Newport City Thoroughfare Plan

Submitted to:

Northeast Vermont Development Association, St. Johnsbury, Vermont

September 30, 2010

Submitted by:

smart mobility

PO Box 750
16 Beaver Meadow Road
Norwich, Vermont 05055

TETRA TECH

Oman Analytics

Kathleen Ryan
Landscape Architect

Acknowledgements

This report was prepared with funding from the Vermont Agency of Transportation, through the Northeast Vermont Development Association. It was guided by a study committee with the following members:

Members	John Ward	Newport City Manager
	Charles Elliot	Newport City Planning Commission
	Paul Duquette	Newport City Police
	Paul Dreher	Newport City Zoning Administrator
	Doug Morton	NVDA
	Patricia Sears	Newport Renaissance Corporation

Consultant Team

Lucy Gibson, P.E., Smart Mobility	Lead, Planning and Traffic Engineering
Michael Oman, Oman Analytics	Transportation Planning
Kathleen Ryan	Landscape Architect
Richard.Bryant, Tetratech	Traffic Analysis and Engineering Design

Contents

List of Figures:

List of Tables:

Newport City Thoroughfare Plan

Introduction

This plan is a guide for future investments in and management of Newport City's thoroughfare network, Newport City's streets serve a myriad of functions including providing for a variety of modes of transportation, and forming the primary public spaces for social and economic exchange in the central business district. Although much of the attention and investment in the City's street network supports vehicular traffic, the economic vitality of the downtown depends much more heavily on pedestrians, bicycling, vehicle parking, and creating an attractive public space. While vehicles are certainly required to get customers to and from the downtown, as well as to transport the goods for purchase, a successful downtown will ultimately rely much more heavily on a safe, comfortable, and enjoyable pedestrian environment.

This plan has also been developed to complement and support Newport City's efforts to develop a form based code, as a strategy to encourage walkable development and maintain or enhance its vibrant commercial core. It is important to consider two critical functions of Newport City's thoroughfare network:

- The street network provides **mobility**, i.e. for the movement of people and goods into and out of the city and within it. It supports **multiple modes** including pedestrians, bicycles, transit, autos for both commuters and other visitors, and trucks hauling freight.
- The street network also has an important community building or "**placemaking**" role, as it articulates the primary public spaces for **social and economic interaction** in the community's downtown business area and residential neighborhoods.

Overall, most of the streets in the city's core area serve both of these roles relatively well, although there are opportunities for enhancement. From a transportation/mobility point of view, several assessments may be made:

- The street network functions reasonably well, though it can be congested during peak hours. The most critical location in terms of congestion is the portion of Main Street/Route 5/105

between Coventry and Railroad Square. After school hours also results in temporary congestion, particularly along Causeway and Union Streets.

- While there is substantial through traffic passing through the downtown, the majority of traffic is local in nature, i.e. it has an origin or destination, sometimes both, in Newport.
- Newport City has high volumes of trucks on Main Street east of Coventry and on Causeway, among the highest in Vermont for a downtown area. However, the core commercial area of Main Street west of Coventry has significantly reduced truck volumes due to the high proportion of trucks using Alternate Route 5 (Coventry St).
- Traffic accident analyses indicate that Newport City's Main Street (from Third Street to Railroad Square) has an elevated crash rate, but with a low incidence of injuries and fatalities, typical for a low speed environment. Causeway and East Main Street have lower crash rates but higher injury rates, likely due to the higher speeds on these thoroughfares.
- Overall, Newport's links are good to the regional transportation system and beyond. The direct connector between Causeway and I-91 link the city with markets and resources on the eastern side of Vermont and Canada, as well as to the south.
- The alternative routing of trucks on Routes 5 and 105 via Route 5S (Coventry St) results in a near absence of trucking on Main Street that is a real plus for street life and pedestrian activity.

From a placemaking and economic vitality perspective, Newport City has many outstanding features, contributing to its potential as a destination. This analysis makes a number of findings:

- There is a broadly good pedestrian environment. This is helped significantly by the revitalization work already completed on Main Street.

- At least for the current levels of commercial and civic activity, there is good on-street parking availability. On-street parking is especially valued by patrons and businesses alike for its convenience and immediately recognizable availability. In addition, it provides an effective buffer between the pedestrian zone on the sidewalk and moving traffic in the street.

- The Form Based Code is an ideal tool to reconfigure some of the City's streets over time, as development occurs, to better serve the mix of functions of transportation and "placemaking."
- The city supports a world-class bicycle and walking network, and there are opportunities to extend this network to the wider region. Linkage potential to Jay, the South Bay Wildlife Management Area, the west shore of Lake Memphremagog, and to Canada, among many others, offers a major untapped potential to reinforce Newport as a bicycling destination.

In keeping with this analysis, a number of specific improvements and upgrades to the city's thoroughfare system have been identified that will further support its integration with the larger community vision. These include:

Pedestrian Network Improvements: Close the few remaining gaps in the sidewalk system such as Railroad Square and East Main Street. Maximize pedestrian space and buffers on key downtown streets including Main and Coventry. Enhance crossings, including on Main and Causeway (see section 5.1). Enforce restrictions that prohibit parking vehicles on sidewalks.

Bicycle Network Improvements: Extend the bicycle network beyond the existing path system, utilizing signed bicycle routes on shared lanes on secondary streets. Establish a bicycle route network that can extend regionally, especially to Jay. (See section 5.2)

Railroad Square: Modify Railroad Square layout to increase its efficiency and reduce traffic conflicts. The intersection would benefit operationally from signalization, but must be closely coordinated with the signal at Main and Coventry. Pedestrian access should be better defined and enhanced across the northeast corner. The City should seek to accomplish at least some of these improvements in coordination with bridge reconstruction project, as this location is a High Crash Location and regional traffic bottleneck. In order to reduce vehicle crashes and driver confusion, the segment of Main Street between Coventry and Railroad Square should be narrowed to a single through lanes in each direction, with left turn lanes provided both at Coventry and at Railroad Square (see Figure 19, page 27).

Coventry Street: Reconstruct as downtown commercial street in conformance with the vision described in the proposed Form Based Code. This should include enhanced sidewalks, on-street parking on one or both sides, and adequate travel lanes for traffic, including a significant number of large trucks, moving at an appropriate speed (see Figure 33, page 42).

Causeway: Soften the "highway" design features of this corridor to create a street more consistent with this street's waterfront gateway role. This includes reducing the lane widths, travel speeds, and removal of right-turn lanes that are designed to maintain high traffic speeds (see section 4.3.3, page 34). The intersection of Causeway/Union/East Main intersection could incorporate southbound left turn restrictions to alleviate the after-school traffic congestion (see Section 4.3.2, page 32). As there is potential for redevelopment of some significant waterfront properties along Causeway, it may be possible to implement some of these changes in concert with these changes.

Main Street: While Main Street provides a very attractive pedestrian and business environment, there are additional enhancements that can be implemented over time. This includes narrowing the travel lanes to 11 feet, and expanding sidewalk area in the course of future street reconstruction projects. An enhanced pedestrian crossing should be provided in the vicinity of Second Street, initially through in-street warning sign(s), and progressing to stand-alone pedestrian signal as appropriate. The intersection with Coventry St intersection can be narrowed to a single eastbound through lane and enhanced signal function (see Section 4.1, page 23).

East Main Street: This street's overly wide travel lanes and shoulder widths could be narrowed to provide a more attractive and safe pedestrian environment. Encouraging more use of on-street parking through pavement markings would further improve the pedestrian environment by providing a buffer and reducing through traffic speeds (see Section 4.4, page 35). In the longer term, the sidewalk gap on south side and enhanced crosswalk at Union/Causeway should be considered for any future street reconstruction projects (see section 4.3.2, page 32).

Third/Pleasant Street: Minor modifications are proposed to this intersection to clarify routing and enhance pedestrian access with neckdowns for minor street approaches. Along Third and Pleasant Streets, the curb and planting strips should be reinforced during routine maintenance and reconstruction (see section 4.6, page 44).

Secondary streets and alleys: These streets provide the access to residential properties, as well as on-street parking, and create a pleasant environment for walking. Over time, they should be reconstructed in conformance with the form based code in the normal course of maintenance activities.

As these improvements are undertaken in conjunction with development and redevelopment that adheres to the principles and specific standards of the Form Based Code, the downtown street network will be significantly enhanced to support its multiple roles of transportation mobility, community life and downtown vitality.

1. Newport City's Thoroughfare Network

Newport City's streets literally knit the city together – uniting people with the destinations they seek, providing a venue for social and economic transactions, and allowing visitors to discover and enjoy the city and its spectacular environment. The city's major thoroughfares are also the backbone of the regional highway system, serving a regional economy dominated by natural resources, agriculture, and other freight intensive activities. The following functions must all be balanced in a thoroughfare plan:

- Transportation: a variety of modes of travel use the street network, which provides both access and mobility. Providing convenient access to downtown Newport is important, and accommodating the "mobility" function, i.e. through traveling traffic that is not stopping in Newport City, must also be provided for.
- Economic exchange: Streets, especially those through central business districts, are the arteries through which commerce can occur. Streets provide visibility for downtown businesses.
- Placemaking and Social Exchange: Often somewhat overlooked in conventional transportation planning is the vital role in the community that streets play in allowing people to connect with each other, and with the environment.

Newport's street network, often interrupted by geographic features or topography, generally allows for dispersal of US 5 and Route 105 traffic onto several streets on the downtown peninsula, which avoids a concentration of traffic on Main Street. Figure 1 shows the city's thoroughfare network.

FIGURE 1: NEWPORT CITY STREET NETWORK

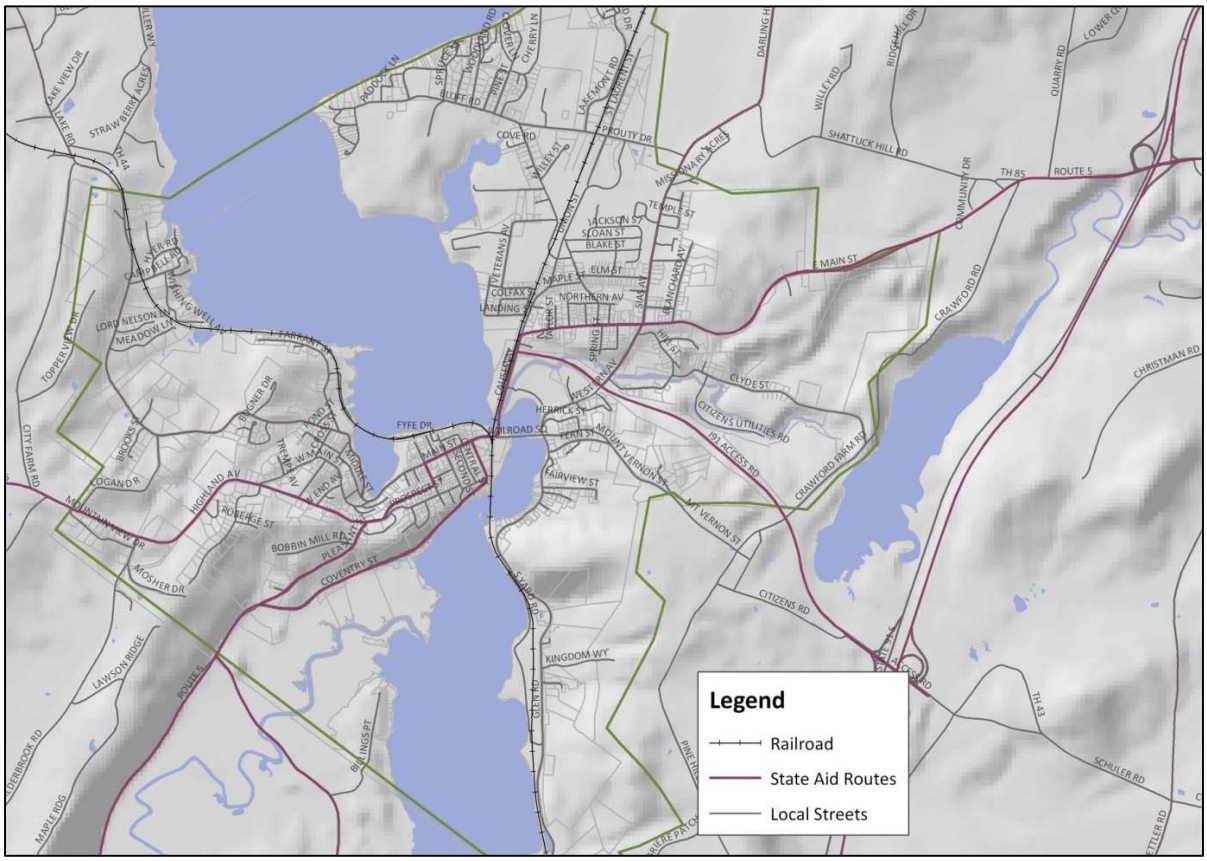
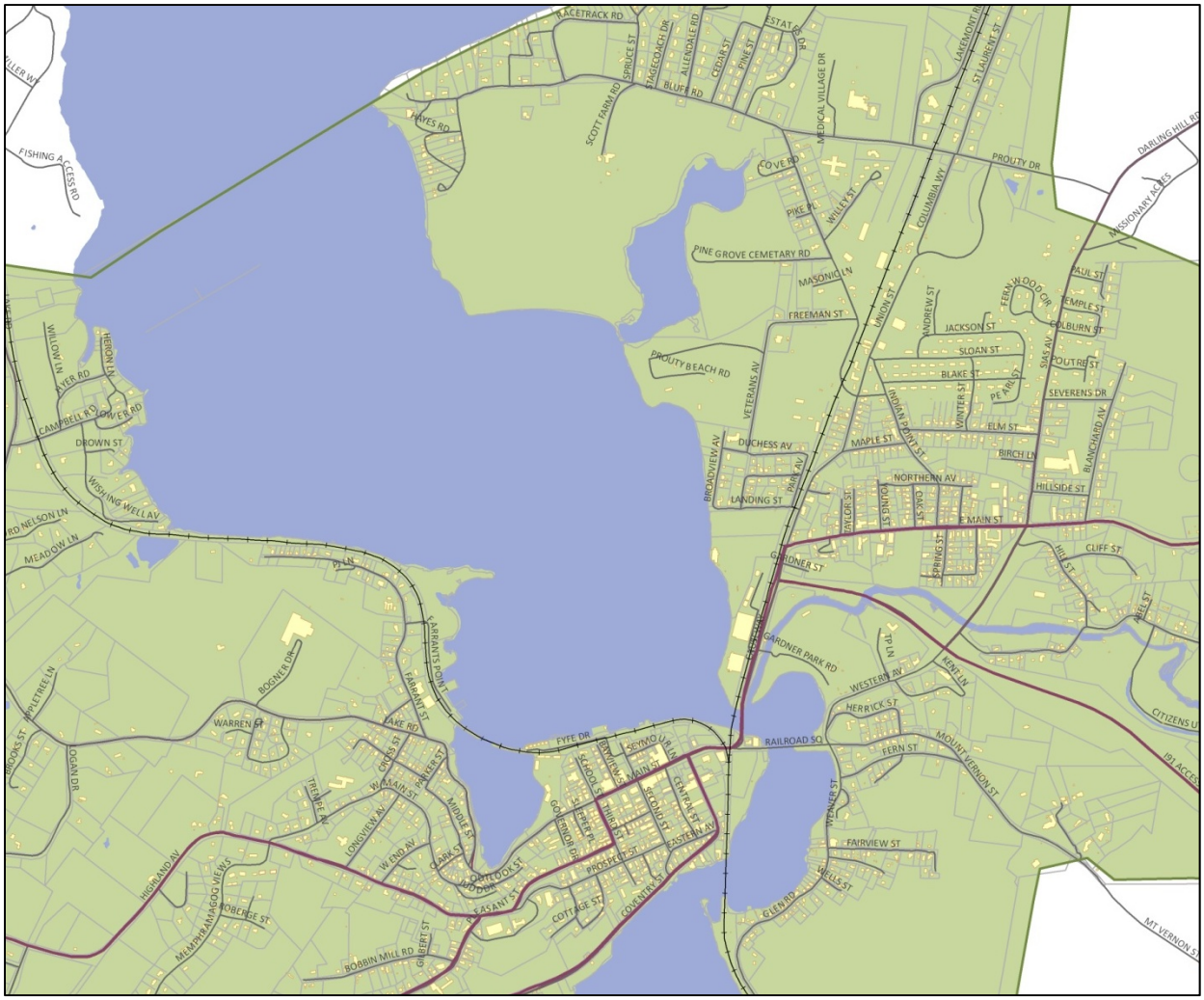


Figure 2 is a map with more detail in the central area of Newport City, and clearly shows the system constraint is where Route 5 and 105 come together to cross the South Bay of Lake Memphremagog.

FIGURE 2: CENTRAL NEWPORT CITY STREET MAP



From the maps above, it is clear that Newport City is well connected to the I-91 corridor to the east, although both interchanges are in the town of Derby. Route 105 is a major route through Newport City that connects to destinations to the west. The most critical point in the thoroughfare network is the section that carries Routes 5 and 105 (Main Street) from the downtown area to eastern destinations including the I-91 corridor. In the downtown peninsula area, Newport City has a well connected street network with smaller blocks, creating walkable neighborhoods. Outside of downtown, the street network and development patterns are generally less dense, except for the area around East Main Street.

2. Urban Design and Thoroughfares

One of the primary goals of the thoroughfare plan is to develop recommendations to assure that the street designs and future improvements are compatible with the City's land use planning and urban design goals. Newport City is re-envisioning its entire in-town development process through the vehicle of a "form based code". A form based code (FBC) is a recent innovation in development regulation that is intended to replace conventional zoning and be more supportive of the types and intensities of downtown development that most Vermonters have traditionally come to expect and desire in the center of their communities.

Conventional zoning has generally had unintended, detrimental effects for downtowns. For example, by separating uses, typically intended to minimize the ill effects of industrial activity on residences, the vital mix of uses common to traditional downtowns is not permitted. By contrast, a form based approach specifies downtown compatible development forms rather than the uses. Thus, a multi-story building on the street frontage may contain a retail store at one time, offices another and residences or offices above, all in response to the market need, rather than the regulatory definitions. A form based code recognizes that uses may change, but the buildings and other physical entities tend to endure. These differences are illustrated in the following graphics, which illustrate how Newport City's draft Regulating Code. On the left is the type of development that would be permitted on a downtown block under the current conventional zoning, and the right figures shows the walkable downtown development pattern that would be encouraged for downtown Newport City with the form based code.

FIGURE 3: ILLUSTRATION OF CONVENTIONAL VS. FORM-BASED CODE IN DOWNTOWN NEWPORT CITY

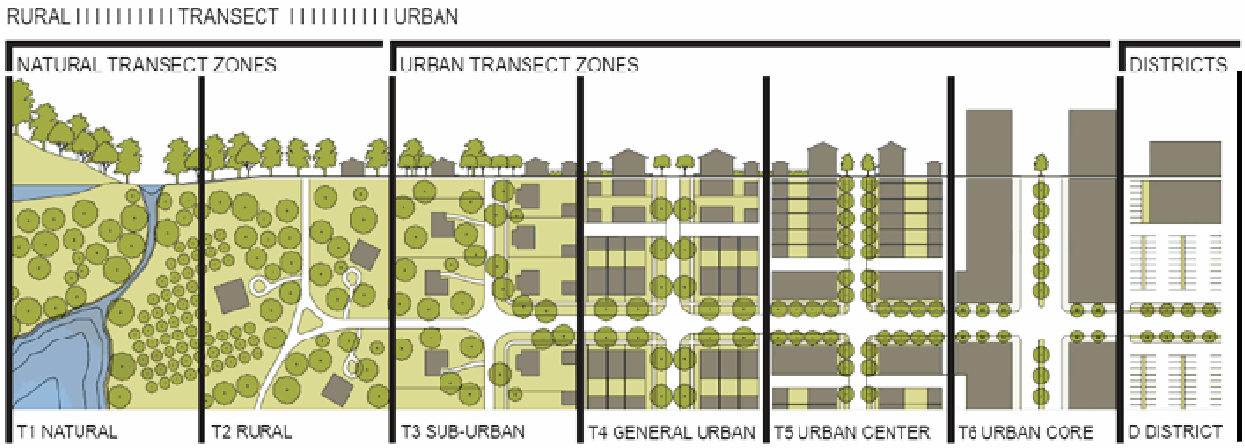
A form-based code seeks to replicate the development principles that were historically used in our downtowns, which basically focused on creating an attractive and convenient environment for pedestrians rather than cars. In this type of development, it is critical that there is harmony between the face of the buildings and the street design, as these two elements work together to form the public streetscape, and dictate the look and feel of the whole downtown. A Form Based Code can channel private development investments, which under conventional codes would go toward subdivision streets or surface parking, to instead invest in the public realm that will both enhance value of that development, plus the surrounding areas, creating and end result that is greater than the sum of its parts. This thoroughfare plan is intended to guide street design to be compatible with the great goals of the downtown development, as expressed in the draft Form Based Code.

