

CAPITOL REGION TRANSPORTATION PLAN

A guide for transportation investments through the year 2040

MINOR UPDATE ~ 2015



Table of Contents

2015 Interim Plan Update	page 1
Major Policy Directions	page 3
Chapter 1 - A Sustainable Transportation System	page 6
Chapter 2 - Transit System	page 18
Chapter 3 - Highway System	page 29
Chapter 4 - Bicycles & Pedestrians	page 49
Chapter 5 - Airport Transport	page 55
Chapter 6 - Freight Transport System	page 62
Chapter 7 - Special Policies	page 69
• <i>Transportation Security</i>	
• <i>MPO Coordination</i>	
• <i>Air Quality-Transportation Policy</i>	
• <i>Demand Management Policy</i>	
Chapter 8 - Financial Plan	page 77
Chapter 9 - Environmental Justice	page 83
Chapter 10 - Public Involvement	page 87
Appendix A: Previous & Related Plans	page 96

2015 INTERIM PLAN UPDATE

Why a Minor Update?

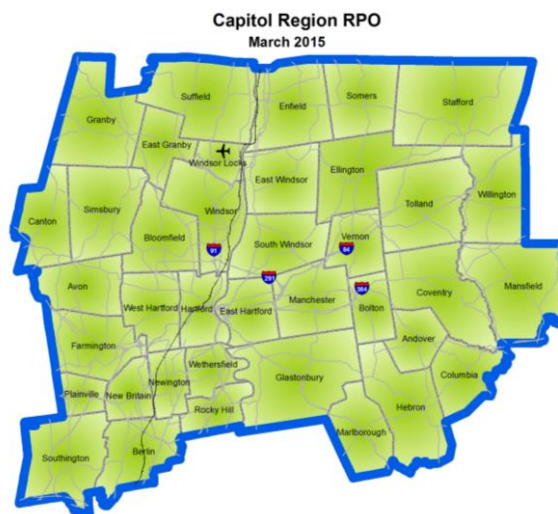
The Capitol Region Council of Governments (CRCOG) is undertaking this minor update of its 2011 Long Range Transportation Plan (LRTP) primarily to comply with federal requirements that Metropolitan Planning Organizations (MPOs) update their LRTPs at least once every four years.

CRCOG has chosen to do a minor update rather than a full update, for two reasons. The first reason is that the latest transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21), requires MPOs to coordinate with their state's department of transportation to develop performance measures and performance targets that will be used in future planning efforts. Because CRCOG's LRTP was due to be updated before those metrics were ready, the decision was made to postpone a major update until the metrics were fully developed.

A second reason for doing a minor update is that MPO boundaries in Connecticut are changing. In 2013, the State of Connecticut initiated a process to reorganize its regional planning organizations (RPOs, who have traditionally been the hosts of the state's MPOs). The result of this process was that the Capitol Region RPO gained eight new municipalities. Four of the municipalities joined the Capitol Region from the Central Connecticut Regional Planning Agency (CCRPA), and four joined from the Windham Council of Governments (WinCOG). Along with this reorganization, the towns clearly indicated their desire to change the MPO boundaries to match the RPO boundaries.

While the RPO re-designation process was complete in January 2015, the MPO process is taking longer. The MPO re-designation process requires that municipalities, and the Governor approve of the boundary change. As of this writing, the municipalities belonging to CRCOG, CCRPA, and WinCOG have all officially endorsed the change. In addition, the Town of Stafford joined CRCOG in September 2010 but CRCOG and Stafford did not undertake the MPO re-designation processes. Consequently, Stafford is not yet officially a part of the CRCOG MPO.

In February 2015, the CRCOG and Naugatuck Valley Council of Governments (NVCOG), supported by all the requisite municipal and MPO resolutions, sent a letter to the Governor's office requesting approval of the boundary change. That approval is still pending. CRCOG anticipates that this process will not be complete until at least June 2015. After the process is complete, the Capitol Region MPO will consist of 38 towns.



Next Steps

After the boundaries are officially changed, each of the new regions will need to revise their plans to incorporate their new municipalities. The eight new municipalities will not be incorporated during this minor update as they are not officially members of the Capitol Region MPO. The CCRPA towns are developing an interim plan of their own under the auspices of the Central Connecticut MPO (CCMPO). The four WinCOG towns were not previously part of an MPO, and as in the past, they will be included in the statewide LRTP. The Town of Stafford, however, was included in CRCOG's 2011 Plan, and will for that reason be included in this minor update.

Sometime after July 2015, CRCOG will develop a new LRTP. This plan will incorporate the needs, priorities, and projects from the MPO member municipalities at that time. It is expected but not guaranteed that this will include all 38 municipalities, and will be dependent upon whether or not the Governor has approved the re-designation. The new plan will also be developed using the new performance-based planning process.

MAJOR POLICY DIRECTIONS

The Capitol Region Transportation Plan outlines a comprehensive program for improving our transportation system to meet travel needs through the year 2040. For the most part, it is a *systems level* plan that provides general policy guidance. It defines the Region's greatest needs, identifies which problems are the Region's highest priority, and outlines how the Region should spend its limited capital funds.

The Plan is also the sum of many specific and detailed studies. The recommendations of those studies, such as the Regional Transit Strategy, the bicycle and pedestrian plan, and several corridor studies, are summarized in this Plan. For details concerning existing and future conditions, alternatives analyzed and recommendation specifics, the actual study documents should be consulted. A list of all the studies that contributed to this Plan is found in Appendix A. The documents themselves can be accessed on the Publications page of the CRCOG website: www.crcog.org/publications/transportation.

Policies Reaffirmed. This Transportation Plan reaffirms the Council's commitment to policies set in previous editions. It reaffirms the Council's commitment to developing a transportation system that offers more and better travel choices, and continues its emphasis on developing a good regional transit system as an alternative to the automobile. It also reaffirms and strengthens our commitment to developing a bicycle and pedestrian system. This Plan also includes a strong commitment to linking land use and transportation planning, aimed at creating a sustainable transportation system. Continued support for Bradley International Airport, the beginning of a freight planning program, and a commitment to environmental justice are also included.

Policies Reaffirmed

- **More Travel Choices**
- **Sustainable Transportation**
- **Environmental Justice**
- **Transit Emphasis**
- **Better Bike & Walk Options**
- **Better Systems Operations and Management**

More Travel Choices. The 2015 Regional Transportation Plan continues to emphasize the desire to provide our Region's residents with more travel options, and to reduce their need to rely exclusively on the private automobile. While the automobile will continue to dominate most travel in the Region, we need to provide more opportunities for people to use alternate means of transportation. With the earlier adoptions of the Regional Transit Strategy, the Regional Bike and Pedestrian Plan, and the opening of CT *fastrak*, we have taken major steps toward achieving that goal. The Transportation Plan continues to be a true multi-modal plan.

Sustainable Transportation System. The Plan continues to emphasize the coordination of transportation policies with the Regional Plan of Conservation and Development, or more generally, linking land use planning with transportation planning. The Plan continues to recognize that a common goal of both disciplines needs to be promoting sustainable communities in the Capitol Region. CRCOG's transportation program supports livable community goals and the Regional Plan of Conservation and Development. This Plan also includes a commitment to coordination with State land use plans and policies and green infrastructure treatments.

Continued Emphasis on Environmental Justice. The Region reaffirms its commitment to address the transportation needs of all its residents including members of minority groups, low-income residents, and transit-dependent residents. This Plan continues to build on the many years of progress since our initial commitment. It continues to include the environmental justice policies and procedures adopted previously and identifies a list of environmental justice issues of special interest.

Continued Emphasis on Transit. This Plan reaffirms the Council's commitment to the Regional Transit Strategy, reflects progress made over the last several years, and includes the results of major transit studies and initiatives. The Plan also supports CT *fastrak* and the Hartford Line transit corridors and looks to strengthen bus rapid transit by extending CT *fastrak* to east of the Connecticut River.

Continued Emphasis on Pedestrian & Bicycle Travel. This Plan continues our efforts to promote non-motorized travel modes, focusing on the 5 “E’s”: Engineering, Education, Encouragement, Enforcement, and Evaluation to achieve our vision.

Better Systems Operation & Management. This policy continues the emphasis on transportation solutions that are based on improving the efficiency of the existing infrastructure rather than building new infrastructure. As a result of this policy, the Plan includes a financial commitment to system management methods such as freeway incident management, coordinated traffic signal systems, Intelligent Transportation Systems, and access management on arterial roads.

New Recommendations. New to this Plan are references required under Moving Ahead for Progress in the 21st Century (MAP-21); and those recommendations from several studies completed since the 2011 Plan, identified below:

- Route 3 Corridor Study
- Route 6 Corridor Study
- Route 10 Corridor Study
- 2014 Regional Plan of Conservation and Development
- Putnam Bridge Trail Connection
- Transit Enhancement Studies (Enfield, Manchester, Windsor)
- Transit Oriented Development Market Analysis Study
- Intelligent Transportation System (ITS) Strategic Plan

Federal Requirements. This Interim Update responds to federal requirements that were made a part of the MAP-21 legislation, as well as requirements from earlier transportation legislation. These requirements are briefly described below and are detailed elsewhere in the Plan.

Performance-based planning. At the time of this Interim Update, CTDOT and the Connecticut MPOs are in the process of establishing performance measures and when completed, CRCOG will work with the State to establish performance targets that address the MAP-21 surface transportation performance measures. These performance targets will be coordinated with public transportation providers and other regional stakeholders. The following summarizes goal areas, along with the identified national goals, that we will work with other regional partners to develop.

Goal Area	National Goal
Safety	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
Infrastructure condition	To maintain the highway infrastructure asset system in a state of good repair
Congestion reduction	To achieve a significant reduction in congestion on the National Highway System
System reliability	To improve the efficiency of the surface transportation system
Freight movement and economic vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
Environmental sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment
Reduced project delivery delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies’ work practices

Following the adoption of performance measures and targets, CRCOG intends to establish and use a performance-based approach to transportation decision-making and development of future transportation plans. The next update of CRCOG's Long Range Transportation Plan will:

- Include a description of the performance measures and targets used in assessing the performance of the transportation system.
- Include a system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the established performance targets.
- Consider the potential for developing multiple scenarios during the development of the Plan.

Promote consistency with State & local development plans. Under the 2011 Plan, CRCOG solicited comments from State land use officials to ensure this Plan was consistent with the State Plan of Conservation and Development. CRCOG staff also solicited comments from the Capitol Regional Planning Commission as it relates to consistency between this Plan and the Capitol Region Plan of Conservation and Development. The details are described in *Chapter 1: Linking Land Use and Transportation*.

Place additional emphasis on management and operations. For many years, CRCOG has recognized the fact that building new roadways has become not only prohibitively expensive, but also in many cases, unacceptable to our citizens. Our transportation plans have emphasized better management and operation of our existing transportation infrastructure. In addition to recommending improvements to our existing roadway system, our major transit proposals are designed to fit within existing rights-of-way. Proposals for bicycle and pedestrian improvements to existing roadways make our transportation system available to more of our citizens. CRCOG continues to place a strong emphasis on improving existing facilities which is identified in *Chapter 2: Transit Systems* and *Chapter 3: Highway System* of this Plan.

Place additional emphasis on congestion management. CRCOG has made a significant commitment to the management of congestion in the Hartford Metropolitan area through the Hartford Area Congestion Management Program. This program is described in depth in *Chapter 3: Highway System*.

Place additional emphasis on safety. Safety for travelers who use our transportation system and its various modes has always been a high priority for CRCOG. A comprehensive statement of how safety fits into our transportation planning efforts is discussed in *Chapter 3: Highway System*. CRCOG will also support CTDOT and other stakeholders as a new Strategic Highway Safety Plan is developed.

Integrate Freight Planning Efforts. Freight planning is a focus of CRCOG's planning coordination activities with CTDOT and the Federal Highway Administration. The freight planning strategy is described in *Chapter 6: Freight Transport System*.

1: A SUSTAINABLE TRANSPORTATION SYSTEM



The 2015 Regional Transportation Plan continues an emphasis on coordinating transportation policies with the Regional Plan of Conservation and Development, promoting sustainable development and creating a sustainable transportation system. The benefits of a coordinated approach to planning transportation and land use are many, and they can help achieve the goals of both planning processes.

Components of a Sustainable Transportation System

In 1994, the Council adopted a policy to encourage more coordination between transportation planning and land use planning. Since then, CRCOG has worked to increasingly link the planning for both systems. The past three Regional Transportation Plans described these efforts in detail. In September 2009, the CRCOG Policy Board endorsed the creation of Sustainable Capitol Region, an initiative with a mission that seeks to further integrate all activities of the agency to work toward a region with vibrant, healthy communities, protected natural resources and open spaces, equitable access to opportunities and economic competitiveness. Creating a sustainable transportation system is about balance – not only balance amongst modes of transportation, but also balance between transportation investments and development priorities.

Sustainable and Livable Communities for a Sustainable Region

The Council of Governments has been an active proponent of public policies that promote sustainable and livable communities. The concept of sustainable and livable communities seeks to build communities that are vibrant and healthy, that have protected natural resources and open spaces, equitable access to opportunities and are economically competitive. A sustainable transportation system - one which provides options that easily allow citizens to choose modes other than the automobile for daily commuting and activities – is a critical component of creating sustainable, livable communities and regions. Creating this transportation system relies heavily on corresponding development priorities. Without developing dense nodes of mixed uses to support transit alternatives, the system cannot function. Promoting sustainable and livable communities is a specific goal of CRCOG's transportation planning program, which highlights the Council's commitment to enhancing the quality of life and durability of our member communities.



Whether referred to as *sustainable development* or *livable communities*, the basic goals are:

- *Environment – Create a balanced transportation system that allows for choice and seeks to limit CO2 emissions in the Region and protects natural resources from sprawl.*
- *Economy - Sustain prosperity and expand economic growth and competitiveness through focusing new development in dense nodes connected by a multi-modal transportation network.*
- *Equity – Create a transportation system that provides equitable access to jobs and opportunity for all of the Region's citizens. Be sensitive to vulnerable populations when making future*

transportation investments so as not to disproportionately burden regional citizens with the negative impacts of transportation infrastructure.

RECOMMENDATION:

1. ***Support Sustainable and Livable Community Goals.*** *CRCOG will support the goals of sustainable development and livable communities. Support will come at all levels of the planning process from systems planning through project development and design. It will include:*
 - *Context Sensitive Solutions.* Adhering to context sensitive planning and design principles.
 - *Complete Streets.* Placing an emphasis on developing “Complete Streets” that serve all users of the transportation network: motorists, pedestrians, transit users, and bicyclists.
 - *Green Infrastructure.* See below.
 - *Land Use Element in Studies.* Continuing to include a strong land use component in CRCOG’s corridor studies, in which the linkages between land use and transportation are considered.
 - *Training & Education.* Providing opportunities for training to municipal, regional, and state officials in policies, techniques, and practices that help achieve these goals.
 - *Environmental Justice Considerations.* See Chapter 9, *Environmental Justice.*

State Plan of Conservation and Development & State Policies

In 2013, the State legislature adopted an update to the State Plan of Conservation and Development (POCD). Policies contained in the State POCD give direction to State agencies when developing and implementing their individual plans. Six growth management principals are outlined in the plan, and the one most relevant to transportation planning is: “concentrate development around transportation nodes and along major transportation corridors to support the viability of transportation options.”

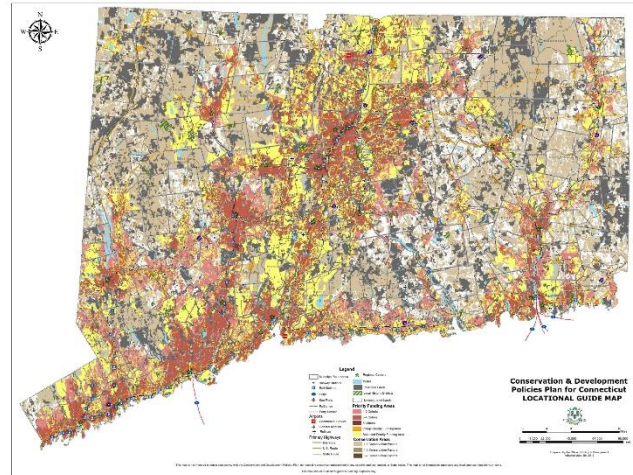
The State Plan includes seven State policies related to transportation as stated below:

- Promote compact, pedestrian-oriented, mixed use development patterns around existing and planned public transportation stations and other viable locations with transportation corridors and village centers;
- Encourage a network of pedestrian and bicycle paths and greenways that provide convenient inter – and – intra-town access, including access to the regional public transportation network
- Ensure that the planning, design, construction, and operation of state and local highways accommodate municipal plans and the needs of all users, to the extent possible;
- Improve transit service and linkages to attract more customers through better integration of all transportation options and advances in technology, while providing convenience, reliability, safety and competitive modal choices;
- Coordinate with host municipalities on supportive land use regulations, such as transit-oriented development zones and freight villages where practical, to make the most effective use of transportation facilities for the movement of people and/or goods;
- Identify brownfields and other strategic sites that are (1) within one-half mile or walking distance of public transportation facilities and/or (2) near other inter-modal transportation nodes and facilities, and consider them for designation as pre-approved development areas; and
- Restore strategic shipping channels and pier areas to their authorized depths when dredging is recommended in Connecticut’s Deep Water Port Strategy Study.

Policies Regarding State Plans. In 2006, there were two land use policy actions that are relevant to CRCOG’s transportation planning program. Public Act 06-136 made the OPM Secretary responsible for ensuring the coordination of state and regional transportation planning with other state planning efforts, including but not limited to economic development and housing plans. The Governor’s Executive Order 15 called for a review *of transportation policies and projects to increase opportunities to promote mass transit*

and roadway design that support state and local economic development while preserving and enhancing the character, as well as the "walkability," of our communities, and that have an impact on growth and development. In 2007, Public Act 07-07 was enacted, providing resources for funding Transit-Oriented Development. Public Act 09-230 defines "principles of smart growth" and Public Act 10-130 requires state agencies to consider whether certain grant application proposals comply with such principles. The 2013 State Plan notes how these principles relate to its six growth management principles and the recommendations that stem from them. The principle of smart growth relating most to transportation is providing "Transportation Choices."

Consistency of Plans. Federal guidelines require that CRCOG's Regional Transportation Plan be consistent with the State Plan of Conservation and Development. The map to the right is the 2013 State Plan Locational Guide Map. The light to dark red colored areas represent priority funding areas for development and the light to dark brown areas are conservation areas. In general, the transportation projects serve the areas designated for development and avoid the areas designated for conservation. This approach to mapping priority development and conservation areas aligns with CRCOG's approach to the same (See CRCOG Land Use Policy Map on the following page). Obviously, this is a high-level look at the plans. As projects are considered for funding, each will be subjected to a more detailed review for consistency with the State Plan.



2013 State Plan of Conservation and Development
Locational Guide Map

RECOMMENDATION:

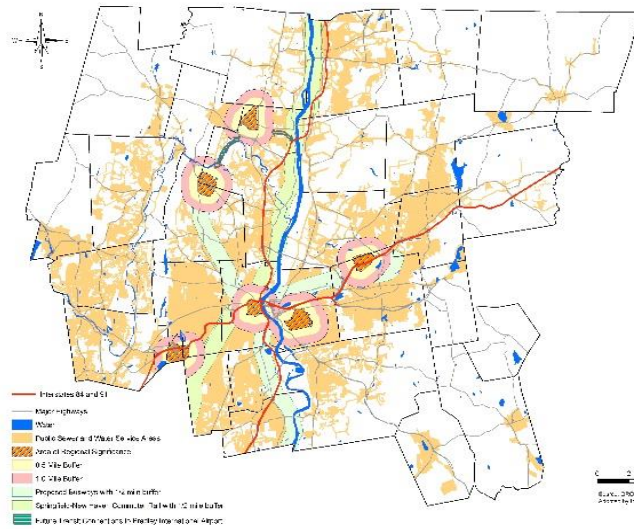
1. **Continue to work with State Agencies.** Continue to collaborate with State agencies on efforts to promote programs, projects and policies of common concern, with special focus on:
 - Working together to support efforts to advance the CT **fastrak** and the Hartford Line, including assuring that the project addresses issues such as transit-orient development and adequate bicycle and pedestrian connections to each station.
 - Working to promote transit-oriented development.

Regional Plan of Conservation and Development

A primary tenet of the land use – transportation policy is that the Region's transportation plans and policies should be coordinated with, and supportive of, the Regional Plan of Conservation and Development (POCD). The October 2014 *Capitol Region Plan of Conservation and Development: Vibrant, Green, Connected, Competitive*, was updated as a part of the Knowledge Corridor Sustainable Communities Regional Planning Project funded by a grant from the U.S. Department of Housing and Urban Development (HUD). The updated plan further strengthens the Region's vision for creating sustainable development and transportation policies. First, the POCD recommendations are based on six major goals of which four are most directly related to the issue of linking land use and transportation planning. They are:

- **Economic Development Areas of Regional Significance.** Focus new regional development in areas in which existing and planned infrastructure can support that development. (See discussion in the next section.)

- Revitalize Hartford & other urban centers. Support efforts to strengthen and revitalize Hartford, the Capitol Region's central city, and also support the revitalization of older, urbanized areas throughout the Region.
- Preserve community character & natural resources. Develop in a manner that respects and preserves community character and key natural resources.
- More choices for diverse needs. Support the creation of new employment and housing opportunities, and transportation choices to meet the diverse needs of our Region's citizens.

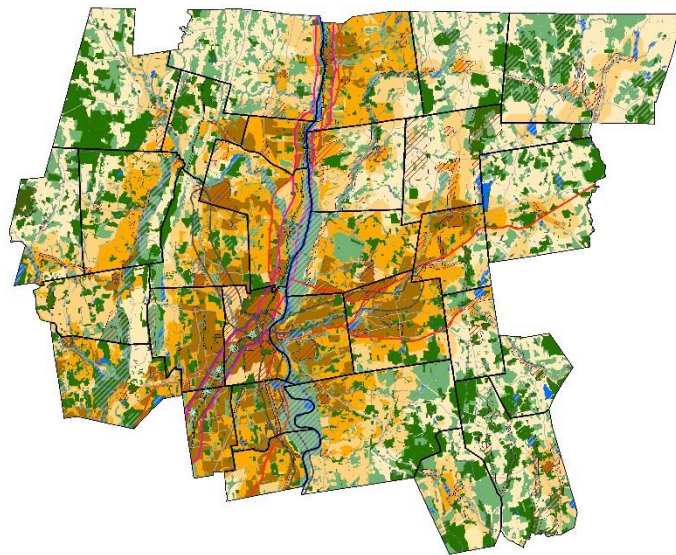


Economic Development Areas of Regional Significance & Capitol Region Transportation Improvements

Second, the updated POCD further defines development priorities by determining regional development intensity, utilizing transit infrastructure as a determinant for prioritizing growth areas.

Consistency of Plans. Federal guidelines require that CRCOG's Regional Transportation Plan be consistent with the Regional Plan of Conservation and Development. In order to determine whether the plans were consistent, CRCOG staff undertook two review efforts: one was to physically compare the two plans, the second was to incorporate proximity to transit service as a variable in a weighting system to determine regional development intensities as well as develop a land use matrix to explain the scale of development intensities.

Physical review. The Economic Development Areas of Regional Significance Map and the Regional Land Use Policy Map to the right overlay the major physical improvements recommended in this Regional Transportation Plan on the Regional POCD's priority development and conservation areas. The POCD identifies its highest priority areas for development as Economic Development Areas of Regional Significance. They are shown as red and yellow circles on the map.



Regional Land Use Policy Map

Development intensity becomes more defined in the beige (lower intensity) to brown (higher intensity) development intensity areas on the Regional Land Use Policy Map. Areas within a quarter mile of transit infrastructure were weighted as were lands close to sewer and water infrastructure, high density zones and existing population and employment to determine appropriate intensity of development. Over both of these maps, major regional transportation projects are overlaid. The RTP generally avoids the areas designated for preservation and serves the areas to be promoted for

development. Again, this is a high-level look at the plans. As projects are considered for funding, each will be subjected to a more detailed review for consistency with the Regional POCD Plan.

RECOMMENDATIONS:

1. **Support Plan of Conservation and Development Goals.** CRCOG's transportation plans and policies will be supportive of all the major goals of the Regional Plan of Conservation and Development, but special emphasis will be placed on the first four.
 - Support Economic Development Areas of Regional Significance
 - Support revitalization of Hartford & older urban centers
 - Preserve community character & natural resources
 - Support more choice for diverse needs
2. **Continue Planning Coordination.** The staff of CRCOG's Transportation and Policy and Planning departments will continue to work cooperatively on projects in which transportation and livable communities are an issue.

Economic Development Areas of Regional Significance

Of the land goals contained in the Regional POCD, one of special interest to this Plan is the recommendation to focus development in Economic Development Areas of Regional Significance. This recommendation originated with the writing of the 2004 Plan when participants in an economic focus group felt that the goal of encouraging economic development within Economic Development Areas of Regional Significance warranted special attention. This continues as an important goal today, and the issue is discussed in more detail below.



The Regional POCD recommended that economic growth be focused in areas that have adequate existing and planned infrastructure to support the development. The Plan identified four types of areas in priority order:

- Economic Development Areas of Regional Significance,
- proposed rapid transit corridors,
- existing Interstate highway areas, and
- water and sewer service areas.

There are six Economic Development Areas of Regional Significance identified in the Regional POCD.

- | | |
|--------------------------------|-------------------------|
| • Downtown Hartford | • Rentschler Field area |
| • Bradley Airport area | • Day Hill/Griffin area |
| • Health Center/WestFarms area | • Buckland area |

These are major activity centers that have a high concentration of jobs due to locational advantages and a substantial investment in public and private infrastructure that was required to support the activity. For these same reasons, it is expected that much of the Region's future employment growth will occur in these areas. It is to the Region's advantage to continue to support economic growth in these areas rather than making major investments in undeveloped areas where the infrastructure is inadequate, and where there is risk of losing valuable farmland, open space, or important natural and historic resources.

RECOMMENDATION:

1. **Support Economic Development Areas of Regional Significance.** Economic development should be encouraged in those areas where the public infrastructure already exists to sustain intensive development. Policies should favor investment of transportation resources in projects that serve the Economic Development Areas of Regional Significance, and that assure a sustainable transportation system with multi-modal access for all types of users, including motorists, bicyclists, and pedestrians.¹

Environmental Mitigation

In reviewing CRCOG's proposed transportation projects for consistency with State and regional land use plans (see discussion above), we determined that the proposed projects in this Plan generally avoid areas of environmental concern. Most of the projects proposed in this long-range plan are just that: long-range conceptual proposals, without specific details as to location and design. As projects are funded and move into the design stage, however, a closer look is taken at any potential environmental impacts and necessary mitigating solutions are taken.

To ensure that the environment is considered in our transportation planning process, CRCOG will consult with representatives of appropriate Federal and State agencies to review issues related to land use management, natural resources, environmental protection, conservation, and historic preservation. These issues will be considered within specific planning studies such as corridor studies, mode specific transportation studies, and future editions of the Regional Transportation Plan.

Conclusion: The Regional Transportation Plan generally avoids areas of environmental concern.

RECOMMENDATIONS:

1. **Consult with Officials.** Consult with representatives of appropriate Federal and State agencies with regard to issues of land use management, natural resources, environmental protection, conservation, and historic preservation.
2. **Develop Environmental Mitigation Activities When Required.** Work with appropriate Federal and State agencies to determine appropriate environmental mitigation activities for any project that has the potential to impact environmentally sensitive areas.
3. **Avoid Areas of Environmental Concern.** As projects are funded and move into the design stage, take a closer look at environmental impacts and assure that necessary mitigating solutions are taken.

¹ This recommendation is not meant to imply that transportation investments are to be limited to the areas of existing intense development. In fact, many other aspects need to be considered when transportation investments are proposed, including but not limited to safety, quality of life, and equity among communities.

Station Area Planning & Transit Oriented Development

As far back as 2001, the Region made a major commitment to giving travelers more choices by improving our existing bus system and developing a new rapid transit system. If these proposals are to realize their full promise, they must be adequately funded and properly designed. Proper station area planning and encouragement of transit oriented development are needed to assure: (1) that we realize the full economic development potential created by the new transit service, and (2) that the development that does occur is transit supportive.



Transit Oriented Development (TOD) can be a major contributor to more sustainable, livable communities and will be the foundation of creating a sustainable transportation system. Transit stations can stimulate economic development in the host community. Rapid transit service improves access to the station area leading to greater human traffic, thereby making the area more desirable to developers. Station area planning is necessary to ensure that development is supportive of the transit system. TOD means mixed-use development (houses, shops, and offices) around transit nodes arranged in a pedestrian-friendly manner with a higher level of density than may exist today.

Supportive uses are activities that are likely to generate additional riders for the transit system because residents, patrons, or employees find it convenient to ride transit rather than drive to their destination. Uses such as automobile sales, warehousing, or ones that are land intensive with low employment densities are not transit supportive.

In 2009, the Regional Plan Association and Lincoln Institute for Land Policy held the Redesigning the Edgeless City course in the Capitol Region. This course focused on envisioning the future of three potential transit lines in the Region: the Manchester Busway, the New Britain/Hartford Busway (now CT **fastrak**) and the New Haven / Hartford / Springfield Rail Line and asked participants to distribute new potential commercial and residential square footage throughout these three transit corridors. The course produced a report entitled *Growing Economy, Shrinking Emissions* which demonstrated that focusing the relatively small amount of growth that the Region will see over the next twenty years in transit corridors will not only help sustain our environment and lower carbon emissions, but it will also help fuel our economy. The Table below helps to demonstrate this concept.

		Existing Conditions	Future Conditions				
			Trend (Under Current Zoning)		Transit-supportive		
				Compared to Existing		Compared to Existing	Compared to Trend
South	Housing Units	32,770	36,920	113%	40,370	123%	109%
	Annual VMT per Household	11,336	11,617	102%	10,165	90%	87%
	Annual Emissions per Household*	5.2	5.3	102%	4.7	90%	87%
	Annual Emissions per Corridor*	170,142	196,441	115%	187,940	110%	96%
Active Transit: Busway East (Hartford/East Hartford/Manchester/Vernon)							
*Emissions are measured in metric tons CO2 equivalent							

*Comparison of Trend Development and Transit Supportive Development;
Growing Economy Shrinking Emissions, Regional Plan Association, 2009*

With the adoption of the Regional Transit Strategy in 2001, CRCOG committed to a policy of encouraging and promoting TOD in major transit corridors. Since then, through the Station Area Planning Project as well as our more recent TOD On-Call Assistance to select towns in the region, we have worked closely with the municipalities along the CT **fastrak** corridor to assure that transit-supportive land use planning is done in areas around the CT **fastrak** stations. The individual station area plans developed through these projects include recommendations for up to one-half mile (the walk distance standard) around stations for walk/bike/ride routes to the station; assessment of market conditions and the physical and regulatory environment; proposals for new regulations; development concept plans; phasing and suggested deal structures; and incentives for development and marketing of sites targeted for TOD. These plans will serve local decision-makers, citizen groups, CTDOT, private developers, and property owners.

With funding from the HUD Sustainable Communities Regional Planning Grant mentioned previously, CRCOG undertook several projects to further TOD planning in the region. The report, *Making it Happen: Opportunities and Strategies for Transit-Oriented Development in the Knowledge Corridor* identifies the types of businesses that can generally be attracted to the corridors and evaluates market conditions on a station by station basis. Another product of this funding is a Mixed Use/Transit-Oriented Development Model Zoning Regulation for communities to utilize as they continue to prepare for future development opportunities in the region's transit corridors.

As a result of this work on transit-oriented development in the Knowledge Corridor, CRCOG has worked with regional, state and municipal partners to establish a Corridor Advisory Committee (CAC), a group of municipal leaders from towns along the Hartford Line and CT **fastrak** who are working on transit-oriented development. The CAC began to meet on a quarterly basis in 2013 to discuss progress at each transit station, receive updates from CTDOT and hear updates from each community on TOD efforts. A CT **fastrak** sub-committee of the CAC also meets on a regular basis.

