

Executive Summary

Regional Strategic Plan for Greater Lowell



Prepared by:

Northern Middlesex Council of Governments

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I. INTRODUCTION AND PLAN PURPOSE

The preparation of the Regional Strategic Plan (RSP) for Greater Lowell has been funded by the Massachusetts Executive Office of Housing and Economic Development (EOHED) as part of an initiative to increase local and regional planning capacity in the areas of economic development, housing and resource preservation. The Plan will assist the Northern Middlesex Council of Governments (NMCOG) and its member communities in planning for future development initiatives and for the preservation of important natural resources and open space. The RSP provides an assessment of existing conditions and offers recommendations relative to housing, economic development and the protection of open space and environmentally sensitive resource areas. The Plan identifies locations in each community where growth is appropriate based on zoning, infrastructure, access and environmental impacts.

NMCOG's previous regional policy plan, *2020 Vision: Planning for Growth in the Northern Middlesex Region*, was completed in 1999. The RSP has provided an opportunity to revisit and update many of the strategies and goals contained within that document. The RSP provides guidance to local and regional decision-makers on land use, infrastructure investment, environmental resource protection, and housing and economic development policy. The updated document contains strategies for advancing housing initiatives, and economic development and job creation through cooperative efforts between local, state, and regional levels of government. The Plan also provides the basis for increased interaction and coordination with federal agencies.

The experiences of the past fifty years have shown that policies and practices that promote sprawl, homogeneous development and divisiveness between urban and suburban communities are detrimental to the prosperity and quality of life for those living and working within the region. Sprawl uses more land than is necessary, fosters dependence on automobiles, results in fragmented open spaces, and is characterized by repetitive one-story commercial buildings surrounded by acres of parking. In the Northern Middlesex region, sprawl has resulted in the loss of community character, reduction in open space and farmland, degradation of the environment, increased traffic congestion, higher infrastructure and housing costs, and adverse impacts to municipal budgets.

Although the economy has been sluggish over the past few years, the Northern Middlesex region is well poised for additional economic growth in the future. As the recovery begins to take hold, it becomes more important than ever to make informed decisions about the location and shape of future development. On both the local and regional level, thoughtful planning can successfully integrate economic development with the preservation of environmental resources and community character.

The RSP focuses on smart growth and sustainable development principles that promote compact growth in those areas with available infrastructure, and which foster the protection and preservation of the region's most valuable environmental and cultural resources. The Plan was

created to assist local and regional decision makers in identifying ways to apply these principles to land use and development policies and practices in the future through planning, and development practices and regulations.

The Commonwealth of Massachusetts has adopted the following Sustainable Development Principles, which are supported by NMCOG and advanced through the strategies outlined in this plan:

1. Concentrate Development and Mix Uses

Support the revitalization of city and town centers and neighborhoods by promoting development that is compact, conserves land, protects historic resources, and integrates uses. Encourage remediation and reuse of existing sites, structures, and infrastructure rather than new construction in undeveloped areas. Create pedestrian-friendly districts and neighborhoods that mix commercial, civic, cultural, educational, and recreational activities with open spaces and homes.

2. Advance Equity

Promote equitable sharing of the benefits and burdens of development. Provide technical and strategic support for inclusive community planning and decision-making to ensure social, economic, and environmental justice. Ensure that the interests of future generations are not compromised by today's decisions.

3. Make Efficient Decisions

Make regulatory and permitting processes for development clear, predictable, coordinated, and timely in accordance with smart growth and environmental stewardship.

4. Protect Land and Ecosystems

Protect and restore environmentally sensitive lands, natural resources, agricultural lands, critical habitats, wetlands and water resources, and cultural and historic landscapes. Increase the quantity, quality and accessibility of open spaces and recreational opportunities.

5. Use Natural Resources Wisely

Construct and promote developments, buildings, and infrastructure that conserve natural resources by reducing waste and pollution through efficient use of land, energy, water, and materials.

6. Expand Housing Opportunities

Support the construction and rehabilitation of homes to meet the needs of people of all abilities, income levels, and household types. Build homes near jobs, transit, and where services are available. Foster the development of housing, particularly multifamily and smaller single-family homes, in a way that is compatible with a community's character and vision and with providing new housing choices for people of all means.

7. Provide Transportation Choice

Maintain and expand transportation options that maximize mobility, reduce congestion, conserve fuel and improve air quality. Prioritize rail, bus, boat, rapid and surface transit, shared-vehicle and shared-ride services, bicycling, and walking. Invest strategically in existing and new passenger and freight transportation infrastructure that supports sound economic development consistent with smart growth objectives.

8. Increase Job and Business Opportunities

Attract businesses and jobs to locations near housing, infrastructure, and transportation options. Promote economic development in industry clusters. Expand access to education, training, and entrepreneurial opportunities. Support the growth of local businesses, including sustainable natural resource-based businesses, such as agriculture, forestry, clean energy technology, and fisheries.

9. Promote Clean Energy

Maximize energy efficiency and renewable energy opportunities. Support energy conservation strategies, local clean power generation, distributed generation technologies, and innovative industries. Reduce greenhouse gas emissions and consumption of fossil fuels.

10. Plan Regionally

Support the development and implementation of local and regional, state and interstate plans that have broad public support and are consistent with these principles. Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit. Consider the long-term costs and benefits to the Commonwealth.

A. Plan Overview

The Regional Strategic Plan (RSP) is comprised of eleven chapters. Chapter I presents an overview of the plan purpose, and describes the process used for developing the plan. It also contains a list of goals developed through the public input process, and provides a demographic profile of the region.

Chapter II discusses land use reform in Massachusetts and summarizes the proposed Land Use Reform Partnership Act (LUPA). This section also assesses where each community currently stands in terms of the opt-in provisions contained within the proposed LUPA legislation. In addition, a proposed regional review process is outlined that meets the intent of LUPA.

Chapter III provides an overview of land use and zoning patterns and trends in the region, examines land use planning tools for sustainable development, and discusses issues and opportunities related to land use policy.

Chapter IV focuses on environmental planning and preservation. This chapter provides a summary of existing protected open space throughout the region, identifies important natural resource and habitat areas, provides an overview of environmental challenges, and addresses historic and cultural resources. In addition, this chapter also provides a synopsis of preservation tools available to the region, and identifies Priority Preservation Areas.

Chapter V focuses on Green Energy initiatives being undertaken at the state and local levels. This section includes an overview of the Green Communities program, outlines progress made in expanding solar and wind energy generation, discusses green building techniques, provides an overview of the economic benefits of renewable energy, and presents information relative to tools and incentives for renewable energy and energy conservation.

Chapter VI provides an overview of the regional economy, and examines existing infrastructure, workforce development, and land use practices that impact economic development. This section also outlines economic development tools and incentives available to local communities and the overall region. In addition, Chapter VI identifies Priority Economic Development Areas throughout the region.

Chapter VII provides an overview of regional and local housing trends and challenges, assesses the state of the current housing market, provides information on housing production tools, and outlines housing issues and opportunities going forward. Chapter VII also identifies priority areas for the creation of additional housing units.

Chapter VIII assesses the consistency of the Regional Strategic Plan with the Commonwealth's Sustainable Development Principles. Chapter IX outlines recommendations and strategies for addressing the various issues identified through the plan development process. These recommendations and strategies were formulated with the objective of attaining the goals outlined in Chapter I of the Plan. Chapter X discusses plan implementation and identifies performance measures that will be used to assess and chart implementation progress in the future. Chapter XI describes and documents the Plan Adoption process.

The RSP contains a series of composite maps that outline the area's water resources, land uses, and zoning districts, and that identify priority preservation areas, priority economic development areas, and priority areas for housing. These maps provide a framework for regional land use and economic development planning, and identify discrete areas upon which the region may focus its future development activities, while simultaneously protecting its natural resources. The maps were created through a collaborative effort with all nine communities, and are based on resource constraints, existing and desired land use patterns, and local zoning.

B. The Planning Process

The development of the RSP included a public involvement process comprised of two Visioning Sessions. The first session was held on November 4, 2010 at the UMass Lowell Inn and Conference Center. This session provided attendees with an overview of the planning project and with information regarding the proposed Land Use Reform Act (LUPA). In addition, a SWOT Analysis (Strengths, Weaknesses, Opportunities and Threats) was performed as a means of gathering input and ideas to be used in the formulation of the RSP goals. Participants were asked to address the following questions:

- What are the strengths of the Greater Lowell region?
- What are the weaknesses in the Greater Lowell region that need to be addressed?
- What opportunities are available to grow the Greater Lowell economy and to balance this growth with the quality of life?
- What future threats to the Greater Lowell region can you identify that will need to be addressed?
- What do you see as the future for the Greater Lowell region? Where will the regional growth centers be? Where should preservation areas be? Where should housing growth occur?

The second visioning session was held on November 18, 2010 in the Community Room at the Tewksbury Police Headquarters. Participants discussed LUPA, and were presented with the results of the SWOT session conducted at the first visioning session. Draft goals were developed and discussed among those in attendance. In addition, attendees provided input relative to identifying priority development areas and priority preservation areas. Copies of the visioning session notices, agendas, and materials are included in Appendix A.

In addition to the public visioning sessions, numerous meetings with local officials and municipal staff were held to collect data, and receive input and feedback relative to the identification of the priority development and preservation areas. The RSP was also discussed at several meetings of the NMCOG Council. These meetings were posted at the City/Town Clerk offices and were open to the public. In addition, the public was able to submit comments via the NMCOG website at www.nmcog.org.

Much of the data used to develop this plan was drawn from municipal master plans, Open Space and Recreation Plans, GIS sources, Housing Production Plans, local bylaws and ordinances, and Economic Development Plans. In addition, several NMCOG documents were utilized including the *Greater Lowell Comprehensive Economic Development Strategy (CEDS) for 2009-2013*, the *Regional Transportation Plan*, the region's *Pre-Disaster Mitigation Plan*, and the *Regional Open Space Plan*. Stakeholders participating in the plan development process included the nine member communities, the Greater Lowell Chamber of Commerce, the Merrimack Valley Economic Development Council, Community Teamwork, Inc, Lowell Parks and Conservation Trust, United Teen Equality Center, UMass Lowell, Middlesex Community College, the National Park Service, the Greater Lowell Workforce Investment Board, the Westford Affordable Housing Committee, the Middlesex North Registry of Deeds, the Pawtucketville Citizens Council, private industry, the Chelmsford Economic Development Committee and the Merrimack River Watershed Council.