Transportation planning, since the 1950s, has been primarily focused on moving people and goods (and their automobiles and trucks) from one place to another in a safe and efficient manner. Transportation facilities, predominantly roads and highways, as well as those serving private development, have been laid out and designed to fulfill this function. Where these roads and highways intersect with the hearts of our communities, especially historic downtowns, it becomes very challenging to fulfill the “mobility” roles. In our downtowns and village centers, roads become streets and are important public spaces. People use the streets in myriad ways, sometimes conducting civic or social business, sometimes dining, sometimes simply sitting and watching their neighbors go about their business. Here, the social and civic function of the street must be given at least equal footing with the movement function.

To this end, modern thoroughfare planning has evolved to recognize two critical characteristics of the relationship of that system to the communities served (this is sometimes also referred to as "context sensitive" planning or design): 1. the functional role the street is intended to fulfill in the community, sometimes referred to simply as the street or thoroughfare "type", and 2. the location, or "context", within which the street falls. The professional transportation engineering community now recognizes the importance of this approach of planning and designing streets, resulting in new national guidelines for walkable urban streets, recently published by the Institute for Transportation Engineers (ITE)[1].

Street design guidelines and principles are established to align the existing or desired context of the street. One of the most easily understood ways to define the context is as a continuous transition from rural to urban forms--from the surrounding farm and rural land to the heart of the downtown, or the urban to rural transect. This transect is organized into six basic context zones, which show typical conditions of most urbanized communities. The full range of this spectrum is illustrated in Figure 4 and the qualities that it reflects in Table 1.

FIGURE 4: URBAN TO RURAL TRANSECT ZONES



[1] Institute for Transportation Engineers (ITE), *Designing Walkable Urban Thoroughfares-A Context Sensitive Approach*, Washington DC, 2010.

TABLE 1: CHARACTERISTICS OF THE TRANSECT ZONES

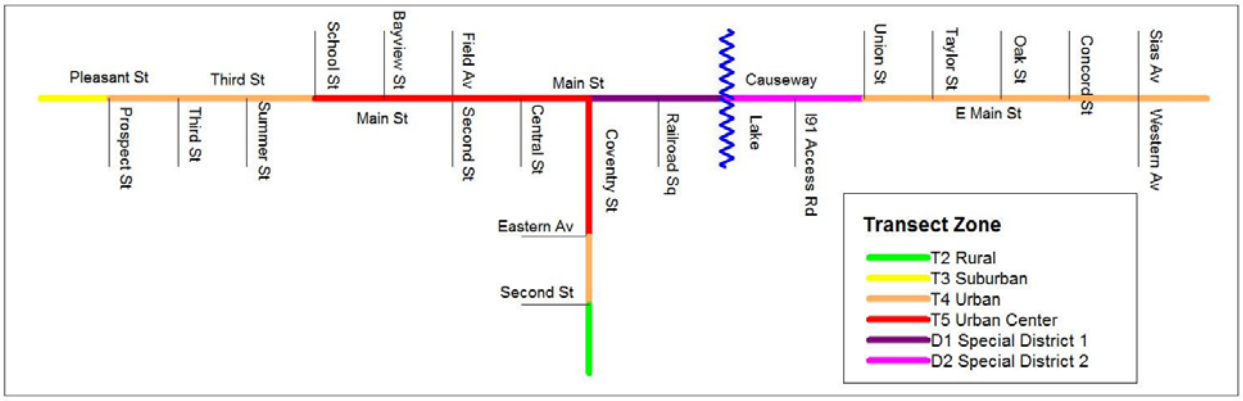
T2<----------->T5	
PRIVATE	
<---------- Lower Density	Higher Density ---------->
<---------- Primarily Residential Use	Primarily Mixed Use ---------->
<---------- Smaller Buildings	Larger Buildings ---------->
<---------- More Greenscape	More Hardscape ---------->
<---------- Detached Buildings	Attached Buildings ---------->
<---------- Deep Setbacks	Shallow Setbacks ---------->
CIVIC	
<---------- Roads & Lanes	Streets & Alleys ---------->
<---------- Narrow Paths	Wide Sidewalks ---------->
<--------- Opportunistic/Off-Street Parking	Dedicated/On-Street Parking -------->
<---------- Larger Curb Radii	Smaller Curb Radii ---------->
<---------- Open Shoulders	Raised Curbs ---------->
<---------- Starlight	Street Lighting ---------->
<---------- Mixed Tree Clusters	Aligned Street Trees ---------->
<---------- Parks & Greens	Plazas & Squares ---------->

Adapted from: Duany Plater-Zyberk&Company, Smart Code V 2.6, 2002, WWW.MUNICODE.COM

Newport City's proposed Form Based Code is modeled on the Urban-Rural transect, with the urban design, and "look and feel" of development being elevated in importance in the downtown area. A Form Based Code provides a descriptive, graphical vision of how future development or redevelopment should be done to lead to a long term result with more harmony in basic design, creating a whole that is more than the sum of its parts. This approach to design and architecture was the traditional approach, common before "modern" or "conventional" zoning and subdivision ordinances were enacted.

Newport City itself, because it is a small city and because of the limited area under direct study for this effort, does not truly contain the full range of zone types. Both the highly intensive T6, urban core, found in the downtowns of very large cities, and T1, "natural" area (more-or-less "wilderness") are not found within the study area of this initiative. The other four transect zones: rural, suburban, general urban, and urban center, are all found here, and align with the major thoroughfares as shown in Figure 5. A "special district" designation is shown for the section of Causeway that is lined by Gardner Park and the bike path, as well as the Poulin Grain industrial area.

FIGURE 5: ROUTE 105 BY TRANSECT ZONE



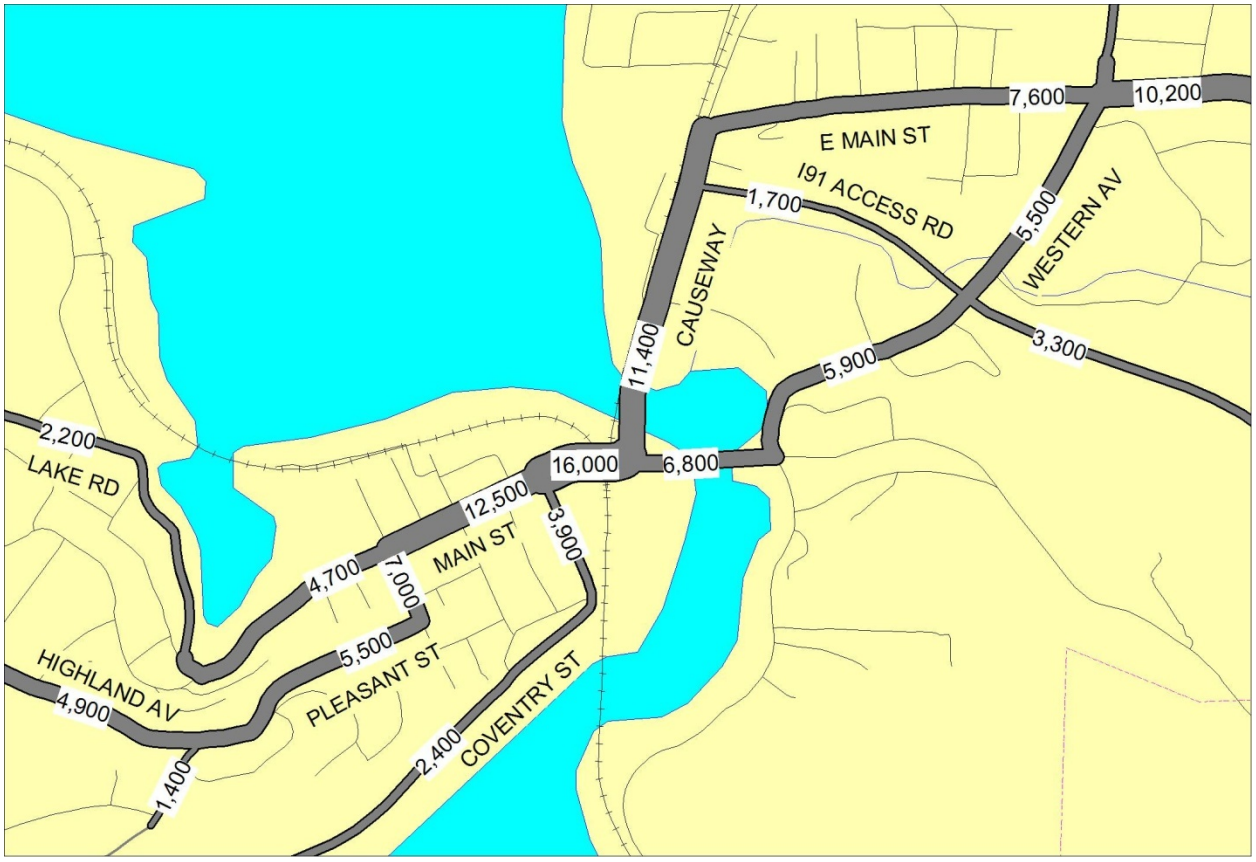
3. Transportation Functions on Newport City Thoroughfares

Providing a transportation network to support the community, as well as the region, is clearly a major function of Newport City's thoroughfare network. The users of this transportation resource are many and varied, and should all be considered in balance in the thoroughfare plan.

3.1 Vehicular Traffic Uses

The most widely used measure of overall traffic volume is annual average daily traffic (AADT). This measures total traffic in both directions on street segments over the course of an average day for the entire year. Traffic volumes are counted every other year by VTrans at a large number of automatic traffic recorder (ATR) stations throughout the state. These data are used directly where they apply, and VTrans estimates volumes on the remainder of the State highway system from them. AADT on the key highway segments in Newport City are depicted in Figure 6.

FIGURE 6: ANNUAL AVERAGE DAILY TRAFFIC



Traffic volumes are highest on the downtown segments: Main Street, especially between Coventry and Railroad Square, and on Causeway. They drop off noticeably to the east and west, although to the east on East Main Street, volumes pick up again east of Western Avenue. This is likely related to access to the growing highway commercial development a mile or so further east in Derby.

Traffic volumes are also appreciably lower than found by Hooper Associates in 1999. That study found AADT on Main Street west of Coventry to be 13,000 vehicles per day (vpd), only a little higher than

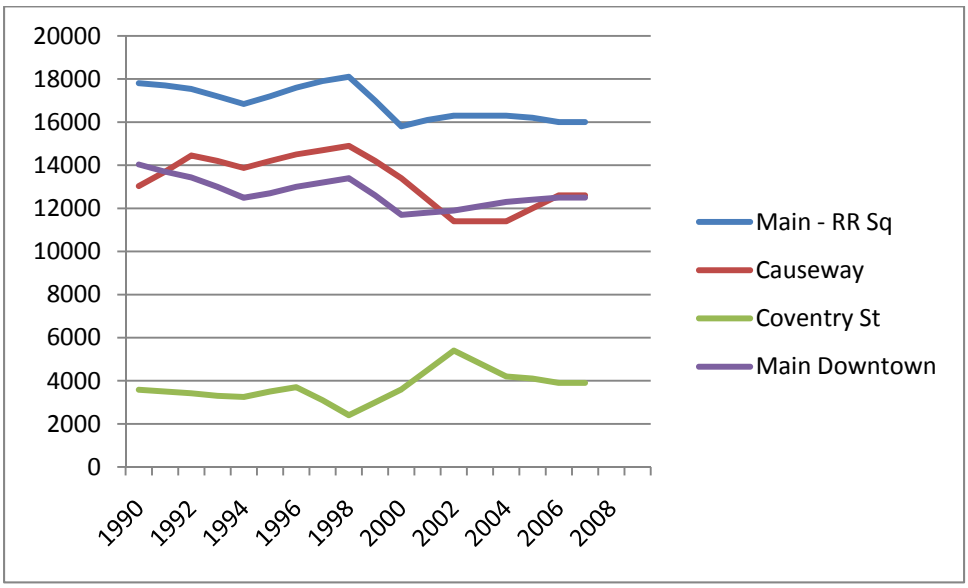
today, and east of Coventry to be 17,600, fully 10% higher than today's 16,000. Although daily traffic volumes in the range of 12,000 to 16,000 are on the high side by Vermont standards, they do not exceed the capacity of the streets that carry them. Of far greater importance than the traffic on the streets is the capacity and turning movements at intersections, which will be discussed later in this report.

In general, active downtowns may be expected to experience a fairly high degree of both traffic and congestion. Far from being a bad thing, this indicates higher levels of existing and/or potential commercial and civic activity. Hooper Associates (1999) found summer weekday volumes to be about 15% higher than AADT, and summer weekend volumes to about equal AADT.

3.1.1 Traffic Growth and Historic Traffic Volumes

In addition to the actual existing traffic volume currently found on roadways, the potential for future traffic growth is important. This consists of two components: 1. new traffic due to specific development or activity increases within the community itself, and 2. the growth in traffic generally, usually called "background" traffic. Traffic due to specific development within Newport will need to be addressed as part of the specific planning effort. Background traffic is usually addressed through the application of a growth factor. VTrans has counted or estimated historic traffic volumes on State routes in the City. These have been plotted in Figure 7 for the period 1990 - 2007 (the last year for which these data are available).

FIGURE 7 DAILY TRAFFIC VOLUME HISTORY FOR NEWPORT CITY STATIONS



From this plot it is clear that traffic on none of Newport's principle roadways has grown significantly in recent years, if at all. In fact, all of the higher volume roadways exhibit appreciably lower volumes than they did in the 1990s. This is consistent with the data of the Hooper Associates study as well as with broader statewide and national trends. For this reason, we have deemed the appropriate background traffic growth rate to be zero (0). That is, traffic will not grow at all over the next 10 years of this study, other than that attributable to specific developments or activity changes. However, two development projects will be considered in the Main Street corridor analysis, the potential redevelopment of the

Waterfront Plaza on Causeway, and the redevelopment or reuse of the former Bogner facility on Lake Street. The critical afternoon (PM) peak hour traffic generation for each is described below.

3.1.1.1.1 Waterfront Plaza Resort Hotel

This project, while not yet in formal development review, is reported to include a 150 suite hotel with supporting restaurant, retail and conference facilities. Using the ITE Trip Generation rates for the Hotel (310) Land Use, the proposed hotel would generate 92 peak hour trips with 53 entering trips and 39 exiting trips.

Currently, there is 84,000 square feet (sf) of commercial space in the Waterfront Plaza including a 30,000 sf supermarket. The proposed hotel would be located on the supermarket parcel while the rest of the retail/commercial space would remain. Using ITE trip generation rates for a Shopping Center (LUC 820), 84,000 sf of retail space generates 558 PM peak hour trips, while 54,000 square feet generates 417 trips. Accordingly, elimination of the existing supermarket will reduce site traffic generation by 141 trips with 68 fewer entering trips and 39 fewer exiting trips. Based on the above calculations, the change in use from supermarket to hotel should reduce the amount of site generated traffic during the PM peak hour relative to existing conditions. Accordingly, to represent a “worst case” analysis scenario, no change in site traffic is assumed for the traffic operations analysis.

3.1.1.1.2 Bogner Facility

The existing Bogner building provides 90,000 square feet of floor space. Using ITE trip rates for Manufacturing (LUC 140) the building would be expected to generate 67 PM peak hour trips with 24 entering and 43 exiting. The Newport Renaissance Corporation reports that the building could be enlarged by as much as 44,000 sf to accommodate a research and development use. Applying ITE rates for Research and Development Center, (LUC 760), to the expansion yields a future traffic forecast of 145 PM peak hour trips (22 entering and 123 exiting). This results in a net increase of 78 PM peak hour trips for the site (-2 entering and 80 exiting), which would not satisfy VTrans criteria for traffic impact (75 peak hour trips) beyond the entrance to the property itself.

3.1.2 Trucks

The community has expressed concern about truck traffic in the downtown, particularly as it affects the vitality and "place sense" of the downtown as a community destination. This is an understandable concern, as trucks, especially large trucks, can by noisy and cause perceptible vibration. Trucks can have a disproportionate impact to pedestrians due to their sheer size, and to traffic congestion due to their slower operations. On the other hand, truck traffic through Newport City is essential to serve the community. Commercial goods are almost all delivered by truck and a thriving downtown is not possible without at least some truck traffic. Local industries such as Poulin Grain generate trucks to ship their goods on the street network, vital to the local and regional economy.

There are three sources of truck traffic in downtown Newport. First among these are the trucks directly serving the businesses and other activities in the downtown. Although many are smaller trucks, some are larger semi-trailer rigs. Second, because of the significant impediments to east-west access due to Lake Memphremagog and its associated wetlands, Newport provides one of the few direct connections in northern Vermont between locations to the west and US-5 and I-91. Finally, unique to Newport,

Poulin Grain, a significant industrial use is located directly within the downtown and is itself a significant source of truck traffic.

VTrans conducts periodic "classification" counts at some of its ATR locations, including at a number of locations in and nearby Newport. These break down (classify) vehicles in the traffic stream according to the FHWA vehicle classification system. This classifies trucks (and other vehicles) by the number of axles (for purposes of these counts, a truck is any vehicle, including buses, with six tires). These are recorded as percent of the traffic. These data, including numbers of trucks as well as percentages, are shown for several stations relevant to Newport in Table 2.

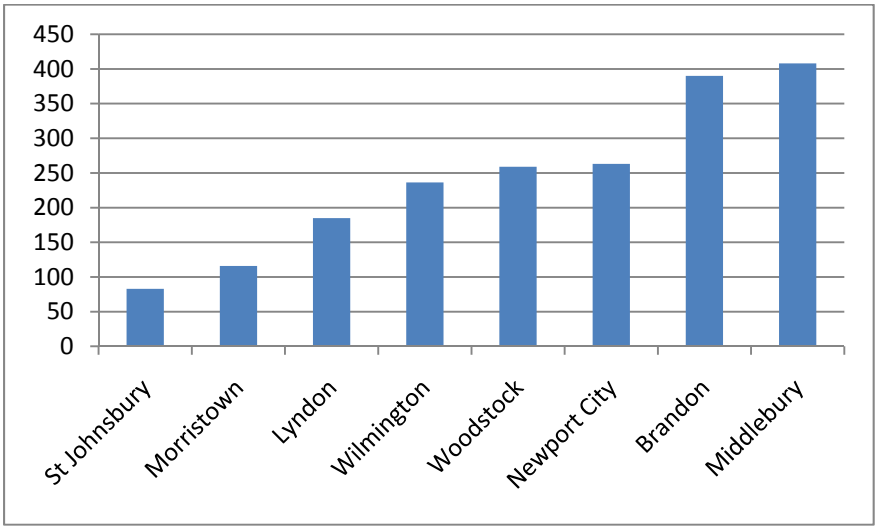
TABLE 2: TRUCK COUNTS IN NEWPORT CITY

SiteID	Town	Route	Location	Year	AADT	All	Heavy
P189	Newport City	US5	0.1 mi S of VT191	2009	9,600	776	263
P222	Newport City	US5	betw RR Square/Gardner Pk Rd	2006	11,400	643	263
P170	Newport City	US5	0.2 mi N of Airport Rd	2006	2,900	366	129
P116	Newport Town	VT105	0.5 mi W of Coventry TL	2008	3,800	184	33
P101	Derby	US5	0.2 mi W of Shattuck Hill Rd	2008	9,600	562	143

VTrans divides trucks into "medium" and "heavy" categories. This distinction is based exclusively on single unit versus semi-trailer/trailer (whether a single semi-trailer or multiples) Although some "medium" trucks can therefore be quite heavy, including fully loaded tri-axle dump trucks weighing up to 69,000 pounds, most medium trucks are of a more modest size, such as UPS delivery trucks, utility repair trucks, etc. It is the heavy class of trucks that have by far the largest impacts.

