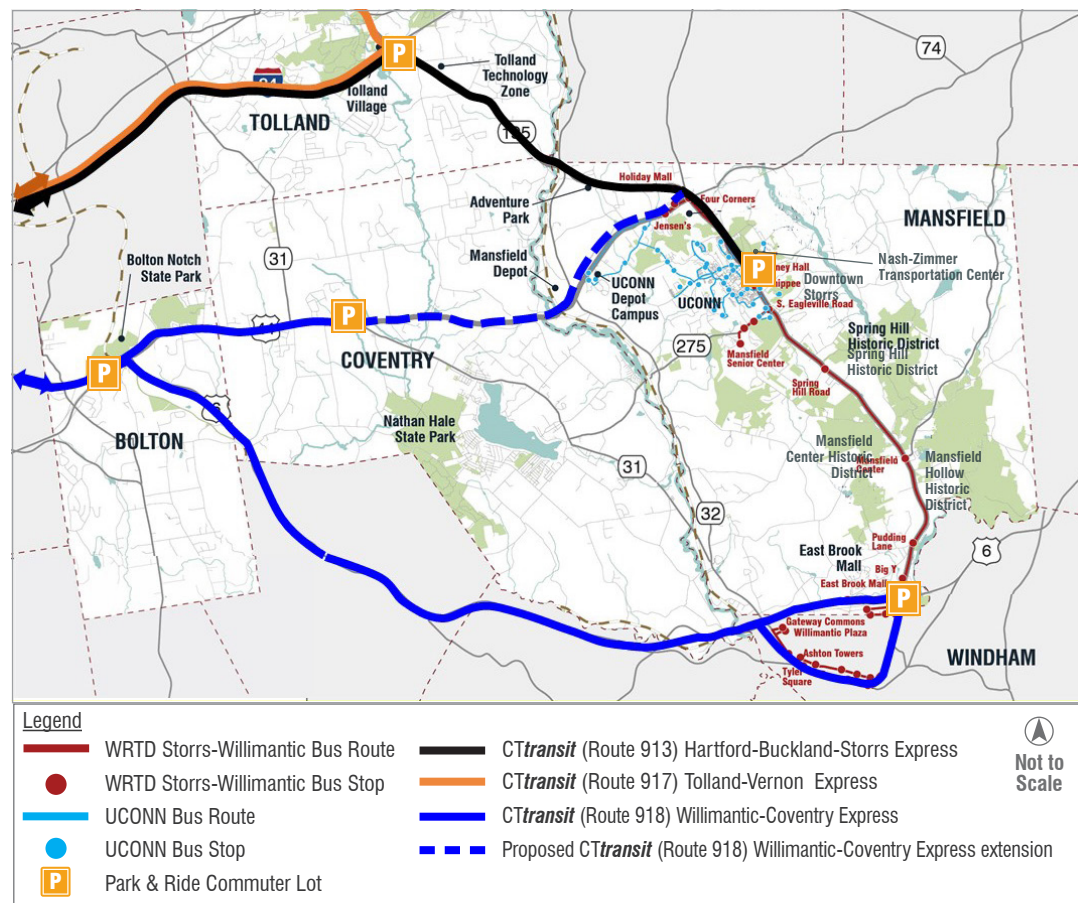
4.2 - Expand Express Bus Service

CT**transit** Manchester-Buckland-Storrs Express (Route 913) bus service, launched in 2017, was designed as an expansion of existing express service to Hartford via I-84. Express routes typically operate in the peak direction, i.e., inbound to Hartford in the morning and outbound in the afternoon. Recognizing the need for enhanced connectivity between the UCONN campuses, Buckland Hills retail area, and downtown Hartford, Route 913 extends south on Route 195 to Storrs with all-day (6:00 AM to midnight), hourly service in both directions. Ridership has exceeded initial expectations, and the service continues to grow.

This model of expanding express service options may be replicated in other corridors and markets. The Bolton Park and Ride lot on Route 44 provides an opportunity to intercept some driving trips and provide direct, efficient transit connections to Storrs to mitigate parking and local congestion in the center. This service, along with CT**transit** Route 913, also represent untapped opportunities for event day transportation alternatives from regional park and ride lots and Hartford.

The existing CT**transit** Route 918 Willimantic-Coventry Express could also be expanded from a limited frequency, peak direction service to Hartford into a viable regional connection with bi-directional service throughout the day. One trip a day operates to the park and ride lot in Coventry. Extending this trip further east to Storrs and adding additional trips would complete a true Route 44 corridor transit alternative. While hourly service is a recommended minimum frequency, a pilot service could be operated on a less frequent schedule to test ridership potential at a lower cost.

Location



Existing and Proposed Local and Regional Transit Service

Cost



- Cost estimate reflects annual operating costs

Timeline

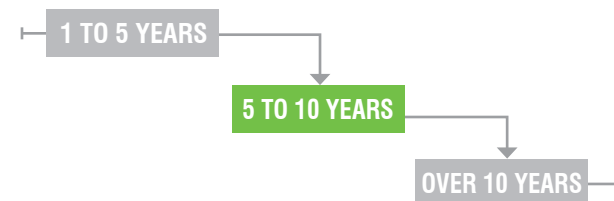


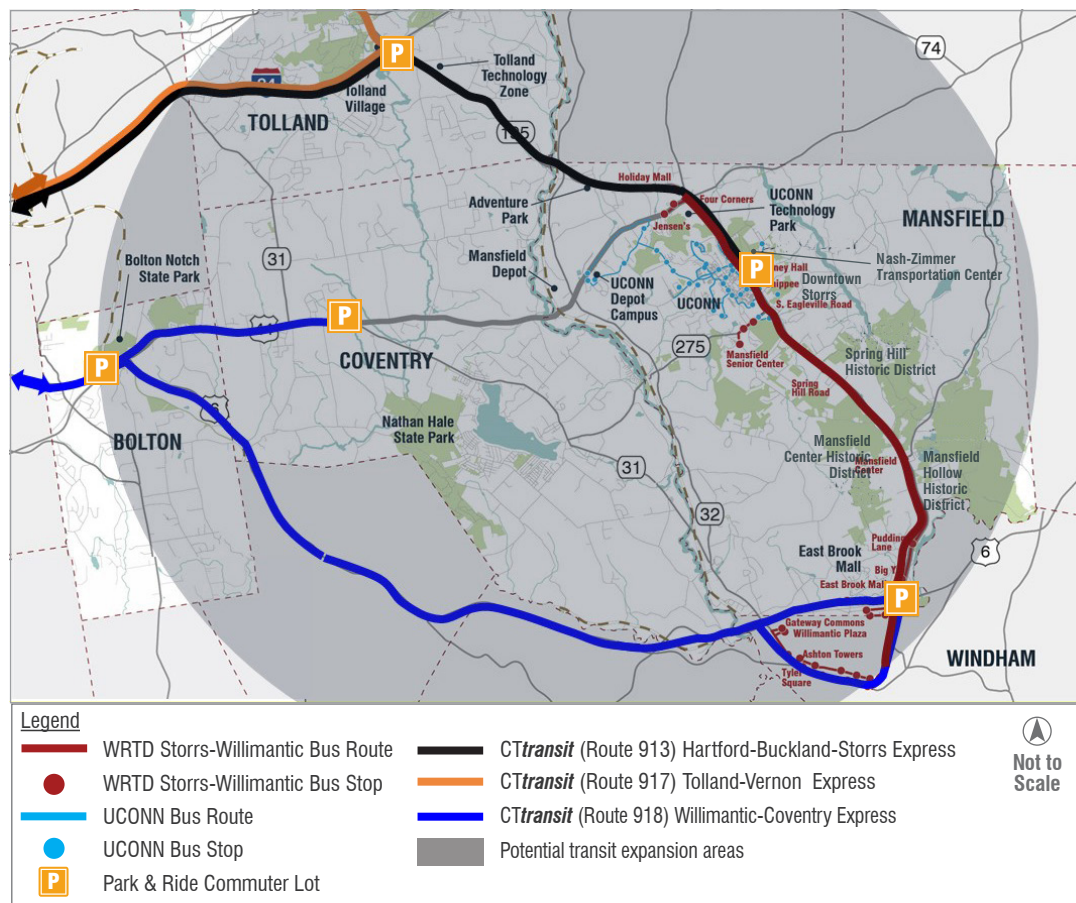
Image credit: CT**transit**

4.3 - Extend Existing Services to Unserved Areas

A frequently cited issue (and opportunity) throughout this study was the need to create multimodal connections between residential nodes, many of which serve members of the UCONN community, Storrs, Hartford, and other regional centers. While some areas are currently served by UCONN Transportation Services and WRTD, schedules are limited and irregular. The South Eagleville Road (Route 275) corridor includes several apartment complexes and community/senior centers, all of which could benefit from more regular connections to both the WRTD and UCONN transit networks, along with extended regional transfers to CT**transit**.

