Section 5
Implementation Plan

The implementation plan seeks to identify and prioritize recommended improvements that can be planned, programmed, and built within the 20 year study horizon. The basis of this implementation plan includes the overall project costs, complexity, and benefit. This section of the report seeks to provide ConnDOT, CRCOG, and the Town of Rocky Hill a menu of projects with guidance for implementation over time based on a series of qualitative and quantitative metrics.

5.1 Transportation Improvement Program

The Transportation Improvement Program includes 13 potential projects that address the roadway network, transit system, and pedestrian and bicycle needs in the study area. Specifically, the study recommends physical roadway improvements, one roadway/streetscape enhancement, and identifies numerous improvements to enhance transit, pedestrian and bicycle facilities. For summary purposes, these alternative transportation mode recommendations are grouped as one combined project for each mode, however the study recognizes that implementation of the improvements will likely occur as the result of many separate projects as funding from various sources becomes available.

The Transportation Improvement Program classifies projects as small, medium, and large based on project size, complexity, and project cost. The projects are also prioritized as short-term, mid-term, and long-term representing when implementation of the project is anticipated to be necessary. A short-term project priority indicates an immediate need for the project to address an existing deficiency or operational concern. Conversely, a project priority of long-term would indicate a project that intended to address an anticipated future issue or need such as operational issues that are expected to occur due to future traffic growth.

5.1.1 Project Categorization

Project types are categorized into small projects, medium projects, and large projects, based on several metrics as described in Table 5-1.

TABLE 5-1

Project Type Characteristics

Project Type	Implementation Time	Complexity	Approximate Project Cost
Small	Less than 3 years	Low	Less than $1 million
Medium	Between 3-6 years	Moderate	$1 million - $2 million
Large	More than 6 years	High	More than $2 million

Implementation time refers to the time frame required to initiate a project, conduct the remaining planning and engineering design work required to prepare the project for construction and to complete construction the improvement, assuming that funding for all phases of the project is available. A subsequent section of the report identifies possible funding sources that may be available to support the implementation of each project. Implementation time is not intended to indicate the priority or relative time

frame with respect to the completion of this study, but rather intended to provide planners and decision makers with a measurement of the potential total time to implement the improvement from initiation.

The complexity of each project has been established based on the overall complexity to plan, design, and construct the improvement. Several metrics were considered in the establishment of each project's relative complexity. Projects are categorized into Low, Moderate, and High complexity based on the qualitative metrics described in Table 5-2.

TABLE 5-2

Summary of Project Complexity Characteristics

Complexity Level	Project Characteristics
Low Complexity	• Little to no additional planning needed, concept planning sufficient to proceed into design • Design effort is limited and typical. • None to minor right of way action • Environmental impacts and permitting requirements are very low • Utility impacts are considered minor or not anticipated
Moderate Complexity	• Additional Planning required to define project • Detailed design effort needed to define construction and impacts • Some right of way impacts anticipated • Environmental impacts and permitting are expected. • Potential for utility impacts and relocations
High Complexity	• Significant planning still required to define project • Detailed design effort following planning is required • Significant right of way actions needed. Private ownership coordination • Major environmental impacts, significant permitting process and agency involvement at all levels of government • Major utility relocations and design efforts to coordinate

Project costs have been estimated following the guidelines published by the Connecticut Department of Transportation and are presented in 2012 dollars. Costs may need to be expanded to account for inflationary pressures on construction costs looking out into the future. The "Preliminary Cost Estimating Guidelines" provide unit costs and percentage based lump sum costs to facilitate the estimation of project costs at the Preliminary Engineering level of project development. The approximate project costs presented in this study are limited to the construction item costs and exclude costs related to rights of way actions, utility relocations, environmental remediation, and engineering. The estimates include contingency (10%) and incidentals (25%-30%) in the total opinion of probable costs for each project.