RECOMMENDATIONS:

- 1. General Support for TOD.** Support Transit-Oriented Development along transit lines. The Region, State, and affected municipalities need to undertake a series of actions to encourage TOD:
 - Develop a long-range strategy for the Region that encourages both transit and transit-supportive land use.
 - Make station area planning a part of the general planning process for all rapid transit lines.
 - Work with town officials and developers to integrate TOD into their plans and development projects through use of such tools as the Making it Happen report and Mixed-Use/Transit-Oriented Development Model Zoning Regulation.
 - Build support for transit among community groups, business leaders, and other stakeholders.
- 2. TOD for the CTfastrak and the Hartford Line.** As CT **fastrak** and the Hartford Line passenger rail projects move forward, CRCOG will work to insure that the transit-oriented development plans advance toward implementation and steps are taken to secure development opportunities.

Context Sensitive Solutions

The goal of a "context sensitive" approach to transportation planning and design is to develop solutions that are responsive to community concerns and that result in projects that are a better fit for the community. In this approach, traffic improvement is no longer the only objective to be met. Designers and planners are expected to give consideration to other community goals such as preserving community character, and creating more pedestrian-friendly environments. Projects that are designed through this type of process can contribute to the overall goal of creating more 'sustainable and livable communities.'

Substantial progress has already been made in developing context sensitive procedures in the Capitol Region and the State, but these efforts need to be continued. CTDOT has adopted an agency-wide context sensitive design policy, and has used it with great success on many projects. In addition, the context sensitive design concept must be expanded to include the notion that bicyclists and pedestrians are legitimate users of our roads and that their needs also must be considered.



RECOMMENDATIONS:

1. **Context Sensitive Corridor Studies.** CRCOG should continue to use a context sensitive approach in its corridor planning process.
2. **Context Sensitive Design.** CRCOG should encourage CTDOT to continue its context sensitive approach to design, and to work with CTDOT staff and consultants on individual projects as needed to assure that community concerns are heard and understood.

Complete Streets

Ensuring that roads provide safe, comfortable and convenient mobility for all travelers, not just motor vehicles, is at the heart of the "Complete Streets" approach to roadway planning, construction, maintenance and funding. In Connecticut, the state legislature passed a law in 2009 (Connecticut Substitute Senate Bill No. 735 Public Act No. 09-154) aimed to allocate a reasonable amount of funds received for the construction, restoration, rehabilitation or relocation of highways, roads or streets be expended to provide facilities for all users. To date, Complete Street policies have been adopted by over 700 jurisdictions nationwide including 30 states and 564 municipalities. In 2014, the Connecticut Department of Transportation adopted its own Complete Streets policy and committed to making Complete Streets considerations front in center in all of the work that the department does.

CRCOG is committed to including the elements of Complete Streets where applicable. Complete Streets are "roadways for everyone", designed to assure safety for the pedestrian and walkability as well as safety for all other non-automobile modes of transport. Putting an emphasis on Complete Streets means putting an emphasis on sidewalks and bikeways. These strategies can be considered for almost all streets with the notable exceptions of roads where bicyclists or pedestrians are prohibited by law, where costs are excessive, and where there is clearly no need.

RECOMMENDATION:

1. **Complete Streets Policy:** CRCOG will support and encourage Complete Streets efforts by:
 - Incorporating Complete Streets elements into our planning efforts and work to ensure that all modes of transportation are taken into consideration.
 - Educating communities about latest "Complete Streets" design practices and legislation
 - Researching additional funding opportunities for projects that include Complete Streets initiatives

Access Management

Land use and transportation often come into conflict on arterial roadways where substantial commercial development is occurring or planned. In the past, the lack of coordination between transportation and land use planners has resulted in problems in these areas. The land is often developed as unattractive commercial strips where the proliferation of driveways erodes the safety and capacity of the roadway. These problems can be prevented, and even corrected, if proper access management policies are in place.

CRCOG has actively supported better access management practices within the Region and needs to continue to do so.

RECOMMENDATION:

1. **Continue Regional Access Management Program.** CRCOG should continue its access management efforts as recommended in the following chapter on the Arterial Road System.

Green Infrastructure / Streets

Urban areas are dominated by impervious surfaces. Roofs, roads, sidewalks, and parking lots block rain from soaking into the ground and collect oil, metals, and other contaminants that are carried directly into streams and other water bodies. Additionally, these heat-absorbing surfaces combine to create the summer “urban heat islands”, requiring additional energy for the cooling of structures.

The implementation of new technologies and methodologies that reduce environmental impacts associated with transportation infrastructure have been termed “Green Streets”. These new initiatives seek to reduce stormwater runoff and associated pollutants, promote the use of recycled materials, bring natural elements into streets, reduce “heat island” effects, and improve the access and accommodations for pedestrians and bicycles. Green Streets strategies include the use of permeable pavement, bioslopes and bioswales, bioretention cells, and vegetated filter strips to reduce and filter stormwater runoff. Other strategies include extending pavement life, reducing urban “heat island” affects, and improving the street’s appearance (i.e. introducing street trees).

In addition to providing for roadway and sidewalk drainage, street stormwater systems typically accommodate impervious runoff from adjacent buildings and parking lots. This becomes especially burdensome in urban environments. To ease this burden, green technologies can also be applied to site parking lots, private drives, etc. Additionally, green roofs can be installed that capture, slow, and divert water that would otherwise drain immediately into the stormwater infrastructure. A green roof is simply a roof that is partially or fully covered with and a growing medium and vegetation. Green roofs also provide insulation, create a habitat for wildlife, and help to lower urban air temperatures and combat the urban heat island. As a part of the model land use regulation development project that CRCOG completed in 2013, a model regulation on Green Roof Incentives was created for potential use by Capitol Region municipalities.

“Green” planning, design, construction, and maintenance requirements differ from those associated with traditional streets. Therefore the education of decision-makers, planners, designers, contractors, maintenance workers, and the public is critical to an installation’s success. CRCOG will continue to educate municipalities on green infrastructure technologies and strategies.



*Crosswalk Constructed Using
Permeable Pavement*

RECOMMENDATIONS:

1. **Support Green Streets Advancement.** Momentum is gathering in support of streets that incorporate sustainable design elements, including green infrastructure. CRCOG will support the inclusion of green infrastructure elements by:
 - Encouraging the implementation of green infrastructure elements into corridor studies and roadway reconstruction projects working with partners such as the Metropolitan District Commission (MDC) and DEEP.
 - Educating communities in latest “Green Streets” design and maintenance requirements.
 - Researching funding opportunities for green transportation implementation.

Regional Land Use Database

The Council of Governments has completed updating the regional land use and zoning database that was first compiled in 2003. Regular updates to the land use and zoning database are essential for understanding the current land use patterns in the Region, developing tools to project future land use trends, and testing alternative development scenarios. The land use database is also an essential input to the regional travel forecast model. The 2013-2014 update has improved land use accuracy and has also improved the graphics associated with the land use layers.

RECOMMENDATIONS:

1. **Maintain & Update Land Use and Zoning Data Bases.** Continue to maintain and update the regional land use and zoning databases.
2. **Develop Analytical Tools for Improved Land Use Forecasts.** Develop better land use forecasting tools using the regional land use database and regional geographic information systems.

Travel Forecast Model

The regional travel forecast model (also known as a travel demand model) is an important planning tool that CRCOG uses to help make decisions about major transportation proposals. It is used to forecast future traffic volumes on roads, and to forecast future ridership on transit services. It is used to help us understand how traffic will grow over the next 30 years, and it is also used to help us evaluate how different roadway and/or transit improvements might help us cope with traffic growth. The model can also be used to test the travel impacts of various land use scenarios. The CRCOG model has been used to do this type of land use scenario testing in several studies. A travel forecast model is an important planning tool that can not only help us do better transportation planning, but also help us better understand land use – transportation interactions. CRCOG’s model should continue to be refined and improved to increase these analytical capabilities.

RECOMMENDATIONS:

1. **Maintain Regional Land Use Database.** CRCOG should continue to maintain and update the regional land use database.
2. **Develop GIS-based Land Use Forecast Model.** Traffic forecasts are dependent on the land use forecasts as the input to the travel model. Therefore, to get good travel forecasts we need good land use forecasts. Land use forecasts can be improved by developing a GIS-based land use forecast model that utilizes the regional land use database discussed above, and data sets in the regional GIS such as the local zoning data and the environmental constraints data.
3. **Sensitivity Test with Alternative Land Use Scenarios.** CRCOG should continue its practice of evaluating specific project proposals using alternative land use scenarios. Such sensitivity testing

provides insights into how transit projects might perform if we manage our development differently. (Example: more transit-oriented development)

4. **Other Travel Model Improvements.** CROCOG should continue to improve its travel model to increase its functionality and performance, and to improve its ability to reflect land use – transportation interactions.

Regional Color Orthophotography

In 2008, CROCOG received a Regional Performance Initiative Program (RPIP) grant from the Connecticut Office of Policy and Management to acquire digital orthophotography. The entire Region and the Town of Plainville were flown in the spring of 2009 resulting in 3" pixel resolution color orthophotography, supporting 1"=100' mapping. This data product provides the base to allow for mapping comprehensive sets of planimetric data including but not limited to transportation features from major highways to edge of pavement.



RECOMMENDATIONS:

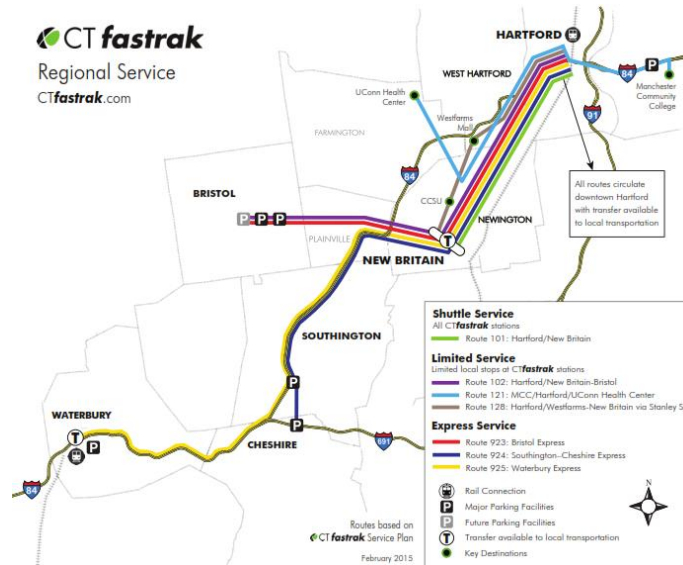
1. **Work with Other Agencies to Secure Periodic 'Re-flights'** Orthophotography data needs to be current to maintain its value. CROCOG will continue to work in partnership with other agencies to acquire statewide orthophotography and elevation data.
2. **Update and Improve Accuracy of Current Datasets and Modeling Network.** Use the existing high resolution orthophotography to conflate, update and improve the accuracy of CROCOG data.

2: TRANSIT SYSTEM

The private automobile is not the only way to travel within the Capitol Region. Alternative travel modes include local and express bus service provided primarily by CT **transit**, paratransit services provided for the elderly and persons with disabilities through such agencies as the Greater Hartford Transit District, and rideshare services. In addition, transportation services are provided by a variety of human services agencies and programs.

These services play an important role in meeting the travel needs of our residents. They serve the basic mobility needs of our transit-dependent population: the elderly, persons with disabilities, and families that do not own a car. They also serve the commuting needs of a small but significant portion of the Region's workers. About 3.8 percent of all workers in the Region take the bus to work (2013 ACS 5 year estimates). Of those who work in Hartford, about 7.7 percent commute by bus. In total, over 14.7 million trips a year are served by our transit system (CT **transit** ridership data.) The bus system removes a significant portion of cars from the roads during the most congested periods of the day and in some of the most congested areas, and we plan for it to have an even bigger impact in the future.

The Council of Governments recognizes that while transit is a small part of a much larger transportation system, it is a critical part nonetheless. In fact, the Council has increasingly sought to place more emphasis on transit improvements as a way to improve mobility for those who rely on transit, to provide viable travel choices for everyone, and to reduce congestion on our streets. Since the mid-1990s, CRCOG has undertaken several initiatives to improve transit options.



TRANSIT SERVICES

CT **transit**

- Local bus service
- Commuter bus service

GREATER HARTFORD TRANSIT DISTRICT

- Union Station owner
- Services for elderly residents
- ADA Paratransit

VRIDE

- Vanpool Programs for commuters

CT **rides**

- Commuter Services

HUMAN SERVICE AGENCIES

- Services for elderly residents
- Service for persons with disabilities

Recommended Transit Improvement Program

The Region's recommended transit improvement program is based on: the 2001 Regional Transit Strategy (RTS), recommendations reflecting the Council's work with the Jobs Access Program, the locally coordinated human services plan and recommendations from previous Regional Transportation Plans. In addition, the RTS recommendations have been revised for those particular corridors where feasibility studies have been completed.

Rapid Transit Service

In 2001, CRCOG completed an intensive 2-year effort to define a new vision for a transit system that would serve travel needs within the Region, and provide transit links to cities outside the Region as well. The resulting Regional Transit Strategy (RTS) contained a vision for regional transit in the greater Hartford area that aims to **restore balance** among modes in our transportation system and provide travelers with **more choices**.

The RTS recommended that new rapid transit services be developed in five corridors; however, subsequent studies have indicated merit in advancing the construction and operation of CT **fastrak** in the New Britain – Hartford corridor, and further planning and/or design activities for other busway systems as summarized below.



CTfastrak (formerly New Britain – Hartford Busway): CT **fastrak**, an exclusive bus-only, rapid-transit system, will be operational in March 2015. The right-of-way is located in the Amtrak corridor from Hartford to Newington, alongside the proposed New Haven / Hartford / Springfield (The Hartford Line) commuter rail. South of Newington, the alignment runs in the New Britain Secondary corridor. The 9.4-mile corridor has 11 stations (including Union Station) and will serve an estimated 16,000 daily riders. The project includes a bus-only roadway, reconstruction of eleven bridges, construction of 10 stations, amenities (landscaping, signing and lighting), and a multi-use pathway for a portion of the

alignment, between New Britain and Newington. Its flexible service will reach a broad geographic market allowing both local services and commuter express buses to use the system. The service frequencies during the peak morning and afternoon commute periods are expected to be every seven to eight minutes.

In addition to relieving congestion on Interstate 84, CT **fastrak** offers great opportunities for creating a sustainable transportation system. Since the adoption of the Regional Transit Strategy in 2001, CRCOG has been encouraging and promoting Transit Oriented Development with municipalities along the corridor, to ensure that transit-supportive land use planning is undertaken. In 2013, CRCOG completed a Transit-Oriented Development market analysis entitled *Making It Happen: Opportunities and Strategies for Transit-Oriented Development in the Knowledge Corridor*, which provided support for local and regional efforts.

The key findings of the study are:

- Demographics are promising for transit-oriented development
- Corridor-center growth is needed
- TOD-supportive businesses and industries are growing
- TOD development needs more than transit
- Realizing the potential for TOD in the region will require proactive efforts
- Active leadership is crucial for success

Also in 2013, CRCOG established a Corridor Advisory Committee (CAC) to provide chief elected officials and other interested parties from cities and towns on the CT **fastrak** and the Hartford Line corridors a forum to share information. A subcommittee focused on more detailed CT **fastrak** matters was also established.

Griffin Busway: A feasibility study for the Griffin busway, located in the Griffin rail corridor from Union Station to Griffin Office Park in Bloomfield, with bus service extended to Bradley Airport via Route 187, recommended deferring construction of this busway until there is sufficient experience with the New Britain Busway (CT **fastrak**) operations to evaluate its success. This recommendation is based on the fact that the cost-effectiveness ratio for the Griffin Busway is not sufficient to meet the minimum federal criteria at this time. The study also recommended that efforts be taken to build the ridership potential of the corridor.

A study to do that was completed in 2010. The Northwest Corridor Transit Study recommends that a transit hub be established at the Poquonnock park n ride lot (Exit 38 on Interstate 91) with shuttles providing improved service to the employment locations along Day Hill Road. Additionally, it recommends establishment of express service from suburban locations (Enfield, Manchester/Vernon, and Granby) to this hub. The Northwest Corridor study also addressed transit circulation in downtown Hartford, which is discussed later in this chapter.

Fastrak East (formerly Hartford East Busway): A feasibility study of a busway from Hartford to Manchester and Vernon was completed and a phased approach for implementing a busway in this corridor was recommended. Specifics include:

- Near term: Operate busway in I-84 HOV lanes. Construction of four transit stations (Reservoir, Buckland, Hartford Turnpike and Rockville), and two later (Simmons and Manchester). Expand bus operations to serve those locations and downtown Hartford.
- Long term: Construct a second busway and nine stations in the Connecticut Southern Railroad corridor (not including the Manchester Industrial Spur) between Depot Square in Manchester and Governor Street in East Hartford. Expand bus operations to serve those stations.

Rocky Hill Busway: Proposed busway located in the Hartford/Middletown rail corridor from Union Station to Rocky Hill, with bus service extended to Middletown. Of all the corridors, this corridor has the smallest potential ridership. After CT *fastrak* is operational and Fastrak East planning is further advanced, this proposal will be reexamined, including all transit alternatives for the entire corridor from Hartford through Middletown to Old Saybrook, where it could potentially connect to the Shoreline East service.



The Hartford Line (New Haven – Hartford - Springfield)

Passenger Rail Service: Improve passenger rail service to serve both intercity and commuter trips, providing a connection to Bradley Airport. With the availability of federal funding for High Speed Rail projects throughout the nation over the last years, opportunities to advance rail improvements built from a regional vision for passenger rail in New England become tangible.

Connecticut has been awarded approximately \$190 million in Federal Rail Administration (FRA) funds to re-install a second track along a ten-mile section of the rail corridor from Meriden-Berlin town line to just north of Route 175 in Newington, re-install additional double track throughout the remainder of the 62-mile corridor, and make other improvements. With this funding, CTDOT, in coordination with other federal and state agencies, has conducted an Environmental Assessment (EA) of the New Haven to Springfield rail improvements.

The Implementation Plan for Commuter Rail service in Connecticut was published in June 2005. An environmental impact analysis of this new commuter rail service was completed and, in 2012, a Finding of No Significant Impact (FONSI) was issued by the Federal Railroad Administration (FRA).

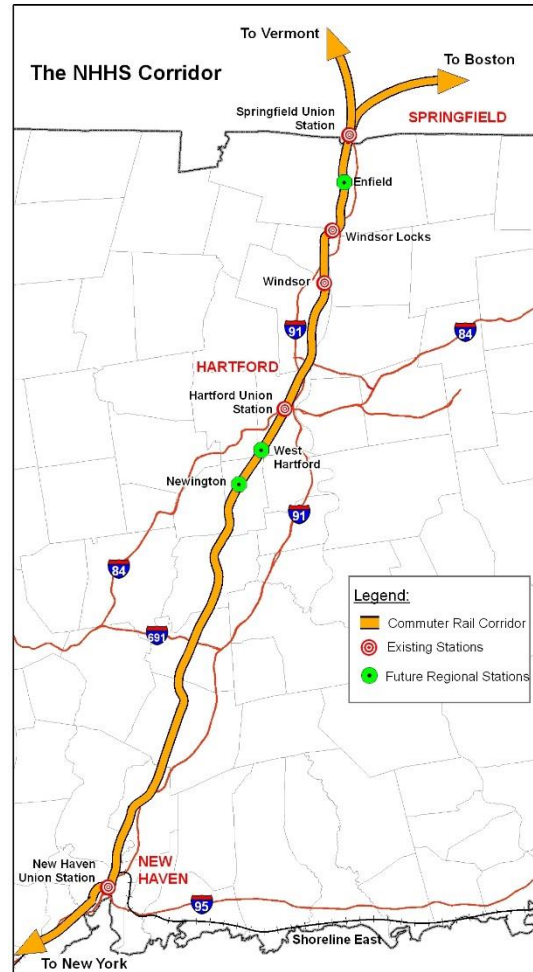
The service along the Hartford Line will build on the existing Amtrak service and consist of:

- Bi-directional service, New Haven - Springfield, Monday through Friday at 30-minute peak period schedule.
- Replacing about 40 miles of double track.
- Adding North Haven, Newington, West Hartford and Enfield commuter stations.
- Enhancing the Windsor Locks station with a bus connection with Bradley International Airport.
- Modifying local bus services to connect with passenger stations.
- High-level platforms and grade-separated passenger facilities at all stations.

CTDOT, CRCOG and rail municipalities are working together to plan for, design, and secure funding for infrastructure pieces north of Hartford. The major infrastructure pieces still requiring advancement:

- Renovate and upgrade the Hartford Rail Viaduct and the Connecticut River Rail Bridge in Windsor Locks to modern design standards. Integrating rail freight into passenger rail operations. Increase weight limits to 286,000 pounds per freight rail car and remove height restrictions to accommodate modern high capacity freight rail cars.
- Construct stations and platforms in Enfield, West Hartford, Newington and North Haven.

The rail infrastructure improvements that are currently being implemented are one phase of a set of inter-related projects that will ultimately result in the development of intercity high-speed passenger rail service throughout New England. CTDOT has been working closely with the Massachusetts Departments of Transportation and the Vermont Agency of Transportation to extend High Speed Intercity Passenger Rail service (HSIPR) northward to Montreal, Canada and eastward from Springfield to Boston. A key component of the 2030 Vision for High Speed, Intercity, and Regional Rail Service in New England collectively being developed by the Departments of Transportation in the six New England States is double tracking and station improvements along the New Haven-Hartford-Springfield portion of the rail corridor. These improvements will provide the foundation for a regional rail network.



Union Station: Union Station plays an important role in interregional and interstate rail and bus service, and is an important element of the CT *fastrak* and Hartford Line improvements. The station is also an important cultural and historic asset. The Greater Hartford Transit District (the District) is the owner of the station and serves as the steward for this significant landmark.

In 2010, as part of the Northwest Corridor study, CRCOG made recommendations for maintenance upgrades and functional upgrades to the station. The Northwest Corridor work envisioned the station as the center of the transit system in the downtown. In 2013, the District undertook an examination of the condition of the historic brownstone skin of the station. That investigation recommended that the entire exterior be repointed and that spot repairs be made to the stone.



With the construction of the City of Hartford Intermodal Triangle project, many of the recommended improvements have been made. A transit center for local buses has been constructed on the northeast side of the station. Sidewalks bordering the station have been improved and drop off and pick up locations around the station have been reorganized to facilitate circulation. A digital Passenger Information Display System has been installed in the station. This system provides real time information for bus and train arrivals at the station. The system is set up to accommodate local bus real time information when that is available. In addition, The HVAC system and windows have been upgraded and, energy savings systems have been installed.

RECOMMENDATIONS:

1. **Rapid Transit System.** Support the implementation and service plan refinements for CT **fastrak** and work to expand a rapid transit system by supporting other initiatives in the corridors described above. Continue and intensify planning of the extension of bus rapid transit to East of the Connecticut River along the I-84 HOV lanes.
2. **Rail Corridor Preservation.** Continue to preserve existing rail rights-of-way for future transportation use. The policy includes all existing rail rights-of-way and it allows for the interim use of the rights-of-way for other transportation functions such as multi-use trails.
3. **Passenger Rail System.** Support the advancement of the Hartford Line Passenger Rail service with a bus connection to Bradley Airport from the Windsor Locks Station. Support planning activities for the Northern New England Intercity Rail Initiative (NNEIRI) for implementation of passenger rail service between Boston – Worcester – Springfield with alternating extensions to Montreal and New Haven.
4. **Upgrade The Hartford Line Rail Corridor.** Reinstate full double track alignment, remove height restrictions and increase weight limits to accommodate 286,000 pound cars.
5. **Expand Commuter Rail Service North.** Building on the vision for the New England High-speed and Intercity Rail Network collectively developed with other New England states, work to support connections to Boston and Montreal.
6. **Union Station Enhancement.** Continue to support efforts to improve, upgrade and enhance Union Station as the major multi-modal transportation center in the Region and as the central station for the Region's rapid transportation system.

Better Bus & Paratransit Service

Even with significant investments in a rapid transit or fixed guideway system, the local bus service and paratransit services will continue to provide the fabric that ties our transit system together. The following recommendations, which are based on both the RTS and other regional transit policies, are intended to assure that the existing services are both properly maintained and improved to meet identified needs.

JOBS ACCESS PROGRAM. In cooperation with the CT Department of Social Services and a host of other social service and transit agencies, CRCOG started the Jobs Access Program in 1997. Over the past 16 years, the Federal Transit Administration and the Connecticut Department of Transportation have also provided necessary funding to maintain the Jobs Access program. This program provides rides to work for transportation-to-work clients and other low-income residents who want to work, but who cannot reach certain job sites due to lack of a car, lack of regular bus service to the site, or lack of bus service for second or third shift and weekend schedules. This innovative program matches clients to the best available transportation service that meets their commute needs. In the year 2014, the Jobs Access Program provided about 56,000 trips per month (an increase of more than 9% since 2010) for about 4,120 residents who needed help getting back and forth to work.

LOCALLY COORDINATED HUMAN SERVICES TRANSPORTATION PLAN. In cooperation with the CTDOT and various human services agencies and transportation providers, CRCOG created a locally coordinated human services transportation plan in 2007 and updated it in 2009. This plan is a separate document, and outlines how the Region will seek to meet the transportation needs of the low-income residents, the elderly, and persons with disabilities.

This planning process was required by previous federal legislation (SAFETEA-LU) in order to access federal funds in the following programs: Section 5310 (van purchase program), Section 5316 (Jobs Access Reverse Commute, JARC) and Section 5317 (New Freedom funding). Since the LOCHSTP plan was developed, the Region has built upon the base established in this planning process. We have utilized the network of social service agencies and transportation providers developed for this effort to continue to refine our

understanding of the needs for transportation for the target population. The findings of this planning process have informed our work with CT *transit* and the Jobs Access Task Force, and we have continued to examine the gaps identified and to make recommendations for improved service and service delivery on a proactive basis.

MAP-21, the latest federal transportation legislation, no longer requires Jobs Access and Reverse Commute projects to be included in a LOCHSTP plan; however, FTA encourages recipients to continue the coordinated planning process as a best practice for JARC project selection. And 5310 (Elderly) and 5317 (New Freedom) projects (now both funded under Section 5310) must be included in *a locally developed, coordinated public transit-human services transportation plan*. The plan “must undergo a development and approval process that includes seniors and people with disabilities, transportation providers, among others.”

PARATRANSIT FACILITY. The Greater Hartford Transit District, in addition to serving as a conduit for advancing transit-related capital projects, provides ADA (Americans with Disabilities Act) paratransit service in the Greater Hartford and New Britain/Bristol region. The District is advancing a project to construct a new paratransit operations and maintenance facility to meet the current and future needs of the District’s paratransit operations. A preferred location was identified in East Hartford and purchased. The new facility has been designed to accommodate the operational activities of the District including reservation, scheduling and dispatching; training rooms, drivers’ lounge area, a minimum of four (4) maintenance bays along with a mechanics’ area, a vehicle wash bay, and a maintenance storage area for parts inventory. Construction of the facility is expected to commence during the 2015 construction season.

BUS STOP SIGN AND SHELTER POLICY. In the year 2000, CROG adopted a bus stop policy to help improve bus stops throughout the Region. The policy was intended to help establish a program to install and replace passenger shelters at important bus stops, establish a program to install new bus stop signs at all stops in the Region, and to better define town responsibilities for maintaining bus stops. The policy and resultant improvement programs reflect a desire to improve conditions for bus patrons where they wait to board the bus. A unified and coordinated bus stop sign program was undertaken to install easily identifiable bus stop signs throughout the Region. A coordinated bus shelter program is underway to enable the transit operator, CT *transit*, to take over responsibility for the bus shelters in towns choosing to participate. CT *transit* will support the shelter program by placing advertising on some of the bus shelters.

RECOMMENDATIONS:

1. **Maintain & improve existing levels of service.** The bus and paratransit systems in the Region are critical to meeting the area mobility needs and providing options to the automobile. As we continue to invest in sustainable forms of transportation, our basic bus system will continue to need attention. Regardless of how extensive our proposed rapid transit system will be, the basic bus service will continue to provide the backbone of our transit system. CROG is committed to a policy of optimizing the existing transit service and maintaining necessary levels of service to provide transit access and to improving those services where appropriate.
2. **Access for Bicyclists.** CROG also recognizes that many individuals, who rely on transit for their travel, also rely on bicycle transport. This can be a particular need for low-income individuals. Therefore, the transit system must be adequately integrated with bicycling. Bike racks have already been installed on buses; there is a need to also provide bike parking at major bus stops, including park n ride lots. Bike racks have been provided for cyclists at all CT *fastrak* stations
3. **Jobs Access Program.** The Region should continue its Jobs Access program (note that funding for this program may be transferred from CT DSS to CTDOT, resulting in a scaled back Jobs Access program). It is important to develop new systems to provide access to jobs for those who are seeking jobs, but who lack personal transportation.



4. **Locally Coordinated Human Services Transportation Plan.** The Region should continue the LOCHSTP planning process.
5. **Better Bus Services.** Our Region's bus system has developed over many years and in many ways reflects the development patterns of 40 years ago. At this time it is characterized by routes with numerous branches, uneven headways, and slow speeds. As opportunities present themselves, the system should be evaluated to determine if there are ways to deliver a more effective system, within current budget constraints. The RTS recommended several improvements to the existing bus system such as more hours of service and increased service frequency; more time transfer centers; new routes; modifications to existing routes; and integration of alternate fueled vehicles in the transit fleet as soon as practical. These recommendations should continue to be evaluated with regional partners such as CTDOT and CT **transit**. CROCOG is in the process of conducting a Comprehensive Transit Service Analysis with the goal of developing different service plan scenarios that would include improvements and changes described above.
6. **Bus Rapid Transit on Arterial Roadways.** CROCOG will also evaluate with our regional partners and municipalities the feasibility of introducing bus rapid transit on arterial roadways. Techniques that could be evaluated include bus lanes, preferential treatment at traffic signals, off vehicle fare collection and expanding the spacing between bus stops.

ITS for Transit

The operational efficiency of the existing transit and paratransit services can be improved by integrating advanced technologies into current operations, maintenance, and management functions. Using technology to enhance local bus service can augment the transit experience of all transit riders, but especially the transit dependent. Technologies such as global positioning systems (GPS), advanced vehicle location systems (AVL), electronic next bus arrival signs, and next stop announcement systems can improve service reliability and make it easier for riders to use the bus. Transit priority added to traffic signals can help keep buses on schedule and computer-aided dispatch can improve efficiencies for both fixed route and dial-a-ride services. These systems have recently been introduced in the Hartford area, as described below.

FIXED ROUTE BUS SERVICE. CT **transit** recently installed a new state of the art digital radio system that operates on the Connecticut State Police (CSP) communications backbone. Utilizing the CSP network of towers, CT **transit** was able to get better statewide coverage. CT **fastrak**, opening in March 2015, will have



a variety of ITS components. The buses will be GPS-equipped to allow for Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL). CT **transit** dispatchers will be able to track the buses to know where they are located and whether they are on schedule. The AVL system will also feed data to electronic information signs located at the 10 busway stations to advise customers when the next buses will arrive. In addition, this data feed will be available for access by smartphones for next bus arrival information. CT **fastrak** buses will also have automatic passenger counters (APCs) and Wi-Fi. The APCs are needed for customer counts as passengers pay using a Proof of Payment honor system. They do not pay at the farebox but purchase a ticket from a vending machine on the platform, or they have a regular CT **transit** pass or ticket. Fare inspectors will make random checks to verify customers have a ticket or other fare media. Wi-Fi is for the customers to use while on the bus.

By mid-2015, many of the CT **fastrak** ITS components will be rolled out to the regular CT **transit** service in the Hartford area. The automatic vehicle location system and APCs will be installed during the summer. By the end of 2015, customers should be able to use their phone, tablet or computer to determine when the bus will arrive at their stop. There is no plan to install Wi-Fi on the regular Hartford buses.

Also coming in 2015 is a new fare collection system. CTDOT has awarded a contract for new fareboxes for both the CT **fastrak** buses and the regular Hartford bus fleet. These fareboxes will replace equipment from 1994 that is beyond its useful life. These new fareboxes are capable of accepting smart cards and bar coded tickets, which will be introduced at the very end of 2015. In early 2016, the fareboxes will be upgraded to accept mobile fare payment.

In summary, over the next year, CT **transit** will implement a variety of new technology. They will be able to better manage their transportation services, allow the public to find out when their bus will arrive and offer them easier ways to pay their fare. The next steps will be to assure that these new systems are maintained, and that as new technology comes online, consideration is given to upgrading to provide the best transit services available.