Additional coverage in the Route 44 corridor, as described above, would also offer alternatives to short driving trips to and through Downtown Storrs and the UCONN campus. Combining local transit coverage with regional connectivity will vastly improve options for residents and visitors, particularly for trips that may be too long or practical for bicycle and pedestrian travel, yet are relatively short and feasible by transit.

Location



Existing and Proposed Local and Regional Transit Service

Cost

HIGH RANGE



- Cost estimate reflects annual operating costs

Timeline

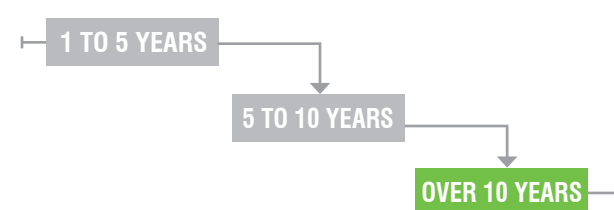


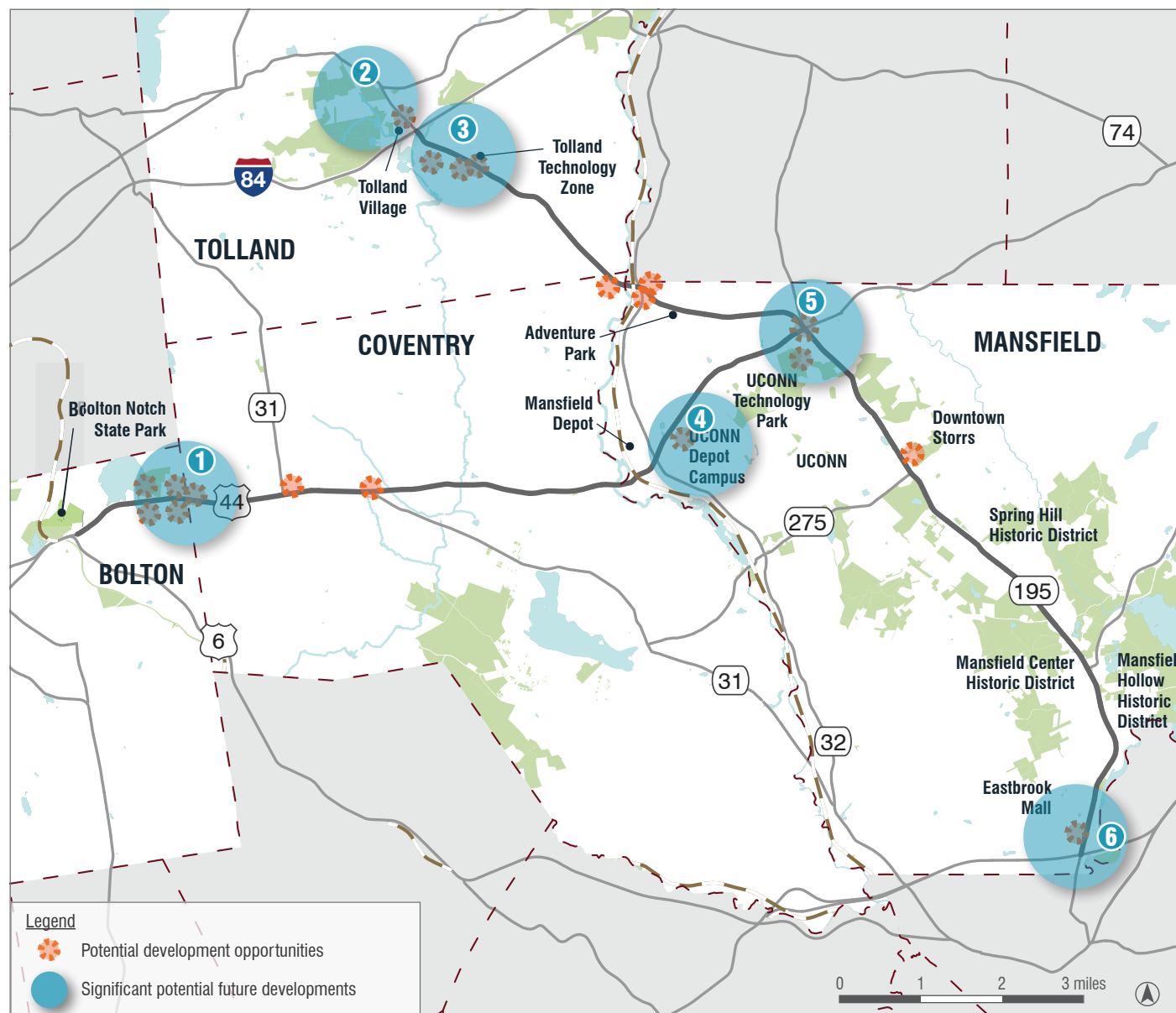
Image credit: CT**transit**

5. BEST PRACTICES FOR FUTURE SITE DEVELOPMENT

Each town has developed a plan of potential development opportunities based on their community's vision for the future. Variables such as environmental constraints and resources, each town's zoning code, and market forces will significantly impact how many of these development opportunities are realized. As new land development patterns occur, transportation patterns typically also experience a change due to impacts to travel demand and travel modes. Creating a plan for these potential impacts allows the towns to prepare for the future and ensure the transportation system provides safe, convenient, and multimodal options for all.

While there are development opportunities identified throughout the study area, the towns have identified potential future developments that would be most significant based on the size and scale planned. These more robust potential land use development plans include:

- 1 Coventry-Bolton Gateway Development
- 2 Tolland Village Area
- 3 Tolland Technology Zone
- 4 UCONN Depot Campus
- 5 Four Corners (Mansfield)
- 6 East Brook Mall Area (Mansfield)



5. BEST PRACTICES FOR FUTURE SITE DEVELOPMENT

Land use and the transportation system each influence one another in a dynamic way. Development has a greater opportunity to flourish where there is sound, safe, and convenient access. Conversely, congestion can be better managed on the roadways by using alternate means of travel such as walking, bicycling, and taking transit. Additionally, when development follows best practices for site development, the integration of land use and transportation becomes more seamless and creates vibrant activity centers that are safe and attractive.

The Recommendation

During the planning and permitting process, communities should incorporate best practices for development sites, which are based on the following principles:

- Design the site that contributes to an attractive, safe, and active environment that is sustainable for the future
- Build safe and efficient on-site vehicular circulation and parking
- Enhance multimodal options and connectivity to the existing and proposed transportation systems

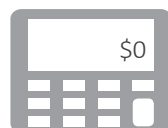
Timeline

1 TO 5 YEARS

5 TO 10 YEARS

OVER 10 YEARS

Cost



- This would be implemented into existing processes for no additional cost.

