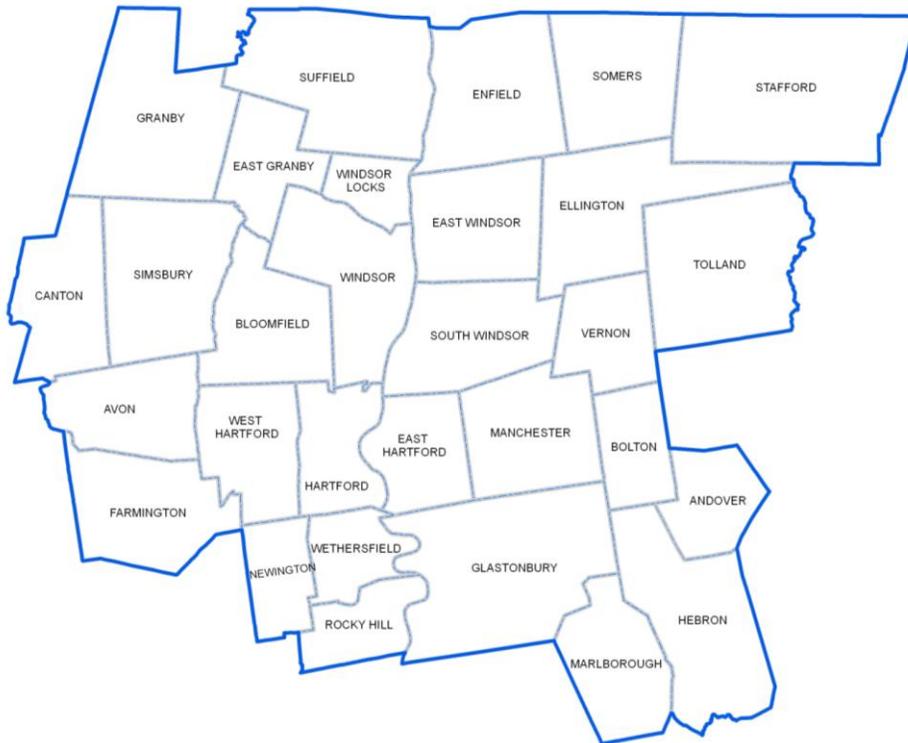


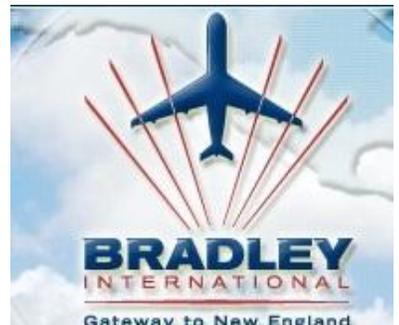
CAPITOL REGION TRANSPORTATION PLAN

*A guide for transportation investments
through the year 2040*



Capitol Region Council of Governments

Adopted by the CRCOG Policy Board on May 4, 2011



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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/transportaton.

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. A continued support for Bradley International Airport, the beginning of a freight planning program, and a commitment to environmental justice are also included.

- | |
|--|
| <p><i>Policies Reaffirmed</i></p> <ul style="list-style-type: none"> • More Travel Choices • Enhanced Transit Options • Better Bike & Walk Options • Systems Management • Sustainable Transportation • Freight Planning • Environmental Justice |
|--|

More Travel Choices. The 2011 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 construction of New Britain Busway beginning shortly, 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 new Plan recognizes that a common goal of both disciplines needs to be promoting sustainable communities in the Capitol Region. The policies adopted with the previous Plan committed CRCOG's transportation program to supporting livable community goals and the Regional Plan of Conservation and Development. This Plan also includes a commitment to coordination effort 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.

Continued Emphasis on Pedestrian & Bicycle Travel. This Plan incorporates the updated Pedestrian and Bicycle Plan which was adopted in April 2008 as part of the Active Transportation Initiative. This Plan continues our efforts to promote non-motorized travel modes, a policy directive that was embraced as long ago as the adoption of the 1998 Plan, and reinforced with the adoption of the Regional Bicycle Plan in 2000.

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 substantial 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 recommendations from multiple studies completed since the previous Plan that was adopted in 2007, identified below:

- Route 175 / Route 9 Area Traffic Study
- Transportation Monitoring & Management Report
- Regional Pedestrian Bicycle Plan (Active Transportation Initiative)
- Locally Coordinated Human Services Transportation Plan
- Route 305 Corridor Study
- Regional Plan of Conservation and Development
- Route 195 Corridor Study
- Northwest Corridor Transit Plan
- Interstate 84 Viaduct Study

Federal Requirements. The 2011 Plan has continues to respond directly to federal requirements that were made a part of the SAFETEA-LU transportation act. These requirements are briefly described below and are detailed elsewhere in the Plan.

Promote consistency with State & local development plans. CRCOG staff will solicit comments from State land use officials to ensure this Plan continues to be consistent with the State Plan of Conservation and Development. CRCOG staff also solicited comments from the Regional Planning Commission as it relates to consistency between this Plan and the Regional 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*.

Refer to State Strategic Highway Safety Plan. CRCOG's commitment to supporting the State Strategic Highway Safety Plan is detailed in *Chapter 3: Highway System*.

1. A SUSTAINABLE TRANSPORTATION SYSTEM

The 2011 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. Both the 2004 and 2007 Regional Transportation Plans described these efforts in detail. And 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 2005, the State legislature adopted an update to the State Plan of Conservation and Development (PODC.) This Plan serves as "a statement of the development, resource management and public investment policies for the State."¹ Policies contained in the State PODC 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 Plan also included eight State policies as stated below:

Development Area Policies

- 1) *Regional Centers* – Redevelop and revitalize the economic, social, and physical environment of the state's traditional centers of industry and commerce.
- 2) *Neighborhood Conservations Areas* – Promote infill development and redevelopment in areas that are at least 80% built up and have existing water, sewer, and transportation infrastructure to support such development.
- 3) *Growth Areas* – Support staged urban-scale expansion in areas suitable for long-term economic growth that are currently less than 80% built up, but have existing or planned infrastructure to support future growth in the Region.
- 4) *Rural Community Centers* – Promote concentration of mixed-use development such as municipal facilities, employment, shopping, and residential uses within a village center setting.

Conservation Area Policies

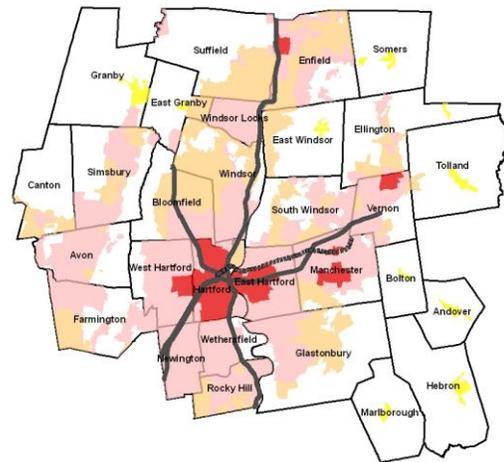
- 1) *Existing Preserved Open Space* – Support the permanent protection of public and quasi-public land dedicated for open space purposes.
- 2) *Preservation Areas* – Protect significant resource, heritage, recreation, and hazard-prone areas by avoiding structural development, except as directly consistent with the preservation value.

¹ From the Introduction to the *State Plan of Conservation and Development, 2005-2010*, OPM website.

- 3) *Conservation Areas* – Plan for the long-term management of lands that contribute to the state’s need for food, water and other resources and environmental quality by ensuring that any changes in use are compatible with the identified conservation value.
- 4) *Rural Lands* – Protect the rural character of these areas by avoiding development forms and intensities that exceed on-site carrying capacity for water supply and sewage disposal, except where necessary to resolve localized public health concerns.

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.

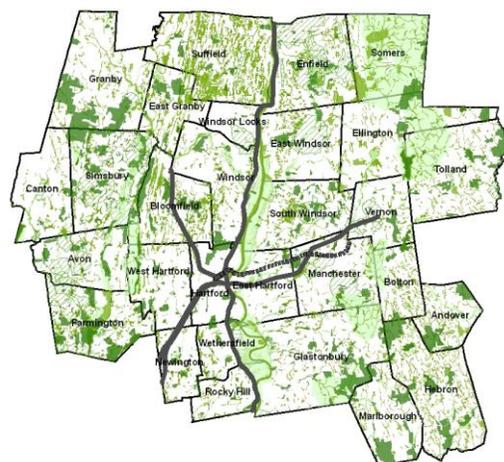
Consistency of Plans. Federal guidelines require that CRCOG’s Regional Transportation Plan be consistent with the State Plan of Conservation and Development. In order to determine whether the plans were consistent, CRCOG staff undertook an analysis that physically compared the two plans. The maps to the right overlay the major physical improvements recommended in this Regional Transportation Plan on the State PCOD’s priority development and conservation areas. In both instances, the darker the color, the higher the priority for either development or conservation. In general, the transportation projects serve the areas designated for development and avoid the areas designated for conservation. 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.



State Development Priorities & Capitol Region Transportation Improvements

During the development of the 2007 Capitol Region Transportation Plan, CRCOG held a focus group discussion with State officials from DEP and OPM to review the State and regional plans for consistency. It was a conclusion of the meeting participants that there were no concerns about the consistency of the RTP recommendations with State plans and policies. In addition, CRCOG, DEP and OPM agreed to continue collaboration on efforts to bring two initiatives, still important to this plan, to successful outcomes. These initiatives include:

- **New Britain – Hartford Busway:** All parties agreed that improved transit service must be part of the solution to air quality, environmental, and land management problems. The New Britain – Hartford Busway was seen as the critical first step in the regional transit strategy and worthy of support from the state agencies as well as CRCOG.



State Conservation Areas & Capitol Region Transportation Improvements

- Transit-Oriented Development: Participants discussed the need to promote TOD along the New Britain – Hartford Busway, the need for enabling legislation to authorize existing state or other public agencies to coordinate, conduct, and/or finance transit supportive development proposals, and the need for the state to stimulate or induce other transit supportive development by locating state offices near transit stations.

Conclusion. The 2007 Regional Transportation Plan and the State land use plans, including the State Plan for Conservation and Development, and policies were found to be consistent and supportive. In partnership with ConnDOT, CRCOG will be issuing this DRAFT 2011 Regional Transportation Plan to state land use officials for their view and comment.

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 New Britain Busway, including assuring that the project addresses issues such as transit-orient development and energy efficient buses.
 - Working to promote transit-oriented development including adoption of enabling legislation.

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 2009 adoption of a Regional Plan, entitled ‘Achieving the Balance’, updated in accordance with Governor Rell’s 2006 Executive Order 15 which mandated consistency with the State Plan’s six Growth Management Principles, 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.

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

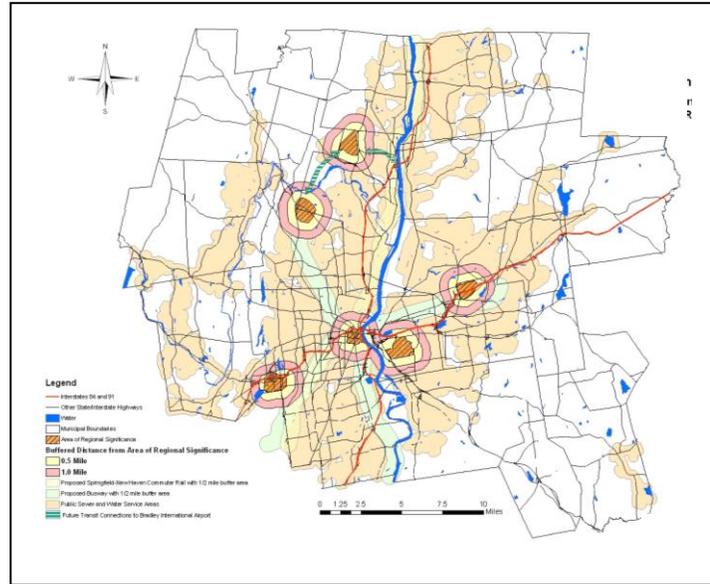
Consistency of Plans. Federal guidelines require that CRCOG’s Regional Transportation Plan be consistent with the Regional Plan of Conservation and Development. In order to determine whether the plans were consistent, CRCOG staff undertook three review efforts: one was to physically compare the two plans, 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 and the third was to meet with the Regional Planning Commission to review the plans.

Physical review. The maps 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 PODC 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 to the right.

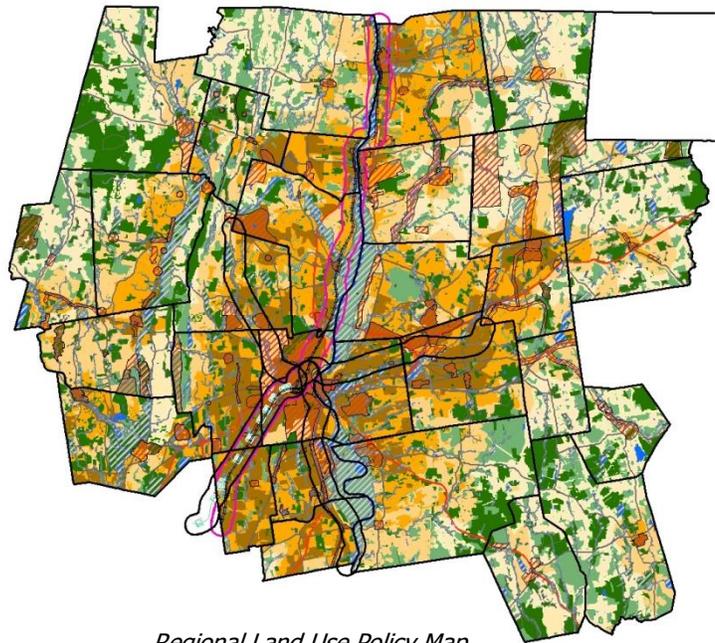
Development intensity becomes more defined in the beige (lower intensity) to brown (higher intensity) development intensity areas on the Regional Land Use Policy Map. Areas within a quarter mile of transit infrastructure were weighted as were lands close to sewer and water infrastructure, high density zones and existing population and employment to determine appropriate intensity of development. Over both of these maps, major regional transportation projects are overlaid. As with the State PODC, 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 PODC Plan.

Review with the Regional Planning Commission. CRCOG transportation staff attended the March 2011 meeting of the Regional Planning Commission, to review and discuss the RTP. CRCOG Policy and Planning staff remarked that the 2011 Transportation Plan was reviewed and updated to include the October 2009 Regional Plan (entitled 'Achieving the Balance'), and information from Redesigning the Edgeless City course held in the Capitol Region. Green infrastructure pieces were also added to this chapter and the title was renamed 'A Sustainable Transportation System'. The Director of Policy and Planning commented that the Draft 2011 Regional Transportation Plan is consistent with items identified in the Regional POCD and that both have been developed with close consideration and coordination by CRCOG staff.

Conclusion. CRCOG issued this Chapter in DRAFT to the Regional Planning Commission for their review and comment. No specific comments were made at the March 2011 meeting; other comments received during the public comment period are described in Chapter 10.



Economic Development Areas of Regional Significance & Capitol Region Transportation Improvements



Regional Land Use Policy Map

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. During the writing of the 2004 Plan, 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 | • 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.²

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.

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

² 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.

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 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, CROG committed to a policy of encouraging and promoting TOD in major transit corridors. Since then, through the Station Area Planning Project, we have worked closely with the municipalities along the New Britain/Hartford Busway corridor to assure that transit-supportive land use planning is done in areas around the Busway stations. The individual station area plans developed through this project 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, ConnDOT, private developers, and property owners.

