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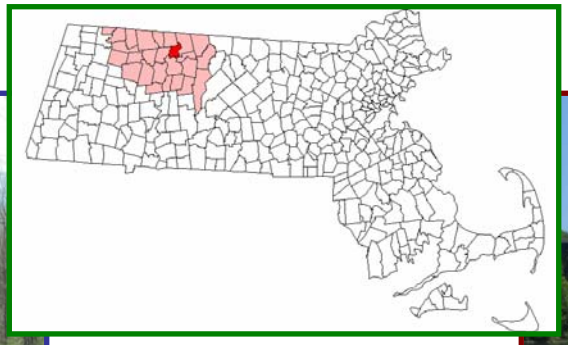

GILL

GREEN COMMUNITIES ACTION PLAN REPORT

Prepared for:

GREEN COMMUNITIES PROGRAM
DEPARTMENT OF ENERGY RESOURCES

Prepared by:

Town of Gill
Franklin Regional Council of Governments

GILL GREEN COMMUNITIES ACTION PLAN REPORT

Prepared for:

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GILL GREEN COMMUNITIES ACTION PLAN REPORT

INTRODUCTION

The Town of Gill, with a population of 1,363 as of the 2000 U.S. Census, is known for its beautiful rural landscape with rolling hills, river valley vistas, and pastoral agricultural land. The Town has retained several active farms. At the same time, Gill has access to Route 2, the primary transportation corridor along the northern tier of the state, and is located between the largest employment centers in Franklin County of Greenfield, Montague, and Orange. Route 2 is also the Mohawk Trail, a state-designated scenic byway and tourist route. Outdoor recreation activities, specifically related to the Connecticut River, are found along this corridor. The Town has made strides in recent years at becoming energy efficient and seeks to continue this progress.

The Town of Gill submitted an application in 2009 to the State's Green Communities Planning Assistance Program. At the time of the application, Gill had not met any of the criteria fully, but demonstrated progress in meeting one of the criteria: establishing an energy baseline. Included within the 2009 application was a letter of commitment to work toward meeting all five criteria within one year following completion of the technical assistance (see Appendix C for a copy of Gill's commitment letter).

The Franklin Regional Council of Governments (FRCOG) was contracted to provide technical assistance services to the Town of Gill for the purposes of creating this Action Plan. The purpose of this Action Plan is to define and document the specific tasks necessary for the Town to complete in order to be designated as a Green Community and to assign responsibilities to accomplish these tasks. The implementation of this Action Plan will provide a framework for initiating community-wide dialogue on energy efficiency and clean energy goals, and developing community-wide support for the pursuit of Green Community designation.

To develop this Action Plan, the FRCOG met with the Gill Energy Commission and other community stakeholders on April 20, 2010 at the Gill Town Hall. In attendance at this meeting were Gill Energy Commission members, a representative of the Select Board, and the Town's Administrative Assistant. At this meeting, the FRCOG staff presented an overview of the Green Communities Program, and facilitated a detailed discussion about the specific criteria required to be designated a Green Community and what the steps were to achieve this designation. Based on the information gathered, the FRCOG prepared a Draft Action Plan for review by the Gill Energy Commission. The Draft Action Plan was presented at a subsequent meeting held on May 17, 2010 at the Gill Town Hall. Final revisions were then incorporated to create the Final Action Plan Report which was officially adopted by the Select Board on June 7, 2010, and is contained herein. (See Appendix B for copies of agendas and meeting attendance sheets.)

GREEN COMMUNITY CRITERIA

There are five criteria that a town must meet to be designated a "Green Community" by the Massachusetts Department of Energy Resources (DOER). The criteria to qualify a municipality as a

Green Community were established by Massachusetts General Law Chapter 25A Section 10, effective July 2, 2008. The following is a review of each of these criteria with a description of the progress made to date in Gill, the methodology proposed for meeting the criteria, as well as any task(s) to be completed to fulfill the Green Communities requirements. Each of these tasks identifies steps the Town will take to fulfill the requirements, the person(s) and/or municipal boards responsible for tasks, and the timeline for completion with specific objectives and milestones. The Action Plan outlined below is also presented in a matrix format in Appendix A, for easy reference.

1. AS-OF-RIGHT SITING

BACKGROUND

A town must provide for as-of-right siting of renewable or alternative energy generating facilities, renewable or alternative energy research and development (R&D) facilities, or renewable or alternative energy manufacturing facilities in designated locations. Green Communities Program guidance outlines the definitions of renewable or alternative energy as well as the requirements for research and development (R&D) and manufacturing facilities. If meeting this criteria through manufacturing or R&D, the areas zoned for as-of-right siting must allow for the development of at least 50,000 square feet of facility space in the aggregate. Additionally, the Green Communities Program has identified specific types of renewable or alternative energy generation facilities that are applicable to this criterion. They are: wind turbines (minimum of 600 kW in size); single ground-mounted system of solar photovoltaic (minimum 250 kW); and/or biomass combined heat and power generation in a stand-alone building (minimum of 5 MW).

As-of-right siting refers to the allowance of a particular use, such as those described above, by right within the Zoning Bylaws. In short, the bylaws do not unreasonably regulate such development nor do they require a Special Permit. However, they can require Site Plan Review and/or specific Performance Standards. As-of-right siting is only required in the location(s) designated by the community for the use(s) selected. In some cases, the placement of these uses may already be allowed by right in the current Zoning Bylaws for specific locations identified by the community, such as an Industrial District. In other cases, the Zoning Bylaws may need to be amended to allow as-of-right siting for the particular facilities in the location(s) designated by the community. This may be accomplished in different ways, such as a change to the existing use table or the creation of a new zoning overlay district. Any zoning amendment would require the applicable public hearing process and a two-thirds majority Town Meeting vote, as required by the Commonwealth's Zoning Act (M.G.L. Chapter 40A). As-of-right siting will allow an individual, business, corporation or governmental entity to establish a renewable or alternative energy facility identified in a specified location selected by the community, by right and without unreasonable regulation or Special Permit.

PROGRESS TO DATE

The Town of Gill does not currently meet this requirement. Under Section C. Table of Use Regulations of the Gill Zoning Bylaw, Scientific Research and Development and Light Industry are allowed by Special Permit in the Residential (R), Residential-Agricultural (R-A), and Village Commercial (VC) districts. Additionally, solar, wind, and hydroelectric generating facilities are currently allowed by

Special Permit in the R, R-A, and VC districts (see Appendix D for a Gill Zoning Map). Gill is interested in renewable and alternative energy generation facilities. To date, the following have been examined:

- **Wind:** The Town of Gill does not have sufficient wind resources to make siting a turbine feasible (see Appendix E for a wind resources map for the Town of Gill).

- **Solar PV**: Gill is interested in exploring the feasibility of solar generation, and will explore sites in Town where a ground-mounted solar array of 250 kW or more could be sited.

- **Biomass:** Biomass, in general, is presently a controversial topic in Western Massachusetts, in part due to a lack of available information regarding the long-term needs and environmental impacts of such systems. There are three proposals for large-scale biomass generation facilities (electric only) in Western Massachusetts that are currently in the permitting stage. In November 2009, DOER announced that it has selected the Manomet Center for Conservation Services of Plymouth to lead a comprehensive study of issues related to biomass sustainability and carbon emissions policy. The six-month study will also result in a "white paper" that will assist state environmental and energy officials to prepare new regulations to establish sustainability criteria for biomass facilities. Until this and other information becomes available, the Town of Gill will wait to consider biomass generation.

METHODOLOGY

The following tasks specifically relate to meeting Criterion 1, "as-of-right" siting. The Town of Gill will consider allowing renewable or alternative energy R&D and/or manufacturing as-of-right with Site Plan Review and subject to Performance Standards in the Village Commercial Zoning District, if appropriate. If zoning amendments are adopted, the Town of Gill will obtain a letter from Town Counsel affirming compliance with Criterion 1, which will include:

- The applicable section of the Zoning Bylaw;
- Important zoning definitions;
- The relevant section of the use table and any key that will help DOER interpret the use table;
- Any related local regulations applicable to the facilities sited under the Bylaw, including Site Plan Review regulations and Performance Standards, so that DOER can confirm that the related local regulations are non-discretionary; and
- Yield calculations showing that there is capacity in the Town's zoning district/s designated for renewable or alternative energy R&D and/or manufacturing to construct at least 50,000 square feet of R&D or manufacturing space in the aggregate.

Gill will also explore sites in Town where a ground-mounted solar array of 250 kW or more could be sited as-of-right with Site Plan Review and subject to Performance Standards. The Town will then consider amending its Zoning Bylaws to create a solar overlay district for the designated area(s).

TASK(S)

Task 1-A

- **Task:** The Town of Gill will consider amending its Zoning Bylaw to allow renewable or alternative energy R&D and/or manufacturing as-of-right with Site Plan Review and subject to Performance Standards in the Village Commercial District, if appropriate.
- **Timeline:** Changes to the Zoning Bylaw will be drafted and a public hearing will be held by the Planning Board by October 2010, in time for a Special Town Meeting where a 2/3rds majority vote will be required for adoption.
- **Responsible Party:** The Planning Board, Zoning Board of Appeals, Energy Commission, Select Board, Town Counsel, Town Administrative Assistant, and Town Meeting will be responsible for this task.
- **Guidance:** DOER has provided a guide titled "Guidance: Complying with the Green Communities Act through the as-of-right siting of renewable or alternative energy research and development or manufacturing facilities."

Task 1-B

- **Task:** The Town of Gill will obtain a letter from Town Counsel affirming compliance with Criterion 1 if zoning amendments under Task 1-A are adopted.
- **Timeline:** The letter will be obtained from legal counsel by the end of November 2010, providing that Town Meeting approves the Zoning Bylaw changes proposed in Task 1-A.
- **Responsible Party:** Town Counsel and the Town Administrative Assistant will be responsible for this task.
- **Guidance:** DOER has provided a guide titled "Guidance: Complying with the Green Communities Act through the as-of-right siting of renewable or alternative energy research and development or manufacturing facilities."

Task 1-C

- **Task:** Gill will explore sites in Town where a ground-mounted solar array of 250 kW or more could be sited as-of-right with Site Plan Review and subject to Performance Standards, and will consider amending its Zoning Bylaw to create a solar overlay district for the designated area/s.
- **Timeline:** One or more sites will be determined, and changes to the Zoning Bylaw will be drafted and a public hearing will be held by the Planning Board by May 2011, in time for Annual Town Meeting where a 2/3rds majority vote will be required for adoption.
- **Responsible Party:** The Planning Board, Zoning Board of Appeals, Energy Commission, Select Board, Town Counsel, Town Administrative Assistant, and Town Meeting will be responsible for this task.
- **Guidance:** DOER has provided a model solar bylaw titled "Model As-of-Right Zoning Bylaw: Allowing Use of Large-Scale Ground-Mounted Solar Photovoltaic Installations."

2. EXPEDITED PERMITTING

BACKGROUND

To qualify as a Green Community, a town must adopt an expedited permitting process under which renewable or alternative energy facilities may be sited within the municipality. The timeframe for permitting shall not exceed one year from the date of acceptance of a completed application to the date of final approval. By adopting an expedited permitting process, the municipality is committing to making *local* permitting decisions within one year. An expedited permitting process is accomplished by providing a transparent and efficient process for municipal permitting by various boards, including the Planning Board, Conservation Commission, Historic Commission, Zoning Board of Appeals, Fire Chief, and Board of Health. The result is a streamlined procedure that is efficient for municipal staff and boards to implement, and that will provide a predictable schedule for local decision making for the applicants. Once designated a Green Community, a municipality will be required to report annually on their permitting of renewable or alternative energy facilities within the designated as-of-right zoning districts to show that the Town has adhered to the 365-day requirement.

PROGRESS TO DATE

The Town of Gill does not currently meet this requirement. However, the Town has already adopted M.G.L. Ch. 43D, and is interested in the possibility of designating a new Priority Development Site (PDS) in the Village Commercial District and/or another Zoning District in Town that would accommodate at least 50,000 square feet of facility space in the aggregate. Additionally, Section 24 (C) of the Gill Zoning Bylaw outlines a Site Plan Review process in which the Zoning Board of Appeals will hold a public hearing within 65 days of receiving a completed application, and will make a final decision within 90 days of the hearing. This timeframe is less than the one year required by DOER for expedited permitting under Criterion 2.