REAL TIME INFORMATION AT UNION STATION. The Greater Hartford Transit District installed a passenger information display system (PIDS) in Union Station in 2014. The system provides real time information for intercity bus and rail service currently operating at the station. Monitors are located in the transportation center and Great Hall and display arrival and departure data. Signs over each bus bay provide information on the next trip out of the bay. A monitor has been installed in the new local bus transit center on Union Place. This will initially provide static schedule information but when CT **transit** implements AVL, the system will then provide real time information. CTDOT will build upon this system when it readies the station for new commuter rail service. The final element of the PIDS is a touch screen kiosk which enables visitors to the station to explore events and attractions in downtown. The kiosk provides walking directions to the major attractions in the downtown.

PARATRANSIT BUS SERVICE. The Greater Hartford Transit District operates paratransit service for elderly and disabled persons in the greater Hartford area. They use a mobile computing and AVL system that is integrated with its scheduling and dispatch software system. With mobile computing, the drivers receive in-vehicle electronic manifests and get turn-by-turn navigational prompts to their destination. Automated data collection eliminates the need for manual data entry. Real-time status of vehicles allows dispatchers the flexibility to make last minute changes. Emergency alarms were also installed on all vehicles.

GHTD is planning to add real time passenger information to its ITS program. This will include automated customer services: trip confirmation, cancellation and arrival alerts. In addition, by working with regional and multi-modal providers, GHTD is now able to provide real time passenger information at Hartford's Union Station. GHTD would like to expand this program to onboard vehicles, and through the internet or cell phones. An additional system under consideration is the implementation of an electronic fare payment system that can be utilized by all modes.

RECOMMENDATIONS:

- 1. Continue to support ITS Projects for Transit.** As ITS for transit services are implemented in the Region, CRCOG should continue to work with CTDOT, CT **transit** and the GHTD to monitor performance, keep up with knowledge about new technology, and recommend continued upgrades as appropriate, in order to assure that both transit-dependent passengers and choice riders are afforded the best possible service.
- 2. Support Maintenance for Implemented Transit ITS.** ITS elements installed throughout the Region will require maintenance and potential upgrading through the next 25 years. CRCOG will support the maintenance and upgrading of implemented transit ITS elements.

Better Circulation within Activity Centers

A downtown circulation system has been recognized as integral to the success of the proposed rapid transit facilities. The 2004 Regional Transportation Plan recommended the implementation of a downtown circulator in Hartford. A special task force was subsequently formed by the Metro Hartford Alliance to explore ways of bringing this service to a reality. Funding was identified, a route was selected and a marketing program developed. Operation started in September 2005 as the Star Shuttle and has since been re-branded as **dash** service, this route successfully serves residents, workers and visitors, especially those visitors who are in town for events at the Connecticut Convention Center. The success of this service has spawned requests for similar routes elsewhere in the city, and Region.



A number of studies have been completed, specifically looking at circulation within activity centers. The Northwest Corridor Transit Study examined issues of transit circulation in downtown Hartford, including the evaluation of the feasibility of establishing a transit center, and evaluating the downtown circulation of all bus routes and transit circulation in the Day Hill Road corporate area. The Buckland Area Transportation Study investigated opportunities for local circulating bus services.

In 2012, CRCOG completed a Downtown Hartford Bus Circulation Study, working with the City, CT **transit**, CTDOT and the Greater Hartford Transit District. This project was done in consultation with the City of Hartford's TIGER project which is currently under construction and preliminary CT **fastrak** routing. Since the 2012 study adjustments to the downtown circulation were made as a result of CT **fastrak** service planning efforts completed earlier in 2015.

In 2012 and 2013, CRCOG utilized funds from its HUD Sustainable Communities Regional Planning Grant to conduct three transit enhancement studies in the towns of Windsor, Enfield and Manchester: the Enfield Transit Study (August 2012), the Windsor TMA Final Report (August 2012), and the Manchester Transit Study (January 2013). A summary of these studies and their recommendations follow.

- **Enfield Transit Study.** This planning study developed the final route and operating details for a new local bus service: the Magic Carpet shuttle bus service, which was launched in January 2013. The Magic Carpet links the villages of Thompsonville and Hazardville and provides access to main retail corridors. In addition to funding this planning study, CRCOG was able to assist by bringing the need for transit in Enfield to the forefront with the CRCOG 2007 Locally Coordinated Human Services Transportation Plan. This enabled the town to access New Freedom funds for the service.
- **Windsor TMA Final Report.** The purpose of the Windsor TMA Study was to assess the feasibility of creating a Transportation Management Association (TMA) within the Windsor Corporate Area, specifically along Day Hill/Griffin Road and International Drive in Windsor. The study's review of TMA practices nationally and through case studies identified three levels or types of TMA services that are applicable to Windsor: Level 1, Transportation Management Task Force; Level 2, Employer-Based Services; and Level 3, Establishment of a TMA. While currently there is not enough need/demand amongst Windsor Corporate Area employees to compel employers to financially support a TMA, it was noted that employers are supportive of transit and mindful of sustainability. In fact, many companies have established sustainability goals and practices that are in keeping with the objectives of a TMA. Following the best practices identified above, there is sufficient evidence and interest on the part of Windsor Corporate Area employers to develop a phased-in approach that would continue to engage stakeholders in a process leading up to formation of a full-service TMA over the next six to eight years.
- **Manchester Transit Study.** This study examined opportunities to improve transit service in the Town of Manchester given other new and planned transit services in the area. Within this objective, the study specifically considered the feasibility of restructuring the Manchester transit routes, and potentially including a transit hub in the vicinity of The Shoppes at Buckland Hills. The study was

initiated by CRCOG and led by a Technical Advisory Committee that included representatives from CRCOG, the Town of Manchester, CT **transit**, and CTDOT. Recommendations were: 1) create a transit hub at Buckland Hills; 2) create a mini hub at Spencer Street; 3) update Route 83; 4) separate Route 82 and Route 84; 5) eliminate unproductive route segments; 6) create a Upass Program, which would provide members of an institution, such as a college, universal access to transit service; 7) improve marketing; and 8) other longer term recommendations, such as considering the potential of operating bus service along Broad Street.

RECOMMENDATIONS:

1. **Downtown Circulator.** Continue to support the **dash** service in downtown Hartford.
2. **Downtown Transit Circulation and Union Station.** CRCOG will continue to support the implementation of CT **fastrak** and further enhancements to the circulation of downtown bus routing.
3. **Day Hill Road Employer Shuttle.** Develop a transit hub at the Poquonnock park n ride lot and operate employer shuttles and suburban express routes to this hub. Work with area employers to develop a transportation management association to operate the employer shuttles.
4. **Buckland Area Multi-Modal Transportation Center and Area Enhancements.** Develop a multi-modal transportation center at the existing parking lot between Interstate 84, Buckland Street and Pleasant Valley Road. In coordination with this, improve bus stop signage and shelters, improve/consolidate existing bus routes/stops, provide a circulator shuttle, and evaluate the use of ITS technologies.
5. **Enfield.** Continue to support operational funding for Enfield's Magic Carpet Service.

Better Portals to the Transit System

Both the RTS and the regional bus stop policy placed emphasis on those locations where people gain access to the transit system. More people will be encouraged to use the transit system if these 'portals' to the system are improved.

RECOMMENDATIONS:

1. **Major Transfer Centers.** The creation of timed transfer centers, or mini-transit hubs, outside downtown Hartford should be created. A transfer center creates the opportunity for a person to get to other bus routes more directly and more quickly. Furthermore, the transfer center encourages several routes to come together outside of downtown Hartford, resulting in improved mobility at the new hub. Recommended locations include:

- Copaco Plaza (Bloomfield)
- West Farms Mall (Farmington)
- Buckland Hills Mall (Manchester)
- Wethersfield Shopping Center (Wethersfield)
- Day Hill Road Corporate Area (Windsor)

2. **Transit Stations.** Fixed transit stations are a key element of each of the proposed rapid transit lines. Each major station should include appropriate amenities to make them both attractive and convenient to use. Stations will include covered platforms at high ridership locations. Transit-oriented development is also encouraged at and near all stations.

3. **Transit Supportive Uses at Stations.** When individuals travel to and from work, their trip often has several purposes: dropping children at day care, taking care of errands, picking up dinner. For



some commuters, these other needs make transit infeasible for the work trip. But if retail facilities, day care, dry cleaning establishments, and other services are made available at transit centers and stations, the transit trip becomes feasible. The development of such services at key transit centers and stations should be encouraged.

4. **Bus Stop Signs.** CRCOG's Bus Stop policy recommended the creation of a bus stop sign program to install standardized signs at all stops. That program is complete however CRCOG will continue to support enhancements to signage.
5. **Bus Shelters.** CRCOG is presently working with CT ***transit***, GHTD and municipalities to develop a cohesive and coordinated regional bus shelter program. CRCOG will continue to support this effort. Phase 1 of the shelter installation will begin in Spring 2015.

Better Transit-Land Use Connections

In order for the proposed transit improvements to realize their full promise, they need to be fully integrated into the surrounding land use. Before the advent of the automobile, cities were largely shaped by their transit lines and routes. Today, highways and roadways tend to be a stronger determinant of land use and urban form which has resulted in dispersed development and travel patterns that are difficult for transit to serve. CRCOG is committed to using transit as a tool to shape urban form and encourage land use planning that can support additional transit investments. A more detailed discussion of CRCOG's support for making this transit-land use connection can be found in Chapter 1.

RECOMMENDATION:

1. **Support Transit Oriented Development along Transit Lines,** as described in *Chapter 1: A Sustainable Transportation System*.

3: HIGHWAY SYSTEM

The regional highway system consists of a hierarchy of road types: freeways, major non-freeway roadways (arterials), and local and collector roadways. The freeways are limited access, grade-separated facilities whose function is to serve longer distance trips and through traffic. Arterial roadways are not limited access and generally have at-grade intersections. They typically serve a dual purpose of carrying longer distance trips, but also serve shorter trips and provide access to abutting land uses. The primary function of collector and local roads is providing access to abutting property.



Freeways. Freeways are the most important part of the Region's roadway system. There are 115 miles of freeways in the Capitol Region. These constitute only 3.0 percent of the total road miles (4,020 miles) in the Region, but they carry just about half of the total traffic or vehicle miles of travel. The freeways are I-91, I-84, I-291, I-384, Route 2, part of Route 20 (the Bradley connector), and part of Route 15 (from I-84 to the Berlin Turnpike). These roadways are critical to connecting the Region to places outside the Region, to commuting and other long distance travel within the Region, and to the Region's economic health.

Arterials. Arterial roadways are the second most important part of the regional highway network. The arterial network comprises only 13.9 percent (560 miles) of the entire road network, but it carries almost 32 percent of the total traffic.

Collectors & Locals. The collector and local roads are the primary means of providing access to property, homes, and businesses. They are like the small capillaries in the body that deliver blood and oxygen to all the tissues in the body. They are numerous and they account for 83.2% percent (3,345 miles) of the total roadway network. While the total number of centerline miles is extensive, they serve a small volume of traffic, or about fifth of the total regional travel.

The focus of the Regional Transportation Plan is on the portion of the highway network that is of regional significance – the freeway and arterials roadways. It is the goal of the Plan to manage the system in a manner that the network can continue to function in a safe and efficient manner to serve the growing demand for travel in the future.

Traffic Growth: 2015 - 2040. Traffic is expected to grow approximately 11.9 percent over the next 25 years. In 2015, total travel in the Capitol Region is estimated to be about 20,330,000 vehicles miles traveled (VMT) per day. This is expected to grow to about 22,750,000 vehicles miles per day in 2040.

Primary Freight Network. (PFN). As per Moving Ahead for Progress in the 21st Century (MAP-21) regulations, a Primary Freight Network (PFN) has been established by the Federal Department of Transportation in a draft form. This network includes I-91 and I-84 within the Capitol Region. The Connecticut Department of Transportation has provided comments to the initial draft and has suggested the addition of I-291, I-691, CT 20 and the US 5 and CT-15 connection (Charter Oak Bridge) between I-91 and I-84 in Hartford. These suggested additions provide critical connections between the interstates and help divert away from the highly congested interstate sections in the Hartford area. The draft network is meant to assist States in strategically directing resources toward improved system performance for efficient movement of freight.

Within the Capitol Region, the I-84 and I-91 corridors are mentioned within the top 100 freight-significant highway locations. I-84 at the I-91 interchange ranks 18th and the Charter Oak Bridge ranks 94th amongst the top 100 congested freight-relevant US highway corridors.

Operations & Management Strategies to Improve Safety & Reduce Congestion

Important goals of the transportation planning program are to improve safety and reduce congestion. While these goals underlie most of the recommendations in this chapter, CRCOG has adopted an approach to achieving those goals that relies heavily on improving the way we manage existing freeway and arterial facilities. This reflects a *longstanding policy* (first adopted in the 1994 Plan) of first attempting *to solve problems by improving the operational efficiency of the existing system, before resorting to building new or wider highways*. Therefore, the programs of congestion management and safety management described below emphasize operations and management strategies such as roadway operational improvements, technology enhancements (ITS), incident management, transit promotion and demand management.

To achieve safety and congestion objectives, the Federal Highway Administration requires that transportation planning organizations like CRCOG put in place special procedures or programs to monitor and manage congestion and safety. In late 2007, CRCOG completed a Transportation Monitoring & Management Report for the Metropolitan Hartford Area, assessing traffic conditions and operations on both freeway and select arterial segments. CRCOG also monitors safety trends and develops strategies and actions to correct identified problems and trends. In 2014 CRCOG also started working with the State's Safety Circuit Rider to identify safety focus areas and potential mitigation strategies, particularly on municipally owned roadways. These programs are described below.

Congestion Management Program (CMP)

Eliminating all congestion in metropolitan areas is not feasible, economically or environmentally. But tolerating some congestion does not mean that we take no action to minimize congestion, or to reduce the impacts congestion has on our quality of life and economic health. It is in our best interest to find cost-effective and environmentally-sound means to manage congestion. Thus, a key goal of the transportation plan is congestion management – correcting our most severe problems, reducing the growth of congestion in the future, and mitigating the impacts of congestion that cannot be eliminated.

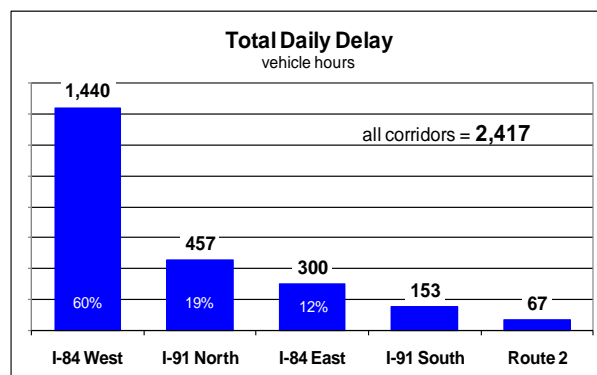
The congestion management strategies underlying most of this plan include operational improvements, incident management, and demand management.² Operational improvements target some of our most severe congestion hotspots, incident management reduces traffic jams caused by accidents and other incidents on freeways, and demand management attempts to reduce demand at key travel times. Building new capacity is considered only after other options have been exhausted.

This strategy is reflected in the 2005 Metropolitan Hartford Area Transportation Monitoring and Management Report, and subsequent 2010 update. The planning process, conducted cooperatively by CRCOG, CCRPA and Midstate RPA, monitors both freeway and arterial roadway congestion and identifies strategies for addressing congestion. The program's goal is to promote the safe and efficient operation and management of the Region's transportation system in order to better serve the mobility needs of people and freight. The program has three major objectives:

1. To monitor and assess system performance.
2. To identify where improvement is needed & establish priorities for corrective actions.
3. To monitor the effectiveness of corrective actions.

² Programs for reducing congestion through improved transit services are addressed in *Chapter 2: Transit System*.

The 2010 Transportation Monitoring & Management Report revealed the continued trend of worsening congestion on the freeway system in the Hartford Metropolitan area. In 2005, the highways congestion caused 2,225 vehicle hours of delay per day and the follow-up study in 2010 showed a delay of 2,417 vehicle hours. This congestion is not evenly distributed throughout the freeway network, but is concentrated in certain travel corridors, as shown in the chart to the right. Interstate 84 west of Hartford represents 60% of the total regional vehicle hours of delay per day. With more than 75 percent of the Region's freeway congestion occurring in just two corridors, most of our congestion management activities will need to be focused on these areas.



I-84 West Strategies. The CMP findings support earlier planning analyses that identified Interstate 84 west of Hartford as the Region's most congested corridor. These findings coupled with the observed increases in I-84 congestion experienced since 2005, provide leverage to commencing CT **fastrak**. This demand management option is very cost-effective at reducing demand and congestion in the I-84 West corridor.

Two freeway operational improvements were also recommended to eliminate local bottlenecks on I-84. The recommendations include improvements in Farmington and West Hartford, summarized later in this chapter. This is an example of how a program of comprehensive and multi-modal transportation planning can achieve congestion management goals.

Capitol Region arterial routes monitored in 2005 and in 2010 include Route 4, 44, and 15. Although the overall congestion hasn't changed significantly between 2005 and 2010, several sections of these corridors continue to suffer significant delays during peak hours. Some of the contributing factors to congestion are on-going road safety improvement projects, lane merges, and existing geometric configurations of intersections.

RECOMMENDATIONS:

- 1. Continue to Develop the Congestion Management Program.** Continue to work with neighboring MPOs to update and expand the Hartford Area Congestion Management Program.
- 2. Identify Performance Based Measures for Congestion in the Capitol Region.** Continue system monitoring, update the 2010 CMS report, evaluating the use of more performance based measures to enable a more comprehensive monitoring of the Region's transportation system.
- 3. Identify and implement Mitigation Strategies.** Based on mitigation strategies identified by the 2010 CMP, apply congestion mitigation strategies when developing new programs and projects in the region.

Safety Management Program

An important objective and focus of the Capitol Region transportation planning program is assuring a reasonable level of safety for travelers who use our highways and transit systems, be they drivers, passengers, bicyclists, or pedestrians. Safety has always been a part of CRCOG's planning activities, and this plan renews CRCOG's commitment to improving safety for all modes of travel.

CAPITOL REGION SAFETY MANAGEMENT PRINCIPLES. In order to assure a continuing and comprehensive approach to improving safety of travelers, the safety management program will contain the

general components and features listed below. We will continue to re-examine and revise these elements as needed.

1. **Include Safety in All Studies.** Safety will be part of all CRCOG studies.
2. **Improve Safety for All Modes.** Safety is a concern for all modes of travel. This demands that safety be a priority in all CRCOG programs regardless of mode. This has been, and will continue to be, the practice of CRCOG. Mode-specific plans, such as the regional bicycle plan, contain safety recommendations relevant to that specific mode. More comprehensive efforts, such as corridor studies, address safety issues for all roadway users - motorists, transit users, pedestrians, and bicyclists. CRCOG remains committed to improving safety for all modes of travel.
3. **Monitor Regional Safety Conditions & Trends.** CRCOG will monitor safety conditions and identify emerging trends in the Region. Within the highway planning program, this will include regular reviews of accident data compiled by CTDOT and a summary of findings. Monitoring of transit, bicycle, and pedestrian safety conditions will also be done as data allows.
4. **Support Traffic Incident Management as a Safety Tool.** CRCOG will continue to support traffic incident management as a valuable tool for reducing secondary accidents. We will also support the practice of traffic incident management procedures that ensure the safety of emergency service personnel who respond to incidents on the highway.
5. **Collaborate With and Support CT Safety Circuit Rider Program.** In 2014 Connecticut, in partnership with the University of Connecticut's Technology Transfer (T2) Center, established a Safety Circuit Rider position to assist municipalities with Local Road Safety planning. CRCOG works closely with the T2 Center and the Safety Circuit Rider and will continue to support this program to ensure local road safety planning is advanced.
6. **Support the CT Strategic Highway Safety Plan.** Some aspects of safety and safety management extend beyond regional boundaries and require a statewide approach to policy development and programming. In response, CTDOT prepared the CT Strategic Highway Safety Plan, which CRCOG is committed to supporting as explained below.

RECOMMENDATION: Improve safety management by practicing the six principles described above.

CT STRATEGIC HIGHWAY SAFETY PLAN. A major component of our safety management program is to support the CT Strategic Highway Safety Plan (SHSP), which was adopted in 2006. The purpose of this plan is to identify the State's critical safety needs and to direct allocated resources to projects and programs designed to achieve significant reductions in fatalities and serious injuries on the State's roadways. CRCOG currently serves on the Steering Committee for the SHSP Update. The plan is currently re-evaluating safety emphasis areas however the following summarizes the initial eight safety emphasis areas:

- | | | |
|--------------------------|-----------------------|-----------------------|
| • Traffic Record Systems | • Driver Behavior | • Work Zones |
| • Roadway Departure | • Motorcycle Safety | • Incident Management |
| • Pedestrians & Bicycles | • Commercial Vehicles | |

Not all of these functions can be effectively supported at the regional level, but CRCOG is committed to supporting those it that can. These are listed below.

1. **Traffic Records and Information Systems.** Developing traffic record systems requires state coordination, plus standardized reporting methods and records. To assist in the development of better reporting and recordkeeping systems, CRCOG has participated in several state committees.

Connecticut Traffic Records Coordinating Committee (TRCC). CRCOG is a member of the TRCC. The TRCC has been working to develop a more comprehensive and effective traffic records system. They are seeking to achieve goals such as more accurate coding of crash location, automated coding of geographic location through GPS, more complete and consistent police reporting of accidents (see PR-1 reporting form below), and integration of local road accident data into state accident databases.

Improved Crash Reporting Form (PR-1). CRCOG also participated in a work group that reviewed the Model Minimum Uniform Crash Criteria and evaluated information found on the Police Report form (PR-1).

Crash Outcome Data Evaluation System (CODES). CRCOG is member of the CT CODES committee. The CODES program, which is sponsored by the National Traffic Safety Administration, attempts to develop systems for linking crash and accident data to various medical records to allow a more complete assessment of the outcome of crashes.

Data Sharing Work Group. CRCOG staff is also a member of a newly formed Data Sharing Working Group. This focus of the group is to start and facilitate discussion on sharing data such as incident and public health information between public agencies. The main idea is to develop a framework on data sharing while maintaining data security and privacy. Participants include representatives from agencies such as DOT, UConn, RPOs, State Police, and other State agencies.

RECOMMENDATION: Continue to support these activities through participation in State committees and other activities as appropriate.

2. **Roadway Departure.** The SHSP includes strategies to reduce roadway departure accidents in Connecticut based on the 2005 "Strategic Plan for Reducing Roadway Departure Fatalities and Severe Injuries in Connecticut." CRCOG is a member of the Roadway Departure Emphasis Area Working Group. This working group meets twice a year to discuss roadway departure accidents and opportunities to reduce accidents of this type. CRCOG will continue to offer guidance to CTDOT related to municipal roadways and assist them in implementing the identified strategies.

RECOMMENDATION: Continue to support these activities through active participation in state committees and other activities as appropriate.

3. **Traffic Incident Management.** CRCOG was represented on the Statewide Incident Management Task Force (SIMTF), a subcommittee of the State's Transportation Strategy Board, during its time of operation from 2003 until 2010. The SIMTF provided a forum for the discussion of traffic incident management issues, with the goal of developing projects and policies that would improve the management of incidents on our State highways. See the section entitled "State Incident Management Activities" below for a more complete discussion of the work of this group.

RECOMMENDATION: Continue to support improved traffic incident management at the State level.

Incident Management

Addresses Congestion Issues. According to the National Traffic Incident Management Coalition, more than 25% of roadway congestion is caused by traffic incidents. Every minute a freeway lane is blocked due to an incident results in 4 or 5 minutes of additional travel time delay. In addition, the likelihood of a secondary accident increases by 2.8% for every minute of roadway blockage. These national statistics and others like them are the impetus for efforts to improve traffic incident management in the Capitol Region. Traffic incident management is the primary tool for reducing highway congestion that occurs when accidents, breakdowns, or other incidents result in a full or partial blockage of the highway. The goals of incident management are to respond sooner to incidents, clear the incidents more quickly, and manage traffic better during the accident.

Addresses Safety Issues. Incident management programs also address safety concerns for both the emergency responder and the motorist. Personnel responding to an incident in a preplanned manner operate in a safer environment, knowing exactly what is expected of them as well as what is expected of other responders. Further, emergency responders are at risk from the hazards of on-coming traffic when they work an incident scene. Coordinated and cooperative incident management programs greatly reduce time spent on-scene, and thus the time responders are exposed to those on-scene hazards. In the same

manner, the sooner motorists involved in the incident are removed from the scene, the sooner they are moved out of harm's way and the sooner they can receive needed treatment, if any.

In addition, motorists are at risk of involvement in secondary incidents caused by suddenly slowed or stopped traffic, lane closures, and the movement of emergency vehicles. Proper incident management procedures and shorter clearance times can significantly reduce the likelihood of secondary incidents.

Regional Traffic Incident Management Activities. Responders to highway incidents in the greater Hartford area have been actively working to improve traffic incident management since 1998. At that time, CRCOG, together with the highway operations staff at CTDOT, established the Greater Hartford Incident Management Steering Committee (GHIMSC) bringing together representatives of local fire and police, emergency medical services, towing services, State agencies, and adjoining regional planning agencies to address issues of mutual interest. The goals were to improve multi-agency responses to highway incidents, and to promote coordination, cooperation and communication.

Over time, the committee activities have evolved to include an emergency management component, acting as the Capitol Region Emergency Planning Committee's (CREPC) Regional Support Function for transportation (RESF-1). A more complete discussion of this function is contained in *Chapter 7: Special Policies*. RESF-1 continues as the Region's traffic incident management committee and the Region's emergency management committee, working to forward the goals of each.

CRCOG also worked with officials from the Town of Manchester to move forward an important and long-standing proposal to install emergency locator signs on the Interstate ramps in the Buckland Hills area. This project gives emergency responders reliable information about the location of motorists in need of assistance. CTDOT and FHWA were instrumental funding that project.

CTDOT Operated CHAMP Service Vehicles. CTDOT operates Connecticut Highway Assistance Motorist Patrol (CHAMP) vehicles on limited access highways throughout the Greater Hartford area, including sections of I-91, I-84, I-291 and Route 2. The service is provided between 5:30 a.m. and 7:00 p.m. each weekday and on selected holidays and Sundays. The operators jump start dead batteries, provide fuel, and push vehicles to the shoulder, among other activities.

Statewide Incident Management Activities. In 2003, the GHIMSC, at the request of the federal government undertook a self-assessment of the incident management program in the greater Hartford area. As a result of that assessment, the GHIMSC determined that many of the issues facing the Region could only be solved at the State level. At about that same time, the Transportation Strategy Board (TSB) established a Statewide Incident Management Task Force (SIMTF) to address traffic incident management issues. The SIMTF prepared a lengthy white paper recommending more than 45 projects and policies that would improve the management of incidents on the State's highways. Most of these proposals have been or are being implemented, including the adoption of a Unified Response Manual, the revision and re-issuance of the Statewide Incident Management Policy, and the implementation of a revised and improved DOT traveler information website. When the SIMTF was disbanded in 2010, it submitted a final report to the TSB, documenting a new, updated list of high priority proposals. Since then, CRCOG has continued to promote statewide solutions to traffic incident management issues, although on an informal basis.

RECOMMENDATIONS:

- 1. Support Regional Traffic Incident Management Initiatives.** Continue the planning and coordination activities of the Region's traffic incident management initiatives carried out through the Regional Emergency Support Function – 1 (Transportation) and its sub-component the Region 3 Traffic Incident Management Coalition. Support programs and projects proposed through these initiatives, such as live video feed from traffic cameras to appropriate emergency responders.
- 2. Support State-operated CHAMP Program.** Continue support for the CT Highway Motorist Assistance Program (CHAMP).
- 3. Support Statewide Incident Management Initiatives.** Continue to support and participate in statewide efforts to improve the response to traffic incidents, and to act as the liaison to local

responders thus assuring that they are kept informed of the State activities, have an opportunity to comment on those activities, and receive the benefit of those activities. Support programs and projects proposed through any such initiatives, such as the development of a training program for the Unified Response Manual which was adopted by the Transportation Strategy Board in 2008, and the development of a public awareness campaign for motor vehicle laws relating to highway incidents such as the "Move It" and the "Move Over" laws.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) are the creative application of information and communications technologies to enhance the efficiency of our transportation system. In the most visionary of ITS scenarios, drivers will enter smart highways and relinquish control of their smart cars to onboard auto piloting systems and regional traffic management systems that control speed, steering, and vehicle spacing to achieve fast, safe, and more efficient traffic flow.

While the most advanced aspects of ITS, such as auto-pilot controls for cars are fast approaching, other ITS systems have been operational for some time. In 1997, CRCOG adopted a strategic plan for the deployment of ITS systems in the Capitol Region. This Plan was updated in early 2015. Both ITS Plans identified applications for ITS that will benefit freeway operations, arterial road operations, and public transit operations³.

The Connecticut Department of Transportation has an ITS system that monitors traffic conditions on all the major freeways with closed-circuit video cameras and special traffic flow monitors. Operators in CTDOT's 24/7 highway operations center are able to check traffic flow on almost every freeway, and instantly report problems to the general public, motorists, transit operators, and other interested parties such as emergency service agencies and trucking businesses. Information is distributed via e-alerts, variable message signs on the freeway, highway advisory radio transmitters, commercial radio and TV stations, and the Internet.

New Technology. ITS technology, by its very nature, can advance to viability before the ink on any "plan" is dry. Therefore, it is important to monitor advancements, evaluate the costs vs. benefits of new technologies for specific situations, and propose projects that take advantage of new devices and systems. Examples include: adaptive traffic control signal systems that monitor traffic in real time and make adjustments to signal timing; camera systems that can predict whether or not a car is going to run a red light and consequently hold the red light until the potential "violation" has cleared the intersection; and in-vehicle technologies (VII)⁴ that allow communication between the vehicle and roadside infrastructure with a goal of a collision-free intersections. At the time this plan was written, adaptive traffic control systems are in use, but are best used at intersections where traffic varies considerably (near special event venues, for instance). Cameras that predict red light running are being tested and VII systems are still being evaluated under controlled conditions on test tracks.

ITS Architecture. In 2004, with CRCOG's assistance, CTDOT completed the development of an ITS architecture for the Capitol Region. This architecture identified existing and planned ITS systems, and additional needed improvements; information interconnects between and among the existing, planned, and needed ITS systems; and any agreements or ITS-related standards required for ITS project interoperability. The ITS architecture meets the federal ITS architecture requirements for the Region. As this plan was being written, the Region and CTDOT were in the process of updating the ITS Architecture to reflect the new ITS Strategic Plan. The Architecture must be kept current as technology and the needs of the Region change.

³ See Chapter 2 for a discussion of "ITS for Transit"

⁴ Vehicle Infrastructure Integration (VII)

RECOMMENDATIONS:

1. **Continue to Update the Freeway Traffic Management System.** Continue to update the regional incident detection, verification, and communication systems.
2. **Enhance Traffic Incident Management with ITS.** Continue implementation of ITS projects to enhance traffic incident management capabilities. Replace older ITS equipment as it becomes obsolete or inoperative so that system integrity can be maintained. Look for opportunities to enhance information to the public and emergency responders.
3. **Assure Currency of the Regional ITS Architecture.** CROCOG will continue to work with CTDOT to assure that the Regional ITS Architecture reflects current and planned ITS systems.
4. **Improve Arterial Operations with Signal Systems.** Continue to invest in computer-controlled traffic signal systems throughout the region, which yield significant benefits through reduced travel times, reduced fuel consumption, reduced vehicle emissions, and improved traffic flow. Replace older computerized signal equipment as it becomes obsolete or inoperative so that system integrity is maintained.
5. **Regional Traffic Signal Operations and Management Effort.** Initiate a regional approach to operating and maintaining local traffic signal systems, beginning with a phased, collaborative process that realizes fiscal and manpower efficiencies, leverages the expertise available, and enables the sharing of resources, that could lead to the creation of a regional operations center that could begin with coordinating traffic signals but could also expand beyond that to include roadway operations, transit operations, incident response operations and emergency response operations.
6. **Monitor Advancements in ITS Technology.** Monitor advancements made in adaptive traffic signal control and other ITS technologies and propose cost-effective projects to take advantage of newer technologies.
7. **Update of the Regional ITS Strategic Plan.** Undertake an update of the Region's ITS Strategic plan at least every 5-10 years.