As might be expected, truck volumes are highest within the downtown, where several major routes and uses converge, and taper off on either side. For heavy trucks, no more than 60% can possibly be "through" trucks. The vast majority of passing through downtown use Alternate Route 5/Truck Route, bypassing some, though not all of the downtown commercial district. For purposes of comparison, the daily large truck traffic in Newport is shown with some other Vermont towns that have major transportation corridors passing through their downtowns in Figure 8.

FIGURE 8 DAILY TRUCK VOLUMES IN SELECTED VERMONT DOWNTOWNS



Based on this comparison, Newport does not have the absolutely highest volumes in the state, which occur along Route 7. However, they are higher than those in Woodstock (US 4) and Wilmington (VT 9), which are communities that have considered bypasses, increased enforcement of trucks, and other means to address the impacts of trucks on their downtowns.

3.1.3 Through Traffic

Considerable concern has been raised over the years about "through traffic" in the downtown and its effect on downtown commercial vitality. Among other things, this has led to considerable discussion of the desirability of a "bypass", especially for truck traffic.

Based on both truck and general traffic volumes, it is apparent that Newport street network does carry significant through traffic, as any traffic traveling to I-91 from points west must pass through Newport City. Truck through traffic is mostly limited to the easterly portion of downtown due the high level of use of the alternative truck routing via Route 5A (Coventry Street). It is possible, as more drivers become increasingly aware of the new higher Interstate weight limits that some additional north/south truck traffic carrying raw materials (which had a higher weight limit on state highways than on interstate highways) will divert to the Interstate.

In addition to general traffic volumes as a guide, the 1998 Route 105 Corridor Study conducted a direct origin-destination survey that sheds additional light on trip making on the major east-west corridor. Unfortunately, this study has limited utility for several reasons:

- The data are now more than ten years old, and much has changed, especially in downtown Newport since it was collected
- The data are not fully "cross-tabbed" to capture both origin and destination
- The actual destination and origin data usually cite simply "Newport" without distinguishing between the Town and the City, and certainly not the downtown. However, since the vast preponderance of traffic generators are located within the City, and general usage tends to favor simply "Newport" when referring to the City, it has been assumed that the origins and destinations labeled “Newport” in the data overwhelmingly refer to Newport City.

The two locations selected for the survey in the vicinity of Newport are well suited to addressing destinations in the City otherwise. The consultant surveyed eastbound traffic between Route 100 (East) and Newport Line (loc #3), and westbound traffic between I-91 and Derby Village (loc #4). For the purposes of this analysis, only the weekday surveys have been considered. The weekend data are essentially consistent with the weekday data. Because of the directions surveyed (in both cases toward the City), only the destinations have been considered in this analysis.

The 1998 O-D survey found that 69% (118/172) westbound and 68% (177/259) eastbound motorists had destinations identified as "Newport" (including "Newport City") or other destinations identifiable as the City. Even allowing for a portion of the "Newport" destinations at some location other than the City/downtown, it is apparent that a high fraction of the general traffic on the highways is destined for the City, often the downtown. Trucks were not identified separately in this survey, so it provides no additional information about truck trip distribution.

3.1.4 Peak Hour Traffic Congestion

While there are a large number of different users of Newport's street network, the most significant in number and impact is vehicular traffic. The operating conditions for vehicular traffic, in turn, is most significantly dictated by the peak hour operations at critical intersections, as these are the points of congestion that can spill over into the entire network. Figure 9 show the daily traffic patterns at the Causeway/Main/Railroad Square intersection, and Figure 10 shows the daily pattern at the Main/Pleasant intersection. Together, these figures indicate that overall peak traffic occurs in the afternoon, with a smaller peak in the morning hours. There is somewhat of a lunch time peak hour as well, which is typical of busy downtown locations that offer many services.

FIGURE 9: DAILY TRAFFIC PATTERN AT MAIN/CAUSEWAY/RAILROAD SQUARE

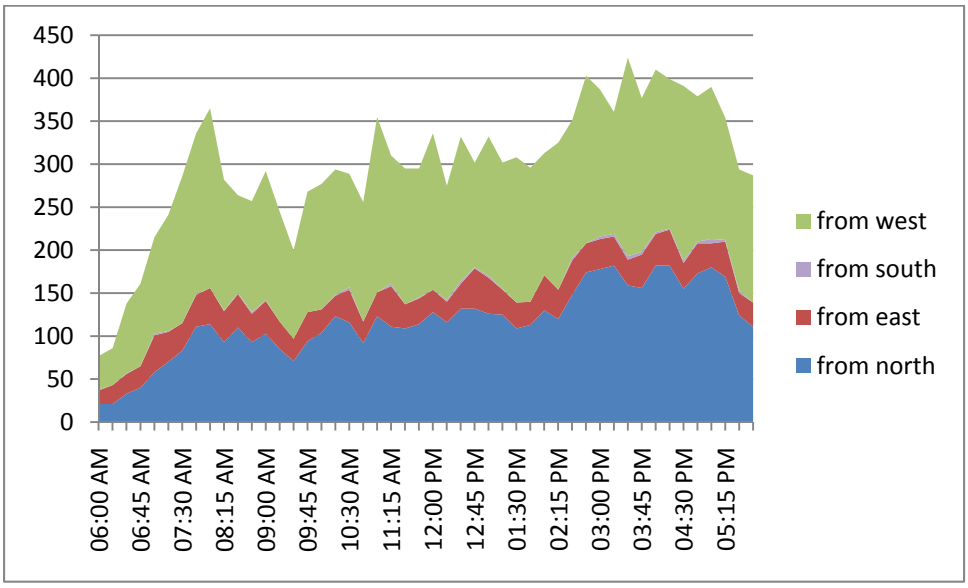
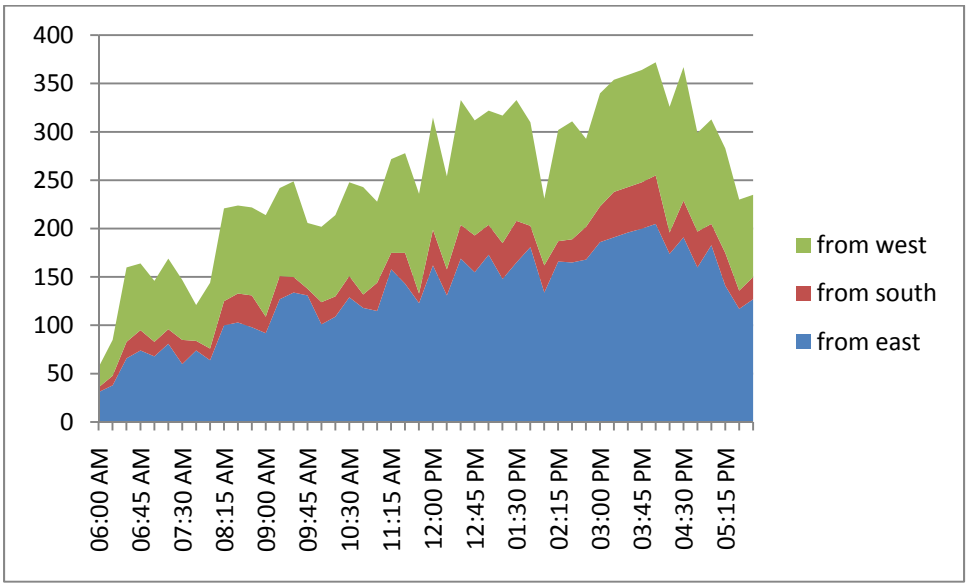
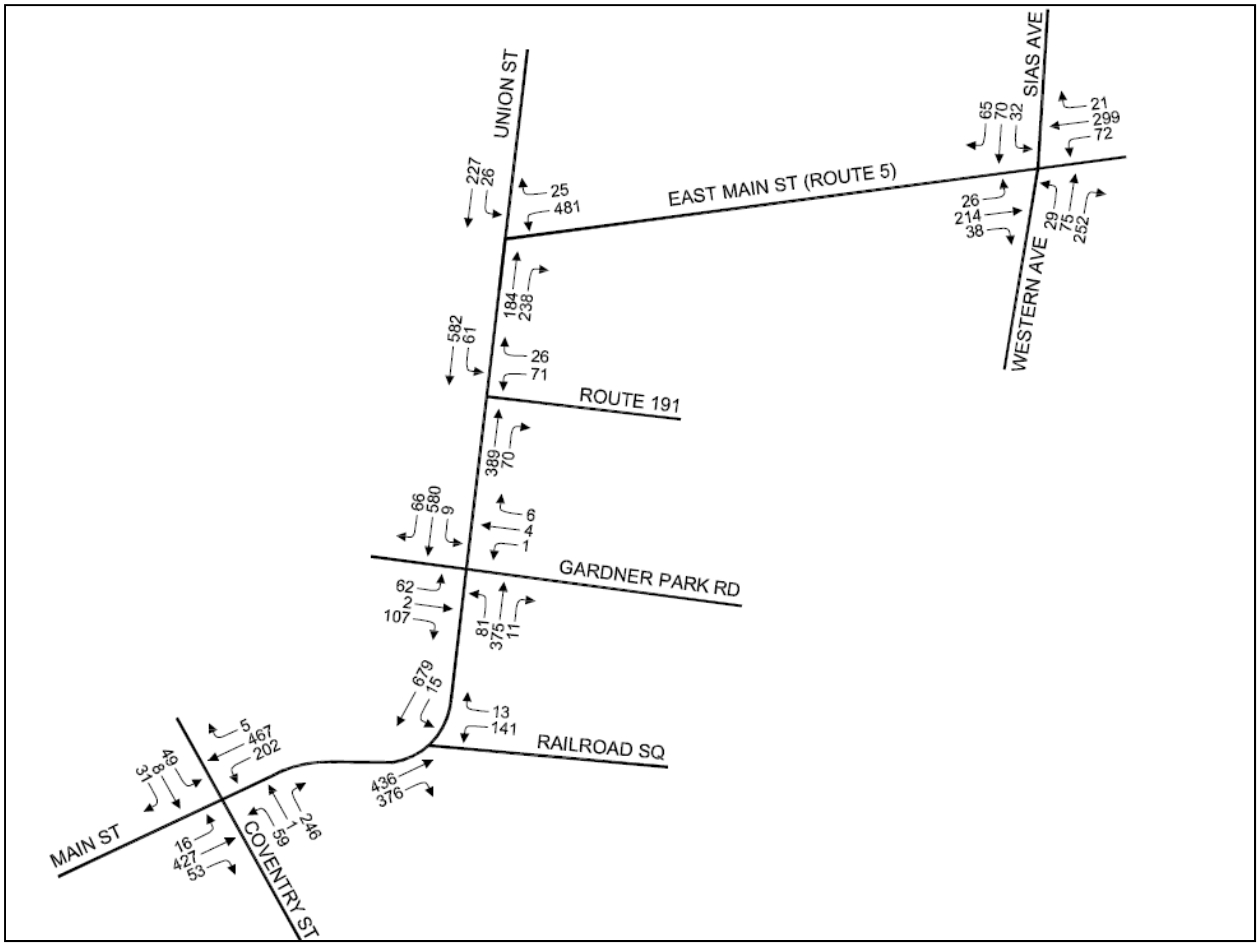


FIGURE 10: DAILY TRAFFIC PATTERN AT MAIN STREET/ PLEASANT STREET



Level of service is a measure of traffic operations for a roadway or intersection. It is a quantitative methodology, but the results are reported in terms of a letter grade of A through F, with A reflecting uncongested, free flow traffic, and F indicating severe congestion. LOS is typically conducted for peak hours, with acceptable results typically ranging from A through D, although E and sometime F can be acceptable in a congested urban setting. LOS calculations are conducted based on peak hour traffic conditions. In this study, we have conducted PM Peak Hour analyses for several important intersections, which will be presented in detail later in this report. These are based on current PM peak hour traffic volumes, which are shown below in Figure 11 .

FIGURE 11: PM PEAK HOUR TRAFFIC VOLUMES IN NEWPORT CITY, 2010



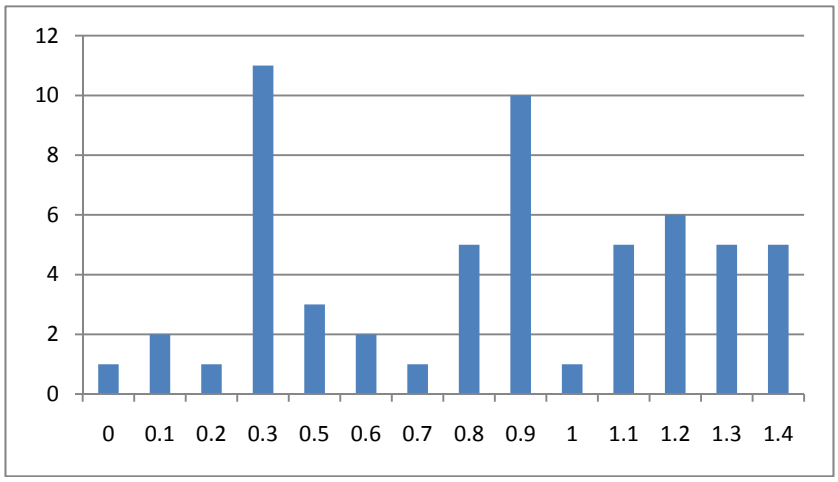
Sources: VTrans Turning Movement Database and Smart Mobility, Inc. traffic counts

Intersection levels of service analyses were conducted for individual intersections, and are reported later in this report when specific thoroughfares are discussed. The analyses used available data for the signalized intersections in Newport City, plus several additional traffic counts were conducted.

3.1.5 Traffic Safety

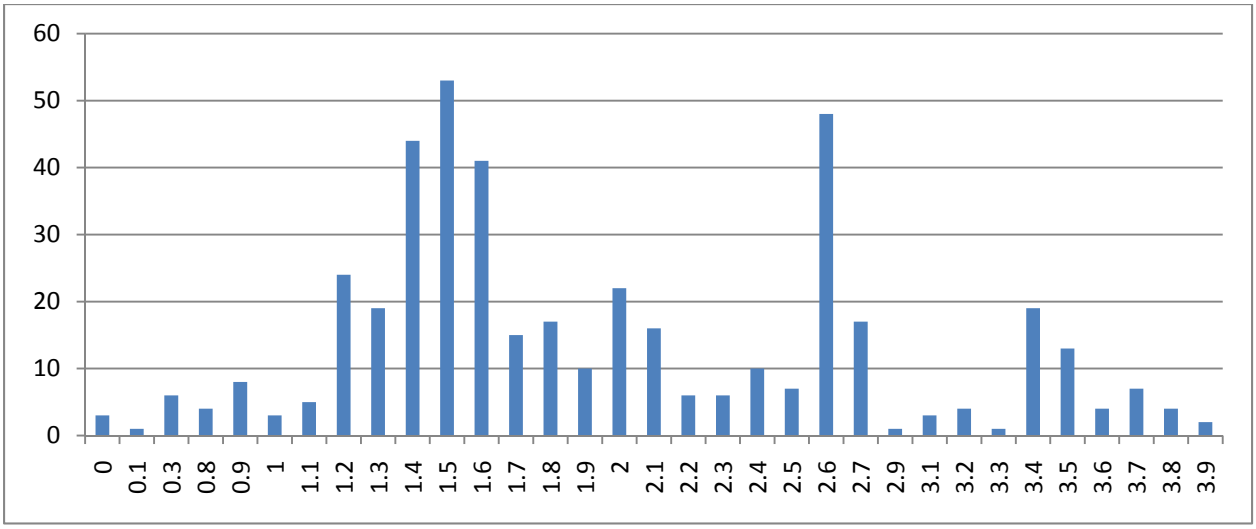
VTrans collects and compiles vehicle crash data on state highways for purposes of traffic safety analysis. The following charts show the data for the key corridors through Newport City.

FIGURE 12 VTRANS RECORDED CRASHES ON ROUTE 105



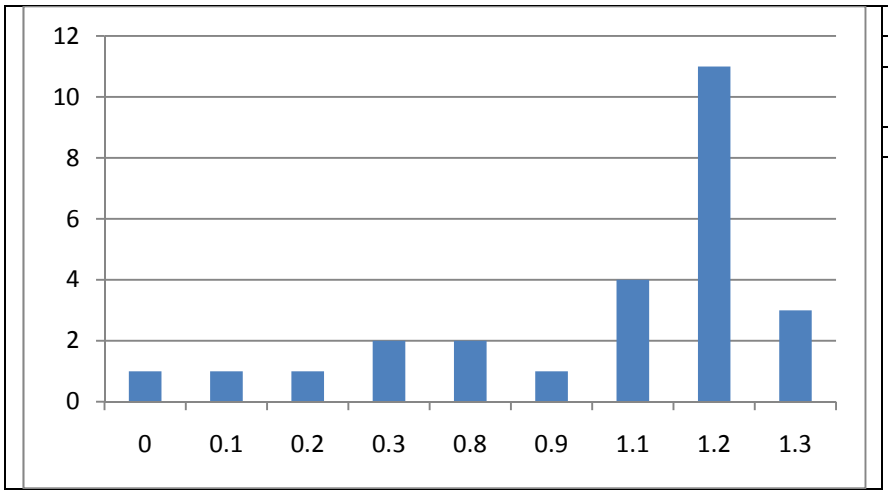
Route 105 Milemarker	Location
0.3	Route 105 at Alderbrook Rd
0.9	Route 105 at West Main Street
1.2	Highland/Rte 105 at West End Ave
1.4	Route 5 Intersection

FIGURE 13 VTRANS RECORDED CRASHES ON ROUTE 5



Route 5 Mile marker	Location
1.2	Pleasant & Third
1.4	Field/Second Street
1.5	Coventry
1.6	Railroad Square
2	I-91 Access Rd
2.6	East Main at Western Ave
2.7	East Main at Blanchard
3.4	East Main at Derby Town Line (north side)

FIGURE 14 VTRANS RECORDED CRASHES ON ROUTE 5 ALTERNATE



Milemarker	Location
1.1	Coventry at Eastern Ave
1.2	Between Eastern and Main Street
1.3	Coventry at Main Street

VTrans also analyzes the vehicle crash data to identify locations that have statistically higher incidence of crashes, which can be evaluated for potential improvements. The locations may be either a 0.3 miles segment of roadway, or an intersection. This data indicates that Newport City has 6 different 0.3 mile segments of Route 5, plus one intersection (Route 191/Western Ave) that are considered “high crash locations” (HCL). Figure 15 shows the locations of both the segments and intersection. One particular location, Route 5/105 between Railroad Square and Third Street, has a particularly pronounced crash rate, ranking #21 in the State of Vermont. However, it is not unusual to see high crash locations in downtown areas such as Newport City, because of increased chance of minor collisions due to conflicts with parking maneuvers and turning traffic. VTrans also analyzes the occurrence of injuries and fatalities to analyze the “severity” of the crashes. These results indicate that the Main Street locations all had low incidences of injuries, also not surprising due to the low speed environment. The locations further to the east toward I-91 had higher severity levels.