C. Goals of the Plan

Based on input received throughout the plan development process, goals were formulated and organized into four subject areas: land use; economic development; housing; and natural, cultural and environmental resources:

Land Use

- Use land efficiently and protect sensitive resource areas by directing growth to priority development areas and locations with adequate infrastructure;
- Support the transformation of key underutilized lands, such as “brownfields”, to productive uses that complement the community and enhance existing neighborhoods;
- Incentivize redevelopment activities through land use tools, streamlined permitting and economic incentives;
- Minimize the environmental impact of future development by encouraging mixed-use and compact development patterns, and by promoting the use of low impact development techniques; and
- Use capital facilities and infrastructure efficiently and in a manner that is consistent with the region's natural features, respectful of the character of its communities and neighborhoods, and that builds upon the economic strengths of each community.

Economic Development

- Create a regional economic development framework that supports the efforts of private industry, local communities and agencies, educational institutions, federal and state agencies and private foundations to create jobs and improve the quality of life in the region;

- Create higher-skilled, higher wage jobs within industry clusters – biotech, nanotech, high technology, “green” industries, and emerging technology – to diversify the regional economy and focus on the global economy;
- Utilize a combination of economic development and redevelopment strategies that reflects the character of each community and address infrastructure barriers (roads, wastewater capacity, telecommunications, etc) to future economic growth; and
- Increase the supply of skilled workers for industry in the region through the integration of economic development and workforce development strategies.

Housing

- Create more affordable and market-rate housing throughout the region to ensure that businesses can expand and relocate to the region with the assurance that their workforce will be able to own, lease or rent quality housing;
- Encourage mixed-use development that ties together residential and commercial uses in city and town centers and mill districts throughout the region;
- Increase housing options available to families, young couples, single adults, seniors, artists, students, the disabled, veterans, and other groups so that they may live and work in the Greater Lowell region;
- Address expiring uses as a means of maintaining the region’s stock of affordable housing; and
- Encourage the location of future housing in areas served by public transit.

Natural, Cultural and Environmental Resources

- Care for the natural environment by protecting and restoring natural systems, conserving habitat, improving water quality, and reducing air pollution, thereby ensuring that all residents, regardless of social and economic status, live in a healthy environment;
- Promote the use of innovative, environmentally-sensitive development practices, including design, materials, construction, and on-going maintenance;
- Encourage the use of low impact development techniques and other best management practices (BMPs) for managing stormwater;
- Preserve, protect and enhance the region’s remaining agricultural lands;
- Support agricultural, farmland and aquatic uses that enhance the local food system and increase its capacity to produce fresh and minimally processed foods;
- Preserve significant historic, visual and cultural resources, including public views, landmarks, archaeological sites, historic and cultural landscapes, and areas of special character;
- Improve public access to the region’s waterways, water bodies and open spaces; and
- Promote the production and use of alternative energy.

II. LAND USE REFORM IN MASSACHUSETTS

It is generally recognized that zoning and land use law in Massachusetts is antiquated and in need of reform. Land use planning and regulation of development are fundamental tools that allow a municipality to adopt a set of rules to guide growth, preserve community character and protect public health. Over the past several years, a number of groups, including the Zoning Reform Working Group, have focused on developing a comprehensive land use bill. Comprised of legislators, municipal officials, development interests, planners and environmental and housing advocates, the Working Group has sought to advance legislative reforms aimed at rectifying existing deficiencies in the state's zoning and subdivision statutes.

New tools are needed to allow communities to plan and create a framework that balances housing production, open space retention and economic development. Numerous reports in recent years have documented a range of problems with land use patterns and housing affordability in Massachusetts, and have identified local regulations as an underlying cause of such problems. In many cases, existing zoning regulations inhibit good design, discourage the production of workforce housing and deplete natural resources through unsustainable development patterns. Massachusetts is losing land to development at a rate seven times its population growth.

A. Overview of the Proposed Land Use Partnership Act (LUPA)

The proposed Land Use Partnership Act (LUPA) modernizes a number of zoning and planning statutes contained in Massachusetts General Law Chapters 40A and 41. In addition, the proposed legislation allows municipalities to opt-in to a higher performance standard, and thereby receive access to additional tools for directing development. These higher standards have been established in accordance with the state's goals for housing, economic development, renewable energy, open space, and water resources. Regional planning agencies (RPA), such as NMCOG, would be responsible for certifying that these standards are met. The following provisions within the proposed legislation would affect all communities:

- Allows communities to regulate maximum residential floor area to control the building of “McMansions”;
- Establishes clear authority for cities and towns to create form based zoning codes;
- Allows a simple majority vote for the adoption of a zoning bylaw or ordinance, although communities still have the option of maintaining a 2/3 vote requirement;
- Limits zoning freezes to a specific development proposal rather than applying the freeze to the site itself;
- Establishes a framework for site plan review, with a transparent and predictable process;
- Authorizes communities to implement Transfer of Development Rights (TDR) within a municipality and among municipalities;

- Clarifies and expands the use of “cluster development” to protect open space within a residential development;
- Empowers municipalities to charge impact fees to offset the cost of increased public services; and
- Clarifies the rules for subdivision review.

In order for a community to gain access to additional regulatory tools, it must prepare a land use plan that contains the following components: economic development, housing, open space protection, water management and energy management. The land use plan should also discuss the zoning policies that will be implemented, assess infrastructure needs, and discuss consistency with this RSP, and with the Commonwealth’s land use objectives. A certified plan may include any material prepared within the past five years, such as a master plan, open space and recreation plan, community development plan or housing production plan.

Once the plan is completed, it must be adopted by the municipality and certified by the RPA. The performance standards for opt-in communities include the following:

- Creation of a certified land use plan and enactment of local zoning that is consistent with the plan;
- Prompt and predictable permitting of commercial and/or industrial development within one or more districts, unless waived by the RPA;
- Prompt and predictable permitting of reasonably compact residential development within one or more districts that can accommodate a number of new housing units equal to 5% of existing year-round housing units over ten years (.5% per year);
- Mandatory residential design to protect open space in developments five units or larger in all zoning districts with a minimum lot size of one acre;
- Mandatory low impact development techniques to help replenish groundwater in all developments greater than one acre; and
- Prompt and predictable permitting of (1) renewable or alternative energy generating facilities, or (2) renewable or alternative energy research and development facilities, or (3) renewable or alternative energy manufacturing facilities, within one or more zoning districts.

Opt-In Communities that meet the above performance standards and have a certified land use plan are granted the following:

- Permission to eliminate the approval not required (ANR) exemption for residential projects;
- Reduction of the subdivision zoning freeze period from eight years to three years, or five years if the developer has made a substantial investment in infrastructure;
- Ability to impose reasonable rate-of-growth programs within growth areas;

- Ability to create natural resource protection zoning (very large lot conservation zoning) in areas with environmental resource value;
- Priority for discretionary state funding for infrastructure; and
- Technical assistance grant funding from the state to municipalities to prepare land use plans and implement needed zoning revisions.

C. Proposed Regional Review Process

As part of its contract with EOHED, NMCOG has developed a proposed regional review process for certifying community land use plans. Such master plan documents provide a vehicle for a community to outline its vision for the future. Should a zoning reform act, such as LUPA or the Comprehensive Land Use Reform Partnership Act (CLURPA), be enacted into law, the RPA will need to establish that future local land use plans and regulations comply with the mandatory and opt-in provisions outlined in the law. The RSP provides an overview of the proposed review process for certification under LUPA.

III. LAND USE

Recent development across the region has been largely in the form of large lot, single-family subdivisions, although there have been several multi-family projects constructed under Chapter 40B. A significant amount of undeveloped land remains, although it is not evenly distributed throughout the region. This undeveloped land includes land that is vacant and developable, as well as land that may be classified as undevelopable due to various development constraints, such as wetlands.

Land consumption will likely continue at an alarming rate as long as large lot zoning remains the norm in the suburbs. Commercial development continues to be dispersed beyond traditional centers to locations along state numbered routes and major travel corridors, such as Route 110 in Lowell, Chelmsford and Westford, Route 3A in Billerica, Lakeview Avenue in Dracut, Route 38 in Tewksbury, and Middlesex Road in Tyngborough. The greatest concentration of industrial areas also tends to be in technology parks built near highway interchanges and along major corridors, such as Route 110 in Westford, Route 129 in Chelmsford and Billerica, Concord Road and the Middlesex Turnpike in Billerica and Route 133 in Tewksbury. Such industrial parks are often built in a campus-like setting with large fields of paved parking, resulting in higher land consumption rates than would occur in an urban or compact development setting where higher floor area ratios are typically allowed.

A. Land Use Planning Tools for Sustainable Development

As described in Section II, the Commonwealth has adopted a set of sustainable development principles and has developed a Smart Growth/Smart Energy Toolkit to assist communities in

understanding available techniques for embracing sustainable development and smart growth. The RSP outlines many of the tools and strategies that are relevant to this region, including form-based code (FBC), low impact development (LID), mill reuse/revitalization districts, open space residential design (OSRD), traditional neighborhood development (TND), transfer of development rights (TDR), transit-oriented development (TOD), inclusionary zoning, village/town center zoning.

B. Issues and Opportunities

Sustainable development supports the integration of compact, mixed land uses as a means to create more vibrant, livable communities. Communities are having difficulty managing the impact of changing land use patterns which have constrained economic development opportunities and affordable housing creation, and have stressed the region's infrastructure and municipal service delivery.

Given the communities' heavy reliance on property tax revenues, the limits imposed by Proposition 2 1/2 and recent state aid cutbacks, many municipalities have tried unsuccessfully to grow their way out of fiscal challenges. While the region needs to encourage growth to finance municipal services and create jobs, it also needs to plan for growth so that it will minimize the impact on community character, demand for services, infrastructure and environmental resources.

More predictable and efficient growth patterns will allow communities to support infrastructure needs. Plans for growth often meet with resistance due to concerns about traffic, community character and visual impact. Conventional zoning and subdivision regulations can promote the "sprawl" that residents generally find objectionable. Wide streets, the lack of public shade trees, buildings set considerable distances from the roadway, and large expanses of paved parking, are among the complaints that residents raise when criticizing the development practices that are in place within most communities. While the majority of communities would object to abandoning their regulatory framework entirely, most are willing to consider modifications to their current regulations that address the consequences associated with conventional zoning. The use of visualization tools can help build community support by allowing residents to better understand the details of the proposal.

By focusing growth in downtowns, village centers and already established economic centers located near transportation services and infrastructure, communities can help preserve both environmental and financial resources that would otherwise be lost to the costs of "sprawl". This type of development pattern can only be achieved if communities are provided with adequate resources and tools to support such changes.