METHODOLOGY

To meet this requirement, Gill will consider designating a new Priority Development Site with the approval of the landowner(s) in the Village Commercial District, if appropriate, where renewable or alternative energy R&D and/or manufacturing could be allowed by right with Site Plan Review and subject to Performance Standards. Sites which are designated M.G.L. Ch. 43D Priority Development Sites are designated by a majority vote of Town Meeting or of a city or town council. If designated by Town Meeting, the PDS is submitted to the Massachusetts Interagency Permitting Board (IPB) for approval. Such sites must comply with a series of criteria, which include:

- Commercially or industrially zoned (including mixed use);
- Eligible for the construction of structures totaling at least 50,000 square feet;
- Designated by the Interagency Permitting Board; and
- Whenever possible, Priority Development Sites should be located adjacent to areas of existing development or in underutilized buildings or facilities, or close to appropriate transit services.

Designated PDS reviews must take place within 180 days beginning the day after notification of completeness of the application. As demonstrated, sites which are designated as a PDS fulfill the Green

Communities Criterion 2 for expedited permitting. The new PDS would allow for at least 50,000 square feet of facility space in the aggregate, and would be located in the Village Commercial District, if appropriate.

If a new PDS site is not designated, the Town will establish a local Expedited Permitting Process for the locations where renewable or alternative R&D and/or manufacturing will be allowed as-of-right with Site Plan Review and subject to Performance Standards. As mentioned above, Gill's Zoning Bylaw currently outlines a Site Plan Review process that falls within the one year timeframe. Gill will also consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning-related Town Boards, under which permitting for renewable or alternative energy R&D and/or manufacturing facilities shall not exceed 1 year from the date of acceptance of a completed application to the date of final approval.

If the Town adopts a solar overlay district where a ground-mounted solar array of 250 kW or more could be sited as-of-right with Site Plan Review and subject to Performance Standards, it will also consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning-related Town Boards, under which permitting for a solar array shall not exceed 1 year from the date of acceptance of a completed application to the date of final approval.

The Town will obtain a letter from Town Counsel certifying that the Town meets DOER requirements for expedited permitting within one year. The letter will include:

- Language of the Site Plan Review Bylaws and Performance Standards that covers approval procedures and associated timing for the Zoning Board of Appeals;
- Language from the General Bylaw that covers approval procedures and associated timing for non-zoning related Town Boards; and
- A statement that nothing else within Gill's rules and regulations precludes issuance of a permitting decision with one year.

TASK(S)

Task 2-A

- **Task**: The Town of Gill will explore the possibility of designating a new Priority Development Site in the Village Commercial District, if appropriate, where renewable or alternative energy R&D and/or manufacturing will be allowed by right with Site Plan Review and subject to Performance Standards. If adopted by Town Meeting, the Town will submit the PDS to the Massachusetts Interagency Permitting Board (IPB) for approval.
- **Timeline**: The PDS site will be determined by October 2010 in time for a Special Town Meeting where a simple majority vote will be required for adoption.
- **Responsible Party**: The Planning Board, Zoning Board of Appeals, Energy Commission, Select Board, Town Administrative Assistant, and Town Meeting will be responsible for this task.
- **Guidance**: The Massachusetts Permit Regulatory Office has the official application form and guidance materials for the Chapter 43D Program on their website at www.mass.gov/mpro.

Task 2-B

- **Task**: The Town of Gill will obtain a letter from Town Counsel certifying that the Town meets DOER requirements for expedited permitting providing that Task 2-A is completed.
- **Timeline**: The letter will be obtained by legal counsel by the end of November 2010, providing that Town Meeting approves the Zoning (Task 1-A) and PDS changes.
- **Responsible Party**: Town Counsel and the Town Administrative Assistant will be responsible for this task.
- **Guidance**: The DOER has provided a guide titled "Guidance: Expedited Permitting Options."

Task 2-C

- **Task**: If a PDS is not designated, the Town will consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning-related Town Boards, under which permitting for renewable or alternative energy R&D and/or manufacturing facilities shall not exceed 1 year from the date of acceptance of a complete application to the date of final approval.
- **Timeline**: The General Bylaw will be drafted by May 2011, in time for Annual Town Meeting where a simple majority vote will be required for adoption.
- **Responsible Party**: The Select Board, Town Counsel, Town Administrative Assistant, and Town Meeting will be responsible for this task.
- **Guidance**: The DOER has provided a guide titled "Guidance: Expedited Permitting Options."

Task 2-D

- **Task**: If a solar overlay district is adopted where a ground-mounted solar array of 250 kW or more could be sited as-of-right with Site Plan Review and subject to Performance Standards, the Town will consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning-related Town Boards, under which permitting for a solar array shall not exceed 1 year from the date of acceptance of a complete application to the date of final approval.
- **Timeline**: The General Bylaw will be drafted by May 2011, in time for Annual Town Meeting where a simple majority vote will be required for adoption.
- **Responsible Party**: The Select Board, Town Counsel, Town Administrative Assistant, and Town Meeting will be responsible for this task.
- **Guidance**: The DOER has provided a guide titled "Guidance: Expedited Permitting Options."

3. ENERGY USE INVENTORY AND REDUCTION PLAN

BACKGROUND

To fulfill Criterion 3, a town must establish an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting, and put in place a comprehensive program designed to reduce this baseline by 20% within five years of the selected baseline year. The energy use baseline inventory should be applied in the aggregate across buildings, streetlights, traffic lights and vehicles on a million British

Thermal Units (MMBTU) basis. There are a number of acceptable tools for performing the inventory including:

- **Energy Star Portfolio Manager:** This is a free energy and water consumption tracking software available on the Energy Star website. This program allows an entity to track and assess energy and water consumption within individual buildings (generally consisting of at least 5,000 square feet) as well as across numerous buildings. This program does not assess the energy consumption of vehicles, street or traffic lighting.

- **ICLEI Software:** The ICLEI software, Clean Air and Climate Protection (CACP) Software, is a one-stop emissions management tool that calculates and tracks emissions and reductions of greenhouse gases and criteria air pollutants. This tool is available free to members of ICLEI (who pay an annual membership fee) and has the capacity to assess buildings and facilities, vehicle fleets, waste, wastewater treatment, employee commute, street and traffic signals, and port and airport facilities.

- **DOER's MassEnergyInsight:** DOER's MassEnergyInsight is an energy information system with customized electricity, natural gas, and oil usage details for cities and towns across Massachusetts. This web-based tool was developed to enable communities to establish energy-use baseline inventories for their buildings, vehicles, and street lights. This tool will be free to all 351 local governments in the Commonwealth, but municipalities must send a representative to one of the regional trainings or participate in a webinar in order to gain access to the system. (See the Energy Use Baseline Criteria in the References section of this report for materials on MassEnergyInsight.)

Once the energy use baseline inventory has been established, the community must develop a comprehensive reduction plan to decrease energy consumption by 20% consisting of a number of key components which would enable a municipality to establish energy reduction goals and develop a structure to meet those goals over a five-year timeframe.

PROGRESS TO DATE

The Town of Gill has partially met this criterion. The Town has already conducted both a preliminary audit and an Investment Grade Audit (IGA) for all town-owned buildings (excluding the Gill Elementary School) and the pumping station through the FRCOG Energy Savings Performance Contracting (ESPC) program with Siemens Building Technologies, Inc. (See Appendix F for a copy of the preliminary audit). The Gill Elementary School is owned by the Town of Gill but is operated by the Gill-Montague Regional School District, which has conducted a preliminary audit on all school buildings through the ESPC program. The Town is responsible for all school capital costs, while the school district covers operating expenses. The Town, however, will handle the implementation of improvements agreed to in the ESPC for the school. Additionally, Western Massachusetts Electric Company (WMECO) just completed an audit on the Town's streetlights.

METHODOLOGY

The Town of Gill has completed an Energy Audit which included an energy inventory of municipal buildings. Following is a description of the audit program:

- Energy Saving Performance Contracting (ESPC) Program: The Performance Contracting Program is a turnkey program authorized pursuant to Massachusetts General Law chapter 25A, section 11i whereby private energy services companies undertake the audit, design, and installation of energy conservation measures to upgrade existing town facilities. The energy services company performs an in-depth investment grade energy audit and identifies energy and water saving measures that can be implemented at those facilities. The financing of the work that is contracted by the Town will be paid for out of the energy cost savings, so there would not be any need for the Town to increase its operating budget. Additionally, the energy savings are guaranteed, by the energy services company, to cover the costs of the improvements and the financing costs within the maximum twenty-year payback period authorized by law[1].

Gill will include the Gill Elementary School in its baseline, and will use information from the Gill-Montague Regional School District Energy Audit for this purpose. As previously mentioned, there are several tools which have been identified by the DOER which can be used to complete the energy audit baseline inventory. In April 2010, the Town Administrative Assistant attended training for DOER's MassEnergyInsight energy information system. The Town of Gill will use MassEnergyInsight to complete the baseline inventory, specifically, to determine baseline energy consumption for all Town-owned vehicles and streetlights. The Town will obtain streetlight information from WMECO. Gill does not own any traffic lights.

Upon the completion of the baseline inventory, the Town will put in place a comprehensive program designed to reduce the baseline by 20% within 5 years of the baseline year. In general, the comprehensive program should include the following elements:

- Overview of short and long term goals
- Action plan – getting to 20% in 5 years
  - Prioritized list of strategies to reduce fossil fuel usage;
  - Tools, resources and financial incentives; and
  - Program Management Plan for implementation, monitoring and oversight.

The Town will seek the endorsement of the energy reduction plan by the Gill-Montague Regional School Committee.

TASK(S)

Task 3-A

- **Task**: A municipal official and/or member of the Energy Committee will attend a MassEnergyInsight training session or webinar hosted by the DOER.

[1] Executive Office for Administration and Finance, Energy Performance Contracting Program, <www.mass.gov>

- **Timeline**: The Town Administrative Assistant attended the second round of training sessions in April 2010.
- **Responsible Party**: The Town Administrative Assistant, in coordination with the Energy Commission, will be responsible for this task.
- **Guidance**: The DOER will announce additional training sessions as they become available.

Task 3-B

- **Task**: Gill will complete a baseline inventory for all Town-owned vehicles and street lights using DOER's MassEnergyInsight energy information system.
- **Timeline**: The energy use inventory of all Town-owned vehicles and street lights will be completed by November 2010.
- **Responsible Party**: The Energy Commission and Town Administrative Assistant will be responsible for this task.
- **Guidance**: The DOER has provided a guide titled "Guidance: Criteria 3, Energy Use Baseline, and Sample Energy Reduction Action Plan Outline."

Task 3-C

- **Task**: The Town will adopt a comprehensive program designed to reduce its energy use baseline by 20 % within 5 years of the baseline year, and will ask the Gill-Montague Regional School Committee to endorse the plan.
- **Timeline**: The comprehensive plan will be completed by February 2011.
- **Responsible Party**: The Energy Commission, Town Administrative Assistant, and Select Board will be responsible for this task.
- **Guidance**: The DOER has provided a guide titled "Guidance: Criteria 3, Energy Use Baseline, and Sample Energy Reduction Action Plan Outline."

4. POLICY TO PURCHASE ONLY FUEL-EFFICIENT VEHICLES

BACKGROUND

To qualify as a Green Community, the town must enact a policy to purchase only fuel-efficient vehicles for municipal use, whenever such vehicles are commercially available and practicable. The purpose behind this criterion is to reduce carbon dioxide emissions by municipal vehicles, which has a positive impact on the environment and results in costs savings for the municipality. Exempt from this policy are department of public works trucks, police cruisers, fire trucks and school buses. Communities that do not have any non-exempt vehicles that would apply to this criterion must adopt alternate Transportation Demand Management (TDM) policies to support fuel efficiency, such as policies that encourage municipal employees to utilize alternate transportation modes (for example, bicycle, transit) or carpooling.