FIGURE 15: HIGH CRASH LOCATIONS IN NEWPORT CITY (SHOWN IN YELLOW) AND CRASH STATITICS FOR 2004 THROUGH 2008

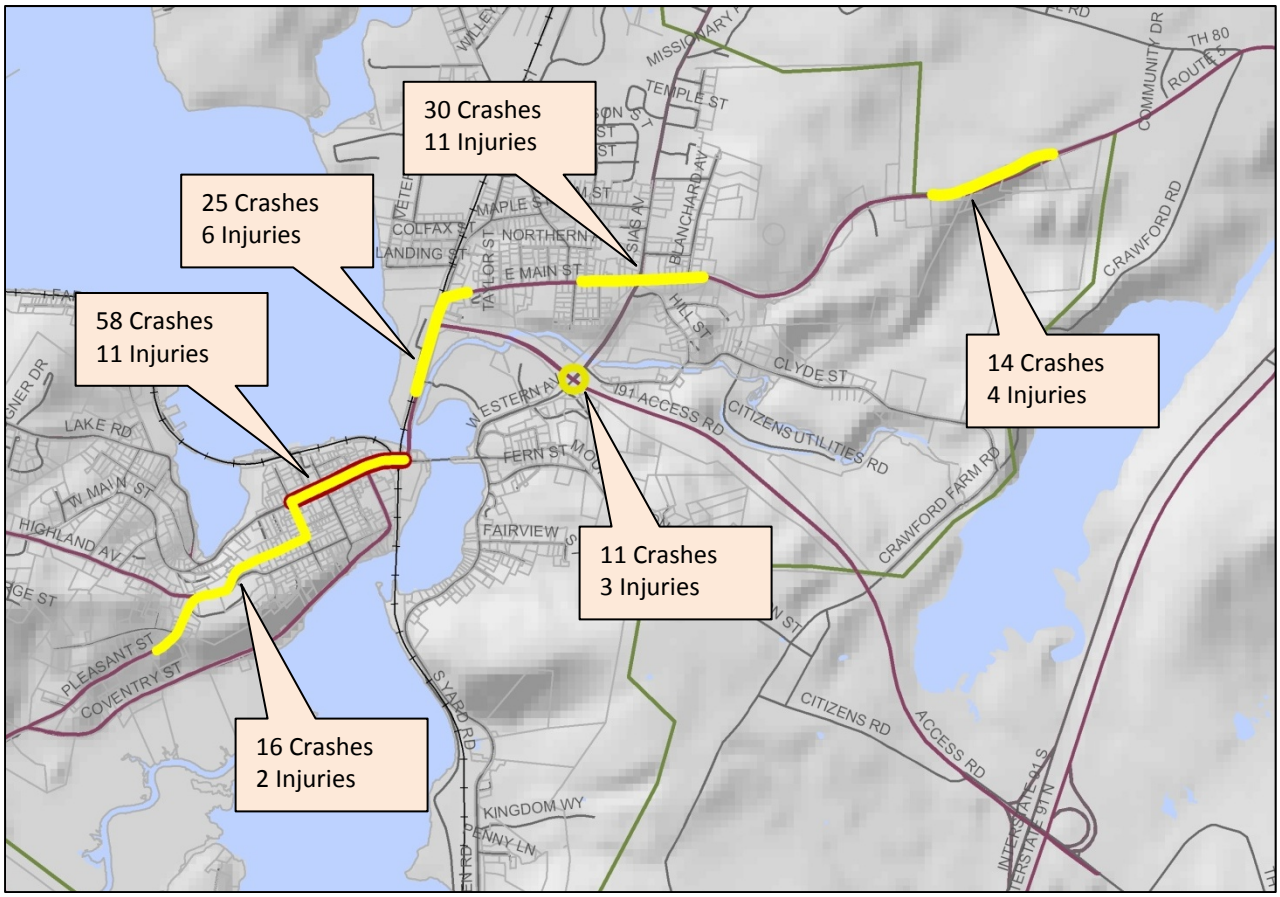
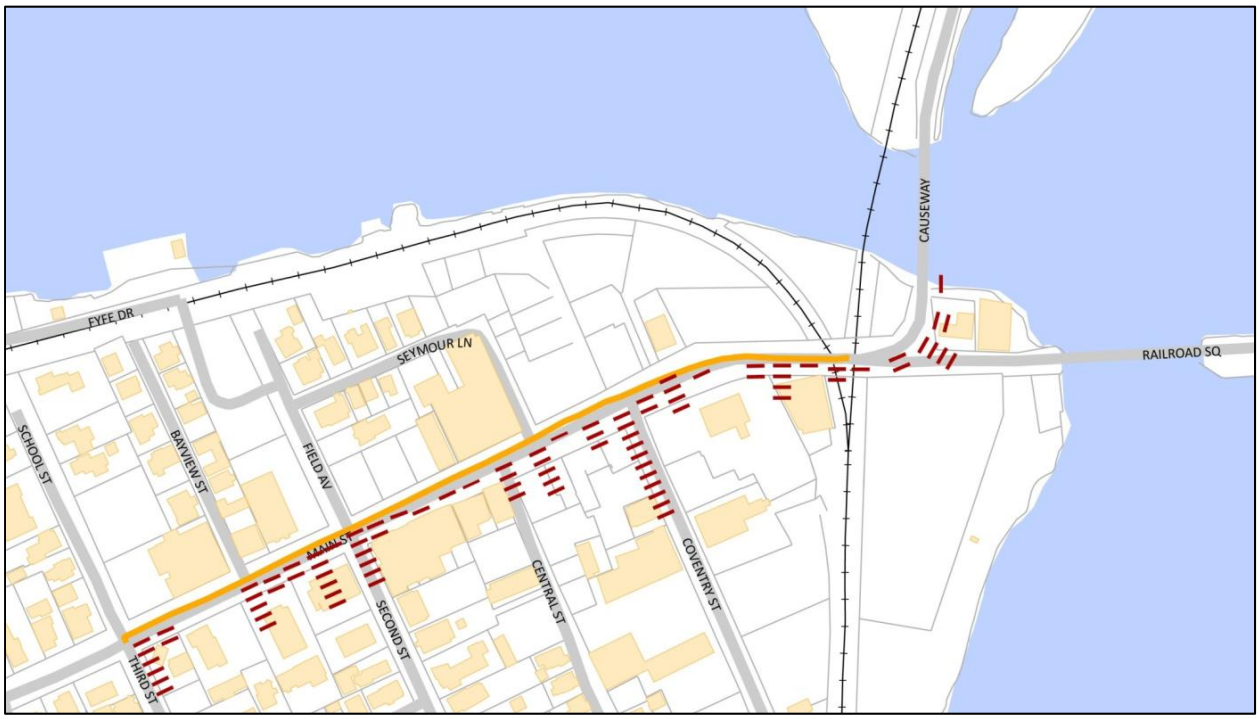


FIGURE 16: LOCATIONS OF CRASHES ON NEWPORT CITY MAIN STREET



While a detailed review of crash factors and causes is beyond the scope of this study, the following factors may be related to the high crash locations.

- On Main Street west of Coventry, as well as on East Main Street, crashes are mostly likely related to conflicts between through traffic and vehicles that are parking, turning, stopping for pedestrians, or other movements.
- On Main Street east of Coventry, there is a substantial degree of weaving of traffic in both directions, in order to be in the proper lane for the intersection approaches of Railroad Square for eastbound, and Coventry for westbound traffic.
- The crashes at Western Avenue and VT 191 may be related to the high approach speeds of traffic coming from I-91, and the abrupt transition to the slower urban environment.

3.1.6 Pedestrians

The sidewalk system in a vital downtown provides multiple functions including outdoor activities such as eating and marketing. Nearly every dollar spent in downtown Newport involves a pedestrian trip between the customer's car, home or workplace, and the business they are patronizing. Good pedestrian design is also needed to assure safe sharing of the public right-of-way, with consideration to the high volumes of traffic on Newport's thoroughfares and the regional economic needs. The sidewalk network provides Newport residents greater opportunity to choose to walk rather than drive, resulting in fewer cars on the road and fewer parking spaces required in downtown.

Pedestrians were studied extensively in the 1999 Hooper study. Unfortunately there are no recent counts that can be directly compared to the 1999 data, but field observations indicate Newport City continues to have high levels of pedestrian activity. Newport City has a very comprehensive sidewalk system, connecting all the neighborhoods with downtown. In addition the shared-use path provides pedestrians an alternative route between the Union Street neighborhood, the High School, North Country Hospital and the downtown. Pedestrian signals have been installed at some heavily traveled intersections, and all sidewalks appear to meet the 5 foot minimum width recommended by VTrans.

At the same time, there are some areas that are less than ideal, and some room for further improvement. The following areas are noted as less than optimal.

- Traffic speeds on some streets, including East Main Street, can be high enough to create a less friendly environment for pedestrians.
- The Railroad Square intersection lacks some pedestrian connections, and some areas are undefined for pedestrian travel. While pedestrian volumes are relatively low in this area, some improvements could be made as projects, such as the upcoming bridge replacement, are undertaken. This bridge will include a sidewalk, which could increase pedestrian travel through the area.
- There are a few gaps in the sidewalk network, and some neighborhoods that are within walking distance to downtown with less than ideal pedestrian connections (see **Error! Reference source not found.**). These include:
    - Lack of pedestrian crossing at the intersection of Western Ave/Route 191.

- Lack of a sidewalk along the south side of East Main Street requires pedestrians traveling from East Main Street to Causeway, Downtown, or Gardner Park to make several crossings.

3.1.7 Bicycles

Newport City has an outstanding bicycle path which uses the abandoned Beebe Spur rail line, and connects the downtown with the North County Union School, North Country Hospital, and the Canadian border. With the great popularity of bicycling both in the U.S. and in Quebec, there is an opportunity to improve and extend Newport City's bicycle network, making it a unique asset for economic development as well as a transportation alternative. The bike path is a tremendous asset to the City as both a means to attract vacationers seeking safe, comfortable routes for the beginning cyclist (which are a rarity in Vermont), and also to broaden the use of this mode for more experienced cyclists and residents. Data on the bicycle path usage is not available from VTrans, and is quite difficult to collect due to usage varying significantly with weather conditions and other events.

While the Beebe Spur forms a wonderful "spine" of a bicycle path system, the conditions on the connecting streets is highly variable in its suitability for bicycling. The lower speed streets in the downtown peninsula of Newport City can be easily shared between bicycles and vehicles without requiring wider lanes. On some of the higher speed or higher volume connections into the city, however, such as East Main Street, the I-91 Access Road and Western Avenue, there are opportunities for lane reconfigurations, striping bicycle lanes, or other cost effective techniques to improve conditions for and encourage bicyclists.

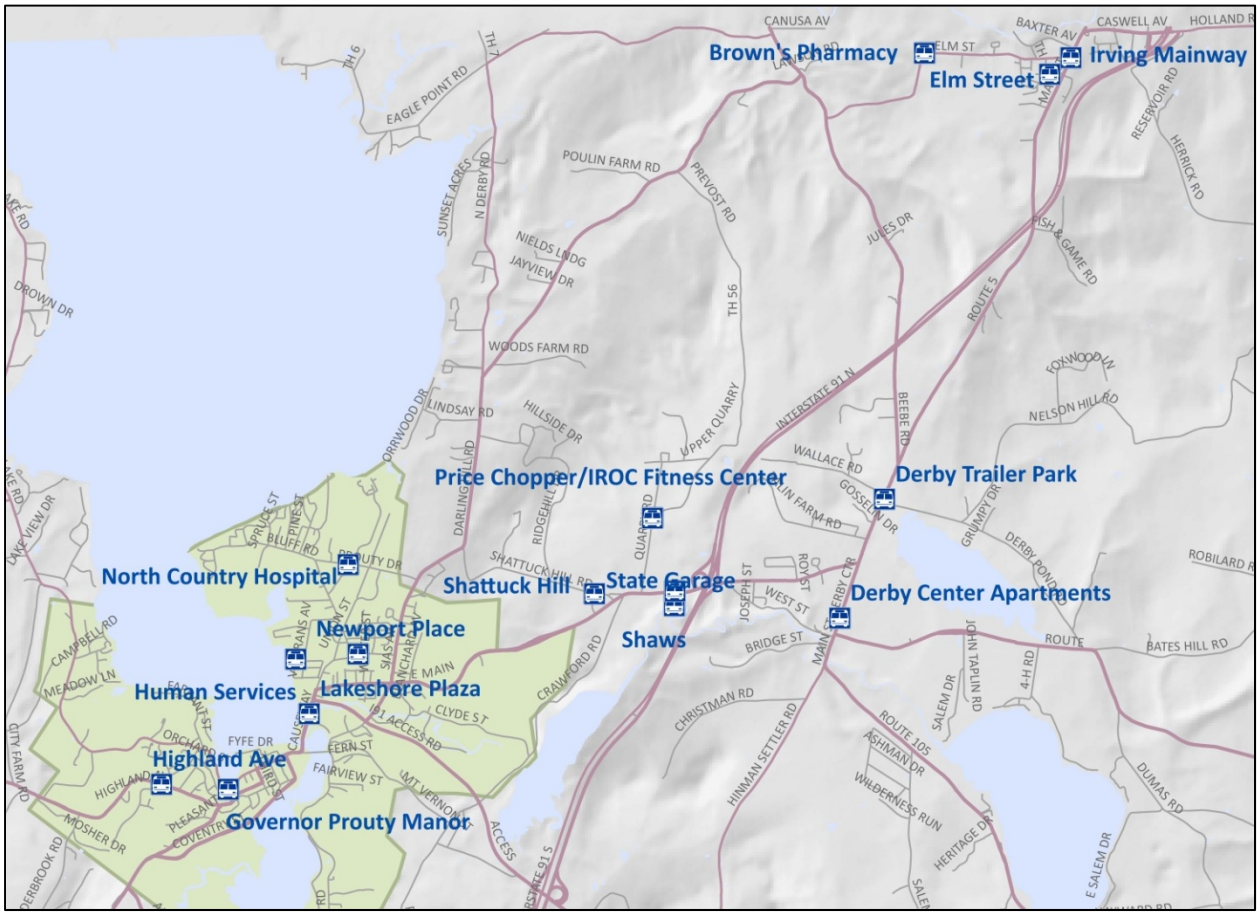
The following are some key observations about Newport City's bicycle network:

- The basic elements of a great bike network are established, connecting city center, high school, hospital, and Gardner Park.
- There is an opportunity for bicycle route connections to other key locations in the city and beyond, including:
  - Jay Peak
  - Coventry/Irasburg/US 5 Scenic Byway
  - Western shore of Lake Memphremagog.
- Bike Racks could be provided in more locations in downtown Newport City.

3.1.8 Transit

Newport is served by the "Highlander" route, operated by Rural Community Transit, and has several bus stops at key locations in Newport and Derby (see Figure 17).

FIGURE 17 PUBLIC TRANSIT STOP LOCATIONS FOR THE HIGHLANDER ROUTE



The route run four times per day, and is a "deviated" fixed route, where passengers can ask the driver to go up to one-quarter mile off the route. This service, and the locations served by the bus stops, is oriented towards the area's transportation-dependent population, or those without the option to drive themselves. Over time, increased development and density in the downtown area might increase the potential for public transportation to extend to "choice" riders, and this possibility should be considered in future planning.

4. Newport City's Thoroughfares and Context

Newport's thoroughfare network has a great deal of complexity, with all streets serving a multiple functions, but in different balances and intensities. The goal of the thoroughfare plan is to develop design recommendations that will best serve these complex needs, and be sensitive to the surrounding context of each street. This section reviews a number of streets in Newport for the general conditions for the variety of uses of the streets, including all modes of transportation as well as the "placemaking" function.

4.1 Downtown: Main Street between Third and Coventry Streets

This portion of Main Street is the center of downtown commercial and civic activities in Newport City. It is a beautiful street that has benefited from streetscape improvements which included parallel parking, improved visibility of pedestrian crossings with bulb-outs and paved crosswalks, and wider sidewalks. This section of street has moderately high traffic volumes, typical of busier Main Streets in Vermont, and has fewer trucks than the portion of Main Street east of Coventry Street, due to most large trucks using the Coventry Street/Route 5A truck route.



A recent speed monitoring study indicated that Main Street at the Newport City Hall has an 85th percentile speed of about 25 mph, which is the posted speed limit, although a pedestrian in close contact with a vehicle moving 25 mph can feel unsafe. In comparing the Main Street geometry with updated design guidelines in Vermont[2] and nationally[3] for walkable areas, the travel and parking lanes are wider than they need to be. Narrowing the lanes could provide additional sidewalk space, which could be economically beneficially for activities such as outdoor eating and marketing, and should be considered for the future as any street reconstruction takes place. The following are offered as recommendations:

- In the short term, provide edge striping of travel lanes to create the appearance of a narrower street width.
- As street infrastructure reconstruction is conducted, or redevelopment of key parcels occurs, the street width could be narrowed to conform to the ITE Walkable Thoroughfare guidelines, which would include 10 to 11 feet lanes and 7 to 8 feet for parking. This will allow for wider sidewalks, lower vehicle speeds, and shorter crossing distance for pedestrians.

[2] Vermont State Design Standards, published by the Vermont Agency of Transportation, October 22, 1997, http://www.aot.state.vt.us/progdev/standards/statabta.htm

[3] ITE, *Designing Walkable Urban Thoroughfares-A Context Sensitive Approach*, Washington DC, 2010.

- Consider a pedestrian push-button signal in the vicinity of the City Hall. Not only would it further facilitate pedestrian movement, but it would act as a further check on vehicular speed in the core of the downtown. This is discussed further in the "pedestrian recommendations" section later in this report.
- Consider reducing the number of lanes on the eastbound approach to the intersection with Coventry Street. This would allow much more generous sidewalk width on the southwest corner of Main and Coventry, making these business spaces more attractive and economically viable for downtown businesses. The trade-off would be longer queue lengths by about 6 car lengths, and slightly longer delay at the intersection. This recommendation is discussed in greater detail in the following section on options for the intersection of Main and Coventry.

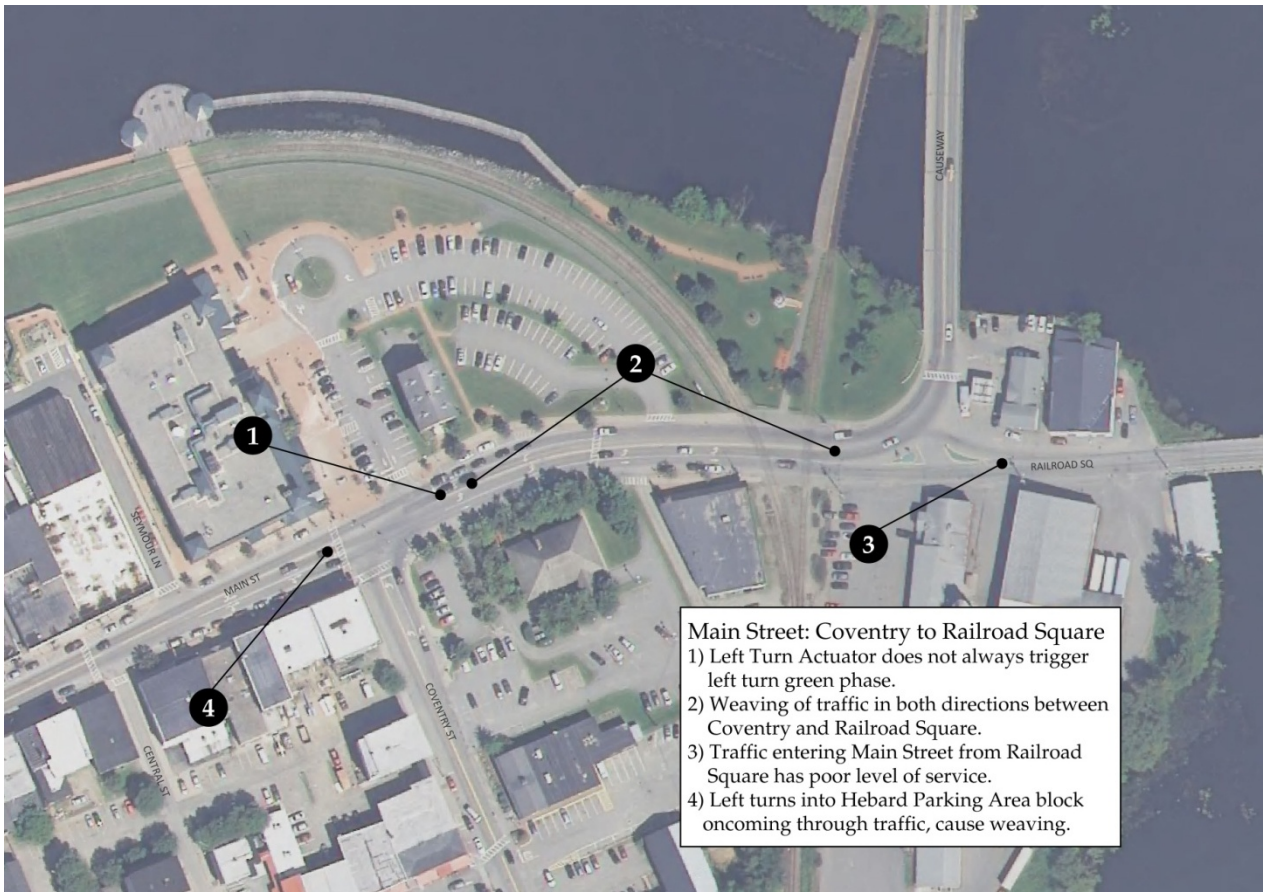
4.2 Main Street between Coventry and Railroad Square

This short section of road is where all traffic traveling through Newport must converge onto one thoroughfare. The intersections on either end constrain the capacity of the entire street network, and congestion at these intersections has led to consideration of a bypass bridge. However, this would be tremendously challenging to implement due to significant constraints including the railroad, and the cost and environmental impacts of a new bridge across South Bay. This stretch of Main Street currently has a four lane cross section, the only four lane street in the area. The land use and urban form along this section reflects a different character than downtown, as buildings are generally set back further from the street, and on-street parking is more limited.