5.1.2 Project Prioritization

The priority for each of the recommended improvement projects has been established based on two primary criteria: project need and local interest to implement the recommended improvements. Project need is based on the urgency to mitigate an existing deficiency within the overall transportation system. Projects are deemed to have a higher priority when they address an identified safety deficiency, address accessibility, or mitigate a current mobility or operational issue. The project priority categories are defined at Short-Term, Mid-Term, and Long-Term based on the criteria described in Table 5-3.

TABLE 5-3

Summary of Project Need Priority Metrics

Project Priority	Project Characteristics
Long-Term	• Project does not address an identified safety concern • Project scope intended to address future travel demand and traffic operations • Project may have some mobility, accessibility, or multi-modal benefits
Mid-Term	• Project scope provides operational and mobility benefits that are currently an issue, but traffic operations are not poor or failing • Local stakeholders have expressed interest in implementing improvement to enhance transportation system.
Short-Term	• Project addresses an urgent safety issue • Project intended to address existing operational deficiency • Project addressed a deficiency in accessibility that has been identified as a local concern

In addition to the priority assigned to the project based on project need, input from the Town of Rocky Hill and CRCOG was obtained for each of the projects to determine the relative importance of each project from a local and regional planning and political perspective. The overall priority presented for each of the projects is predominately based on transportation need, however, in cases where the Town or CRCOG has indicated that a project is a higher priority to address local interests, adjustments have been made address local input.

5.1.3 Recommended Projects Summary

The following section outlines each of the proposed improvements recommended by the Study and describes the project in terms of the scope of the improvements and the priority for implementation. It should be noted that some priorities described in this report are subjective and founded in the policies and goals of the Town of Rocky Hill and CRCOG at the time of development. The local and regional priorities should continue to be reviewed and evaluated to determine if changes to the priorities for the improvement plans are needed to remain current with local and state trends, policies, priorities, and conditions with the study area.

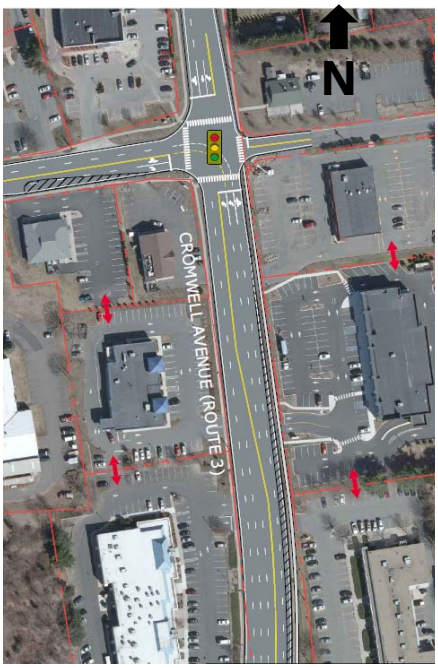
1. Intersection Improvements at Cromwell Avenue and West Street/France Street (Phase 1)			
Project Goals:	Mitigate morning peak hour delays and queuing along France Street.	Project Type:	Small
		Project Priority:	Short-Term
		Project Cost:	$250,000
Project Elements:	• Widen France Street to accommodate two lane approach (left turn & right turn lanes). • Modify traffic signal operations to accommodate new lane geometry. See Figure 4-4		

2. Intersection Improvements at Cromwell Avenue and West Street/France Street (Phase 2)			
Project Goals:	Mitigate the effect of future travel demand on the cluster intersection of West Street and France Street through geometric improvements.	Project Type:	Medium
		Project Priority:	Short-Term
		Project Cost:	$1,300,000
Project Elements:	• Widen Cromwell Avenue between France Street and West Street to provide a second southbound left turn lane to address future travel demand. • Modify intersection traffic operations to accommodate southbound double left turn movement. See Figure 4-5		