PROGRESS TO DATE

The Town of Gill has no non-exempt vehicles. The Gill-Montague Regional School Committee voted on May 11, 2010 to adopt a fuel-efficient vehicle policy for all non-exempt vehicles, whereby the school district will maintain an annual vehicle inventory for non-exempt vehicles and develop a plan and process for replacing them with vehicles that meet U.S. EPA fuel efficiency standards. The plan will be reviewed annually and will include goals for when the existing fleet will be replaced (a copy of the Gill-Montague Regional School Committee fuel efficient vehicle resolution is included in Appendix G.)

METHODOLOGY

To meet this criterion, the Town of Gill will adopt alternative TDM measures, such as incentives for carpooling and placing bike racks at Town-owned buildings. The Town will also consider adopting a fuel efficient vehicle purchasing policy to cover any non-exempt vehicles the Town may purchase in the future.

TASK(S)

Task 4-A

- **Task**: The Town will adopt alternative TDM measures.
- **Timeline**: The measures will be in place by September 2010.
- **Responsible Party**: The Energy Commission, Town Administrative Assistant, and Select Board will be responsible for this task.
- **Guidance**: The FRCOG has provided a list of possible TDM measures.

Task 4-B

- **Task**: The Town will consider adopting a fuel efficient purchasing policy for municipal vehicles.
- **Timeline**: The policy will be in place by September 2010.
- **Responsible Party**: The Energy Commission, Town Administrative Assistant, and Select Board will be responsible for this task.
- **Guidance**: The DOER has provided a guide titled "Guidance: Fuel Efficient Vehicles," which includes a model purchasing policy. The DOER has also provided a list of fuel efficient vehicles that would meet the Green Communities requirements.

5. MINIMIZE LIFE-CYCLE ENERGY CONSTRUCTION COSTS

BACKGROUND

To qualify as a Green Community, the town must require all new residential construction of more than 3,000 square feet and all new commercial and industrial real estate construction to minimize the life-cycle cost of the facility by utilizing energy efficiency, water conservation and other renewable or alternative energy technologies.

The primary method to satisfy this criterion is to adopt the Massachusetts State Building Code's new appendix called the Stretch Energy Code (780 C.M.R. Appendix 120 AA). The Stretch Code was

approved as an appendix at a meeting of the Massachusetts Board of Building Regulations and Standards (BBRS) in May 2009. Based on the International Energy Conservation Code (IECC) 2009, the purpose of the Stretch Code is "to provide a more energy efficient alternative to the base energy code applicable to the relevant sections of the building code for both new construction and existing buildings." For municipalities that choose to adopt this appendix, they would meet this Green Communities Program criterion. Whereas Green Community designation applies only to new residential construction over 3,000 square feet and all new commercial and industrial real estate construction, the Stretch Code applies to all residential buildings of any size for both new construction and redevelopment.

Another method to satisfy this criterion is to establish an alternate policy that meets the requirements of the Green Communities Program. At this time, model policies or regulations that may be an acceptable alternative to adopting the Stretch Code are not available from DOER.

PROGRESS TO DATE

The Town of Gill does not currently meet this requirement. Gill is a member of the Franklin County Cooperative Inspection Program (FCCIP), which provides building inspection services and zoning enforcement for the rural towns in Franklin County.

METHODOLOGY

The Town of Gill is planning to approach the adoption of the building code that reduces life-cycle costs by first becoming familiar with the new Massachusetts Building Code and Stretch Code and their requirements. Public information sessions were held on January 14, 2010 and on January 21, 2010 for communities to learn more about the Stretch Code. Several local and regional experts were on hand at these workshops to discuss the Stretch Code and answer questions about its requirements, costs, and other concerns. A Gill Select Board member and a Gill Energy Commission member attended the January 21, 2010 workshop in Greenfield. Information presented at the workshops is available from the FRCOG and includes a copy of the presentation, several handouts, as well as a video of the session. Following these educational sessions and further evaluations, the Select Board will hold a Public Hearing addressing the Stretch Code. The Select Board will then decide whether they have sufficient information to bring the adoption of the Stretch Code to Town Meeting in the manner prescribed by law. In the event the Stretch Code is not adopted or brought to Town Meeting, the Select Board, in coordination with the FCCIP, will consider adopting an alternative standard that minimizes the life cycle energy costs for new construction and is enforceable by the community.

TASK(S)

Task 5-A

- **Task**: Key town staff, committee and board members will investigate the Stretch Code, attend the workshops organized by the FRCOG, and review materials from the workshops provided by the FRCOG.
- **Timeline**: A Select Board member and an Energy Commission member attended the January 21, 2010 workshop in Greenfield, as did a representative of FCCIP.
- **Responsible Party**: The Energy Commission, Planning Board, Town Administrative Assistant, and Select Board, and the FCCIP will be responsible for this task.

- **Guidance**: DOER has provided a document titled "Summary of the Massachusetts Building Code Appendix 120.AA, 'Stretch' Energy Code," a Question and Answer (Q&A) list for the Stretch Appendix to the Energy Code in Massachusetts, and has included on its website a copy of a webinar explaining the Stretch Code. The FRCOG has made available on its website the presentation from the workshops, as well as handouts covering different topics concerning the Stretch Code. A DVD of the second workshop is available to towns by request.

Task 5-B

- **Task**: The Select Board will hold a Public Hearing addressing the Stretch Code.
- **Timeline**: The Public Hearing will be held by September 2010.
- **Responsible Party**: The Energy Commission and Select Board will be responsible for this task.
- **Guidance**: DOER has provided a document titled "Summary of the Massachusetts Building Code Appendix 120.AA, 'Stretch' Energy Code," a Question and Answer (Q&A) list for the Stretch Appendix to the Energy Code in Massachusetts, and has included on its website a copy of a webinar explaining the Stretch Code. The FRCOG has made available on its website the presentation from the workshops, as well as handouts covering different topics concerning the Stretch Code. A DVD of the second workshop is available to towns by request.

Task 5-C

- **Task**: The Select Board will determine if they have sufficient information to bring a warrant article to adopt the Stretch Code at a Town Meeting.
- **Timeline**: A decision will be made by October 2010.
- **Responsible Party**: The Select Board, Town Administrative Assistant, Town Meeting, and the FCCIP will be responsible for this task.
- **Guidance**: DOER has provided a document titled "Summary of the Massachusetts Building Code Appendix 120.AA, 'Stretch' Energy Code," a Question and Answer (Q&A) list for the Stretch Appendix to the Energy Code in Massachusetts, and has included on its website a copy of a webinar explaining the Stretch Code. The FRCOG has made available on its website the presentation from the January 21st workshop, as well as handouts covering different topics concerning the Stretch Code. A DVD of the second workshop is available to towns by request.

Task 5-D

- **Task**: In the event the Stretch Code is not adopted, the Select Board, in coordination with the FCCIP, will consider adopting an alternative standard that minimizes the life cycle energy costs for new construction and is enforceable by the community.
- **Timeline**: An alternative will be developed by May 2011.
- **Responsible Party**: The Energy Commission, Town Administrative Assistant, Select Board, and the FCCIP will be responsible for this task.
- **Guidance**: None.

CONCLUSIONS

The Town of Gill has taken numerous steps towards becoming a more sustainable community, and will continue on this path towards energy efficiency to reduce the community's environmental impact and carbon footprint. With an active Energy Commission, the Town of Gill is poised and ready to take the necessary measures to become a Green Community. A summary of tasks identified in this Action Plan to meet the requirements to become a Green Community is shown below.

SUMMARY OF ACTION ITEMS

CRITERIA	TASK	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
1	1-A	Consider amending Zoning Bylaw to allow renewable or alternative energy R&D and/or manufacturing in the Village Commercial District, if appropriate, as-of-right with Site Plan Review and subject to Performance Standards	October 2010	Planning Board Zoning Board of Appeals Energy Commission Select Board Town Counsel Town Administrative Assistant Town Meeting
	1-B	Obtain a letter from Town Counsel affirming compliance with Criterion 1 if zoning revisions under 1-A are completed	November 2010	Town Counsel Town Administrative Assistant
	1-C	Explore sites in Town where a ground-mounted solar array of 250 kW or more could be sited as-of-right with Site Plan Review and subject to Performance Standards, and consider amending Zoning Bylaw to create a solar overlay district for the designated area(s)	May 2011	Planning Board Zoning Board of Appeals Energy Commission Select Board Town Counsel Town Administrative Assistant Town Meeting
2	2-A	Explore designating a new Priority Development Site (PDS) in the Village Commercial District, if appropriate, and submit to the Massachusetts Interagency Permitting Board for approval if adopted at Town Meeting	October 2010	Planning Board Zoning Board of Appeals Energy Commission Select Board Town Administrative Assistant Town Meeting
	2-B	Obtain a letter from Town Counsel certifying that the Town meets DOER requirements for expedited permitting providing that Task 2-A is completed	November 2010	Town Counsel Town Administrative Assistant
	2-C	If a PDS is not designated, consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning related Town Boards for alternative or renewable energy R&D and/or manufacturing facilities	May 2011	Planning Board Select Board Town Counsel Town Administrative Assistant Town Meeting
	2-D	If a solar overlay district is adopted, consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning related Town Boards	May 2011	Select Board Town Counsel Town Administrative Assistant Town Meeting
3	✓ 3-A	Attend MassEnergyInsight training	April 2010	Town Administrative Assistant Energy Commission
	3-B	Complete a baseline inventory for Town-owned vehicles and street lights	November 2010	Energy Commission Town Administrative Assistant
	3-C	Adopt a 5-year 20% energy use reduction plan	February 2011	Energy Commission Town Administrative Assistant Select Board
4	4-A	Adopt alternative TDM measures	September 2010	Energy Commission Town Administrative Assistant Select Board
	4-B	Consider adopting a fuel efficient vehicle purchasing policy	September 2010	Energy Commission Town Administrative Assistant Select Board

5	✓ 5-A	Investigate the Stretch Code, attend the workshop organized by the FRCOG, and review workshop materials	January 2010	Energy Commission Planning Board Town Administrative Assistant Select Board FCCIP
	5-B	Public Hearing on Stretch Code	September 2010	Energy Commission Select Board
	5-C	Decide whether to bring Stretch Code to Town Meeting for a vote	October 2010	Select Board Town Administrative Assistant Town Meeting FCCIP
	5-D	If the Stretch Code is not adopted, consider adopting an alternative standard	May 2011	Energy Commission Town Administrative Assistant Select Board FCCIP

Note: A ✓ denotes a task that has been completed.

TIMELINE OF ACTION ITEMS

Criteria	Task	Task Description	2010 June	July	Aug	Sept	Oct	Nov	Dec	2011 Jan	Feb	Mar	April	May
1	1-A	Consider amending Zoning Bylaw to allow renewable or alternative energy R&D and/or manufacturing in the Village Commercial District, if appropriate, as-of-right with Site Plan Review and subject to Performance Standards												
	1-B	Obtain a letter from Town Counsel affirming compliance with Criterion 1 if zoning revisions under Task 1-A are completed												
	1-C	Explore sites in Town where a ground-mounted solar array of 250 kW or more could be sited as-of-right with Site Plan Review and subject to Performance Standards, and consider amending Zoning Bylaw to create a solar overlay district for the designated area(s)												
2	2-A	Explore designating a new Priority Development Site (PDS) in the Village Commercial District, if appropriate												
	2-B	Provide DOER a letter from legal counsel affirming conformance with the expedited permitting requirement providing Task 2-A is completed												
	2-C	If a PDS is not designated, consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning related Town Boards for renewable or alternative energy R&D and/or manufacturing facilities												
	2-D	If a solar overlay district is adopted, consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning related Town Boards												
3	✓ 3-A	Attend MassEnergyInsight training												
	3-B	Complete a baseline inventory for Town-owned vehicles and street lights												
	3-C	Adopt a 5-year 20% energy use reduction plan												
4	4-A	Adopt alternative TDM measures												
	4-B	Consider adopting a fuel efficient vehicle purchasing policy												
5	✓ 5-A	Investigate the Stretch Code, attend the workshop organized by the FRCOG and review workshop materials												
	5-B	Public Hearing on Stretch Code												
	5-C	Decide whether to bring Stretch Code to Town Meeting for a vote												
	5-D	If the Stretch Code is not adopted, consider adopting an alternative standard												

Note: A ✓ denotes a task that has been completed.