Freeway Improvements

RECONSTRUCTION: INTERSTATE 84 VIADUCT. The I-84 Viaduct in Hartford is approaching the end of its useful life. Built in 1965, the Viaduct is a $\frac{3}{4}$ mile long section of elevated highway that extends from the Sisson Avenue interchange to the Asylum and Capitol Avenue interchanges. As challenging as the replacement of the viaduct is, it also presents a tremendous opportunity to mitigate or eliminate damage done to Hartford when the original viaduct was constructed. Built on an alignment directly through the heart of the city, the Viaduct structure splits neighborhoods, disrupts the city street network, and dramatically alters the quality of life in residential and business districts alongside the highway. The need to rebuild the Viaduct offers the potential to re-knit the communities, open new parcels of land for development or an extension of Bushnell Park, bolster economic development, strengthen the transportation network and improve the adjacent Amtrak rail corridor. Community interest in how the Viaduct structure gets rebuilt gave rise to the I-84 Viaduct Study, completed in 2010. One especially significant conclusion of the study is the potential benefit of replacing the Viaduct in combination with improving the adjacent Amtrak rail corridor.



Serving as a major truck route, enduring harsh winters and continuing to carry 175,000 vehicles on a daily basis, the structure is nearing the end of its design life. CTDOT is currently examining a variety of options for reconstructing I-84 through Hartford and/or modifying the design to create a long-term solution; CROCOG

participates on the State's Public Advisory Committee (PAC). Replacing the viaduct poses a major financial challenge that the State predicts they will be unable to finance in the foreseeable future. With replacement costs anticipated in the range of \$3-\$6 billion (depending on the alternative selected) existing state and federal revenue streams are simply insufficient to support a project of this size in the face of numerous competing needs. A project of this magnitude would require 100 percent of Connecticut's total federal highway appropriation for a period of multiple years. To advance this project, Connecticut will have to identify new revenue sources such as value pricing.

RECOMMENDATIONS:

1. Coordinate findings with ongoing planning and regional assets such as One City, One Plan (Hartford's Plan of Conservation and Development), the Hartford Line passenger rail initiative, and CTfastrak.
2. Continue discussions and develop an overall project implementation approach and associated timeline with CTDOT and the City of Hartford. Key near-term concerns will be the identification of funding and scope of work for the next phase of project development, environmental assessments, and engineering analyses.
3. Continue to serve on the project Public Advisory Committee.

REHABILITATION: PUTNAM BRIDGE. The Putnam Bridge (Route 3) spans the Connecticut River between Glastonbury and Wethersfield. It is one of only eight crossings of the River in the Capitol Region. The current structure was built in 1959 and has been identified in recent CROG Regional Transportation Plans as being in need of major repair. In 2008, repairs were made to the bridge deck and the travel lanes were resurfaced. In early 2013, a major rehabilitation project was undertaken consisting of structural steel repair, bearing replacement, and the addition of a sidewalk along the bridge's south side. The rehabilitation project is anticipated to be completed in 2015, is anticipated to serve the bridge's structural needs for 20-30 years. Although a sidewalk is being constructed on the bridge, connections between it and the multimodal networks in Glastonbury and Wethersfield still need to be funded and constructed.

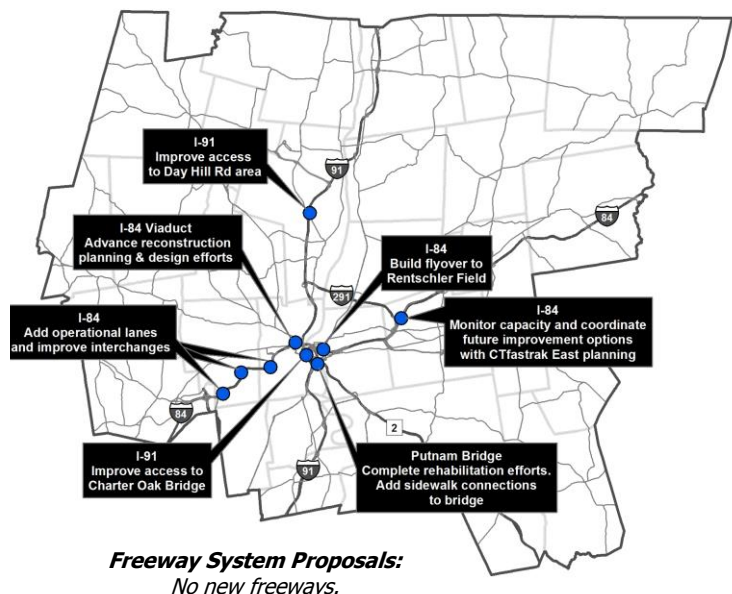
RECOMMENDATIONS:

1. Continue discussions with CTDOT and the towns of Glastonbury and Wethersfield related to funding the multi-modal connections to the bridge's new sidewalk

OPERATIONAL IMPROVEMENTS. Physical deficiencies on freeways such as sharp curves, narrow shoulders, short ramps, substandard merge/weaving distances, and left-hand entrances can both restrict the capacity of the road and create safety problems. The objective of the proposed operational improvement program is to remove these substandard conditions so that the roadway can operate more efficiently and safely.

1. I-84 at Buckland Development Area.

Access to and within the Buckland development area has gotten increasingly difficult with its continued growth. The problem was recognized in the 2004 Plan and a study was subsequently initiated by CTDOT at the request of CROG and the affected towns. The study evaluated operational improvements and demand management alternatives for this area that is considered one of six Economic Development Areas of



Regional Significance⁵ in the Capitol Region.

RECOMMENDATION –Work in partnership with CTDOT and municipal officials from Manchester and South Windsor to monitor the Buckland Development area. Include an ‘allotment’ for Buckland Area improvements as unfunded needs list due to financial limitations but continue to recognize this as a regional need. Work to evaluate how an extension of Fastrak East could assist in mitigating congestion.

2. **I-84: Hartford to Farmington.** More than half of the daily delay on freeways in the Capitol Region occurs in the I-84 corridor west of downtown Hartford. Major state transit initiatives and Transportation Demand Management (TDM) measures are being actively advanced to manage peak hour congestion and reduce vehicle miles travelled. However, even with full implementation of these initiatives, operational improvements will be necessary. A number of studies have been completed to address the freeway’s problems such as the Hartford West Major Investment Study, the West Side Access Study and currently underway the Interstate 84 Needs and Deficiency Study (associated with the replacement of the Interstate 84 Viaduct). Key projects that are being advanced include.

- I-84 at Rt4/Rt6/Rt9 – Reconstruct the interchanges of I-84 at Route 4, Route 6, and Route 9. Key elements include elimination of eastbound bottleneck near Route 9, elimination of left-hand ramps, better access to Route 6, direct access from Route 4 to Route 9 southbound.
- Operational lanes at South Main – Construct operational or auxiliary lanes from the South Main Street interchange (West Hartford) to the Ridgewood Road interchange (exits 40–42).
- I-84 Viaduct Replacement – See above.

RECOMMENDATION: Work in partnership with CTDOT and municipal officials to advance the above projects.

3. **I-84 at Rentschler Development Area.** Improve access to the Rentschler Field redevelopment area in East Hartford. An interchange improvement at I-84 & Silver Lane was recommended in the Rentschler Field Access Study. A modified version of the concept was evaluated and recommended as part of an environmental assessment of the Rentschler development plan.

RECOMMENDATION - The proposed flyover connection should be assessed further as development occurs, to help facilitate redevelopment of this Economic Development Area of Regional Significance.

4. **I-91 at Charter Oak Bridge.** The ramp from I-91 northbound to the Charter Oak Bridge and Route 15 eastbound creates a major traffic bottleneck. High volumes of traffic use this single lane approach to the Connecticut River crossing. Its capacity problem is exacerbated by the curvature and grade of ramp, high volumes of truck traffic, and weaving issues between the merge at the top of the ramp and nearby diverge on the other side of the Charter Oak Bridge.

In 2014, CTDOT completed a comprehensive study that identified alternatives to address this major congestion issue. The preferred alternative involves relocating the single-lane ramp currently travelling from the east side of I-91 to the east side of Route 5/15’s approach to the Charter Oak Bridge. A new two-lane ramp will be constructed travelling from I-91’s east side (left exit) and carry traffic to the west side of Route 5/15’s approach to the Charter Oak Bridge. New ramp grades will be appropriate for existing and anticipated truck traffic volumes, and the ramp configurations will reduce the need for much of the weaving movements currently occurring on the Charter Oak Bridge. In addition to

⁵ Previously entitled “Regional Growth Centers”.

addressing the ramp's issues, additional roadwork is proposed along Route 5/15 east of the bridge to reduce congestion and improve safety.

RECOMMENDATION – Relocate the current ramp from I-91 northbound to the Charter Oak Bridge by constructing a new two-lane ramp with appropriate grades travelling from I-91's east side (left exit) to the west side of Route 5/15's approach to the Charter Oak Bridge.

5. ***I-91 at Day Hill Development Area.*** Improve access to the Day Hill-Griffin Development Area in Windsor. Access problems to this area were identified in the Bradley Area Transportation Study and a technical study that was completed in 2005.

RECOMMENDATION (long-term) - Provide a direct connection to northbound I-91 from Day Hill Road by the construction of spans over Route 75 and I-91; and widening northbound Interstate 91 to provide an additional operational lane from the Route 75 interchange to the Kennedy Road interchange or to the Route 20 interchange. This additional northbound lane will require widening the existing bridge carrying Interstate 91 over the Farmington River.

6. ***Other Problem Areas.*** Evaluate operational improvement needs at problem locations. It is recommended that each location listed below be analyzed in cooperation with CTDOT.

- I-84/I-91 Interchange
 - Ramp from I-91 southbound to I-84 westbound (capacity problem)
 - I-84 through lanes (capacity restriction in both directions)
- The length of Route 2 within the Region, and particularly at the I-84/I-91 interchange and at the Route 3 interchange

Arterial Improvement Program

The arterial roadway improvement program is based primarily on recommendations developed through corridor planning studies completed by CRCOG. These studies involve detailed technical analysis and extensive community involvement. The process is explained below in the section entitled "Community-Based & Context-Sensitive Planning Studies."

Corridor Improvements. Corridor-specific recommendations are provided in the sections following the discussion of the community-based planning process. The corridor summaries provided are extremely brief and intended to illustrate the general nature of the recommended improvements. However, each corridor plan was adopted by the CRCOG Policy Board, and all corridor recommendations are part of this Plan, even if they are not specifically described in this Plan.

COMMUNITY-BASED & CONTEXT-SENSITIVE PLANNING STUDIES

In the 1994 Plan, CRCOG recommended that comprehensive planning studies be conducted on important arterial corridors before initiating any major improvements in those corridors. The recommendation included consideration of land use issues as part of the study. Since 1994, CRCOG has conducted several of these corridor studies and they have evolved to be a comprehensive planning review of roadway needs and land use issues. They also include a major effort to involve the affected communities in the planning process, and an effort to consider community plans and goals when trying to develop solutions to traffic problems. Plans are now developed with a better understanding of the context of the cultural, historic, economic, and environmental context in which the roadway is located. The goal is to develop plans that both improve the traffic conditions and make the community a better place to live.

The corridor study approach to transportation planning is also desirable because it is a comprehensive approach. Many operational improvements are now done as "spot" improvements in response to specific development proposals or traffic problems. When designing spot improvements, there is often little attention given to how the improvement relates to other sections of road, where the next spot improvement

might be needed, or what the long-term needs are in the entire travel corridor. Likewise, many communities do not fully recognize how their local zoning can substantially alter traffic on the roadway and therefore the need for roadway improvements. These comprehensive plans will provide an opportunity for transportation and land use planners to reach agreement on the ultimate scale, design features, and general character of the roadway.

RECOMMENDATION:

- 1. Context Sensitive Corridor Studies.** It is recommended that CRCOG continue to conduct corridor studies on major arterial roadways in a manner that is context-sensitive and community-based.

ROUTE 3: ROCKY HILL

The Town of Rocky Hill is interested in addressing existing transportation safety, access, and operational issues within the Route 3 (Cromwell Avenue) / Route 411 (West Street) area, along with implementing transportation improvements to accommodate development at appropriately zoned locations. The "Route 3 Traffic and Development Study" recommendations focus on accommodating transportation needs while maintaining and improving the character of nearby residential areas. Roadway related recommendations include:

Route 3 (Cromwell Avenue) Corridor

- Support construction of an Elm Street to West Street Connector Roadway, parallel to Route 3, to help alleviate Route 3 traffic congestion
- Improve operations and safety within the Route 3 corridor by implementing transportation recommendations, including traffic signal modifications and the addition of approach lanes, at intersections with New Britain Avenue, Elm Street, West Street/France Street, Brook Street, and Inwood Road
- Implement access management strategies and provide bicycles and pedestrian accommodations.

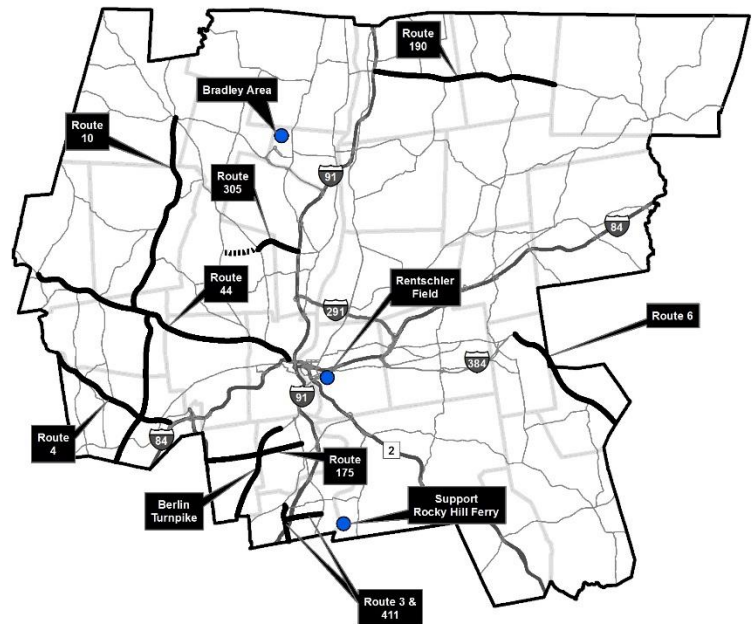
Route 411 (West Street) Corridor

- Improve operations and safety of intersections with I-91 Ramps, including the addition of intersection approach lanes and exclusive left turn phases
- Improve signal operations at intersection with Main Street by realigning into a conventional 4-way intersection and providing turn lanes

ROUTE 4: FARMINGTON

The primary problem on Route 4 in Farmington is congestion in Farmington center and to a lesser degree in Unionville. Safety problems exist in both villages. Final recommendations reflect a balance between the desire to address traffic problems, and a desire to preserve the character of the two villages.

Arterial System: Corridor study locations



Farmington Center Improvements

- Complete the reconstruction of Route 4 through Farmington center from Garden Street to Mountain Spring Road to a uniform 3-lane cross section (2 eastbound, 1 westbound) to improve traffic flow and safety. This will be achieved with no net increase in road pavement. The associated recommended Farmington Center roadway improvements west of Garden Street to Town Farm Road, including the construction of a new bridge over the Farmington River, have recently been completed.
- Construct Farmington Village Service Road north of and connecting to Route 4 to allow for closure of driveways between Route 10 and Mountain Spring Road.

Unionville Improvements

- Route 177 / New Britain Avenue intersection improvements.
- Route 177 / Mill Street intersection improvements.
- Work with the Town of Farmington and CTDOT to explore progressing a study of the Route 177 Bridge over the Farmington River.

ROUTE 6: BOLTON AND ANDOVER

Route 6 is an undivided arterial roadway serving a major travel corridor where local access needs conflict with the needs of long-distance through traffic. Even though safety improvements have been completed over the past ten years, the undivided two-lane roadway still possesses high speeds, high volumes, and mix of through and local traffic that create safety problems that have not been fully addressed.

Construction of new freeway paralleling existing Route 6 and connecting I-384 in Bolton Notch to the Route 6 bypass around Willimantic had been a recommendation in CRCOG's Regional Transportation Plan for many years. However, due primarily to environmental issues the project reached an impasse in the mid-90's, and to date no viable solution has yet to be found. Due to the seemingly unresolvable issues, the project was dropped from CTDOT's Long Range Plans.

However, the need to address safety problems in the corridor remains. Therefore, in 2013 CRCOG completed a transportation study of the Route 6 Corridor that included the CRCOG towns of Bolton and Andover and the WINCOG towns of Coventry and Columbia. This "Route 6 Hop River Corridor Transportation Study" aimed to address safety, connectivity, access management, and development potential along the Route 6 corridor. Transportation recommendations that were made complement those made in a cooperative Economic Development Strategy and Master Plan Study, completed in October 2010 along the same corridor.

Roadway Improvements

- Improve connectivity and safety at the I-384 expressway/Route 6/Route 44 interchange, including addressing the safety concerns with and connectivity of Notch Road access at the interchange
- Support implementation of transportation improvements enabling the communities' envisioned "village node" concepts along Route 6 at Bolton Crossroads (located near Bolton Ice Palace and Munson's Chocolates), and Historic Andover Center (located west of Long Hill Road). Recommendations at each of these locations included measures to reduce Route 6 travel speeds, support bicycles and pedestrians, and improve access management. Additional site specific recommendations include:
 - *Bolton Crossroads*: Provide a new roadway connection between Routes 6 and 44 and allow for the creation of a small network of local streets.
 - *Historic Andover Center*: Create a gateway to Historic Andover and allow for the creation of a small network of local streets.
- Support efforts for implementation of transportation improvements enabling the communities' envisioned "village node" concepts along Route 6 at Coventry Ridge (located west of South Street), and Lighthouse Corners (located at Route 66 in Columbia), including relocation of South Street the west to provide an improved intersection with Route 6 and accommodate access to developable lands and converting the Route 6/Route 66 signalized intersection into a modern roundabout and allow for

creation of a small network of local streets

- Throughout the corridor, implement access management, multi-modal accommodations, traffic operations, and traffic safety improvements at critical locations

ROUTE 10: SIMSBURY

Route 10 is generally adequate to safely and efficiently serve existing and future traffic demand. Safety and congestion problems are limited to a few key locations such as busy intersections where east-west routes cross Route 10. In 2011, CRCOG completed a Route 10 Corridor Study for the portion of Route 10 in the Town of Simsbury. The study ran from Wolcott Road and Route 10 in the northern end of town to the southern municipal border of Avon and Simsbury on Route 10. The recommendations of that study are generally incorporated in the improvements listed below.

Improvements

- Create an additional parallel roadway south of the town center to alleviate traffic on Route 10 and provide significant opportunity in supporting potential future site development in the southern portion of the corridor.
- Implement access management strategies particularly in the North and South gateways to the Town of Simsbury where there is potential for major redevelopment. In the northern gateway, the recommendation is to seek access to new developments through existing driveways or create intersections opposite local streets where possible. In the southern gateway, the recommendation is to consider a parallel roadway west of Route 10.
- Improve traffic and safety at critical locations by adding new traffic signals and coordinating the signal system; introducing new left turn lanes at all signalized intersections in the Town Center from Seminary Road to Wilcox Street; extending Wolcott Road from the intersection of Route 10 to Hoskins Road in the northern gateway; and, relocating Nod Road at the Route 185 intersection to create an opportunity for widening Route 185 from Route 10 to the two eastbound lanes ascending Simsbury mountain.
- Improve conditions for bicyclists and pedestrians by encouraging Complete Streets infrastructure throughout the corridor. Concepts include reducing pavement in key intersections; reducing speed limits; restriping travel lanes to 11' to help reduce travel speeds and increase the shoulder width to better accommodate bicyclists; replacing pedestrian signals throughout the corridor; creating sidewalks and developing a sidewalk maintenance or enforcement program; installing pedestrian scale lighting.
- Improving connectivity in Weatogue Village. Expand the commuter parking lot in Weatogue Village and redesign the Route 10 intersection at Stratton Brook Road. These improvements would also include the creation of a village green and multi-modal transit area where the Farmington Canal Heritage Trail and the commuter lot meet.

ROUTE 44: HARTFORD TO CANTON

Route 44 is the primary east-west route linking the Farmington Valley with Hartford and West Hartford. In the commercial areas of Canton and Avon, safety problems related to left turns at driveways are the primary concern. Similar problems exist at Bishops Corner in West Hartford. Safety is a critical problem on Avon Mountain where steep grades, sharp curves, and high speeds result in frequent and severe accidents. In Hartford, problems include a high accident rate, speeding on residential side streets, insufficient parking, and inadequate drainage.

Roadway Improvements

- *Avon Mountain:* Continue to monitor the effectiveness of safety improvements completed in 2011.
- *Avon-Canton Commercial Area:* Relocate Dowd Avenue and correct left-turn accident problem by reconstructing Route 44 with a median. A wide median will allow landscaping to create an attractive, "boulevard" type appearance.

- *Bishops Corner, West Hartford:* Correct safety problems by redesigning, relocating, or closing commercial driveways. Install a 4-foot wide raised median to reduce left-turn related accidents.
- *Hartford:* Add streetscape, drainage, and signal timing improvements along Albany Avenue from Homestead Avenue to Main Street. Add traffic calming on nearby residential streets.

ROUTE 175: WETHERSFIELD & NEWINGTON

Congestion is the key problem in the west end of the corridor near Route 9. Speeding and safety are concerns on the remainder of the 4-lane section through Newington. There are major congestion and safety problems where Route 175 crosses under the Berlin Turnpike, at the Route 15 interchange, and at Fenn Road. In the largely residential sections through Wethersfield, there are some minor geometric and safety problems.

Newington

- Maintain current 4-lane cross section but provide improvements at key locations.
- Route 9 access: Realign Route 9 SB on-ramp.
- Access management & signal coordination.
- Newington Center: No improvements.
- Route 175/Route 15 Interchange: Reconstruct using an urban single-point design.
- Route 175 / Fenn Road and Fenn Road / Ella Grasso Turnpike intersection improvements.

Wethersfield

- Maintain as a 2-lane roadway, but provide improvements at key intersections.

ROUTE 190: ENFIELD & SOMERS

Route 190 is the primary east-west roadway in Enfield and Somers. Although traffic is expected to increase in this corridor over the next twenty years, no major widening of the roadway will be required. Instead improvements can be limited to intersections and short sections of road. The following projects will address safety and congestion problems, while preserving or enhancing the character of the four villages in the corridor.

Enfield

- Commercial area (I-91 to Palomba Dr.): Continue access management, minor improvements to Phoenix Avenue intersection, coordinate traffic signals, add or widen sidewalks, and construct multi-use trail.
- Transition area (Palomba to Hazardville): Access management, minor widening to allow a 3-lane cross section between Palomba Dr. & Enfield Professional Park, sidewalks, and 5-foot shoulders for bicycles.
- Hazardville: Streetscape improvements, and minor improvements to Maple Street intersection.
- Scitico: Streetscape improvements, operational improvements at Taylor Road and Broadbrook Road

Somers

- Somersville: Operational improvements at Route 190/Shaker Road, traffic signal at Route 190/School Street, streetscape improvements, traffic calming on School Street, and other minor improvements.
- Somers center: Streetscape improvements, intersection realignment at Route 83, and sidewalks.

ROUTE 195: TOLLAND

The Tolland community has a strong interest in making transportation improvements to the area in and around the Historic Town Green. Recommendations focus on calming traffic and improving safety and operations within the Tolland Town Green area.

Tolland Town Green

- Create northern and southern gateways approaching the Green on Route 74 and Route 195, respectively. Gateway improvements include both textured and raised medians, and the introduction of a lateral shift to reduce speeds in the northern gateway.
- Reconfigure the Route 195/Route 74 intersection into two separated traditional intersections, reducing the amount of pavement utilized for the intersection and returning the balance to the Town Green.
- Intersection improvements at Route 195 and Old Post Road.
- Provide traffic calming visual cues on all roadways approaching and throughout the Town Green area including the use of period lighting, sidewalks, and special shoulder treatments.

ROUTE 305: WINDSOR AND BLOOMFIELD

The Route 305 corridor primarily serves east-west mobility between Interstate 91, the center of Windsor to the east, and Blue Hills Avenue in Bloomfield to the west. The following projects address transportation issues along the 2.5-mile segment of Route 305 from Route 187 to Interchange 37 with Interstate 91. Additionally, a Route 305 extension to Route 189 would provide additional economic development opportunities and an additional roadway link to the area network. Enhancements below consist of both localized improvements at individual intersections and longer term regional capacity improvements.

Localized Improvements

- Reconstruct the following intersections to provide improvements including turn lanes on Route 305 and/or cross streets:
 - Route 305 from Interchange 37 to Brookview Road.
 - Route 305 at Sheffield Drive and Brewster Road.
 - Route 305 at Addison Road.
 - Route 305 at Marshall Phelps Road.
 - Route 305 at Mill Brook Crossing.
- Realign the following intersections to provide for improvements including more standard geometrics:
 - Route 305 at East Newberry Road.
 - Route 305 at Old Iron Ore Road.
- Improve pedestrian accommodations throughout the corridor and specifically at the Route 305 intersection with Route 187 (Blue Hills Avenue).

Regional Capacity Improvements

- Monitor traffic growth and assess the need to reconstruct Route 305 to provide for two (2) eastbound and two (2) westbound travel lanes between Interchange 37 and Marshall Phelps Road.
- Work with the Town of Bloomfield and CTDOT to explore progressing an envisioned extension of Route 305 to Route 189 in Bloomfield.

BERLIN TURNPIKE: WETHERSFIELD & NEWINGTON

The Berlin Turnpike serves a long-established, but still growing commercial area. There are major safety and congestion problems at both the Route 175 interchange and the Prospect Street intersection. It is important to address these major problems as well as some minor problems related to commercial driveways, while still maintaining good access to businesses.

Wethersfield

- Access management & minor traffic operational improvements.
- Landscaped median.

Route 175/Route 15 Interchange

- Reconstruct using an urban single-point design to improve traffic flow and safety.

Newington

- Realign the Route 15/Prospect/Robbins intersection.
- Close or realign selected median breaks.
- Improve landscaping in the corridor, particularly within the median.
- Promote better access management.

BRADLEY AREA TRANSPORTATION STUDY

The Bradley Area Transportation Study evaluated current and future traffic conditions in the vicinity of Bradley International Airport. Recommendations focused on: (1) improving ground access to the Airport, and (2) correcting other traffic problems in the four towns adjacent to the Airport.

Airport Access (see *Airport chapter for details*)

- Northside Access Improvements (Route 190 connector).
- Westside Access Improvements (Bradley Park Road extension).
- Route 75 Improvements.

Improvements within Each Town.

The study recommended numerous other improvements in the four towns such as traffic and streetscape improvements in Suffield center, similar improvements in East Granby's town center, and traffic improvements in the Day Hill area of Windsor. See the corridor study for details. Additionally, long-term improvements were identified for I-91 at Day Hill Road (see Freeway Operational improvements above).

RENTSCHLER FIELD ACCESS STUDY: EAST HARTFORD

The former Rentschler Airport is a 650-acre, prime development site located within two miles of downtown Hartford. It offers an excellent opportunity for in-fill development that supports regional 'smart growth' goals. Although development such as the UConn football stadium has opened on the site, plans call for most of the rest of the site to be developed to stimulate additional growth in the high tech sector of the Region's economy. To fully realize the economic benefits of the potential development, access to the site needs to be improved from I-84 and from Route 2.

Access from I-84

- Improve access to Rentschler site from I-84 by grade separating Silver Lane/Roberts Street intersection.

Access from Route 2

- Improve access from Route 2 by reconstructing the Route 2/Main Street interchange to allow direct access from Route 2 to the southern end of the site.

Roadway through the Site

- Construct a new town-owned roadway through the site.

Regional Bridge Infrastructure

The Bridge Safety and Evaluation Section of CTDOT inspects all State bridges and all municipally owned bridges with spans greater than 20 feet on a regular basis (every 2 years or less).

During the inspections, structural components, such as decks, superstructures, and substructures, are evaluated and assigned a numerical rating ranging from 0 to 9, with "9" being the best, and "0" being the worst. If the rating of any major structural component is rated as "poor" or below (a rating of 4 or less),

the bridge is considered to be “structurally deficient”. Structurally deficient bridges may not carry full legal loads and should be programmed for repair or replacement.

If the overall structural evaluation, deck geometry, under-clearances, approach roadway alignment, or waterway adequacy rated as “intolerable requiring high priority of corrective action” (a rating of 3 or less), the bridge is considered “functionally obsolete”. A functionally obsolete structure may or may not be able to carry all legal loads, but its configuration impairs its ability to safely carry traffic or pass high water and contributes to traffic accidents and/or flooding.

In addition, the sufficiency rating of the bridge evaluates the structural integrity of a bridge based on its structural adequacy, safety, serviceability, functional obsolescence, and essentiality of public use. The result is a percentage with 100% representing an entirely sufficient bridge and 0% an entirely deficient bridge. The priority rating is based on the sufficiency rating as well as ratings of the main structural components and the structure’s load carrying capacity. The priority rating is used to prioritize bridge projects for funding purposes, with the lowest rating being the highest priority for funding.

Prioritization, construction, and maintenance of bridges along State roadways is CTDOT’s responsibility. However for bridges along Town roadways, the governing municipality bears the responsibility. Recognizing the difficulty that municipalities have in meeting this responsibility, in 1984, the General Assembly enacted a program that provides for State financial assistance to municipalities for the removal, replacement, reconstruction or rehabilitation of local bridges. Currently under this program, a municipality may qualify for a grant ranging from 15% to 50% to cover eligible project costs. Additionally, federal funding (up to 80%) is currently available through CTDOT’s Local Bridge Program for municipal bridge projects. This funding is limited to municipal bridges with spans greater than 20 feet and have CTDOT sufficiency ratings less than 80% (for rehabilitation), and less than 60% (for replacement). Funding administered by the Local Bridge Program is reserved for repair, replacement or removal of existing bridges.

Recommendation:

- 1. Funding for Town Bridges.*** Support funding initiatives that assist Municipalities in securing monies to address bridge repair, replacement or removal on town roadways.

Access Management on Arterials

Access management is a critical element of the arterial program. Its objective is to preserve the capacity of existing roads so that we minimize the need for widening or operational improvements. It is also critical to maintaining the effectiveness of the coordinated traffic signal system. Both roadway capacity and signal system effectiveness can be reduced by the construction of too many driveways, poorly located driveways, and poorly designed driveways. Access management requires active planning by the towns and the State to help determine how many driveways will be allowed in the future, where they will be allowed, and how they will be designed.

The access management program has two elements. The first is a policy to provide funding for the preparation of access management plans. This includes a review of local planning and zoning regulations as well as preparation of curb cut or driveway plans to guide the location of future driveways and to identify problems with existing driveways. The second element includes changes to the roadway planning and design process to assure that access management issues are fully addressed at all stages in the development of widening and operational improvement projects.

RECOMMENDATIONS:

It is recommended the Region continue to implement access management programs and policies. Key features are:

- 1. Access Management Plans.*** Provide funding for the preparation of access management plans. In many cases, it is most appropriate to do this as part of one of the proposed arterial corridor studies.

2. **Consider in Design Phase.** Require access management issues to be addressed as part of the design phase of any roadway improvement project.

Municipal Road Management

The Regional Transportation Plan is a systems level plan that addresses problems on the major transportation systems: the regional transit system, the freeway system, and the arterial system. The focus on the higher level systems is necessary but it means that problems⁶ on lower level systems, such as collector roads, have not been identified as part of this plan. While the Region has not identified specific problems on collector roads, we recognize that problems do exist and that municipalities sometimes need financial assistance to correct the more serious problems.

Most of the roads in the collector system are the responsibility of municipalities. They are maintained and improved through local operating budgets and capital improvement budgets. In some cases, the cost of major reconstruction or of correcting serious geometric⁷ and safety problems can exceed a town's capacity to finance the improvement. In the past, the Region has recognized these problems and allowed towns to use federal funds to correct serious problems on town-owned collector roads.⁸ This policy of allotting small amounts of federal funds to solve selected problems on town-owned collector (or arterial) roads will continue within the limits of available funding and the competing need to address problems on higher level systems.

In 2012, FHWA issued a Local Agency Traffic Signal Operations and Maintenance Report aimed at enhancing traffic control systems and refining municipal operations and maintenance plans. Since publication CRCOG has worked with CTDOT and our municipalities to foster awareness and training on traffic signals, incorporate traffic signals into ITS Strategic Planning and support a Traffic Signal Circuit Rider program throughout Connecticut.