To further our TOD planning efforts within the Capitol Region, CROG will undertake specific activities with funding from the Sustainable Communities Regional Planning Grant, secured through a Housing and Urban Development Grant awarded in 2010. This will include marketing studies to identify the types of businesses that can generally be attracted to the corridors, and then to evaluate market conditions on a station by station 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 planners and developers to integrate TOD into their plans and development projects.
 - Build support for transit among community groups, business leaders, and other stakeholders.
2. **TOD for New Britain Busway and New Haven Hartford Springfield Passenger Rail.** As the New Britain Busway and the NHHS passenger rail projects move forward to implementation, CRCOG will endeavor to insure that the transit-oriented development plans advance toward implementation and steps are taken to secure development opportunities.

Context Sensitive Solutions

Traditionally, transportation planners and engineers have not been especially sensitive to non-transportation issues as they developed their plans and designs. Environmental issues were an exception to this practice because plans and designs have to comply with environmental regulations. However, little consideration was given to project impacts on historic, cultural, or community resources. Within the past decade, a new approach has evolved in the transportation field that corrects this single-minded approach. The approach is called 'context sensitive design' or 'context sensitive solutions.'



The goal of a context sensitive approach is to develop solutions that are responsive to community concerns and that result in transportation projects that are a better fit to 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. The Connecticut Department of Transportation 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 Connecticut DOT to continue its context sensitive approach to design, and to work with DOT staff and consultants on individual projects as needed to assure that community concerns are heard and understood.

Complete Streets

Ensuring that roads provide safe mobility for all travelers, not just motor vehicles, is at the heart of a new approach to envisioning and building surface transportation facilities known as "Complete Streets". 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 approximately half of all states and more than 140 local governments.

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.



Crosswalk Constructed Using Permeable Pavement

“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.

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 DEP.
 - 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 databases that was first compiled in 2003. Regular updates to the land use and zoning database is 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 2009-2010 update has added more land use categories 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 10-20 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 that we enter into 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 data base 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.** CRCOG 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, the Capitol Region Council of Governments received a Regional Performance Initiative 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. Working in partnership with other agencies to secure updated digital orthophotography should continue be pursued.
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 CRCOG 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 provided by the Rideshare Company. 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 (2000 Census). Of those who work in Hartford, about 7.8 percent commute by bus; and of those who work in the Hartford CBD, about 14.4 percent commute by bus. In total, over 13.7 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.

TRANSIT SERVICES

CT TRANSIT:

- Local bus service
- Commuter bus service

GREATER HARTFORD TRANSIT DISTRICT

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

THE RIDESHARE COMPANY

- Rideshare service for commuters

HUMAN SERVICE AGENCIES

- Services for elderly residents
- Service for persons with disabilities

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.

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.

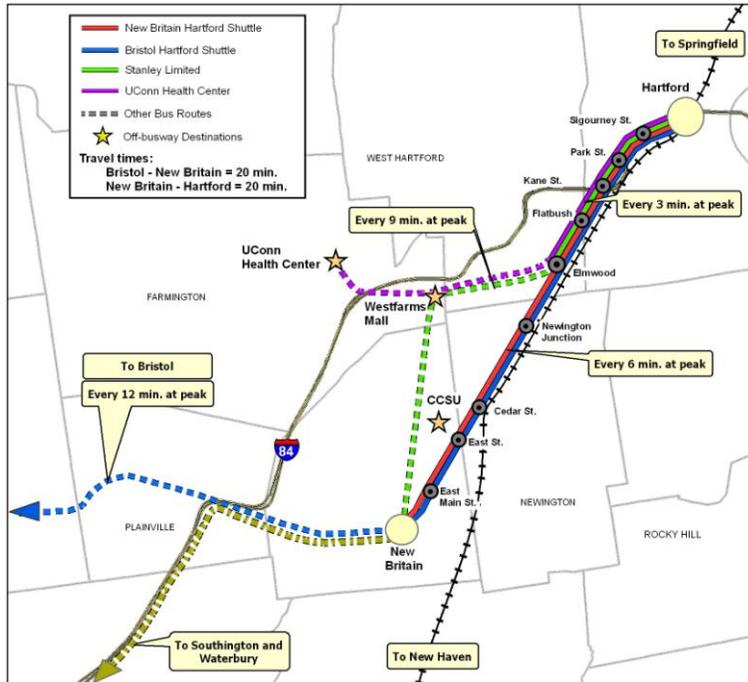
Rapid Transit Service

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 operations of the New Britain – Hartford Busway and further planning and/or design activities for other busway systems as summarized below.

New Britain – Hartford Busway: The New Britain – Hartford busway, an exclusive bus-only, rapid-transit system, is expected to be operational in 2013. The busway is located in the Amtrak corridor from Hartford to Newington, alongside the proposed New Haven / Hartford / Springfield commuter rail. South of Newington, the busway will run in the New Britain Secondary corridor. The 9.4-mile busway corridor

will have 11 stations and serve an estimated 16,000 daily riders. The project will include the construction of the bus-only roadway, reconstruction of eleven bridges, construction of 11 stations, amenities (landscaping, signing and lighting), and a multi-use pathway for a portion of the busway 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 busway service frequencies during the peak morning and afternoon commute periods are expected to be every three to six minutes.



In addition to relieving congestion on Interstate 84, the New Britain / Hartford Busway offers great opportunities for creating a sustainable transportation system.

Since the adoption of the Regional Transit Strategy in 2001, CROCOG has been encouraging and promoting Transit Oriented Development with municipalities along the New Britain/Hartford Busway corridor to assure transit-supportive land use planning is undertaken. As highlighted in Chapter 1, further efforts to identify the types of businesses that can generally be attracted to the corridor on a station by station basis will be further evaluated in a market study that will be advanced through the Sustainable Communities Regional Planning Grant, secured in 2010.

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 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.

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 the New Britain Busway is operational, 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.



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 past year, opportunities to advance rail improvements built from a regional vision for passenger rail in New England become tangible.

Connecticut has been awarded approximately \$160 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, ConnDOT, in coordination with other federal and state agencies is also conducting an Environmental Assessment (EA) of the New Haven to Springfield rail improvements, which is anticipated to be completed late 2011. This assessment will address social, economic and environmental impacts and will be used to further the project through the design and construction phases.

The EA will also address the FRA requirements for design and construction of the infrastructure needed to advance high-speed intercity passenger service along the corridor. The service would build on the existing Amtrak service in the New Haven-Hartford-Springfield Corridor and would 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.
- Integrating rail freight.

The proposed rail infrastructure improvements 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. ConnDOT 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 in the future will be an important element of the busway and passenger rail systems. The station is also an important cultural and historic asset. In its present state, it is expensive to maintain and operate, and it must be upgraded to effectively serve the future transportation needs of the region. The details of the improvements needed at Union Station have been identified in the Northwest Corridor Transit Study, and some of those improvements have already been undertaken. Other specific improvements identified include: integrate the Great Hall into the transportation function of the station, expand the Ground Transportation Center with an addition out toward Spruce Street, bring the taxi stand onto the station property, move the bus loading bays all to the north side of the entrance to the Ground Transportation Center, and encourage transit oriented development on the Spruce Street parking lot.



RECOMMENDATIONS:

1. **Rapid Transit System.** Support the advancement and construction of the New Britain – Hartford Busway and work to expand a rapid transit system by supporting other initiatives in the corridors described above.
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 New Haven – Hartford – Springfield Passenger Rail service with a connection to Bradley Airport.
4. **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 13 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.

Jobs Access=3,750 residents
find jobs & rides to work

This innovative program matches clients to the best available transportation service that meets their commute needs. In the year 2010, the Jobs Access Program provided about 51,000 trips per month (an increase of more than 8.5% since 2006) for about 3,750 residents (an increase of more than 15% since 2006) who needed help getting back and forth to work.

LOCALLY COORDINATED HUMAN SERVICES TRANSPORTATION PLAN. In cooperation with the Connecticut DOT 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 is required by the federal surface transportation authorization 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 plan was initially 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 CTTRANSIT 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.

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 region. The District is advancing a project to purchase a paratransit operations and maintenance facility to meet the current and future needs of the District’s paratransit operations. The preferred location should provide sufficient office space 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. In addition, GHTD will strive to identify a site that will have sufficient vehicle storage for approximately 125 vehicles and employee/visitor parking. CRCOG supports advancing this project.

BUS STOP SIGN AND SHELTER POLICY. In the year 2000, CRCOG 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 been undertaken to install easily identifiable bus stop signs throughout the Region. A coordinated bus shelter program is being structured to enable the transit operator, CTTRANSIT, to take over responsibility for the bus shelters in towns choosing to participate. CTTRANSIT plans to 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. CRCOG is committed to a policy of maintaining the existing levels of service and to improving those services where appropriate.

2. Access for Bicyclists. CRCOG 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.

3. **Jobs Access Program.** The Region should continue its 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. New routes within the City of Hartford to provide crosstown service should also be evaluated. 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 practicle These recommendations should continue to be evaluated with regional partners such as ConnDOT and CT Transit.
6. **BRT on Arterial Roadways.** CRCOG 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.³ 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 are slowly being introduced in the Hartford area.

FIXED ROUTE BUS SERVICE. CT Transit has recently hired a consultant to recommend a new radio system that will allow the implementation of a GPS and AVL system. Major bus stops and transit centers can then be equipped with electronic signs that tell how long one must wait until the next bus arrives.



These next bus arrival signs use real-time data collected from GPS units on buses that give riders up to the minute information on bus arrival times. Buses can also be equipped to automatically announce the next bus stop. Bus patrons will be able to check the internet either through their desktop computers or their appropriately equipped cell phone to determine the location and expected arrival of “their bus” at “their bus stop”.

³ Specific recommendations such as advanced vehicle location systems are described in “Intelligent Transportation Systems: A Strategic Plan for the Capitol Region.”

In addition to ITS for local bus service, ConnDOT intends to include a strong ITS component in the New Britain Busway. The system is expected to include real-time passenger information, automated trip planning, on-bus information, security cameras, automated fare collection, and traffic signal preference at intersections.

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 will be able to provide real time passenger information at Hartford’s Union Station, 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. **Expedite ITS Projects for Transit.** Implementation of ITS for transit services in the Hartford area has lagged behind that for highways. CRCOG should continue to work with ConnDOT, CT Transit, and the Greater Hartford Transit District to expedite the implementation of additional ITS for transit services.
 - Replacement and upgrade of CT Transit’s radio system, thus allowing for the implementation of GPS / AVL capabilities.
 - Next bus arrival signs at major bus stops and transit centers, including Union Station in downtown Hartford.
 - Real time passenger information provided onboard vehicles, on the internet and through cellphones.
 - Real time passenger information for paratransit passengers: automated customer services.
 - Implementation of a multimodal electronic fare payment system.
2. **New Britain Busway.** ITS elements such as automatic vehicle location (AVL), real time bus arrival information signs, and vehicle guidance and docking systems are being included as an integral part of this new rapid transit facility. CRCOG will continue to support this aspect of the Busway, since it is critical to an enhanced user experience.

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. Operating since September



2005 as the **Star Shuttle**, 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.

The Northwest Corridor Transit Study further 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 also investigated opportunities for local circulating bus services.

RECOMMENDATIONS:

- 1. Downtown Circulator.** Continue to support the Star Shuttle service in downtown Hartford.
- 2. Downtown Transit Circulation and Transit Center.** The Northwest Corridor Transit Study recommends that a downtown bus transfer center be provided in a location that is north of Asylum Avenue and west and south of Main Street (in the vicinity of Union Station.) The Northwest Corridor study also recommended that downtown transit routes be reconfigured to serve the transfer center and that additional through routing be provided between east of the river and west of downtown routes.
- 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.

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)

- 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 nearing completion and CRCOG will continue to support this effort.
5. ***Bus Shelters.*** CRCOG is presently working with CT Transit and municipalities to develop a cohesive and coordinated regional bus shelter program. CRCOG will continue to support this effort.

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, 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 30 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 a quarter 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: 2005 - 2040. Traffic is expected to grow by a little more than 30 percent over the next 30 years. In 2010, total travel in the Capitol Region was about 21,000,000 vehicles miles per day (VMT). This is expected to grow to about 27,490,000 vehicles miles per day. This increase in VMT of nearly 31 percent amounts to about one percent per year.

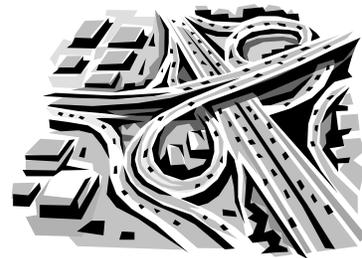
Operations & Management Strategies to Improve Safety & Reduce Congestion

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 CROCOG put in place special procedures or programs to monitor and manage congestion and safety. In late 2007, CROCOG completed a Transportation Monitoring & Management Report for the Metropolitan Hartford Area, assessing traffic conditions and operations on both freeway and select arterial segments. Likewise, CROCOG is developing a safety management program that will monitor safety trends, and develop strategies and actions to correct identified problems and trends. 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.

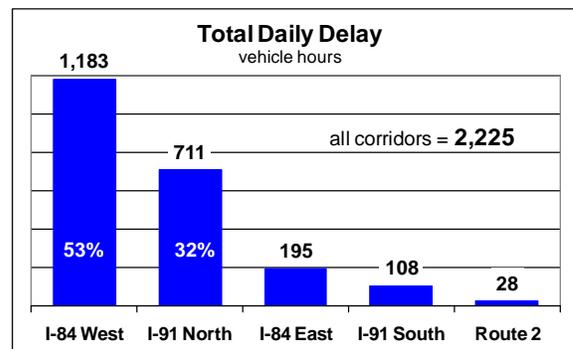


The congestion management strategies underlying most of this plan include operational improvements, incident management, and demand management.⁴ Operational improvements target some of our most severe congestion hotspots, incident management reduces traffic jams caused by accidents and other incidents 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, which is currently being updated. The planning process, conducted cooperatively by CROCOG, 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.

The 2005 Transportation Monitoring & Management Report revealed that congestion on the freeway system in the Hartford Metropolitan area causes 2,225 vehicle hours of delay per day. 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. More than half of the daily delay occurs in the Interstate 84 corridor west of downtown Hartford and over 30 percent of the delay occurs along Interstate 91 north of Hartford. With 85 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.



⁴ Programs for reducing congestion through improved transit services are addressed in *Chapter 2: Transit System*.

Preliminary data from the 2010 update of this report indicates that freeway delay on Interstate 84 west of Hartford now represents 60% of the total regional vehicle hours of delay per day. Data indicates a total of 2,417 vehicle hours of delay for all corridors, 1,440 hours of which are realized on the Interstate 84 west segment.

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 and completing the New Britain Busway. 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 but more importantly, funding has already been committed to these projects. 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 for the CMP and again 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 Central CT Regional Planning Agency and Midstate Regional Planning Agency to update and expand the Hartford Area Congestion Management Program.
- 2. *Identify Performance Based Measures for Congestion in the Capitol Region.*** Update the 2005 CMS report, evaluating the use of more performance based measures to enable a more comprehensive monitoring of the Region's transportation system.

Safety Management Program

An important objective and primary 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 a safety management program was outlined in the 2007 Transportation Plan defining specific principles for safety improvement. The 2011 Transportation Plan renews CRCOG's commitment to improving safety for all modes of travel by continuing this program.

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 regularly 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 ConnDOT and written reports on the 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 staff who respond to incidents on the highway.
5. **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, ConnDOT has prepared the CT Strategic Highway Safety Plan, which CRCOG is committed to supporting as explained below.

RECOMMENDATION: Improve safety management by practicing the five 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, 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. The plan identifies eight safety emphasis areas:

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

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 participates in a work group that is reviewing the Model Minimum Uniform Crash Criteria and evaluating information found on the Police Report form (PR-1). The work group will continue to evaluate data elements to collect in the field during an incident as well as discussing options for the data capture.

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.