Many suburban office parks and industrial parks are built with individual buildings separated by large areas of parking and landscaping. These low density development are difficult to serve with transit because large number of employees are dispersed across a vast area. Issues of transit access and proximity of workforce will become increasingly more important as transportation costs continue to rise.

Floor area ratios of 0.25 or less prevent the creation of additional density. If managed properly, more intensive development within existing office parks and industrial parks could produce the following benefits: communities could support additional economic growth while maintaining more open space; higher density employment numbers are more conducive to transit; landowners see a higher rate of return on their property; and new investments can be leveraged to upgrade infrastructure.

Positive relationships between municipalities and the development community can foster the use of sustainable development practices. Inefficient and prolonged approval processes can detract from a developer's ability to expend resources on elements that improve the quality of the development. In fact, developers may instead choose another community in which to locate their project. Application of streamlined permitting does not require a community to lower its standards or to approve a substandard proposal. Communities should consult *A Best Practices Manual for Streamlined Local Permitting* developed by MARPA, for guidance on how to improve the permitting process without compromising local expectations and standards.

Many municipalities have one-size-fits-all parking standards that are easy to administer but that fail to take into account the needs of specific development projects or the unique characteristics of the site being developed. Allowing shared parking, off-site parking or payments in lieu of parking can facilitate the development or redevelopment of highly constrained sites, and can lead to the establishment of a rational methodology for determining how best to meet parking needs.

The region's rural landscapes are slowly vanishing as open spaces and agricultural enterprises give way to development. Vistas of historic homes, farms, fields and forests play a defining role in the region's sense of place. Presently, there is no inventory of the region's rural landscapes or special scenic areas, and there are no regulatory mechanisms or design standards in many communities for safeguarding these important resources. An inventory should be completed in the future so that communities are aware of the importance of these areas and can put measures in place to protect them from the impacts of growth and development.

Many communities have updated their planning documents in recent years to incorporate sustainable development principles but have lacked the resources to follow through with implementation. Modernized zoning codes and development regulations, attention to design issues, and efficient and predictable permitting are essential to achieving the recommendations contained with this document and within municipal master plans.

IV. ENVIRONMENTAL PLANNING & PRESERVATION

Open space conservation is essential to the quality of life in the region. Open space resources should be viewed as “green infrastructure” that supports and links the built and natural environments. Such resources consist of a network of waterways, wetlands, woodland and forests, parks and conservation lands, and working farms, and provide ecological, social, economic and health benefits.

Green infrastructure must be managed and enhanced to support natural systems, protect groundwater, minimize flooding, improve economic viability, build community, and increase the well-being of residents. NMCOG has worked closely with its member communities and other stakeholders to identify those resources that are critical to the region and that warrant preservation and protection from future development. The goal of this plan is not to slow or stop growth, nor to preserve all remaining open space, but to direct new growth to areas best able to accommodate development, and to provide a framework for conserving the ecological resources of the region.

A. Open Space/Conservation Land

Presently, there are 16,497 acres of permanently protected open space within the Northern Middlesex region. These lands range from large tracts of state-owned land located across multiple communities, to small tracts held by private land trusts and municipalities. Region-wide, nearly 3,000 acres are held by the Commonwealth, while the municipalities own more than 7,600 acres collectively. Approximately, 828 acres are under an agricultural preservation restriction, and another 680 acres have been set aside for water supply protection. Over 1,550 acres are owned and protected through a non-profit organization, such as the local land trust.

B. Water Resources

The region possesses an abundance of water resources, including rivers, streams, brooks, lakes, ponds, reservoirs, marshes and wetlands. The entire region falls within the drainage basin of the Merrimack River, the second largest in New England. The Concord, Nashua, Nissitissit and Shawsheen Rivers are other rivers in the region and are tributaries of the Merrimack River. More than fifty streams and brooks, including Beaver Brook, Black Brook, River Meadow Brook, Stony Brook and Trull Brook, are tied into this river system and connect with the lakes, ponds and wetlands in an elaborate hydrologic system.

More than twenty-five (25) major lakes and ponds are found in the region. Most are natural water bodies over ten (10) acres in area and, therefore, are defined as “Great Ponds”, according to DEP. The larger bodies of water in the region include Forge Pond in Westford and Mascuppic Lake in Tyngsborough, which are greater than 200 acres in area. Long Pond in Tyngsborough

and Dracut, and Long Sought For and Nabnasset Ponds in Westford and Pepperell Pond in Pepperell and Groton are greater than one hundred (100) acres in area. In general, the ponds with the best water quality are Long Pond in Tyngsborough, Burgess Pond in Westford, and Massapoag Pond in Dunstable. Two swamps, the Great Swamp in Tewksbury and Tadmuck Swamp in Westford, are more than one hundred (100) acres in area as well.

C. Water Quality

Abundant, high quality water sources are essential to the region's long term growth and economic vitality. The Merrimack River suffers from a number of impairments including pathogens (bacteria), metals, nutrients, priority organics and unionized ammonia, according to the *Massachusetts 2006 Integrated List of Impairments* [MA 303(d) List]. In addition to pathogens, nutrients are listed as impairments in the MA 303(d) list from the Pawtucket Dam to the confluence of the Merrimack River with Creek Brook in Haverhill. The Massachusetts Department of Environmental Protection (MA DEP) Watershed-Based Plans also list nutrient impairments in the Merrimack from Nashua, New Hampshire to the confluence of the Concord River in Lowell, Massachusetts.

The region contains a number of municipal water supply sources, including the Merrimack River and Concord River, which supply drinking water to the communities of Billerica, Chelmsford, Dracut, Lowell, and Tewksbury. Surface water reservoirs and groundwater aquifers meet the daily water supply needs of the remainder of the region.

Approximately 25.52% of the region's Zone A land area and 26.85 % of the region's Zone II land area are currently considered permanently protected through fee simple ownership or conservation/deed restriction. The remaining areas, although regulated, are still potentially vulnerable to impacts from some level of land disturbance and/or development activity.

D. Environmental Contamination

The Commonwealth of Massachusetts has developed a numerical Tier Classified System for these so-called Chapter 21E sites as a means of assessing sites where contamination has occurred. Properties are classified according to several variables, including site complexity, the type of contamination, and the potential for human or environmental exposure to the contamination. There one hundred six (106) identified 21E sites in the region and every community has at least one 21E site, except for Dunstable.

In addition to the sites identified by DEP, EPA maintains a National Priorities List (NPL), which is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation. Presently, there are twenty-one NPL sites in the NMCOG region.

E. Habitat Areas

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) is charged with ensuring that the Commonwealth's natural diversity is maintained by protecting the species and natural communities that are most threatened and endangered. There are a total of 435 native plant and animal species listed under the Massachusetts Endangered Species Act (MESA) and 108 types of natural communities currently described within Massachusetts and tracked by the Natural Heritage Program. Over fifty-five (55) species listed under MESA have been observed in the Northern Middlesex region.

The long-term sustainability of the region's biological resources requires a determined commitment to land and water conservation, which includes the preservation of priority habitat areas. There are numerous threats to the long-term viability of the region's ecosystems, resulting in a decrease of many species. The greatest threat is loss of habitat due to residential, commercial and industrial development. In addition, areas surrounding development are often degraded by invasive species, pollution, noise and runoff. Habitat fragmentation results from the construction of roads, other infrastructure and associated development.

F. Historic and Cultural Resources

The preservation of historic and cultural resources must be carefully considered in order to protect the character of the region's city, town, and village centers. Many colonial era residences, mill structures, and village greens are already protected to some extent through the establishment of historic districts. However, important historic resources often lie outside the boundary of an historic district, and these resources are not afforded the same level of protection. Historic inventories and plans are essential in guiding historic preservation initiatives. Effective preservation requires active stewardship and support of the overall community.

Historical Commissions should actively participate in their community's master planning process in order to ensure that historic resources are emphasized in the planning process. Adequate levels of funding are essential for preserving historic resources and for promoting adaptive reuse of historic structures. The Massachusetts Historic Rehabilitation Tax Credit program provides a source of funding for this purpose, but given the current annual cap on the program, demand far exceeds available funding. Project proponents can wait for years to access these monies. The Community Preservation Act (CPA) has become a vital source of local funds for historic preservation projects.

Protecting the region's historic resources from demolition and guiding the design of new development in a way that respects the historic value and integrity of the area, will preserve the history and character of the region for generations to come. The permitting process is also more

efficient if the expectations for historic preservation are outlined in an established plan. The region has hundreds of properties listed on the National Register of Historic Places, dozens of local historic districts, and numerous well-known archaeological sites.

G. Addressing Climate Change

There is abundant evidence that the earth is experiencing rapid climate change, and that greenhouse gas emissions play a significant role in this phenomenon. Some specific impacts anticipated in the Commonwealth include the following:

- **Temperature Increases:** Average temperatures across Massachusetts are projected to rise by as much as 6°F to 14°F by the late 21st century;
- **Precipitation, drought, and snowfall:** Heavy rainfall events have increased in recent decades and the frequency and severity of such events are expected to increase further, exacerbating flooding. Winter precipitation is projected to increase by 20% to 30%, with a shift toward increased rain and less snowfall. As increase in the frequency of summer droughts is also expected; and
- **Sea Level rise:** Sea level is projected to rise by up to several feet by the end of the century, leading to increased coastal flooding and erosion.

A variety of strategies, collectively known as Climate Change Adaptation, are designed to help ecosystems and people cope with the adverse impacts of climate change. Many of these strategies are relevant to the recommendations and actions set forth in the Regional Strategic Plan.

Focusing on planning initiatives that create more compact development patterns will benefit climate changes by reducing VMT, conserving energy, and reducing impervious surface which contributes to flooding. The generation of renewable energy and the implementation of energy efficiency initiatives will also help reduce greenhouse gas emissions.

H. Identification of Priority Preservation Areas

The Northern Middlesex region contains innumerable natural resources including wetlands and waterways, forests, fields, farms, and hilltops. Such resources are critical to the overall character of the region and the quality of life for its residents. Many of these resources protect our water supply, provide migration corridors and habitat for wildlife, provide natural buffers to mitigate flooding and high winds, and provide recreational opportunities for residents and visitors.

To identify priority preservation areas, NMCOG staff mapped existing protected open space, based on MassGIS data and data contained in the Open Space and Recreation Plans for each member community. Priority habitat areas, water resource areas, and historical resources were also mapped. In addition, meetings were held with municipal staff to review this information and

input was gathered through the two public visioning sessions conducted for this project. In addition to lands that are already protected, the municipalities identified other select parcels that are considered a priority for future preservation, through either acquisition in fee, easement or a conservation restriction. The Priority Preservation areas are shown on Map 1.