1 Coventry-Bolton Gateway Development

The site is located on six parcels adjacent to the Coventry and Bolton town line off Route 44. The proposed development is comprised of a mixed-use of residential, agricultural tourism, retail, restaurants, medical, and recreational uses.



2 Tolland Village Area

Tolland has developed a set of zoning regulations for the area along Route 195 north of the Exit 68 Interchange off of I-84. These regulations enable village-style development and design guidelines to ensure future development is in line with the community's vision for the area. The Town underwent this effort in recognition that it is a prime location and development will likely occur in the area in the future.



3 Tolland Technology Zone

The area is located between Goose Lane and Baxter Street off Route 195 in Tolland, most of which is zoned to allow a mixture of office, research and development, and technology-related uses. Early studies estimated a potential capacity of 400,000 square feet.



4 UCONN Depot Campus

The UCONN Depot Campus is located along Route 44 between its intersection with Route 32 and with Route 195. UCONN's 2015 *Campus Master Plan* identified this area for potential growth in future campus life. The *Master Plan* states "It will follow a different trajectory from new investment at the Main Campus, but may eventually be developed as a planned, mixed-use community."



5 Four Corners (Mansfield)

Located at the intersection of Route 44 and Route 195 in Mansfield, this site has been identified as a key destination at the center of the Eastern Gateways study area. Previous efforts, such as the CTDOT Community Connectivity Road Safety Audit (RSA), have identified potential improvement options for this area. The Four Corners development is anticipated to consist of a mix of uses that include a hotel/conference center, residential, office, restaurant, retail and service. The Four Corners area is designated a qualified opportunity zone, allowing special tax benefits for private investments.



6 East Brook Mall Area (Mansfield)

East Brook Mall is located off Route 195 in Mansfield, approximately ¼ mile north of the Route 6 interchange. The area is comprised of big-box retail stores and shopping centers with smaller commercial properties, most of which supports motorists with large parking lots at the front of the sites. There is an opportunity to retrofit these parking lots with more multimodal friendly designs. Additionally, new developments are planned or in progress in nearby lots, such as United Services on North Frontage Road.



5.1 Site Development | BEST PRACTICES: DESIGN

Promote an attractive, safe, and active environment that is sustainable for the future

The placement of buildings, spaces, and roads will determine much of the quality of the future environment. Since building itself is likely to be a part of the environment and community for longer than the initial occupants, the site design and layout become a more vital and critical component of the environment. The site's integration into the transportation network and surrounding land uses is essential in creating great spaces and a vibrant and livable community. Smart designs include, but are not limited to, the following:

- Encourage buildings to be located on the frontage of the roads to create active streetscapes
- Early coordination with transit agencies during the planning phase to provide adequate public transportation services
- Align and/or link new roads or access drives to existing roadways surrounding the site
- Orient building entrances to street sidewalks
- Use native species for all landscaping features
- Encourage low impact design techniques to manage stormwater runoff as part of green infrastructure
- Provide adequate lighting for vehicles, bicyclists, and pedestrians along all publicly accessible streets and pathways within developments that are expected to be utilized past dusk
- Develop a maintenance plan to ensure public spaces remain in good working order and create a safe, clean, and inviting environment for all users



Image credit: New Jersey Future - Working for Smart Growth: More Livable Places and Open Spaces



Image credit: Smart Growth America



Image credit: Momtrends.com via Material Matters

5.2 Site Development | BEST PRACTICES: CIRCULATION AND PARKING

Build safe and efficient on-site vehicular circulation and parking

Direct and accessible routes for all modes can ease circulation and loading, thereby improving safety by reducing the risk of accidents. Routes that are clearly designated for pedestrians should be delineated between parking bays to provide access from an individual's vehicle to walking paths. The routes should be wide enough to accommodate all users in both directions and free from obstructions such as overhanging vehicles or overgrown vegetation.

Smart designs include, but are not limited to, the following:

- Provide clear entry and exit accessways to/from the adjacent roadways
- Encourage separate service and delivery vehicle access from patron vehicle access
- Encourage large-scale developments to be located near or along transit routes
- Encourage opportunities for shared driveways between adjacent businesses and other inter-parcel connections
- Provide direct, wide, and continuous footpaths and pavements with safe and fully accessible crossing points at internal and external road junctions
- Encourage placement of surface parking in the rear or enclosed by buildings
- Provide parking spaces for persons with disabilities as close as possible to the accessible building entrance. If a parking facility serves multiple buildings or accessible entrances, accessible parking spaces should be dispersed to enable people to park near as many accessible entrances as possible.
- Incorporate landscaping and street trees into parking lot design
- Manage stormwater run-off with impervious pavement on surface lots and interspersed landscaped grass areas



Image credit: San Mateo Countywide Water Pollution Prevent Program



Image credit: Northwest ADA Center

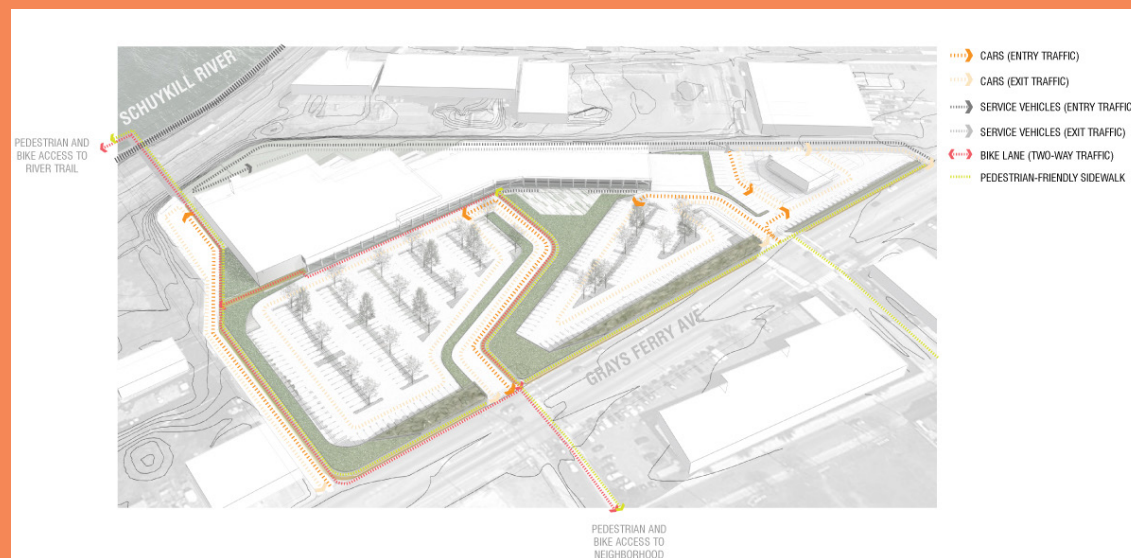


Image credit: Wiring Base, Urban Design Circulation Diagram

5.3 Site Development | **BEST PRACTICES: MULTIMODAL CONNECTIVITY**

Enhance multimodal options and connectivity to the existing and proposed transportation systems

Connectivity of all modes is essential to enhancing the livability of the community. New development should provide facilities that encourage walking, cycling, and the use of public transportation. An interconnected transportation system provides linkages to local shopping, services, housing, and amenities, as well as linkages between adjacent developments. Systems that are disconnected isolate land uses and force all trips, whether by car, foot, or bicycle, onto the street system without regard for their ultimate destination.

Additionally, the proposed bicycle, pedestrian, and transit recommendations noted in this report offer great benefits and multimodal options that enhance the livability of the community. The design of future developments should be encouraged to integrate proposed facilities to strengthen the local and regional transportation network.