RECOMMENDATION:

1. **Funding for Town Roads.** Continue a policy of allowing the use of federal funds to address serious problems on town-owned roads classified as collector or higher. Funding decisions will consider the limits of available federal funds and the competing need to address problems on higher level systems.
2. **Traffic Signals.** Support on-going efforts to work with municipalities on traffic signal operations and maintenance plans, including working with the Connecticut Traffic Signal Circuit Rider program.
3. **Explore Regional Approach to Traffic Signal Management.** Begin exploring the opportunities in establishing a regional traffic signal program.

Special Concern: Rocky Hill – Glastonbury Ferry

The Rocky Hill – Glastonbury Ferry is a unique element in the Region's transportation system. It is the oldest continuously operating ferry in the United States, and it is the only ferry in service within the Region. The ferry serves cars, motorcycles, cyclists, and pedestrians who want to cross the Connecticut River between Glastonbury and Rocky Hill. Functionally, the ferry is part of State Route 160, and it is owned and operated by the State of Connecticut.

⁶ The problems on the collector and local roads systems are typically structural, geometric, or safety related. Because these roads carry less traffic, congestion is not usually a problem.

⁷ Geometric problems are those related to poor design features such as bad curves, steep grades, poor sight lines, and narrow lanes.

⁸ These roads must be classified as "collectors" or higher.

The ferry, like the eight bridges across the Connecticut River, plays an important role in linking the towns east of the river to the towns west of the river. The Connecticut River is the most prominent natural feature in the Region, and the one that has the greatest impact on travel patterns within the Region. The river forms a nearly 28-mile long barrier through the middle of Region. There are only eight opportunities for motorists to cross the river. Due to the difficulty and cost of providing crossings over the river, each crossing acquires a special significance. The significance of the ferry crossing has less to do with the volume of traffic it carries than with the nature of the traffic it carries, and the ferry's historic significance.

The ferry plays a special role in serving local vehicular traffic between Rocky Hill and Glastonbury, and it plays an important role for bicyclists. Motorists traveling between parts of southern Glastonbury and Rocky Hill can cut nearly eight miles (one-way) off their trip if they use the ferry. The ferry is even more important for cyclists since bicycle access to the Putnam Bridge is not allowed. The ferry is the only crossing for cyclists in the 13 miles between Hartford and Middletown.

The ferry's greatest value might derive from its role as a tourist attraction, and its historic significance. As the oldest continuously operating ferry in the U.S. and one of the very first river crossings in the Region, it serves to remind both residents and tourists that we have old and strong ties to the Connecticut River.

The Capitol Region Council of Governments supports the continued operation of the ferry for the benefits it provides local motorists, cyclists, and tourists; and for its value as a historic resource.

RECOMMENDATION:

1. ***Continue Operation of Historic Ferry.*** Continue the operation of this historic ferry with adequate hours of operation and a reasonable fare structure.

4: BICYCLES & PEDESTRIANS

In 2008, the Council of Governments took an entirely new approach to bicycle and pedestrian planning, with a focus upon **Active Transportation**. Active Transportation makes the case that increased investments in bicycling and walking produce benefits to the transportation system and to many other aspects of our communities. Our 2008 Regional Pedestrian and Bicycle Plan update quantified these benefits and laid out a road map for achieving increases in the number of individuals walking and bicycling. The effort was overseen by an Active Transportation Working Group, made up of advocates, senior citizens, towns, businesses, agencies and institutions. This group worked with CRCOG staff to create a plan update in less than a year. The working group's efforts were guided by this vision:



We envision a Hartford region where people will choose and be able to walk and bicycle as a way to travel, to be healthy and to relax. This will be a region where authorities, organizations and individuals have:

- *recognized the value of walking and bicycling;*
- *made a commitment to healthy, efficient and sustainable communities; and*
- *worked together to overcome the physical, social and institutional barriers that often limit individuals choice to walk and bicycle.*

Our vision enables us to imagine a transformed region where population centers are connected and people can ride their bikes or walk throughout the region on dedicated bike and pedestrian paths and ways, free from the increasing costs of automobile travel, pollution and noise.

The strategy for achieving this vision is based on efforts in the 5 "E's": Engineering, Education, Encouragement, Enforcement, and Evaluation as described below.

Why Walking and Biking Matter

Walking and bicycling are low-cost forms of transportation that are non-polluting energy-efficient, and provide health benefits. For many years, however, they have not been considered legitimate forms of transportation and little attention has been paid to the pedestrian and bicycling environment or to the needs of pedestrians and bicyclists. These views have led to a limited transportation system and have prevented the Region from reaping the benefits of more walking and biking. The Capitol Region, like many other regions in the country, has begun to recognize the value of active transportation and to take steps to improve pedestrian and bicycle access and safety. Several towns in the Region have developed committees to examine bike and/or pedestrian issues. The City of Hartford has committed to marking bike lanes when roads of sufficient width are repaved. And, current trends indicate we are in the midst of a biking and walking resurgence which can be nurtured through strategic actions today.

Numerous studies and research projects have established the benefits of a walkable/bikeable region. The societal benefits fall into five categories: mobility, public health, economy, environment, and community livability. In addition, there are several benefits that accrue to the individual, in terms of individual health, and reduced costs of transportation.

Engineering

Encouraging more people to cycle and walk is dependent to a large extent on the availability of safe and convenient facilities. For cyclists, this includes making existing roadways safe for cyclists, providing off-road facilities such as paved bikeways or multi-use trails, and making it possible for cyclists to use the regional bus system as part of a combined bike-bus trip. It also includes making sure there are appropriate facilities available at important destinations for cyclists to store and secure their bikes. For pedestrians, safe and convenient facilities include well-maintained sidewalks of adequate width, conveniently located crosswalks, traffic signal systems which are safe and convenient for pedestrians, and multi-use trails.

RECOMMENDATIONS:

1. **Complete Streets.** As discussed in Chapter 1, a complete street is one that provides safety and convenience for all road users: pedestrians, bicyclists, transit users, and motorists. CRCOG will work to provide municipalities the tools needed to implement Complete Streets.
2. **Pedestrian and Bicycle Facilities Design.** This plan lays out a framework for identifying and prioritizing needs so that as funding becomes available, we can select the most critical projects to move forward. Staff will encourage communities to utilize the newly created CRCOG Active Transportation Audit for roadways and trails to identify needed improvements, and will compile national design guidelines that can be used to correct safety deficiencies. Tools related to bike and pedestrian friendly land use will also be developed, such as the CRCOG Model Land Use Regulations for Sustainable Communities.
3. **Multi-use Path System.** The bike plan calls for construction of a regional greenway or multi-use trail system. The primary parts of the regional system include:

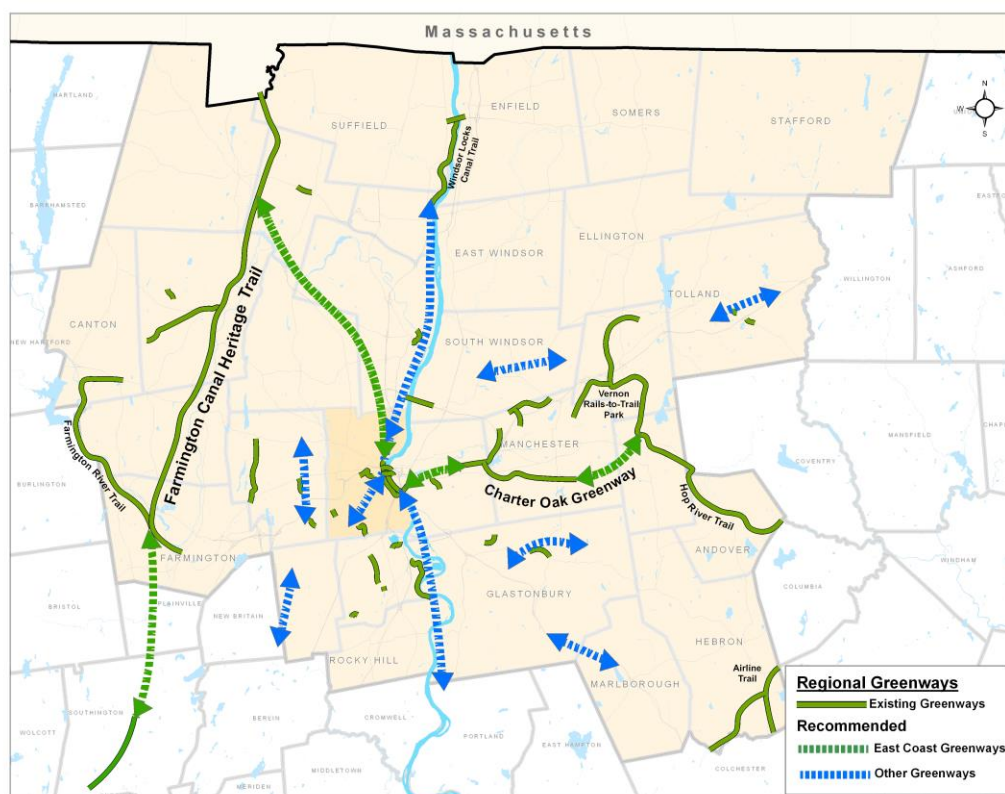
East Coast Greenway: The East Coast Greenway (ECG) is a network of trails that, when complete, will stretch from Maine to Florida. In our Region, the trail will follow the *Charter Oak Greenway* and the *Farmington Canal Heritage Greenway*. Both these trails have gaps, and the major gap in the ECG through our Region is the connection between these two trail systems. Completion of the ECG through the Region is our regional priority for trail construction.

The ***Charter Oak Greenway***, when complete, will extend from Andover, through Bolton, Manchester and East Hartford, to the Founders Bridge trail. Gaps exist in Bolton, Manchester and East Hartford with portions having already received funding at the time this plan is being prepared. When the funded, but not yet completed projects are complete, there will still be a gap in East Hartford.

The ***Farmington Canal Heritage Greenway*** is a proposed multi-use trail from New Haven, CT to Northampton, MA. In our Region, it runs directly north through the Farmington valley through the towns of Farmington, Avon, Simsbury, East Granby, and Suffield. There is one gap in our Region on this path – the connection from the existing trail in Farmington south to the border of Farmington and Plainville. Until recently, plans for the trail in Plainville were at a standstill because the corridor supports an active rail operation. However, Plainville has developed a plan for developing the trail through town and Farmington has reactivated its planning and design efforts for the trail.

Linking the Two Interregional Greenways. A general route for linking the Charter Oak Greenway and the Farmington Canal Heritage Greenway has been identified which will traverse downtown Hartford, travel in a northwesterly direction, generally following the North Branch of the Park River Corridor, to Bloomfield. In Bloomfield, the trail will follow the Griffin rail corridor (an active freight line), and then follow a power line corridor to the Village of Tariffville in Simsbury. From Tariffville, the trail will follow the Farmington River to the Canal Greenway.

Other Greenways. Our plan also supports construction of a secondary set of trails that provide important commute routes, that link to the two primary trails and that serve significant sub-areas of the Region. It is important for the Region to continue to build upon the interregional greenways to create a system that can serve many areas of the Region, and to take advantage of funding opportunities. It is also important to recognize that in some cases, closure of very small gaps in bike access can have a very large payoff in enabling large numbers to bicycle. These Connecting Greenways are shown on the map below. Some of these are existing facilities, but many are proposed.



3. **On-Road Bicycle Network.** While this plan recommends a system of multi-use paths, the road network will continue to serve as the backbone of the region's bicycle infrastructure. The on-road bike network identifies those roads needed to provide effective linkage for bicyclists between towns and to commercial locations within towns. It should be noted that the on road network does not represent recommended bicycle routes, rather, we will place a special emphasis on these routes, evaluating how they can be made safer for bicyclists. In some cases, the use of short road segments to fill gaps in trails or bike lane systems can have a very large payoff in enabling large numbers to bicycle. These roadways need to be examined to determine if they are currently adequate for bicyclists, and if not, what improvements may be needed. It is an important planning tool for the towns and for the CTDOT. A map, with a list of designated roadways, has been provided to the towns and CTDOT so that they may take a look at bicycle needs when new developments are proposed. While all road improvement projects should examine whether bicycle safety can be improved as part of the project, these routes should receive special attention.
4. **Provide Bicycle Facilities.** The determinant of whether an individual can make a trip by bicycle sometimes hinges on very simple facilities: are there convenient and secure storage racks at the destination? If the bike ride is long, are there showering facilities available? In addition, cycling can be feasible for a greater number of individuals if a cycling trip can be combined with a transit trip. Already, CT **transit** has installed bicycle racks on all of its buses, so that an individual can put their bike

on the bus and have it at their final destination. Secure bike parking at transit stops, including park n ride lots is also essential. CTDOT has also provided bicycle racks at all CT **fastrak** station areas. Our plan recommends that the Region commit to a program to install bicycle parking throughout the Region. Additionally, the plan recommends that the Region provide bike stations (facilities that provide lockers, showers, and indoor bicycle storage) at two locations in the Region – one in downtown Hartford and one in the Day Hill Road corridor in Windsor.

Education Programs

Building bike lanes, trails, sidewalks and other facilities are important, but providing facilities alone will not cause vast numbers of people to change their travel mode. One of the big stumbling blocks in encouraging individuals to try bicycling and walking for regular transportation is that they feel very vulnerable to motor vehicle traffic, even with facilities provided. Furthermore, many pedestrians, bicyclists and motorists do not have a clear understanding of their respective rights and responsibilities on the streets and highways. Therefore, educational programs targeting all three groups: motorists, pedestrians, and bicyclists are needed.

Efforts designed to educate system users about basic traffic laws need to be made regularly and will require ongoing collaboration between citizens, interest groups, and government agencies. Getting the public to safely use the facilities by teaching safe user skills and demonstrating that walking and biking provides real benefits are equally important and support behavior change.

Our strategy in the education area is to build upon existing programs and to build coalitions where this is possible.

RECOMMENDATIONS:

1. Educate Pedestrians. A pedestrian safety study completed by CRCOG has revealed a high incidence of pedestrian accidents in urban areas, and especially in Hartford. CRCOG is committed to addressing the problem of pedestrian and cyclist safety in urban areas and identified the following emphasis areas to improve pedestrian safety:

- Make crossing safer: 80% of pedestrian crashes involve a pedestrian crossing the road.
- Educate pedestrians: how to legally cross the street, what pedestrian signals mean, etc.
- Educate motorist and change driver attitudes: yield to pedestrians, watch for pedestrians.
- Enforcement for both motorists and pedestrians.

Therefore, our pedestrian education focus will be upon the City, and will focus on crosswalk law, the meaning of pedestrian signals, and how to be visible at night. A pedestrian safety education resource kit will also be developed for distribution to all towns in the Region.

2. Educate Bicyclists. Adopt the League of American Bicyclists Cycling Instruction Program as the regional standard. Train cycling instructors and work with regional nonprofits to insure that classes are delivered. Provide programs for all ages.

3. Educate Motorists and the General Public. Work with CTDOT to broaden the outreach to motorists and the general public regarding safe operation around pedestrians and bicyclists.

Encouragement Programs: Promoting a Pro-Cycling & Pro-Walking Culture

Encouragement activities are essential if we want to convince individuals to give bicycling and walking a try for regular transportation. Our culture has become so accustomed to the car as the primary means of getting around that those considering biking and walking need an extra push that convinces them that walking and bicycling are tangible, effective ways to travel. For those considering bicycling, frequently they

need to get some practice riding in group rides to develop confidence in their skills and abilities. There are many encouragement activities already taking place in the area and we propose building upon them. It is important that the encouragement activities target a variety of ages and income classes and that they take place throughout the Region.

In 2014, CROCOG and the Greater Hartford Transit District produced a feasibility study of a Regional Bike Share System. The *Metro Hartford Region Bike Share Plan* recommended a three phase approach to implementing bike share at major transit stops, institutional destinations and major employment areas throughout and even beyond the regional boundary. Endorsement by the Policy Board is pending.

RECOMMENDATIONS:

1. **Safe Routes to Schools.** Continue to work with the Region's towns to encourage the development of Safe Routes to Schools, including providing the CROCOG Safe Routes to Schools workshop for schools or towns that request it.
2. **Biking and Walking Events.** Work with local advocacy groups to assist them in the planning and implementation of events that encourage bicycling and walking.
3. **Existing Wellness Programs.** Work with employers that offer wellness programs encouraging employee activity, and helping employees to develop programs around active transportation.
4. **Regional Bicycle Map.** Create a Regional Bicycle Map.
5. **Regional Bike Share.** Continue to work toward implementing the vision for Regional Bike Share outlined in the *Metro Hartford Region Bike Share Plan*.

Enforcement Programs

Enforcement is an important element in a bicycle and pedestrian plan. Enforcement increases awareness of pedestrians and bicyclists and improves driver behavior. Partnered with a strong "Share the Road" campaign, it reinforces the "Share the Road" message. Bicyclists and pedestrians have told us through surveys that they are very concerned with inattentive drivers. There are a variety of actions that will result in more effective enforcement of motor vehicle laws that affect bicycle and pedestrian safety. These include training for police, and encouragement of police to enforce the laws. There is a particular need for enforcement related to yielding at crosswalks.

RECOMMENDATIONS:

1. **Educate Police officers.** Develop resources that can be used to teach bicycle and pedestrian enforcement and safety principles in the police academies and in continuing education. Police officers have a large number of laws with which they need to be familiar: we can provide them concise documents that clarify the bicycle and pedestrian laws.
2. **Develop a Targeted Crosswalk Enforcement Program.** This type of program directly reinforces the crosswalk law by ticketing motorists who do not yield to pedestrians in a cross walk.

Evaluation

The only way to learn if we have been successful in causing individuals to bicycle or walk more for regular transportation is to measure volumes of pedestrians and bicyclists.

RECOMMENDATIONS:

1. **Data collection.** We will use the national bicycle and pedestrian data collection project as our guide in measuring bicycle and pedestrian activity. Counts will be conducted in cooperation with towns, and we will use volunteers for this work to the extent possible.

2. **Commitment of resources.** Our commitment to improving conditions for biking and walking will also be measured by our commitment of resources. CRCOG will continue to provide one staff person on at least a half-time basis to support the bicycle and pedestrian program. In addition, CRCOG will continue to support a standing committee to provide a regional forum to discuss issues and help guide CRCOG's bike and pedestrian planning efforts. CRCOG has also appointed a representative of the non-motorized community (Bike Walk Connecticut) to the CRCOG Transportation Committee.

Funding

In order for the recommendations of the bicycle and pedestrian plan to be accomplished, funding needs to be secured for continued planning and implementation.

RECOMMENDATIONS:

1. **Funding for Staff Support.** CRCOG needs to continue to devote a portion of its budget to support a staff person to work on bike and pedestrian planning activities.
2. **Funding for Improvement Programs.** CRCOG needs to work with the Bike and Pedestrian Committee and other agencies to seek and secure funding to implement the bike and pedestrian recommendations.

5: AIRPORT TRANSPORT

The Connecticut Airport Authority (CAA) was established in 2011 to develop, improve and operate Bradley International Airport and the state's five general aviation airports (including Hartford-Brainard airport). CAA serves as an economic driver in Connecticut, making the state's airports more attractive to new routes, enhanced commerce, and new companies. The following summarizes key aspect of Bradley International Airport in Windsor Locks, as the Gateway to New England, and Brainard airport in Hartford.



Bradley International Airport

Bradley International Airport is an important transportation facility and an engine of economic growth for the Capitol Region and the State of Connecticut. This Plan reaffirms general recommendations identified in prior plans, supporting further development of the Airport based on recommendations from the Bradley Area Transportation Study (BATS), the Gallis Report, the Transportation Strategy Board, the Airport Master Plan and the Airport Noise Study.

The Airport, identified as the "Gateway to New England", serves major U.S. markets as well as Mexico, Canada and San Juan, Puerto Rico. The Airport is served by ten airlines, including two low-fare carriers, operating 66,778 total annual and an average of 183 daily flights. In 2013, Bradley Airport handled 5.3 million passengers (enplanements and deplanements) and 386,929 tons of cargo. Compared to other airports nationwide, Bradley ranked 54 out of 506 total commercial airports in the US in volume of passengers enplaned and 27 out of 112 qualifying air cargo hubs in the tonnage of air cargo landed.

In 2009, as a result of the American Recovery and Reinvestment Act (ARRA) and state funds, Bradley was able to reconstruct two runways, upgrade a major water main crossing and install new electrical ductbanks and lighting cables. Bradley has begun demolition on the Murphy Terminal (Terminal B) and expects it to be complete in 2015. Construction on a new transportation center will begin in 2016 and include consolidated rental car facilities, approximately 900 public parking spaces and a transit center with bus docks for regional and high-frequency service to Windsor Locks train station.

International Service. In June 2008, Northwest Airlines announced their decision to cancel the Bradley-Amsterdam nonstop service due to the spike in fuel prices. Later in 2008 Northwest reversed that decision and announced the resumption of the service to begin in June 2009; however, the global economic recession has put those plans on hold. Bradley Airport continues to look to strategically grow international service, adding to current flights that serve Canada, Mexico and the Caribbean islands. In the 2007



Economic Impact Survey, it was determined that Bradley contributes \$4 billion in economic activity to the State of Connecticut and the surrounding region, representing \$1.2 billion in wages and 18,000 full-time jobs.⁹

From a regional perspective, the Airport provides a critical link to the nation's air transport system and the nation's economy. The Airport's importance as a potential engine of economic development was previously noted in the Gallis Report where its role was defined as providing fast and convenient access to the national and international transportation systems. The presence of good quality air service within the Region that is so easily accessible gives the Region a competitive advantage in those economic sectors and industries that rely on fast and convenient delivery of people and goods. These advantages can help stimulate a substantial amount of economic growth.

In 2010 the State of Connecticut enacted legislation creating the Bradley Airport Development Zone. The zone consists of the towns of Suffield, East Granby, Windsor and Windsor Locks and provides property tax exemptions and corporate business tax credits for qualifying businesses in the sectors of air cargo, aerospace, transportation-related services and manufacturing.

If we are to achieve the full benefit that the Airport can offer, we must plan properly -- appropriate land use regulations, good road systems, adequate infrastructure, and full consideration of the potential impacts on adjacent communities. Proper planning is necessary to assure: (1) that we realize the maximum growth potential from the Airport, and (2) that the growth occurs in a manner that provides maximum benefit with minimum disruption to the environment, neighborhoods, towns, and the Region.

Better Ground Access

The Airport currently enjoys good roadway access, but has limited transit access. Route 20 and Interstate 91 offer good access to most parts of the Airport for most users. However, to support anticipated development on and near the Airport, it will be necessary to improve roadway access and to develop better transit access to the Airport.



ROADWAY ACCESS. To help facilitate economic development in the area in and around the Airport, which is designated as an 'Economic Development Area of Regional Significance'¹⁰, good roadway access is needed. Four roadway improvements were proposed in the Bradley Area Transportation Study and are described below.

RECOMMENDATIONS.

- 1. Westside Access Improvement.** To address problems of access to cargo facilities on the west side of the Airport, it is recommended that Bradley Park Road be extended on a new section of roadway north to Russell Road. Improvements to existing Bradley Park Road, including the addition of center left-turn lanes and adjacent intersection improvements are also recommended.

⁹ Passenger and cargo statistics, air carrier and economic data from Bradley International Airport Marketing Department, 2/2007.

¹⁰ See Chapter 1: A Sustainable Transportation System.

2. **Northside Access Improvement.** To accommodate future development on the north end of the Airport, it is recommended that a new two-lane connector road be built (one lane in each direction) from Route 75 to the Route 190 bridge. This 4.3-mile road provides a more direct route from the north end of the Airport and it will divert about 3000 - 4000 vehicles a day from Suffield center. To minimize environmental and community impacts, this road would be designed as a two-lane, at grade roadway with a moderate design speed. Before a final commitment is made to this project, an environmental review must be completed.
3. **Route 75 Improvements.** To address existing operational and safety problems on Route 75 from just south of Route 20 to Route 140, it is recommended that a center turn lane for left-turning vehicles be constructed, that driveway modifications be made to allow for better access management, that streetscaping and sidewalks be provided, and that a new service road for businesses be constructed.
4. **Bradley Park Road.** To improve access to the commercial areas immediately near the Airport, it is recommended to make minor improvements to Bradley Park Road, address operational problems, and create attractive gateways to airport-related development areas.

TRANSIT ACCESS: LINK TO THE HARTFORD LINE RAIL. The BATS report and the Regional Transit Strategy both called for better transit access to the Airport. Current transit access is limited to taxis and the Bradley Flyer bus route. While improved bus service is needed (see below), these two studies also proposed providing a transit connection between the Airport and the proposed Hartford Line rail service. A passenger connection of this sort would provide a good reliable link to the Airport from the three major cities in the Knowledge Corridor, and it would provide a link to the New Haven Line rail service. The State completed its commuter rail feasibility study in 2006, and recommended that a bus shuttle be provided as a connection between the commuter rail station in Windsor Locks and the airport. The Connecticut Airport Authority and Bradley International Airport are also currently developing plans for an integrated ground transportation center with a consolidated rental car facility. Any proposed improvements to the transit connections to the airport would have to consider this new facility to enable a truly multi-modal access concept.

RECOMMENDATION:

1. **Transit Connection between the Airport & the Hartford Line Rail Service.** Provide a good transit connection to the proposed Hartford Line rail service by instituting a direct shuttle bus service from the Airport to the Windsor Locks rail station, recognizing the airport's plans for an integrated ground transportation center.

TRANSIT ACCESS: BUS SERVICE. Given the very limited transit service to the Airport today, bus service improvements are needed. The Bradley Flyer is the only regular bus service between the Airport and downtown Hartford, and it was designed to serve employees at the Airport, not air travelers. The following Airport bus service recommendations were identified in various studies.

RECOMMENDATIONS:

1. **Service to Hartford for Air Travelers.** To be more effective in serving the air traveler market, Bradley Flyer service should be adjusted as follows:
 - *Access to Proposed Ground Transportation Center.* Providing bus transit service to the proposed transportation center would be essential to establish an improved Bradley Flyer connection for air travelers and to facilitate a true intermodal access concept.
 - *More Destinations.* Serve more destinations downtown such as hotels and major employers.
 - *New Direct Service.* When feasible, provide direct service between the airport and downtown, in addition to the employee-focused service now provided.
 - *Continue Frequent Service.* The current service operates 20 out of 24 hours per day, this frequency service should be continued.

- *Better Equipped Buses.* Provide buses better suited to serve air travelers. Existing buses do not have luggage racks to accommodate bags and suitcases that most travelers carry.
 - *Continue Marketing.* Continue to market bus service directly to air travelers with better signs in the terminal, better information on Airport kiosks and websites, through major downtown employers, and through the Visitors and Convention Bureau.
2. ***Service via Blue Hills Corridor.*** For the short term, develop supplemental bus service to the Airport that builds on the recommendations from the Griffin Busway study to enhance service within the Blue Hills corridor. In the long term, develop full service to the Airport via the Griffin Corridor.
 3. ***Service to Springfield and other Cities within Bradley's Market Area.*** Support the efforts to develop bus service between the Airport and other key cities such as Springfield and New Haven.

Regional Economic Development

Bradley International Airport presents a tremendous opportunity for economic growth for the Region as a whole, and for airport-related development within the immediate vicinity of the Airport itself. It has been estimated that over a 20-year period, the airport would create over 140,000 jobs and \$34 billion in economic output. These estimates have been recognized in the Gallis Report, the Department of Economic and Community Development 2005 study, the Airport Economic Impact Study, and the Bradley Area Transportation Study. Bradley also realizes significant competitive advantages such as having over 1,000 acres of undeveloped, reasonably priced and easy to develop land within the four adjoining towns; 100 million potential customers within a 500-mile radius (representing 1/3 of the US economy); top tier corporate neighbors; and over 2,000 hotel rooms and conference facilities within a 60-mile radius. To capitalize on these advantages, the State of Connecticut enacted Public Act 10-98 in 2010, creating a Bradley Airport Development Zone. The Zone, encompassing the towns of Suffield, East Granby, Windsor and Windsor Locks, provides property tax exemptions and corporate business tax credits for air cargo, aerospace, manufacturing and transportation-related services and becomes effective beginning October 1, 2011.

In order to realize the Airport's full economic potential, sufficient and appropriate planning must be undertaken, and supportive programs must be put in place. The Council of Governments supports planning (state, regional, and local) that helps achieve the Airport's economic development potential in a manner that has minimum impact on the environment and on neighborhoods in the general vicinity of the Airport.

ECONOMIC DEVELOPMENT AREAS OF REGIONAL SIGNIFICANCE. With the adoption of the Regional Plan of Conservation and Development in 2003, the Airport area was designated as one of six 'regional growth centers' in the Capitol Region. These critical areas have since been termed 'Economic Development Areas of Regional Significance'. This designation is intended to encourage economic development within areas that have both the potential for significant economic growth and adequate infrastructure to support such growth.

RECOMMENDATION. The Council should continue its designation of the Airport area as an Economic Development Area of Regional Significance, and continue to develop policies that support economic growth in these areas.

NOISE-TOLERANT LAND USES. The State, Region, and towns should encourage only noise-tolerant land uses near the Airport. Noise levels under airport flight paths can be very high and can interfere with residential and many commercial activities. While buildings can be sound insulated to reduce noise levels, certain land uses such as residences, schools, and nursing homes are still inappropriate near flight paths. Town development regulations need to both restrict the types of uses allowed in areas affected by airport noise, and require the appropriate level of noise insulation for buildings within these areas. Town plans and development regulations should be consistent with the Airport Master Plan, and with recommendations in the Part 150 Noise Exposure and Compatible Land Use Study.

RECOMMENDATION. Support policies that discourage noise-sensitive land uses near flight paths, and that encourage construction techniques with adequate noise insulation.

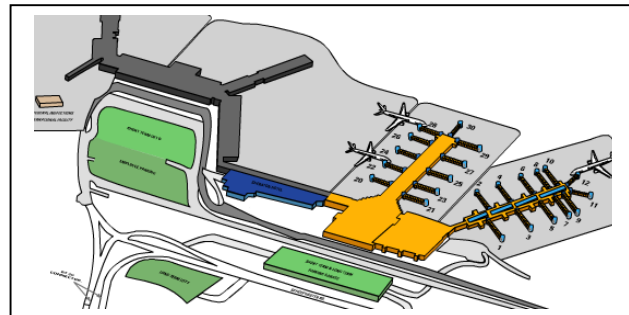


Bradley Airport Noise Exposure Map

Better Air Passenger Service

The Region's residents and businesses are fortunate to have an easily accessible airport that offers good connections to the national air transportation system. However, the air travel market is volatile and competitive. Bradley's market area is constantly in flux as competing airports in Providence, RI; Worcester, MA; and Manchester, NH seek to increase their market areas. It is important that Bradley maintain the quantity and quality of service it currently has, and that efforts be undertaken to improve service as well. To that end, the Council of Governments supports efforts to improve existing service and expand service into new markets.

We need to do more to improve and expand domestic service from Bradley. In the face of competition from other regional airports, Bradley needs to do more marketing to promote existing services and to attract more passengers and air lines. In addition, while Bradley has facilities to process international travelers, it currently has no regularly scheduled international air service. Direct connections from Bradley Airport to international destinations would offer a tremendous advantage to regional businesses that compete in international markets. Continuing efforts to attract scheduled international service should be a high priority for Bradley.



RECOMMENDATIONS:

1. **Improve Domestic Service.** Support efforts to improve and promote domestic passenger service.
2. **Develop International Service.** Support efforts to develop scheduled international service.

Better Air Cargo Service

Bradley has great potential as an air cargo facility because of its easy ground access, uncongested airport facilities, and proximity to New York and Boston. The ease of getting in and out of Bradley, combined with

the good regional highway system, makes it attractive to air cargo handlers seeking to serve not only the Hartford-Springfield area, but other parts of New England as well. While Bradley's air cargo services cannot compete with New York and Boston on price, they can offer faster delivery times in most parts of New England, and often can offer faster delivery times into New York City and Boston as well. The following two recommendations reflect the Council's support for continued improvement of air cargo capabilities at the Airport.

RECOMMENDATIONS:

1. ***Capitalize on Air Cargo Potential.*** Continue to improve Bradley's air cargo capabilities and services, and capitalize on problems that New York and Boston airports are experiencing due to increasing ground and air congestion.
2. ***Multimodal Cargo Center.*** Evaluate making Bradley a true *multi-modal* freight facility by improving rail freight access to the Airport, and developing support facilities for trucking. The multimodal cargo center at the airport in Charlotte, North Carolina should be evaluated as a possible model for Bradley.