RECOMMENDATION: Continue to support these activities through active 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 quarterly to discuss roadway departure accidents and opportunities to reduce accidents of this type. CRCOG will continue to offer guidance to ConnDOT 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 is represented on the Statewide Incident Management Task Force, a subcommittee of the State's Transportation Strategy Board. The SIMTF provides a forum for the discussion of traffic incident management issues, with the goal of developing projects and policies that will 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 and participate in the work of the Statewide Incident Management Task Force

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 ConnDOT, 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.

Lately, CRCOG has 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 will give emergency responders reliable information about the location of

motorists in need of assistance. ConnDOT and FHWA have been instrumental in moving this project along expeditiously.

ConnDOT Operated CHAMP Service Vehicles. ConnDOT 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. These vehicles provide approximately 700 assists to motorists each month and are very well received. CHAMP service has remained unchanged since the patrols were expanded several years ago. The staffing has been reduced, which will occasionally result in unfilled shifts.

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 established a Statewide Incident Management Task Force (SIMTF) to address 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. The SIMTF recently developed a new, updated list of high priority proposals.

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.) 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 the work of the Statewide Incident Management Task Force, and 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 these 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. The ITS Plan identified applications for ITS that will

benefit freeway operations, arterial road operations, and public transit operations⁵. Most of the basic recommendations in the ITS Plan have been implemented.

The Region's extensive⁶ computer-controlled traffic signal system for arterial roadways has been updated with modern equipment that provides more reliable service and offers better traffic flow management capabilities. The Connecticut Department of Transportation has installed an ITS system that monitors traffic conditions on all the major freeways with 104 closed-circuit video cameras and special traffic flow monitors. Operators in ConnDOT'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, 39 variable message signs on the freeway, two highway advisory radio transmitters, commercial radio and TV stations, and the Internet. A total of 1,666 incidents were managed by the ConnDOT Newington Highway Operations Center in 2010.

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 "violator" has cleared the intersection; and in-vehicle technologies (VII)⁷ 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 for the first time in California. And VII systems are still being evaluated under controlled conditions on test tracks.

ITS Architecture. In 2004, with CRCOG's assistance, ConnDOT 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. It will need to be kept current as technology and the needs of the Region change.

RECOMMENDATIONS:

- 1. Continue to Update the Freeway Traffic Management System.** Continue to update the regional incident detection, verification, and communication systems as specified in "*Intelligent Transportation Systems: A Strategic Plan for the Capitol Region.*"
- 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. Examples include a 511 phone information system, and live video feed from traffic cameras to appropriate emergency responders.
- 3. Assure Currency of the Regional ITS Architecture.** CRCOG will continue to work with ConnDOT to assure that the Regional ITS Architecture reflects current and planned ITS systems.
- 4. Improve Arterial Operations with Signal Systems.** Continue to invest in the Region's computer-controlled traffic signal system, which has yielded significant benefits through reduced travel times, reduced fuel consumption, reduced vehicle emissions, and improved traffic flow. Replace

⁵ See Chapter 2 for a discussion of "*ITS for Transit*"

⁶ 285 computerized traffic control signals on 19 major arterial roadways in 16 municipalities in the Capitol Region.

⁷ Vehicle Infrastructure Integration (VII)

older computerized signal equipment as it becomes obsolete or inoperative so that system integrity is maintained.

- 5. 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.
- 6. Update of the Regional ITS Strategic Plan.** Undertake an update of the 1998 ITS Strategic plan within the next five 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 ¾ 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, identified in Alternative Concepts 2 and 3. The options identified in the study including the following:



- **Baseline - Enhanced Viaduct:** Highway replaced with enhanced viaduct structure.
- **Alternative Concept 1:** Western portion of highway replaced with enhanced viaduct structure; eastern portion of highway decked over with improved connections across highway.
- **Alternative Concept 2:** Western portion of Viaduct replaced by surface roadway; rail line relocated to north side of I-84; eastern portion of highway decked over to reconnect city across highway.
- **Alternative Concept 3:** Viaduct replaced by tunnel; rail line relocated to north side of I-84; city reconnected across highway.

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. 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 \$1-\$2 billion, 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 three to four years. To advance this project, Connecticut will have to identify new revenue sources such as value pricing.

RECOMMENDATIONS:

- 1.** Coordinate study findings with ongoing planning and implementation efforts such as One City, One Plan (Hartford’s Plan of Conservation and Development), the New Haven-Hartford-Springfield passenger rail initiative, and the New Britain-Hartford Busway

2. Continue discussions and develop an overall project implementation approach and associated timeline with ConnDOT 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.

RECONSTRUCTION / 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 is in need of major repair. In 2008, repairs were made to the bridge deck and the travel lanes were resurfaced. The bridge still needs to be rehabilitated / replaced and ConnDOT has reserved approximately \$240,000,000 for these longer term repairs. It is important that the planning and design for the project give consideration to retrofitting the bridge to accommodate a sidewalk. The planning and design process should also involve the Region’s communities, especially the towns of Glastonbury and Wethersfield.

RECOMMENDATIONS:

1. Continue discussions with ConnDOT and the towns of Glastonbury and Wethersfield related to the future reconstruction / rehabilitation of the Putnam Bridge.
2. The Putnam Bridge is one of the few River crossings left that does not include a sidewalk for pedestrians or bicyclists. CRCOG should continue to work with ConnDOT to explore options that give consideration to retrofitting the bridge with a sidewalk.

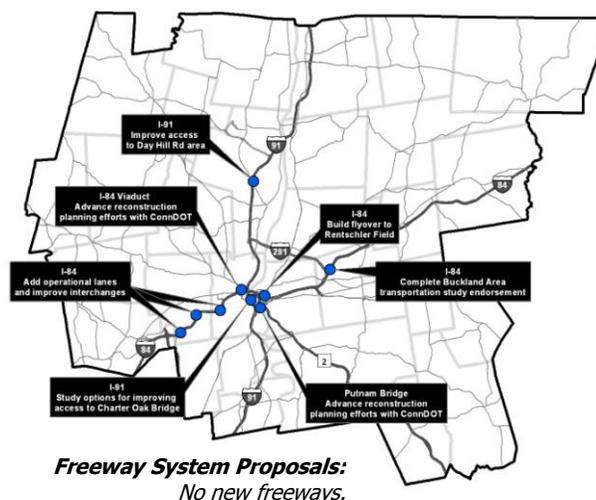
OPERATIONAL IMPROVEMENTS. Physical deficiencies on freeways such as sharp curves, narrow shoulders, short ramps, substandard merge/weaving distances, and left-hand entrances can both restrict the capacity of the road and create safety problems. The objective of the proposed operational improvement program 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 ConnDOT at the request of CRCOG 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 Significance⁸ in the Capitol Region. Municipal and Policy Board endorsement is pending.

RECOMMENDATION –Work in partnership with ConnDOT 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.

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



⁸ Previously entitled “Regional Growth Centers”.

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. Key recommendations adopted by CRCOG's Policy Board are summarized below.

- Hartford West Major Investment Study. As a result of the Hartford West Major Investment Study, the following highway improvements were recommended:
 - 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).
- Westside Access Improvements. Subsequent to the Hartford West MIS, the Westside Access Study was conducted to identify ways to reconfigure and improve the interchanges of I-84 at Prospect, Flatbush, Sisson, and Sigourney. The study focused on safety improvements, better access to key destinations, and a reduction in the size of interchanges to mitigate their impacts on adjoining neighborhoods.
 - Flatbush Ave. Access Improvements – This proposal improves freeway access in the Prospect St., Flatbush Ave., and Parkville areas. It provides full access to Flatbush Ave, and it connects Flatbush Ave. directly to the Parkville neighborhood via a new road under I-84 that connects to Bartholomew Ave. in Parkville.
 - Sisson Ave. Access Improvements. – This proposal improves access to the Sisson Ave. area and the Sigourney St. area. It replaces the massive ramp system to Sisson Ave. with a smaller ramp and road system that improves local circulation and is less intrusive in the neighborhood. It improves the freeway by eliminating some horizontal curvature problems on I-84 and provides standard-width shoulders along both sides of I-84. It also includes reconstruction of the part of the aging I-84 viaduct.

At the conclusion of the study, it was determined that the improvements were too expensive. However, ConnDOT re-evaluated the Flatbush Avenue proposal and determined that the proposal could be scaled back and costs reduced. The revised concept provides less direct access to Prospect Ave., but still achieves most of the other objectives of the original concept. Improvements associated with Sisson Avenue should be investigated further as the Viaduct Reconstruction planning advances.

RECOMMENDATION: Westside Access – Include the scaled back Flatbush Avenue proposal as part of financially constrained 20-year Plan. Remove the Sisson Avenue proposal from the financially constrained 20-year Plan, but continue to recognize this as a regional need by including it on the Unfunded Needs List under the Interstate 84 Viaduct replacement allotment.

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 implemented 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 as well as the high volume of truck traffic.

RECOMMENDATION - The Connecticut Department of Transportation should conduct a comprehensive study of options for correcting the problem.

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 ConnDOT.

- 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 we conduct comprehensive planning studies 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 4: FARMINGTON

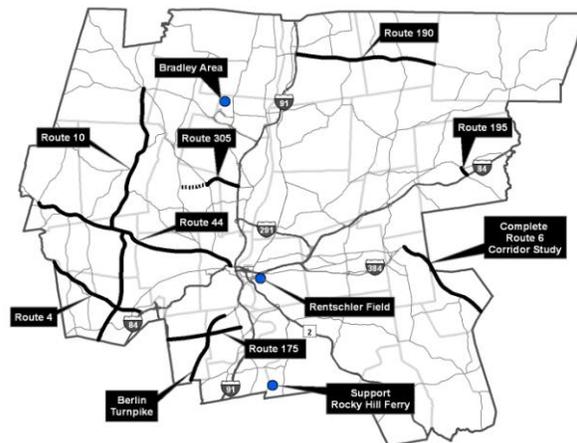
The primary problem on Route 4 in Farmington is congestion in Farmington center and to a lesser degree in Unionville. Safety problems exist in both villages. Final recommendations reflect a balance between the desire to address traffic problems, and a desire to preserve the character of the two villages.

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 ConnDOT to explore progressing a study of the Route 177 Bridge over the Farmington River.



Arterial System: Corridor study locations

ROUTE 10: GRANBY TO FARMINGTON

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.

Roadway Improvements

- Retain basic 2-lane configuration of roadway.
- Access management throughout the corridor.
- Improve traffic and safety at critical locations (see Route 10 report).

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:* Complete and monitor the effectiveness of safety improvements currently nearing construction completion over Avon Mountain.
- *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 about 20 percent 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 ConnDOT 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 Connecticut DOT 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 ConnDOT'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. Under this program, a municipality may qualify for a grant ranging from 10% to 33%, and a loan of up to 50%, to cover eligible project costs. As a result of funding cuts directed by Public Act 09-2, this program is currently closed to new applications. However, federal funding (up to 80%) is currently available through ConnDOT's Local Bridge Program for municipal bridge projects. This funding is limited to municipal bridges with spans greater than 20 feet and ConnDOT 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.
- 2. Bridge Mapping / Identification.*** Prepare a summary of bridge information within our Congestion Management Program (currently being updated).

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 problems⁹ 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 geometric¹⁰ 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.¹¹ 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.

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.

Special Concern: Route 6

Construction of Route 6 as a new freeway connecting I-384 in Bolton Notch to the Route 6 bypass around Willimantic had been part of the CROG Regional Transportation Plan for many years. Subsequent to the 1994 Draft Environmental Impact Statement, the State of Connecticut and the Army Corps of Engineers have been at an impasse with regard to which alignment should be progressed. In December 2003,

⁹ 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.

¹⁰ Geometric problems are those related to poor design features such as bad curves, steep grades, poor sight lines, and narrow lanes.

¹¹ These roads must be classified as "collectors" or higher.

ConnDOT appealed to the US Secretary of Transportation to use his authority under special environmental streamlining legislation to intervene in the dispute between Connecticut and federal environmental agencies. To date, no progress has been made as a result of this request. Consequently, ConnDOT has stopped pursuing the necessary environmental permits from the federal regulatory agencies and has removed Route 6 from the list of projects that they intend to fund as part of their Long Range Transportation Plan.

The change in status of Route 6 at the state level affects its status in the Regional Transportation Plan as well. Since the regional plan must be financially constrained, we must demonstrate that there are adequate funds over the next 30 years to finance the project. In previous plans, we have been able to cite the state's financial commitment to the project as evidence of adequate financial resources. This is no longer the case. Without the state's financial commitment to the Route 6 project, it is no longer feasible to keep Route 6 in a financially constrained Plan.

However, the need to address safety problems in the corridor remains. 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. The undivided two-lane roadway with high speeds, high volumes, and mix of through and local traffic create safety problems that cannot be fully addressed even with the types of safety improvements completed over the past ten years. Therefore, while permit and financial problems preclude the new freeway alternative at the current time, the need for this alternative remains and should be recognized in the Regional Transportation Plan as an unfunded need.

Currently, CRCOG is conducting a transportation study of Route 6 Corridor in the towns of Bolton, Coventry, Andover and Columbia. This study will address safety, access management and development potential / growth along the 11-mile corridor. The study will also evaluate the stretch of Route 66 between Route 6 and the Willimantic River, an additional two-mile segment. Transportation recommendations will be pursued that accommodate and complement recommendations made in the four-town cooperative Economical Development Land Use Study, completed in October 2010 for the same corridor. The Corridor Study is anticipated to be completed in late 2011.

RECOMMENDATIONS:

1. **List as Unfunded Need.** Include Route 6 relocation in the list of "unfunded needs" until such time as environmental issues can be resolved.
2. **Complete Study.** Complete the Transportation Study of the existing Route 6 with an emphasis on:
 - managing traffic growth.
 - preserving and enhancing traffic safety.
 - promoting good access management.
 - accommodating local economic development in a manner that preserves the safety and capacity of Route 6, and that is compatible with the rural character of the corridor.

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.

The ferry, like the seven 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 continually 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 CROG 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 create tools for towns to enable them to conduct pedestrian and bicycle safety audits and 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.
- 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:

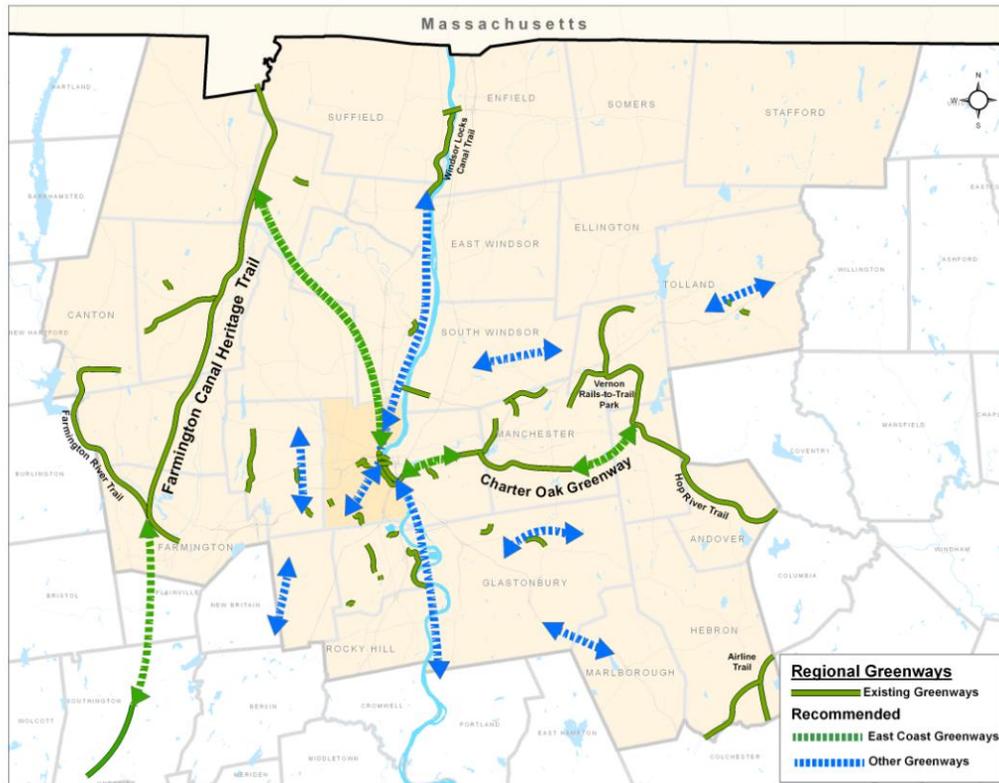
East Coast Greenway: The East Coast Greenway (ECG) is a network of trails that, when complete, will stretch from Maine to Florida. In our Region, the trail will follow the *Charter Oak Greenway* and the *Farmington Canal Heritage Greenway*. Both these trails have gaps, and the major gap in the ECG through 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 all these communities with active projects ongoing at the time this plan is being prepared. When the active projects are complete, there will still be gaps in each town.