I. Conservation and Environmental Planning Tools for Sustainable Development

The RSP outlines tools for preserving and protecting the region's natural resources in the face of development pressure, including Chapter 61 programs, creation of agricultural commissions, Right to Farm Bylaws, agricultural preservation restrictions, the Farm Viability Enhancement Program, Open Space Residential Development bylaws, transfer of development rights (TDR), conservation restrictions (CRs), local wetland protection bylaws, stormwater management bylaws, scenic roads and scenic overlay bylaws, demolition delay bylaws and the Community Preservation Act.

J. Issues and Opportunities

Communities should strive to enhance their capacity to acquire and protect high priority open space through a land bank or conservation land fund, or by adopting the Community Preservation Act. In addition, communities are encouraged to partner with land trusts and other non-profits such as the Trustees of Reservations and the Massachusetts Audubon Society for technical and financial assistance. Many real estate transactions are not only costly and beyond the means of some communities, they are also legally complicated and time-consuming. Depending on circumstances, the process of negotiating and executing a preservation plan may require specialized knowledge and the ability to act quickly. Such time constraints can be difficult to accommodate when town meeting action is needed.

The communities should maintain updated Open Space and Recreation Plans (OSRP), consistent with the Division of Conservation Services (DCS) guidelines. Such plans allow communities to respond to natural resource opportunities and needs within the communities, and maintain the communities' eligibility for state grant assistance. To update the OSRP, and to monitor and facilitate progress toward implementing the five-year action plan, communities should establish a local Open Space Committee that is a standing committee. This Committee should periodically report to the municipal boards and to the residents to ensure that priority projects remain in the spotlight.

Since many open space resources cross municipal borders, a regional perspective relative to open space protection and management is essential. NMCOG's Regional Open Space Plan is in need of updating and revision. In this era of economic difficulty, NMCOG should also encourage its member communities to pursue future opportunities to meet open space and recreation needs through shared facilities or the development of regional resources.

The greatest single threat to the region's water resources is nonpoint source pollution, including runoff from roads, lawns, gardens, farms, parking lots, golf courses and other developed areas. Nonpoint source pollution can significantly impair rivers, streams, ponds, wetlands, and aquifers through the introduction of contaminants, including sediment, nutrients, bacteria and toxic substances. As most of the region is located in a federally-designated urbanized area, communities are required to comply with EPA Phase II Stormwater Management regulations. As a part of this permitting process, each community has prepared a Stormwater Management Plan (SWMP) that describes a series of best management practices (BMPs) that the community has committed to implement. Issuance of a new permit will require that each community demonstrate significant progress toward addressing its stormwater problems and commit to implementing a new five-year management plan with enhanced pollution control measures. The mandates of the new program include periodic water quality testing of storm drain discharges in order to gauge the program's success in mitigation polluted stormwater discharges into impaired, threatened or highly sensitive receiving waters.

The extent to which communities are successful in implementing these stormwater management plans depends in large part on the financial resources that are available to support the program. Several communities across the Commonwealth (e.g. Chicopee, Newton and Reading) have opted to establish a local stormwater utility to raise the needed revenue. The revenue is derived from a fee assessed to each property based on the properties impervious surface. For residential properties, the annual fee averages \$25 to \$35. For large commercial and industrial properties, the fee is proportional based on building footprint and the size of paved parking areas. As future stormwater management costs rise, it is recommended that communities explore the feasibility of establishing a stormwater utility or other dedicated funding mechanism for carrying out an effective stormwater management program.

As financial resources permit, the region's communities, in partnership with local land trusts and other nonprofits, should continue to target water supply recharge areas as priority lands for acquisition and protection. In particular, those parcels designated as surface water Zone A or groundwater Zone II should be protected from development through acquisition in fee or through a conservation restriction or easement. Such action will keep these sensitive watershed areas free of human activity so that their natural filtration and recharge capabilities will be maximized and the threat of drinking water quality impairment will be minimized.

In addition to land preservation efforts, there is a need to better conserve water, through local leak detection and repair programs, and through the implementation of less wasteful and inefficient landscaping practices. The region's municipalities, property owners, businesses and developers should incorporate water conservation measures into their development plans and operating practices. Not only will this reduce wasteful consumption of drinking water, it will also lower water treatment costs, and ensure the sustainability of the region's finite water supply resources. At the household level, significant water savings can be realized through the use of "greenscaping" practices.

Creative wastewater management solutions are needed in areas where municipal sewer service is not available. Individual septic systems require a large area on each lot, preventing compact development in many cases. Sites with poor soils, high groundwater, and other environmental and site constraints may be unbuildable. Shared septic systems and small wastewater treatment facilities can improve the design of a development project in that only one location is needed for the project area rather than a separate location for each lot. In addition, these facilities often provide better treatment than a conventional septic system and help protect water quality. Individual and shared septic systems are regulated by local Boards of Health. Some local boards are reluctant to permit shared systems given concerns regarding the institutional and financial responsibility for long-term maintenance. DEP has developed a standard Title V Covenant and Easement form that can be used to establish a legally binding agreement which can address such local concerns.

Communities with sewer infrastructure need to be vigilant in addressing inflow and infiltration issues. Infiltration is defined as groundwater that enters the wastewater collection system through physical defects such as cracked pipes or deteriorated joints. Where sewer pipes run through Zone II areas or other land areas that contribute flow to the water supply, infiltration can reduce the yield of the water supply.

The local communities have had varying levels of success in protecting their historic and archaeological resources through historic districts and other means. Where applicable, communities should update and expand their inventories of historic resources on areas that are not inventoried or are facing significant development pressures. Communities should enact additional methods of protecting their historic resources, such as local historic district nominations for listing on the National Register of Historic Places, demolition delay bylaws, and subdivision regulations that address potential impacts to historic and archaeological resources.

V. GREEN ENERGY INITIATIVES

Recommendations outlined in the RSP call for policies that will result in reducing fossil fuel use in buildings, power generation, and transportation. Energy efficiency programs, building practices, land use policies, alternative fuel vehicles, and streamlined permitting practices will assist in achieving this objective. In addition, the use of renewable energy sources helps to reduce greenhouse gas emissions, manage energy costs, and reduce the reliance on fossil fuels, thereby creating a sustainable energy future for the region.

Increased reliance on local solar, wind and geothermal energy sources would provide a buffer against the fluctuations in supplies and prices of traditional fossil fuel markets. In addition, increased use of renewable energy technologies along with a well-trained workforce of local installers and service contractors for conservation, efficiency and renewable energy systems could help create an emerging clean energy cluster within the regional economy.

The Green Communities Act expanded the rights of customers who install small or community-scale solar and wind projects that use net metering, whereby they sell the excess electricity they generate to the distribution company. In addition, the new net-metering rules require the meter to essentially run backwards, providing retail prices rather than wholesale prices for the excess generation. Net-metering is facilitating the installation of local renewable energy projects by improving their economic viability.

Given the high level of interest in the development of municipal renewable energy, the Legislature has raised the net metering cap from one percent of a utility's peak load to three percent, with 2 percent reserved for public projects. The Legislature also broadened the eligibility of government projects beyond those owned by the public entity and located on public land to include privately-owned installations on public or private land, as long as the electricity generated is purchased by the public entity.

The Green Communities Act required that the electric and gas utilities pursue all cost-effective energy efficiencies, *i.e.*, eliminating energy waste whenever it is cheaper to do so than buying additional supply. In the past utility-operated energy efficiency programs funded by fixed charges on electric bills were limited in size and had to turn people away. Now every home and business in Massachusetts has been given the opportunity to participate in programs that save energy and money.

A. Solar Energy

The legal and regulatory framework in a community forms the foundation for building a sustainable solar infrastructure. Effective and streamlined local rules and regulations help reduce installation costs and can significantly improve the market environment for solar energy technologies. State and local governments have overlapping authority in some regulatory areas; other areas fall exclusively under local jurisdiction. In fact, some of the most critical barriers to widespread adoption of solar energy can be removed only by local governments.

B. Wind Energy

Governor Patrick has set a goal of 2,000 MW of wind generation, enough to power 800,000 homes, by 2020. One significant benefit of wind is an infusion of additional revenue to the host city or town, which can support municipal services or alleviate pressure on the property tax. The receipt of revenue can happen in one of two ways. A municipality may value and assess the wind power generating facility as it would any other real property, resulting in property taxes paid to the town. Alternatively, the Electric Utility Restructuring Act of 1997 creates a mechanism for municipalities to negotiate voluntary tax agreements (also called payment-in-lieu-of-taxes or PILOT agreements) with energy facilities. The latter option may be preferable for both the

developer and the municipality, as it will provide payment/revenue certainty and stability for both parties.

Publicly-owned projects do not provide tax revenue, but the project is owned by the community, which can use the power generated to either offset municipal energy use or sell the power to create revenue. In Massachusetts, wind power generation creates Renewable Energy Certificates (RECs) in addition to electricity. These certificates can be sold separately from the power for additional revenue.

Currently, there are no wind energy conversion systems located in the region. However, the City of Lowell and the Town of Pepperell have wind energy regulations in place, and the Towns of Billerica, Dracut and Tyngsborough have developed draft regulations which are under discussion. Map 9 on page 109 shows the wind speeds across the region which may indicate suitable areas for siting wind turbines. The Northern Middlesex region is not an ideal area for siting commercial wind energy facilities based on the topography and average wind speeds.

C. Renewable Energy Initiatives in the Northern Middlesex Region

In the Northern Middlesex region, solar energy is the most prevalent source of renewable energy in use. Small scale solar generators are currently in place and others are being planned. There are thirty five solar installations across the region. More importantly, there are two solar farms currently in the permitting process. The first installation is planned for a 22-acre site in the Town of Westford, along Route 3 at Exit 33. This solar farm would generate 4.5 MW, and is anticipated to cost \$30 million. The proponent has received a \$5.8 million Qualified Energy Conservation Bond as part of its financing package. The project anticipates receiving a solar renewable energy certificate from the state, which allows suppliers to sell to other energy companies under the Massachusetts Renewable Portfolio Standard. The second solar farm is proposed for a site in Tyngsborough near Exit 34 on Route 3. This proposed project would generate 5 MW and is estimated to cost \$23 million. The proponent intends to apply for federal renewable energy grant funding.

Additional solar projects are under construction at the following locations: the Lowell Regional Transit Authority Maintenance Facility in Lowell, the Lowell Regional Wastewater Treatment Facility, United Teen Equality Center in Lowell, and the Stony Brook School in Westford. There is the potential for additional solar projects at a number of locations throughout the region including capped landfills, and large commercial, industrial and institutional buildings with flat roofs.