Community Sensitive Planning

The continued development of Bradley International Airport can offer tremendous transportation and economic development benefits to the Region and the State. Development must, however, be done in a manner that is sensitive to the concerns of adjacent communities. Noise and traffic issues need to be addressed, and plans need to be prepared through a cooperative approach with the affected municipalities. CRCOG fully supports the development of Bradley International Airport while recognizing that Airport planning must be done in a manner that gives full consideration to the potential impacts the Airport can have on neighboring communities. Airport planners need to work with local officials and residents to minimize impacts, including noise and traffic, from Airport activities.

RECOMMENDATION. Planning for Airport improvements must be done in a manner that is sensitive to community concerns, and must involve local officials in the planning process.

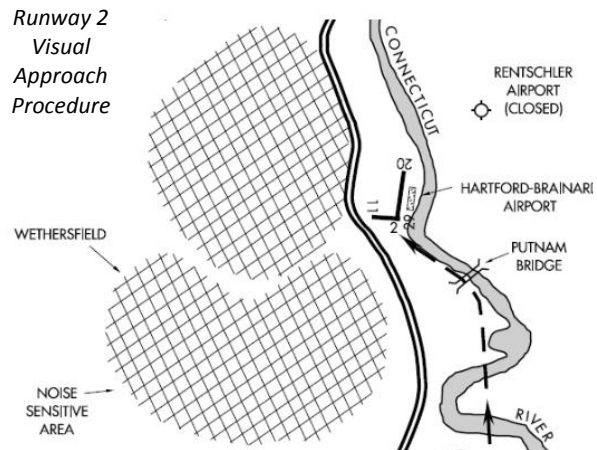
Brainard Airport

Brainard Airport is an important general aviation airport that provides corporate, private, and recreational services. The airport is currently in the process of updating its Master Plan which will include sustainability principles while identifying opportunities for future development of the airport.

Brainard Airport is in close proximity to three major highways: Interstate 84, Interstate 91 and Route 2. Vehicle access to the airport is provided via Interstate-91 and the Wilbur Cross Highway (Routes 5 and 15) to Maxim Road and Lindbergh Drive.



The Brainard Airport site is 201 acres and has two paved runways, a turf runway, two helipads, with hangars and parking for over 200 aircraft. An FAR Part 150 Noise Control and Land Use Compatibility Plan was conducted in the 1980s and was recently updated in the Master Plan update (2014). The study resulted in an informal runway use program for noise abatement. Under FAA policies, an informal runway use program is not mandatory, but provides guidance to Air Traffic Control in selecting which runways to use when weather conditions permit a choice to reduce noise over sensitive areas.



RECOMMENDATIONS:

1. **Support General Aviation Airport Development.** Support efforts to improve and promote corporate travel, flight training, recreational flights and other aviation activities that take place at Brainard Aripport.
2. **Support noise abatement.** Continue to participate in the Steering Committee for the Master Plan Update and monitor noise study findings.

6: FREIGHT TRANSPORT SYSTEM

The movement of goods plays an important role in economic growth that is often not fully appreciated. This lack of understanding is especially true in Connecticut where primary industries such as agriculture and mining play a small role, and secondary economic activities such as manufacturing play a decreasing role. The importance of freight transport is more obvious in economies dominated by primary and secondary industries that ship massive quantities of heavy and/or bulky materials. But even in economies dominated by the financial, insurance, and service industries, efficient movement of goods is still important. Freight transport is required for the import of the finished products and basic commodities used by both businesses and consumers, and for the export of some of the specialized products produced within the Region. While different modes may be better for different types of goods, the need to move these goods in and out of the Region exists regardless of mode.

The Capitol Region Council of Governments (CRCOG), in cooperation with the Central Connecticut Regional Planning Agency (CCRPA)¹¹, the Midstate Regional Planning Agency (Midstate), and the Pioneer Valley Planning Commission (PVPC), has undertaken a freight planning effort. In 2005, CRCOG, along with its partners, commissioned Global Insight to do a basic analysis of freight movement in and through the Hartford Metropolitan Region (a multi-county region which included central and western Connecticut plus western Massachusetts.) The findings of that report have informed this section of the Regional Transportation Plan, which outlines the nature of freight movement in the Region. It also identifies issues and opportunities, and possible next steps.

CRCOG is also in the process of developing a freight planning process that is initially based on an inventory of freight-relevant infrastructure, and includes a stakeholder outreach program. In the near term we will also focus on coordinating our freight planning efforts with CTDOT and neighboring planning agencies. Based on this continuous planning effort, weak spots in the freight transportation infrastructure for local, regional and inter-regional freight movements will be identified, and recommendations will be made to improve freight transportation conditions.

Key Characteristics of Freight in the Region

There are three primary characteristics of freight flow in the Capitol Region. They are the dominance of trucks, a high volume of through traffic, and an imbalance of flows in and out of the Region.

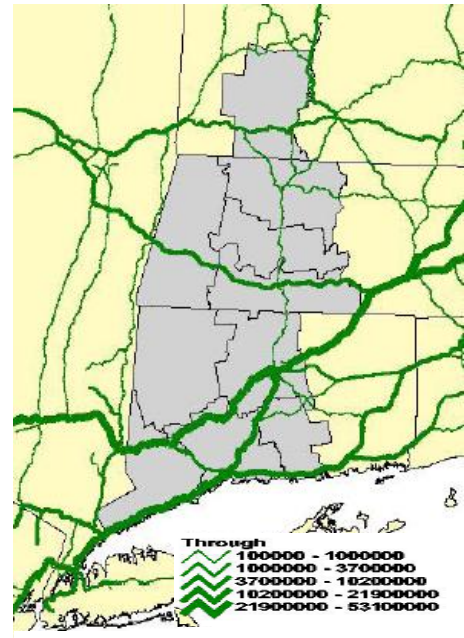
- Truck Dominance. According to the Global Insight study, trucks carry 98 percent of the freight moving in, out and through the Region. This is much higher than the national average of 79 percent. This large volume of truck traffic contributes to congestion on the Region's highways, and increases the cost of maintaining roads and bridges.
- Large Through Volume. A very large proportion of truck traffic in the Capitol Region involves trucks that pass through the Region without stopping. About 40 percent of truck traffic is through traffic. This compounds the adverse effects of truck traffic. While through traffic adds to congestion and maintenance costs, it contributes little or nothing to the Region's economy.

¹¹ CCRPA is no longer in existence, with several of its towns now having membership in CRCOG; Midstate is now RiverCOG and continues to work with CRCOG and PVPC on freight issues.

- *In/Out Flow Imbalance.* There is a large imbalance of freight flows between freight flowing into the Region and freight flowing out. Inbound freight exceeds outbound freight by a more than a 2:1 margin. This reflects a consumer economy rather than a producer economy. It also drives up the cost of shipping since trucks and rail cars must be sent back empty.

CRCOG's Role in Freight Transport Planning

Freight Planning Program. In the last 50 years, the public sector, and metropolitan planning organizations in particular, have had little direct role in the development or operation of freight transportation systems. It has been left largely to the private sector to maintain freight railroads, operate truck terminals, develop overnight package delivery systems, build pipelines, and develop the truck fleets and supporting business and logistics systems to manage the complex truck delivery systems that account for most of the goods movement in the nation. However, within the past decade there has been an increasing awareness that the public sector needs to play some role in helping develop more efficient delivery systems if the United States is to stay economically strong in the face of an increasingly competitive world economy. To this end, the US DOT, which funds the transportation planning function at metropolitan planning organizations like CRCOG, has asked MPOs to begin addressing goods movement issues in their regions. CRCOG started examining freight issues in 2005 by commissioning the Global Insight report.



*Through Traffic Volumes
in Annual Tons*

The movement of freight is characterized by a very complex interaction of public and private infrastructure, vehicular movements and a very fast changing market for freight movement overall. Due to the typical distances that freight is transported, CRCOG can only directly impact a small fraction of the infrastructure that is utilized to perform transportation to, from or through the region. Due to the location of our Region within the New England transportation networks, it is apparent that freight planning efforts don't have only a local focus but must also take into consideration a state and multi-state perspective. Therefore an essential part of the CRCOG freight planning strategy is the close interaction with neighboring planning organizations as well as CTDOT to ensure that the aspects of freight movements within the region are being reflected in the State and even in New England.

CRCOG has defined a freight planning approach for the Region to ensure a proper reflection of the interests of freight movement within the planning process. In order to initiate the discussion with freight transportation stakeholders, CRCOG is conducting an analysis of the existing freight transportation infrastructure and limitations of network connectivity within the Region. This initial analysis is the basis to begin the stakeholder outreach which is expected to engage stakeholders within the Region to help refine the analysis and complement the data with additional public and private sector information. The

outreach will also enable CRCOG to identify needs from a stakeholder perspective that are not apparent in the publicly available data sets that were used in the initial analysis.

Truck Freight

Much of our national economic development and our quality of life have been based upon the ability to move goods by truck safely and efficiently across the country. But, this ability is being threatened by increasing reliance on trucking and increasing congestion on highways. The American Association of State Highway and Transportation Officials (AASHTO) issued a report, *Transportation Invest in America - Freight Rail Bottom Line Report* that outlines the potential problem. The report warns that by 2030 our nation's roads will not be able to handle the increases in truck traffic projected. The projected increase in congestion threatens to stall the nation's economic growth. This is particularly relevant to the Capitol Region, since we are so dependent on trucking for the movement of goods.

Based on data from the Freight Analysis Framework (FAF) from the Federal Highway Administration (FHWA) it is expected that there will be a significant increase in truck freight movement on the highway network. For certain cross sections truck traffic estimates within the CRCOG region are expected to increase by more than 5,000 trucks by 2040 on an average annual daily truck traffic basis. This increase in combination with overall expected increases in congestion threaten the viability of freight movement, especially in satisfying the 'just in time' delivery demands of many receivers.

Given the Region's heavy dependence on truck freight, we will be pursuing the following courses of action. First, CRCOG will continue the ongoing freight planning efforts including a freight stakeholder outreach effort to better understand constraints and future needs of the freight transportation industry within the CRCOG region. Second, we need to consider options to reduce our dependence on trucking. Third, we should be pursuing means to better manage our existing resources to assure that trucking can continue to efficiently serve our Region's economy.

FREIGHT PLANNING AND STAKEHOLDER OUTREACH. In order to supplement the ongoing freight planning efforts within the region, CRCOG will continue freight planning efforts and start a stakeholder outreach effort to involve private sector freight entities in the planning process and to better understand current constraints for freight movements and future needs of freight shippers and logistics firms within the region. Based on the feedback of the stakeholder outreach, a more refined and in-depth summary of infrastructure constraints can be formulated. In addition, CRCOG will continue to work with freight planning partners on various levels to coordinate planning efforts for freight transportation.

DIVERSION FROM TRUCK TO RAIL INTERMODAL. These problems could be reduced if some goods were diverted to other modes of transport. Generally bulky items, such as lumber, paper, and fuel oil, are more likely to be shipped via train, barge, or even pipeline. Rail is also able to capture other markets through intermodal service (trailer on flat car and container on flat car) under certain conditions. Generally, rail intermodal is viable only for freight shipments of 750 miles or longer in trucking corridors with relatively high demand or annual volume. The Global Insight report estimated that the maximum volume of truck traffic we could divert to rail intermodal was about 12 percent or about 96,000 truckloads.

IMPROVING TRUCK OPERATIONS. While some actions can be taken to divert goods to alternative modes, trucking will likely remain the dominant mode of freight transport, and more should be done to improve efficiency and safety for this mode. Actions to improve truck safety and efficiency include better travel information, better truck stops, better locations for freight facilities, and seeking backhaul opportunities.

Travel Information. Much has been done in the way of improving travel information technology in the past few years. CTDOT's freeway traffic management system, Regional Traffic Management System (RTMS), is an important tool for travel information and incident management. Coordination with CTDOT on allowing freight companies access to RTMS information would help trucking companies make better routing decisions and reduce shipping delays.

Truck Stops. There continues to be a shortage of truck stops in the Region. We need to create more truck stops, and enhance the functionality at existing stops. Having travel information available at stops and electrification to stop diesel idling through the use of heating and cooling hook-ups/cable hook-ups would improve the efficiency and environmental effect of trucks on our roads.

In 2008, the Connecticut Department of Transportation released its *CT Statewide Rest Area and Service Plaza Study*. The Study estimated a shortage of 1,447 overnight truck parking spaces in 2008 and further estimated that this shortage will grow to a deficit of 1,760 spaces by 2025. The Study recommended the potential development of a private truck parking facility in the Hartford area and identified gaps in rest stop coverage along I-91 north of Hartford, along State Routes 2, 9, 20. The Study also recommended improving the existing rest stop facilities in Willington and the eastbound rest stop facility in Southington, and adding truck parking spots to meet the needs of freight truck traffic in the Capitol Region.

Locating Freight Facilities. To avoid the negative impacts of trucks once they reach their destinations thought needs to be given to the location of freight facilities. To the extent possible, freight activities should be separate from non-compatible land uses. In areas where separation is impossible, thought could be given to performance-based zoning. In concentrated service centers, plans for consolidating frequent pickup and delivery could be made.

A concept that is being developed in other nearby states is a “freight village”. Our Region may have potential for this type of intermodal facility because of the many freight companies already located in and around Bradley Airport. A freight village, also known as an “Integrated Logistics Center”, is a complex where the following activities occur:

- *Modal Shift* – goods are moved between two or more forms of freight transportation
 - Rail to truck; barge to rail/truck; air and rail/truck
- *Economic Activity*
 - Active distribution centers and industrial activities are located adjacent to the modal shift facilities within the village.
 - NO passive activity or container storage.
- *Support Activities* – truck stops/rest areas, office space, retail (restaurants, banking, stores), and hotels may also be part of the freight village
- *Unified Management* – the village is often under the management of a single entity.

Seeking Backhaul Opportunities. Inbound freight into the Capitol Region exceeds outbound freight by more than a 2:1 margin reflecting a consumer economy rather than a producer economy. This increases costs for goods shipped to our area, since trucks must return empty. This provides some opportunities that might be exploited. If a market can be found for backhaul trips, the cost would be very low. Also, rail intermodal might benefit from the imbalance, providing low-cost repositioning to motor carriers.

Water Transport

According to the Global Insight report, the largest volume of freight in the Region is water/truck movement of petroleum products into the Region from New York and Boston Harbors to storage facilities in Southern Connecticut. The water-based portion of these trips is outside of the Hartford Region.

While no major ports are located within the Capitol Region, CRCOG recognizes that economic benefits can be realized here, when improvements are made at the State’s coastline ports. The cost of shipping goods to and from the Capitol Region might be significantly reduced, if at least a portion of the trip is made by water.

There may also be some opportunities to divert freight from truck to water transport. Winter freezing of the Connecticut River prevents river shipments from being a year-round option. But coastal barges may be used to divert through shipments of petroleum relieving truck traffic on I-91, I-95 and I-84.

It is expected that a massive shipping boom will be experienced on the East Coast when the Panama Canal expansion is complete, but Connecticut's three deepwater ports will not be ready to handle these large vessels. None of Connecticut's ports are deep enough nor do they have adequate facilities to handle the larger volumes that will be headed to the East Coast from China, which ships one-third of the world's containers. Also, because Connecticut ports are too shallow, large tanker ships delivering petroleum to the state cannot dock at the ports, leaving them to transfer liquid to smaller ships or unload part of their cargo before venturing into the shallower waters. Both of these items result in increases to the cost of heating oil and gasoline.

Pipeline Transport

The highest freight flows in the Region are petroleum (inbound and through), non-metallic minerals, and secondary traffic (retail). Pipelines offer another alternative to divert petroleum shipments. Over 7,000 miles of natural gas and hazardous liquid pipelines exist in Connecticut, some of which feed fuel to Bradley Airport; altogether there are nine privately owned facilities with 12 terminals between Middletown and Enfield. A pipeline, owned and operated by different companies, runs continuously between the Port of New Haven and into Massachusetts. This pipeline is used to ship various petroleum products. In the winter, it runs at capacity with heating oil shipments, but it does not run at capacity during the warmer months.

While it is possible that more product could be shipped via pipeline, there are limitations as to how much flow can be diverted to pipeline. For example, motor vehicle fuel used in Massachusetts, because it has MTBE, cannot be shipped via pipeline. And while the pipeline has capacity in the summer, capital investments would be needed to increase winter capacity. The pipeline is privately owned and operated and there are no current plans to expand capacity.

Rail Freight

Relieving congestion on highways and improving air quality are significant benefits of rail freight transport. In the *Freight Bottom Line Report*, the American Association of State Highway and Transportation Officials (AASHTO) stated the importance of examining our nation's freight capacity – particularly our rail freight capacity – to assure that in the coming 20 years the overall system will be able to keep pace with a growing national and global economy. Rail is an important mode of transport for bulky goods that are being shipped over long distances. Since rail freight tends to be a slow method of shipment, the goods being shipped usually are not needed for any time-sensitive business process.

The Capitol Region is served by several short line and regional railroads. There are no Class 1 or national railroads in Connecticut. Our link to the national rail network is via the CSX Railroad, which is a Class 1 railroad with a terminal and intermodal facility in West Springfield, MA. The West Springfield intermodal facility has the potential to help the Region by diverting some truck traffic to rail intermodal services.

Rail intermodal services include Trailer on Flat Car (TOFC) and Container on Flat Car (COFC), and they are a steadily growing freight alternative. This form of transport utilizes rail and truck by transporting goods in containers and trailers on flat rail cars to rail yards where the switch is made to truck. Nationally, the TOFC/COFC business is the most readily susceptible to traffic diversion from (and to) the highway. The Global freight study found that the Region's use of intermodal rail is about one-tenth of what might be expected, based upon national averages. This low share of intermodal rail is partially due to the proximity of the New York City area and Boston harbors, which doesn't allow for trans-loading containers onto rail and shipment to the West Springfield terminal since it is not practical from a distance perspective. This situation could change, however, if the current shipping routes change due to revisions in the way containers are being moved to/from the ports.

The CSX intermodal terminal in West Springfield is not currently used to its full capacity. This rail yard's existence reflects an opportunity close to the Capitol Region where the development of TOFC/COFC could help to significantly reduce through traffic. But a shift to greater use of intermodal rail is dependent in large part upon actions taken by private rail companies to expand terminal and train capacity.

CRCOG will work with freight rail stakeholders to discuss potential improvements to freight rail infrastructure within the CRCOG region to facilitate efficient and competitive freight rail shipments including the elimination of rail car weight and height limitations, and to address the new national rail industry standard requiring the capability to handle 286,000 gross vehicle weight rail cars. CRCOG will coordinate with other planning organizations and CTDOT to consider aspects of freight rail in planning processes at various geographic levels.

Air Freight

Bradley International Airport has a significant air cargo business and there is potential for increasing that business. Nationally, Bradley has a higher ranking for the volume of freight moved than for the number of passengers served. Its air cargo business benefits from excellent ground access and uncongested airport facilities. This easy-in/easy-out feature also gives it a competitive advantage over New York and Boston for certain types of goods.

Having fast and convenient air cargo service available within the Region gives the Hartford-Springfield area a competitive advantage in attracting and retaining businesses that use or produce low bulk – high value goods, or those that are dependent on fast delivery over long distances.

Despite Bradley's air cargo advantages, most air freight will continue to arrive in the Hartford metropolitan area via truck from New York, Newark, and Boston airports. This is due to the large economies of scale offered by the freight consolidation possible at major international airports like Kennedy Airport in New York. Attracting more freight to Bradley would require targeting specific commodities (creating a niche market) rather than pursuing general freight.

Conclusions

CRCOG has completed a comprehensive study of the nature and extent of goods movements affecting the Capitol Region. The study identified the Region's heavy reliance on truck transport, the high volume of through traffic, and the strong imbalance of flows into the Region as compared to flows out of the Region.

To be effective at addressing these issues, the Region must work with other regional and state agencies, and with private sector groups since the problems tend to be multi-state and national in scale, and often the solutions require private industry participation.

RECOMMENDATIONS:

1. Develop freight-planning program. CRCOG should continue to develop its freight-planning program.

- The program should focus on issues identified in the Global Insight Study.
- Freight planning efforts will include a continuous iterative process of identifying constraints, needs and future demand as well as stakeholder outreach to address shortfalls in the transportation infrastructure that is relevant to the movement of freight.
- The program includes a strong educational component that highlights the importance that freight plays in keeping the Region's economy strong and growing.
- Effective coordination of policies related to housing, transportation, energy and the environment are necessary to ensure quality of life while expediting the flow of both freight and people in the

safest and most cost-effective manner. It is imperative that in meeting all of these goals, we maintain/improve sustainable transportation for all modes, including freight.

- The program should also focus on recommendations identified in the CT Statewide Rest Area and Service Plaza Study (2008) for the Hartford area.

2. Collaborate with other organizations on freight issues. CRCOG will continue to work with other regional organizations and freight industry representatives on freight issues affecting the Hartford-Springfield area.

- Partners should include at least the following: The Lower CT River Valley COG, Pioneer Valley Planning Commission, the Bradley Development League, the MetroHartford Alliance, the Hartford-Springfield Economic Partnership, and others.
- CRCOG will coordinate with CTDOT and the planning efforts on a state level toward a State Freight Plan and continue discussions to expand freight planning beyond the state level due to the long-distance character of modern freight movements and logistics services.

7: SPECIAL POLICIES

There are several policies and programs the Council has adopted that warrant special discussion. These special programs and policies are described in this section. They include: Transportation Security; MPO Coordination; Air Quality – Transportation Policy; and Demand Management Policy.

Transportation Security

The tragedy of September 11, 2001 brought a new emphasis on transportation security at the federal, State, regional and local level. Our surface transportation systems are important considerations in planning for emergency preparedness because:

- The transportation system conveys people away from the site of an attack and provides access for emergency response teams. Ancillary transportation systems such as variable message signs and highway advisory radio can be used to detour the public around a major event. Transit vehicles can be used as a respite center for responders.
- The transportation system itself is vulnerable to attack, such as the bombing of a bridge (eight of the eleven bridges that span the Connecticut River are in the Capitol Region Emergency Planning Council's planning region¹²) or the hijacking of a transit vehicle. Protection of transportation facilities must be a high priority and the response in the event of an attack must be carefully planned and practiced.

The Capitol Region has been proactive in bringing people together to discuss and plan for the security of our regional surface transportation systems, with both security issues, valuable to the response and vulnerable to attack, being considered. These issues are being discussed within the transportation community in the Hartford area, but they are also discussed by the emergency services community in the area. Since CRCOG supports both a transportation planning function and a public safety planning function, we have also been able to coordinate the activities of each. Examples of recent transportation security planning efforts are provided below. CRCOG is committed to continuing to conduct and/or support such efforts in the future.

CAPITOL REGION EMERGENCY PLANNING COUNCIL. The Capitol Region Emergency Planning Council (CREPC) was established in 2001 (originally as a subcommittee of CRCOG's Public Safety Council; it became an independent council in 2014). CREPC developed and continues to update the CT-DEMHS Region 3 Regional Emergency Support Plan (R-3 RESP).¹³ This is an All Hazards Plan and one element of that plan, the Regional Emergency Support Function (RESF-1), addresses transportation issues and how to incorporate them into the greater emergency response effort.¹⁴ The RESF-1 chapter of the R-3 RESP documents the coordination efforts of federal, State, regional, local and private entities involved in the transportation security effort.

INCIDENT / EMERGENCY MANAGEMENT. In addition to incorporating an RESF-1 chapter in its R-3 RESP document, CREPC also established an RESF-1 committee. The purpose of this RESF committee is to "facilitate communication and coordination among regional jurisdiction and agencies concerning transportation issues and activities during a major disaster."

¹² The Capitol Region consists of 38 municipalities (the Capitol Region MPO consist of 29 municipalities); the Capitol Region Emergency Planning Committee serves 42 municipalities.

¹³ CT is divided into five Department of Emergency Management and Homeland Security planning regions; the region corresponding to CREPC is DEMHS Region 3.

¹⁴ The Region follows the tenets of the National Response Framework and the use of Emergency Support Functions as discipline-oriented work groups.

In 2005, the members of the Region's traffic incident management committee (see Chapter 4: Highway System for a complete discussion of this committee) merged with and assumed the emergency planning role of the RESF-1 committee. The committee was also expanded to include representatives of public transportation, dial-a-ride services, private bus companies, State emergency management planners, AMTRAK, and the Transportation Security Administration. In recent years, RESF-1 has participated in regional emergency drills and exercises, developed a list of regional transportation resources for use in an emergency, and stands ready as a Subject Matter Expert on transportation in the event of a live event requiring transportation resources.

Transit Role in Emergency Planning. In 2003, CT **transit** sponsored Federal Transit Administration (FTA)-funded "Connecting Communities: Emergency Preparedness and Security Forum" in Hartford. This forum brought together emergency responders and transit providers in a unique opportunity to learn from each other. The goal of the forum was "to demonstrate the important role that transit plays in crisis situations and the importance of delivering a coordinated regional response to any emergency."

CT **transit** continues to play a role in emergency planning by monitoring the monthly CREPC meetings and attending when transit issues are discussed, and participating in emergency drills when appropriate. It is important that this relationship among responders and transit providers be maintained because of the significant role that transit vehicles can play in any emergency. Transit vehicles can be used for:

- Respite for emergency responders;
- Temporary shelter for displaced citizens (heat/air condition, seating, water/food transport, etc.);
- A mobile incident command center;
- Mobile triage units for injured citizens, during disaster or attack;
- Mass evacuation (buses can seat 35+ to 57 passengers, upwards of 60+ for standing/seating combined);
- Mobile street and block detours; during a disaster or emergency, a 25- to 40-foot bus can block off streets and intersections freeing up emergency vehicles such as police or fire vehicles traditionally used to perform these tasks.

More than a dozen public and private companies operate multi-passenger vehicles within the Region, including school buses, city buses, wheelchair vans and smaller vehicles. These transit companies need to be encouraged to play a role in local and regional emergency planning. An aggressive response to any type of extreme emergency will need to mobilize the Region's vehicles to save lives as well as to preserve equipment.

CT **transit** sponsored several emergency preparedness drills over the decade. These include two full scale emergency preparedness drills in the Hartford area, which included the participation of the FBI, State police and other emergency responders. CT **transit** held another drill in 2007, in conjunction with the Hartford Police Department with a scenario that involved a failed bombing attempt and a subsequent hostage situation. In 2008 and again in 2010, the TSA undertook a three-day review of CT **transit's** safety and security program and offered suggestions for improvement.

In FY2009 and 2010, CT **transit** received funding from the Transit Security Grant Program (TSGP)¹⁵ to enhance its security measures by upgrading surveillance equipment on its buses. They also used these funds to develop a public awareness program entitled "See Something, Say Something" that is supported by the State departments of Transportation, Emergency Management, and Homeland Security.

With the advent of CT **fastrak**, CT **transit** developed a new Agency Safety Plan for the Hartford division and included CT **fastrak** operations. CT **transit's** "Security and Emergency Preparedness Plan" was also revised and updated. A CT **fastrak** emergency exercise was conducted, first as a tabletop in December 2014 and then as a live event in January 2015. The exercise scenario included a bus collision on the CT **fastrak** guideway. State Police, CT **transit**, CTDOT and first responders from the four CT **fastrak** towns

¹⁵ A U.S. Department of Homeland Security and the Federal Emergency Management Agency grant program.

all participated in the event. The CT**transit** dispatch office has been enlarged to include the Busway Operations Center (BOC) for CT**fastrak**. The BOC will be the hub for overseeing the operation of CT**fastrak**, with monitors that show live camera feeds from the busway stations, as well as the source of alerts from station Emergency Call Boxes. The BOC is also central control for the AVL system.

Evacuation Planning. Following the hurricanes that hit the Gulf Coast in 2005, the federal government directed all states to develop emergency evacuation and sheltering plans. Connecticut had already begun work on evacuation planning, traffic management and mass sheltering. The State addresses the three most probable evacuation-planning scenarios, which essentially occur outside the Capitol Region, but impact the Region by virtue of its role in accepting evacuated persons from other parts of the State. The Capitol Region emergency planners have completed a Regional Shelter and Evacuation Guide as part of the State's overall approach to evacuation and mass care operations, in collaboration with our State and intra-state regional partners.

MPO Coordination

CRCOG is committed to working cooperatively with all its neighboring regional planning agencies in the Hartford metropolitan area, as well as the planning agencies in the Springfield and New Haven areas. Since major transportation projects often extend across multiple regions, or even multiple metropolitan areas, it is important that the affected planning agencies, or metropolitan planning organizations (MPO),¹⁶ work cooperatively. Coordination assures they are addressing *inter-regional* needs, as well as the needs of individual regions. It also assures that proposed improvements are not duplicative or conflicting.

HARTFORD MPO COORDINATION. The Hartford metropolitan area extends beyond the boundaries of the Capitol Region. Since the political boundaries of the regional planning agencies do not coincide with the functional limits of the Hartford metropolitan area, it is important that the regional agencies within the metropolitan area coordinate their planning efforts. In February 2003, the four MPOs that share some portion of the Hartford metropolitan area – CRCOG, the Central CT Regional Planning Agency (CCRPA), the Midstate Regional Planning Agency (now the Lower Connecticut River Valley Council of Governments--RiverCOG), and the Council of Governments of the Central Naugatuck Valley (now the Naugatuck Valley Council of Governments) signed an agreement to do so.¹⁷ The agreement established a common goal to conduct the four transportation programs in a manner that assures that their plans are mutually supportive of major projects and programs to improve the transportation system in the Hartford urbanized area. The agreement also required agency activities be coordinated in a number of specific planning and programming areas. The coordination efforts include the exchange and review of annual work programs, regional transportation plans, and transportation improvement programs (TIPs).

As a result of Census 2010 the Hartford Urbanized area grew slightly and, in 2013, the State of Connecticut initiated a process to reorganize its regional planning organizations (RPOs, who have traditionally been the hosts of the state's MPOs). The result of these processes: additional RPOs had Hartford Urbanized Areas and CCRPA was divided: Four of their municipalities joined CRCOG, two joined the Naugatuck Valley Council of Governments (NVCOG), and one joined the Northwest Hills Council of Governments (NHCOG). Subsequent to this reorganization, it was decided by the municipalities in the Central Connecticut Region, that the MPO boundaries should be redrawn to match the RPO boundaries. The region is currently operating at the Central Connecticut MPO (CCMPO).

While the RPO re-designation process was complete in January 2015, the MPO process is taking longer. The MPO re-designation process requires that municipalities, state government, and the federal government all approve of the boundary change. As of this writing, the municipalities belonging to CCMPO,

¹⁶ Metropolitan Planning Organization (MPO) is a federal term used to designate the regional planning agency responsible for approving the use of federal transportation funds within a given metropolitan area.

¹⁷ COGCNV, which is the Waterbury MPO, is included in the agreement, but very little of their Region falls within the Hartford metropolitan area boundary, and none of Region abuts CRCOG.

CRCOG, NVCOG, and NHCOC have all officially endorsed the change. In February 2015 they sent a letter to the Governor's office requesting approval of the boundary change. That approval is still pending. It is anticipated that this process will not be complete until June 2015. After the process is complete, CRCOG will work with adjacent MPOs to define new RPO Coordination agreements, including public transportation operators as cosigners.

MPO coordination is achieved primarily through periodic meetings of the Hartford Urbanized Area agencies to discuss ongoing or scheduled planning activities. A list of common issues, activities, and projects that are discussed at these meetings or are addressed through other means are listed below.