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 ConnDOT. A map, with a list of designated roadways, has been provided to the towns and ConnDOT 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 their convenient and secure storage racks at the destination? If the bike ride is long, are their 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, CTTANSIT 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. 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 non profits to insure that classes are delivered. Provide programs for all ages.

3. Educate Motorists and the General Public. Work with ConnDOT 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 get around. 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 the encouragement activities target a variety of ages and income classes and that they take place throughout the Region.

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 CRCOG 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 that encourage employee activity, and help them to develop programs around active transportation.
4. **Regional Bicycle Map.** Create a Regional Bicycle Map.
5. **Bicycle Rental Program.** Develop a widely available bicycle rental program where individuals can rent bicycles for short periods and return them to a number of locations in the Region.

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.

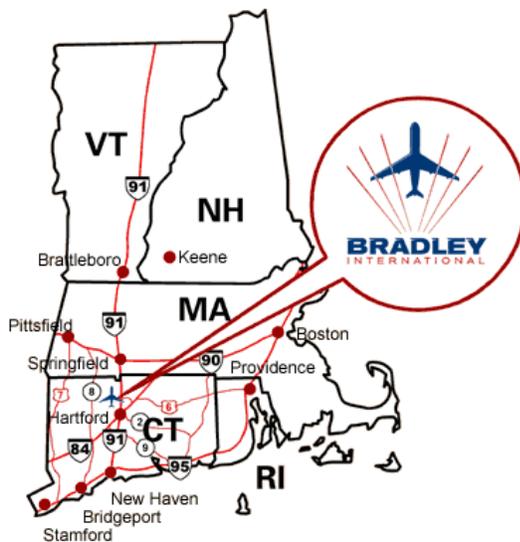
5. BRADLEY AIRPORT

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 Canada and San Juan, Puerto Rico. The Airport is served by thirteen airlines, including two low-fare carriers, operating over 270 daily flights. In 2009, Bradley Airport handled 5.3 million passengers (enplanements and deplanements) and 381,721 tons of cargo. Compared to other airports nationwide, Bradley ranked 57 out of 542 in volume of passengers enplaned and 31 out of 122 in the volume of air cargo handled.



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. Looking into future years Bradley expects to demolish the Murphy Terminal (Terminal B), replacing it with a new 24-gate terminal.



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 and Mexico. 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.¹²

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

¹² Passenger and cargo statistics, air carrier and economic data from Bradley International Airport Marketing Department, 2/2007.

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.

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'¹³, 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.
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 of 35 mph. 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 NEW HAVEN—SPRINGFIELD RAIL. The BATS report and the Regional Transit Strategy both called for better transit access to the Airport. Current transit access is limited to

¹³ See Chapter 1: A Sustainable Transportation System.

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 New Haven–Hartford–Springfield (NHHS) 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.

RECOMMENDATION:

1. ***Transit Connection between the Airport & the NHHS Rail Line Service.*** Provide a good transit connection to the proposed NHHS rail service by instituting a direct shuttle bus service from the Airport to the Windsor Locks rail station.

TRANSIT ACCESS: BUS SERVICE. Given the very limited transit service to the Airport today, some 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:
 - *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 Busway.
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.



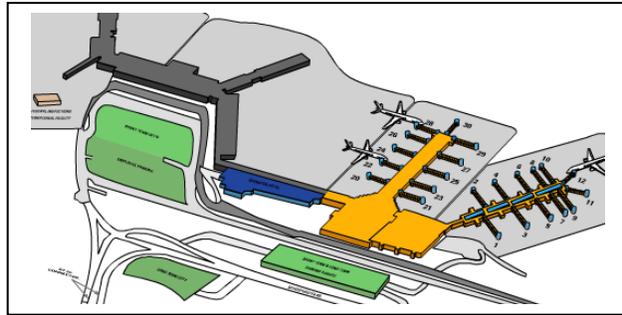
Bradley Airport Noise Exposure Map

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. The Council of Governments 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.

6. FREIGHT TRANSPORT SYSTEM

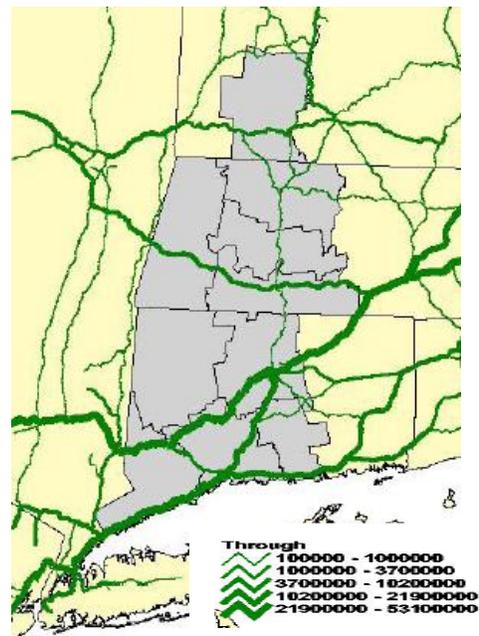
The movement of goods plays an important role in economic growth that is often not fully appreciated. This lack of understanding is especially true in Connecticut where primary industries such as agriculture and mining play a small role, and secondary economic activities such as manufacturing play a 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), 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.

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.
- ***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.



Through Traffic Volumes
in Annual Tons

CRCOG's Role in Freight Transport Planning

Still Developing 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. We continue to looking to to build on the knowledge gained from that study.

Limited Ability to Influence Freight Industry. It should also be understood that CRCOG's ability to directly influence freight transport systems is much more limited than our ability to shape traditional highway and transit systems. We have no direct authority (regulatory or financial) over most elements of the freight transport system. Rail and air transport systems are regulated by federal agencies (Federal Rail Administration and Federal Aviation Administration) that have no formal or official relationships with MPOs like CRCOG. Therefore, the plans and policies that we develop in this program are likely to be purely advisory in nature. The exception will be in those areas where freight planning and traditional highway and transit planning overlap. Examples include the planning for improved ground access to cargo facilities at Bradley Airport, and the use of ITS (Intelligent Transportation Systems) to improve monitoring of truck safety on highways.

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.

Most of the Region's freight is delivered by truck. According to the Global Insight study, freight traffic represents 98% of the traffic moving in, out and through the Region. This number is decidedly high relative to the national average of 79%. has a role in the existence of congestion, that very congestion threatens 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 two courses of action. First, we need to consider options to reduce our dependence on trucking. Second, we should be pursuing means to better manage our existing resources to assure that trucking can continue to efficiently serve our Region's economy.

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. ConnDOT's freeway traffic management system, Regional Traffic Management System (RTMS), is an important tool for travel information and incident management. Coordination with ConnDOT 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 affect of trucks on our roads.

In 2008, the Connecticut Department of Transportation released its CT Statewide Rest Area and Service Plaza Study. The Study included the potential development of a private truck parking facility in the Hartford area.

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 which might regulate the time-of-day for deliveries. In concentrated service centers, plans for consolidating frequent pickup and delivery could be made.

A new 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 in 2014 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 or 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 Hartford 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.

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.

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 volume 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 freight capacity offered by wide-body passenger service in New York and Boston. It is also 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.

- The program should include 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 should 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: Central CT RPA, Midstate RPA, Pioneer Valley Planning Commission, the Bradley Development League, the MetroHartford Alliance, the Hartford-Springfield Economic Partnership, and others.

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 are:

- Transportation Security
- MPO Coordination
- Air Quality - Transportation Policy
- 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 nine bridges that span the Connecticut River are in the Capitol Region Emergency Planning Committee planning region¹⁴) 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 COMMITTEE. Capitol Region Emergency Planning Committee (CREPC) was established in 2001 as part of CRCOG's Public Safety Council. CREPC developed and continues to update the CT-DEMHS Region 3 Regional Emergency Support Plan (R-3 RESP).¹⁵ 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.¹⁶ 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

¹⁴ The Capitol Region consists of 30 municipalities; the Capitol Region Emergency Planning Committee serves 42 municipalities.

¹⁵ CT is divided into five Department of Emergency Management and Homeland Security planning regions; the region corresponding to CREPC is DEMHS Region 3.

¹⁶ The Region follows the tenets of the National Response Framework and the use of Emergency Support Functions as discipline-oriented work groups.

“facilitate communication and coordination among regional jurisdiction and agencies concerning transportation issues and activities during a major disaster.”

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. RESF-1 has begun an outreach program to make more transit operators aware of the emergency planning effort in the Region.

CT Transit has sponsored several emergency preparedness drills over the last several years. These include two full scale emergency preparedness drills in the Hartford area, which took place between January and November 2003, and included the participation of the FBI, State police and other emergency responders. CT Transit held another drill in January 2007, in conjunction with the Hartford Police Department. That scenario involved a failed bombing attempt and a subsequent hostage situation. In this drill, the negotiation team was successful, and SWAT was only used for stand-by and clean-up.

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)¹⁷ 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. This

¹⁷ A U.S. Department of Homeland Security and the Federal Emergency Management Agency grant program.

campaign includes radio and television commercials, and printed media encouraging passengers to tell the bus operator when SOMETHING doesn't seem quite right.

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 addressed three 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. Since 2005, the Capitol Region emergency planners have completed a Regional Shelter and Evacuation Guide, 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),¹⁸ 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, the Midstate Regional Planning Agency, and the Council of Governments of the Central Naugatuck Valley signed an agreement to do so.¹⁹ 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 specific clause governing planning activities is provided below.

Coordination of Planning Activities. The four primary MPOs in the Hartford urbanized area (CRCOG, CCRPA, COGCNV, and MRPA) agree to coordinate their regional transportation plans, transportation improvement programs (TIPs), and annual work programs. The coordination efforts will include the exchange and review of annual work programs, regional transportation plans, and TIPs. Staff of the four MPOs will meet at least annually to review each other's planning programs and to identify projects or programs of mutual interest or potential conflict.

This coordination is achieved primarily through periodic meetings of the four agencies to discuss ongoing or scheduled planning activities. A list of common issues, problems, activities, and projects that are discussed at these meetings or are addressed through other means are listed on the following page.

¹⁸ 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.

¹⁹ 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.

Issue or Project in Common	Affected MPOs	Comment
ITS & Incident Management	CRCOG, CCRPA, MRPA	<ul style="list-style-type: none"> The 3 agencies support a common program for ITS & incident management The Greater Hartford Incident Management Steering Committee (now called RESF-1) is a joint program of all 3 agencies. All 3 agencies participated in the Capitol Region ITS architecture study. The Capitol Region ITS Plan extends into MRPA and CCRPA to cover major freeway routes in those regions.
Congestion Management Process	CRCOG, CCRPA, MRPA	<ul style="list-style-type: none"> The 3 agencies support a common CMP for the Hartford metro area. The first congestion and traffic monitoring report was published in 2007. The 3 agencies continue to work together to collect data and develop an update of the first congestion management report.
Jobs Access	CRCOG, CCRPA	<ul style="list-style-type: none"> CRCOG and CCRPA support a common Jobs Access program. They serve on the same taskforce that manages the Jobs Access program that covers most of the Hartford metro area. The agencies meet as part of the Jobs Access Taskforce to manage the program services and budget. MRPA participates in the New Haven area Jobs Access program since program boundaries are based on the CT Dept of Social Service regions, which are not based on metro areas.
Locally Coordinated Human Services Transportation Plan	CRCOG, CCRPA, MRPA	<ul style="list-style-type: none"> The 3 agencies supported the development of a single plan for the entire metro area. The Plan was completed in 2007 and was updated in 2009. We solicit New Freedom projects jointly.
New Britain Busway	CRCOG, CCRPA	<ul style="list-style-type: none"> The New Britain Busway is endorsed in the transportation plans of both agencies, and both agencies actively participate in joint planning activities with one another and the state DOT.
NHHS Commuter Rail	CRCOG, CCRPA	<ul style="list-style-type: none"> CRCOG and CCRPA both support this proposal & both participate in quarterly meetings related to the NHHS passenger rail project.
STP Urban & Transit Enhancement	CRCOG, CCRPA, MRPA	<ul style="list-style-type: none"> The 3 agencies coordinate the use and expenditure of STP Urban funds and Transit Enhancement funds.
Farmington Canal Multi-Use Trail	CRCOG, CCRPA	<ul style="list-style-type: none"> CRCOG and CCRPA 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 New Haven – Springfield Commuter Rail proposal, the study of the West Springfield freight rail yard, and the Farmington Canal Trail. We meet at least annually to review the status of our planning programs, and as required for studies such as the West Springfield rail yard 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 Midstate Region lies between CRCOG and the New Haven MPO, we still coordinate with the New Haven MPO as needed for projects such as the New Haven – Springfield Commuter Rail.

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 ConnDOT in cooperation with the regions and with CT DEP. 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 conducted several special studies to examine air quality issues and options for reducing emissions. The findings and conclusions of those studies have 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, but 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 has 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 has kept these buses in service, replacing the filters on a frequent basis.

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. CTTRANSIT 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 CTTRANSIT buses run on biodiesel fuel, thus reducing their emissions further. CT Transit operates two diesel/electric hybrid buses in Hartford and is taking delivery of ten 60-foot articulated hybrid buses in July 2011. These vehicles also have an emissions reduction. Lastly, all Transportation Supervisor' vehicles are now hybrids.

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. ConnDOT 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 the hydrogen fuel cell bus demonstration. The demonstration project is intended to test the viability of this zero-emission form of transportation. The initial project started in April 2007, and 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 has the 2nd largest fuel cell fleet in the country

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. CT Transit has the second largest hydrogen fuel cell bus fleet in the country. In 2011, they plan to purchase an additional fuel cell bus and begin construction on its own hydrogen fueling station. All of these fuel cell buses operate out of the Hartford Division. In March 2011, they opened a new six bus capacity hydrogen fuel cell bus garage on the Hartford property. Finally, they plan to install a hydrogen fuel cell power plant at either the Hartford or New Haven division property at the end of 2011. It will provide 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 further encourages ConnDOT to expand their current bidding requirements, regarding clean diesel equipment use on State transportation construction projects, to include more projects.
3. **Support Fuel Cell Bus Program.** CRCOG should continue to support the 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

The Council 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.** The Council should try to integrate demand management into our transportation programs whenever possible. A special effort should be made to introduce some demand management techniques to support the Regional Transit Strategy. We should also promote new 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.** The Council should continue to support rideshare programs that encourage alternatives to driving alone to work. While the primary function of the 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 30 years. A goal of this process is to prepare a 'financially constrained plan' whose costs can be paid from the 30-year revenue stream.