REFERENCES

Within the Massachusetts Executive Office of Energy & Environmental Affairs (EOEEA) is the Department of Energy Resources (DOER), which administers the Green Communities Division Program. The Green Communities Division (www.mass.gov/energy/greencommunities) has a website posted with an array of guidance materials and resources, as well as necessary application forms for seeking Green Community designation and grants. The website is frequently updated to provide new and revised materials.

In addition, the FRCOG has created an information packet that is a collection of these online materials, as well as additional references created and collected by the FRCOG. An information packet has been provided to each community. Additional copies may be requested from Dan Laroche, Land Use Program Manager at the FRCOG Planning Department (413-774-1194 x107 or dlaroche@frcog.org).

List of select materials and information available on www.mass.gov/energy/greencommunities under "Green Communities Grant Program":

- Guidelines for Qualifying as a Green Community
- Guidance for As-of-Right Siting of Renewable or Alternative Energy R&D or Manufacturing Facilities
- Model As-of-Right Bylaw for Large-Scale Photovoltaic Installations
- Model As-of-Right Bylaw for Use of Wind Facilities
- Sample Energy Reduction Action Plan Outline
- Guidance and Model Policy for Purchasing only Fuel Efficient Vehicles
- Fuel Efficient Vehicles that meet Green Communities Qualification Criteria
- Overview Summary of Stretch Code
- Summary Table of Stretch Code
- Stretch Code Adoption Process for Towns
- Residential Home Cash Flow Analysis Example
- Question and Answer for Stretch Energy Code Appendix 120.AA
- Stretch Code Webinar: Presentation (with and without audio)

Also available via www.mass.gov/energy/greencommunities are materials about other DOER programs and services, including the Energy Audit Program, Energy Management Services, and MassEnergyInsight.

Other resources available online include:

- Wind Energy Site Screening Tool created by DOER and MassGIS, which allows the user to evaluate potential sites for wind energy online in any area of Massachusetts - http://maps.massgis.state.ma.us/wind
- Northwest Community Energy website has a description and diagram of the air safety and lighting approvals required for applicable wind projects - www.nwcommunityenergy.org/wind/permitting-1/other-approvals

- The Massachusetts Association of Regional Planning Agencies (MARPA) produced "A Best Practices Model for Streamlined Local Permitting" in 2007 - www.mass.gov/Ehed/docs/permitting/permitting_bestpracticesguide.pdf
- The Massachusetts Permit Regulatory Office, Interagency Permitting Board, and the Town of Grafton created the Municipal Permit Tracking System (MPTS) as an affordable alternative for cities and towns to comply with best practices as outlined by the MARPA. The MPTS was created to be used with commonly available software applications, and may be downloaded for free by municipalities. – www.mass.gov/mpro
- Energy Star Portfolio Manager – www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager
- ICLEI Software – www.icleiusa.org/action-center/tools/cacp-software

APPENDICES

Appendix A: Action Plan Matrix

Appendix B: Action Plan Development Meetings

Appendix C: Gill Letter of Commitment

Appendix D: Gill Zoning Map

Appendix E: Wind Resources Map for the Town of Gill

Appendix F: Energy Baseline Information

Appendix G: Gill-Montague Regional School District Fuel-Efficient Vehicle Policy

APPENDIX A: Action Plan Matrix

APPENDIX A: GILL ACTION PLAN MATRIX

CRITERIA #	GREEN COMMUNITIES CRITERIA	METHODOLOGY	TASK #	ACTION ITEM(S)	TIMELINE	RESPONSIBLE PARTY
1	***Provide for the as-of-right siting for renewable or alternative energy generating facilities, renewable or alternative energy research and development (R&D) facilities, or renewable or alternative energy manufacturing facilities in designated locations.*** An applicant can meet this requirement by providing as-of-right siting for one of the three types of facilities described. If meeting the requirement through manufacturing or R&D, the area zoned for as-of-right siting of these facilities must allow for the development of at least 50,000 square feet of facility space in the aggregate. Applicants must provide DOER with a letter from legal counsel including: ▪ The letter must cite and summarize the pertinent section of the zoning ordinance/bylaw; o Applicants must include copies of: o The applicable section of their zoning bylaw/ordinance, o Important zoning definitions, o The relevant section of the use table and any key that will help DOER interpret the use table, o Any related local regulations applicable to facilities sited under the bylaw/ordinance—such as site plan review regulations—so that DOER can confirm that the related local regulations are non-discretionary; AND ▪ Yield calculations must be either included in the text of the letter or attached.	Solar, wind, and hydroelectric generating facilities are currently allowed by Special Permit in the Residential (R), Residential-Agricultural (R-A), and Village Commercial (VC) Zoning Districts. Scientific research and development is currently allowed by Special Permit in the R, R-A, and VC districts. Light industry is also allowed by special permit in the R-A and VC districts (Gill Zoning Bylaw Section 2C Table of Use Regulations). Gill will consider amending its Zoning Bylaw to allow alternative or renewable energy R&D and/or manufacturing as-of-right in one of its zoning districts. The Town is also interested in exploring locations for allowing solar generation to be sited as-of-right, and will work to identify potential sites for a ground-mounted solar array of 250 kW or more. Gill does not have sufficient wind resources anywhere in Town, making the siting of wind turbines infeasible. ***FRCOG provided wind resource map.***	1-A	The Town of Gill will consider amending its Zoning Bylaw to allow renewable or alternative energy R&D and/or manufacturing in the Village Commercial District, if appropriate, as-of-right with Site Plan Review and subject to Performance Standards. ***FRCOG provided DOER Guidance document***.	October 2010	Planning Board Zoning Board of Appeals Energy Commission Select Board Town Counsel Town Administrative Assistant Town Meeting
			1-B	Gill will obtain a letter from Town Counsel affirming compliance with Criterion 1 if the zoning changes in Task 1-A are completed. ***FRCOG provided DOER Guidance document.***	November 2010	Town Counsel Town Administrative Assistant
			1-C	Gill will also explore sites in Town where a ground-mounted solar array of 250 kW or more could be sited as-of-right with Site Plan Review and subject to Performance Standards, and will consider amending its Zoning Bylaw to create a solar overlay district for the designated area(s). ***FRCOG provided DOER sample bylaw.***	May 2011	Planning Board Zoning Board of Appeals Energy Commission Select Board Town Counsel Town Administrative Assistant Town Meeting
2	***Adopt an expedited application and permitting process under which these energy facilities may be sited within the municipality and which shall not exceed 1 year from the date of acceptance of a completed application to the date of final approval.*** An applicant can meet this requirement by applying the expedited permitting process of MGL c 43D to these zoning districts. The municipality will be required to provide documentation that demonstrates that the designated as-of-right zoned area and the 43D Priority Development Site (PDS) overlap. If meeting the criterion by allowing the by-right construction of either renewable or alternative energy R&D or manufacturing facilities, the municipality will be required to provide a letter from the municipality's legal counsel providing documentation that a Priority Development Site approved pursuant to Chapter 43D by the Interagency Permitting Board applies to enough land within the district zoned for the by-right siting of energy facilities to construct at least 50,000 square feet of R&D or manufacturing space in the aggregate. If not meeting this criterion through Chapter 43D, municipalities must provide DOER a letter from legal counsel affirming conformance with the expedited permitting requirement and providing: · Language of any applicable local site plan review by-law or	Gill has already adopted M.G.L. Ch. 43D, and is interested in potentially designating a new Priority Development Site in the Village Commercial District, if appropriate, where renewable or alternative energy R&D and manufacturing will be allowed as-of-right with Site Plan Review and subject to Performance Standards. The site would be large enough to accommodate at least 50,000 square feet of facility space in the aggregate. If a PDS is not designated, the Town will consider developing and adopting a General Bylaw to create an Expedited Permitting Process for non-zoning-related Town Boards. Under this provision, the permitting of renewable and alternative energy R&D and/or manufacturing facilities shall not exceed 1 year from the date of acceptance of a completed application to the date of final approval. The Zoning Bylaw for the Town of Gill already includes a Site Plan Review procedure which outlines a review process for zoning-related Town Boards where the Zoning Board of Appeals shall hold a public hearing within 65 days of receipt of an application, and shall take final action within 90 days of the hearing.	2-A	The Town of Gill will explore the possibility of designating a new Priority Development Site in the Village Commercial District, if appropriate, where renewable or alternative energy R&D and/or manufacturing will be allowed as-of-right with Site Plan Review and subject to Performance Standards. If adopted by Town Meeting, the Town will submit the PDS to the Massachusetts Interagency Permitting Board (IPB) for approval. ***The Massachusetts Permit Regulatory Office has the official application form and guidance materials for the Chapter 43D Program on their website at www.mass.gov/mpro.***	October 2010	Planning Board Zoning Board of Appeals Energy Commission Select Board Town Administrative Assistant Town Meeting
			2-B	Gill will provide DOER a letter from legal counsel affirming conformance with the expedited permitting requirement providing that Task 2-A is completed. ***FRCOG provided DOER Guidance document.***	November 2010	Town Counsel Town Administrative Assistant
			2-C	If a PDS is not designated, the Town will consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning related Town Boards, under which permitting for renewable or alternative energy R&D and/or manufacturing facilities shall not exceed 1 year from the date of acceptance of a completed application to the date of final approval. ***FRCOG provided DOER Guidance document***.	May 2011	Planning Board Select Board Town Counsel Town Administrative Assistant Town Meeting

Note: A ✓ denotes a task that has been completed.

CRITERIA #	GREEN COMMUNITIES CRITERIA	METHODOLOGY	TASK #	ACTION ITEM(S)	TIMELINE	RESPONSIBLE PARTY
	ordinance that covers approval procedures and associated timing; and · A statement that nothing else within the municipality's rules and regulations precludes issuance of a permitting decision within one year.	If a solar overlay district is adopted where a ground-mounted solar array of 250 kW or more will be allowed as-of-right with Site Plan Review and subject to Performance Standards, the Town will also consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning-related Town Boards.	2-D	If a solar overlay district is adopted where a ground-mounted solar array of 250 kW or more will be allowed as-of-right with Site Plan Review and subject to Performance Standards, the Town will also consider adopting a General Bylaw to create an Expedited Permitting Process for non-zoning-related Town Boards. ***FRCOG provided DOER Guidance document***.	May 2011	Select Board Town Counsel Town Administrative Assistant Town Meeting
3	***Establish an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting, and put in place a comprehensive program designed to reduce this baseline by 20 percent within 5 years of the baseline year.*** Energy use baseline is applied in the aggregate across building, street lights and vehicles on an MMBTU basis.	Gill has partially met this criterion. The Town has already conducted both a preliminary audit and an Investment Grade Audit (IGA) for all town-owned buildings, excluding the Gill Elementary School, and pumping station through the FRCOG Energy Savings Performance Contracting (ESPC) program with Siemens Building Technologies, Inc. The Gill Elementary School is owned by the Town of Gill and part of the Gill-Montague Regional School District, which has conducted a preliminary audit on all school buildings through the ESPC program. The Town is responsible for all school capital costs, while the school district covers operating expenses. The Town, however, will handle the implementation of improvements agreed to in the ESPC for the school. Western Massachusetts Electric Company (WMECO) just completed an audit on the Town's streetlights. In April the Town Administrative Assistant attended a training session for DOER's MassEnergyInsight energy information system. Gill does not have any traffic lights.	3-A ✓	A municipal official and/or member of the Energy Commission will attend a MassEnergyInsight training session or webinar hosted by the DOER.	April 2010	Town Administrative Assistant Energy Commission
			3-B	Gill will complete a baseline inventory for all Town-owned vehicles and street lights using DOER's MassEnergyInsight energy information system. ***FRCOG provided DOER's Guidance document.***	November 2010	Town Administrative Assistant Energy Commission
			3-C	Gill will adopt a comprehensive program designed to reduce its energy use baseline by 20% within 5 years of the baseline year, and will ask the Gill-Montague Regional School Committee to endorse the plan. ***FRCOG provided DOER's Sample Energy Reduction Action Plan Outline.***	February 2011	Energy Commission Town Administrative Assistant Select Board
4	***Purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.*** If an applicant does not have a vehicle fleet other than heavy-duty vehicles and/or police cruisers, it must propose alternative means for meeting this requirement (e.g., having in place policies and procedures that promote reduced fuel usage for the municipality). For example, carpooling incentives for municipal employees, preferred parking for employees with hybrid vehicles, bike racks at municipal buildings and incentives for employees to bike to work. An applicant must provide a vehicle inventory for non-exempt vehicles and a plan for replacing these vehicles with vehicles that meet the fuel efficiency ratings [outlined in the DOER Fuel Efficient Vehicles Spreadsheet].	Gill has no non-exempt vehicles. The Gill-Montague Regional School Committee voted on May 11, 2010 to adopt a fuel-efficient vehicle policy for all non-exempt school vehicles, whereby the school district will maintain an annual vehicle inventory for non-exempt vehicles and develop a plan and process for replacing them with vehicles that meet U.S. EPA fuel efficiency standards. To meet this criterion, the Town of Gill will adopt alternative Transportation Demand Management (TDM) measures, such as incentives for carpooling and placing bike racks at Town-owned buildings. The Town will also consider adopting a fuel efficient vehicle purchasing policy to cover any non-exempt vehicles the Town may purchase in the future.	4-A	Gill will adopt alternative Transportation Demand Management (TDM) measures. ***FRCOG provided recommended TDM measures.***	September 2010	Energy Commission Town Administrative Assistant Select Board
			4-B	Gill will consider adopting a fuel efficient vehicle purchasing policy for municipal vehicles. ***FRCOG provided DOER's Guidance document and Model Fuel Efficient Vehicle Policy.***	September 2010	Energy Commission Town Administrative Assistant Select Board

Note: A ✓ denotes a task that has been completed.