D. Green Communities

Municipal governments, through zoning, play a major role in the siting of renewable energy facilities. The Green Communities Division of the Department of Energy Resources (DOER) works closely with municipalities to help lower energy costs and adopt energy efficient technologies, add renewables to their energy mix, and make their fleets more energy efficient.

As provided for in the Green Communities Act of 2008, the DOER's Green Communities Grant Program uses funding from auctions of carbon emissions permits under the Regional Greenhouse Gas Initiative to reward communities that win Green Communities designation by meeting five clean energy benchmarks:

- Adopting local zoning bylaw or ordinance that allows "as-of-right-siting" of renewable energy projects;
- Adopting an expedited permitting process related to the as-of-right facilities;
- Establishing a municipal energy use baseline and a program designed to reduce use by 20 percent within five years;
- Purchasing only fuel-efficient vehicles for municipal use, whenever such vehicles are commercially available and practicable; and
- Requiring all new residential construction over 3,000 square feet and all new commercial and industrial real estate construction to reduce lifecycle energy costs (i.e., adoption of an energy-saving building "stretch code").

Within the Northern Middlesex region, the communities of Chelmsford, Lowell, Tewksbury and Tyngsborough have received Green Community designation. Being designated as a Green Community provides grant funding to a municipality to support all or a portion of the cost of the following:

- studying, designing, constructing and implementing energy efficiency activities, including but not limited to energy efficiency measures and projects;
- procuring energy management services;
- installing energy management systems;
- adopting demand-side reduction initiatives or energy efficiency policies; and,
- siting activities and construction of a renewable energy generating facility on municipally-owned land.

Energy Efficiency and Green Building Techniques

In Massachusetts, buildings consume more than 50% of the energy used, and are responsible for the greatest greenhouse gas emissions of any sector. Energy use in buildings comes from two

primary areas: (1) fuel for heating (primarily oil and natural gas), and (2) electricity for air conditioning, lighting, ventilation, and appliances.

The Massachusetts Clean Energy and Climate Plan for 2020 proposes to move away from the traditional approach of prescriptive codes, which set minimum standards for each building component or system, toward “performance” or “outcome-based” codes, which set a maximum energy usage criterion for buildings, but allow flexibility in terms of how criterion are met. In addition, the Commonwealth’s Plan proposes to use energy rating and labeling of buildings to create greater markets for energy-saving investments in existing structures.

A greater emphasis on energy use will require earlier attention to building design and performance considerations. Through improved siting, design, construction, operation and maintenance practices, resource consumption can be significantly reduced, and adverse development impacts on the natural environment can be minimized.

Retrofitting existing buildings with higher levels of insulation, less air leakage, and better windows would support even deeper energy improvements over time. National Grid currently offers incentives for whole-house retrofits that include energy efficiency measures. In addition, there have been a number of federal programs aimed at providing incentives for efficiency improvements.

E. Green Jobs

Massachusetts has a core of companies and jobs in clean energy, and the industry has continued to grow even during difficult economic times. According to the Massachusetts Clean Energy Center (MassCEC), more than 11,000 workers were employed in clean energy at the end of 2010. Approximately 3,500 people were employed in the manufacturing of energy efficiency products – this represents a growth rate of 20% since 2007.¹ Furthermore, it is estimated that the implementation of the Massachusetts Clean Energy and Climate Plan for 2020 will induce the creation of nearly 20,000 jobs.

According to the Massachusetts Clean Energy and Climate Plan for 2010, between 2007 and 2010, photovoltaic systems installed or scheduled for installation increased by a factor of twenty, with jobs in solar manufacturing, installation and services nearly tripling. Wind energy installations increased ten-fold during that same time period. In addition, Massachusetts has launched the most aggressive energy efficiency program in the nation, saving consumers \$ 6 billion and creating 4,500 jobs.²

¹ A Future of Innovation and Growth: Advancing Massachusetts’ Clean Energy Leadership, Clean Edge, April 2010, Massachusetts Clean Energy Center.

² Massachusetts Clean Energy and Climate Plan for 2020, Executive Office of Energy and Environmental Affairs, December 29, 2010.

F. Tools and Incentives for Renewable Energy and Energy Conservation

Residents of Massachusetts are offered several options for funding the installation of renewable energy systems. State lawmakers have ensured that renewable energy is, and will remain, a lucrative and ever-growing source of both energy and revenue. The Massachusetts Clean Energy Center uses funds that are collected from all electricity ratepayers in the state to finance grants and rebates for individuals and companies interested in installing renewable energy systems. The goal is to expand the role of renewable energy sources in meeting residential, commercial, industrial, institutional, and municipal energy needs. The RSP provides a concise description of some of the programs that are currently available.

G. Issues and Opportunities

New building construction and significant renovation/rehabilitation projects should be designed for higher energy efficiency. Appropriate building design standards may also expand opportunities for the cost-effective use of distributed energy systems designed to meet localized needs for electricity and/or heating fuel. Communities should consider adopting sustainable management practices for community facilities, including the completion of a baseline inventory, the development of local energy action plan, updating vehicle fleets with alternative fuel vehicles, adopting green building standards for municipal projects, adopting Energy Star standards for municipal projects, and purchasing renewable energy such as wind, solar, geothermal, and biomass.

As-of-right siting and simplified permitting requirements and processes would increase solar and photovoltaic installations, and save significant time and money for local governments, contractors and system owners. Creating consistent permitting processes across the region would benefit solar installers by providing a standard set of operating procedures, reducing uncertainty, and allowing them to produce more accurate estimates. Standardization can also enable jurisdictions to pool resources and share inspection staff. By reducing local permit fees, or adopting fast-track permitting for renewable energy projects, local governments can demonstrate their support for community investment in renewable energy and energy efficiency initiatives.

Compact mixed-use development within walking distance of village or town centers should be encouraged in order to reduce the need for auto trips, and make use of alternative modes of transportation, such as transit, walking and bicycling. As communities work to improve local policies and programs by adopting a more sustainable approach to development, technical assistance and policy advice will be needed. A coordinated regional technical assistance program, as well as a cooperative purchasing program for energy services (such as performance contracting, energy audits, or energy procurement) would be of considerable benefit to the local communities within the Northern Middlesex region. Few communities currently have the

resources to devote staff to these types of activities. A regional energy circuit rider shared among municipalities could provide such services in a cost effective manner.

By accomplishing the energy related strategies outlined in the RSP, the region will be doing its part to prevent global warming, and to decrease our reliance on petroleum. Regional policies and plans can help coordinate efforts across municipalities, which can be critical for promoting clean energy and renewable energy development. The development of an in-depth energy plan for the region would identify opportunities for clean energy production, capital investments, and inter-municipal cooperation.

VI. ECONOMIC DEVELOPMENT

The Economic Development Element of the Regional Strategic Plan is largely driven by the foundation established by the *Greater Lowell Comprehensive Economic Development Strategy (CEDS) for 2009-2013*. The CEDS document was completed under a Short-Term Planning Grant with the Economic Development Administration (EDA) of the U.S. Department of Commerce and reflects the input of numerous economic development stakeholders in the region in terms of establishing a “blueprint” for successful economic development initiatives within the region. NMCOG staff has also worked closely with each community on their Chapter 43D, EDIP, Growth District and MassWorks initiatives to identify potential development sites and to address infrastructure issues that present a barrier to future economic development activities. The approach that NMCOG has utilized in all of these federal and state initiatives is consistent: provide support to the private sector and local communities to maximize economic development opportunities so as to create high-skill, high-paying jobs, while maintaining the quality of life in each community and the region as a whole.

The Vision for the Greater Lowell region is to build upon the region’s historic past and strategic location to develop a regional economic development framework that supports:

- *the creation of high skill, well-paying jobs for a racially, ethnically and economically diverse workforce;*
- *an integrated economic development, workforce development and education system that prepares students and workers for current and future jobs;*
- *affordable and market-rate housing to shelter the regional employment base;*
- *an effective and efficient transportation system and an upgraded infrastructure to support the expansion needs of businesses and homeowners;*
- *private investment matched by public and non-profit funding sources designed to grow the economy; and*
- *the maintenance of the quality of life in the region.*

Based upon the Vision Statement and the priorities to be addressed, the Goals and Objectives established for the 2009-2013 Greater Lowell CEDS are outlined in Table 1 below.

Table 1: 2009-2013 Greater Lowell Comprehensive Economic Development Strategy Goals and Objectives

GOALS	OBJECTIVES
1. Economic Development	
Develop a regional economic development framework that supports the efforts of private industry, local communities and agencies, Educational institutions, federal and state agencies and private foundations to create jobs and to improve the quality of life in the region.	<ul style="list-style-type: none"> ➤ Create higher-skill, higher-wage jobs within industry clusters to diversify the regional economy. ➤ Target biotech, nanotech, high technology and “green” jobs and focus on the global economy. ➤ Work with state, regional and local economic development entities to improve the region’s economy. ➤ Redevelop properties for industrial and commercial uses. ➤ Apply for EDA Planning and Public Works funds and Economic Development District (EDD) designation and maintain an annual CEDS planning process.
2. Workforce Development	
Increase the supply of skilled workers for industry in the region through the integration of the economic development and workforce development systems.	<ul style="list-style-type: none"> ➤ Collaborate with the Greater Lowell WIB, UMass Lowell and Middlesex Community College to address the workforce needs of industry. ➤ Leverage available resources at the federal and state levels to address unemployment and business closure issues in the region. ➤ Expand the use of new technologies, such as online courses and working remotely, to access businesses.
3. Education	
Improve the educational and workforce skills of primary, secondary and college students to meet the current and future needs of industry.	<ul style="list-style-type: none"> ➤ Establish partnerships between the primary and secondary school systems and the colleges in the region. ➤ Attract emerging industries by linking them to the university research centers. ➤ Support the development of certificate programs at UMass Lowell and Middlesex Community College that supports regional industry needs.
4. Affordable and Market-Rate Housing	
Create more affordable and market-rate housing throughout the region to ensure that businesses can expand and relocate to the region with the assurance that their workforce will be able to own, lease or rent quality housing.	<ul style="list-style-type: none"> ➤ Increase the supply of rental housing in the suburban communities. ➤ Work with local communities to develop their Housing Plans. ➤ Target housing for the artist and community in downtown Lowell. ➤ Encourage mixed-use development throughout the region. ➤ Address the housing needs of new businesses.