Capital Costs & Revenues

Capital Costs. The estimated capital cost of implementing the Plan is about \$2,148,365,000. 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 the New Britain Busway design project, the Griffin Busway Feasibility Study, the NHHS Rail Feasibility Study, the Regional Transit Strategy, the Northwest Corridor Transit Study, 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 \$1,183,150,000 and includes the major projects recommended in the Regional Transit Strategy (with the exception of the Rocky Hill busway) and recent improvements identified in the Northwest Corridor Transit Study. The transit program represents 55 percent of the cost for the entire Regional Transportation Plan. It should be noted that preliminary transit and rideshare needs were also evaluated and for planning purposes an additional \$286,340,000 would be needed to advance other important transit projects.

The highway program costs approximately \$915,215,000 or 43 percent of the entire Transportation Plan. This includes \$875,215,000 for the primary highway program, plus \$40,000,000 for the ground access improvements at Bradley Airport. However, the real highway need exceeds this amount due to unfunded needs associated with reconstructing the Interstate 84 Viaduct and undertaking improvements in the Buckland Hills area. These costs are estimated at \$1,962,000,000.

Bicycle and pedestrian elements of the Plan are estimated to cost \$50,000,000 or approximately two percent of the total cost. An unfunded need of \$20 million was identified for bicycle and pedestrian projects.

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.²⁰ The estimated revenues to the Region over the next 30 years will total about \$2,167,250,000. 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 \$1,219,000,000, estimated by ConnDOT, accounts for approximately 55 percent of the anticipated revenues available for 'system enhancements' for the next 30 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 30-year Plan.

²⁰ 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

<u>Unfunded Need</u>	<u>Cost</u>	<u>Improvement Program</u>
286,340,000	1,183,150,000	Transit & Ridesharing Program
	10,000,000	ITS for bus system
	567,050,000	New Britain BRT
	190,400,000	Griffin BRT
	151,200,000	Manchester BRT (phases 1a, 1b, & 1c)
	242,000,000	New Haven-Springfield Rail (phases 1 and 2; regional share 55%; full cost \$440m)
55,000,000	-	New Haven-Springfield Rail (unfunded phase 2 work; regional share 55%; full cost \$100m)
54,000,000	-	New Haven-Springfield Rail (CT River Bridge)
100,000,000	-	New Haven-Springfield Rail (Hartford Rail Viaduct)
	5,000,000	Day Hill Road Transit Hub / Griffin Park and Ride (Includes buses, shuttles)
	12,500,000	Union Station Improvements
27,000,000	-	Transit Center - Hartford (requires further evaluation)
50,340,000	-	Buckland Hills Area 'Allotment'
	5,000,000	Transit Supportive Enhancements (shelters, connections, planning)
1,962,000,000	875,215,000	Highway Program
	106,065,000	I-84: Rt 6/Rt 9/ Rt 4
	90,000,000	I-84: Hartford - Flatbush access
	32,850,000	I-84: West Hartford - operational lanes
	38,000,000	I-84: access to Rentschler redevelopment area
	6,400,000	I-84: Manchester (auxiliary lane between 63&64/65)
462,000,000	-	I-84: Manchester / South Windsor Buckland Hills Area 'Allotment'
1,500,000,000	-	I-84: Viaduct Replacement
	20,000,000	I-91: Day Hill Road Interchange Improvements (without 'elective' improvements)
	8,100,000	Rt 2: East Hartford (Widen bridge to improve EB acceleration)
	240,000,000	Rt 2: Putnam Bridge
	210,800,000	ARTERIAL improvements (from corridor studies)
	123,000,000	MUNICIPAL roads
20,000,000	50,000,000	Bicycle & Pedestrian Program
10,000,000	38,000,000	Complete major interregional trails
10,000,000	12,000,000	Other bike & pedestrian programs
	40,000,000	Bradley Airport
	40,000,000	Better Roadway Access
	(A)	Better Transit Access
	(B)	Other policy recommendations
	0	Freight Transport System
	(B)	Freight policy recommendations
2,268,340,000	2,148,365,000	TOTAL CAPITAL COST
	2,167,250,000	TOTAL REVENUES
		Assumed Sources of Revenue:
1,219,200,000		Regional Allocation: CRCOG allocation from DOT statewide 20-year estimate
106,100,000		Funds for projects of statewide significance: I-84/Rt 4/Rt 6/Rt 9
32,900,000		Funds for projects of statewide significance: I-84 West Hartford
275,300,000		New Britain BRT: FTA New Starts Funding
65,260,000		New Britain BRT: FTA - Other Funds
114,280,000		New Britain BRT: FHWA - Other Funds
112,210,000		New Britain BRT: Non-Federal Sources
88,000,000		New Haven-Hartford-Springfield Rail: Federal Sources (full amount \$160m; regional share = 55%)
154,000,000		New Haven-Hartford-Springfield Rail: Non-Federal Sources (full amount \$280m; regional share = 55%)
2,167,250,000		TOTAL
0		Shortfall: amount 'over' the budget limit
18,885,000		Reserve: amount 'under' the budget limit

(A) Costs are included in projects listed in the Transit section: NHHS Rail and Griffin Busway.

(B) Recommendations are general policy statements and do not included specific capital improvement recommendations.

Projects of Statewide Significance. When ConnDOT prepared the regional allocation estimates, they also reserved some of the future revenue for projects that they deemed to be of 'statewide significance.' Two projects in the Capitol Region are on the list of statewide projects. \$106,100,000 was reserved for the I-84 improvements at interchanges with Routes 4, 6, and 9 and \$32,900,000 was reserved for operational improvements on I-84 in West Hartford.

New Britain (BRT) Busway. A financial plan for the New Britain Bus Rapid Transit project was prepared and approved by FTA as part of ConnDOT's application for New Starts funds. The federal funding sources and amounts included in the financial plan are listed in Table 8-1. Since there is a reasonable expectation that this funding will be secured, we treat it in this Regional Plan as committed funds. The combined funds for the busway total \$567,050,000.

NHHS Rail Project. The NHHS rail project is 62 miles in length and crosses 3 regions in Connecticut, plus part of the Springfield region in Massachusetts. Although 45 percent (28 miles) of the project lies within the Capitol Region, we have apportioned 55 percent of the cost for and 55 percent of the committed revenues to the Capitol Region for purposes of this Regional Plan and budget. The anticipated construction of new stations in the towns of Newington, West Hartford and Enfield have been factored into these percentages. The approximate committed funds in the Capitol Region shown in Table 8-1 amount to \$242,000,000.

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, Connecticut Department of Transportation has allocated about 60 percent of the expected 30-year revenue forecast to maintenance and repair of existing infrastructure. The Region's maintenance costs are already accounted for in the financial planning guidelines ConnDOT issued to each region. A summary of the estimated costs for the Capitol Region is provided in Table 8-2.

Highway Maintenance Costs: \$2,311,800,000. ConnDOT estimates that it will cost \$2,311,800,000 to maintain all State roads in the Region over the next 30 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 60 percent of the Region's transportation funds over the next 30-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 30-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 over \$1billion. This estimate has been shown as an unfunded need. In order to fund this major transportation infrastructure project, CRCOG will need to evaluate creative financing options and work in partnership with ConnDOT 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 will be necessary until such time as the bridge can be reconstructed. ConnDOT 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, ConnDOT 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. ConnDOT has committed to provide the operating funds needed to operate the New Britain Busway.

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, and ridesharing services. The annual operating subsidies to these services amount to about \$53,475,000. This is a total of \$1,605,000,000 over a 30-year period.

Vehicle replacement costs are also provided below. The estimated replacement cost of \$289,000,000 is based on existing fleet size and assumes an average life expectancy of 12 years for regular transit buses and 5 years for special transit (ADA and dial-a-ride) vehicles and rideshare vans.

- CT Transit fleet: 242 buses
- Transit District and municipal DAR fleet: about 116 vehicles
- Rideshare Company vanpool fleet: about 100 Easy Street vans in the Hartford metro area

	Highways	Transit	Total
Maintenance	2,311,800,000	-----	2,311,800,000
Operating	-----	1,605,000,000	1,605,000,000
Replacement	-----	289,000,000	289,000,000
Total	2,311,800,000	1,894,000,000	4,205,800,000

Table 8-2 **Operating & Maintenance Costs (30 years)**

New Transit Services. The Plan recommends five new rapid transit services plus improvements to existing bus service. Each of the new busways is expected to require \$5-7 million per year in state subsidy to operate. The CT Department of Transportation is committed to providing the operating subsidy for the New Britain Busway, which is the first of the busways and is currently advancing to construction. 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 8-3. 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 30-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 8-3 Preliminary Timetable for Implementation

<u>Period 1</u> Year 1-5	<u>Period 2</u> Year 6-10	<u>Period 3</u> Year 11-20	<u>Cost</u>	<u>Improvement Program</u>
\$820,550,000	\$96,600,000	\$266,000,000	\$1,183,150,000	Transit & Ridesharing Program
\$5,000,000	\$5,000,000	\$0	\$10,000,000	ITS for bus system
\$567,050,000	\$0	\$0	\$567,050,000	New Britain BRT
\$0	\$0	\$190,400,000	\$190,400,000	Griffin BRT
\$0	\$75,600,000	\$75,600,000	\$151,200,000	Manchester BRT (<i>phases 1a, 1b, & 1c</i>)
\$242,000,000	\$0	\$0	\$242,000,000	New Haven-Springfield Rail (<i>phases 1 and 2; regional share 55%; full cost \$440m</i>)
\$0	\$5,000,000	\$0	\$5,000,000	Day Hill Road Transit Hub / Griffin Park and Ride (Includes buses, shuttles)
\$5,000,000	\$7,500,000	\$0	\$12,500,000	Union Station Improvements
\$1,500,000	\$3,500,000	\$0	\$5,000,000	Transit Supportive Enhancements (shelters, connections, planning)
\$245,455,000	\$217,240,000	\$412,520,000	\$875,215,000	Highway Program
\$106,065,000	\$0	\$0	\$106,065,000	I-84: Rt 6/Rt 9/ Rt 4
\$0	\$90,000,000	\$0	\$90,000,000	I-84: Hartford - Flatbush access
\$32,850,000	\$0	\$0	\$32,850,000	I-84: West Hartford - operational lanes
\$0	\$19,000,000	\$19,000,000	\$38,000,000	I-84: access to Rentschler redevelopment area
\$6,400,000	\$0	\$0	\$6,400,000	I-84: Manchester (auxiliary lane between 63&64/65)
\$0	\$0	\$20,000,000	\$20,000,000	I-91: Day Hill Road Interchange Improvements (without 'elective' improvements)
\$0	\$8,100,000	\$0	\$8,100,000	Rt 2: East Hartford (Widen bridge to improve EB acceleration)
\$0	\$0	\$240,000,000	\$240,000,000	Rt 2: Putnam Bridge
\$63,240,000	\$63,240,000	\$84,320,000	\$210,800,000	ARTERIAL improvements (from corridor studies)
\$36,900,000	\$36,900,000	\$49,200,000	\$123,000,000	MUNICIPAL roads
\$10,000,000	\$17,500,000	\$22,500,000	\$50,000,000	Bicycle & Pedestrian Program
\$7,600,000	\$13,300,000	\$17,100,000	\$38,000,000	Complete major interregional trails
\$2,400,000	\$4,200,000	\$5,400,000	\$12,000,000	Other bike & pedestrian programs
\$0	\$10,000,000	\$30,000,000	\$40,000,000	Bradley Airport
\$0	\$10,000,000	\$30,000,000	\$40,000,000	Better Roadway Access
\$0	\$0	\$0	\$0	Better Transit Access
\$0	\$0	\$0	\$0	Other policy recommendations
\$0	\$0	\$0	\$0	Freight Transport System
\$0	\$0	\$0	\$0	Freight policy recommendations
\$1,076,005,000	\$341,340,000	\$731,020,000	\$2,148,365,000	TOTAL CAPITAL COST

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.

This commitment was first included in the 2001 Regional Transportation Plan. Since then, CRCOG has made substantial progress in advancing these core principles. We completed a full assessment of our planning process in 2002. An Environmental Justice Action Plan was adopted in June 2002, and incorporated into CRCOG’s Public Involvement Plan in May 2005. Key elements of the plan that have been implemented include:

- *Environmental Justice Advisory Board.* An Environmental Justice Advisory Board was established as a standing CRCOG committee. Its purpose is to provide guidance on how to improve our planning process to achieve environmental justice goals, and to provide input into the development of major planning products such as the Regional Transportation Plan.
- *Transportation Committee Membership.* An EJAB member was appointed to the Transportation Committee to allow direct involvement in our core transportation planning activities.
- *Equity Assessment Methods.* Equity assessment methods were developed to evaluate the distribution of burdens and benefits from projects funded through the transportation program.
- *Bus Users Forum.* CRCOG and CT Transit have held several bus users forums to provide an opportunity for transit dependent residents to discuss bus service issues directly with transit operators and planners.

These are critical components of CRCOG’s environmental justice action program that we will continue to pursue and improve. We remain committed to involving minority groups and low-income groups in our planning process, and to 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 to identify issues of special concern. The effort and issues are described below.

Issues of Special Concern

There are a number of transportation issues that were identified by the EJ Advisory Board as being of particular importance due to their potential to affect minority, low-income, or transit dependent populations. The issues and associated recommendations are provided below.

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 new structure provides better opportunities for the involvement of environmental justice communities in the transportation planning process, and should be continued.

RECOMMENDATION: The revised committee structure is satisfactory 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.

RECOMMENDATION: CRCOG should continue to support the Jobs Access program as a high priority program.

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.

RECOMMENDATIONS:

- 1. *Better Bus Service.*** CRCOG should continue to support better bus service as part of its environmental justice program. CRCOG should also continue to support CT Transit's efforts to give transit users a voice through the bus users forum. CRCOG should also continue its efforts to address bus stop issues.
- 2. *ITS for Transit.*** CRCOG should continue to support the application of ITS in the Region's transit services. Implementation should be a priority.

RAPID TRANSIT SYSTEM. Rapid transit proposals form the cornerstone of the Regional Transportation Plan. Bus rapid transit is proposed for several corridors, and a passenger rail service is being evaluated for 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.

RECOMMENDATION: Rapid transit services should be designed to serve the needs of transit dependent residents as well as those with access to automobiles.

CLEAN FUEL VEHICLES.

Transit Buses. The current bus fleet is composed primarily of diesel-powered vehicles. The primary bus routes traverse many low-income, minority, and transit-dependent neighborhoods. Diesel emissions can pose a health hazard in these 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 that end, the Environmental Justice Advisory Board proposed a program to retrofit CT Transit buses with diesel particulate filters and CRCOG worked with the State DOT and CT Transit to identify funds to retrofit CT Transit buses with diesel particulate filters. CT Transit's older buses have now been retrofitted with EPA emission certified Diesel Particulate Filters and their associated exhaust backpressure and temperature-monitoring equipment. Buses purchased since 2007 came equipped with the diesel particulate filter so no retrofit of those vehicles is necessary. They include active control filters that improve operations and require less maintenance.

CT Transit also participates in the National Fuel Cell Bus program. They have the second largest fleet in the country, operating five fuel cell busses, and are in the process of purchasing a sixth fuel cell bus. They will soon open a new hydrogen fuel cell bus garage on their Hartford property, the sixth of its kind on their statewide properties. Fuel cell buses produce virtually no emissions. CT Transit is also planning to construct a hydrogen fuel cell power plant in either Hartford or New Haven. This environmentally friendly facility will produce clean electricity and hot water.

Construction Equipment. 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 and the requirement that off-road vehicles be as clean as on-road vehicles will not be phased in until the 2011-2012 model year. This coupled with the fact that construction vehicles generally have a much longer useful life than most on-road vehicles creates a need to require the retrofit of existing vehicles wherever possible.