CRITERIA #	GREEN COMMUNITIES CRITERIA	METHODOLOGY	TASK #	ACTION ITEM(S)	TIMELINE	RESPONSIBLE PARTY
5	***Require all new residential construction over 3,000 square feet and all new commercial and industrial real estate construction to minimize, to the extent feasible, the life-cycle cost of the facility by utilizing energy efficiency, water conservation and other renewable or alternative energy technologies.*** Cities and towns can meet this requirement by adopting the new BRRS Stretch Code, the new appendix to the MA State Building Code. Should a community choose to not adopt the Stretch Code and choose to use another standard, the community must provide evidence that this alternative standard minimizes the life cycle energy costs for all new construction and is enforceable by the community.	The Town of Gill does not currently have a standard in place to fulfill this requirement. Gill utilizes the Franklin County Cooperative Inspection Program (FCCIP) for building inspection services and zoning enforcement.	5-A ✓	Key Town staff and committee/board members will investigate the Stretch Code, attend one of the workshops organized by the FRCOG and review materials from the workshop provided by FRCOG.	January 2010	Energy Commission Planning Board Town Administrative Assistant Select Board FCCIP
			5-B	The Select Board will hold a Public Hearing addressing the Stretch Code.	September 2010	Energy Commission Select Board
			5-C	The Select Board will determine if they have sufficient information to bring a warrant article to adopt the Stretch Code at a Town Meeting.	October 2010	Select Board Town Administrative Assistant Town Meeting FCCIP
			5-D	In the event that the Stretch Code is not adopted or brought to Town Meeting, the Select Board, in coordination with the FCCIP, will consider adopting an alternative standard that minimizes the life cycle energy costs for new construction and is enforceable by the community.	May 2011	Energy Commission Town Administrative Assistant Select Board FCCIP

Note: A ✓ denotes a task that has been completed.

APPENDIX B: Action Plan Development Meetings

AGENDA

Town of Gill
Energy Committee Meeting
Gill Town Hall

April 20, 2010
6:00 p.m. – 7:30 p.m.

1. **Introductions** – Ray Purington, Administrative Assistant (6:00 p.m.)

2. **Green Communities Presentation** – Dan Laroche, Land Use Program Manager, Franklin Regional Council of Governments (FRCOG) (6:05 p.m.)
    - Becoming a Green Community
    - Green Communities Planning Assistance
    - Project Schedule

3. **Action Plan Discussion** – Dan Laroche, Land Use Program Manager, FRCOG and Alyssa Larose, Assistant Planner, FRCOG (6:30 p.m.)
    - Process and role of FRCOG
    - Review each criteria (current status, next steps, responsible party and timeline for each)

4. **Next Steps** – Dan Laroche, Land Use Program Manager, FRCOG (7:25 p.m.)
    - Prepare Action Plan
    - Final meeting to present Draft Action Plan
    - Comment period
    - Prepare Final Action Plan
    - Endorsement of Final Action Plan by Energy Committee
    - Endorsement of Final Action Plan by Selectboard

Gill Green Communities Sign In

April 20th 2010

Name	email	affiliation
Joey Lafleur	Joe-Joe1992@live.com	Gill energy commission
RAY PURLINGTON	administrator@gillmass.org	Gill Admin. Asst.
John Ward	johnrward@hotmail.com	Gill Selectboard
Claire Chang	clairech@crocker.com	Gill Energy
Dan Laroche	dlaroche@frcog.org	FRCOG
Alyssa Larose	alarose@frcog.org	FRCOG
Tupper Brown	atbrown.law@comcast.net	Gill Energy

AGENDA

Town of Gill
Energy Committee Meeting
Gill Town Hall

May 17, 2010
6:00 p.m. – 7:30 p.m.

1. **Introductions** – Ray Purington, Administrative Assistant (6:00 p.m.)

2. **Draft Action Plan Review** – Pat Smith, Land Use Planner, FRCOG, and Alyssa Larose, Assistant Planner, FRCOG (6:05 p.m.)
    - Process and role of FRCOG
    - Review each criteria (current status, next steps, responsible party and timeline for each)

3. **Next Steps** – Pat Smith, Land Use Planner, FRCOG (7:15 p.m.)
    - Final comment period
    - Energy Committee endorsement of Final Action Plan
    - Board of Selectmen endorsement of Final Action Plan

Meeting to Discuss Green Communities Program
May 17, 2010
Gill Town Hall

Name	Mail/Email Address	Board Affiliation (if applicable)
Pamela Lester	plester56@hotmail.com	
PAT SMITH	psmith@frcog.org	FRCOG
Alyssa Larose	alarose@frcog.com	FRCOG
John Ward	johnpward@hotmail.com	Selectboard
Claire Chang	clairech@crocker.com	Energy Com
RAY PURINGTON		Admin Asst.
Tupper Brown	atbrown.law@comcast.com	Finance Comm.
Ivan Ustach	IvanUss@hotmail.com	Gill Con Comm
RICHARD FRENCH	esamuels77@comcast.net	Gill Planning
Tim Storrow	timstorrow@comcast.net	"

APPENDIX C: Gill Letter of Commitment

TOWN OF GILL

MASSACHUSETTS

www.gillmass.org

August 3, 2009

Meg Lusardi, Deputy Director
Green Communities Division
Massachusetts Department of Energy Resources
100 Cambridge St, Ste 1020
Boston, MA 02114

RE: Green Communities Planning Assistance Program 2009

Dear Deputy Director Lusardi:

The Town of Gill does not currently meet any of the five Green Communities Criteria. However, it has made strides toward meeting some of them.

The Town is participating in the Chapter 43D technical assistance program for expedited permitting. Through that process, it has developed tools that could be applied toward the expedited permitting of an energy facilities site.

Through the Energy Saving Contract (ESCO) program with the Franklin Regional Council of Governments, the Town has established a baseline of energy use for all town buildings for the last two years, but not streetlights or vehicles, nor for five years as the criterion stipulates.

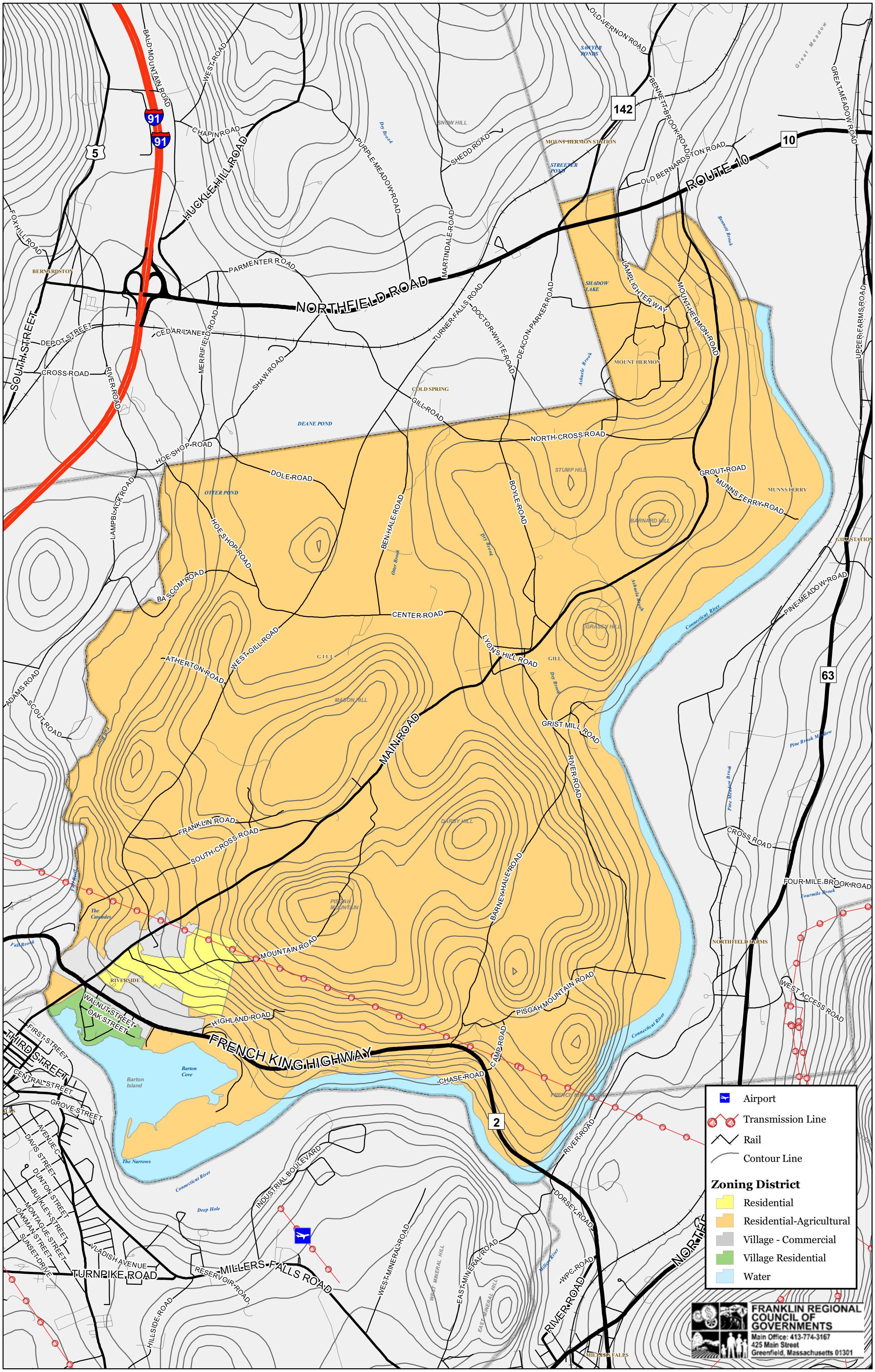
If the Town were to receive a Green Communities Planning Assistance Program award, it would commit to meeting all five criteria within a year.