These goals can be achieved by providing:

- ADA-compliant sidewalks or shared-use paths
- High-visibility crosswalks and pedestrian signalization at major intersection crossings in the immediate vicinity to connect to surrounding neighborhoods
- Bicycle amenities such as bike racks that adhere to Association of Pedestrian and Bicycle Professionals (APBP) guidelines and lockers
- Bicycle facilities, such as a wide shoulder or separated bike lane, that provide connections to local and regional bicycle routes and shared-use paths
- Adequate public transportation services that serve the development
- Incentives for car sharing, car pool for employees, cycling, walking, and the use of public transportation



Image credit: West Windsor Bicycle and Pedestrian Alliance (WWBPA)



Image credit: National Association of City Transportation Officials (NACTO)



Image credit: Fitzgerald & Halliday, Inc.

6. SPECIAL EVENT MANAGEMENT

Managing special events requires a blend of strategies aimed at managing the surge of high travel demand to and from UCONN during athletic games and other special events, such as, move-in day, graduation, etc. Special events vary in size and duration; therefore, understanding each event's operation characteristics, anticipated attendance, rate of event patron arrival and departure, and venue location is essential in managing the surrounding transportation system.

Permanent and extensive roadway capacity improvements are not typically considered effective strategies for managing traffic flow for special events. However, a carefully considered special event management plan can employ strategies and tactics to mitigate travel impacts and manage traffic, parking, and pedestrian operations on the day of the event. Benefits of a special event management plan would reduce delay for travelers in the areas through traffic management, alternate mode choice, alternative routes, and/or real-time travel information.



Image credit: Peter Morenus/UCONN, UCONN Today



Image credit: Sean Flynn/UCONN, UCONN Today



Image credit: UCONN via Mansfield Patch



Image credit: UCONN, Commencement & Convocation

6.1 Create a Special Event Management Task Force to develop a Special Event Management Plan

Having a task force comprised of UCONN staff, State Police, transit operators (CTtransit and Windham Region Transit District), CTDOT, and personnel from the Towns will enable essential stakeholders to develop a successful process and outcome in the development of a special event management plan. Detailed planning and design of a set of programs and services are essential for a successful plan. The plan should utilize a variety of traffic management strategies to develop a comprehensive system plan that can be executed for the greatest benefit.

The task force should consider a variety of traffic management strategies as part of the management planning and designing process. A conceptual framework of strategies for consideration and further evaluation by the task force can include:



Freeway and ramp traffic control



Intersection traffic control



Arterial traffic control



Parking Management



Express Transit Service (BRT Service)



Travel Demand Management

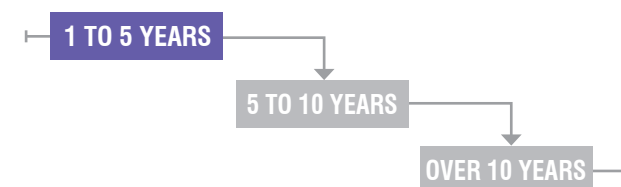


Cost Estimate



- This recommendation would be implemented into existing processes for no additional cost.

Timeline



The Recommendation

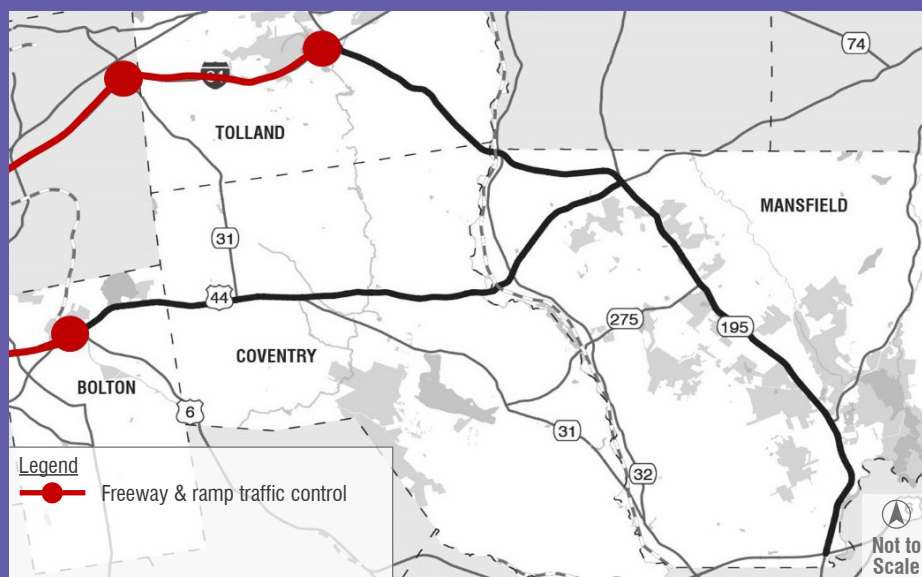
- Create a Special Event Management Task Force to develop and employ a Special Event Management Plan

6.1 Special Event Management Task Force | STRATEGY TOOLBOX

Freeway & Ramp Traffic Control

Traffic demand data collected between January 20, 2015 and February 19, 2015 verified that longer distance trips into the study area are made on basketball game nights. Many of these trips originate from the west, including places such as Hartford, East Hartford, Manchester, Vernon, Tolland and Bolton. Some trips originate even further west beyond Hartford. The first opportunity to influence this demand is along the highways that feed Route 44 and Route 195. Strategies to consider include:

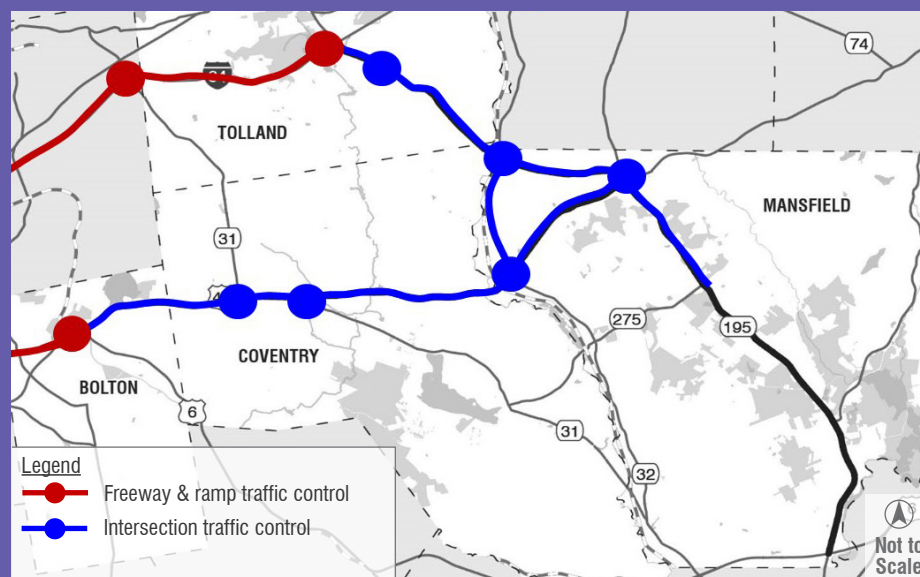
- Provide variable message signs with information on travel options
- Modify signal operations at interchange ramps to minimize or prevent queuing at the intersection of I-84 with Route 195 and at the Route 6/I-384/Route 44 interchange
- Modify lane assignments to utilize shoulders for additional capacity



Intersection Traffic Control

Building upon the freeway/ramp control strategies, both Routes 195 and 44 should include intersection traffic control management during events. Strategies to consider include:

- Utilize traffic control officers at major intersections
- Modify signal timing operations at major intersections
- Modify lane configurations to increase capacity, i.e. shoulders or other spaces to provide additional capacity to clear traffic faster