GOALS	OBJECTIVES
5. Regional Transportation System	
Develop the infrastructure needed to build upon the strengths of the regional highway system and the public transit networks to enhance access to the economic centers of the region.	<ul style="list-style-type: none"> ➤ Attract businesses to the areas opened up by the Route 3 expansion project. ➤ Implement road, bridge and transit improvements in the region to enhance access. ➤ Support the extension of the commuter rail system to Nashua, New Hampshire.
6. Infrastructure	
Build upon the existing sewer, water, telecommunication and public utility infrastructure to increase capacity so that private businesses and homeowners can grow in the future.	<ul style="list-style-type: none"> ➤ Support projects that increase the sewer and water capacity in the region. ➤ Improve the telecommunications and high tech infrastructure. ➤ Target infrastructure improvements in those areas that support economic expansion.
7. Financial Investments	
Target federal, state, local, non-profit and private funds to those projects that create jobs and improve the quality of life in the neighborhoods, particularly in those areas that have not shared in the economic benefits of the regional economy.	<ul style="list-style-type: none"> ➤ Access funding from the regional banking community and private investment firms to expand local businesses. ➤ Establish regional lending program under the Northern Middlesex Economic Development District, Inc. the non-profit arm of NMCOG. ➤ Apply for federal and state funding, such as brownfields and New Market Tax Credits, which can be targeted to priority projects.
8. Quality of Life	
Maintain the quality of life in the region by preserving and protecting the region's natural, cultural and historic resources and encouraging concentrated development.	<ul style="list-style-type: none"> ➤ Preserve open and recreational space through the implementation of regional and local Open Space Plans. ➤ Support initiatives by the National Park Service and other organizations to maintain and improve access to open spaces along the Merrimack and Concord Rivers. ➤ Build upon the cultural and historic heritage of the region by supporting the creative economy and the Community Preservation Act. ➤ Support the development of Master Plans at the local level to balance economic growth with quality of life initiatives.

A. The Regional Economy

The economic conditions in the Greater Lowell region have been negatively impacted by the national recession, which began as of December 2007. The full impact of the national recession was not felt in this region until a year later when the unemployment rate in the City of Lowell increased from 7.7% in November 2008 to 8.3% in December 2008. The unemployment rate in the City of Lowell continued to increase steadily until it reached 11.8% in September 2009 and finally reached its peak of 12.1% in January 2010. As of August 2011, the unemployment rate for the City of Lowell had decreased to 9.6%.

During the twenty-four month period from September 2008 to August 2010, the unemployment rate in the City of Lowell increased from 7.5% to 10.6%, while the average unemployment rate for this twenty-four month period was 10.9%. This average unemployment rate was 1.9% greater than the average national unemployment rate for the same period. During the past year, the average unemployment rate for the City of Lowell was 10.3%, which was 1.1% higher than the nation's average unemployment rate for the same period of time.

The unemployment rate for the Greater Lowell region experienced a nearly 3% increase, from 5.8% in September 2008 to 8.6% in August 2010. Since August 2010, the unemployment rate for this region decreased to 7.4%. The City of Lowell and the suburban communities saw a significant increase in the unemployment rates between December 2009 and January 2010. The unemployment rates as of August 2010 showed that the suburban communities had been impacted as well, such as in Dracut (9.1%), Tyngsborough (8.5%), Billerica (7.8%) and Tewksbury (7.8%). However, these unemployment rates have decreased to 7.3% in Dracut, 7.1% in Tyngsborough, 6.5% in Billerica and 6.1% in Tewksbury as of August 2011.

The Greater Lowell region experienced 812 layoffs from July 1, 2007 to June 30, 2008. During FY'09, the number of layoffs in the region increased by 48.1% to 1,203 employees, principally in four communities. The level of layoffs then decreased to 1,146 employees in FY'10 and to 346 employees in FY'11. Thirty (30) businesses and five of the nine communities, including the City of Lowell, were affected by these layoffs during the past two years. These layoffs affected the region as a whole and not just the community where the businesses were located. For instance, Jabil Circuits, located in North Billerica, experienced 315 layoffs in FY'10 and Lowell residents comprised one-third of its workforce.

Additionally, the housing crisis, which initially impacted this region in 2008, continued to negatively impact the economy through 738 foreclosure petitions, 577 foreclosure auctions and 200 bank-owned/REO properties between April 2008 and March 2010. Foreclosure deeds decreased in the City of Lowell from 37 in August 2010 to 17 in August 2011. These statistics illustrate that the critical economic conditions in the region have not improved significantly since the national recession ended, according to some economists.

During the recession in the early 2000s, this region's computer manufacturing and information technology industries were significantly impacted. During the most recent recession, layoffs occurred in high tech manufacturing, information technology and retail industries, but the impact on these industries wasn't as severe and the economic downturn has affected every industry. Due to the diverse and high tech nature of the Massachusetts economy, industries in this region have been able to recover more readily than industries in other parts of the country. Recent statistics show that the Commonwealth of Massachusetts has done better than most states in creating new jobs as we emerge from the national recession.

B. Economic Development Tools for Sustainable Development

A wide variety of tools can be used to focus economic growth in locations consistent with the RSP and the region's CEDS document. The ability to utilize these economic development tools varies with the level of staff capacity in each municipality and the participation of volunteers who live or work in the community. NMCOG will continue to work with the Economic Development Committees in each community, as well as the Lowell City Council and Boards of Selectmen, to take full advantage of the economic development tools that are available at the federal, state, non-profit and private levels. The RSP outlines the various economic development tools that enable a community to target the types of development in those specific areas most appropriate for development. These economic development tools assist a community in strengthening its economic development framework and include the following items: infrastructure (water systems, sewer systems, and utilities (electric services, natural gas delivery and telecommunications)), marketing/branding, workforce development, brownfields, the Economic Development Incentive Program (EDIP), streamline permitting, Chapter 43D Priority Development Site (PDS) Process and other state initiatives for economic development.

C. Identification of Priority Economic Development Areas

NMCOG staff worked with the planners and community development personnel at the municipal level to develop the list of Priority Economic Development Areas for the Northern Middlesex Region which are depicted on Map 2. Input was also solicited through the public outreach process which included two public visioning sessions. As the economy improves, there will be additional sites of interest to the private sector and there may be a need to amend the list of sites in the future.

These Priority Economic Development Areas include the approved Economic Opportunity Areas (EOAs) under the Economic Development Incentive Program (EDIP) already approved by the Economic Assistance Coordinating Council (EACC), and the Priority Development Sites (PDS) established under the Chapter 43D program by the Interagency Permitting Board (IPB). In addition, the planners and community development personnel identified additional future Priority Economic Development Areas. The specific areas by community are as follows:

- **Billerica**
 - **EOAs and Certified projects**
 - Non-residentially zoned tracts of land in the Billerica Avenue Corridor; includes EOA Site at 495 Billerica Avenue
 - Non-residentially zoned tracts of land in the Concord Road Corridor; includes EOA Sites at 157 and 129 Concord Road and 2 Federal Street
 - 29 Dunham Road
 - Non-residentially zoned tracts of land in the Middlesex Turnpike corridor
 - Rangeway, Sterling and Esquire Road area
 - Treble Cove Road west of Route 3
 - **Priority Development Site under Chapter 43D**
 - 45 Middlesex Turnpike – EMD Serono
 - **Additional Priority Economic Development Areas**
 - Billerica Mall
 - Billerica Center
 - Route 3A Corridor from Floyd/Pollard Streets to Treble Cove Road
 - Route 3 at Route 129 interchange
 - Talbot & Faulkner Mills in North Billerica
- **Chelmsford**
 - **EOAs and Certified projects**
 - Billerica Road Corridor (Route 129) from Billerica town line to Turnpike Road, which includes 20 Alpha Road, 30 Apollo Way, 1 Executive Drive, and 6 Omni Way.
 - **Priority Development Site under Chapter 43D**
 - 25 Katrina Road
 - **Additional Priority Economic Development Areas**
 - 16-20 Boston Road
 - 123 Brick Kiln Road
 - 3 Chelmsford Street
 - 122 Chelmsford Street
 - 299 Chelmsford Street
 - Littleton Road Corridor (includes 361 and 215 Littleton Road)
 - 152 Stedman Street
 - UMass Lowell West Campus, Princeton St.

- Vinal Square
- **Dracut**
 - **EOAs and Certified projects**
 - Beaver Brook Mill
 - Navy Yard Mill 76-100 Pleasant Street
 - **Additional Priority Economic Development Areas**
 - 21 Broadway
 - 970 Broadway
 - 124 Hampson Street
 - 50 Jackson Street
 - 1095 Lakeview Avenue
 - 1905 Lakeview Avenue
 - 1949 Lakeview Avenue
 - 1951 Lakeview Avenue (two properties)
 - 55 Loon Hill Road
 - 1100 Merrimack Avenue
 - 15 Old Meadow Road
 - 149 Parker Avenue
 - 50 Pleasant Street
 - Brox Industries land frontage
 - Industrially zoned areas on Routes 110 & 113
 - Route 38 from New Hampshire to Chuck Drive
 - Town Center at Bridge and Arlington
- **Dunstable**
 - **Priority Economic Development Area**
 - Pleasant Street from Groton Street to Cross Street (MUD District)
- **Lowell**
 - **EOAs and Certified projects**
 - Bridge Street Gateway, 18-36 First Street
 - 900 Chelmsford Street (Cross Point, formerly Wang Towers)
 - 121 Hale Street
 - 70 Industrial Avenue East
 - 663 Lawrence Street
 - Lowell South CDB
 - 59 Lowes Way (Connector Park)

- Meadow Croft/Bolt Street
 - 92-98 Middle Street
 - 585 Middlesex Street (Western Canal)
 - 81 Old Ferry Road
 - 1001 Pawtucket Boulevard (Cobham)
 - 2 Prince Avenue
 - 120 Stedman Street (Stedman Street Industrial Corridor)
 - 229 Stedman Street
 - Thorndike/Plain/Powell/Smith/Shaw/Chelmsford (Thorndike-Plain)
 - 1 Tremont Place (Tremont Mills)
 - 150 Western Avenue
- **Priority Development Sites under Chapter 43D**
 - Hamilton Canal
 - 38 Prince Street
- **Growth District**
 - Hamilton Canal
- **Additional Priority Economic Development Areas**
 - Acre Urban Renewal Plan (Pawtucket Canal)
 - Jackson/Appleton/Middlesex (JAM) Urban Renewal District
 - Downtown
 - Lawrence Mills
 - Meadowcroft Street
 - Land between the Merrimack River and Middlesex Street and east and west of Wood Street
 - Phoenix Avenue
 - Tanner Street Study Area
 - Industrial Ave E
 - Technology Drive
 - Other LI, GI, OP, HRC, RR, INST or SMU zoned parcels with development potential
- **Pepperell**
 - **EOA and Certified Project**
 - Lomar Industrial Park