Sincerely,

Ann H. Banash
John R. Ward
Nancy A. Griswold
Gill Selectboard

Telephone 413-863-9347 325 Main Road, Gill MA 01354 Fax 413-863-7775

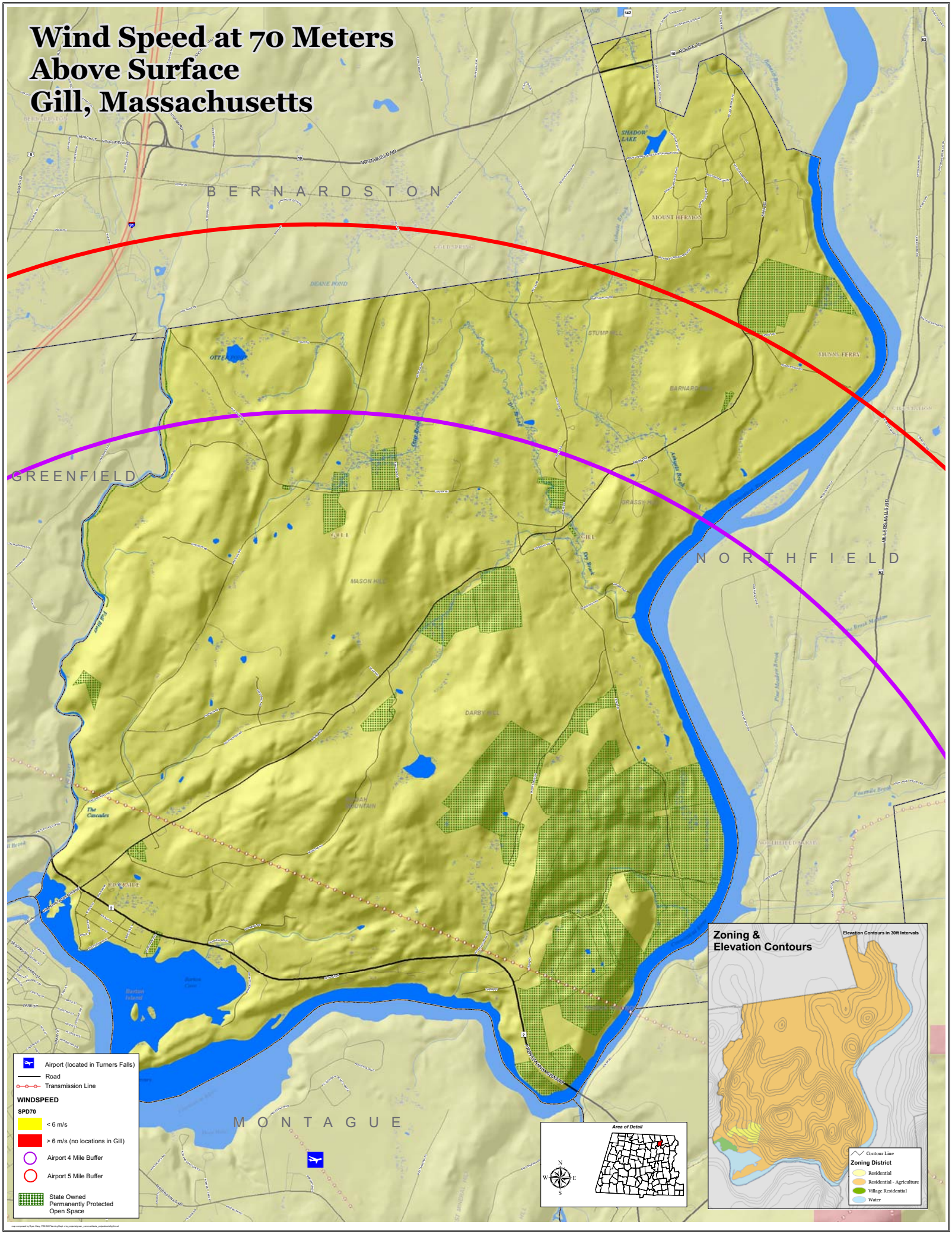
APPENDIX D: Gill Zoning Map



NORTHFIELD ROAD
ROUTE 10
MAIN ROAD
FRENCH KING HIGHWAY
HUCKLE HILL ROAD
SOUTH STREET
MILLERS FALLS ROAD
TURNPIKE ROAD
THIRD STREET
CENTER ROAD
NORTH CROSS ROAD
SOUTH CROSS ROAD
FRANKLIN ROAD
WEST GILL ROAD
ATHERTON ROAD
BASCOM ROAD
HOE SHOP ROAD
DOLE ROAD
BEN HALE ROAD
BOYLE ROAD
LYONS HILL ROAD
GRIST MILL ROAD
RIVER ROAD
BARNEY HALE ROAD
MOUNTAIN ROAD
HIGHLAND ROAD
PISGAH MOUNTAIN ROAD
CAMP ROAD
CHASE ROAD
WALNUT STREET
OAK STREET
GROUT ROAD
MUNNS FERRY ROAD
MOUNT HERMON ROAD
LAMPLIGHTER WAY
GILL ROAD
TURNER FALLS ROAD
DOCTOR WHITE ROAD
DEACON PARKER ROAD
MARTINDALE ROAD
PURPLE MEADOW ROAD
SHEDD ROAD
CHAPIN ROAD
WEST ROAD
BALD MOUNTAIN ROAD
PARMENTER ROAD
CEDAR LANE
DEPOT STREET
CROSS ROAD
RIVER ROAD
MERRIFIELD ROAD
SHAW ROAD
LAMPBLACK ROAD
ADAMS ROAD
SCOUT ROAD
FOX HILL ROAD
OLD VERNON ROAD
BENNETT BROOK ROAD
OLD BERNARDSTON ROAD
GREAT MEADOW ROAD
UPPER FARMS ROAD
PINE MEADOW ROAD
CROSS ROAD
FOUR MILE BROOK ROAD
WEST ACCESS ROAD
FIRST STREET
CENTRAL STREET
GROVE STREET
AVENUE C
DAVIS STREET
DUNTON STREET
BULKLEY STREET
MONTAGUE STREET
OAKMAN STREET
SUNSET DRIVE
VLADISH AVENUE
RESERVOIR ROAD
HILLSIDE ROAD
INDUSTRIAL BOULEVARD
WEST MINERAL ROAD
EAST MINERAL ROAD
DORSEY ROAD
WPC ROAD
91
5
142
10
63
2
BERNARDSTON
MOUNT HERMON
COLD SPRING
RIVERSIDE
GILL
NORTHFIELD FARMS
MUNNS FERRY
DEANE POND
OTTER POND
SHADOW LAKE
Barton Island
Barton Cove
The Narrows
The Cascades
Connecticut River
Deep Hole
Airport
Transmission Line
Rail
Contour Line
Zoning District
Residential
Residential-Agricultural
Village - Commercial
Village Residential
Water
FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
Main Office: 413-774-3167
425 Main Street
Greenfield, Massachusetts 01301

APPENDIX E: Wind Resources Map for the Town of Gill

Wind Speed at 70 Meters Above Surface Gill, Massachusetts



APPENDIX F: Energy Baseline Information

Town of Gill

Preliminary
Energy Conservation Report

Prepared by:

Siemens Building Technologies, Inc.
85 John Road, Unit 1
Canton, MA 02021

January 16, 2009

Performance Contracting Approach to Achieving Self Funded Energy Conservation Measures and Facility Improvements:

Siemens' Energy Performance Solutions Program is a customized program designed to reduce energy and operating costs through the implementation of infrastructure and management improvements. The program is financed through Siemens and within existing utility budgets and requires no capital monies or additional ongoing expense.

Some benefits of the program include:

- Improved facility infrastructure
- Lowered operating costs
- Self-funded modernization of infrastructure
- Guaranteed cost reductions
- Reduced financial risk
- Improved operating efficiencies
- Improved patient satisfaction and comfort

What is Performance Contracting?

Performance contracting is a procurement process that enables municipalities and school districts to use energy savings within their existing buildings to fund necessary building upgrades, retrofits and other improvements (i.e. fire and security, infrastructure improvements, etc.) without having the customer budget any money (capital dollars).

Siemens installs energy efficient equipment (lighting, controls, boilers, chillers, etc.), which reduces their existing energy budget and pays for the new equipment over time.

There are no upfront costs and annual savings are guaranteed over the term of the agreement.

EXECUTIVE SUMMARY

Siemens provides a comprehensive solution to your building upgrades and cost-containment needs while maintaining a flexible approach. The Siemens Performance Contracting Team consists of highly qualified individuals with years of experience in servicing the energy and building needs of municipalities nationwide. Our definition of success is improving the environment for your staff, reducing your costs, and building a long-term business partnership by investing in your community. We'd like to make our contribution and look forward to earning your business.
For the purposes of this report, Siemens has conducted a preliminary evaluation of the Town of Gill Municipal Buildings to identify potential facility improvement opportunities.

Details about the buildings audited are listed in the table below:

	Address	Total Sq.Ft (sq.ft)
Town Hall	325 Main Rd	5,548
Public Safety Complex (Town Garage)	196 Main Rd	12,600
Pumping Station	Riverview Dr	228
Riverside Municipal Building	54 French King Highway	7,791
Library	332 Main Rd	2,417
Total		**28,584**

Based on the preliminary benchmarking analysis and a conservative savings estimate based on our past project experiences with similar space types, there is an opportunity to save approximately $ 8,342 per year from your existing budget. This savings is equivalent to 26.6% of the existing annual utility costs.

Based on the result of the benchmark analysis, there is a potential to fund approximately $ 160,157 in facility upgrades which could be paid for out of guaranteed savings in a 20 year contract term. Estimated savings do not include utility rebates, renewable power generation, and operational and maintenance savings, which could also be used to fund the program. Operational and maintenance savings will be further investigated during the Detailed Energy Analysis (DEA). However, it should be noted that the final selection of measures depends on several components such as payback, financing terms and cost.

UTILITY DATA

The benchmark analysis was performed using energy consumption and cost data provided by the Town of Gill.

	Address	Annual Electricity Consumption (kWh)	Annual Electricity Spend ($)	Annual Fuel Oil Consumption (Gals)	Annual Fuel Oil Spend ($)
Town Hall	325 Main Rd	16,966	$3,120	1,053	$2,234
Public Safety Complex (Town Garage)	196 Main Rd	41,207	$6,928	3,178	$6,715
Pumping Station	Riverview Dr	8,768	$1,774	-	-
Riverside Municipal Building	54 French King Highway	8,225	$1,639	3,314	$7,085
Library	332 Main Rd	1,331	$560	558	$1,217
Bridge Lights	Bridge St	2,150	$512	-	-
Street Lights	All Streets	22,247	$5,685	-	-
		100,894	**$20,218**	**8,102**	**$17,250**

ENERGY STAR BENCHMARKING

Siemens used the Energy Star Benchmarking Tool to compare each of the buildings to buildings of similar usage. As a result we were able to conservatively identify the savings potential for each of the buildings.

	Pre Energy Cost ($)	Post Energy Cost ($)	Estimated Savings ($)
Town Hall	$5,354	$4,497	$857
Public Safety Complex	$13,643	$9,550	$4,093
Pumping Station	$1,774	$1,623	$151
Riverside Municipal Building	$8,724	$6,105	$2,619
Library	$1,777	$1,155	$622
Total	**$31,272**	**$22,930**	**$8,342**

Town Hall Benchmark Report

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Top 10%**
Energy Performance Rating (1-100)	61	75	90
Energy Reduction (%)	12	26	45
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	61.3	51.5	38.6
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	36.6	30.8	23.1
Total Annual Source Energy (kBtu)	340,228.2	285,845.4	214,167.1
Total Annual Site Energy (kBtu)	203,316.0	170,817.6	127,983.5
Total Annual Energy Cost ($)	$ 5,353	$ 4,497	$ 3,369
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	17.1	14.4	10.8
CO2-eq Emissions Reduction (%)	12%	26%	45%

Facility Information Edit

Town Hall
Gill, MA 01354
United States

Facility Characteristics Edit	
Space Type	**Gross Floor Area (Sq. Ft.)**
Office	5,548
Total Gross Floor Area	5,548

Estimated Design Energy Edit

Energy Source	Units	Estimated Total Annual Energy Use	Energy Rate ($/Unit)
Electricity	kWh	16,966	$ 0.184/kWh
Diesel (No. 2)	Gallons	1,053	$ 2.120/Gallons

Source: Data adapted from DOE-EIA. See EPA Technical Description.