In 2005, the State passed legislation establishing a plan for reducing diesel pollution from the transportation sector. It directed the CT DEP to develop a Clean Diesel Plan "to reduce emissions of diesel fumes and particulates from school buses, transit buses, state-funded construction projects and other sources." That report was completed and submitted to the legislature in January 2006. With regard to diesel emissions from construction equipment, the State incorporated contract specifications requiring retrofit emission controls or the use of less polluting fuels on construction equipment used on State projects of \$5 million or more. These specifications typically have also included requirements for truck staging zones, truck idling, and location of diesel engines in relation to sensitive receptors and air intakes. The DEP has recommended expanding on this project as part of any future steps to further reduce diesel emissions.²¹

RECOMMENDATIONS:

1. **Reduce transit-related emissions.** Support CT Transit efforts to reduce transit-related emissions of all types.
2. **Reduce diesel emissions from construction vehicles.** CRCOG should continue to support efforts to reduce diesel emissions from vehicles used on State transportation construction projects.

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.

RECOMMENDATION: 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

²¹ *The Connecticut Clean Diesel Plan*, report to the State legislature by the Connecticut Department of Environmental Protection, January 15, 2006.

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 Households²²

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: the New Britain Busway 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
New Britain Busway	1,609 33.2%	1,290 26.6%	1,948 40.2%	4,846 100.0%
Griffin Busway	551 29.0%	437 23.0%	912 48.0%	1,900 100.0%

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.

²² The analysis considered only transit-dependent neighborhoods, which were defined as neighborhoods where 20% or more of households do not own a car.

HIGHWAY PROGRAM. None of the proposed freeway improvements are expected to adversely affect any minority or low-income neighborhoods. 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 adversely 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. In March 2006, CRCOG sponsored a public information meeting at the Artists Collective on Albany Avenue to discuss this reconstruction project. Nearly 100 neighborhood residents and area merchants attended and expressed support for the proposed improvements to Route 44. They are mostly small operational improvements with few adverse impacts. The primary recommendations include reconfiguration of the 3-lane roadway to a 2-lane roadway (with turn lanes at intersections), traffic calming on side streets, and streetscaping along Albany Avenue. While the lane reconfiguration is expected to improve safety, it will be done without any roadway widening and will have no negative impacts on the neighborhoods. The traffic calming and streetscaping proposals will benefit the community and were strongly supported by the neighborhoods. Funding shortfalls have put the Albany Avenue project on a delayed schedule however CRCOG continues to work with the Upper Albany neighborhood and other stakeholders on advancing this 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 proposed improved transit services will 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

The primary changes to the Capitol Region Transportation Plan that occur with the adoption of this 2011 edition of the Plan are: an update of the status of projects recommended in earlier plans, the re-affirmation of policies adopted in earlier plans, inclusion of the recommendations from four transportation studies and one transit corridor study, inclusion of recommendations from updated Regional Conservation and Development Plan, the Locally Coordinated Human Services Transportation, and the Regional Pedestrian Bicycle Plan. Items of particular significance are addressed in *Chapter 1: A Sustainable Transportation System*: a more detailed discussion of sustainable and livable communities, transit oriented development, context sensitive design, and complete streets; and new information about green infrastructure.



Public involvement activities were conducted specifically for this Plan update, as well as for certain components. Efforts that were undertaken for components new to this Plan are described below.²³ The Plan is now under review for a 30-day period. A summary of modifications to reflect public input received during this period will be included at the end of this chapter.

Meetings with Special Focus

CONSISTENCY WITH STATE LAND USE PLANS. The Connecticut Department of Transportation is coordinating a review of all draft Regional Transportation Plans now under development with State land use planning officials. Any issues identified with the CRCOG draft Plan will be addressed, and summarized here, prior to adoption of the Final Plan.

CONSISTENCY WITH REGIONAL PLAN OF CONSERVATION & DEVELOPMENT. CRCOG transportation staff attended the March 17, 2011 regular meeting the Regional Planning Commission and gave a presentation on the Plan update, including a summary of the critical changes since 2007 as well as a more detailed discussion of Chapter 1: A Sustainable Transportation System. RPC members have been invited to comment on the Plan and any comments received will be addressed and recorded here in the Final Plan.

ENVIRONMENTAL JUSTICE. CRCOG staff met with the Connecticut Coalition for Environmental Justice on April 8, 2011 to review the draft Plan, to discuss any specific concerns, and to answer questions. The concerns and questions from that meeting and responses are listed in the last section of this chapter, entitled *Comments Received and Responses*.

Related Community Involvement Efforts

LOCALLY COORDINATED HUMAN SERVICES TRANSPORTATION PLAN, JUNE 2007 AND 2009 UPDATE. The development of a Locally Coordinated Human Services Transportation Plan (LOCHSTP) is a requirement of the most recent federal surface transportation authorization (SAFETEA-LU). For this planning effort, CRCOG reached out to many nontraditional partners – social service agencies and human service agencies, as well as the targeted transportation users. By starting with agencies currently working with CRCOG on other projects – FTA Section 5310 van funding applicants, local dial-a-ride service providers, and Jobs Access Task Force members – and asking that they identify other agencies and individuals who would be aware of human services transportation needs, CRCOG broadened its outreach

²³ See earlier Plans for descriptions of outreach efforts taken for components incorporated into the Plan prior to 2007.

network, and used the list as a source for information on current needs and current transportation services and as a conduit for publicizing a public input session. CROG staff also attended meetings of client groups to get direct input from transportation service consumers. To understand the transportation needs of our LOCHSTP partners and the individuals that they serve, we conducted two written surveys, held over 25 meetings with stakeholder groups, and held two general public meetings. These outreach methods enabled us to understand travel needs that had not been a part of our planning in the past, but which now inform all aspects of our work. On an annual basis, we hold one or more public meetings with the stakeholder group to insure that we remain attuned to the human services transportation needs.

ROUTE 175/ROUTE 9 AREA TRAFFIC STUDY, DECEMBER 2007. The Route 175/Route 9 Area Traffic Study was conducted with input from two municipal advisory committees (City of New Britain and the Town of Newington), stakeholders, and the community. Municipal advisory committees established under a separate but related study, focusing on Station Area Planning, were utilized in this study in order to ensure efficient coordination between the two studies. A total of seven public meetings were held throughout the study process to share information and receive comments and suggestions from the public. Public meetings were held at key milestones where public input and support were required in order to proceed to the next study phase.

The public sessions were widely advertised in letters to property owners; flyers; notices to the Newington and New Britain Councils, legislative delegations, planning commissions, and economic development commissions; legal notices and coverage in the *Hartford Courant*, *New Britain Herald*, and *Newington Life*; web postings on the Town of Newington, City of New Britain, and Station Area Planning Project websites; and advertisements on local public access stations. Stakeholder meetings were held with property owners, the City of New Britain, Town of Newington, Central Connecticut State University, and ConnDOT to review and discuss conceptual plans. Final Study recommendations were endorsed by the New Britain Council in October 2005, by Central Connecticut State University in February 2006, and by the Town of Newington in September 2007.

REGIONAL PEDESTRIAN BICYCLE PLAN, ACTIVE TRANSPORTATION INITIATIVE , APRIL 2008.

In the fall of 2007, CROG initiated the Active Transportation Initiative (ATI) to deliberately create a diverse working group that would help develop a broad-based bike/ped plan. Through a series of meetings, the ATI work group closely examined the existing conditions for walking and bicycling in the Region and provided recommendations to develop a plan that could make the region bike and pedestrian friendly. Two public information meetings were held one in November 2007 at Union Station and one in April 2008 at the Hartford Public Library to keep the community updated on the planning process. As a result, the recommendations from the Work Group and from the public input meetings were used to update the bike/ped plan. Since the adoption of the plan, the Active Transportation Working Group has been invited to stay involved by attending our quarterly Bicycle Pedestrian committee meetings.



ROUTE 305 CORRIDOR STUDY, OCTOBER 2009. The Route 305 Corridor Study within the towns of Windsor and Bloomfield was led primarily by Local Advisory Committees (LACs) established in each town and coordinated by a joint steering committee. The LACs were comprised of municipal staff, residents, business owners, and ConnDOT representatives and met at key milestones throughout the study. The project website, newsletters, update emails, public informational meetings, and newspaper articles / meeting announcements kept the public informed on the study progress and findings. Surveys, open houses, and comment sheets were utilized to engage and obtain input from the public. Additionally, individual stakeholder meetings were held to discuss specific issues, possible improvement alternatives, and to respond to questions and concerns about the study process.

The Route 305 Corridor Study was completed during FY2010. Endorsement was received from the Bloomfield Town Council and the Windsor Town Improvement Committee (Town Council Subcommittee). Final documentation was completed and posted on the CRCOG website alongside other study materials such as meeting minutes, newsletters, and presentations.

REGIONAL PLAN OF CONSERVATION AND DEVELOPMENT, OCTOBER 2009. In 2009, CRCOG updated the Achieving the Balance: A Plan of Conservation and Development for the Capitol Region, following the governor’s mandate that all regional plans of conservation and development be updated to reflect the State’s six growth management principles. During the course of this update, CRCOG held a series of group and individual meetings with town planning staff to ensure that each community had the chance to review the methodology being used to update the land use policy map and conservation map, as well as give input on key municipal focus areas. An iterative process took place over the course of the update with municipal planners to update these maps and create a Land Use Policy Matrix. Also, at 11 different meetings, CRCOG worked to present new mapping methodologies and each updated chapter 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 July 2009 and a formal Public Hearing was held in September 2009. 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 September 2009 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 October 2009 meeting.



NORTHWEST CORRIDOR TRANSIT PLAN, APRIL 2010. The Northwest Corridor study was intended to provide additional planning to preserve the viability of the Griffin (or northwest) corridor as a transit corridor. The study had three key aspects: develop new service and a land use plan for Griffin/Day Hill Road area; develop a plan for the operation of Union Station as the future terminus of the New Britain Busway system; and evaluate downtown transit circulation.

An EJ and LEP analysis was undertaken for this Study, and concluded that the existing outreach plan was comprehensive, and appropriate.

For this planning effort, CRCOG reached out to an assortment of stakeholders for each element of the plan. This included downtown Hartford residents, major employers in both downtown Hartford and the Day Hill Road area, the Windsor Chamber of Commerce, neighborhood groups, and local businesses. Stakeholder committees

were established for each of the three elements of the plan. It was also critical that everyday transit users were afforded an opportunity to provide input to the plan. A survey of Day Hill Road area businesses was conducted to understand the travel patterns of employees.

Two public input meetings were held for this project: in June 2008 and again in May 2009. The meetings were publicized through the CRCOG mailing lists, on the CRCOG website, through the Hartford Public Library’s e-mailing list, and with notices on CT Transit buses. The final recommendations of the Study were adopted by the CRCOG Policy Board in April 2010.

ROUTE 195 CORRIDOR STUDY, APRIL 2010. The Route 195 Corridor Study in the Town of Tolland originally was intended to address traffic, pedestrian and development issues in a 2.5 mile corridor. Through public comments and discussions, it soon became apparent that the community’s main interest was to improve safety at the historic and actively used town green. In response, the study focused its attention on balancing high traffic volumes and pedestrian safety this area. Through a Local

Advisory Committee (LAC) comprised of town staff, ConnDOT officials, business owners, a representative from the historic district commission, residents, and other stakeholders, a final plan was developed that creates a more pedestrian-friendly environment through the use of traffic calming techniques, additional Green area, enhanced crosswalks, and overall increased safety.

An extensive public outreach effort was needed to provide updates throughout the dynamic study process to this involved community. Information was primarily posted on a dedicated CRCOG 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 LAC members, other stakeholders and the general public an opportunity to stay involved every step of the way. The Town of Tolland also listed information on its own website and sent "E-blasts" to a list of interested persons. Use of the email media was very successful in generating interest in the project. Near the end of the project, a large corridor map indicating proposed improvements was displayed in the Town Hall for the community to review.

The study recommendations reflect comments from the Town and public, and have been accepted by the LAC and approved by the Town Council.

I-84 VIADUCT STUDY, DECEMBER 2010. Due to the significance of the Viaduct section of I-84 and its impact on the surrounding neighborhoods, effective community outreach was of paramount importance. The City of Hartford's HUB Advisory Committee, consisting of City staff, residents, community organization members, major employers, stakeholders and ConnDOT officials, met at key milestones to provide input on proposed concepts and findings. The rigorous public outreach effort included a series of public informational meetings/workshops, newsletters, mailings, press releases, and stakeholder interviews/meetings to share information and receive comments and suggestions from the community.



Public meetings were heavily publicized through newspaper articles and notices (in English and Spanish), television news coverage, press releases, newsletters, email notifications, and postcard mailings. These meetings were well attended and provided valuable insights on alternative refinements. Workshops included breakout groups to encourage feedback and discussion. The project website provided study-related materials, background documents and base maps. The Hartford City Council, Hartford Planning and Zoning Commission, and the CRCOG Policy Board have endorsed the study findings. The final Study Report, newsletters, meeting minutes, presentations, and reference materials are available on the CRCOG website.

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 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 Plan was presented at the Regional Planning Commission meeting on March 17 and at the Connecticut Coalition for Environmental Justice meeting on April 7, and at a public information meeting on April 25. Opportunities to comment were also provided at the April 25 Transportation Committee meeting and at the May 4 Policy Board meeting.

Public Comment Period – March 22 to May 4, 2011

The public comment period (minimum 30 days required) commenced on March 22, 2011. The comment period ends on May 4, 2011, when CRCOG’s Policy Board considered the Plan for approval. All comments received and CRCOG responses to those comments are detailed in the next section.