3. Intersection Improvements at Brook Street and Henkel Way

Project Goals:	Improve future traffic operations and facilitate the redirection of truck traffic away from neighborhood area. Create a gateway between the industrial and residential uses along Brook Street and calm traffic entering and traveling through the neighborhood.	Project Type:	Small
		Project Priority:	Short-Term
		Project Cost:	$800,000
Project Elements:	• Replace the existing two-way stop sign controlled intersection with a modern roundabout. The roundabout should be designed to accommodate a 180 degree turn by semi-trailers. • Install sidewalks and in-fill sidewalk along both sides of Brook Street in the intersection area. • Provide an aesthetic center island area with landscaping or other treatments at the direction of the Town of Rocky Hill See Figure 4-9		

4. Operational Improvements Along Cromwell Avenue, Elm Street, and New Britain Avenue

Project Goals:	Mitigate the effects of future travel demand along Cromwell Avenue, New Britain Avenue, and Elm Street through roadway widening and intersection improvements. Encourage access management and improve pedestrian facilities.	Project Type:	Large
		Project Priority:	Short-Term
		Project Cost:	$5,300,000
Project Elements:	• Widen Elm Street to provide two eastbound travel lanes between Cromwell Avenue and the Big Y shopping plaza. Extend two lanes to future connector roadway. • Widen Cromwell Avenue from Elm Street to New Britain Avenue to provide double left turn lanes southbound at Elm Street and northbound at New Britain Avenue. • Widen New Britain Avenue to provide two westbound lanes to accept the double left turn from Cromwell Avenue and extend two westbound lanes to Haynes Road. • Extend length of the exclusive right turn lane on eastbound New Britain Avenue. • Provide additional crosswalks and pedestrian ramps at Cromwell Avenue intersections. • In-fill sidewalk to provide cohesive sidewalk network within the project area. • Encourage inter-parcel connections between commercial parcels along both sides of Cromwell Avenue. • Coordinate with Rocky Hill Fire Department regarding hardwired fire pre-emption from Station 2 to nearby signalized intersections See Figure 4-6A and 4-6B		

5. West Street and Interstate 91 Interchange Improvements

Project Goals: Modify I-91 interchange area to mitigate the effects of future travel demand and to mitigate existing safety deficiencies at the southbound ramps.

Project Type:	Large
Project Priority:	Short-Term
Project Cost:	$2,300,000

Project Elements:

- Modify lane use at southbound ramps to provide a double left turn movement from westbound West Street. Widen ramp to accept two lanes and modify alignment of turning roadway. Improvements at southbound ramp address existing safety deficiency and should be a higher priority improvement.
- Widen West Street and modify lane use at northbound ramps to provide a double left turn movement from westbound West Street. Widen ramp to accept two lanes modify alignment of turning roadway.
- Widen West Street along south side of street between northbound ramps and Capital Boulevard.
- Modify alignment of free flow right turning roadway into Corporate Ridge site.

See Figure 4-7

6. Study Area Transit Facility Enhancements

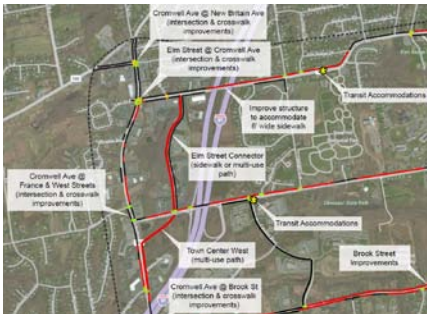
Project Goals: Provide improvements to transit facilities in Town to provide higher level of customer service at key stops.