Item or Project in Common	Affected MPOs	Comment
ITS & Traffic Incident Management	CRCOG, CCMPO, RiverCOG	<ul style="list-style-type: none"> The three agencies support a common program for ITS & traffic incident management. Regional Support Function 1 (Transportation) is a joint program of all 3 agencies. CRCOG recently completed an update the ITS Strategic Plan and continues to work on the ITS Architecture; CCMPO and RiverCOG have been stakeholders in this process.
Congestion Management Process	CRCOG, CCMPO, RiverCOG	<ul style="list-style-type: none"> The three agencies support a common CMP for the Hartford metro area. The three agencies worked together to collect data and update the first congestion management report. CCRPA produced its own report in 2012. The second congestion and traffic monitoring report was published in 2013.
Jobs Access	CRCOG, CCMPO	<ul style="list-style-type: none"> CRCOG and CCMPO support a common Jobs Access program. Historically, CRCOG managed the Job Access program and CCRPA served as one of the taskforce members. The taskforce oversees the program that covers most of the Hartford metro area. The program is currently in flux and CTDOT may be assuming funding from the Department of Social Services (DSS) to manage the program. The agencies have meet as part of the Jobs Access Taskforce to manage the program services and budget. RiverCOG participates in the New Haven area Jobs Access program since program boundaries are based on the DSS regions, which are not based on metro areas.
Locally Coordinated Human Services Transportation Plan	CRCOG, CCMPO, RiverCOG	<ul style="list-style-type: none"> The three agencies continue to support a single LOCHST plan for the entire metro area. The Plan was completed in 2007 and was updated in 2009. CTDOT solicits New Freedom projects for the metro area.
CT fastrak	CRCOG, CCMPO	<ul style="list-style-type: none"> CT fastrak, endorsed in the transportation plans of both agencies, became operational in March 2015.
The Hartford Line	CRCOG, CCMPO	<ul style="list-style-type: none"> CRCOG and CCMPO both support this proposal. CRCOG established a Corridor Advisory Committee (CAC) to assist municipalities in coordinating shared resources and development plans. Municipalities that have either rail or CT fastrak stations participate in the CAC including towns in the South Central Region Council of Governments.
STP Urban & Transportation Alternatives Program	CRCOG, CCMPO, RiverCOG,	<ul style="list-style-type: none"> The agencies coordinate the use and expenditure of STP Urban funds and Transit Enhancement funds. The new MAP-21 funding program, Transportation Alternatives Program, replaces the funding from pre-MAP-21 programs including

	NHCOG, NVCOG	Transportation Enhancements, Recreational Trails, Safe Routes to School, and several other discretionary programs, wrapping them into a single funding source.
Farmington Canal Multi-Use Trail	CRCOG, CCMPO	<ul style="list-style-type: none"> CRCOG and CCMPO both endorse this trail, and both work with their affected towns to advance funding for this trail that will extend from New Haven to Northampton, MA.

COORDINATION WITH OTHER MPOs. CRCOG also interacts regularly with both the Springfield MPO and the New Haven MPO. Since the Pioneer Valley (Springfield) Region abuts the Capitol Region, we have many common concerns such as Bradley International Airport, ITS and incident management on I-91, transit services for Enfield, the Hartford Line Commuter Rail proposal, the study of Interstate 91 in Springfield, and the Farmington Canal Trail. We meet annually to review the status of our planning programs, and as required for studies such as the Interstate 91 Study. In addition, the Springfield MPO partnered with CRCOG in the application for and continuing implementation of the Sustainable Knowledge Corridor Project, funded by a HUD Sustainable Communities Regional Planning Grant.

Even though the RiverCOG Region lies between CRCOG and the New Haven MPO, we still coordinate with the New Haven MPO as needed for projects such as the Hartford Line Commuter Rail Project.

Item or Project in Common	Affected MPOs	Comment
Southern New England Transportation Issues	CRCOG, PVPC	<ul style="list-style-type: none"> The executive directors of both agencies regularly consult with one another regarding transportation issues of importance to both regions and all of southern New England. Both MPOs have many common concerns such as Bradley International Airport, ITS and traffic incident management on I-91, transit services for Enfield, the Hartford Line Commuter Rail proposal, the study of Interstate 91 Springfield, and the Farmington Canal Trail. CRCOG and PVPC signed a MOU in May, 2012. The MOU facilitates mutual exchange of information and expertise such as UPWP, Long Range Transportation Plan, GIS and regional transportation model data.
Bradley International Airport and Transit	CRCOG, PVPC	<ul style="list-style-type: none"> CRCOG will be coordinating the CT State Airport System Plan update preliminary findings with PVPC PVPC, along with CRCOG, participates in the Bradley Light Rail Transit Feasibility Study Steering Committee PVPC participated in the transit studies being funded by the Sustainable Communities Regional Planning Grant.
Commuter Rail	CRCOG, PVPC	<ul style="list-style-type: none"> CRCOG regularly consults with PVPC regarding the Hartford Line and expansion of the rail service up to Springfield and east to Boston. CRCOG coordinates with PVPC on the FRA plans for the NEC Future corridor. CRCOG has attended meetings on PVPC high speed rail study (New Haven to Boston).

Farmington Canal Trail	CRCOG, PVPC	<ul style="list-style-type: none"> • CRCOG and PVPC both endorse this trail, and both work with their affected towns to advance funding for this trail that will extend from New Haven to Northampton, MA. • CRCOG coordinates with PVPC on the completion of the Farmington Canal Greenway in the border towns of Suffield and Southwick.
Freight	CRCOG, PVPC	<ul style="list-style-type: none"> • PVPC was included in CRCOG's freight planning study as a member of the Advisory Board, and as a technical resource, since they had previously undertaken a similar study. • CRCOG participated in PVPC's Merrick rail yard study meeting as a member of their advisory committee. • PVPC attended a freight planning workshop at CRCOG.
Regional Planning	CRCOG, PVPC	<ul style="list-style-type: none"> • CRCOG and PVPC meet regularly for continuing implementation of the Sustainable Knowledge Corridor Project, funded by a HUD Sustainable Communities Regional Planning Grant. Some of the projects are development of knowledge corridor sustainability dashboard, development of metrics, update and integrate existing regional plans, etc. • CRCOG & PVPC are working together in CT River Bi-state Partnership as a part of the partnership between four regional planning agencies located along the CT River for purposes of collaborating more effectively to improve the environment, water quality, recreation and public access on the Connecticut River.

Air Quality - Transportation Policy

Many metropolitan areas of the nation, including the Capitol Region, have serious air pollution or smog problems. These smog problems are caused in large part by emissions from automobiles. Because of the automobile's key role in the smog problem, the federal Clean Air Act of 1990 requires metropolitan areas to develop transportation plans that help reduce vehicle emissions that contribute to smog.

Our plans and programs are regularly evaluated through the air quality conformity process conducted by CTDOT in cooperation with the regions and with CT DEEP. These evaluations have always shown that our plans support the state air quality programs and goals.

Air Quality Supportive Policies & Practices. In addition to the conformity process that we are required to conduct, CRCOG has examined air quality issues and options for reducing emissions. The findings and conclusions from our work has helped us formulate much of our current transportation plan and programs in a manner that promotes better air quality.

This current transportation plan reflects the Region's strong desire to reduce our reliance on automobiles by developing travel alternatives such as transit, traveling by bicycle, and walking. The Plan also includes demand management (next section) and land use policies (Chapter 1) that support practices to reduce exhaust emissions by reducing travel demand.

Special Diesel Policy & Program. The 2007 version of this Plan reflected a strong policy regarding the reduction of diesel exhaust emissions. CRCOG's Environmental Justice Advisory Board identified diesel emissions as an air quality issue that disproportionately affects low-income urban neighborhoods. The



issue was raised because there is a high incidence of asthma in these neighborhoods, and evidence suggests that diesel emissions, especially particulates, are part of the cause of this urban health problem. To address the problem, the Environmental Justice Advisory Board suggested that CRCOG incorporate the goal of reducing diesel emissions into its various transportation plans and policies. CRCOG continues to support that goal, and much has been done to address the issue since that 2007 Plan, as described below.

Transit Buses. The diesel exhaust reduction goal led CRCOG to propose a special project to retrofit CT **transit** buses with passive diesel particulate filter systems. CRCOG applied for funding and was able to secure Congestion Mitigation and Air Quality funds to pay for the retrofitting. CT **transit** completed the retrofits for 94 buses in its Hartford fleet. Unfortunately, the retrofit systems have proven to be very problematic and very expensive to maintain. Many other transit systems in the country have removed this retrofit technology. Despite the high cost and maintenance problems, CT **transit** kept these buses in service, replacing the filters on a frequent basis. Many of these retrofitted buses have now been retired or placed into the reserve fleet. Nine buses from 1999 have been retired and thirty-two 2001 model buses have been placed into the reserve fleet where they are operated on occasion rather than daily. The balance are in active buses but these buses will gradually be retired through 2019.

The good news is that the new active control diesel particulate filters introduced with new buses in 2007 work much better. In addition, a new emissions technology was introduced in late 2010 called Selective Catalytic Reduction or SCR. CT **transit** was one of the first bus systems in the country to buy these buses. They are the cleanest diesel buses, not only in the country but in the world. So far this new technology appears to be working relatively well. All CT **transit** buses run on biodiesel fuel, thus reducing their emissions further. In late 2011, CT **transit** received ten 60-foot articulated buses that are hybrid electric powered, and in 2012 they took delivery on three 35-foot buses for the DASH service that are also hybrid electric powered. In addition, forty-two of the forty-eight transit buses purchased for CT **fastrak** are hybrid electric powered buses. They have lower emissions and are less noisy than a standard diesel bus. The six buses that are not hybrid powered are MCI commuter buses which do not offer hybrid power technology.

Construction Equipment. The EJAB also suggested that the Plan's recommendation for clean diesel buses be expanded to include clean diesel construction equipment used on highway projects. While expanding the recommendation to include highway construction equipment is reasonable, it must be focused on policy initiatives rather than project-based or funding initiatives. Highway construction equipment is owned by private companies, so change must be achieved by modifying the construction bid documents. CTDOT is already implementing these requirements on its largest construction projects by requiring contractors to use clean diesel equipment. In these cases, larger diesel-powered construction vehicles operating for long durations are typically required to use Clean Fuels or Retrofit Emission Control Devices. The requirements also include guidelines for the idling and staging of vehicles and thresholds for a contractor prepared Diesel Emission Mitigation plan.

Hydrogen Fuel Cell Bus Demonstration. CRCOG was an important partner in the development of CT **transit's** hydrogen fuel cell bus demonstration project. The demonstration project was initiated in 2007, and was intended to test the viability of this zero-emission form of transportation. The initial project tested a fuel cell bus under a variety of weather and operating conditions. The objective was to advance the technology closer to the ultimate goal: making fuel cell buses economically viable to regular transit bus service.

CT **transit** continued its hydrogen fuel cell bus test program by increasing the fleet to five buses through participation in the National Fuel Cell Bus Program in 2010. Unfortunately, with UTC Power's departure from the fuel cell industry in late 2012, CT **transit** ended its hydrogen fuel cell program. The four UTC-sponsored fuel cell demonstration buses were offered for sale, which CT **transit** declined to purchase. It did not make sense to take these buses when there would be no manufacturer support to address any problems. In 2015, CT **transit** reached an agreement with the SunLine Transit Agency of Thousand Palms, CA, to transfer the ownership of CT **transit's** first fuel cell bus to SunLine. They have a hydrogen fuel cell program with multiple buses and a fueling station.

CT **transit** has installed a stationary hydrogen fuel cell at the CT **transit** Hartford garage in the fall of 2012 and it continues in operation, providing 400 kw of clean electricity and much of their hot water.

RECOMMENDATIONS:

1. **Support Alternate Travel Modes.** Support alternate travel modes such as the projects recommended in the transit and bicycle sections of this Plan.
2. **Reduce Diesel Emissions.** CRCOG supports the reduction of diesel emissions from all sources, and recognizes CT **transit**'s continuing efforts to reduce emissions from public transit vehicles. CRCOG continues to support these efforts. CRCOG continues to encourage CTDOT to include clean diesel equipment on State transportation construction projects as part of bidding requirements.
3. **Support Fuel Cell Bus Program.** CRCOG, CT **transit** and CTDOT should continue to search for opportunities to support a hydrogen fuel cell bus program.

Demand Management Policy

Many options for reducing congestion focus on increasing the *capacity* of the transportation system (or transportation *supply*). An important alternative approach is to reduce, or otherwise modify, the *demand* for transportation. This does not necessarily mean getting people to make fewer trips. More often demand management is focused on getting people to use an alternate form of transportation (bus or carpool), or to shift their travel to off-peak periods when there is excess capacity.

Examples include:

- staggered work hours to spread peak demand
- flexible work hours to allow more use of transit or ridesharing
- reduced bus fares to encourage use of transit
- telecommuting to eliminate commuting trips
- elimination of employee parking subsidies to encourage transit use
- 4-day work weeks to eliminate commuting trips

CRCOG has studied demand management options as part of several previous studies. The analyses consistently demonstrate that some techniques such as increasing parking fees, eliminating employee parking subsidies, or providing transportation allowances to employees, can be effective at reducing vehicle miles of travel, increasing transit ridership, and reducing vehicle exhaust emissions. The difficulty with these techniques is that they often rely on voluntary participation of private employers to implement them. Voluntary programs are often not effective, and making them mandatory through legislative action is often politically unpopular.

RECOMMENDATIONS:

1. **Encourage Transportation Demand Management Programs.** CRCOG should try to integrate demand management into our transportation programs whenever possible. We should also promote federal and state "deduct a ride" programs that use income tax deductions to encourage use of transit and ridesharing instead of driving alone to work. Encourage the State legislature to act as an example to private employers by offering a full transit subsidy to State employees.
2. **Support Rideshare Programs and CTrides Initiatives.** CRCOG should continue to support rideshare programs that encourage alternatives to driving alone to work. While the primary function of rideshare programs is encouraging commuters to use carpools or vanpools, the various programs in the State also promote public transit as well as transportation demand management initiatives such as deduct-a-ride and telecommuting.

8: FINANCIAL PLAN

This chapter provides an overview of the cost of projects recommended in the Transportation Plan and an estimate of the revenues that will be used to finance the improvements. Since this is long-range plan, many of the cost estimates and revenue estimates are inexact. The intent is to prepare an approximate, but realistic, estimate of total program cost; and a similar estimate of total revenues that the Region can expect to receive over the next 25 years. A goal of this process is to prepare a 'financially constrained plan' whose costs can be paid from the 25-year revenue stream.

Capital Costs & Revenues

Capital Costs. The estimated capital cost of implementing the Plan is about \$1.667 billion (see Table 8-1). Most of the cost estimates are based on current design estimates or estimates prepared for other planning studies from which the respective projects were derived. These include CT **fastrak**, the NHHS Rail Feasibility Study, the Regional Transit Strategy, the Northwest Corridor Transit Study, Interstate 84 Viaduct Planning and arterial corridor studies. For studies that are more than a couple of years old, the cost estimate has been adjusted for inflation.

The transit program is estimated to cost \$255,500,000 and includes projects derived from and recommended in various studies such as CT **fastrak**, an extension of Fastrak East and the Buckland Hills area in South Windsor and Manchester, improvements in the Day Hill Road area of Windsor, and transit supportive elements such as Intelligent Transportation Systems (ITS) and bus shelters. The transit program represents 15 percent of the cost for the entire Regional Transportation Plan. It should be noted that preliminary transit needs were also evaluated and for planning purposes an additional \$604,340,000 would be needed to advance other important transit projects, particularly improvements associated with the Hartford Rail Line.

The highway program costs approximately \$1.3 billion or 78 percent of the entire Transportation Plan. This includes significant investments in Interstates 84 and 91, particularly the Interstate 84 Viaduct replacement. It should be noted that the real highway need exceeds this amount mostly due to unfunded balance associated with reconstructing the Interstate 84 Viaduct. These costs are estimated at \$3.7 billion.

Bicycle and pedestrian elements of the Plan are estimated to cost \$52,000,000 or approximately three percent of the total cost. An unfunded need of \$20 million was identified for bicycle and pedestrian projects. Other allotments to air and freight transportation amount to about four percent of the total cost.

Capital Revenues. The revenue estimate is based on continuation of *existing annual revenues* and *anticipated special discretionary funds* that the Region has applied for or already received.¹⁸ The estimated revenues to the Region over the next 25 years will total about \$1,686,510,000. This is the total amount of State and federal transportation capital funds that will likely flow to the Region for system improvements and enhancements. It does not include funding for basic infrastructure maintenance and repair. The estimate is based on the assumption that current funding levels continue and that the Region continues to get its fair share of both federal and State funds.

Regional Allocation. The regional allocation of \$1,086,095,000, estimated by CTDOT, accounts for approximately 64 percent of the anticipated revenues available for system improvements for the next 25 years. This estimated allocation is a combination of a statewide distribution to regions plus an amount allocated from weighted factors for Vehicle Miles of Travel and Congested Vehicle Miles of Travel. Although it is based on highway funds, it can be allocated to either highway or transit projects within the 25-year Plan.

¹⁸ Most federal funds are appropriated annually to states or urban areas based on formulas specified in federal legislation. These formulas typically use variables such as population, VMT, and federal gas tax receipts. Some federal programs are 'discretionary' programs in which the State or region must apply and compete against other applicants for funds. These funds are awarded at the discretion of the Congress or US Secretary of Transportation.

Table 8-1 Capital Cost Estimate (2015-2040)

Improvement Program	Cost	Unfunded Need
Transit & Ridesharing Program		
CTfastrak	\$40,500,000	
ITS for bus system	\$10,000,000	
CTfastrak East (Phases 1-3)	\$155,000,000	
The Hartford Line: Double Track Expansions		\$238,000,000
The Hartford Line: New Stations	\$15,000,000	\$141,000,000
The Hartford Line: Bus Connections to Station(s)	\$15,000,000	
The Hartford Line: CT River Bridge		\$75,000,000
The Hartford Line (Hartford Rail Viaduct)		\$100,000,000
Day Hill Road Transit Hub /Park & Ride (Includes buses, shuttles)	\$5,000,000	
Union Station Improvements	\$10,000,000	
Buckland Hills Area 'Allotment'		\$50,340,000
Transit Supportive Enhancements (shelters, connections, planning)	\$5,000,000	
<i>Subtotal</i>	<i>\$255,500,000</i>	<i>\$604,340,000</i>
Highway Program		
I-84: Viaduct Construction	\$300,000,000	\$3,700,000,000
I-84: West Hartford, Operational Lane between 40 & 42	\$32,850,000	
I-84: Farmington, Route 6 / Route 9 / Route 4	\$106,065,000	
I-84: Manchester (auxiliary lane between 63 & 64/65)	\$6,400,000	
I-84: Manchester / South Windsor Buckland Hills Area Improvements		\$462,000,000
I91: Relocation and Reconfiguration of Interchange 29	\$181,000,000	
I91: Day Hill Rd Interchange Improvements (without 'elective' improvements	\$20,000,000	
Route 2: East Hartford (widen bridge to improve EB acceleration)	\$8,100,000	
Route 2: Putnam Bridge	\$240,000,000	
ITS (DMS, CCTV, HAR, Signal Systems)	\$25,000,000	
Arterial Improvements (from Corridor Studies or consultation process)	\$230,000,000	
Municipal Roads	\$150,000,000	
<i>Subtotal</i>	<i>\$1,299,415,000</i>	<i>\$4,162,000,000</i>
Bicycle & Pedestrian Program		
Complete major interregional trails	\$40,000,000	\$10,000,000
Other bicycle & pedestrian programs	\$12,000,000	\$10,000,000
<i>Subtotal</i>	<i>\$52,000,000</i>	<i>\$20,000,000</i>
Bradley Airport		
Better Roadway Access	\$40,000,000	
Better Transit Access		(A)
Other Policy Recommendations	\$10,000,000 (B)	
<i>Subtotal</i>	<i>\$50,000,000</i>	
Freight Transport System		
Freight Policy Recommendations	\$10,000,000 (B)	
<i>Subtotal</i>	<i>\$10,000,000</i>	
Total Capital Costs	\$1,666,915,000	\$4,786,340,000

(A) Costs are included in project lists in the Transit Section (under The Hartford Line)

(B) Recommendations are generally policy statements however an allotment for airport / freight network is estimated here

The Hartford Line. The Hartford Line rail project is 62 miles in length and crosses 3 regions in Connecticut, plus part of the Springfield region in Massachusetts. There are a number of important, unfunded projects associated with this rail asset including: Double tracking north of Hartford, construction of new stations, reconstruction of the CT River Bridge, and reconstruction of the Hartford Rail Viaduct.

Projects of Statewide Significance. When CTDOT prepared the regional allocation estimates, they also reserved some of the future revenue for projects that they deemed to be of 'statewide significance.' Five projects in the Capitol Region are on the list of statewide projects, they are summarized in Table 8-2.

Table 8-2 Estimated Revenue Sources (2015-2040)

	Revenue
Regional Allocation: CRCOG allocation from CTDOT (statewide estimate through 2040 for System Improvements)	\$1,086,094,300
Funds for Major Projects of Regional (Statewide Significance)	
Glastonbury: Putnam Bridge Rehabilitation / Replacement	\$240,000,000
West Hartford: I-84 Operational Lane Between Exits 40 & 42	\$32,850,000
Farmington: Interchange Improvements: I-84 at Rt 4 / Rt 6 / Rt 9	\$106,065,000
Hartford: I-91 Relocation & Reconfiguration of Interchange 29	\$181,000,000
CT <i>fastrak</i>	\$40,500,000
Total Assumed Revenue:	\$1,686,509,300

Fiscal Constraint: In 1991, as part of the Intermodal Surface Transportation Efficiency Act (ISTEA), Congress refined the transportation planning process by enacting fiscal constraint provisions. Fiscal constraint requires that revenues in transportation planning and programming are identified and reasonably expected to be available to implement the region's long range transportation plans.

Cost estimates for the construction of transportation improvement projects as well as operations and maintenance costs were developed in consultation with the local community, CTDOT, municipal officials, transit agencies and other stakeholders. Per fiscal constraint, the estimated available funds for the Capitol Region must be greater than or equal to the financial needs of the region over the life of the plan in order to maintain fiscal constraint. As seen in Table 8-3, CRCOG's Regional Transportation Plan is fiscally constrained over the life of the plan.

Table 8-3 Fiscal Constraint (2015-2040)

Capital Costs

Total Assumed Revenues:	\$1,686,509,300
Total Capital Costs:	\$1,666,915,000
<i>Shortfall: Amount 'over' the revenue assumption</i>	<i>\$0</i>
<i>Reserve: Amount 'under' the revenue assumption</i>	<i>\$19,594,300</i>

Transit Operations & Fleet Replacement

Total Estimate Federal Revenues	\$288,400,000
Total Assumed State Revenues	\$2,581,458,000
Total Costs:	\$2,869,858,000
<i>Shortfall: Amount 'over' the revenue assumption</i>	<i>\$0</i>
<i>Reserve: Amount 'under' the revenue assumption</i>	<i>\$0</i>

Operating & Maintenance Costs

The primary focus when assessing the financial viability of the Transportation Plan is on the capital cost of the Plan. However, the costs of operating and maintaining the transportation system are not ignored. In fact, CTDOT has allocated about 65 percent of the expected 25-year revenue forecast to maintenance and repair of existing infrastructure. The Region's maintenance costs are already accounted for in the financial planning guidelines CTDOT issued to each region. A summary of the estimated costs for the Capitol Region is provided in Table 8-4.

Highway Maintenance Costs: CTDOT estimates that it will cost \$2,012,985,000 to maintain all State roads in the Region over the next 25 years. Since the State places a high priority on maintenance, the funds to pay for this maintenance work have already been identified in the State's financial planning guidelines.

Special Infrastructure Repair Needs. While we assume that 65 percent of the Region's transportation funds over the next 25-year will be dedicated to maintenance, reconstruction, and replacement of existing highway infrastructure, we typically do not identify individual maintenance projects. However, in the next 25-year timeframe there are two major highway structures that warrant special mention. These are the I-84 Viaduct in Hartford and the Putnam Bridge between Wethersfield and Glastonbury.

The I-84 Viaduct will require full reconstruction or replacement within the timeframe of this Plan, requiring a massive investment in a critical piece of our Region's transportation infrastructure. No detailed cost estimates have been prepared, however, it is expected that the cost could result in a project ranging between \$3 and \$6 billion, depending on the alternative that is advanced. A majority of this estimate has been shown as an unfunded need. In order to fund this major transportation infrastructure project, CROG will need to evaluate creative financing options and work in partnership with CTDOT to understand all funding options. Interim repairs to the Viaduct will be critical until the structure can be reconstructed. More details about the Viaduct can be found in Chapter 3 of this Plan.

The Putnam Bridge will require full reconstruction or replacement within the timeframe of this Plan and a \$240 million has been budgeted for this effort as a capital cost. Interim repairs to the structure have been made and will continue to until such time as the bridge can be reconstructed. CTDOT has identified the Putnam Bridge as a project of statewide significance, and allocated extra funds to the Region for this project.

Transit Operating & Replacement Costs. As with the highway maintenance costs discussed above, CTDOT has identified both the costs of operating the existing transit systems, and the revenues to finance them. However, the estimate below does not include any funds to cover the additional operating subsidy for any 'new' transit services. For each of the new transit services proposed as part of this Plan, we will have to identify new revenues sources before the service can be implemented. Typically, this funding commitment occurs after a feasibility study is complete, but before the design phase is started. CTDOT has committed to provide the operating funds needed to operate CT **fastrak**.

Existing Transit Services: Existing transit services subsidized with public funds include CT **transit** bus services, a few privately operated commuter bus services, local and regional dial-a-ride services for the elderly and the disabled, ridesharing services, and the new CT **fastrak** services. The annual operating subsidies to these services amount to about \$92,909,500. This is a total of \$2,322,738,000 over a 25-year period.

Vehicle replacement costs are also provided below. The estimated replacement cost of \$547,120,000 is based on existing fleet size and assumes an average life expectancy of 12 years for regular transit buses and 4 years for special transit (ADA and dial-a-ride) vehicles and rideshare vans. These costs are based on a CT **transit** fleet of 284 buses (including 39 buses associated with CT **fastrak**) and a GHTD fleet of 122 vehicles.

Table 8-4 Operating & Maintenance Costs (25 years)

	Highways	Transit	Total
Maintenance	2,012,985,000	-	2,012,985,000
Operating	-	2,322,738,000	2,322,738,000
Replacement	-	547,120,000	547,120,000
Total	2,012,985,000	2,869,858,000	\$4,882,843,000

New Transit Services. The Plan recommends new rapid transit services plus improvements to existing bus service. A new bus rapid transit system is expected to require \$12-15 million per year in state subsidy to operate unless additional revenue can be generated to offset the costs. At this time, there is no commitment to fund the operating subsidies for the other new services. Operating subsidy decisions will be made after the feasibility studies are completed.

Timetable for Implementation

A proposed schedule for implementation is shown in Table 8-5. It is a tentative schedule based on a general assessment of how funding availability might affect implementation dates. While it is possible to design all the projects early in the 25-year period, the annual revenue stream will force the Region to defer many of the projects until the second decade. The schedule is merely a financial planning tool. It is a tentative schedule that can be revised periodically to reflect changing conditions. Factors such as delays in acquiring environmental permits, priorities elsewhere in the State, and availability of special discretionary funds could alter the schedule substantially.

Table 8-5 Preliminary Timetable for Implementation

Improvement Program	Cost	Period 1 (Year 1-5)	Period 2 (Year 6-10)	Period 3 (Year 11-25)
Transit & Ridesharing Program				
CTfastrak	\$40,500,000	\$40,500,000	\$0	\$0
ITS for bus system	\$10,000,000	\$9,000,000	\$500,000	\$500,000
CTfastrak East (Phases 1-3)	\$155,000,000	\$80,000,000	\$75,000,000	\$0
The Hartford Line: New Stations ¹	\$15,000,000	\$10,000,000	\$5,000,000	\$0
The Hartford Line: Bus Connections to Station(s)	\$15,000,000	\$7,500,000	\$7,500,000	\$0
Day Hill Road Transit Hub /Park & Ride (Includes buses, shuttles)	\$5,000,000	\$0	\$5,000,000	\$0
Union Station Improvements	\$10,000,000	\$0	\$4,000,000	\$6,000,000
Transit Supportive Enhancements (shelters, connections, planning)	\$5,000,000	\$2,500,000	\$2,500,000	\$0
Subtotal	\$255,500,000	\$149,500,000	\$99,500,000	\$6,500,000
Highway Program				
I-84: Viaduct Construction ¹	\$300,000,000	\$0	\$300,000,000	\$0
I-84: West Hartford, Operational Lane between 40 & 42	\$32,850,000	\$0	\$32,850,000	\$0
I-84: Farmington, Route 6 / Route 9 / Route 4	\$106,065,000	\$0	\$106,065,000	\$0
I-84: Manchester (auxiliary lane between 63 & 64/65)	\$6,400,000	\$0	\$0	\$6,400,000
I91: Relocation and Reconfiguration of Interchange 29	\$181,000,000	\$181,000,000	\$0	\$0
I91: Day Hill Rd Interchange Improvements (without 'elective' improvements)	\$20,000,000	\$0	\$0	\$20,000,000
Route 2: East Hartford (widen bridge to improve EB acceleration)	\$8,100,000	\$0	\$0	\$8,100,000
Route 2: Putnam Bridge	\$240,000,000	\$240,000,000	\$0	\$0
ITS (DMS, CCTV, HAR, Signal Systems)	\$25,000,000	\$20,000,000	\$5,000,000	\$0
Arterial Improvements (from Corridor Studies or consultation process)	\$230,000,000	\$75,000,000	\$75,000,000	\$80,000,000
Municipal Roads	\$150,000,000	\$40,000,000	\$50,000,000	\$60,000,000
Subtotal	\$1,299,415,000	\$556,000,000	\$568,915,000	\$174,500,000
Bicycle & Pedestrian Program				
Complete major interregional trails	\$40,000,000	\$15,000,000	\$15,000,000	\$10,000,000
Other bicycle & pedestrian programs	\$12,000,000	\$4,000,000	\$4,000,000	\$4,000,000
Subtotal	\$52,000,000	\$19,000,000	\$19,000,000	\$14,000,000
Bradley Airport				
Better Roadway Access	\$40,000,000	\$8,000,000	\$18,000,000	\$14,000,000
Other Policy Recommendations	\$10,000,000	\$3,000,000	\$3,000,000	\$4,000,000
Subtotal	\$50,000,000	\$11,000,000	\$21,000,000	\$18,000,000
Freight Transport System				
Freight Policy Recommendations	\$10,000,000	\$3,000,000	\$3,000,000	\$4,000,000
Subtotal	\$10,000,000	\$3,000,000	\$3,000,000	\$4,000,000
Total Capital Cost	\$ 1,666,915,000	\$ 738,500,000	\$ 711,415,000	\$ 217,000,000

¹ This reflects only a portion of the finances that are needed; the balance is reflected as an 'unfunded' need

9: ENVIRONMENTAL JUSTICE

The Capitol Region Council of Governments is committed to fully integrating the basic principles of environmental justice into all of its transportation planning programs and activities. These principles are:

- Reaching out to involve minority groups and low income groups in the planning process;
- Preventing “disproportionately high and adverse” impacts of transportation decisions on minority groups, low-income, and transit dependent groups; and
- Assuring these same groups receive a proportionate share of benefits.

These principles were first included in the 2001 Regional Transportation Plan. Since then, CRCOG has made substantial progress in advancing its commitment to these core principles. We completed a full assessment of our planning process in 2002, and have continued to assess our entire public outreach efforts on an annual basis since then.

An Environmental Justice Action Plan was adopted in June 2002, and incorporated into CRCOG’s Public Involvement Plan in May 2005. As this Long Range Plan was being developed, CRCOG was initiating a project to review its entire Public Participation Program, including its Public Participation Plan, its Title VI Program, as well as its Environmental Justice and Limited English Proficiency Policies. This project will be completed in late 2016.

In the meantime, we remain committed to involving minority groups and low-income groups in our planning process, and developing plans and programs that provide an equitable distribution of benefits and burdens. We are also committed to identifying and addressing transportation issues that are of special concern to minority, low-income, and transit dependent households. To begin the latter task, we undertook a special effort prior to the 2011 Long Range Transportation Plan development to identify issues of special concern. These issues were identified by an Environmental Justice Advisory Board and generally include the following.

CRCOG COMMITTEE STRUCTURE. CRCOG revised its Committee structure to include an Environmental Justice Advisory Board, and a representative from that Board on the Transportation Committee. The structure provides better opportunities for the involvement of environmental justice communities in the transportation planning process, and should be continued.

ACCESS TO JOBS. Access to jobs is one of the most critical issues for low-income and transit dependent households in the Region. The growth of employment in suburban areas and the lack of good transit service to these areas often pose a problem for these residents when they search for job opportunities. CRCOG administers a program to provide special transportation services to and from work for welfare-to-work clients and other low-income workers. The program supplements regular CT *transit* bus service to serve hours or routes not previously served by CT *transit*.

BETTER TRANSIT SERVICE. The Region’s regular transit service is not a convenience, but rather a necessity for transit-dependent residents. Whether they live in the City of Hartford or inner ring suburbs served by transit, these residents depend on the service for virtually all their transportation needs. Improvements should continue to be made to the service, including more frequent buses and longer operating hours, as well as at bus stops, including more shelters and better maintenance.