- **Priority Development Site under Chapter 43D**
 - 128 Main Street (former Pepperell Paper Mill)

- **Additional Priority Economic Development Areas**
 - Main Street corridor from Railroad Square to the Rotary
 - East of Nashua Road to NH State Line
 - Hollis/Main/Groton Street
 - Route 111/119 from Shirley Street to Groton Town Line
 - 141-163 and 165 Nashua Road

- **Tewksbury**
 - **Priority Development Site under Chapter 43D**
 - Lowell Junction area (43D)

 - **Additional Priority Economic Development Areas**
 - East Street
 - Five (5) overlay districts on Route 38, including the Town Center, Village Residential, South Village, Village Mixed-use and Community Village zoning areas.
 - Route 133 (as delineated on the map prepared for the Town targeted economic development project)
 - Woburn Street corridor

- **Tyngsborough**
 - **Priority Economic Development Areas**
 - Middlesex Road corridor
 - Town Center area
 - 50 Westford Road (former Sycamore Networks parcel)

- **Westford**
 - **Priority Economic Development Areas**
 - Cornerstone Square
 - Route 110 from Tadmuck Road to Littleton town line, as is consistent with the 495 development compact
 - Tech Park East & West on Littleton Road (Route 110)

D. Issues and Opportunities

Economic growth is critical to the region’s well being and it must be encouraged. There are a number of state, regional and local planning, permitting, infrastructure development, and

marketing initiatives that are focused on promoting economic development and fostering job growth. While the Commonwealth of Massachusetts has led the way in recovering from the national recession, these additional economic development initiatives will enable the Northern Middlesex region to reduce its unemployment rates even further.

Municipalities will need assistance developing zoning and land use tools to redevelop existing vacant or underutilized commercial and industrial properties. NMCOG has found that many of our communities are looking more at redevelopment opportunities than new development. The focus upon corridor studies to examine the tie-in between land use, transportation and economic development has potential benefits for our communities to re-zone properties to match the current needs in the private sector.

Providing prompt and predictable permitting regulations at both the local and state levels is key to fostering economic development in a fashion that makes the region competitive with other areas of the country. The adoption of the Permitting Guide by the Town of Billerica and its placement on the town web site has sent a message to the private sector that the town is open for private investment throughout the community, not just at its Priority Development Site.

There is recognition that the continued success of academic institutions is in the best interest of both the private and public sector. Economic development partnerships between UMass Lowell and Middlesex Community College have demonstrated the benefits of leveraging the unique capabilities that each has to offer in the areas of workforce development and job creation. UMass Lowell is a leader in the engineering and emerging technologies, nanotechnology, biotechnology, and information technology sectors. The University continues to implement its strategic plan which includes the construction of a new emerging technology research facility. There are proven benefits to building strong research and development capacity within a public university in an urban location. Public/private research and development ventures serve to align education with industry needs and economic development goals, thereby supporting the innovation economy. Product development from public/private R&D provides the seeds for start-up companies, including future manufacturing opportunities. In the Northern Middlesex region, there is a strong network of motivated partners, such as the UMass Lowell, Middlesex Community College, business organizations, private companies, and municipal leaders, who can work together to cultivate future opportunities related to research and development in the innovation economy and downstream production, service and support jobs.

The region's creative economy will play an important role in growing the economy over the next decade. The Creative Economy project initiated by MVEDC illustrated that there was sufficient economic activity throughout the Merrimack Valley to focus on the contributions of this sector to the overall economy. The investment in residential units for artists on Middle Street and at Hamilton Canal in Lowell reflects the special economic contributions offered by this segment of the workforce.

Additional resources are needed to address environmental contamination issues and NMCOG will be applying for Brownfield Assessment funds once again to assist our suburban communities and to work cooperatively with the City of Lowell to address problems on city-owned properties. Our focus in this year's Annual Comprehensive Economic Development Strategy (CEDS) Update will include a Public Forum on Brownfields, as well as working with the City of Lowell on implementing their EPA grant for Tanner Street.

Another major opportunity will be in the area of "green jobs" to replace the lost manufacturing jobs in the region. NMCOG will focus on the energy renewal area as part of the Annual CEDS Update, as well as through a joint application with the Massachusetts Regional Planning Commission to the Economic Development Administration (EDA). If NMCOG and MRPC are awarded funding, we will initiate an examination of the Siting of Renewable Energy Facilities, which will address wind energy conversion systems, geothermal energy, photovoltaics, hydropower, biomass, and LEED certification. As part of this Siting Plan, we will be examining the zoning, permitting and regulations and public incentives for private energy firms that wish to invest in the region. Through the development of this Siting Plan, NMCOG will be able to make specific recommendations to our member communities on what they need to change to make their communities more welcoming to private energy firms.

In essence, the major issues and opportunities related to economic development revolve around the need to attract private investment and to create high-paying, high-skilled jobs. Through our continued work with our member communities and the federal, state, regional, non-profit and private economic development stakeholders we normally work with, there is great potential for increased private investment, jobs and revenues for our communities. NMCOG will be applying for Economic Development District (EDD) designation, which will enable it to access additional funds from EDA, and for the Sustainable Communities Grant from HUD that will enable us to further develop our capacity to address the state's sustainable development guidelines.

VII. HOUSING

The cost and availability of housing in the Greater Lowell region remains a major barrier to economic growth. Although housing prices have declined recently, homes are still too costly for many families and households who wish to live in the region. Without the availability of affordable housing for its workforce, private firms have difficulty expanding their businesses or locating in the region. The housing sector has been the most impacted sector within the region's economy. The number of housing units built and sold has been reduced and the cost of housing has shown the impacts of this slowdown. While the number of housing units built for low- and moderate-income families under Chapter 40B increased in the region, the sale of market-rate housing units slowed due to the poor state of the overall economy and declining and aging populations. These collective issues make the state of housing in the region the most challenging area for the expansion of the regional economy.

A. Affordable Housing in the Northern Middlesex Region

The Northern Middlesex region has shown some progress in addressing the affordable housing goals established by former Governor Michael Dukakis through Executive Order 418. As of December 2010, the Greater Lowell region had 9,584 subsidized housing units, or 9.4% of the year-round housing units documented in the 2000 Census. Approximately 54.4% of these subsidized units were located in the City of Lowell. Between June 2009 and December 2010, the subsidized housing inventory for the region grew by 183 units, or 1.9%. Lowell's subsidized housing inventory, however, dropped from a 55.7% share of the region to approximately 54.4% during this time, which reflected the increase in the subsidized units being developed in the suburban communities.

B. Housing Production Tools

The RSP provides a brief summary of Housing Production Tools available to communities to increase their supply of affordable units. These housing production tools include Affordable Housing Trusts, Chapters 40R and 40S, and Accessory Apartments.

C. Identification of Priority Housing Areas

NMCOG staff worked with the community development, housing and planning personnel in each community to identify priority housing areas for the Northern Middlesex region, which are shown on Map 3. As mentioned previously, only one community in the region currently has an approved Housing Production Plan in place, but four communities (Chelmsford, Tewksbury, Tyngsborough and Westford) are in the process of preparing updated plans that comply with the revised DHCD regulations and guidelines developed in 2008. As these Housing Production Plans are completed over the next year, there will be additional information on the priority housing areas in the region. The Town of Westford has already identified their Priority Housing Areas in the draft document that is being reviewed by the Board of Selectmen and Planning Board and will be modified based upon the final vote of each of these committees. Based upon what was provided by each community to date, the priority housing areas are as follows:

Billerica

- Mill Overlay District in North Billerica

Chelmsford

- 16-20 Boston Road
- 111 Chelmsford Street
- 271-279 Chelmsford Street
- 280-284 Chelmsford Street
- 11 Cushing Place
- 50 Hunt Road

- Ledge Road – Oak Hill
- 233-273 Littleton Road
- Mill Road Sites
- 24-28 North Road
- Princeton Court
- 9 Princeton Street-33 Vinal Square
- 133 Princeton Street
- 80-104 Turnpike Road

Dracut

- 10 Bay Street
- 124 Hampson Street
- 509 Hildreth Street
- 515 Hildreth Street
- 32 Kent Street
- 2197 Lakeview Avenue
- 472 Riverside Street
- 483 Riverside Street
- 11 Royal Avenue
- 22 Tyngsboro Road

Dunstable

- Pleasant Street in the Mixed-Use District

Lowell

- Julian Steele Reinvention Project (River’s Edge on the Concord) and associated replication plan
- Acre Urban Renewal Plan
- Market-rate housing in and near Downtown Lowell
- Market-rate housing near the Gallagher Transportation Terminal
- Downtown Lowell Smart Growth Overlay District
- Affordable housing that facilitates these projects or on a case by case basis

Pepperell

- Leighton Street
- Off Lowell Street

Tewksbury

- Victor and Main - 50-60 units
- Woburn and Highland - 8 units

Tyngsborough

- 15 Descheneaux Lane
- 21 Descheneaux Lane
- Frost Road
- Longwood Road

Westford

- 29 Carlisle Road
- Cold Spring Road
- 14 Greenwood Road
- 478 Groton Road
- 130 Littleton Road
- 210 Littleton Road
- 250 Littleton Road
- 46 Lowell Road (2 parcels)
- Old Lowell Road
- 72 and 73 Old Lowell Road
- 64 Main Street
- 146 Main Street
- Makepeace Road
- Sawmill Road
- Texas Road (2 parcels)
- 22 Texas Road
- Tyngsboro Road
- 18 Tyngsboro Road
- Vose Road
- 18 Vose Road
- 16 Wing Road

D. Issues and Opportunities

Local, state and regional housing policies must address diverse needs by promoting a range of housing types and affordability, by expanding programs that connect residents with housing opportunities, and by ensuring equitable access to those opportunities for all of the region's residents. Over the past twenty years, the predominant condition of the housing market has been based on high demand and limited supply, which has negatively impacted low-income families.

Currently, there is no housing plan in place for the Northern Middlesex region. A regional assessment would provide a framework for equitable access to housing by quantifying regional needs. A regional housing plan would also help inform the development of local Housing

Production Plans. While there are a variety of advocacy organizations and agencies addressing housing issues across the region, no formal entity has established regional needs or made policy recommendations at the regional level.

Nonprofits play a critical role in developing affordable housing and preserving housing in communities where there are limited affordable housing opportunities. Community Development Corporations (CDCs), such as the Coalition for a Better Acre (CBA) and other nonprofit developers, such as Common Ground, produce affordable rental units, provide first-time homebuyer opportunities and permanent housing options for transitional and at-risk populations. Nonprofit organizations facilitate challenging real estate deals and invest in weak markets where the for-profit development community will not venture. In return, they receive low fees and very limited financial support, making it difficult to meet their mission. Equity and programmatic funding is often difficult to secure. Additional support is needed for these organizations, particularly in light of the need generated by the most recent recession.