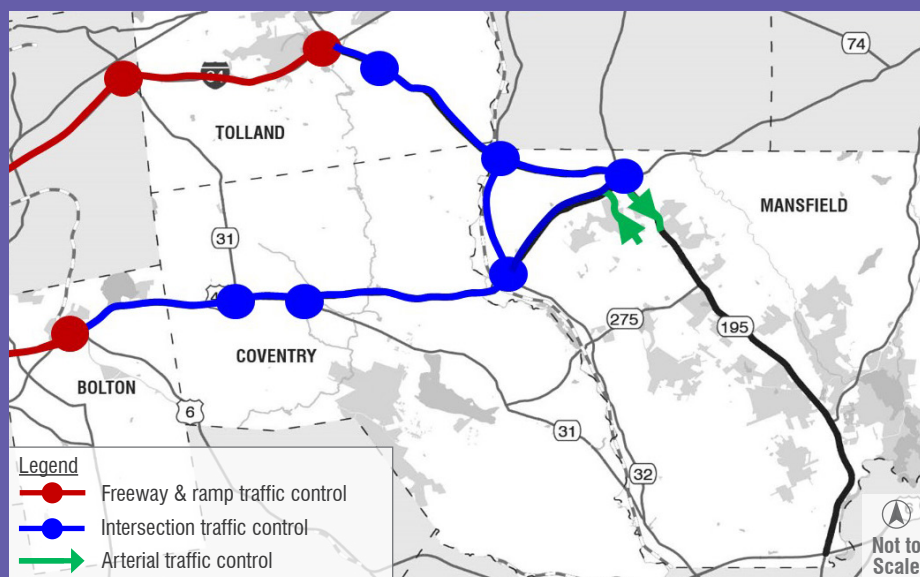


6.1 Special Event Management Task Force | STRATEGY TOOLBOX

Arterial Traffic Control

More aggressive traffic management strategies include implementing temporary travel patterns to encourage a faster rate of arrival into campus, minimizing gridlock along the street network. These types of strategies would need to be signed appropriately, and ideally local travel should be discouraged to minimize congestion. Strategies to consider include:

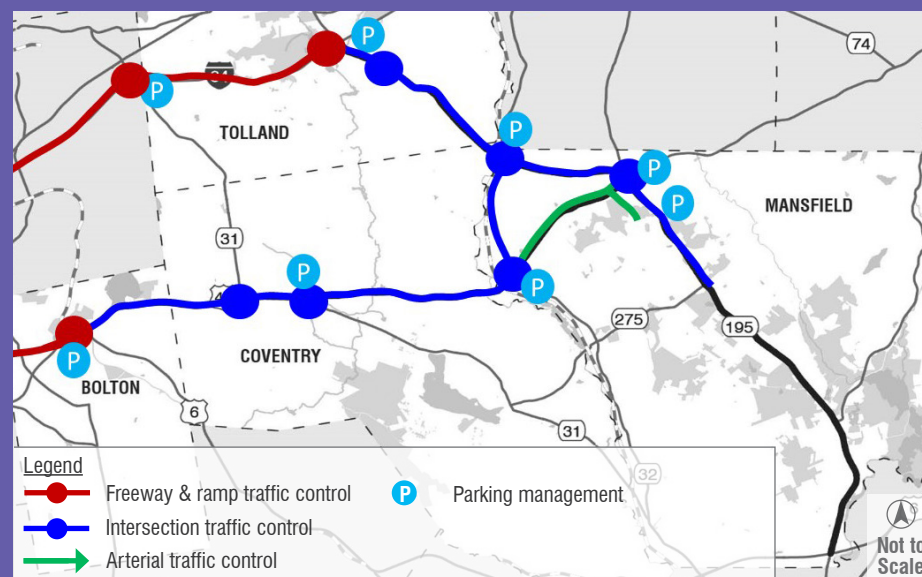
- Create one-way operations utilizing sections of Route 44 and Discovery Drive where possible, for one-way inbound for a period of time prior to a special event and outbound operations for a period of time after a special event
- Create a one-way pair utilizing Route 195 and Discovery Drive for inbound and outbound operations



Parking Management

While traffic management is a major component of a comprehensive special event management plan, providing opportunities to lessen car traffic is ideal. The key to reducing cars is to offer incentives and make the choice appealing. Strategies to consider include:

- Provide off-campus parking lots with carpooling or shuttle service to the event facility to intercept longer distance trips
- Provide variable message signs with information on parking availability, shuttle running times, and wayfinding
- Employ incentives for cars with multiple occupants
- Employ electronic transactions for parking fees at off-campus parking facilities that could be made during the purchase of an event ticket



6.1 Special Event Management Task Force | STRATEGY TOOLBOX

Express Transit Service (BRT Service)

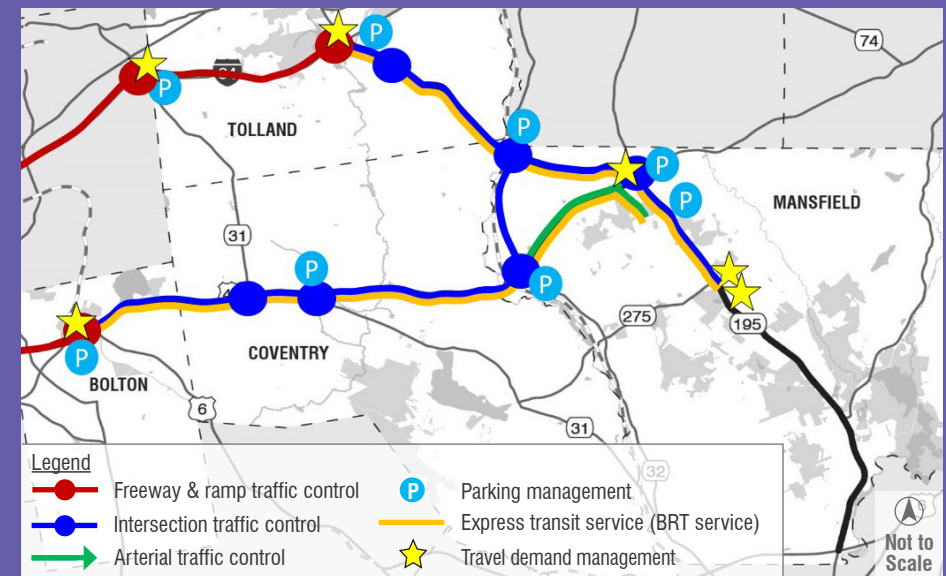
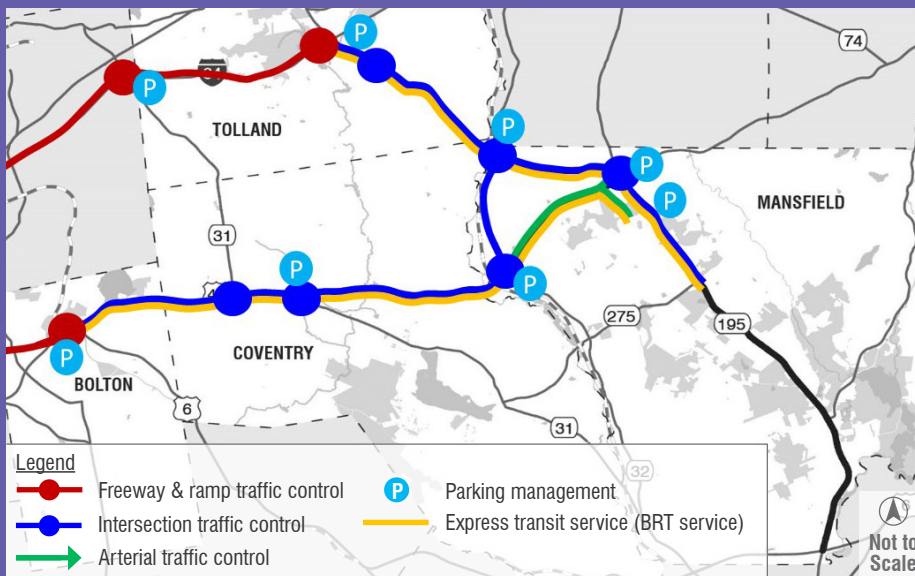
Building upon the transit service recommendations, special event express service could be effective for providing faster ingress/egress to the university. Strategies to consider include:

- Modify signal operations at major intersections to offer priority for buses over cars
- Provide a dedicated bus lane along Route 44 (east of Route 32) and Discovery Drive
- Provide direct service to park and ride lots
- Employ electronic transactions for transit service that could be made during the purchase of an event ticket

Travel Demand Management

Managing travel demand through pricing and arrival/departure strategies can play a complementary role to the physical strategies previously described. Strategies to consider include:

- Employ incentives that are attractive to the cost-conscious traveler, such as reduced game ticket prices and parking fees (carpool incentives)
- Spread out the arrival and departure surges by offering tailgating or special events at designated parking lots or offering specials at local businesses such as restaurants following games



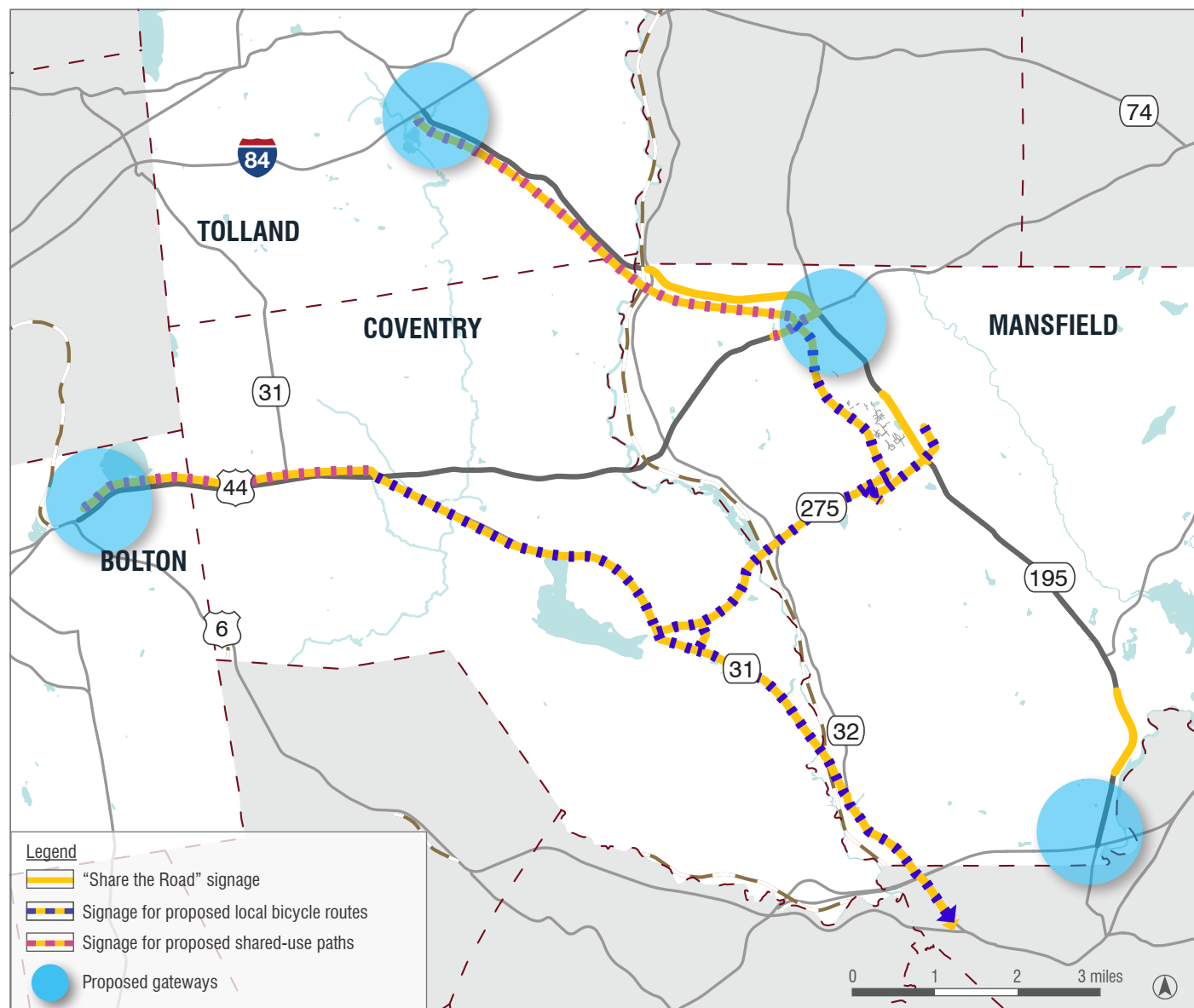
7. CORRIDOR IDENTIFICATION

Consciously establishing a distinctive identity that reflects the study area's rural and unique character is often about creating a feeling, a connection, and a sense of place.

One effective method for creating a "sense of place" is through consistent design at the study area's key gateways, as well as wayfinding signage that directs both residents and visitors to key resources in the area. Both these elements can be designed in a way that is contextually appropriate to reflect the area's character while also unifying the communities behind the Eastern Gateways identity.

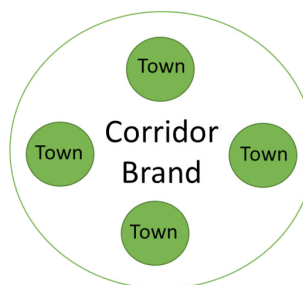
The Recommendation

- Create a Task Force to develop a corridor and town identity strategy
- Install design elements at key gateways
- Develop wayfinding and signage network for bicyclists and pedestrians
- Coordinate Eastern Gateways wayfinding and signage network with UCONN's Wayfinding System Plan

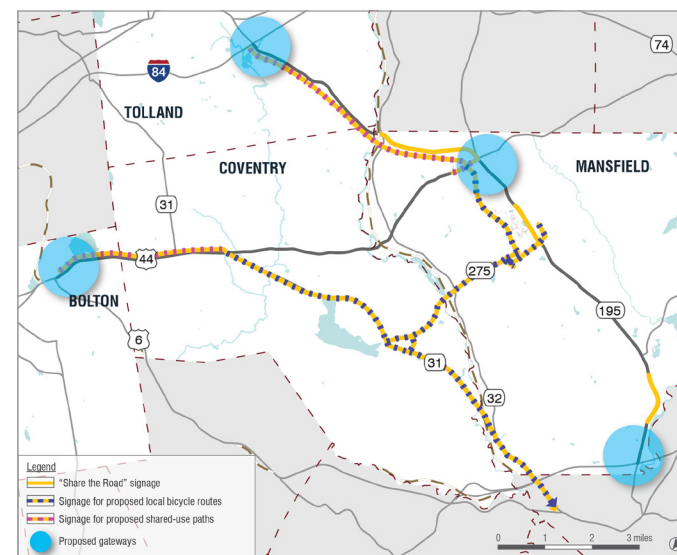


7.1 - Create a Task Force to develop a corridor and town identity strategy

The development of a successful strategy to create a “sense of place” along the Eastern Gateways corridors requires the consistency of selected design elements while also allowing for flexibility for each town to incorporate their own unique character. This *Plan* recommends the development of a task force comprised of personnel from Bolton, Coventry, Mansfield, and Tolland as well as representatives from CTDOT and other relevant agencies to develop such a strategy. This strategy will allow each town to create its own identity within the larger framework of the agreed upon Eastern Gateways corridors’ identity. The proposed task force would agree on which design elements should be consistent along the corridors and which could vary across the towns. Design elements that could be considered corridor-wide or for a specific town include, but are not limited to, color, font, material, treatment, size, etc. This type of strategy allows the towns to celebrate and market their uniqueness and character while identifying the corridors as a special and unique place in the state.