Traffic analysis of this intersection system indicates that the traffic volumes do not exceed the capacity of the intersections, and that congestion results from occasional complications or maneuvers that impede efficient traffic flow. In particular, the westbound Main Street left turn detector was observed to fail to trigger the left turn signal phase (i.e. green arrow) on a number of occasions. This resulted in significant back-ups of westbound traffic through Railroad Square, impeding all traffic approaching the intersection from the east. This problem also results in a safety hazard, as the vehicles waiting to turn left would eventually move through a red light after several signal cycles of signal failure.

The other aspect of this system is that is both inefficient and unsafe is that there is a great deal of traffic weaving in both directions, as many vehicles enter this street segment in the wrong lane, and need to weave between intersections. Figure 18 shows some of the issues with this area.

FIGURE 18 EXISTING ISSUES ON MAIN STREET BETWEEN COVENTRY AND RAILROAD SQUARE



While a bypass bridge has been identified in concept to relieve this location, it is unlikely in the foreseeable future due to the great challenges of potential bypass routes, both financial and environmental. Therefore, this plan has not assumed the presence of an additional bridge.

4.2.1 Main Street/Coventry Street Intersection

The signalized Main Street/Coventry Street intersection presently includes two approach lanes on each of the major intersection legs: Coventry Street northbound, Main Street eastbound and Main Street westbound. A fourth leg, approaching from the north provides access to the municipal parking lot. It is offset to the east of Coventry Street and provides only a single approach lane. Due to this offset and the potential turning conflicts that it creates, this driveway has its own separate signal phase. Main Street westbound provides a dedicated left-turn lane to Coventry Street and a single through lane continuing west on Main Street. The left turn movement operates during a protected signal phase which as noted above is not always activated when left-turning traffic is present. Coventry Street provides a separate left turn lane and a shared through and right turn lane. Because the weaving maneuvers likely contribute substantially to the high crash rate in this section, several alternatives are considered below that will reduce the need for weaving.

The two eastbound approach lanes on Main Street are shared lanes with two receiving lanes on the east leg of the intersection. However, these lanes were observed to function very inefficiently, resulting in

each lane carrying only about half the volume that would be expected in a capacity analysis. The following factors are likely contributing to this:

- There is only a single lane on Main Street feeding into the two lanes, so they only carry about half the traffic that would be expected.
- Left turns into the Hebard State Office building block through traffic and result in weaving to the right lane.
- Further, weaving occurs in the eastbound direction beyond the intersection, as the two through lanes become dedicated left and through lanes when approaching Railroad Square, which likely contributes to the high crash rate.

Existing weekday afternoon peak hour traffic volumes at this location were shown in Figure 11. As shown, the heaviest volumes at this location are through movements on Main Street and turns between Coventry Street and Railroad Square. An analysis of these peak hour volumes indicates that the intersection presently operates at Level of Service C (57 percent of capacity) during the weekday PM peak hour. Capacity analysis results are shown in Table 3. However, these results do not reflect the observed poor efficiency of the eastbound Main Street leg, and actual operations are probably substantially lower than shown.

TABLE 3: MAIN STREET/COVENTRY STREET INTERSECTION OPERATIONS

	Existing *(2 shared through/left lanes)*	Alt. 1 *(Provide EB LT Lane)*	Alt. 2 *(Provide Single EB Lane)*
Volume/Capacity Ratio	0.57	0.75	0.77
Delay (Seconds/vehicle)	30.7	45.7	50.8
Level of Service	C*	D	D
Average Vehicle Queue per Lane (Eastbound Main Street)	2.4	4.8	5.1

* This LOS does not reflect the characteristics noted above that severely limit the efficiency of the eastbound Main Street lanes. Actual LOS would be substantially lower if these factors were accounted for.

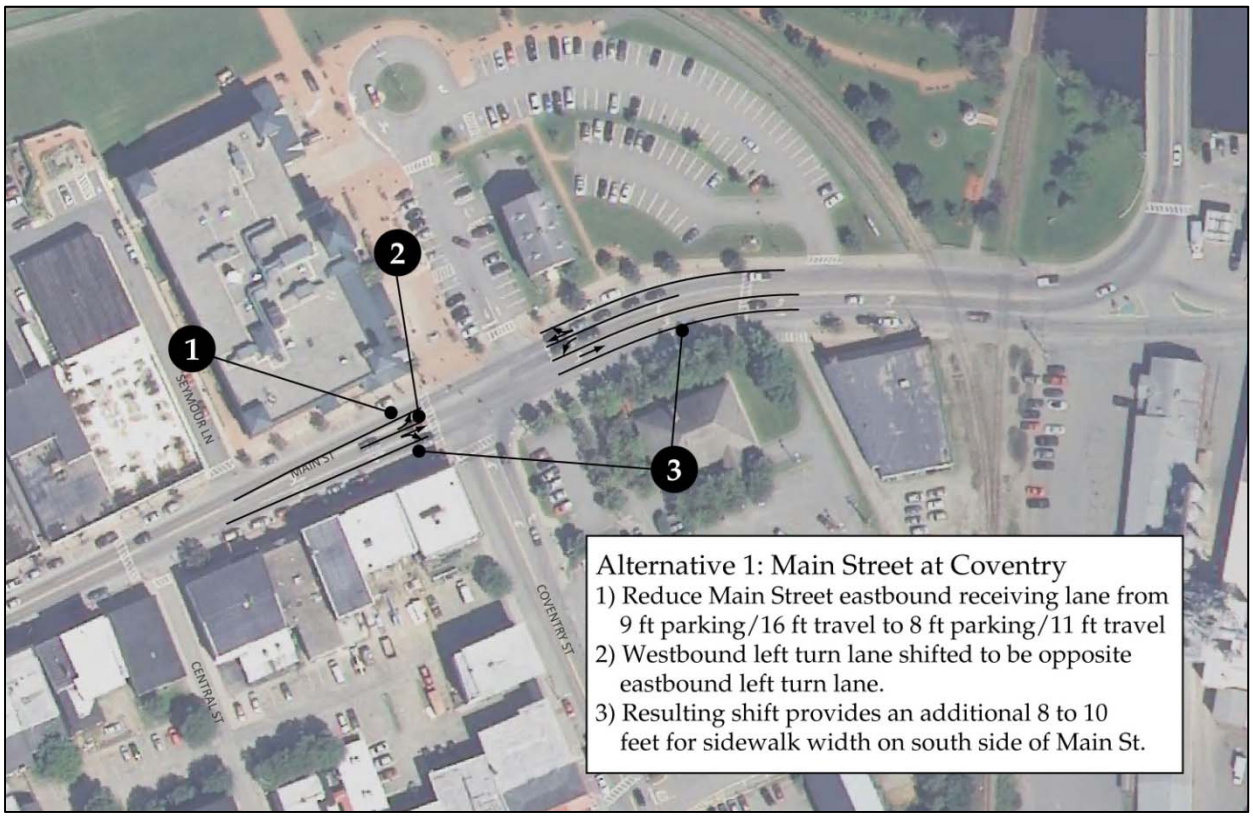
Two options for reconfiguring this intersection to improve safety and the pedestrian and business environment are described below.

4.2.1.1 Alternative 1-Provide Dedicated Left-turn Lane on Main Street Eastbound

The first alternative converts the shared left/through lane on the eastbound Main Street approach to a dedicated left turn lane. This restricts through movements to a single lane and thereby eliminates the existing weaving condition downstream on Main Street eastbound approaching Railroad Square. It would also allow some realignment, as the eastbound left turn lane can be shifted toward the center of the road, opposing the westbound left turn lane, and creating more room for a wide sidewalk or possibly diagonal on-street parking. The added parking would serve downtown visitors and create a buffer between moving vehicular traffic and pedestrians on the sidewalk. Table 1 indicates that this change would add approximately 15 seconds of delay per vehicle passing through the intersection

during the PM peak hour and extend the average vehicle queue on Main Street eastbound from 3 car lengths to 5 car lengths. However, this analysis does not reflect the poor eastbound flow on Main Street, nor does if reflect that the 2 lane eastbound section exists only for a short section, limiting the capacity of the additional lane. The increase in queue length is associated with reducing the number of queuing lanes from two to one for about 150 feet from the intersection. This option might require new signal equipment, which would increase the cost to implement. However, the increase in value that would accompany wider sidewalks, allowing for sidewalk dining, streetscape improvements, and other economic benefits.

FIGURE 19: ALTERNATIVE 1 FOR MAIN ST/COVENTRY ST



4.2.1.2 Alternative 2-Provide Single Approach Lane on Main Street Eastbound

A second alternative considered for the Main Street/Coventry Street intersection is the removal of one approach lane on eastbound Main Street, which is basically a modification of Alternative 1. Under Alternative 1 the eastbound left turn lane would serve only 16 vehicles during the PM peak hour. Given the offset between Coventry Street and the parking lot driveway there is adequate room to accommodate these left-turning vehicles in the intersection. Under normal circumstances, through traffic would shift right to bypass any vehicles waiting to turn left to create what amounts to a de facto turning lane. During most signal cycles there will be no waiting vehicles and through traffic will continue on a straight path through the intersection. Again, downstream, a single lane will be provided with restriping to add parking. Additionally, the reduction in the number of approach lanes creates and opportunity to expand the sidewalk on the south side of Main Street creating more space for

pedestrians, parking or restaurant outdoor seating. With this change the intersection will continue to operate well below capacity during the PM peak hour with added delays of approximately 30 seconds per vehicle relative to existing conditions. The average eastbound queue on Main Street will increase to 5 car lengths. This option could be implemented with the existing signal equipment, and could also be tested on a trial basis before any permanent changes are made.

4.2.1.3 Short Term Recommendations for Main and Coventry

The following recommendations are proposed for this intersection:

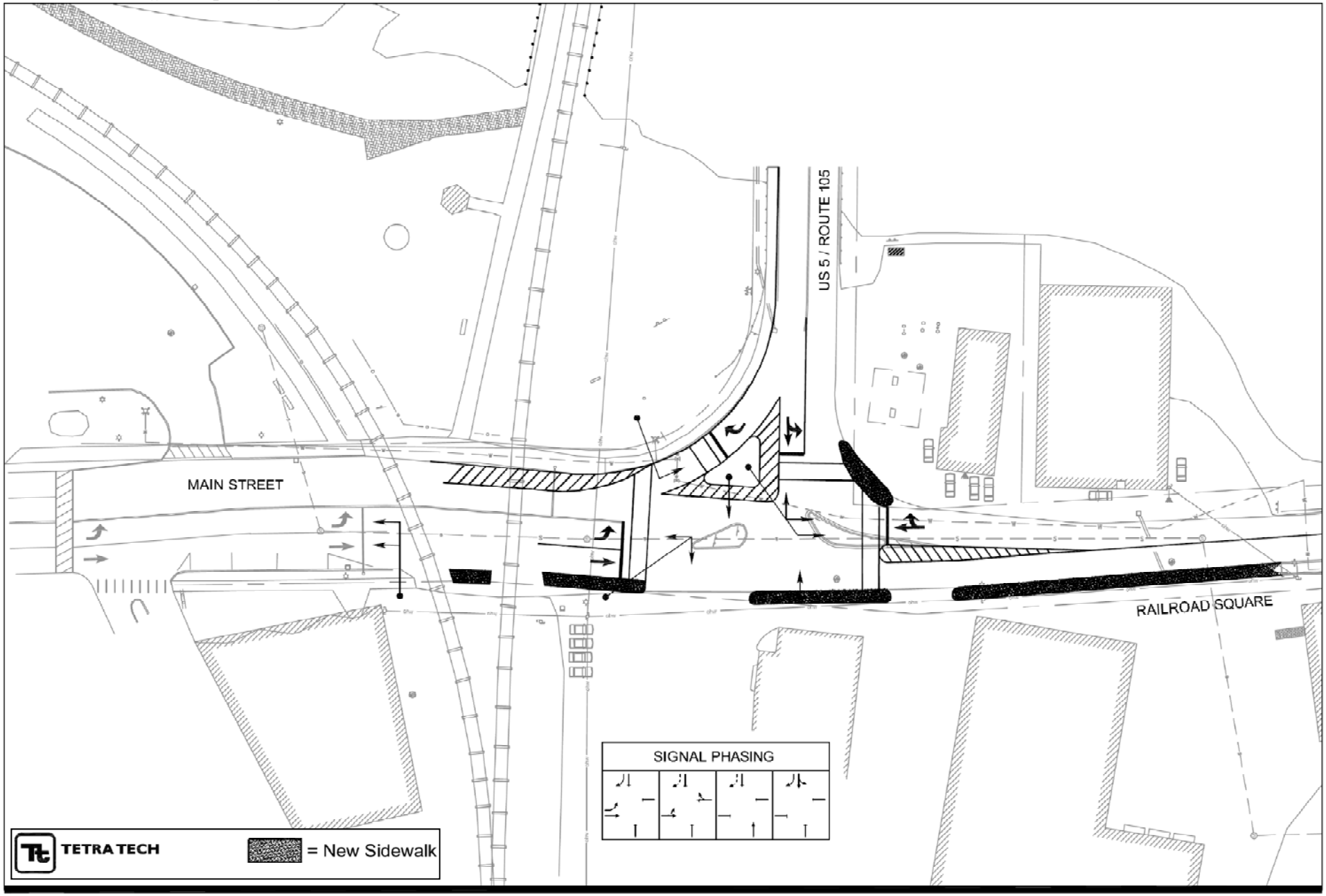
- Remove actuation of the westbound left turn phase, so that a westbound green arrow is provided at every phase, whether or not a vehicle is waiting. Because the left turn volume is relatively high, this will have a minimal effect on the efficiency of the operation, and avoiding the failed actuation incidents could be very helpful in reducing the congestion that results from these occasional failures.
- Consider testing alternative 2 as described above on a trial basis using cones and temporary signage. This should be accompanied by monitoring and data collection to determine the impact of the lane reduction on queue lengths and delays. If the impacts are reasonable and do not outweigh the benefits, this could become a permanent change, allowing much wider sidewalks or diagonal parking along the south side of Main Street.

4.2.2 Main Street/Causeway/Railroad Square

Railroad Square is the unsignalized intersection of Main Street, Causeway and Railroad Square. The eastbound Main Street approach consists of dedicated left and through lanes while the southbound (Causeway) and westbound (Railroad Square) approaches each provide a single lane. Driveways for the Poulin Grain facility enter the south side of the intersection. The west leg of the intersection accommodates two dedicated departure lanes which again creates weaving conflicts for traffic headed west on Main Street toward Coventry Street. At the intersection, traffic movements between Main Street and Causeway operate as the primary or through movements. STOP sign control is provided on the Railroad Square westbound approach. Based on an analysis of the existing peak hour traffic volumes shown in Figure 11, this stop-controlled approach operates at LOS F. Independent of the traffic capacity concerns at this intersection, the essentially uncontrolled access to the Poulin Grain site and to gasoline station/convenience market in the northeast corner of the intersection creates turning conflicts that reduce intersection capacity. Also, accommodations for pedestrians at the intersection are either absent or poorly located. A conceptual plan was developed that enhances pedestrian accommodations, as shown below in

Figure 20. Sidewalks are provided on the south side of the intersection and pedestrian refuge islands on the north side. Traffic is redirected so that the intersection would function like a traditional T-type intersection, with Main Street and Railroad Square forming the top of the “T”. Driveway widths are controlled for adjacent businesses but still allow generous site access. Operational analyses of this configuration are provided below and compared to the existing conditions. A single westbound departure lane is proposed to eliminate weaving on the westbound approach to the Main Street/Coventry intersection, which should reduce the incidence of crashes on this section of street.

FIGURE 20: RAILROAD SQUARE ALTERNATIVE DESIGN



The following alternatives assume the implementation of the above conceptual design, with variations of how the intersection operates.

4.2.2.1 Alternative 1-Provide Signalization

The conceptual plan for Railroad Square was developed under the assumption that the intersection would be signalized. Consequently, Alternative 1 assumes signalization of the intersection with the lane use conditions shown in the concept plan. As noted in Table 4, the intersection would operate at LOS C during the PM peak hour compared to LOS F for the Railroad Square approach under existing conditions. With signalization the intersection would operate at 78 percent of capacity during the PM peak hour.

TABLE 4: RAILROAD SQUARE INTERSECTION OPERATIONS

	Existing	Alt. 1 *(Signalization)*	Alt. 2 *(No Signal, Prioritize Main Street)*	Alt. 3 *(No Signal, Prioritize Railroad Square)*
Volume/Capacity Ratio	0.76	0.78	0.32	0.35
Delay (Seconds/vehicle)	57.3	30	15.3	121.8
Level of Service	F	C	C	F

Note: Performance measures relate to the Railroad Square approach for Existing Conditions and for Alternative 2. For Alternative 3 the performance measures apply to the Causeway southbound left turn. For Alternative 1 the performance measures relate to all movements at the intersection.

4.2.2.2 Alternative 2-No Signal, Prioritize Main Street

The second alternative assumes that the proposed geometric improvements are made with traffic signal conduit installed to accommodate traffic signals at a future point in time. However, it is assumed that the existing STOP control conditions are maintained. The Railroad Square approach and Causeway southbound left turn approaches are assumed to be under STOP control. The southbound right turn movement would be under YIELD control. This improves traffic operations for the Railroad Square approach relative to existing conditions. LOS C operations are expected with a volume to capacity ratio of 0.32 on this approach.

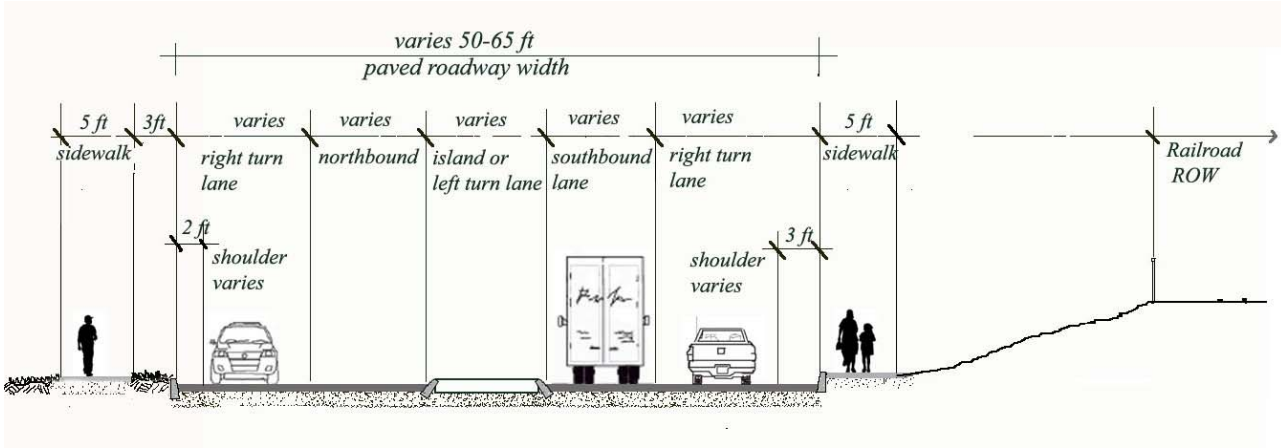
4.2.2.3 Alternative 3- No Signal, Prioritize Railroad Square

The third alternative also assumes that the proposed geometric improvements are made with traffic signal conduit installed to accommodate traffic signals at a future point in time. However, it is assumed that the existing STOP control conditions are modified with the STOP sign eliminated from the Railroad Square approach. The Causeway southbound left turn would be under STOP control and the southbound right turn movement would be under YIELD control. This results in LOS F operations for the very low volume left turn movement from Causeway and left turns from Main Street to Causeway, which must yield to westbound Railroad Square traffic, would operate at LOS A. Alternative 3 improves traffic operations for the Railroad Square approach relative to existing conditions.