Comments Received and Responses

Comment	Response
<p>ConnDOT Highway Operations Center suggested some changes to text in the Incident Management and ITS sections of the Highway System chapter:</p> <p><u>Section on CHAMP vehicles:</u> Due to reductions in State funding, this program has been reduced since 2009. CHAMP service has remained unchanged since the patrols were expanded several years ago. The staffing has been reduced, which will occasionally result in unfilled shifts.</p> <p><u>Section on ITS Recommendations:</u> 2. Enhance Traffic Incident Management with ITS. Continue implementation of ITS projects to enhance traffic incident management capabilities. <i>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.</i> Examples include a 511 phone <i>information</i> system, and live video feed from traffic cameras to appropriate emergency responders.</p> <p>4. Improve Arterial Operations with Signal Systems. Continue to invest in the Region's computer-controlled traffic signal system, which has yielded significant benefits through reduced travel times, reduced fuel consumption, reduced vehicle emissions, and improved traffic flow. <i>Replace older computerized signal equipment as it becomes obsolete or inoperative so that system integrity is maintained.</i></p> <p>5. Monitor Advancements in ITS Technology. Monitor advancements made in adaptive traffic signal control and other ITS technologies and propose cost-effective projects <i>to take advantage of newer technologies.</i></p>	<p>Incorporated italicized changes in the final draft.</p>
<p>From 3/21/11 TC meeting: A question was asked as to if the Route 3 Study should be listed in the RTP.</p>	<p>It was explained that the Route 3 Study is still in progress. Once the study is complete, the final recommendations will be incorporated into the next RTP.</p>

<p>From 3/21 TC meeting: A question was asked as to what alternative the project cost for the Viaduct Study was based on.</p>	<p>It was explained that \$1.5B was used as a placeholder since there are many factors affecting this project. No detail cost estimates were prepared for this planning level study.</p>
<p>From 3/21 TC meeting: A question was asked related to the Local Bridge Program and if the unfunded needs related to that program were included.</p>	<p>A section on Regional Bridge Infrastructure was added to the RTP.</p>
<p>From 3/21 TC meeting: A question was asked if UConn is part of the Knowledge Corridor and whether the High Speed Rail Project connecting to Amherst is included in the HSIPR Project.</p>	<p>It was explained that the Knowledge Corridor does not include UConn and that the State recently completed its Rail Plan; Amherst is not part of the High Speed Rail project.</p>
<p>From 3/21 TC meeting: A Transportation Committee member commented that a rail connection between Harford and UConn would be very valuable.</p>	<p>Initiatives that enhance transit to UCONN have been explored through the years; the RTP must be fiscally constrained & there are no funds for this type of service at this time. Studies to date have indicated insufficient demand for such a service. However, this is a proposal that should be reviewed in the future, and incorporated when passenger demand is identified and financing becomes available.</p>
<p>From CCEJ meeting: Proponent of Griffin Busway and rail connection to Bradley</p>	<p>Provided Griffin busway status and proposal for bus service between Bradley and the NHHS Rail line. A proposal to connect the station and the airport by rail would also require a feasibility study.</p>
<p>From CCEJ meeting: What is the comparison of emissions for trains vs. buses?</p>	<p>The RTP does not identify specific details on emissions rates for transportation proposals. More details for specific projects are studied as planning advances.</p>
<p>From CCEJ meeting: The map of the busway in the paper makes it appear that the busway ends at Sigourney Street</p>	<p>Assured that the Busway continues on into downtown Hartford</p>
<p>From CCEJ meeting: How many buses are in the CT transit fleet vs. the number of fuel cell buses?</p>	<p>Responded with information from CT Transit: "CT Transit operates 407 buses, 240 of which are operated by the Hartford Division. Five of those buses are hydrogen fuel cell / electric hybrid buses. CT Transit plans to purchase a sixth in the future. All of those buses are operated by the Hartford Division primarily because the hydrogen fueling station is located in Hartford. This may seem like a small number of buses, but fuel cell buses are still very new (and expensive), and Hartford's fleet is operated as a demonstration program. As we mentioned at the meeting, CT Transit has the second largest fuel cell powered bus fleet in the country.</p>

	<p>CT Transit operates 16 electric / diesel hybrid buses, two of which are in the Hartford Division, with ten more to arrive in July. The rest of the buses are 'clean' biodiesel, to assure the lowest emissions possible."</p>
<p>Email: I just read the bike pedestrian part of the Regional Transportation Plan. It sounds great. I am a League of American Bicyclist instructor, a bike shop employee, a bike commuter, and a bike advocate. Keep up the good work.</p>	<p>Expressed our thanks.</p>
<p>Email: Can you please clarify the procedures and timeline for public comment period prior to CRCOG's adoption of the amended STIP scheduled for May 4, 2011.</p>	<p>Provided information on opportunities to comment.</p>
<p>Email: I've always thought it strange that we haven't had in the transportation plan a connection to Storrs and the University of Connecticut. Of course, the Manchester bus expressway is a step one in that direction, but it would seem reasonable to have a long range plan to connect to Storrs.</p> <p>Also the Hub plan to drop I-84 and move the RR gives rationale to thinking of how Hartford/opportunities could enhance the connections from the mid portion of the state through a new bus/train/bike station/center and whatever connection advantages that would give.</p> <p>This idea wouldn't probably be appropriate for the Plan, but I've always thought that a bus/Suburban auto convertibly fixed with railroad wheels and auto wheels would be a great connection between University of Hartford and the train station offering students a safe and very quick way to come to Hartford and return, particularly for those weekend activities in the entertainment district that they seem to enjoy.</p>	<p>Initiatives that enhance transit to UCONN have been explored through the years; the RTP must be fiscally constrained & there are no funds for this type of service at this time. Studies to date have indicated insufficient demand for such a service. However, this is a proposal that should be reviewed in the future, and incorporated when passenger demand is identified and financing becomes available.</p> <p>A bus/suburban auto concept has not been studied in any detail and would require further discussions with the University and other stakeholders, particularly the rail owners, to determine its feasibility and advancement. In the past, the rail owners have indicated that they would not allow non-railroad operators onto the tracks.</p>
<p>Email: I noticed in the Executive Summary under the Bike/Ped section that there was no mention of supporting towns and businesses in the preparation of applications to the League of American Bicyclists Bicycle Friendly Community and Businesses program. This is important because the League has a well thought out approach to helping towns and business become more bicycle friendly, and CRCOG's plan should take advantage of what the League has been doing for several years now.</p>	<p>Assured commentator that while not every outreach effort is mentioned in the Plan, CRCOG planners are aware of this group and will bring the suggestion to the Bike/Ped committee.</p>
<p>Email: Any reconstruction/widening of I-84 through Hartford should be done with the bottlenecks in East Hartford and West Hartford in mind. Even if the flow through Hartford is improved, you have not solved any problem if you maintain the bottlenecks just over the river in East Hartford and the bottleneck in West Hartford in the vicinity of Park Road. I drive on I-84 every day, so I speak from experience. I can tell you that the Waterbury project was a waste of money as traffic heading into Waterbury is still terrible. The reason for that is that widening I-84 leading into Waterbury is pointless if you do not relieve the bottleneck in Waterbury. Before the State spends millions—or billions of dollars, it needs to address all of the issues. Highway design needs to be done with a wide angle lens, not a microscope.</p>	<p>This comment was submitted as a result of a presentation CRCOG made to the Regional Planning Commission, at their request, related to the I84 Viaduct Study. Operational improvements on I84 in West Hartford are already identified in the plan and future plans for a flyover in East Hartford, in the general area of I84 and Rentschler Field, are identified in the plan. The viaduct will need to be replaced within the next 15-20 years and there is no identified funding for the project at this</p>

<p>The only reason you have the West Hartford "curves" is due to political influence that trumped sound highway design. I can't speak for what happened in East Hartford, but the piece of I-84 Eastbound just over the river is a mess and needs to be widened and straightened. The State's use of eminent domain would be entirely appropriate and necessary to accomplish any long term goal relative to updating and improving our highway infrastructure.</p> <p>I would be completely opposed to anything other than "repairs" to I-84 through Hartford if the project does not address East Hartford and West Hartford.</p>	<p>time, limiting any future improvements on I84.</p>
<p>Email: I have a request to keep in mind for the bike trails. It seems from what I read that they will be paved and I wanted to encourage the connectivity of "paved" trails so that rollerbladers could also use these hike/bike trails.</p> <p>Most road connections aren't too good for this because the pavement is much rougher than it is on a paved trail. My friends and I have a problem finding places that have enough linked paved trails in our area for a decent workout or even a lunchtime break. We live/work in these areas: Windsor, Manchester, East Windsor, Enfield. Windsor has a very nice loop by the dog pound but its very small and doesn't connect to anything. I know there is a very long one in Avon or Farmington area but that is a much bigger time commitment.</p>	<p>Responded with thanks for comments, and assurance that we will forward to bike/ped planner for future consideration and discussion with the Bike/Ped Committee.</p>
<p>Summary of phone call: Thought a 30-year plan should be looking beyond bus transit and consider rail. Opposed to the busway; rail would be better.</p>	<p>Did not disagree on the long range horizon but pointed out that feasibility studies suggest building ridership through incremental steps (NB Busway and Griffin corridor bus service) Our Region is better suited to bus rapid transit than rail transit. Development patterns need to be much more dense before rail is justifiable.</p>
<p>Summary of phone call: Understands the support for the busway as a means of bringing federal dollars and jobs to CT, but he does not agree that a busway is a good concept. He suggests: 1) building transit in existing corridors (medians of existing highways for instance) and considering rail or monorail: look to Europe for inspiration; 2) develop a centralized transportation station in Hartford; 3) bike/ped routes need to be separated from automobile traffic.</p>	<p>Our plan is based on studies that evaluated a variety of alternatives including rail, and we recommended only those most cost effective solutions. Regarding #1: pointed out that busway(s) and commuter rail are proposed for existing ROW, whether railbeds or HOV lanes.</p> <p>Regarding #2: referred to NW Corridor Transit Study recommendations.</p> <p>Regarding #3: will pass to bike/ped planner; however, separating bike/ped traffic is not always feasible especially in an urban environment.</p>
<p>Comment from GHTD: As you know, the District has plans for the acquisition of property to be designated as the ADA Paratransit Operations and Maintenance Facility for the Greater Hartford area. We have received funding from the DOT for pre-acquisition activities which you included in the last approval of the TIP.</p> <p>As we prepared the NEPA documentation, in this case a Categorical</p>	<p>Added information to the RTP.</p>

<p>Exclusion, we are to indicate that our project is included in the current adopted MPO Plan. I know you are working on a new plan and that it is out in draft form. The draft plan does not include any mention of the proposed project. I would like to request that the District's project be included in the plan.</p>	
<p>Email from PanAm Railways: Thank you for the opportunity to review the DRAFT Regional Transportation Plan – it does not often happen that freight rail operators get a chance to participate in the study process prior to a plan's adoption. However, I am not sure how this plan will fit the state rail plan.</p> <p>One thing I think we all can agree on is that in these challenging economic times and shifting dynamics, there is a need in transportation for strategic and practical infrastructure investments that will position the State and the Region to compete both regionally and nationally by having sustainable communities poised for economic growth.</p> <p>Please accept this outline as an introduction to Pan Am Southern LLC – And its freight operations serving the Connecticut market.</p> <p>Pan Am Railways is the Northeast's largest regional railroad. It operates over 2,000 route miles in Maine, New Hampshire, Massachusetts, Vermont, Connecticut, New York and Atlantic Canada. Pan Am Railways interchanges traffic with fifteen railroads throughout its network.</p> <p>Norfolk Southern Corporation is one of the nation's premier transportation companies. Its Norfolk Southern Railway subsidiary operates approximately 21,000 route miles in 22 states and the District of Columbia, serving every major container port in the eastern United States and providing superior connections to western rail carriers. Norfolk Southern operates the most extensive intermodal network in the East and is North America's largest rail carrier of metals and automotive products.</p> <p>Pan Am Railways and Norfolk Southern Railway Company were granted permission from the Surface Transportation Board on March 10, 2009 to form a partnership - having joint control and ownership of a new rail carrier called Pan Am Southern LLC, After receiving the go-ahead from the STB, Pan Am Southern LLC began an aggressive project to improve the rail route between Albany, N.Y., and the greater Boston Area, These infrastructure investments are expected to improve track quality and customer service by boosting train speed and reliability, and increasing capacity on the route. Pan Am Southern LLC. is the freight rail operator providing service into the Connecticut markets serving the I-91, I-84 and Route 8 Corridors.</p> <p>Pan Am Southern believes that there is an immeasurable public benefit to the State of Connecticut to assist in the planning and support of a well-maintained freight and passenger railroad network. Pan Am Southern appreciates that the demands of cost-effective freight rail goods movement require safe and efficient operations. Railroads move products and goods at a fraction of the cost that freight moves made by truck and with less total impact to the environment. Improvements to the freight rail system with strategic infrastructure investments will allow Connecticut business to remain competitive nationally and internationally. To better serve the Connecticut market, it is essential</p>	<p>Responded with thanks for comments and also the fact that we will keep contact information on file so that if we become more involved in a rail or freight planning effort, we will include him in our outreach efforts. Mentioned that most of the planning for rail and/or freight takes place at the State or even higher (New England) level, but we do have some responsibilities in those areas.</p>

<p>to integrate all modes of transportation.</p> <p>After reviewing section 2 of the draft regional transportation plan, it became clearly apparent that the direction of the Regional Transit Strategy is to continue to support the recommendations established in the 2001 Regional Transit Strategy (RTS). As outlined in the DRAFT CRCOG's vision, a balanced and choice of rapid transit services to the region is to support the development of busway systems operations over a proposed five corridors network. The DRAFT imparts that alternative analysis were done when the strategy was approved, and accordingly there is little to comment on.</p> <p>Further examining section 6 of the DRAFT corroborates the need for a state rail plan and multi-modal freight study that identifies projects and strategies vital and necessary to accommodate freight movement and the need to provide transportation options and better position Connecticut businesses to be competitive regionally, nationally and internationally.</p> <p>Again – thank you very much for the opportunity to review the plan. If you or CRCOG, ever need assistance please don't hesitate to call.</p>	
<p>Through email from CT Transit, in researching questions from CCEJ commentary above, we received additional information about CT Transit's fleet, including: all five (soon to be six) fuel cell buses operate out of Hartford where there is access to the hydrogen fueling station. There are 240 buses in the Hartford division. Currently there are two diesel hybrids in Hartford but CT Transit is adding ten more in July 2011. They will be 60' articulated hybrids. All the hydrogen fuel cell buses are also hybrids. All other buses run on biodiesel.</p>	<p>Added information to the RTP.</p>
<p>Email:</p> <p>1. According to the draft: "Transit Connection between the Airport & the NHHS Rail Line Service. Provide a good transit connection to the proposed NHHS rail service by instituting a direct shuttle bus service from the Airport to the Windsor Locks rail station."</p> <p>Many forward looking cities have and are building seamless rail or light rail connections to airports. Consider the inconvenience, hassel and time loss to passengers transferring themselves and luggage between rail and bus. A bus just adds another vehicle to the roads and tracks and right-of-ways already exist between Amtrak and very close to the airport terminals. Direct rail to Bradley would be a gain for western New England and southern Connecticut.</p> <p>2. The Draft states:</p> <p>a. 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.</p> <p>b. Hartford area that aims to restore balance among modes in our transportation system and provide travelers with more choices.</p> <p>c. Hartford East Busway: A feasibility study of a busway from Hartford to Manchester and Vernon was ...</p> <p>What balance among modes? The only rail project mentioned is the New Haven/Springfield line. There seems to be a contradiction between a., b. and c.. Have the studies included the use of light rail,</p>	<p>In planning work completed by ConnDOT, a shuttle bus between the Airport and the Windsor Locks rail station was determined to be the most feasible. We will work with our partners as the planning is advanced to understand future options to enhancing or replacing a proposed bus connection with a rail service if sufficient benefits can be realized in comparison to costs.</p> <p>ConnDOT plans to make accommodations for bikes on the Busway.</p> <p>Based on regional density statistics and studies, our Region is best suited for bus rapid transit. Our studies have evaluated a variety of alternatives including rail and we recommend the most cost effective solutions.</p> <p>The Governor's proposed study will look at a possible rail link from Waterbury / Bristol to the New Haven-Hartford-Springfield line. Connections to points outside of the Region and state are highlighted in the plan.</p>

<p>trams, trolleys?</p> <p>3. Access for Bicyclists. Bicycles on trains is important. Will the New Britain/Hartford BRT allow for bicycles inside the vehicle? Refer to the light rail line in San Jose, Ca or Portland Oregon. Bicyclists roll their bikes into the cars and hang them on a hook or stand by them.</p> <p>The BRT is flawed for several reasons. No consideration of extending Amtrak from Berlin into New Britain and continuing to Hartford. Governor Malloy publicly states monies are being allotted to study restoring rail between Bristol/New Britain etc. Can the region support both a BRT and rail?</p> <p>4. Does the report consider how important transportation is not only to Connecticut but also all of New England and eastern Canada as well as points west to New York?</p> <p>I implore Connecticut to be more forward looking.</p>	
<p>Email (<i>similar to one received earlier, but from a different person</i>): I have a request to keep in mind for the bike trails. It seems from what I read that they will be paved and I wanted to encourage the connectivity of "paved" trails so that rollerbladers could also use these hike/bike trails. Most road connections aren't too good for this because the pavement is much rougher than it is on a paved trail. My friends and I have a problem finding places that have enough linked paved trails in our area for a decent workout or even a lunchtime break. We live/work in these areas: Windsor , Manchester , East Windsor, Enfield . Windsor has a very nice loop by the dog pound but its very small and doesn't connect to anything. I know there is a very long one in Avon or Farmington area but that is a much bigger time commitment. Thank you for the opportunity to comment.</p>	<p>Responded with thanks for comments, and assurance that we will forward those comments to bike/ped planner for future consideration and discussion with the Bike / Ped Committee.</p>
<p>Email, follow up to response on CT Transit fleet: Thanks for this follow-up information.</p> <p>How exciting that Hartford has the hydrogen hybrid demonstration project and all five of those buses. Even though these are a small percentage of the fleet it demonstrates the direction you are heading. I feel certain that the investment involved is well worthwhile, especially since it supports a technology that is in its infancy and produced here in Connecticut.</p> <p>The electric/diesel hybrids are a welcome addition of which I was not aware, perhaps because we have only the two here in Hartford. We eagerly anticipate the arrival of the 10 more.</p> <p>As one of us with asthma, I can't tell you how much I appreciate the fact that the remainder are now using "clean" biodiesel. I believe that CT Transit has also retrofitted any buses that did not have particulate filters as original equipment as well and that also makes a huge difference to surrounding lungs.</p> <p>Many thanks for your visit and this info. I look forward to hearing from you on the rail emissions versus bus emissions. Maybe someone else in our group has a source or two on this subject?</p>	<p>Sent response of thanks for additional comments.</p>
<p>Letter from Canton First Selectman with several proposals (below)</p> <p>The Town of Canton has reviewed the proposed changes to the Capitol Region Transportation Plan (Plan) and would like to include the following priority roadway improvements to Section 3, Highways,</p>	<p>Roadway Improvements Section: The corridor summaries provided are brief and intended to illustrate the general nature of improvements. The report also identifies</p>