Municipalities have played a role in housing rehabilitation programs for owner-occupied and investor-owned housing units. Historically, the HOME Investment Partnership Program (HOME), and Community Development Block Grant (CDBG) program funds have been used to preserve and stabilize units for low- and moderate-income families. As HOME and CDBG funds become more limited, Community Preservation Act (CPA) funding and Affordable Housing Trust funds are being tapped for this purpose. Mechanisms for addressing housing rehabilitation programs on a regional basis should be explored further.

Many homeowners currently find it difficult to create new accessory units, as they may be prohibited within the current zoning or by regulations that contain onerous requirements. For example, homeowners may be required to create additional parking, or occupancy may be restricted to family members. Many municipalities have little incentive to accommodate accessory apartments, unless the unit is deed restricted and eligible for inclusion in the subsidized housing inventory.

The current foreclosure rate in the state and the region is the highest seen in decades. The causes are complex—many loans were made with historically high loan-to-value ratios, and subprime lenders sold adjustable-rate mortgages to borrowers with limited ability to repay. Falling real estate prices, lack of owner equity, and tight credit conditions, may continue to impact the ability of already stretched borrowers to refinance or sell, leading to additional foreclosures. In addition, many area residents have been impacted by job losses during the recent recession, increasing the need for foreclosure prevention and assistance.

The Massachusetts Commission to End Homelessness has determined that the Commonwealth must shift resources away from shelters and crisis management to prevention and permanent housing solutions. The Commonwealth has now transitioned to a Housing First model which provides housing to homeless individuals and families, in conjunction with an array of support

services. Prevention, intervention, re-housing and housing stabilization are all critical to ending homelessness. The City of Lowell has developed a Ten-Year Plan to End Homelessness, and organizations such as Community Teamwork, Inc. (CTI) and the Merrimack Valley Regional Network to End Homelessness are committed to addressing the needs of the region. However, funding for very-low income households is lacking and additional rental vouchers are needed to meet current demand.

Housing discrimination has severe impacts and quality of life repercussions. This issue must be addressed to advance regional equity and prosperity. Real estate professionals and landlords should be made aware of their responsibilities under fair housing laws. Residents should be encouraged to report instances of discrimination and valid complaint should be pursued. In addition, developers and municipalities should follow the accessibility mandates of the Massachusetts Architectural Access Board (MAAB) rules and regulations, and the design and construction requirements of the Federal Fair Housing Amendment Acts of 1988. When a development receives federal, state or local funding assistance, compliance with the accessibility standards of Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 is triggered. Compliance with these regulations should be enforced. Greater awareness and education are necessary to help builders, designers and municipalities coordinate and balance compliance with accessible and fair housing mandates.

VIII. RECOMMENDATIONS & STRATEGIES

The Regional Strategic Plan offers policy recommendations and strategies aimed at achieving sustainable future growth and development. The recommendations and strategies outlined below have taken into account the land use, economic development, housing and conservation goals identified through the public outreach process and articulated in Chapter I of this document.

Land Use

- Promote growth in appropriate areas where adequate infrastructure capacity and services are available.
- Communities should review their subdivision and zoning regulations on a regular basis and revisions should be consistent with sustainable development policies
- Communities should adopt zoning regulations that protect solar access.
- Update and improve Open Space Residential Design bylaws/ordinances.
- Preserve and enhance the aesthetic character and quality of life in town and village centers, through the adoption of town center/village center overlay zoning bylaws and corresponding design guidelines or design standards.
- Promote the use of incentives, such as density bonuses and relief from dimensional requirements, as a means of protecting open space and creating affordable housing.
- Promote coordinated planning initiatives by encouraging consistency between community Master Plans, Zoning Bylaws, Housing Production Plans, Open Space and Recreation Plans, the Greater Lowell Comprehensive Economic Development Strategy, the Regional Transportation Plan, Hazard Mitigation plans, and the Regional Strategic Plan.
- Create incentives in zoning and subdivision regulations to encourage traditional neighborhood development, and compact mixed-use development in downtowns, village centers and town centers.
- Provide zoning incentives for infill development, adaptive reuse and redevelopment of blighted, contaminated and underutilized properties.
- Revise parking standards to eliminate rigid minimum parking requirements, adopt shared parking options, and outline maximum parking allowances.

- Examine opportunities for TDR in rural communities and across municipal boundaries.
- Communities should examine the feasibility of utilizing form-based code and transit-oriented development districts in priority areas targeted for future development.
- Encourage planning initiatives that cross municipal boundaries to address corridor-wide and area-wide issues.
- Improve coordination between local, regional, state and federal levels of government.

Environment

- Regionally connect open spaces through greenways and blueways, and improve public access to water bodies.
- Update the Regional Open Space Plan.
- Encourage local communities to adopt stormwater management and low impact development bylaws/ordinances.
- Consider establishing a local or regional stormwater utility to fund the implementation of local stormwater management plans.
- As outlined in the regional and local hazard mitigation plans, communities should strengthen local flood plain zoning bylaws/ordinances.
- Encourage property owners and developers to establish conservation restrictions on portions of their properties located in environmentally sensitive areas.
- Protect and enhance critical upland water resource areas, wetlands and habitat areas to sustain biodiversity.
- Target water supply recharge areas as priority lands for acquisition and protection.
- Each community should have an active historical commission and an historic preservation plan, and development regulations should consider historic resources. Demolition delay bylaws should be implemented in every community that currently lack such a bylaw.
- Support the retention of existing agricultural and rural landscapes through the use of agricultural preservation techniques, programs and tools.

- Establish a regional brownfields assessment program and a revolving loan fund for clean-up activities.
- Adopt green performance standards for development review.
- Support agricultural businesses through zoning and permitting requirements.
- Establish community gardens.
- Prepare a regional sustainability plan.

Energy

- Develop a regional Clean Energy Plan to identify opportunities for clean energy production and capital investments, and to promote job creation in the clean energy sector.
- Work with the Northern Middlesex communities to establish a regional energy circuit rider program
- Municipalities should work with the development community to encourage design that meets LEED standards and embraces the principles of green building design.
- Communities should implement renewable energy bylaws and streamlined permitting to foster the generation of clean energy and create green jobs.
- Communities should adopt an expedited permitting process for green development.
- Implement a green restaurant program and green business program in each community.

Economic Development

- Municipalities should adopt streamlined permitting best practices based on the Best Practices Guide developed by MARPA.
- NMCOG should continue to provide technical assistance to communities regarding Chapter 43D and streamlined permitting.
- Work to grow the creative economy through a collaborative regional approach that includes training and education, and that markets the region as a center of creative activity.

- Promote neighborhood-oriented commercial development in village and town centers.
- Support expansion of infrastructure in those locations identified as Priority Economic Development areas and Priority Housing areas.
- Encourage regional service delivery and establish regional service agreements through NMCOG.
- Promote inter-municipal collaborations to attract businesses to vacant and underutilized properties and grow jobs for the region’s workforce.
- Utilize the University Research Center at UMass Lowell to attract emerging industries to the region.
- Establish partnerships between UMass Lowell, Middlesex Community College and private industry to develop training programs for the area workforce.
- Provide educational and employment opportunities for the region’s youth, and work to retain young workers to address future manpower needs.
- Assess the feasibility of expanding the LDFC to serve the suburban communities or utilize the non-profit arm of NMCOG to address these needs.
- Develop a plan for addressing sewer capacity deficiencies in the Greater Lowell region.
- Complete a Regional Renewable Energy Plan in partnership with the Montachusett Regional Planning Commission to address the future siting of renewable energy facilities and expand green job opportunities.
- Apply for Economic Development District status through EDA.

Housing

- Provide a variety of housing choices for all age groups, incomes and abilities.
- Implement inclusionary zoning as a means of creating additional affordable housing units across the region.
- Update and improve accessory apartment bylaws and ordinances.
- Update and maintain local Housing Production Plans.
- Prepare a Regional Housing Plan.

- Update local fair housing plans to ensure equitable access to housing opportunities for all residents of the region.
- Advocate for additional resources for nonprofit housing developers.
- Support and expand housing rehabilitation opportunities.
- Create additional 40R districts.
- Initiate programs to address homelessness across the region.

Information Dissemination and Public Outreach

- NMCOG should continue to provide technical assistance to its local communities in the area of smart growth and sustainable development.
- Educate area citizens on the sustainable development and livability principles through a Sustainable Development promotional campaign.
- Increase awareness and education to help builders, designers and municipalities coordinate and balance compliance with accessible and fair housing mandates.
- Implement a “buy local” initiative, and educate consumers on the benefits of buying locally produced goods and food.
- Educate residents on the need for and benefits of affordable housing.
- Educate local communities and the public relative to available incentives for renewable energy and energy efficiency improvements
- Work with local land trusts and other nonprofits to educate property owners on tax incentives available for conservation and land preservation
- Promote inclusive community planning through expanding the outreach process to include a broad constituency, including low income residents, minorities and other under-represented segments of the population.
- Encourage civic engagement across the region by providing increased opportunities for public involvement and volunteerism.
- Conduct regional focus groups on issues of common and regional interest.

X. PLAN IMPLEMENTATION & PERFORMANCE MEASUREMENT

The Northern Middlesex Council of Governments (NMCOG) will strive to ensure that regional growth and development is well planned and consistent with the sustainable development principles that have been articulated throughout this plan. Through the RSP, the region and its communities have established development and preservation goals that will be implemented over the course of the next decade. Commitment by state, regional and local levels of government is essential to carrying out the recommendations that have been outlined. Given the breadth of recommendations and strategies outlined in the plan, there will be multiple entities responsible for implementing many recommendations.

In order to monitor progress in implementing the plan, performance criteria have been developed. The criteria will be reviewed annually and progress will be charted by NMCOG staff. The results of the performance assessment will be reported in the NMCOG newsletter and will be provided to EOHEd and the local communities.

The following performance indicators will be tracked and quantified:

- Investment in infrastructure;
- State and regional job creation statistics;
- Unemployment rates for the communities and the labor market area;
- Acres of land preserved and protected;
- Renewable energy projects permitted;
- Installations of renewable energy;
- Implementation of green building initiatives;
- Number of new residential building permits issued;
- Number of units added to the SHI inventory;
- Foreclosure statistics;
- Number of EOAs, growth districts, 43D districts or 40R districts created; and
- Number of commercial and industrial building permits issued.