4.3 Causeway

Causeway is the major traffic carrier into the Railroad Square and Main Street area. There are three signalized intersections along the corridor, providing access to Gardner Park and the shopping plazas, the I-91 Access Road, and East Main Street/Routes 105/5. It is paralleled by the Beebe Spur railroad line and bicycle path, and has little street fronting development. As such, it has a context with outstanding recreational features (Gardner Park and the bicycle path), and occasional dramatic views of the lake. The current design features of this street is oriented to serve high traffic speeds and volumes, and there may be opportunity for softening and blending this thoroughfare with its context through landscaping and pavement markings with relatively low cost, which would greatly enhance this gateway into Newport City.

FIGURE 21: EXISTING CAUSEWAY CROSS SECTION



4.3.1 Causeway/Gardner Park Access/Lakeside Plaza Drive

The signalized Causeway/Gardner Park Access/Lakeside Plaza Drive intersection presently includes two approach lanes in each direction on the Causeway and on the Plaza Driveway. The Gardner Park approach includes just a single lane. The Plaza approach provides for a separate left-turn lane and shared through/right turn lane. On Causeway a dedicated left-turn lane is provided in the northbound direction and a dedicated right turn lane is provided in the southbound direction. An analysis of existing weekday afternoon peak hour traffic volumes at this location indicates that the intersection presently operates at Level of Service B (47 percent of capacity) during the weekday PM peak hour. The analysis results are shown in Table 5.

TABLE 5: CAUSEWAY/WATERFRONT PLAZA/GARDNER PARK INTERSECTION OPERATIONS

	Existing	Alt. 1 (No SB RT Lane)
Volume/Capacity	0.47	0.52
Delay (Seconds/vehicle)	10.9	12.2
Level of Service	B	B

4.3.1.1 Alternative 1-Eliminate Southbound Right Turn Lane

As noted above, the existing design of the Causeway is very much vehicle oriented providing more than adequate traffic carrying capacity. The Causeway could become more pedestrian friendly by making it narrower. At the Causeway/Gardner Park Access/Lakeside Plaza Drive intersection elimination of the southbound right-turn lane was suggested as one way to narrow the roadway. As noted in Table 3, this change would have a very minor impact on weekday PM peak hour operations with the intersection continuing to operate at LOS B.

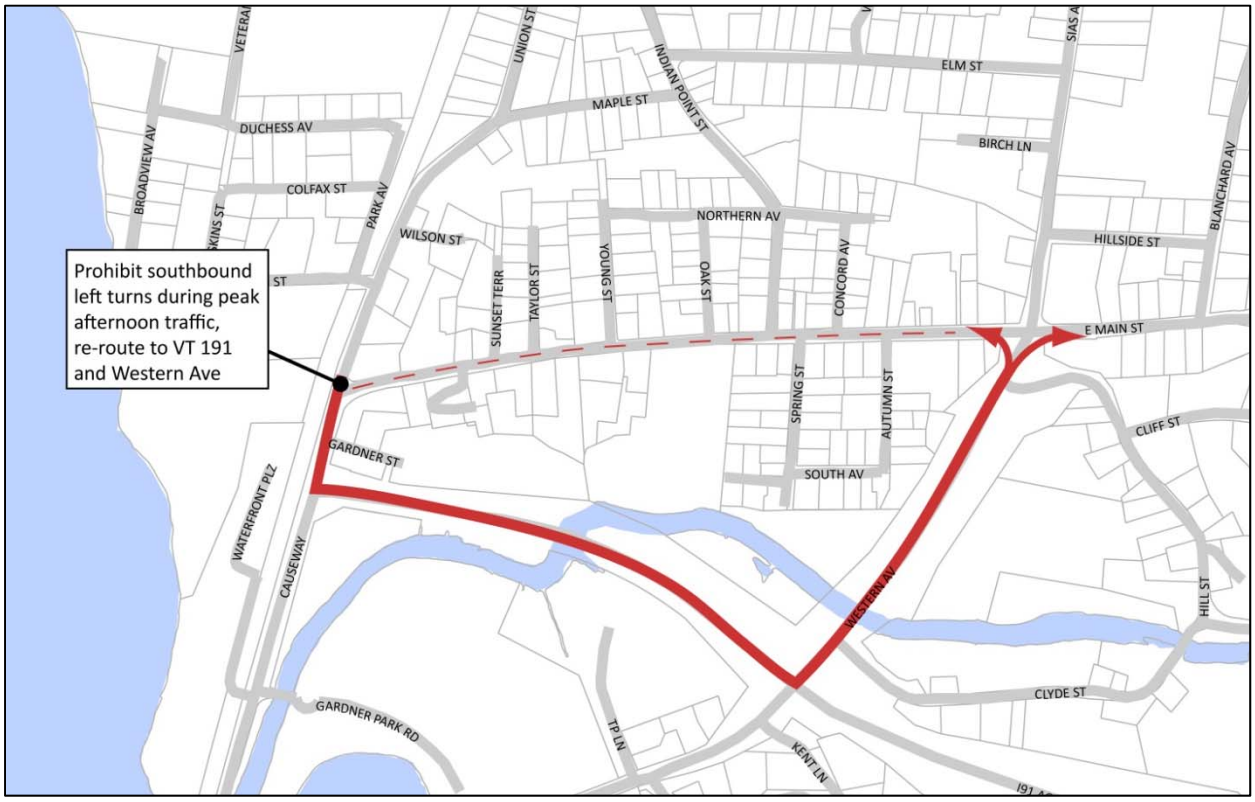
4.3.2 Causeway/Union Street/East Main Street

The signalized Causeway/Union Street/East Main Street intersection presently includes only one approach lane on both the Union Street southbound and East Main Street westbound approaches. The northbound Causeway approach provides two lanes with a through lane and a right turn lane. The signal operates with two phases. One phase accommodates northbound and southbound movements and the other phase accommodates East Main Street westbound and right turns to East Main Street. The intersection reportedly experiences long delays at around 3PM on weekdays when the high school and large employers on Union Street experience high exiting traffic volumes. Much of this delay can be attributed to traffic waiting to turn left from Union Street southbound blocking through traffic. Turning movement count data is not available at this location for existing school year conditions. An analysis of existing summer peak hour weekday volumes at this location shows that it presently operates at LOS B during this hour. The capacity analysis results are shown in Table 4. Two options were explored to improve operations at this location.

4.3.2.1 Alternative 1-Prohibit Southbound Left-turn Movement During Peak Hours

The first option considered seeks to address the southbound left turn issue by prohibiting this movement with signage during peak hours. Motorists wishing to make this turn will seek alternative routes. An obvious choice would be for traffic to continue straight on Union Street and turn left instead at the Causeway/I-91 Connector intersection. This rerouting of traffic is assumed for analysis purposes. With this change intersection continues to operate at LOS B as shown in Table 6 with a very minor improvement in the overall volume-to-capacity ratio. The differences between these two scenarios may be more significant during the school year if and when higher southbound left-turn volumes occur. Examples of signage for this restriction are provided to the right:

FIGURE 22: DETOUR ROUTE FOR UNION STREET SOUTHBOUND LEFT TURN RESTRICTION



4.3.2.2 Alternative 2-Use Split Phasing

The second option considered address the southbound left turn issue by giving the southbound movement a protected signal phase. For this scenario all three approaches are assumed to have their own separate signal phase. The addition of a third phase reduces the intersection capacity somewhat but at the same time it eliminates delays due to traffic turning left from Union Street southbound. With this change the intersection operates at LOS D during the PM peak traffic hour.

TABLE 6: EAST MAIN STREET/UNION STREET/CAUSEWAY OPERATIONS

	Existing	Alt. 1 *(No SB LT)*	Alt. 2 *(Split Phasing)*
Volume/Capacity Ratio	0.61	0.60	0.72
Delay (seconds/vehicle)	12.1	12.1	35.2
Level of Service	B	B	D

The above analysis results indicate that split phasing would come with a substantial increase in vehicle delay, and it is recommended that Alternative 1 be considered initially as a trial, and can become permanent if the trial is successful. The left turn restriction could be implemented for peak traffic hours only, or could be permanently implemented throughout the day. The latter option is better for safety, and avoids confusion for drivers. The trade off is that it poses some inconvenience for drivers throughout the day. Traffic on East Main Street would be reduced by about 4% if the left turn restriction is permanent.

4.3.3 Causeway Recommendations

Possibilities for Causeway involve redefining its character as "grand boulevard" or parkway, creating a scenic gateway to Newport. In addition, changes could provide safer pedestrian crossings between Gardner Park and the Waterfront Plaza. The right-of-way varies considerably throughout the length, and is up to 85 feet in some locations, allowing great flexibility in use of this public space.

FIGURE 23: EXAMPLE OF BOULEVARD ON ROUTE 15, ESSEX, VERMONT (FOUR LANES IN THIS EXAMPLE)

Features of an enhanced Causeway Boulevard may include:

- Aesthetically enhanced access/entrance to new resort development and more attractive gateway to downtown.
- Maintain one through lane with median cross section
- Highway signage: replace overhead sign with more modest signage consistent with more pedestrian scale
- Eliminate southbound right turn lanes into plaza; this reinforces higher speeds, is less pedestrian friendly
- Define roadway eastern edge, including:
    - sidewalk/curb
    - landscaping
    - access/parking for information booth, park and market
- Reconstruct medians for landscaping
- Provide pedestrian crossing of Causeway to Gardner Park

Intersection recommendations are proposed below, which are focused on improving the efficiency of the corridor during after school hours, and improving pedestrian safety and reducing speeds.

- Designate the southbound approach of Causeway/Union/East Main to prohibit left turns during afternoon peak hours, when the North County High School and North County Hospital generate substantial traffic. This will reduce the queuing on Union Street, and while it will increase the volumes turning left at Vermont 191, it is not anticipated to result in congestion. This option can be tested on an experimental basis to determine its efficacy.
- Concurrent with any redevelopment plans for the Waterfront Plaza, the signalized intersection at Gardner Park should be reconfigured on its southbound approach to have one left turn lane, and one shared through-right lane, rather than its current arrangement of one right turn lane and a shared left/through lane.

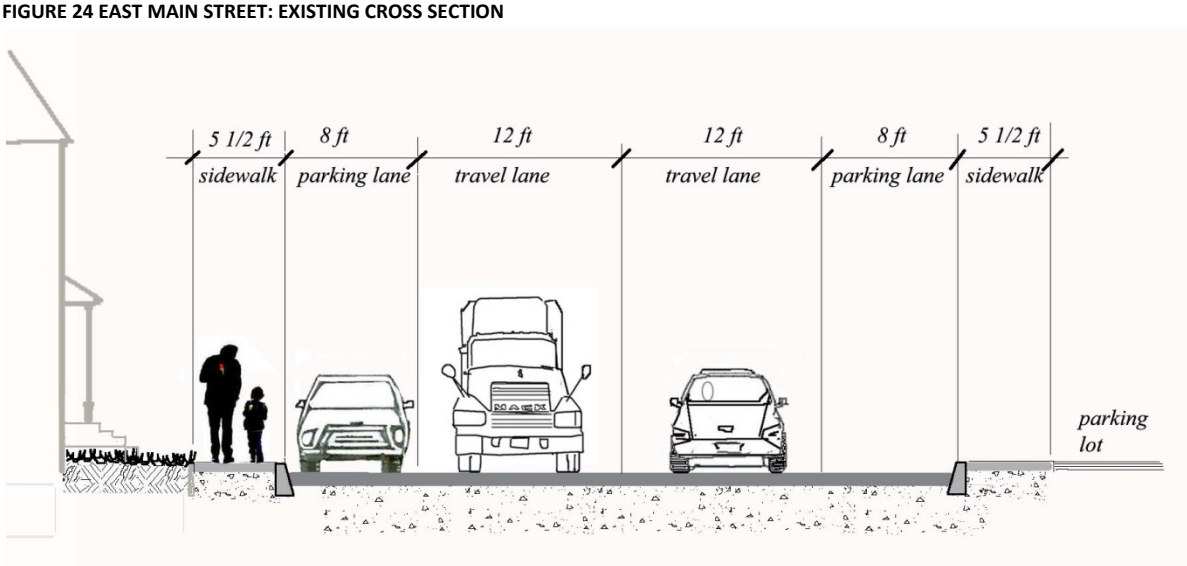
4.4 East Main Street

East Main Street is clearly another hub of commercial activity, and is connected to moderately dense residential areas. This is an area that could see significant transition and increasing intensity of uses as the region's economic activity increases. Currently the street has a very wide appearance when no one is parked there, and accesses and pedestrian ways are not always very well defined. The recently collected speed data shows 85th percentile speeds of 35 mph, which is too high to create a good pedestrian environment. This does not encourage walking from store to store as much as it could. In addition, this street has a High Crash Location along its length, and the intersection with Western Avenue is in need of updated equipment.

4.4.1 East Main Street Design

The street cross section, shown in Figure 24, is generously wide in pavement, and provides ample room for on-street parking. However, because most of the businesses along this corridor have on-site parking available, the on-street spaces are mostly not used. This accentuates the feel of the "wide open road", and apparently leads to higher travel speeds than desirable for a compact, walkable business district. Recent traffic speed data collection by NVDA indicates that the current 85th percentile speed is 35 mph.

FIGURE 24 EAST MAIN STREET: EXISTING CROSS SECTION



Two possible cross sections for East Main Street are shown below, which provide on-street parking and sidewalks. The first option favors more parking, narrower sidewalks, and the second provides parking on one side, with wider sidewalks and more room for landscaping.

FIGURE 25 EAST MAIN CROSS SECTION OPTION A: PARKING ON BOTH SIDES

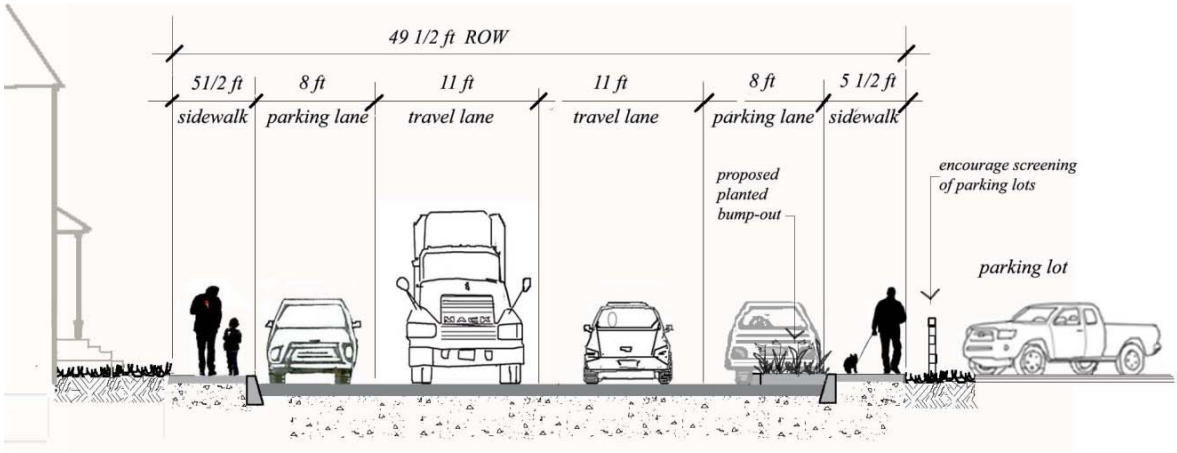


FIGURE 26: PLAN VIEW OF EAST MAIN STREET OPTION A WITH PARKING ON BOTH SIDES OF STREET

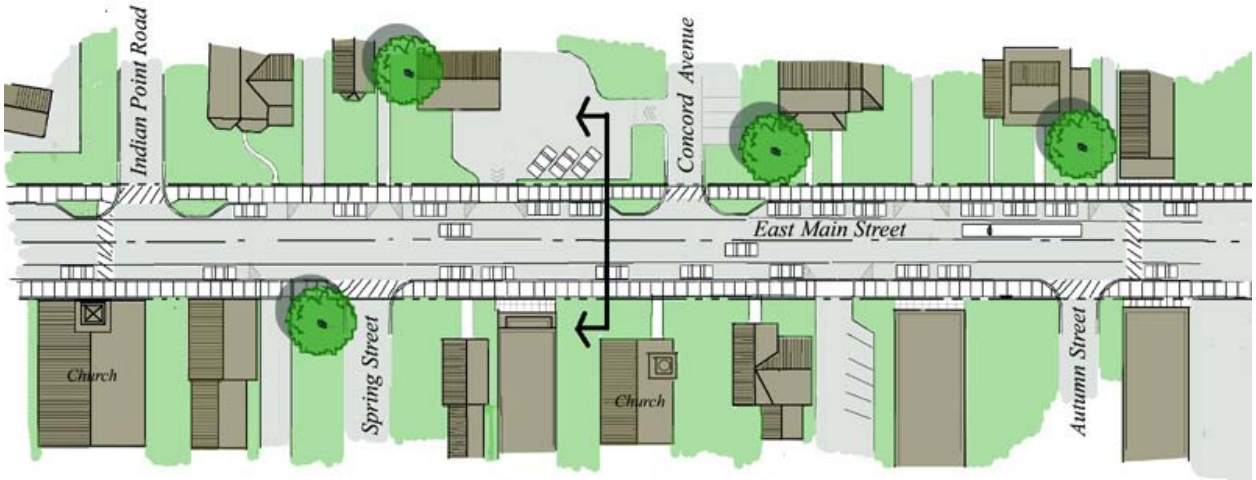
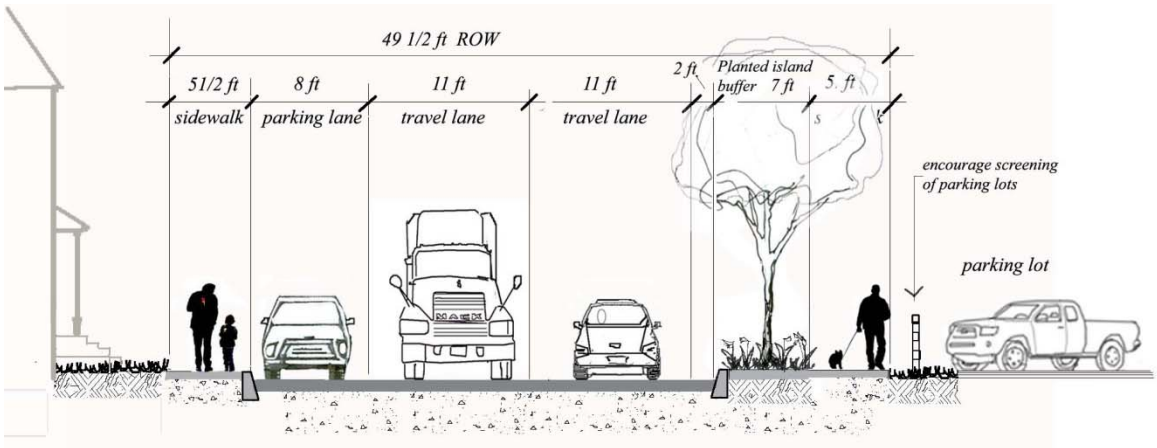


FIGURE 27 EAST MAIN STREET OPTION B: PARKING ON ONE SIDE ONLY, WITH WIDER LANDSCAPED AREA



The following approaches can enhance the commercial streetscape to encourage the development as outlined in the Form Based Code. Cross sections are provided that conform to the 3 rod right-of-way (49.5 feet):

- Provide a better definition of the pedestrian realm through curbing, striping, and reinforcing existing sidewalks as redevelopment projects occur.
- Generally, existing crosswalks appear located well. Improve definition of crosswalks, with central signage, wide striping, bumpouts, etc.
- Encourage parallel parking, which will in turn encouraged "park once-shop twice" uses, helping businesses.
- Build strategically placed bump-out(s) to better define parallel parking, and make patrons feel safer using it. More on-street parking will help narrow apparent street width, and reduce travel speeds.
- As redevelopment and changes in land use proceed, develop plans to combine access points, and connect properties in rear, allowing shared parking.
    - Bring sidewalk on south side down to meet Causeway sidewalk
    - Add (replace) crossing at Union/Causeway/E Main
- In the short term, the appearance and comfort for walkers and bicyclists along this corridor could be enhanced by some pavement marking techniques that could narrow the appearance of the travel lanes.
- Encourage on-street parking through better pavement marking, which might encourage patrons making multiple stops in the East Main Street area to park once and walk, by clearly showing the portion of the street intended for parking on the pavement. In the longer term, one of the above cross sections (option A or B) could be implemented to better allocate the right of way width for an improved pedestrian environment.