<p>Route 44 Hartford To Canton: Reconfiguration of the intersection of State Route 44 and State Route 565 as suggested in the 2000 Route 44 Corridor Study. Reconfiguration of the intersections of State Route 179, State Route 565 and Center Street to address pedestrian, bicyclist, and vehicular safety and access recommendations from the 2008 Collinsville Pedestrian and Vehicle Safety Committee final report; http://www.townofcantonct.org/filestorage/6662/7321/7562/Pedestrian_Study_final_report.pdf Regarding Section 4 Bicycles & Pedestrians, Engineering, subsection 3, Multi-use Path we suggest the following recommendations be included: Connecting the Farmington River Trail to the Shoppes at Farmington Valley to allow for a trail head/ parking destination along the trail extension suggested in the CRCOG 2008 Regional Bike Plan. Figure 4 of the plan indicates that Phase III of the Trail should continue east, on road, along Route 44 to Simsbury. Getting trail riders and families to a safe destination such as the Shoppes along this on-road section should be considered. http://www.crcog.org/publications/BicycleDocs/bp_plan2008/ped_bike_plan.pdf http://www.crcog.org/publications/BicycleDocs/bp_plan2008/Figures1_2_3_4.pdf Connecting Phase III of the Farmington River Trail to the spur in Simsbury that connects to the Farmington Canal Heritage Trail and East Coast Greenway. Section 4 of the Plan discusses recommendations for connecting multi-path systems throughout the region, but does not mention the value of connecting Phase III of the Farmington River Trail to the Farmington Canal Heritage Trail and East Coast Greenway. Completing this connection through a multi-use path, or safely designed on-road network, would greatly enhance the recreational and economic benefits of the trail system (and would also create a loop which would have other benefits). As shown in the attached figure, the Farmington Valley Greenway calls for the River Trail to continue northeast from Canton to Simsbury.</p>	<p>that corridor recommendations, identified in plans adopted by the Policy Board, are part of the Plan. A brief reference to this particular improvement will be identified within the Route 44 section in the plan. The RTP must be fiscally constrained and recommendations are the result of a CRCOG Policy Board endorsement. Funding for this type of project could be secured through programs, such as the STP-Urban program, and therefore do not need to be specifically identified in the plan. Bicycle and Pedestrian Section: Both of these comments will be forwarded to the Bike/Ped Committee for their consideration.</p>
<p>Comment at 4/25 Transportation Committee meeting: There is no mention of Route 2 and its issues in this Plan; it should be mentioned. Also, while investment is encouraged in the areas designated as Economic Development Areas of Regional Significance, there is no mention of investment in other areas, and the small towns are not considered for investment.</p>	<p>Route 2: The Plan does include Route 2 as needing additional analysis, but only noted two areas in the corridor: interchange with I-91 & I-84 & the Rt 3 interchange. We modified the plan to include a statement that the length of the Route in the Region needs to be looked at in the near future. It should be noted that several projects have recently been completed on Rt 2 including improvements through Glastonbury and to the interchange with Rt 66 in Marlborough and a repaving project is currently underway. Small towns: The Plan has been revised to</p>

	<p>make it clear that there are many aspects of a proposed transportation project that must be considered when considering transportation investments, including density of development but also issues such as safety, quality of life and equity among communities.</p>
<p>Comment at 4/25 Transportation Committee meeting: The Route 6 Economic Development study proposals are not mentioned in the Plan.</p>	<p>The proposals have not been adopted, as yet, by the CROG Policy Board. Staff will work with the towns to package a plan that can be considered by the Board in the near future.</p>
<p>Comment at 4/25 Transportation Committee meeting: The proposed Busway to Rocky Hill is misnamed and the actual corridor extends through Middletown to the Shoreline East rail service. The entire corridor should be considered in determining the feasibility of rapid transit in that area, and should not be deferred indefinitely (as it says in the Plan).</p>	<p>The Executive Summary has been modified to eliminate the statement that "the feasibility study for Rocky Hill Busway is deferred indefinitely due to low projected ridership." The main document has also been modified to make it clear that the Rocky Hill corridor will not be excluded from further study, and that the entire corridor should be studied.</p>
<p>Email: I was reviewing sections of the Regional Transportation Plan and came across a section that I do not think is correct. In Section 7, Special Policies, I believe that a large percentage of the buses in Hartford (one-third, if I'm not mistaken) were not able to be retrofitted with diesel particulate traps because the technology for retrofit of these types of buses did not exist at the time. I believe that these buses should be reviewed to see if they can be retrofitted, and if not, they should receive priority for replacement with 2007 compliant buses.</p> <p>I believe that this is true for Greater Hartford, but I may be confusing it with the Bridgeport or Stamford bus fleets.</p>	<p>We contacted CT Transit for additional information about the Hartford fleet and learned that 94 buses were retrofitted in the Hartford Division and even though the particulate traps are proving problematic, CT Transit has continued to keep them in service.</p> <p>There still is no EPA-certified passive diesel particulate filters available for a group of 84 buses operated in the New Haven Division. The plan has been updated with this new information about the Hartford buses. Information about the New Haven buses has been sent to the commentator.</p>
<p>Email: From Hartford COO - After Reviewing the Capitol Region Transportation Plan 2011 Draft v2, and its executive summary, with City staff, we have developed a short set of concerns (please see attached). Some of these points are directly related to transportation issues posed in the Plan. Others are tied to the Regional Plan for Conservation and Development, but since transportation drives and shapes development as much as almost any other factor, we have outlined such concerns in this forum.</p> <p>Thank you very much for your consideration.</p> <ol style="list-style-type: none"> 1. The executive summary does not match up with sections of the actual report. This makes communication about the document very unclear. 2. Lack of land-use/development goal. In spite of the stated requirement to assure consistency between land use and transportation, the goals ("provide more & better travel choices" and "emphasize better management & operations over building 	<ol style="list-style-type: none"> 1. The executive summary is only intended to summarize the items in the actual report and not provide detail. Without information as to which sections do "not match up", it is difficult to respond to this comment. 2. The land use/development goals are listed in the Regional Plan of Conservation and Development and are included in this Transportation Plan by reference in Chapter 1. 3. We consider these goals, as rather than contradictory, complementary: support for older urban centers as well as established areas of concentrated jobs and population, which also contain significant infrastructure

<p>new roadways”) include no normative goal about land-use or development patterns, as they are to be informed by transportation.</p> <p>3. Goals are not aligned with Smart Growth Objectives. Within the plan, there is a stated goal to support the revitalization of Hartford and other older urban centers. However, of the six Economic Development Areas of Regional Significance (Downtown Hartford, Day Hill Road, Buckland Hills, Rentschler Field, Bradley Airport, and Westfarms), only Downtown Hartford is an older urban center. Such a misalignment may be interpreted as contradictory, speaks to the lack of a unified land-use/development goal, and makes it difficult to reach either of the stated goals successfully.</p> <p>While the City views the growth of the Airport district as critical to the success of the region, advocating for growth (through transportation investment) in malls and office parks, in lieu of walkable places like Central Manchester, West Hartford Center, or Downtown East Hartford, may undermine the goal of walkable, mixed-use, and sustainable neighborhoods.</p> <p>4. Local buses. The plan (exec summary, page 3) mentions improving the existing bus system. Recommendations include increasing frequency of express routes, adding new routes to provide greater suburb-to-suburb service, and a circumferential route in the region's inner ring suburbs, but makes absolutely no comparably specific mention of improving local bus service (with the exception of moving buses off of main street), or studying a cross-town bus in Hartford.</p> <p>5. Arterial road studies favor periphery. Arterial Roadways (exec summary, page 5). The plan makes recommendations for corridor studies of several state roads. Because these roads are largely at the suburban periphery, such studies tend to lay the groundwork for upgrades, and transportation investment drives development, such an approach continues to run the risk of perpetuating a donut with a hole in it.</p> <p>6. Transportation Demand Management. Demand management policy (exec. summary, page 8, special policies) should include the impact on transportation demand by provision of free employee parking and minimum parking requirements. This section might also include study of car share as a means of encouraging alternate forms of transportation. Anecdotally, many people say they would walk, carpool, or ride the bus if that decision wouldn't pose a problem in the event of unexpected needs for a car (child gets sick, need to go to a meeting, etc).</p> <p>7. Paratransit providers. Transit System Section (draft report page 1). The Greater Hartford Transit District is no longer the sole provider of paratransit services for Hartford. Dattco now provides Dial-a-ride service.</p>	<p>investment to support future development. This comment should actually be directed to the Regional Planning Commission for consideration in future updates of the Regional Plan.</p> <p>4. The plan recommends that the local transit system continue to be focused upon the City of Hartford, with the proposed busways providing improved service to the downtown from throughout the region. The New Britain Busway, in particular, will vastly improve transit service in city neighborhoods southwest of downtown. The passenger rail proposal will feature both commuter rail and high speed rail service at Union station. Suburban mini bus hubs and new suburb to suburb services are recommended to serve the requests of current transit users, including many City of Hartford residents. Given that the majority of the existing bus system is within the City of Hartford, the general improvements recommended for the bus system will have a larger impact upon service within the City of Hartford than anywhere else.</p> <p>5. Yes, the arterial roadways section is a summary of corridor studies which have been completed. One of those was Rt 44 in Hartford. Our focus in the city has primarily been on transit, which also drives development. In addition, the I-84 Viaduct study recommendations could significantly drive development (and quality of life improvements) in the City. Most of the other recommendations in the chapter on Highways apply to city streets: incident management, access management, safety management, as examples. The City was also invited to propose a particular street needing further study. Studies will be considered under the upcoming STP-Urban solicitation.</p> <p>6. The full document includes more details on possible demand management strategies. The plan is not intended to list all possible strategies, but to cite examples that</p>
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	<p>could be employed and is not meant to exclude other good ideas.</p> <p>7. Minor corrections to the transit section were made. The list on page one in the Transit System section is not meant to list all paratransit services available in the Region. We could also reference the Hockanum Valley service and services provided by Martel and Managed Transportation, among others. However, we believe that all of these services, including that provide by Dattco to the City of Hartford, would be included in the "human service agencies" section of the list.</p>
<p>Email, letter attached: To Whom It May Concern: 05/03/11 CROCOG should consider the following transportation initiatives for Transportation Plan for 2011 and beyond.</p> <p>WIDENING OF I-84 I-84 needs to be widened through the area. Most people use I-84 rather than mass transit and this will benefit most people. The Busway and other transit projects should not be done in place of I-84 widening. It should complement it. The addition of auxiliary lanes around Exit 40 and 42 isn't enough. I know mass transit is politically correct nowadays but mass transit should not replace highway improvements.</p> <p>RECONFIGURATION of I-84/I-91 INTERCHANGE The I-84 and I-91 interchange needs to be reconfigured as traffic backs up on I-91 SB and I-84 EB & WB.</p> <p>I-84/ROUTE 9 AND ROUTE 6 INTERCHANGE The I-84/Route 9 and Route 6 interchange needs to be completed soon. This is a great project because it provide missing movements and removes left exits and entrances. This shouldn't be delayed.</p> <p>Removal of Left Exits/Entrances on expressways Left exits and entrances on major expressways should be removed because it puts slower traffic in the left lane and impedes traffic flow and causes dangerous weaving patterns.</p> <p>Dual-lane ramp connections between major expressways Other states have dual-lane connections or ramps between expressways. I believe this can improve traffic and capacity at such interchanges in Connecticut.</p> <p>**A good example is the I-91/Route 20 Bradley Airport interchange (Exit 40). This interchange addresses current and future traffic demands and improves traffic flow. It also has proper lane balance. The right lane is an "exit only," drivers in the #3 lane can either stay on I-91 or get off onto Route 20. The other lanes are for though traffic on I-91.</p> <p>A dual-lane exit proposal would improve traffic flow for drivers on I-91 NB who take Exit 29 for access to I-84EB. Traffic at this exit, continuously backs up onto the I-91NB mainline. This is dangerous as</p>	<p>These comments were brought to the attention of the Policy Board prior to their adoption of the Plan. They will also be transmitted to ConnDOT as ongoing and new studies of the interstate system in the Capitol Region are undertaken and move forward. Pieces of the comments are being addressed in the I-84 Viaduct Study.</p>

there is a threat of rear-end collisions.

A dual-lane ramp would improve capacity at all of these locations. I encourage a similar design to that of I-91 at Exit 40, which is Route 20 Bradley Airport exit.

ADD TWO-WAY LEFT TURN LANES ON CURRENT 4-LANE ROADS SUCH AS ROUTE 44 & ROUTE 71.

Currently through much of the state's 4-lane roads such as Route 44 and Route 71 have many strip malls and reason for people to make left-turns. However, there are no continuous left-turn lanes. This forces drivers to make left-turns from the through traffic-lane and this causes a back-up of cars and decreased traffic flow. Through traffic drivers then try to cut around left-turn drivers. This can also cause accidents such as rear-end collisions. Other states, such as NY, widely use this design and it is also effective on US-1 in Orange, CT.

COMPLETION OF A NORTHWESTERN BYPASS. This topic came up during the I-84 Viaduct Study that some same there needs to be some sort of northwestern bypass of I-84. I am not saying i-291 needs to be completed but some sort of northwestern bypass needs to be completed to take traffic off of I-84 and local streets.

Please consider the following proposals and this will help the economy by increasing the flow of commuters and goods in the region.

Please let me know what you think of the proposals.

Appendix A

Previous & Related Reports

Intelligent Transportation Systems: A Strategic Plan for the Capitol Region	Nov. 1998
Capitol Region Bicycle Plan	April 2000
Capitol Region Pedestrian Plan: <i>Walking Matters</i>	May 2005
Regional Transit Strategy	March 2001
Capitol Region Transportation Plan	Sept. 1994 May 1998 March 1999 March 2001 March 2004

Plans Endorsed Since the 2004 Regional Transportation Plan

Capitol Region Transportation Plan	April 2007
Locally Coordinated Human Services Transportation Plan	June 2007 April 2009
Rt 175/Rt 9 Area Traffic Study	December 2007
Transportation Monitoring & Management Report Metropolitan Hartford Area: 2005	December 2007
Regional Pedestrian Bicycle Plan, Active Transportation Initiative	April 2008
Route 305 Corridor Study	October 2009
Achieving the Balance: A Plan of Conservation and Development for the Capitol Region	October 2009
Route 195 Corridor Study	April 2010
Northwest Corridor Transit Plan	April 2010
I-84 Viaduct Study	December 2010