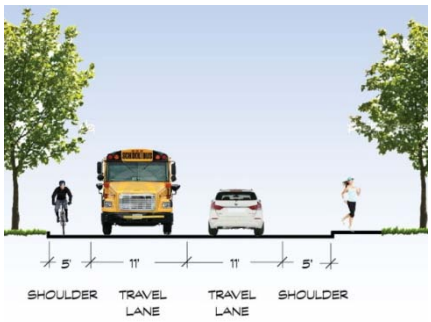
Project Type:	Small
Project Priority:	Short-Term
Project Cost:	$50,000

Project Elements:

- Install a bus shelter and concrete pad at the southeast corner of the West Street and Capitol Boulevard intersection and on the south side of Elm Street west of Rose Hill.
- New shelters should conform to current aesthetics of other recently installed shelters in Town.

See Figure 4-13

7. Study Area Sidewalk and Pedestrian Facility Improvements			
Project Goals:	Improve pedestrian accessibility at study area intersections and along study area roadways	Project Type:	N/A
		Project Priority:	Short-Term
		Project Cost:	$4,400,000
Project Elements:	• In-fill and extend sidewalk infrastructure so as to provide continuous east/west and north/south facilities for pedestrians on Elm Street, West Street, Brook Street, and Cromwell Avenue within the study area. • Upgrade intersections to accommodate pedestrians via marked crosswalks, pedestrian signals, and ADA accessible curb ramps. • Provide a multi-use path along Cromwell Avenue to connect the residential areas to the west of the study area with the existing and proposed pedestrian facilities. See Figure 4-13		

8. Study Area Bicycle Facility Enhancements			
Project Goals:	Improve existing roadway infrastructure to better accommodate bicycle traffic, improve and expand connections between residential and recreational land uses, and improve regional bike routes within the Study Area and Town of Rocky Hill.	Project Type:	N/A
		Project Priority:	Short-Term
		Project Cost:	$2,500,000
Project Elements:	• Widen shoulders along Elm Street and Main Street to provide a 5' wide minimum shoulder for cyclists. • Construct multi-use pathway on Cromwell Avenue between Cold Springs Road and proposed Town Center West Development See Figure 4-14		

9. Intersection Improvements at West Street and Main Street			
Project Goals:	Realign West Street and Forrest Street to improve traffic operations and provide wide shoulders along Main Street to facilitate bicycle usage of the road.	Project Type:	Medium
		Project Priority:	Mid-Term
		Project Cost:	$1,100,000
Project Elements:	• Shift alignment of West Street to the south and shift alignment of Forest Street to the north to align the offset roadway geometry into a conventional four way intersection. Provide exclusive left turn lanes on the northbound and eastbound approaches. Provide an exclusive right turn lane on the southbound approach. • Provide a minimum 5' wide shoulders along Main Street to accommodate bicycle traffic. • Install sidewalks and crosswalks on each leg of the intersection and incorporate pedestrian phasing within the traffic control signal operations. See Figure 4-8		

10. Brook Street Neighborhood Streetscape and Multimodal Improvements			
Project Goals:	Improve transportation facilities and provide traffic calming and aesthetics enhancements in the residential section of Brook Street between Main Street and Henkel Way.	Project Type:	Large
		Project Priority:	Mid-Term
		Project Cost:	$2,300,000
Project Elements:	• Widen Brook Street to provide a uniform 32' wide roadway cross section (5' bike shoulders and 11' travel lanes). • Install in-fill sidewalk along both sides of Brook Street between Henkel Way and Main Street. • Consider the installation of pedestrian level lighting and/or street lights within the neighborhood area along Brook Street. • Install street trees along both sides of Brook Street to enhance the aesthetics of the corridor and to advise roadway users of the neighborhood setting. See Figure 4-10		

11. Intersection Improvements at Cromwell Avenue and Inwood Road			
Project Goals:	Improve intersection operations and mitigate geometric deficiency by widening Cromwell Avenue.	Project Type:	Small
		Project Priority:	Long-Term
		Project Cost:	$500,000
Project Elements:	• Widen Cromwell Avenue south of the intersection to provide additional southbound travel lane. Merge two lanes back to one lane south of the intersection. • Eliminate existing southbound right lane drop at Inwood Road. • Implement minor widening along east side of Cromwell Avenue and install northbound exclusive left turn lane into Inwood Road. • Modify traffic signal operations to provide an exclusive northbound protected left turn phase. • Construct in-fill sidewalk along east side of Cromwell Avenue. See Figure 4-2		