Riverside Municipal Building Benchmark Report

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Top 10%**
Energy Performance Rating (1-100)	23	75	90
Energy Reduction (%)	N/A	17	33
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	71.4	49.9	40.5
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	62.3	43.6	35.4
Total Annual Source Energy (kBtu)	556,000.6	389,112.3	315,789.7
Total Annual Site Energy (kBtu)	485,754.6	339,951.3	275,892.3
Total Annual Energy Cost ($)	$ 8,724	$ 6,105	$ 4,955
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	36.8	25.8	20.9
CO2-eq Emissions Reduction (%)	-18%	17%	33%

Facility Information Edit

Riverside Municipal Building
Gill, MA 01354
United States

Facility Characteristics Edit	
Space Type	**Gross Floor Area (Sq. Ft.)**
K-12 School	7,791
Total Gross Floor Area	7,791

Estimated Design Energy Edit			
Energy Source	**Units**	**Estimated Total Annual Energy Use**	**Energy Rate ($/Unit)**
Electricity	kWh	8,225	$ 0.199/kWh
Diesel (No. 2)	Gallons	3,314	$ 2.138/Gallons

Source: Data adapted from DOE-EIA. See EPA Technical Description.

FACILITY DESCRIPTIONS

Town Hall

BUILDING DESCRIPTION

The Gill Town Hall comprises of a 2-story, clapboard building with single pane windows and exterior storm windows. In addition part of the buildings basement is utilized for office space as well. Occupied by 3 people, the Town Hall operates 4 days per week Mon 9:00 a.m. - 6:30 p.m., Tue - Thu 9:00 a.m. - 4:30 p.m.

SYSTEM DESCRIPTIONS

Lighting

Majority of the lighting system consists of T-8 fluorescent fixtures.

Mechanical Systems

Heating for the building is provided by a single H.B. Smith, cast iron sectional hot water boiler. This boiler uses # 2 heating oil and has an output capacity of 174.8 MBH. Heating hot water is distributed via two fractional horsepower zone pumps to baseboard radiation located throughout the facility.

Energy Management System

There is no energy management system at this building. Building space temperature control is achieved with a programmable thermostat for the office area and a wall mounted thermostat without setback capability in the second floor auditorium.

Miscellaneous

Domestic hot water for the Town Hall is provided by a tankless hot water system. The associated heat exchanger is fed by the exiting boiler. It was noted that the building appears to have moisture problems in the basement. A large dehumidifier manufactured by Comfort Air was found in the basement as well as a sump pump located in a small mechanical area adjacent to set unit.

Gill PD, FD and Highway Department

BUILDING DESCRIPTION

This building consists of a single story, brick faced building with original double pane, aluminum frame sliding windows. The facility serves the local police department, the volunteer fire department, the highway department and a small community center. Given its nature, the facility utilizes a variety of overhead doors for vehicle access. Only constant occupants for this building is the highway department.

SYSTEM DESCRIPTIONS

Lighting

Like the Town Hall, majority of the lighting fixtures are older technology T-8 fluorescent fixtures even in the garage area with the high ceilings.

Mechanical Systems

The heating system for this facility comprises of a single, oil-fired cast iron sectional steam boiler manufactured by H.B. Smith. It is apparent that this boiler has reached the end of its physical life and should be replaced. This boiler provides low pressure steam for the garage as well as heating hot water for the PD and FD hydronic heating system. Heating hot water is produced with a steam to hot water heat exchanger. Several rooms of this

building are also air conditioned via the use of thru-the-wall air conditioning units of various ages and efficiencies.

Energy Management System

Only means of space temperature controls are wall mounted thermostats without night setback capabilities.

Miscellaneous Equipment

One Residential type refrigerator, (1) cold snack machine and (1) snack machine were observed during our initial walk thru. It was stated that the garage area is seldom heated during the heating season.

Riverside

BUILDING DESCRIPTION

Riverside is a single story, wooden shingle sided facility with single pane, wooden sash windows with exterior storm and an asphalt shingled roof. The building is currently occupied by the Four Winds School; an independent middle school, as well as the historical society. The school has only two classrooms and operates 168 days per year.

SYSTEM DESCRIPTIONS

Lighting

The majority of lighting fixtures comprise of T-8 fluorescent fixtures.

Mechanical Systems

Low pressure steam for heating is provided by a single H.B. Smith, cast iron sectional boiler. This boiler fires on # 2 fuel oil and shows clear signs of physical deterioration. The steam is distributed to cast iron radiators located throughout the building via a single pipe system.

Energy Management System

A single programmable thermostat was observed in on e of the classrooms of the Four Winds School. Given that no zone controls were found on the boiler this appears to be the only means of space temperature control and night setback.

Miscellaneous Equipment

Domestic hot water is provided by a single instantaneous hot water heater located in the basement. It appears that only a couple of sinks are end users.

Slate Memorial Library

BUILDING DESCRIPTION

Originally build in 1921, the Slate Memorial Library comprises of a single story cinder block building with wooden sash windows and exterior storms. The building has a slate roof and a full basement. It was noted that the ridge cap is not wide enough and may cause water do be driven into the roof area during a heavy storm. We also noticed that the basement windows do not seal tight anymore and thus are cause for water damage and infiltration. The interior of the library has a drop ceiling with fiber glass lay-in panels. In addition, R-19 bat insulation was added to the top of the ceiling as well. Operating hours for the library are Mondays 2 pm – 6 PM, Thursdays 2 PM – 8 PM and Saturdays 10 AM – 2 PM.

SYSTEM DESCRIPTIONS

Lighting

Original T-12 fluorescent fixtures are utilized to illuminate this facility.

Mechanical Systems

A single, oil fired hot air furnace is utilized to provide heating for the building. The furnace is manufactured by Williamson and is equipped with a Clarin oil burner.

Energy Management System

Room temperature is controlled with a single, wall mounted thermostat without night setback capabilities.

Energy Conservation Measure Summary

The following Energy Conservation Measures were identified during our walk thru:

Facility Improvement Measures (FIM's)	Town Hall	Public Safety Complex	Riverside	Slate Memorial Library
Lighting and Lighting Controls	√	√	√	√
Energy Management System	√	√	√	√
Boiler Replacement		√	√	
Heating System Conversion		√		
Building Envelope Improvements	√	√	√	√
Window Replacement		√	√	√
Steam Trap Replacement** (Only applies if Heating SystemConversion is not implemented)		√		
Vending Machine Controller		√		
Network Controller	√			
Solar Photo Voltaics	√	√		

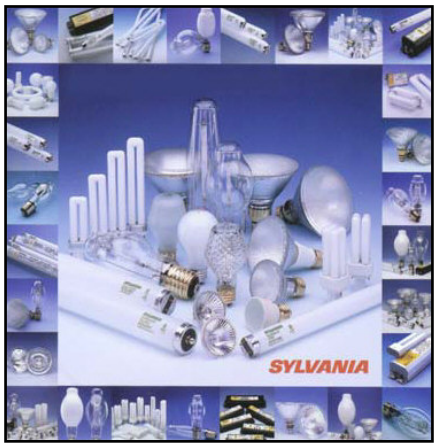
Estimated Payback	Up to 10 Years	10 Years +

THE LIST ABOVE INCLUDES ALL IDEINTIFED MEASURES.
HOWEVER,FINAL MEASURE SELECTION DEPENDS ON PAYBACK CRITERIA SET BY THE TOWN OF GILL.
SOME MEASURES MAY REQUIRE ADDITONAL FUNDS TO BE COST EFFECTIVE.

POTENTIAL FACILITY IMPROVEMENT MEASURES (FIM'S)

Based on preliminary site investigation, Siemens has identified the following potential Facility Improvement Measures (FIM's):

Lighting and Lighting Controls



Lighting*:*
Siemens proposes to replace any existing T-8 and T-12 fluorescent lamp fixtures with efficient Super T-8 high lumen output fluorescent lamp fixtures and high efficiency electronic ballasts.

Sensors

Occupancy and daylight sensors will be installed in any applicable areas.
Dataloggers will be installed throughout a sampling of areas during the detailed audit to clearly quantify the potential for savings.

EMS Installation

In order to reduce energy consumption and improve occupancy comfort at the slected buildings, Siemens proposes to install new Direct Digital Controls.

The new systems shall be supplied with all the necessary software to perform the specified functions. Details and characteristics of system software shall be included as part of the technical proposal and shop drawing submittals. In addition, sequences and control strategies at the The following system software shall be supplied as a minimum:

- 365 day Zone Scheduling
- Optimum Start
- Historical Tracking Database
- Full Color Graphics
- Logical programming functions

Proposed Sequences of Operations

The following are some of the proposed control sequences which will be used to save energy and reduce operating costs.

Night Setback:

By implementing this EMS strategy, the energy required for heating or cooling during unoccupied hours is reduced by lowering the heating space temperature set point or raising the cooling space temperature set point. For example, the space temperature can be reduced from the normal winter inside design temperature (70°F -72°F) to a lower space temperature (55°F - 60°F) during the unoccupied periods.

Scheduled Start/Stop:

The scheduled start/stop program consists of starting and stopping equipment based on the time of day and day of week. Scheduled start/stop is the simplest of all EMS functions to implement. This program provides the best potential for energy conservation by turning off equipment or systems during unoccupied hours. The new system will also allow systems to be turned off during holidays.

Optimum Start/Stop control of HVAC System Equipment:

The scheduled start/stop program previously described is refined by automatically adjusting the equipment operating schedule in accordance with space temperatures and outside air temperature. In the scheduled start/stop program, HVAC systems are started prior to occupancy to cool down or heat up the space on a fixed schedule independent of outside air temperature and space conditions.

The optimum start/stop program automatically starts and stops the system on a sliding schedule. The program will adjust start/stop time by taking into account the thermal inertia of the structure, the capacity of the HVAC system to either increase or reduce space temperatures, outside air temperature conditions, and current space temperatures, using prediction techniques.

These techniques determine the latest time for starting HVAC equipment to satisfy the space environmental requirements at the beginning of the occupied cycle, and determine the earliest time for stopping equipment at the day's end.

Hot Water Temperature Reset (Town Hall & Public Safety Complex)

The EMS will reset the heating hot water and water supply temperatures based on the outside air temperature. Reset schedules will be determined from the system's heating/cooling needs. The EMS will have the ability to raise the hot water temperature to its maximum in the morning to minimize the morning warm-up period, and then return to the normal outside air temperature reset schedule set point. Thermal energy will be saved by only using as much heat as is required based on outdoor air conditions.

Summer-Winter Operation Monitoring:

A summer-winter operation monitoring program will provide the means to change the operating parameters, alarm limits, and start-stop schedules for HVAC systems interfaced with the EMS from summer to winter operation and vice versa. The summer-winter switchover conditions for each HVAC system may be different; i.e., temperature set points or calendar schedule.

The new EMS will allow the facility to monitor the energy consuming equipment in the building remotely in real-time, track the facility energy performance, and remotely adjust setpoints and schedules to optimize the facility operation.

Another alternative for the Library would be the installation of a programmable thermostat.

Boiler Replacement

The boilers at the Public Safety Complex and Riverside show clear sign of physical deterioration and should be replaced. Siemens proposes to replace the boiler with a new, high efficient hydronic boiler. Should the heating system at the Public Safety Complex not be converted the new boiler would be a high efficient steam boiler.

Heating System Conversion

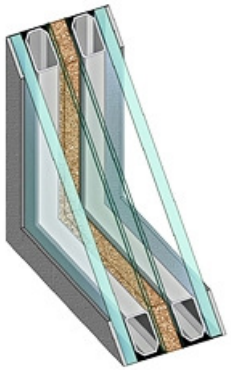
Two thirds of the heating systems at the Public Safety Complex are hydronic. Only the garage utilizes steam for heating. In order to achieve better system efficiencies and reliability Siemens recommend to convert the garage heating system to a hydronic system.

Building Envelope Improvements

Air leakage is defined as the "uncontrolled migration of conditioned air through the building envelope" caused by pressure differences due to wind, chimney (or stack) effect, and mechanical systems. Air leakage has been shown to represent the single largest source of heat loss or gain through the building envelopes of nearly all types of

buildings. Beyond representing potential for energy savings, uncontrolled air leakage can affect the thermal comfort of occupants, air quality through ingress of contaminants from outside and the imbalance of mechanical systems. The structural integrity of the building envelope can also be compromised through moisture migration. Control of air leakage involves the sealing of gaps, cracks and holes, using appropriate materials and systems, to create, if possible, a continuous plane of "air-tightness" to completely encompass the building envelope. Part of this process also incorporates the need to "decouple" floor - to - floor, and to "compartmentalize" components of the building in order to equalize pressure differences.