4.4.2 East Main St/Western Ave Intersection

One other area of concern for East Main Street is the intersection with Western Avenue, which is currently signalized, but the equipment is outdated and will need to be replaced in the near future. In addition, this intersection with within a High Crash Location. The possibility of replacing the signal with a modern roundabout intersection was considered solely in terms of determining whether or not a roundabout could be constructed without requiring displacements of businesses. The figure below shows a conceptual layout of a roundabout with a diameter of 125 feet, which is sufficient for tractor trailer use. This shows that a roundabout could fit within the area without requiring displacement of buildings, although some property acquisition would be required. Pedestrian facilities would need to be provided outside of the roundabout diameter shown in the figure. From this analysis, it would be appropriate to consider a roundabout at the time that this intersection is considered for signal equipment replacement, as it may have a number of benefits, including lower crash rates, lower electricity and maintenance costs, and reduced traffic speeds through the East Main Street business district. A roundabout could be a very attractive gateway into this corridor.

FIGURE 28: ROUNDABOUT CONCEPT DRAWING FOR EAST MAIN STREET/WESTERN AVENUE

A similar analysis was conducted for the intersection of Western and Route 191, which is a state-controlled intersection, and High Crash Intersection. As shown in the following figure, it appears a roundabout could be constructed here with minimal impacts to the right of way, and largely within the existing footprint of the intersection.

FIGURE 29: ROUNDABOUT CONCEPT FOR WESTERN AVE/ROUTE 191

4.5 Coventry Street

Coventry Street, especially in the first block south of Main Street, is an important extension of the downtown. This block contains both the Post Office and the Pick and Shovel, one of the premier commercial outlets remaining in the downtown, and should be designed to support high levels of commercial and pedestrian activity. Elements that provide this include sidewalks and crosswalks for pedestrians, and on-street parking especially for commercial uses. Since Coventry Street is also designated a truck route (Alternate US-5) it also carries a disproportionate share of large trucks. The following cross sections (Figure 30 and Figure 31) show the existing conditions and currently proposed improvements, being designed by Newport City and awaiting state or federal funding assistance, respectively.

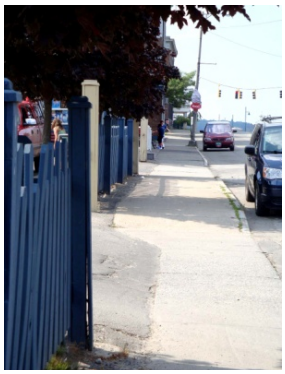


FIGURE 30: COVENTRY STREET EXISTING CROSS SECTION

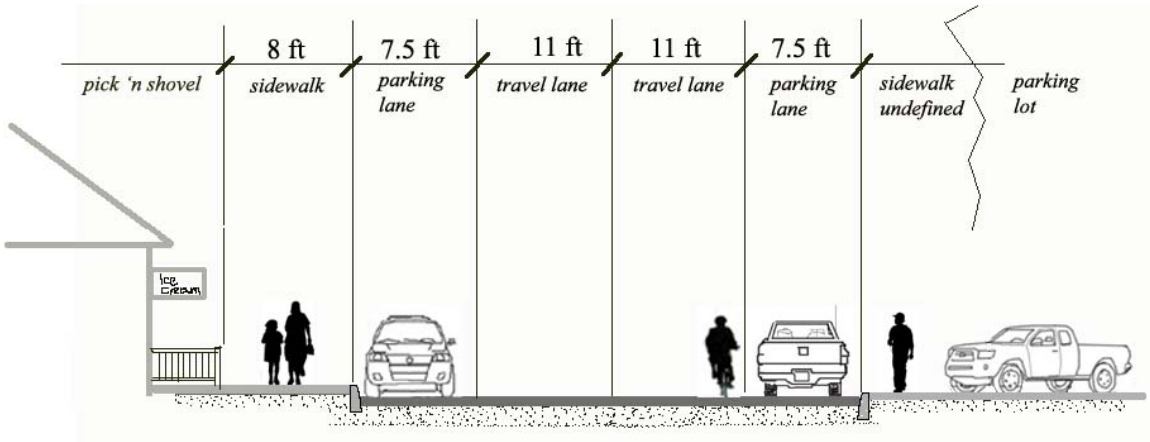
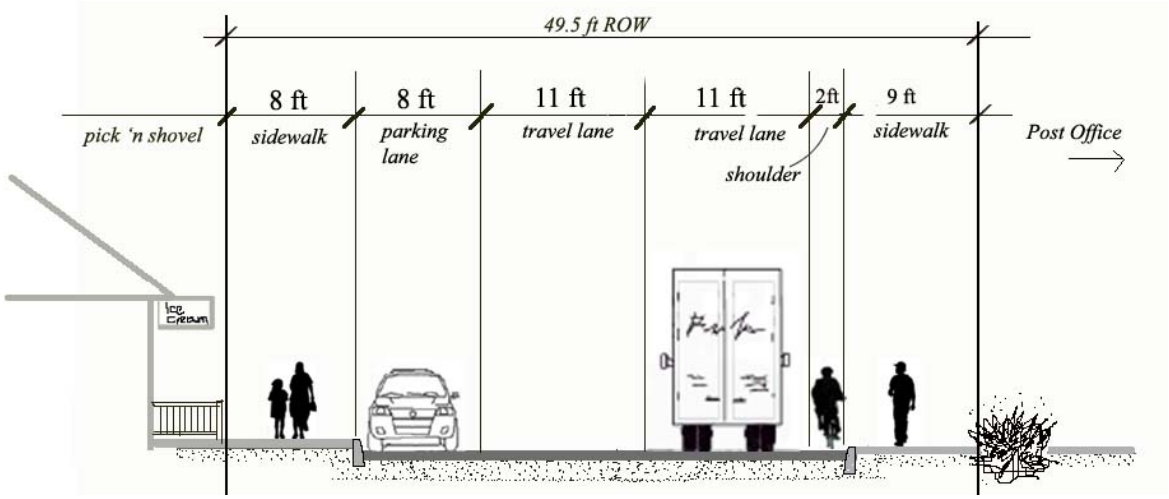


FIGURE 31: CROSS SECTION IN CURRENT ENGINEERING PLANS OF COVENTRY STREET



Two basic options in the form of alternative cross sections for this street were discussed. The primary difference between the two options is whether parking is provided on one or both sides of the street, with additional adjustments to dimensions based on the allocation of the width made available by eliminating one parking lane. Generally, there have been concerns about providing parking on both sides of the street, including:

1. there is not enough room for parking both sides of this street, and
2. the impact of the high volume of trucks on street users, especially pedestrians; this includes splashing passers-by when the roadway is wet.

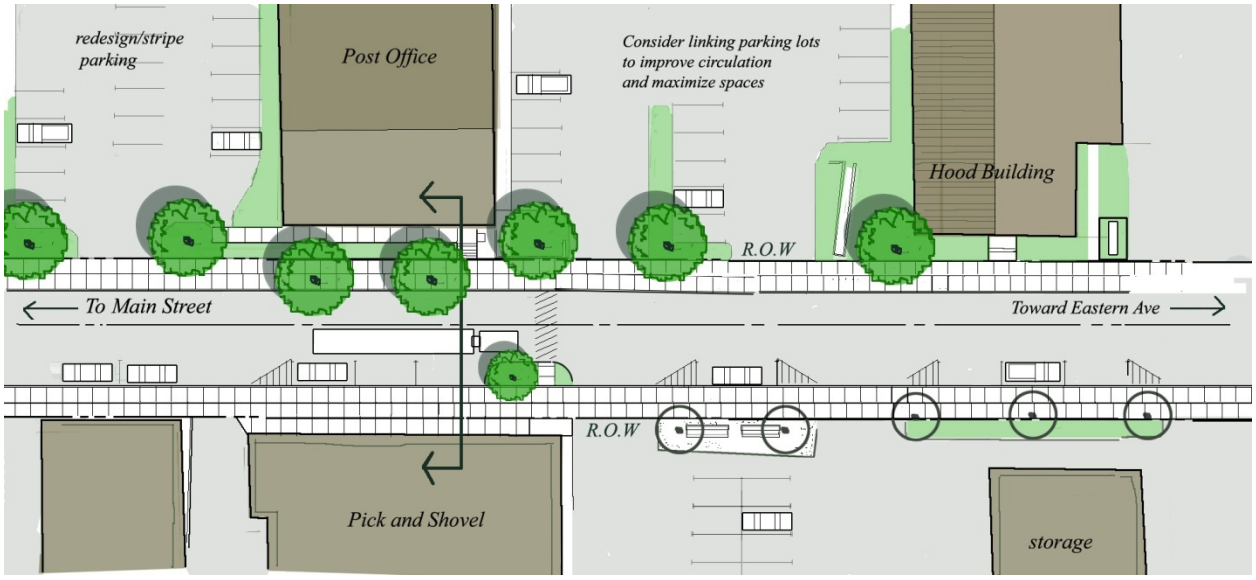
Trucks are a concern on Coventry Street, as it is the designated truck route carrying through trucking on both Vermont Route 105 and US Route 5. However, truck volume is not really excessive, and overall traffic volumes on Coventry are moderate compared with other major thoroughfares in the City.

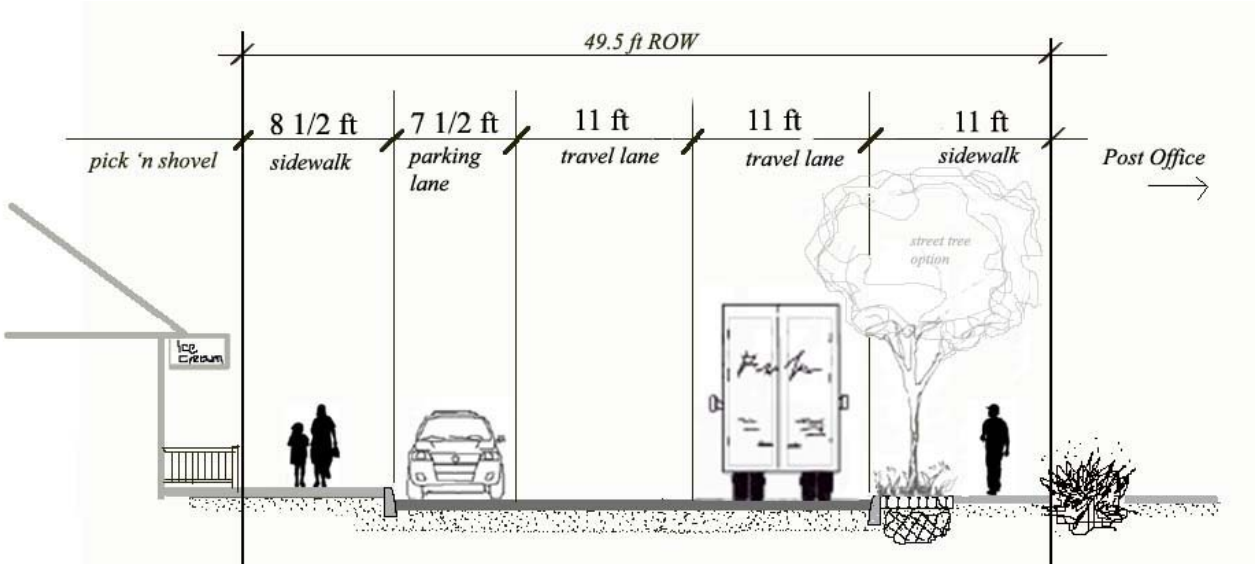
The options offered for discussion are shown below:

4.5.1.1 Option A: Parking on West Side of Coventry

The following graphics show a layout in the vicinity of the Post Office and Pick & Shovel that has parking on the west side of the street only. This allows room for wider sidewalks, but will provide less on-street, shared parking for businesses that might be needed as the corridor redevelops.

FIGURE 32 PLAN AND CROSS SECTION FOR COVENTRY ALTERNATIVE A

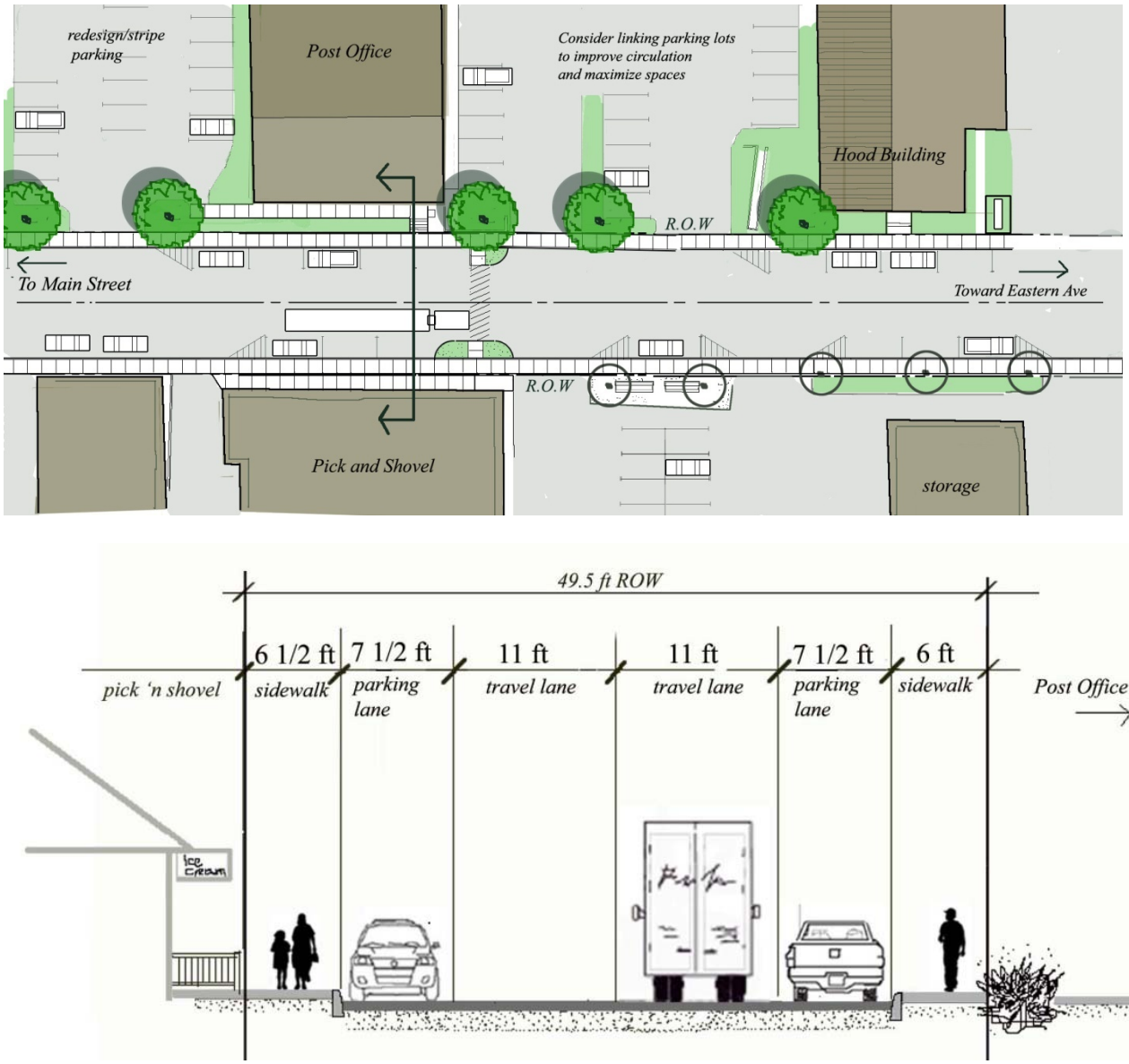




4.5.1.2 Option B: Parking on both sides of Coventry

This option provides parking on both sides of the street, maintaining the same travel lane widths, with somewhat narrower sidewalks and parking lanes.

FIGURE 33: PLAN AND CROSS SECTION FOR COVENTRY STREET OPTION B



Both options use 11' travel lanes, which is consistent with the needs of relatively low speed travel in developed areas where pedestrians are to be expected, including downtowns. In current planning efforts, the entire area on both sides of Coventry Street is envisioned as high density, mixed use downtown street. This is also consistent with existing development in the area. Desirable qualities for downtown city streets are support for high levels of pedestrian traffic both adjacent to and crossing the roadway, and to maximize accessibility for customers. Generally, on-street parking is seen to be particularly convenient and desirable by patrons.

The advantages of the Option A cross sections are:

- very generous sidewalks on both sides; potential for planting strip, especially east side
- wider parking lane provides extra space for parkers making entering and leaving cars easier

For Option B:

- pedestrians are separated from moving lanes by row of parked cars, placing an actual physical barrier between them and traffic, including spray and splash
- generous parking to support commercial activities including potential on-street high turnover spaces at post office

4.5.2 Alternatives

Both of these options are feasible, meet current design guidelines from VTrans and ITE, and will fit within the existing three rod (49.5') right of way. Option A offers much more generous sidewalks, generally a good thing in pedestrian oriented areas. Although the sidewalks in option B are narrower, they exceed the 5' minimum. And this is mitigated to a degree by specific characteristics on the adjacent properties:

- the sidewalk at Pick and Shovel abuts the P&S outdoor "patio" area resulting in significantly more spacious effective sidewalk here, and
- the post office sidewalk abuts the PO planting area , not a building face, resulting in a more unconstrained feel.

Option B supports more parking including in support of future activity in the Hood building and/or new development. The parking lane provides better separation between pedestrians and traffic. The Institute for Transportation Engineers (ITE) Guidelines for Walkable Urban Thoroughfares recommends parking widths of 7 to 8 feet.

Also, speeds in this block are already generally low due to:

- the signalized intersection that all traffic is either approaching or departing
- the sharp curve south of Eastern Avenue, and
- the high levels of activity in vicinity, including parking maneuvers and pedestrians

This supports narrower lanes which in turn support pedestrian activity.

Generally, both options will provide more support for community development and activity in this area than those currently envisioned, including better management of access to and from adjacent off-street parking. During discussion of these options at public meetings for this project, there was support to implement Option B, with parking on both sides of the street, as improvements are constructed for Coventry Street.

4.6 3rd Street/Pleasant Street Access

Third and Pleasant Streets, while not so closely integrated into the downtown, are the major access from the west. Over the years, these roadways have deteriorated somewhat, probably due to temporary parking in the planting areas. Also, following the route out of town to the west can be a bit ambiguous due to the indirect routing. These streets are adequate, but can, over time, be significantly enhanced to support their role as access to the downtown and improve their pedestrian and residential quality. As these roadways are reconstructed or repaved, the following should be included:

- Improve directional signage
- Rebuild curbs and plant in planting strips
- Restructure intersections with neck downs both for pedestrian support and to clarify main route:
    - School Street at Main
    - Main at Third (west approach)
    - Third at Pleasant (south approach)

4.7 Secondary Streets

From the outset, a critical focus of the Newport/105 thoroughfare planning effort has been to address a number of issues that arise with a State highway traversing a central business district, to support the downtown as a destination without sacrificing the important through traffic route. However, both from an overall network-based transportation plan, and in relation to the ongoing form based code planning initiative, it is necessary to recognize the important role that the ancillary network of secondary and residential streets and alleys plus the pedestrian and bike network play in supporting the downtown thoroughfares.