Location



Corridor Placemaking Recommendations

Cost



- This recommendation would be implemented into existing processes for no additional cost.

Timeline



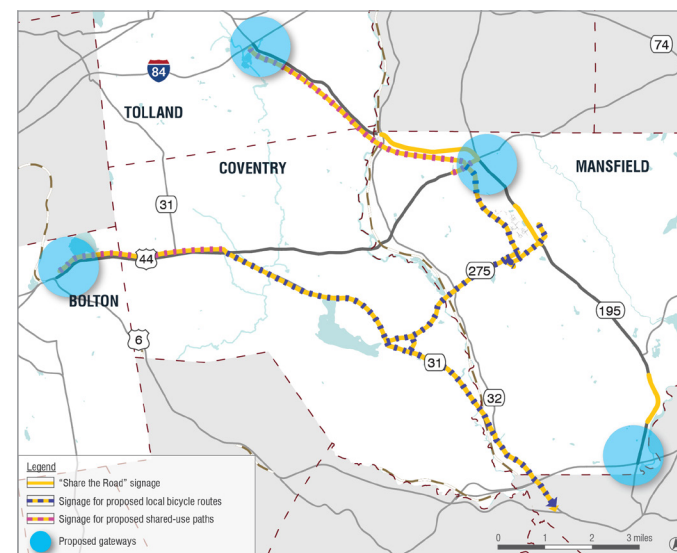
7.2 - Install Design Elements at Key Gateways

Gateways provide an excellent opportunity to create a strong first impression and immediately establish a community's visual identity. They can also improve safety and calm traffic by providing visual cues to motorists that they are entering a new area. Signage is provided at some gateways to welcome residents and visitors to UCONN, but there is no clear identity established for the Connecticut Eastern Gateways area. This reflects an opportunity to design the public realm in a way that reflects the rural character and close-knit community that defines Bolton, Coventry, Mansfield, and Tolland.

The map to the right depicts the areas that have been identified as key gateways where the implementation of unique design elements will help to promote a sense of place and identity. Potential elements to incorporate into the design of these gateways include signage and landscaping. Such elements can be consistent at all locations to reinforce the Eastern Gateways identity and unify the study area. The project's logo has been designed as a consistent element that can be incorporated into potential gateway designs as illustrated in the photo on this page.



Location



Corridor Placemaking Recommendations

Cost



Timeline



7.3 - Develop a Wayfinding and Signage Network for Bicyclists and Pedestrian Facilities

Wayfinding and signage for bicyclists and pedestrians provides people with information about nearby local resources as well as instructional information to ensure the safety of all users along a facility. Such signage strengthens key connections on both a regional and local scale and provides all users with enough information to confidently navigate the bicycle and pedestrian network. Highlighting the viability of bicycling and walking as an alternative to driving is a benefit and provision of multimodal options in the community. The designs of signs and pavement markings along the study area's roads should all be guided by the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD is a manual produced by the Federal Highway Administration (FHWA) that provides guidance on what types of signs shall, should, and may be used on streets in the United States.

The following distinct types of signage are recommended along designated local bicycle routes:

- Regulatory signage to educate all roadway users about laws they are legally required to follow while traveling along a facility. The design of the bicycle infrastructure along such routes will determine what type of signage is appropriate. For example, signage that informs motorists that they are required to allow at least three feet of separation when overtaking and passing bicyclists is recommended along any routes that have been designed with widened shoulders to accommodate bicyclists.
- Identification signage and/or pavement markings should clearly mark these routes to indicate the facility is a local bicycle route. The design of this signage should be consistent throughout the study area and as such, local advocates and community members should be involved to ensure that the design elements reflect the community's desires and needs.
- Wayfinding signage should be provided to give directional and/or distance information to other nearby bicycle routes as well as local destinations, such as restaurants or scenic viewpoints. Such wayfinding signage can be incorporated into the design of the route identification signage if the community prefers such a design.

Signage that identifies shared-use paths is recommended along all existing locations and proposed locations, pending the implementation of these paths. Such signage should clearly identify the path as a designated space for bicyclists and pedestrians along key access points. Additionally, wayfinding signage that provides information on the distance and direction to nearby destinations should also be included along these routes.



Image credit: Ridgefield Town Vibe



Image credit: Jacks Bikes



Image credit: John Maynard Friedman, Wikipedia

Cost



Timeline



7.4 - Coordinate with UCONN's Wayfinding System Plan

The University of Connecticut (UCONN) recently completed the development of a comprehensive plan for a campus wayfinding system. This system has been created to unify the campus environments and provide a strategic and logical information strategy to orient and direct visitors to and around the campus areas. This system builds upon the spirit of the university's brand standards and includes specific guidelines regarding color scheme, typography, and symbol design. It also specifies signage size and general placement for the following sign types: vehicular direction, parking, pedestrian directional, building identification, targeted destinations, and regulatory.

Implementation of this campus wayfinding system has already begun at the UCONN Health Center in Farmington. UCONN has also recently updated the vehicular direction wayfinding signage along I-84 prior to Exit 68 to ensure it meets the standards and guidelines outlined in its comprehensive plan. Examples of both of these signs are shown in the photos to the right.

Coordination should occur with UCONN when determining the content and specific location of additional wayfinding signage along the Eastern Gateways corridors. This will avoid the unnecessary duplication of similar wayfinding content in close proximity to one another that could confuse residents and visitors or cause visual clutter. These two wayfinding systems should complement one another in order to convey clear and cohesive messaging regarding directions as well as the study area's identity.



Image credit: Rumney Associates

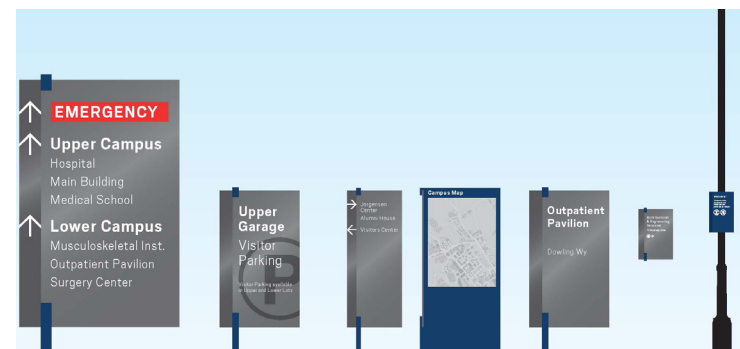


Image credit: UCONN Wayfinding Guidelines (November 2017)

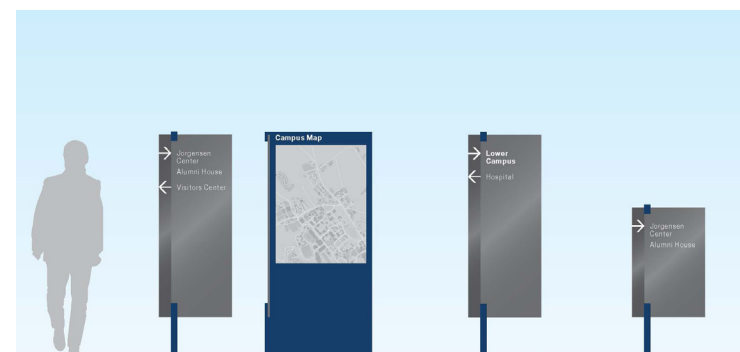


Image credit: UCONN Wayfinding Guidelines (November 2017)

Cost



- This recommendation would be implemented into existing processes for no additional cost.

Timeline



CHAPTER SEVEN: IMPLEMENTATION



Implementation

The recommendations presented in this *Plan* complement current and future planning efforts within the study area, as well as those at a regional and state-wide level. The recommendations focus on improvements that accomplish the vision as defined by the communities.