In addition, the bus-riding experience can be vastly improved with the application of advanced technologies, or intelligent transportation systems (ITS), at the bus stop and on the bus. Automated Vehicle Location (AVL) systems can provide information to the bus passenger about next bus arrival times and can allow automated on-board next-stop announcements. Transit priority added to traffic signals can help keep

buses on schedule. And computer-aided dispatch can improve efficiencies for both fixed route and dial-a-ride services.

RAPID TRANSIT SYSTEM. Rapid transit proposals form the cornerstone of the Regional Transportation Plan. Bus rapid transit is proposed for several corridors, and passenger rail service is being advanced within the New Haven-Hartford-Springfield corridor. These rapid transit services can be designed to meet the needs of transit dependent residents as well as those of suburban residents who have easy access to automobiles.

CLEAN FUEL VEHICLES. Diesel emissions can pose a health hazard in urban neighborhoods where asthma rates are often higher than in suburban neighborhoods. The concern regarding reducing diesel emissions in the Region continues to be a priority. To address this, the Environmental Justice Advisory Board proposed a program to retrofit CT *transit* buses with diesel particulate filters and CRCOG worked with CTDOT and CT *transit* to identify funds to retrofit CT *transit* buses with diesel particulate filters. With technological advancements, CT *transit* has been able to procure buses that run on biodiesel fuel and hybrid electric powered buses.

In a similar manner, diesel-powered vehicles used on construction sites add to a reduction in air quality. Federal rules regarding diesel emissions took effect in 2007, but older vehicles are exempt from the law. CRCOG intends to work with CTDOT to understand construction requirements for capital projects and any potential revisions or updates they may be considering.

PEDESTRIAN & BICYCLE SAFETY IN URBAN AREAS. Pedestrian and bicycle safety is an important issue that affects minority, low-income households, and especially transit-dependent households living in our more urbanized communities. More than ten percent of the residents in the Region do not own an automobile, and for many of them, walking and riding a bike is an important means of travel. However, pedestrians and cyclists face many safety hazards in urban areas where traffic volumes are high. The rate of pedestrian accidents in Hartford, which is nearly four times higher than any other town in the Region, illustrates the serious nature of these urban hazards.

Pedestrian safety is also a special issue for children. As a result, CRCOG advanced a Safe Routes to School Program in the City of Hartford, and the towns of Manchester and South Windsor. The Safe Routes program helps to improve safety around schools, reduce traffic, reduce school transportation costs, and improve school children's health.

RECOMMENDATIONS:

1. **Transportation Committee.** Continue involvement of an Environmental Justice individual on the Transportation Committee.
2. **Jobs Access.** Continue to support the Jobs Access program and/or the framework of connecting transit-dependent riders with transportation.
3. **Better Bus Service.** CRCOG should continue to support better bus service as part of its environmental justice program. CRCOG should also continue its efforts to address bus stop issues and lack of investment in these critical transit portals.
4. **ITS for Transit.** CRCOG should continue to support the application of ITS in the Region's transit services.
5. **Rapid Transit.** Rapid transit services should be designed to serve the needs of transit dependent residents as well as those with access to automobiles. Improving connections to transit stations should be evaluated.
6. **Support Clean Fuel Vehicles.** Support CT *transit* efforts to reduce transit-related emissions of all types and support efforts to reduce diesel emissions from vehicles used on State transportation construction projects.

7. ***Pedestrian and Bicycle Safety.*** CRCOG's transportation plans, policies, and programs should continue to work toward the goal of improving pedestrian and bicycle safety in urban areas of the Region.

Equity Assessment

Each of the relevant elements of the Regional Transportation Plan were reviewed to determine if there were any disproportionately high and adverse impacts on minority groups, low-income, and transit dependent groups; and to assure that these same groups received a proportionate share of benefits. They are provided below.

LINKING LAND USE AND TRANSPORTATION. The recommendations for better integrating land use and transportation planning will have no adverse effect on minority, low-income, or transit dependent populations.

TRANSIT PROGRAM. The transit program recommended in this Plan is expected to benefit minority and low-income households by increasing transit service available to them and by increasing their access to jobs and other opportunities. As part of the Regional Transit Strategy, an analysis was conducted of the two primary alternatives: low capital or 'better bus' alternative, and the high capital or 'rapid transit' alternative. As shown in the table below, both alternatives significantly increased the number of jobs available to low-income neighborhoods within 30 minutes travel time.

Job Access Benefits of RTS for Transit Dependent Households¹⁹

ALTERNATIVE	Jobs within 30 Minutes
No Transit Improvements	132,640
Low Capital Improvements: Better Bus	145,857
High Capital Improvements: Rapid Transit	188,602

Special equity assessments were conducted for two of the proposed rapid transit elements of the Regional Transit Strategy: CT ***fastrak*** and the Griffin Busway. Both analyses found a large share of project benefits going to transit dependent households (zero-car households). The results are summarized below.

User Benefits for Busway Proposals
(hours of travel time savings)

	0-car HHs	1-car HHs	Multi-car HHs	Total Hours
CT <i>fastrak</i>	1,609	1,290	1,948	4,846
	33.2%	26.6%	40.2%	100.0%
Griffin Busway	551	437	912	1,900
	29.0%	23.0%	48.0%	100.0%

¹⁹ The analysis considered only transit-dependent neighborhoods, which were defined as neighborhoods where 20% or more of households do not own a car.

Other transit recommendations in the Plan are specifically intended to improve mobility for low-income households. Our Jobs Access Program is designed to help low-income workers gain access to job sites otherwise unavailable to them. The recommendation to extend hours of service for the bus system is intended to benefit the transit-dependent person who often cannot access certain activities because bus service stops after 6:00 p.m. on many routes.

HIGHWAY PROGRAM. Future improvements to the Interstate 84 viaduct have the potential to adversely affect minority or low-income neighborhoods adjacent to or within close proximity to the roadway. CRCOG is working closely with CTDOT and the City of Hartford to identify potential impacts and focus groups are being organized to solicit input and discuss any concerns. The Interstate 84 project will ensure this coordination with minority and low-income groups is regular and concerns are clearly mitigated. Other freeway improvements are not expected to affect minority or low-income neighborhoods as the operational and safety improvements will all occur largely within existing rights-of-way and not affect residential neighborhoods.

The arterial roadway recommendations included in the corridor studies are not expected to affect any minority or low-income neighborhoods. In fact, the proposed improvements for Route 44 (Albany Avenue) in Hartford were developed with involvement of the Upper Albany and Clay-Arsenal neighborhoods. Funding shortfalls have put the Albany Avenue project on a delayed schedule, however, CRCOG continues to monitor the project.

BICYCLE & PEDESTRIAN PROGRAM. The bicycle and pedestrian program has no negative impacts on low-income or minority neighborhoods. In fact, pedestrian and bicycle safety improvements are likely to significantly benefit low-income individuals. In addition, the bicycle and pedestrian plans include specific recommendations that CRCOG should advance the goal of improving bicycle and pedestrian safety in urban areas, and as a result, CRCOG staff has devoted more of its bike and pedestrian planning efforts to safety issues in those areas.

CRCOG's bike and pedestrian planning program has undertaken specific efforts in the City of Hartford: including technology sharing on bike lane design and facilitation of City bike path efforts, such as the South Branch of the Park River Trail and a connection from downtown Hartford to the Farmington Canal trail. CRCOG has had a "Share the Road" brochure printed in both English and Spanish and makes this available throughout the Region and the State.

BRADLEY AIRPORT. The proposed program of improvements and policies described in the Airport chapter has no negative impact on environmental justice target communities. The roadway projects do not impact any low-income or minority neighborhoods, and the transit services likely benefit low-income residents who live in Hartford and work at the Airport.

FREIGHT TRANSPORTATION SYSTEM. Several issues have been identified as the focal points for CRCOG's emerging freight planning program as it develops over the next several years, such as planning for improved ground access to cargo facilities at Bradley Airport, the use of Intelligent Transportation Systems to improve monitoring of truck safety on highways, and the development of intermodal terminals in Hartford, Springfield, and New Haven, which will allow more freight transported by rail. These recommendations will have no adverse effect on environmental justice target communities.

10: PUBLIC INVOLVEMENT

This chapter summarizes three specific public involvement efforts: Related Community Involvement Efforts completed on studies and plans since the publication of the 2011 Long Range Transportation Plan; Public / Stakeholder involvement for certain components of this updated plan; and Public Involvement activities conducted specifically for this Plan Update. The following summarizes these efforts.

Related Community Involvement Efforts

ROUTE 3 TRAFFIC AND DEVELOPMENT STUDY, FEBRUARY 2013. The Route 3 Traffic and Development Study was initiated to address transportation deficiencies given existing and anticipated development along the Route 3 corridor and surrounding areas in the Town of Rocky Hill. Through a Technical Review/Steering Committee (TR/SC) comprised of town staff, town officials, CTDOT officials, business owners, and other stakeholders, a final plan was developed that, given likely development, addressed transportation safety and operational needs and created a more bicycle and pedestrian-friendly environment.

An extensive public outreach effort was needed to provide updates throughout the dynamic study process to this involved community. Throughout the study, a total of nine TR/SC meetings, four Public Meetings, and six Stakeholder meetings were held. Additionally the study team distributed flyers, study updates, and comment sheets prior to all Public Meetings. The team made two presentations each to the Rocky Hill Town Council and CROG Transportation Committee, and appeared twice to report on the study on "The Mayor's Report" Rocky Hill Public Access TV show. Through public comments and discussions, it became apparent that the community was interested in expanding the initial scope's focus on bicycle and pedestrian accommodations. As a result of this feedback the scope was modified early in the study process.

Study information was primarily posted on a dedicated CROG webpage devoted exclusively to the study and kept up to date. Videos, photos, special graphics and colored plan sheets, traffic simulations, presentations, technical reports, meeting notices, and information about alternatives being considered were posted on the website, allowing TR/SC members, other stakeholders and the general public an opportunity to stay involved every step of the way. Links were also provided to the Town of Rocky Hill's website, which included audio and video of each Public and Town Council meeting. Additionally, use of the e-mail media was very successful in generating interest in the project.

The study's final recommendations reflect comments from the Town and public, and have been accepted by the TR/SC, and approved by the Town Council and CROG's Policy Board.

ROUTE 6 HOP RIVER CORRIDOR TRANSPORTATION STUDY, JANUARY 2013. The Route 6 Study was initiated to address safety, access management and development potential / growth along the Route 6 corridor in the towns of Bolton, Coventry, Andover and Columbia. The study built upon recommendations made by the Economic Development and Land Use Study completed along the same corridor in October 2010. The Route 6 Economic Development Council (REDC) was formed for this previous study, and included a mix of local officials, municipal staff, planning & zoning committee members, business owners, and residents from each of the four towns. The REDC was also retained to serve as the advisory committee for the Route 6 Hop River Corridor Transportation Study.

Based on successful community outreach from previous studies, the study team relied on input from advisory committee members, municipal staff, CTDOT officials, stakeholders and the community in developing recommendations. These recommendations were presented to and endorsed by the Board of Selectmen/Town Council of each of the four participating towns, the CROG Transportation Committee, and the CROG Policy Board. Each of these meetings was open to the public for comments.

Public participation was encouraged throughout the study process. In order to engage stakeholders early on, several concept development workshops were organized, each addressing different portions of the corridor. Two sets of public meetings were held to present the preliminary and final study recommendations. Due to the lengthy corridor, each "set" included two identical meetings held in different areas of the corridor on different dates. Notifications of Public Meetings and Workshops were achieved via email distributions to an "interested party's mailing list" (registrants include past meeting attendees and those who have opted to join through the project website), legal notices in the Hartford Courant, and the distribution of flyers with meeting information. Additionally, CRCOG and the study's technical consultant appeared on three public access television shows with the Bolton Town Administrator to review the study materials and answer questions from the public through call-in sessions.

Throughout the study, CRCOG maintained a study website providing study information including meeting dates, meeting agendas, meeting minutes, presentations, and study findings.

REGIONAL PLAN OF CONSERVATION AND DEVELOPMENT, MAY 2014. In 2014, CRCOG updated the Regional Plan, now entitled, the *Capitol Region Plan of Conservation and Development: Vibrant, Green, Connected, Competitive*. The update followed the receipt of a Regional Sustainable Communities grant from the U.S. Department of Housing and Urban Development and was meant to integrate sustainable development principles into the plan. At 12 different meetings, CRCOG worked to present new and revised draft chapters of the regional plan to the CRCOG Regional Planning Commission, whose members provide a liaison back to municipal planning and zoning commissions.

Following the state statutory process, the Draft Regional Plan was posted for a 60-day public comment period in February 2014 and two formal Public Hearings were held in March 2014. All public comments received were compiled in a public comment matrix which organized comments by the chapter or map to which they referred. The matrix also highlighted how each comment was addressed in the updated plan. This matrix was posted on the CRCOG website and reviewed by the Regional Planning Commission at their April, 2014 meeting. At that meeting, the Regional Planning Commission endorsed the plan for review by the CRCOG Policy Board, and the Policy Board approved the Plan at its May 2014 meeting.

ROUTE 10 CORRIDOR STUDY, SEPTEMBER 2011. The Route 10 Corridor Study had extensive opportunity for public involvement. This study was initiated to plan for future traffic demands along the Route 10 Corridor in Simsbury from the southern town border with Avon to the intersection of Route 10 and Wolcott Street in the northern section of town. The study included the development of a steering committee of town commission members, residents, and land and business owners along the corridor. Throughout the course of sixteen steering committee meetings, the Route 10 Corridor Study Plan was developed.

This study also used a unique engagement tool familiar to Simsbury, but new to the rest of the region. A four-day public design charrette held on February 7 – 10th at the Simsbury Public Library allowed citizens to have input into the roadway recommendations developed for the corridor. Approximately 100 people participated over the course of four days in two formal public meetings, two informal team pin-up review sessions and targeted stakeholder meetings with representatives of the community. To publicize the charrette, the town helped distribute flyers to area businesses and post cards to nearby residents.

Once the draft Route 10 Corridor Study Report was prepared, it underwent a 60-day comment period. A public comment log of all comments received was posted on the CRCOG website that included a section on how each comment would be addressed in the final Study Report. A public presentation was made to a Joint Commission Meeting on August 4, 2011 and the Route 10 Steering Committee endorsed the Report on October 12th, 2011 ahead of a final presentation made to the Simsbury Board of Selectmen on the same date.

ENFIELD TRANSIT STUDY, AUGUST 2012. This planning study developed the final route and operating details for a new local bus service: the Magic Carpet shuttle bus service, which was launched in January 2013. The study was guided by a Technical Advisory Committee (TAC) representing a range of community interests: municipal staff, including the Community Development Director and Director of Social Services; CT *transit*; Greater Hartford Transit District (GHTD); the Pioneer Valley Transit Authority (PVTa);

CTDOT; and Asnuntuck Community College. Three TAC meetings and two public workshops were held between December 2011 and March 2012 to guide the planning process.

The study team undertook an extensive outreach effort to develop and review alternatives for how best to provide local transit services in Enfield. The study team adopted a three-tiered approach that included surveys with members of the public, interviews with stakeholders, and telephone surveys with employers. With regard to the survey of the general public, a survey was placed online, and paper copies were distributed to a number of community organizations in Enfield. The study team received 1,160 responses total, a very high response considering the total population of Enfield is around 45,000. Two institutions—Asnuntuck Community College and Enfield Adult Education—had such high levels of survey participation that they were analyzed separately, to ensure the results of the responses of the general public at large were not skewed toward the needs of one particular group.

WINDSOR TMA FINAL REPORT, AUGUST 2012. The purpose of the Windsor TMA Study was to assess the feasibility of creating a Transportation Management Association (TMA) within the Windsor Corporate Area, specifically along Day Hill/Griffin Road and International Drive in Windsor. A key component of the Windsor TMA study was to work with employers within the Windsor Corporate Area in order to determine their transportation challenges and needs, and gauge their interest in supporting a TMA. In order to gather this information, the Study Team used two approaches: an online employer survey and one-on-one employer interviews. The online employer survey was distributed to companies by the Windsor Chamber of Commerce.

In addition, an active Stakeholder Committee process was maintained throughout the Windsor TMA Study. The Windsor Chamber of Commerce Transportation Committee provided the nucleus for stakeholder involvement. This Committee, comprised of representatives of companies in the Windsor Corporate area, had been meeting regularly for a number of years, and carried forward a working knowledge of transit and transportation issues in the Study Area. A total of four stakeholder meetings were held between December 2011 and May 2012. The Windsor Chamber of Commerce Annual Transportation Summit, held on May 10, 2012, served as the fourth and final stakeholder outreach effort of the Windsor TMA Study. More than 50 people attended this session. Representatives of CTrides were also on hand to provide information on available TDM services for the Windsor Corporate Area.

MANCHESTER TRANSIT STUDY, JANUARY 2013. This study examined opportunities to improve transit service in the Town of Manchester given other new and planned transit services in the area. Within this objective, the study specifically considered the feasibility of restructuring the Manchester transit routes, potentially including a transit hub in the vicinity of The Shoppes at Buckland Hills. The study was initiated by CRCOG and led by a Technical Advisory Committee (TAC) that included representatives from CRCOG, the Town of Manchester, CT *transit*, and CTDOT. Two TAC meetings and one Public Workshop were held between December 2011 and October 2012.

Stakeholder and community outreach was an important part of the study, and information gained through these efforts was used to “ground truth” the quantitative data as well as collect additional ideas on people’s preferences and priorities for public transportation. Stakeholder and community outreach efforts included four steps: 1) stakeholder interviews, on-on-one or small group interviews held with members of the community that have a stake or interest in the development of Manchester’s public transportation system; 2) a Community Survey; 3) a Rider Survey; and 4) Focus Groups facilitated by Manchester Community College students.

MAKING IT HAPPEN: OPPORTUNITIES AND STRATEGIES FOR TRANSIT-ORIENTED DEVELOPMENT IN THE KNOWLEDGE CORRIDOR, SEPTEMBER 2013. This bi-state effort studied the market for transit-oriented development (TOD) in the CT *fastrak* and CT *rail*-Hartford Line corridors, and also provided guidance on opportunities and strategies for making that TOD a reality. The primary objective of the civic engagement process for this project was to provide insight, perspectives, and information that are not always available from data driven resources. The information gathered from the civic engagement process directly informed the Knowledge Corridor Market Study. Another objective of

the civic engagement process was to build awareness and consensus on the goals for the region and for TOD in particular, as well as on the assets, opportunities, challenges, and strategies for achieving the goals.

Because of the technical content for the market analysis of the knowledge corridor, civic engagement focused on facilitating input from two primary sources: 1) an Advisory Committee, consisting of 15 individuals in the Hartford-Springfield region recognized for their knowledge of economic conditions, real estate markets, public policy and government programs, for- and non-profit industries, and/or trends in higher education and industry growth, that met at benchmarks during the development of the final report; and 2) interviews with experts in the industry to directly inform the study. Three Advisory Committee meetings were conducted between May 2012 and December 2012. Community members were invited to participate in four December 2012 public meetings, and the March 2013 Sustainable Knowledge Corridor Consortium Meeting, on this project.

CAPITOL REGION INTELLIGENT TRANSPORTATION SYSTEMS STRATEGIC PLAN, MARCH 2015.

The Capitol Region ITS Strategic Plan was a CTDOT-managed project, however CRCOG was significantly involved throughout its development. Central Connecticut Regional Planning Agency (CCRPA) and the Lower Connecticut River Valley Council of Governments (RiverCOG) planning staff were invited to all strategic planning meetings and provided input to the Plan. A wide-ranging group of stakeholders provided information about existing conditions and needed transportation technologies. CTDOT highway operations staff, CRCOG and the consultant met one-on-one with municipal planners, public works staff and traffic signal operators, and in a group session with first responders in the three regions, and another group session with CTDOT transit planning and operations staff, and public transportation operators in the three regions.

Public Involvement – Outreach to the Community for This Plan

The public involvement efforts for this Plan are summarized below.

PUBLIC NOTICES. The following public notices about the draft Plan and opportunities to comment on it were provided:

- Legal notices were published in The Hartford Courant (English) and The Hartford News (both English and Spanish).
- A news release was sent to local media.
- A notice was sent to town clerks and libraries.
- A notice was emailed to more than 1,400 persons who had expressed a previous interest in CRCOG transportation-related activities.
- A notice and short summary of the Plan was sent to officials of State land use agencies, the Capitol Region Planning Commission and the Connecticut Coalition for Environmental Justice.
- A notice was posted on the CRCOG website.
- The notices to the media, to the town clerks, to the libraries, in the emailed notice, and on the CRCOG website included a statement in Spanish that an interpreter would be provided at the meetings upon request.

MEETINGS. The draft Minor Plan Update was presented at a public information meeting on April 20, 2015. Opportunities to comment were also provided at the April 20 Transportation Committee meeting and at the April 22, 2015 Policy Board meeting. No comments were received at those meetings. See the following page for written comments that were received and CRCOG's response to those comments.

Public Comment Period – March 23, 2015


The public comment period (minimum 30 days required) commenced on March 23, 2015. The comment period ended on April 22, 2015, when CRCOG's Policy Board considered the Plan for approval. All comments received and CRCOG's responses to those comments have been detailed below.

Comments Received and Responses

Comment	Response
FHWA: This is not a minor update to meet MAP-21 requirements, but rather FHWA is allowing a minor update to the LRTP because of the re-designation of MPO boundaries in CT. The major update will begin after July 1, 2015, and will only include the MPO as they currently still are or as re-designated. The excluded Towns may not be included, if the Governor does not approve the re-designation by that time.	We reworded the introductory chapter to reflect these comments. We also deleted a statement that the federal agencies had to approve the MPO re-designation from the section on MPO coordination (Chapter 7).
CRCOG staff: The introductory chapter references the Central Naugatuck Valley Council of Governments (CNVCOG); the name should be Naugatuck Valley Council of Governments (NVCOG).	This correction was made in the introductory chapter and in the section on MPO coordination.
Citizen: Page 14 – CTDOT adopted a Complete Streets Policy in 2014 (I think there is just a typo in your text.) Recommendation under Complete Streets – couldn't you take a stronger stand here – requiring that STP funded projects include CS?	In chapter 1, we take a strong position in support of incorporating Complete Streets considerations into our planning process on Pages 7 and 14.
CRCOG staff: the CRCOG Regional Plan of Conservation and Development maps shown on page 9 are from our 2009 regional POCD. We updated the regional POCD in 2014 and included Stafford.	The maps in Chapter 1 were updated to include Stafford.
CTDEEP: DEEP appreciates the policy statement (p. 30) "to solve problems by improving the operational efficiency of the existing system, before resorting to building new or wider highways". Though this policy statement is found in Chapter 3, Highway System, it has applicability to other components of the <i>Capitol Region Transportation Plan</i> including airport facilities, passenger and freight rail infrastructure and even transit.	The LRTP update is a minor update to comply with MAP-21 and was prepared with the understanding that MPO boundaries are currently in flux. We will make note of this comment and address as a policy item during the Major update of the LRTP. Improving operational efficiencies is critical; however, this comment would require further input and vetting with our statewide partners who may, in addition to ensuring their existing systems are efficient, have future visions for smart growth.
CTDEEP: Diesel emissions, particularly PM _{2.5} , continue to be a concern, especially in urban areas. The draft <i>Plan</i> notes this issue on page 84 in the Environmental Justice discussion where it states that "the concern regarding reducing diesel emissions in the Region continues to be a priority". In addition to transit buses, highway construction equipment can represent a significant source of diesel emissions, a fact recognized in the discussion concerning construction equipment on page 75 of the <i>Plan</i> . That	CRCOG amended our text referencing 'typically' understanding that that the application may not be as widespread as we understood it to be. CRCOG will also work with CTDOT in the next few months to understand construction requirements for capital projects and any potential revisions or updates they may be working on.

<p>discussion mentions that for the largest ConnDOT construction projects, retrofit emissions control devices are typically used. To our knowledge, this requirement has only been incorporated on two projects, namely the Quinnipiac River Bridge replacement and the construction of CTfastrak. DEEP believes that this requirement, or the use of more modern, cleaner construction equipment meeting current EPA and California Air Resources Board standards, should be employed for a broader range of projects, in fact for all projects with a capital cost exceeding \$5,000,000, in order to achieve a greater reduction in diesel emissions. These condition are also consistent with the recommendations of the 2006 <i>Connecticut Clean Diesel Plan</i>, a legislatively-mandated plan developed pursuant to Special Act 05-7.</p>	
<p>CTDEEP: Contained below are three standard comments typically incorporated in DEEP reviews for large construction projects, including transportation and non-transportation projects. These measures would be applicable in achieving air quality benefits during the construction of transportation projects in the Capitol Region.</p> <p>For large construction projects, the Department typically encourages the use of newer off-road construction equipment that meets the latest EPA or California Air Resources Board (CARB) standards. If that newer equipment cannot be used, equipment with the best available controls on diesel emissions including retrofitting with diesel oxidation catalysts or particulate filters in addition to the use of ultra-low sulfur fuel would be the second choice that can be effective in reducing exhaust emissions. The use of newer equipment that meets EPA standards would obviate the need for retrofits.</p> <p>The Department also encourages the use of newer on-road vehicles that meet either the latest EPA or California Air Resources Board (CARB) standards for construction projects. These on-road vehicles include dump trucks, fuel delivery trucks and other vehicles typically found at construction sites. On-road vehicles older than the 2007-model year typically should be retrofitted with diesel oxidation catalysts or diesel particulate filters for projects. Again, the use of newer vehicles that meet EPA standards would eliminate the need for retrofits.</p> <p>Additionally, Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies (RCSA) limits the idling of mobile sources to 3 minutes. This regulation applies to most vehicles such as trucks and other diesel engine-powered vehicles commonly used on construction sites. Adhering to the regulation will reduce unnecessary idling at truck staging zones, delivery or truck dumping areas and further reduce on-road and construction equipment emissions. Use of posted signs indicating the three-minute idling limit is recommended. It should be</p>	<p>CRCOG will share this standard language with CTDOT for their consideration in any construction specification revisions.</p>

<p>noted that only DEEP can enforce Section 22a-174-18(b)(3)(C) of the RCSA. Therefore, it is recommended that the project sponsor include language similar to the anti-idling regulations in the contract specifications for construction in order to allow them to enforce idling restrictions at the project site without the involvement of the Department.</p>	
<p>CTDEEP: As a final air quality comment, we note the statement on page 84 under Clean Fuel Vehicles that a requirement that off-road construction vehicles must meet the same standards as on-road vehicles will be phased in by the 2011-2012 model year. This requirement was not phased in at that time and is not in effect now. This statement should therefore be removed from the draft <i>Plan</i>.</p>	<p>We removed this from the plan.</p>
<p>CTDEEP: The shortage of truck stops in the Capitol Region is highlighted on page 65 of the <i>Plan</i>. In addition to other services and facilities offered at truck stops, they provide overnight parking spaces for trucks. There is a statewide shortage of overnight parking spaces for trucks, either at commercial truck stops or at highway rest areas and service plazas. According to the 2008 <i>Connecticut Statewide Rest Area and Service Plaza Study</i>, this deficit stood at an estimated 1,447 spaces (p. 3-15 of that report) in 2008 and will grow to a deficit of 1,760 overnight truck parking spaces by 2025 (Figure 3-11 of the report). This lack of sufficient capacity for overnight truck parking creates both a safety issue of tired drivers on our highways and a legal problem for the truck drivers who cannot find a legal location to park when they have reached their maximum allowed hours of operation. This is an issue which gets relatively little public exposure but is a significant problem for the trucking industry. Any efforts or projects the Region can undertake to address this deficit are much needed.</p>	<p>CRCOG added information about the truck overnight parking deficiencies to the text.</p>
<p>CTDEEP: Continuing on the topic of freight movements, the discussion of Rail Freight on pages 66-67 should mention, probably in the last paragraph of that section, the need to achieve the capability to handle 286,000 gross vehicle weight rail cars to be consistent with the new national rail industry standard and avoid having shipments to Connecticut arrive in less than full cars or completing their trips by truck. Either of these outcomes adds cost that makes Connecticut companies just that much less competitive.</p>	<p>CRCOG is working with CTDOT and other MPOs to address freight planning. We amended the freight text to include the 286k capacity and will work through the freight planning process to establish general freight policies statewide that address less than full cars or completing trips by truck.</p>
<p>CTDEEP: Though the <i>Plan</i> does not specifically call for new or expanded commuter parking lots, if any work is planned to expand or enhance commuter parking areas, DEEP recommends that 3% of the parking spaces be made electric vehicle ready (i.e., pre-wired for EV chargers) or that electric vehicle chargers be installed at 3% of spaces at new or expanded commuter lots.</p>	<p>We will consider this as we prepare a Major update of the LRTP.</p>

Comments from Middletown Town Planner: It is suggested that the long-range plan for transportation for the cities connecting to Hartford shift focus from the highway system - instead to the major commercial corridors in the region, ideally by streetcar.	CRCOG has been asked by federal and state officials to conduct a minor update, mostly updating the document to account for MAP-21 requirements and the financials. Streetcars have not been a transportation alternative that the Capitol Region has historically supported. This will be revisited in the future, major updates of the plan
CTDEEP: Several "minor edits"	Plan was corrected to reflect these suggested edits.
Comment from Public (Resident of Middletown and a Planner / Architect): It is suggested that the long-range plan for transportation for the cities connecting to Hartford shift focus from the highway system - instead to the major commercial corridors in the region, ideally by streetcar.	CRCOG has been asked by federal and state officials to conduct a minor update, mostly updating the document to account for MAP-21 requirements and the financials. Streetcars have not been a transportation alternative that the Capitol Region has historically supported. This will be revisited in the future, major updates of the plan.
Comment from Public (Resident of Middletown and a Planner / Architect): It is recommended that a commuter rail be installed from Hartford to Middletown.	CRCOG will coordinate this comment with RiverCOG.
Comment from Public (Resident of Middletown and a Planner / Architect): It is recommended that CRCOG revisit their plan and evaluate other alternatives.	The LRTP update is a minor update to comply with MAP-21 and was prepared with the understanding that MPO boundaries are currently in flux. We will make note of this comment and address during the Major update of the LRTP.
Anonymous Comments: What is the difference between the CT Southern Railroad corridor and the Manchester Industrial Spur	<p>The CT Southern Railroad corridor is the east-west rail line; the spur is represented by the north south red line referenced as 'abandoned rail line'</p> 
Anonymous Comment: What is the Hartford Line?	The Hartford Line is the branded name for the New Haven – Hartford – Springfield Rail line

Anonymous Comment: The need for a second paratransit facility is questioned.	The new paratransit facility will meet the current and future needs of the Greater Hartford Transit District's paratransit operations.
Anonymous Comment: Concerns about the closure of Flower Street.	Refer to CTDOT Hearing Officer ruling on this item; CROG continues to work with the City of Hartford and CTDOT to mitigate impacts as a result of the closure.

Appendix A

Plans Endorsed Since the May 2011 Regional Transportation Plan

Capitol Region Intelligent Transportation Systems Strategic Plan	March 2015
Regional Plan of Conservation and Development	May 2014
Putnam Bridge Multimodal Trail Connections Feasibility Study	March 2014
Route 3 Traffic and Development Study	February 2013
Route 6 Hop River Corridor Transportation Study	January 2013
Making it Happen: Opportunities and Strategies for Transit-Oriented Development in the Knowledge Corridor	September 2013
Manchester Transit Study	January 2013
Enfield Transit Study	August 2012
Windsor TMA Final Report	August 2012
Route 10 Corridor Study - Simsbury	September 2011

Previous & Related Reports

Capitol Region Transportation Plan	Sept. 1994 May 1998 March 1999 March 2001 March 2004 April 2007 May 2011
Achieving the Balance: A Plan of Conservation and Development for the Capitol Region	October 2009
Capitol Region Bicycle Plan	April 2000
Regional Pedestrian Bicycle Plan, Active Transportation Initiative	April 2008
Capitol Region Pedestrian Plan: <i>Walking Matters</i>	May 2005
Regional Transit Strategy	March 2001
Transportation Monitoring & Management Report Metropolitan Hartford Area: 2005	December 2007
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Locally Coordinated Human Services Transportation Plan	June 2007 April 2009

Rt 175/Rt 9 Area Traffic Study	December 2007
Route 305 Corridor Study	October 2009
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Route 4 Corridor Study	February 2001
Route 44 Corridor Study	2001
Route 10 Corridor Study (Improvement & Management Plan)	January 2001
I-84 West Side Access Study	October 2001
Hartford West Major Investment Study	July 1999
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