In particular, alleys are envisioned in the rear of most intensive commercial activity as a primary means of service access. Ultimately, all service activity, and especially off-street parking access is envisioned to occur off of designated alleys. These, and a few additional secondary streets have been laid out under the FBC regulating plan, and may be envisioned much like a community's official map, reserving key future linkages. Standards for these streets and sub-street links are established in the FBC and represent an appropriate approach to community development. However, where such links do not already exist, a certain degree of care will need to be taken on a case-by-case basis to support new or expanded/intensified development now that will be able to take advantage of these future links Secondary streets, as laid out on the regulating plan, largely already exist. However, as they undergo significant reconstruction in the future, it will make sense that this be done in accordance with the

principles and standards of the FBC to optimize the integration with and support for the more obvious downtown commercial and civic spaces and activities.

These secondary streets, because of low speeds and volumes, also represent ideal locations for shared lane bicycle routes (see Figure 35 for use of "sharrow" markings). At present, there is a significant basis for bike connections between the existing multi-use path spine and other destinations and routes. Some obvious choices, such as Coventry St and Main St have significant limitations due to heavier traffic, including especially heavy trucking, and active parking. Because of limited space within existing rights of way, exclusive lanes are frequently not very feasible, and share the road links are more likely. The extensive network of more lightly traveled secondary streets in the downtown area provide an ideal basis for this.

5. Recommendations for Other Modes

The following sections provide overall recommendations for walking, biking and transit, all important components of the thoroughfare plan.

5.1 Pedestrians

The following are intended to be broad recommendations for improving the pedestrian network in Newport City, based on observations made during this study.

5.1.1 Widen Sidewalks Where Possible

Although a 5 foot sidewalk width is the recommended minimum, wider sidewalks are recommended for town centers. Poles, signs, street lights and other utilities can be located at the outside edge of the sidewalk keeping a full 5 ft clear for passage. The following table of sidewalk widths is from the VTrans - *PEDESTRIAN AND BICYCLE FACILITY PLANNING AND DESIGN MANUAL*

TABLE 7:SIDEWALK WIDTH & LAND USE CONSIDERATIONS

Preferred	Land Use
1.8-2.4 m (6-8 ft)	For *local streets* outside the central business district
1.8-3 m (6-10 ft)	For *commercial areas* outside the central business district
2.4-3.0 m (8-10 ft)	For *central business areas* including downtowns and village centers

5.1.2 Provide Buffers

A sidewalk immediately adjacent to a heavily traveled street can be unpleasant for the pedestrian. The sidewalks on Causeway and E. Main are two examples of this condition. Buffers between the sidewalk and road improve the experience by creating separation and/or a buffer between the pedestrian and the vehicle traffic.

The *VTrans PEDESTRIAN AND BICYCLE FACILITY PLANNING AND DESIGN MANUAL* considers anything that provides a horizontal separation between the travel lane and the sidewalk a buffer. See the VTrans web site for the full manual. (http://www.aot.state.vt.us/progdev/Documents/LTF/FinalPedestrianAndBicycleFacility/Chap3.pdf.) VTrans considers bike lanes and shoulders to be buffers. In practice, planted greenbelts and on-street parking provide more substantial and effective buffers. The Manual does state that:

> "The least desirable situation is to place a minimum width sidewalk immediately adjacent to a curb without any buffering feature. This is especially true in higher speed or higher volume corridors."

Buffers give the pedestrian a sense of safety and comfort and improve the walking experience. Some wide buffer strips provide protection from roadway splash and a place to store snow.

Table 6 from the *Manual* recommends specific buffer widths.

TABLE 8: RECOMMENDED GREEN STRIP WIDTHS.

Preferred width	Conditions
0.6-1.2 m (2-4 ft)	Local or collector streets.
1.2-1.8 m (4-6 ft)	Arterial or major streets.
1.5-2.4 m (5-8 ft)	Where street trees are proposed, where vehicle speeds or the percentage of heavy vehicles are high

5.1.3 Fill in the Gaps

There are a few gaps in the sidewalk network. Closing these gaps would improve access to business, and improve connectivity while providing general enhancement to the streetscape.

- South side of Railroad Square between downtown and the Long Bridge. The recommended improvements to Railroad Square included in this report advise the addition of curbs and sidewalks and on the south side creating a clear pedestrian route. Adequate access drives to Poulin Grain would be provided. A concrete sidewalk across the driveway openings would alert drivers to the presence of pedestrians, even if these are at the same level as the street. Sidewalks on the south side of Railroad Square would better link the Mt Vernon and Glen Road neighborhoods to downtown.

- East side of Coventry Street between the Post Office and Eastern Ave. Coventry Street has the second highest downtown pedestrian count. Most of the pedestrian activity may be generated by the Pick and Shovel on the western side of the street. However, sidewalks on the east side of Coventry serve a bank, the Post Office, a large municipal parking lot, the historic Hood Building and several buildings further south. At present, the east side sidewalk is a poorly defined area of paving often largely indistinguishable from the street. An enhanced sidewalk would improve pedestrian services to these buildings and parking, improve the overall appearance of the street and expand the walkable area of the downtown.

- South side of East Main Street from the Baptist Church to the Causeway sidewalk. The sidewalk on the south side of East Main Street currently stops east of the Baptist Church cemetery. While challenging to design, extending the sidewalk along the south side of East Main, and then along Causeway, could provide a fairly direct pedestrian link between the East Main/Union Street neighborhoods and Gardener Park. The sidewalk would also provide better access to businesses along its route.

5.1.4 Add pedestrian signals

- Add a pedestrian signal at the intersection of Western Ave and the I-91 Access Road. Sidewalks along Western Ave currently provide the best pedestrian connection between the East Main neighborhoods and Gardener Park. With the no crosswalk or pedestrian signal, the Western Ave and the I-91 Access Road intersection presents a safety issue along that route. A pedestrian signal at this intersection should be added.

- Consider a pedestrian crossing signal at Second Street or Central Street. There are crosswalks established along Main Street but traffic does not always yield for pedestrians. As an interim measure, install an in-street “Yield to Pedestrians” sign.

5.1.5 Discourage sidewalk Parking

Parking on sidewalks blocks pedestrian pathways deteriorates curbs and sidewalks and generally lessens the quality of the street. Sidewalk parking can also be contagious. Once begun, copycats follow. Often vehicles park on the sidewalks despite ample room for on-street parallel parking. The City can enact regulations and/or enforce current rules regarding no parking on sidewalks. Substantial curbs also discourage this practice. Striping the parking lanes, where permitted can also help discourage this practice.

5.2 Bicycle Recommendations

There is a tremendous opportunity to increase the “bicycle-friendliness” of Newport City be developing and promoting a network of signed bicycle routes. Planning and implementation of this type of system requires ample local input and energy, but there are funding sources that can support these efforts, and a potential economic benefit as this system attracts visitors to Newport City.

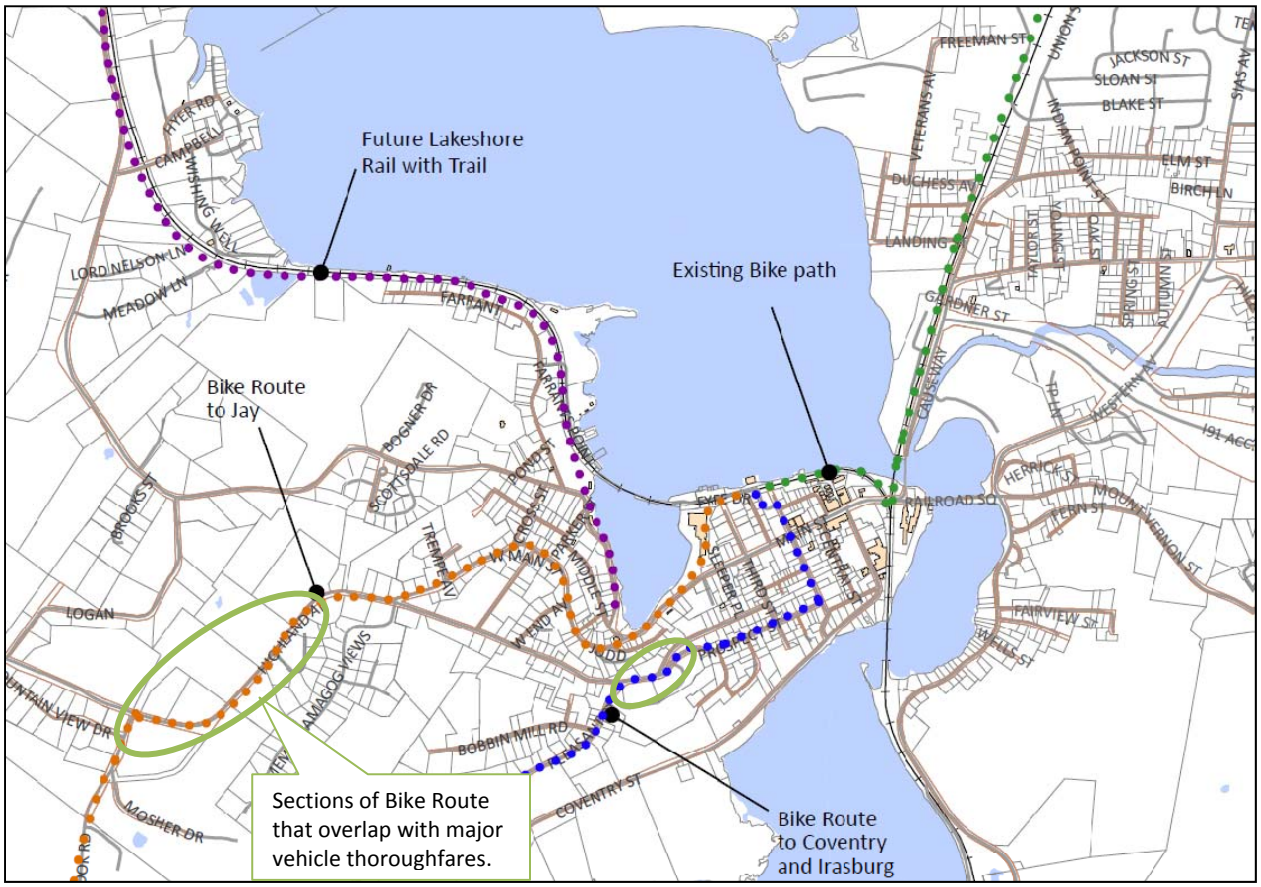
A first step would be to establish a bicycle committee (or bicycle/pedestrian committee) to plan, mark and promote bicycle routes through Newport. With Newport’s population center and tourist economy, the focus could be both for local residents and visitors to the area. Membership on this committee would ideally include a range of stakeholders, for example:

- Tourist-related businesses (food and/or lodging and/or retail)
- School representatives (encouraging active travel to school for health and traffic relief)
- Recreation

- Bicycle commuters/advocates
- Public works

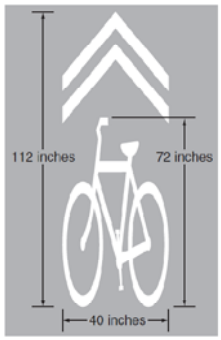
One of the tasks would be to develop a network of bicycle routes, building on the bike path as a "spine", and extending into the area, to popular destinations and locations of interest to visitors. The following map shows the existing bike route (green) and possible future routes for consideration. This network is proposed to be a combination of on-road bike lanes, or shared lanes, and off-road bicycle paths, like the existing Beebe Spur bike path.

FIGURE 34 EXISTING AND POSSIBLE FUTURE BICYCLE ROUTES IN NEWPORT CITY



Highland Avenue is about to undergo resurfacing, and the concept of marking the section between West Main and Alderbrook with "Sharrows" could be considered to highlight this section as part of a bike route. This should be accompanied by information such as maps and signage. Example is shown to right, along with standard marking.

FIGURE 35: SHARROW MARKINGS ON A STREET



5.3 Transit

Routes and expansion will be limited by funds, but consider the following:

- As resort development proceeds at the Waterfront Plaza, or other Newport City locations, encourage planning that will facilitate the use of public transit for skiers to, for example, access Jay Peak, transport their bicycles to destinations for bicycle rides, access special events, or other uses.
- Develop a transit node along Main Street, where local buses, plus potentially other regional bus lines that may be developed, can form a hub. The most likely location for this would be in the vicinity of the state office building.

6. Implementation Plan

The recommendations in this report could be implemented over time through a variety of measures. While significant funding for major transportation projects is hard to find now, many of the recommendations could be folded into ongoing projects or routine maintenance activities. A variety of possible means for implementation are reviewed below, followed by an estimate of construction and maintenance costs.

6.1 Short Term Recommendations

There are a number of actions that Newport City could take in the short term to begin implementing some of these recommendations. The following is a brief listing for consideration.

- **Conduct traffic operations experiments** to provide input and data for longer term decisionmaking.
    - Turn off the westbound left turn actuation at the signal of Main and Coventry. Occasional failure of this actuator may be resulting in formation of very long queues during afternoon peak hours. The trade-off would be that during off peak hours, the left turn phase would be turned on regardless of whether or not any left turning vehicles are present. However, given the relatively high left turn volumes, this should not have a significant impact.
    - Conduct a traffic operations test, along with monitoring, of narrowing the eastbound Main Street approach at Main/Coventry. Our observations and analysis indicate that the two lanes are not operating very efficiently, and really only provide about 1 ½ lanes of capacity. The short additional through lane provides queuing for about 6 vehicles, so queues would be lengthened by no more than 6 vehicles on Main Street. Narrowing to one through lane would have significant safety benefits, and would also allow a broader sidewalk along Main Street that would greatly enhance the economic viability of this row of buildings.
    - Conduct a test of southbound left turn prohibition at Causeway/Union/East Main Street, during after school and hospital shift change periods. This would need to be

accompanied by signal timing adjustments at Causeway/Route 191, in order to provide additional southbound left turn capacity. This may be a cost effective approach to addressing the traffic congestion occurring during after school hours.

- **Establish a bicycle committee**. This group would be able to focus on mapping, marking and signing of a local and regional bicycle network, which would build on the great asset that Newport City has in bicycling infrastructure. Ideally this group would consist of bicyclists of a variety of abilities, business owners who could be affected by increases in bicycle tourism, and city officials in public works, recreation and/or law enforcement.
- **Request Roadway Safety Audit** from VTrans for Main Street between Coventry and Railroad Square. VTrans has a division that will provide a very detailed, multidisciplinary review of accident data, traffic operations, and roadway geometry. The aim is to provide cost effective recommendations. The proposed improvement for Railroad Square can be presented and considered for implementation. These recommendations can be more readily implemented in upcoming projects.

6.2 Ongoing VTrans Projects

One of the most appealing routes to implementation would be to incorporate these recommendations into project designs that are currently in the pipeline for VTrans funding. The following could be considered for implementation as these projects unfold:

- **ARPV(8) Resurface Lake Street**: This project could potentially implement paving markings such as Sharrows, and it may also be possible to recommend changes in the cross section to provide an improved pedestrian environment. The project manager is also the VTrans Bicycle/Pedestrian Coordinator, creating an ideal opportunity for implementation of some of the cost effective improvements in this report.
- **BRO 1449(25) Replace Vernon Street Bridge**: This project is in early stages of design, and therefore may be able to incorporate improvements to the bridge approaches to improve traffic operations and safety. The fact that this bridge currently has a PM Peak hour level of service “F” (documented in Lamoureux & Dickinson Report), and is also a critical high accident location, both indicate that it may be appropriate to expand the scope of the project to assure that the new bridge investment is supported by traffic safety and operations investments as well.
- **STP 2704( ) Resurface Route 5**: This project appears to be in early stages of project development. While it is designated as a resurfacing project, it may be possible to incorporate pavement markings such as the Railroad Square Intersection improvements, Sharrows, signage, or pedestrian improvements. The current VTrans schedule suggests that preliminary design activity is currently being conducted, making this an ideal time to contact the VTrans project manager about implementation possibilities.
- **STP 2719(1) Resurface Alt US 5 (Coventry Street)**: This project is currently in final stages of design, with funding having been delayed. Ideally, the project design could be modified to implement one of the two possible cross sections proposed in this report, which reflect only minor changes from the currently proposed cross section.

6.3 Development Funded Mitigation Projects

This plan can form the basis for discussions with developers who may be willing and/or required to provide traffic mitigation improvements for their project. For example, the redevelopment of the Waterfront Plaza as a resort hotel could provide a source of matching funds for some of the aesthetic improvements suggested for Causeway, including tree planning and landscaping. Such an aesthetic improvement would clearly be beneficial to both the City and the new development in creating a more attractive gateway.

Along East Main Street, potential redevelopment of properties could incorporate the recommendations for that corridor, which can be done in stages over time, with minimal cost to the City.

6.4 Newport City Implementation and Maintenance

While many of the big ticket projects can be constructed with outside funding sources, either from VTrans, or developers, some of the recommendations would need to be implemented locally by the city. In addition, the City would be responsible for maintenance of any additional improvements. This is particularly important consideration for the City, as the additional costs should only be taken on if they are offset by economic or other (i.e. safety) benefits to the city. These are not always easy to quantify.

The following are activities that would be the responsibility of the City to implement or maintain, and these should be considered as any activities or projects are undertaken.

6.4.1 City Implementation

- Sidewalk construction on East Main Street
- Crosswalk markings and pedestrian signals

6.4.2 City Maintenance Activities

- Maintenance of pavement markings, such as sharrows and crosswalks, edge striping on East Main Street and Main Street.
- Maintenance of new traffic signal at Railroad Square
- Enforcement of parking on sidewalks

6.4.3 Longer Term Implementation Projects

Project	Description	Estimated Cost/Maintenance Considerations	Potential Funding Sources
East Main Street Sidewalk	Extend sidewalk on East Main Street from current sidewalk to Causeway/Union Intersection (about 1500 feet)	Construction est $230,000 Maintenance Requirements: Plowing, sanding during winter, maintenance of plantings. Bulbouts may increase time devoted to plowing parking lanes.	VTrans Enhancements or VTrans Bicycle/Pedestrian Programs.

Bicycle Network	Plan, sign and mark bicycle routes to nearby destination, for recreational and commuting uses	Planning and Design Costs: $10,000, Signs and pavement markings: Depends on exact plans, estimated range $20,000 to $30,000. Maintenance Requirements: Bicycle Route markings will require annual re-painting.	Vermont Municipal Planning for planning activities; Combination of VTrans funds or grants from "Bikes Belong" or others for implementation.
Railroad Square to Coventry	Replace signal at Coventry to coordinate with new signal, reconfigure Coventry and Main for wider sidewalks and narrower lanes for pedestrian safety and economic development.	$1.5 million Maintenance Requirements: Signals require regular maintenance; roadway maintenance burden should be similar.	VTrans funding programs; Class 1 Town Highway; Roadway safety grants (due to HCL status, matched by private sources
Coventry Street	Resurface, provide pedestrian improvements, and configure as shown with on-street parking.	Project in design, current estimate $950,000, funding delayed. Maintenance Requirements: Project should not increase maintenance needs, other than	Class 1 Town Highway Program
Improve East Main Street	Narrow cross section, improve crosswalks with bulb-outs, reduce access points, replace outdated traffic signal.	Estimated Cost $700,000. Maintenance Requirements: Plowing, sanding during winter, marking of crosswalks annually, maintenance of plantings. Bulbouts may increase time devoted to plowing parking lanes.	VTrans funding programs; Roadway safety grants (due to HCL status); TIGER II Livability grants (require pedestrian, bicycle, and downtown economy elements), matched by private sources
Causeway	Establish Parkway Streetscape with greenbelt along sidewalk, landscaped median, and tree arcade.	Estimated Cost: $120,000 Maintenance Requirements: Tree maintenance, design provides space for snow storage along road without blocking sidewalk.	Combination of funds including private developer contribution, transportation enhancements, and urban forestry grants.