The recommendations are organized into two categories, local and regional recommendations. The Implementation Table contains a complete detailed listing of all recommendations. It also includes information on priority, time frame, designated local champions, and order-of-magnitude cost estimates

for each. Designated champions are encouraged to identify funding sources and pursue implementation. Actual project costs will be dependent on a number of variables, including the year of construction, property and/or environmental impacts, etc. The estimated project costs do not include operational or maintenance costs of services.

The priority level of each recommendation was identified based on input from the communities and the Technical Advisory Committee. The priority considered which improvements would be most necessary to address safety and operations, would

be transformative to the transportation network, and would most strongly align with the vision.

This *Plan* provides a blueprint for the future of the communities. Upon implementation, this *Plan's* recommendations will provide a transportation network that is for all users, balances local and regional needs for travel, commerce, and education and provides key connections between activity centers making the Eastern Gateway region a special and unique place.

Implementation Table - Local Recommendations

	Purpose	Number	Recommendation Description	Location	Priority	Timeframe	Local Champion	Cost Estimate
Focus Area Recommendations	<ul style="list-style-type: none"> Improve Traffic Operations 	1.1	Route 44 and Quarry Road <ul style="list-style-type: none"> Endorse shared-use path along Route 44 Endorse the long-term safety improvements to the I-384, Route 6, and Route 44 interchange recommended in the Route 6 Hop River Corridor Transportation Study Implement incident management strategies as part of Connecticut's Strategic Highway Safety Plan (SHSP) 	Bolton	High	Short-term	Bolton	\$0
	<ul style="list-style-type: none"> Access Management Enhance Development Centers 	1.2	Route 44 and Route 31/Bread and Milk Street <ul style="list-style-type: none"> Realign Northfield Road and Swamp Road Conduct a study to assess alignment for new connection to Route 44 to create a 4-way intersection 	Coventry	High	Mid-term	Coventry	\$1,477,000
	<ul style="list-style-type: none"> Improve Traffic Operations Access Management, Pedestrian Safety and Mobility 	1.3	Route 44 and Route 31/Main Street <ul style="list-style-type: none"> Add a left-turn lane on Main Street and a receiving lane on Route 44 westbound Realign residential driveway Close Stage Road access at Route 44 Install landscaped median Provide crosswalks and sidewalks Consider shared driveways or relocation of driveways for businesses 	Coventry	High	Mid-term	Coventry Planning and Zoning Commission	\$2,085,000

Implementation Table - Local Recommendations (Continued)

	Purpose	Number	Recommendation Description	Location	Priority	Timeframe	Local Champion	Cost Estimate
Focus Area Recommendations	<ul style="list-style-type: none"> Improve Traffic Operations 	1.4	Route 44 and Route 32 <ul style="list-style-type: none"> Add curb extensions on the southern corners Add left-turn lane along northbound approach of Route 32 Add left-turn lane along westbound approach of Route 44 	Mansfield	Medium	Short-term	Mansfield	\$36,000
	<ul style="list-style-type: none"> Enhance Bicycle and Pedestrian Networks Access Management 	1.5	Route 195 between I-84 and Goose Lane <ul style="list-style-type: none"> Provide sidewalks along the east side of Route 195 and add crosswalks at key intersections Support the Tolland Technology Zone project's proposed shared-use path from Goose Lane to Baxter Street 	Tolland	High	Short-term	Tolland	\$512,000
	<ul style="list-style-type: none"> Improve Traffic Operations 	1.6	Route 195 and Baxter Road <ul style="list-style-type: none"> Add curb extensions on the southwest corner Consider future signalization 	Tolland	Low	Mid-term	Tolland	\$12,000
	<ul style="list-style-type: none"> Improve Traffic Operations 	1.7	Route 195 and Route 32 <ul style="list-style-type: none"> Add right-turn lane along Route 195 southbound Add curb extension on northeast corner 	Mansfield	High	Mid-term	Mansfield	\$181,000
	<ul style="list-style-type: none"> Pedestrian Safety 	1.8	Route 195 between Route 44 and Tower Loop Road <ul style="list-style-type: none"> Conduct a study to assess the feasibility of a sidewalk along Route 195 between Route 44 and Tower Loop Road Install a sidewalk pending results from the feasibility study 	Mansfield	High	Mid-term	Mansfield	\$957,000
	<ul style="list-style-type: none"> Access Management and Pedestrian Safety 	1.9	Route 195 between Riverview Road and North Frontage Road <ul style="list-style-type: none"> Install landscaped medians Restripe pavement markings Provide crosswalks and sidewalks Consider relocation of driveways Provide new transit stop 	Mansfield	High	Mid-term	Mansfield	\$628,000

Implementation Table - Regional Recommendations

	Purpose	Number	Recommendation Description	Location	Priority	Timeframe	Local Champion	Cost Estimate Ranges
Bicycle and Pedestrian	<ul style="list-style-type: none"> Enhance Bicycle and Pedestrian Networks Enhance Development Centers 	2.1	Multimodal opportunities along Route 44: Endorse existing shared-use path planning efforts	Bolton	High	Short-term	Bolton	\$0
		2.2	Multimodal opportunities along Route 44: Extend shared-use path to Route 31	Coventry	Medium	Mid-term	Coventry	>\$1,500,000
		2.3	Multimodal opportunities along Route 195: Endorse existing shared-use path planning efforts	Tolland	High	Short-term	Tolland	\$0
		2.4	Multimodal opportunities along Route 195: Extend shared-use path between Route I-84 and UCONN Campus	Tolland, Mansfield	Low	Long-term	Tolland, Mansfield	>\$1,500,000
		2.5	Provide pedestrian facilities at community centers	All Towns	High	Short-term	All Towns	\$500,000 to \$1,500,000
		2.6	Assess potential for additional bicycle route designations along regional network	Coventry, Tolland, Mansfield	Medium	Mid-term	Coventry, Tolland, Mansfield	\$500,000 to \$1,000,000
Signal Optimization	Improve Traffic Operations	3.1	Optimize signal timings at all signalized intersections	All Towns	High	Short-term	All Towns	<\$500,000
	<ul style="list-style-type: none"> Incident Management Travel Demand Management 	3.2	Upgrade signal operations to include traffic signal preemption	All Towns	High	Short-term	All Towns	<\$500,000
Transit	Enhance Transit Service	4.1	Expand WRTD service and frequency	All Towns	High	Mid-term	All Towns	<\$500,000
		4.2	Build on early success of express bus service	Coventry	Medium	Long-term	Coventry	\$500,000 to \$1,000,000
		4.3	Enhance existing services to unserved areas	All Towns	High	Long-term	All Towns	<\$500,000
Development Sites	Enhance Development Centers	5.1	During the planning and permitting process, communities should incorporate best practices for development sites	All Towns	High	Short-term	Planning & Zoning Commissions	\$0
Special Events	<ul style="list-style-type: none"> Improve Traffic Operations Travel Demand Management 	6.1	Create a Special Event Management Task Force to develop a Special Event Management Plan	All Towns	High	Short-term	Regional & Municipal Working Group	\$0
Corridor Identification	Placemaking	7.1	Create a task force to create a town and corridor identity strategy	All Towns	Medium	Short-term	All Towns	\$0
		7.2	Install consistent design elements at key gateways	All Towns	Low	Mid-term	All Towns	\$500,000 to \$1,000,000
		7.3	Develop wayfinding & signing network for bicyclists and pedestrians	All Towns	Medium	Mid-term	All Towns	\$500,000 to \$1,000,000
		7.4	Coordinate Eastern Gateways wayfinding and signage network with UCONN's wayfinding System Plan	All Towns	High	Short-term	All Towns	\$0