12. Intersection Improvements at Cromwell Avenue and Brook Street			
Project Goals:	Improve intersection traffic operations and capacity through geometric modifications and provide additional pedestrian facilities.	Project Type:	Medium
		Project Priority:	Long-Term
		Project Cost:	$1,300,000
Project Elements:	• Widen Cromwell Avenue along the west side of the road to accommodate an exclusive southbound left turn lane. • Modify traffic signal operations to provide exclusive southbound protected left turn phase. • Install sidewalk along both sides of Cromwell Avenue and portions along Brook Street and connect to the existing sidewalk crossing the Cromwell Avenue bridge over I-91. Provide crosswalks at the intersection. See Figure 4-3		

13. Elm Street Connector Roadway			
Project Goals:	Improve local roadway network connectivity and access to developable land and facilitate mobility of alternative travel modes.	Project Type:	Large
		Project Priority:	Long-Term
		Project Cost:	$3,200,000
Project Elements:	• Extend existing town roadway (Corporate Place) to the north to provide a parallel roadway connection between West Street and Elm Street. • Include measures to facilitate use of the roadway by bicycle traffic (wide shoulders or a multi-use pathway). • Install a new traffic control signal at the intersection of Elm Street and the new connector roadway and modify Elm Street to accommodate the new signalized intersection. See Figure 4-11		

5.1.4 Implementation Plan Summary

Table 5-4 summarizes the recommendations on a project-level basis. A review of the implementation plan indicates that there are seven projects that have been identified as Short-Term priorities, two projects that that have been identified as Mid-Term priorities, and four projects that have been identified as Long-Term priorities. The projects prioritized as Short-Term indicate that funding sources could be sought in the Short-Term to address the existing concerns.

Table 5-4: Summary of Projects in Implementation Plan

Project Description	Project Type	Project Priority	Project Cost
1. Intersection Improvements at Cromwell Avenue and West Street / France Street - (Phase 1)	Small	Short-Term	$250,000
2. Intersection Improvements at Cromwell Avenue and West Street / France Street – (Phase 2)	Medium	Short-Term	$1,300,000
3. Intersection Improvements at Brook Street and Henkel Way	Small	Short-Term	$800,000
4. West Street and Interstate 91 Interchange Improvements	Large	Short-Term	$2,300,000
5. Cromwell Avenue Improvements from Elm Street to New Britain Avenue	Large	Short-Term[1]	$5,300,000
6. Study Area Transit Facility Improvements	Small	Short-Term	$50,000
7. Study Area Sidewalk and Pedestrian Facility Improvements	N/A[2]	Short-Term	$4,400,000[3]
8. Study Area Bicycle Facility Enhancements	N/A[2]	Short-Term	$2,500,000[3]
9. Intersection Improvements at West Street and Main Street	Medium	Mid-Term	$1,100,000
10. Brook Street Neighborhood Streetscape and Multimodal Improvements	Large	Mid-Term	$2,300,000
11. Intersection Improvements at Cromwell Avenue and Inwood Road	Small	Long-Term	$500,000
12. Intersection Improvements at Cromwell Avenue and Brook Street	Medium	Long-Term	$1,300,000
13. Elm Street Connector Roadway	Large	Long-Term	$3,200,000

1 Short-term priority only for recommendations addressing New Britain Avenue queues and Fire Station 2 access concerns.

2 For summary purposes, Bicycle and Pedestrian Improvements are grouped as a combined project for each mode, however implementation will likely occur as many separate projects as funding from various sources becomes available.

3 Not including costs of bicycle and pedestrian improvements identified as components of other recommended projects.

5.2 Project Implementation

The transition from the planning process to project implementation is the critical step forward in the project development process. Utilizing the ideas and plans developed under this Study, and with the help from CRCOG and support from the State of Connecticut Department of Transportation, the Town of Rocky Hill's responsibility lies in the identification of projects for implementation to address the needs and future concerns in the Study Area. Once a project has been identified by the Town, the actual implementation will follow a well defined process. The most critical hurdle for the projects is identification of a funding source to support the engineering, rights of way acquisition, utility modifications, and ultimately construction of the improvements. The Town, working independently or with CRCOG and/or ConnDOT will determine the purpose and need of a project and develop a scope for the work. Utilizing the concept plans and costs defined in this Study, funding through an appropriate funding vehicle can be sought.

5.2.1 Project Initiation and Funding

Generally speaking, it is expected that the majority of the recommendations and improvements identified in this Study will be publically funded through State and/or Federal Transportation Funding Programs as provided for in the Federal Transportation Legislation or through State funding made available in the State of Connecticut transportation budget or through the State Bond Commission. However, there are other improvements that could be constructed by private entities as mitigation for proposed development in the study area.

There are many current funding vehicles that are available to the Town, Region, and State to support the recommendations presented in the Study. Current funding programs include:

- National Highway Performance Program (NHPP)
- Surface Transportation Program (STP)
- National Safety Improvement Program (HSIP)
- Congestion Mitigation and Air Quality Program (CMAQ)
- Transportation Alternatives (TA)
- Local Capital Improvement Program (LoCIP)
- Small Town Economic Assistance Program (STEAP)
- Recreational Trails Program
- Special Tax Obligation Bonds

It is worth noting that with any program reliant on public funding, either by the Federal Government or State of Connecticut, that priorities may change in the future along with available funding vehicles for transportation system improvements. In addition, there are several large construction projects currently underway in the State of Connecticut that have constrained transportation spending looking forward as available funds are channeled to complete these project. The State of Connecticut Department of Transportation published the Transportation Capital Plan: 2012 – 2016 describing the state of available funds and programmed spend over the next four years. However, the current fiscal constraints should not limit the identification and pursuit of projects and

funding for the priority projects identified by the Study, so that as funding becomes available, projects are ready.

5.2.2 Design and Construction

5.2.2.1 Engineering Design

Following the initiation of a project and identification of a funding source, the remaining steps to implement an improvement will involve design and construction. Based on the complexity of a project, an initial Preliminary Engineering phase may be required to conduct a more detailed engineering study and refine the concept plans and project scope. A Preliminary Engineering study can help establish the potential impacts to environmental and natural resources, identify potential property and utility impacts, and help refine the expected costs in current dollars, rather than forecasting based on estimates reported in this Study, which are provided in current 2012 dollars.

Once Preliminary Engineering is complete and the decision is made to move forward with the project, Final Design will take place to add detail to the plan, conduct a right of way acquisition process, address utility conflicts and possible relocations, and develop construction documentation to facilitate bidding and construction of the improvements. Generally, projects that are identified as having a low level of complexity can be designed within 12-18 months from initiation of the project by the Town. As complexity grows, so does the timeframe required to design improvements, with design phases potentially lasting three years or more.

5.2.2.2 Construction

Following the completion of the design phase, the project will begin the construction phase. The steps involved in a publically funded project include advertisement for bids to contractors, collecting bid on the work and awarding the contract, and finally conducting the construction to build the improvement. Utility relocations typically take place during construction, but in some instances a utility company may relocate facilities in advance of a project taking place once a utility agreement is in place. Generally, smaller projects are completed within one construction season, generally March through November. Larger projects can span several construction seasons depending on the complexity of the work, the construction staging and phasing needed to facilitate the maintenance and protection of traffic operations during construction, and possibly the availability of funding. Projects identified as having Moderate Complexity can be expected to take up to two construction seasons, and highly complex projects could take more than two construction seasons to build.