Window Replacement (All except Town Hall)



The windows at the above buildings show clear signs of physical wear and tear. These windows have become a large contributor to infiltration and exfiltration problems.
Siemens proposes to replace the existing single-pane window system with a new energy efficient system. The new window system will be comprised of new double-pane, low emissivity ("low-e"), high-performance glass with aluminum trim, which has a U-Value of 0.45 and a shading coefficient (SC) of 0.55. Implementation of this measure will reduce heat losses in the winter and heat gains in the summer, as well as reducing infiltration losses, thereby producing energy savings all year long. Occupants will benefit from improved comfort, especially when seated near windows. In addition, the new window system will greatly improve the aesthetic appearance of the building. The new windows will also close more completely, adding to the safety and security of the building.

It should be noted that windows usually have a higher payback and additional funds will be needed for the implementation of this measure

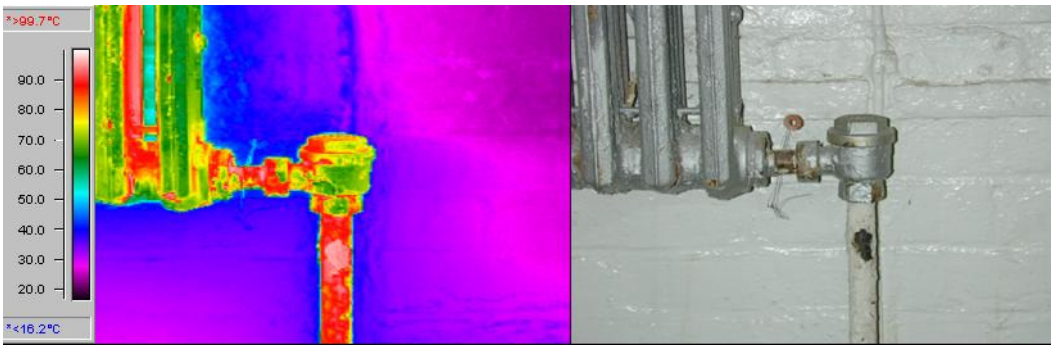
Motors Replacement (Pumping Station)

Substantial energy savings will be obtained by replacing the standard efficiency motors with energy efficient motors on heating hot water pumps with premium efficiency motors. Energy-efficient electric motors reduce energy losses through improved design, better materials, and improved manufacturing techniques. With proper installation, energy-efficient motors run cooler and consequently have higher

service factors, longer bearing and insulation life, and less vibration.

Steam Trap Replacement (Public Safety Complex)

The steam system consists of steam and condensate main piping, steam and condensate distribution piping, strainers, steam control valves, terminal equipment (steam coils, heaters, etc.), condensate pumps, and steam traps. The function of the steam trap is to vent air and drain condensate that is formed in the steam distribution system to prevent live steam from exiting when condensate in the lines is vented. Condensate is trapped and removed via various styles of steam traps (float and bucket, thermodynamic, thermostatic, and impulse types), each having a specific function and range of applications. These traps require constant maintenance to assure proper operation.



Mechanical steam traps can lose steam in two different ways. The first unavoidable loss occurs during the normal cycling of steam traps. This loss typically amounts to 1% of the trap capacity. The second loss is from failed and malfunctioning traps. Since traditional steam traps are mechanical, they are susceptible to failures resulting in the trap "blowing" steam. The traps are also susceptible to a variety of malfunctions that lead to the traps "leaking."

Siemens proposes to replace/ rebuilt the existing traps with a new mechanical equivalent. The existing float and thermostatic traps (F&Ts) will be rebuilt with components from their original manufacturers. Typically, the float ball, the thermostatic air vent and all seats will be rebuilt. Cover gaskets will be replaced. This action will restore the traps to their original operating condition, without the expense of replacing the entire trap body. Although there are other type of traps available (I.e. Orifice Type Traps), given the age of the existing system, proper operation could not be guaranteed.

Plugload Controller

For the control of the vending machines Siemens proposes to install vending machine occupancy controllers to manage the power consumption of the vending machines. Utilizing a Passive Infrared (PIR) sensor, the controller completely powers down a vending machine when the area surrounding it is unoccupied. Once powered down, the controller will monitor the room's temperature and use this information to automatically re-power the vending

machine at one to three hour intervals, independent of occupancy, to ensure that th e vended product stays cold.

The controller also monitors electrical current used by the vending machine. This ensures that the unit will never power down a vending machine while the compressor is running, so a high head pressure start never occurs. In addition, the current sensor ensures that every time the vending machine is powered up, the cooling cycle is run to completion before again powering down the vending machine. The proposed controller is approved by the Coca Cola Company and the Pepsi Corporation for use on their machines.

Network Controller

PCs are voracious consumers of electricity, and their energy use is increasing as faster processors, more memory, and more power-hungry peripherals become commonplace. A combination of the Central Processing Unit (CPU) and the monitor consumes around 120 watts (70 watts for the CPU and 50 watts for the monitor) while in operation, 12 watts (10 watts for the CPU and 2 watts for the monitor) while in standby/sleep mode and 2 watts (2 watts for the CPU and 0 watts for the monitor) in hibernation/off mode. According to the Department of Energy and Lawrence Berkeley National Laboratories, the average PC can waste up to 400 kilowatt-hours of electricity a year simply by running at full power when no user is present.

Siemens proposes the installation of the Faronics Power Save Software to reduce the computers energy consumption.

Faronics Power Save changes all this by providing system administrators with enterprise-wide control over advanced computer power configurations. With Power Save, computers can now be configured to shutdown, stand-by and hibernate based upon CPU usage, disk activity and application activity. The application activity feature is particularly useful if you would like a system to remain powered on whenever a certain application is running. Power Save even has the ability to generate detailed reports outlining enterprise-wide energy consumption levels and associated costs savings.

Using the Power Save Console, system administrators also have the ability to deploy a pre-configured installation package containing customized actions, inactivity settings, and more.

<u>Intelligent Configuration Settings</u>

- Definitions can be based on CPU, disk, keyboard, mouse and active applications
- Shutdown without the loss of user productivity

<u>Flexible Scheduling</u>

- Options to turn off the monitor, and standby, hibernate or shutdown the computer
- Schedule Wake-on-LAN, shutdown, or restart events
- Promotes user productivity in tandem with energy conservation

Compatibility Options

- Customize the deployment as well as update and control the client workstations
- Support for MMC – recognized as a standard tool among system administrators
- Localized in five languages: English, French, German, Spanish and Japanese

Enterprise Reporting

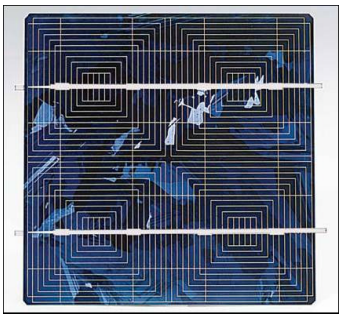
- Power Save features a built-in power consumption reporting tool
- Detailed workstation utilization reporting allows you to see how much power you are saving based upon your regional electricity cost.

Solar Photo Voltaic

The Turners Falls HS has an abandoned 75kW solar photovoltaic system installed on the roof. Siemens proposes to replace this system with new grid connected, solar photovoltaic panels. The photovoltaic panels would provide approximately 125,000 kWh of environmentally friendly power for the building. Rather than installing the system like the current which were installed lying down flat, the new panels would be installed in a tilted angle with a solar tracker.

A solar tracker is a device for orienting a solar photovoltaic panel or concentrating solar reflector or lens toward the sun. The sun's position in the sky varies both with the seasons (elevation) and time of day as the sun moves across the sky. Solar powered equipment works best when pointed at or near the sun, so a solar tracker can increase the effectiveness of such equipment over any fixed position, at the cost of additional system complexity. There are many types of solar trackers, of varying costs, sophistication, and performance.

Photovoltaics is the process of converting sunlight into electricity by means of a photovoltaic cell. The photovoltaic cell is a solid-state device composed of thin layers of semiconductor materials which produce an electric current when exposed to light. Single cells are connected in groups to form a module, and modules are grouped to form an array. The voltage and the current output from the array depend upon how the system is configured. Photovoltaic cells produce direct current (DC) electricity, the type of electricity contained in batteries. Most appliances, however, are designed to use alternating current (AC) electricity, the type available from a standard wall socket.

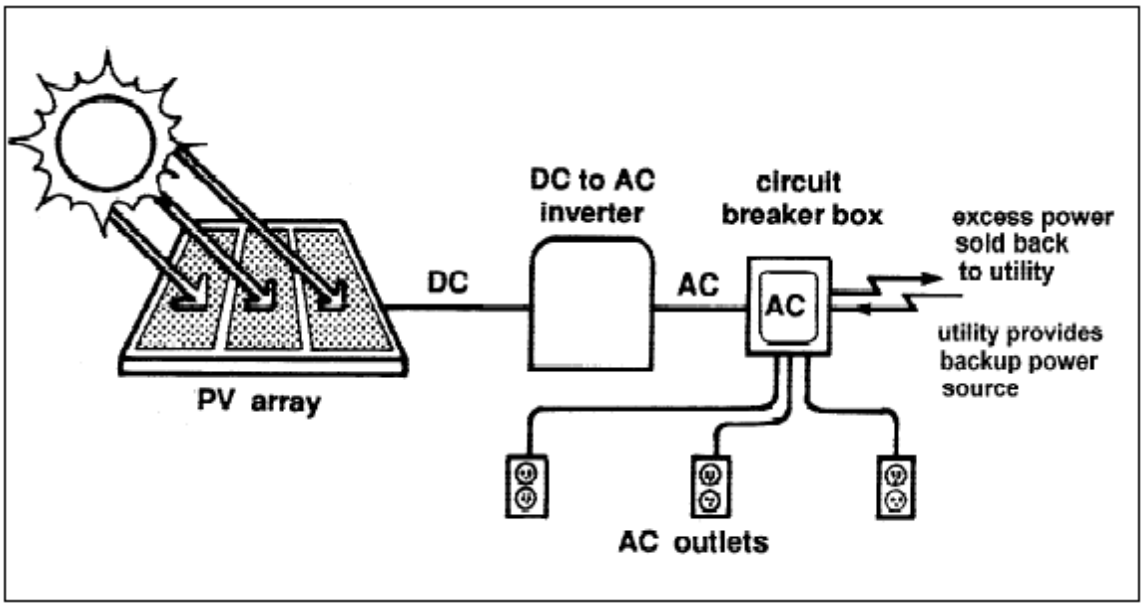


When AC current is required, an inverter is added to the photovoltaic system to change the current from DC to AC, but this will incur a 10-15 percent loss of power output. Photovoltaic-generated electricity has many applications.

The amount of area covered by photovoltaic panels will generate approximately 75,000 watts of electric power at full output. Several factors tend to limit the generation, however, these including the slope of the surface with respect to horizontal, occasional snow cover, and bird excrement. These factors are not expected to decrease the system performance to any great extent, however.

The new panels will be installed directly on the existing roof. Siemens assumes that their weight is not so great as to warrant greater structural support than currently exists, and will be confirmed during the detailed audit.

The energy generated by the photovoltaic modules will be tied directly into the college's power grid. This "Clean Green Energy" output is at its highest level when the sun's intensity is peaking. This new energy will coincide with the facility's need for space cooling and expensive summer electricity demand.



The system is environmentally attractive. Although this measure usually has a high pay back, further financial incentives are anticipated to be available to help defray the initial cost.

APPENDIX G: Gill-Montague Regional School District Fuel-Efficient Vehicle Policy

Gill-Montague
Regional School District

35 Crocker Avenue
Turners Falls, MA 01376
tel 413-863-9324
fax 413-863-4560

May 12, 2010

To Whom It May Concern:

At a regular meeting of the Gill-Montague Regional School Committee held on May 11, 2010, the school committee voted the following resolutions:

MOTION:

Jeff Singleton moved and Jen Waldron seconded:

WHEREAS, the Gill-Montague Regional School District (GMRSD), which leases Hillcrest and Sheffield school buildings from the Town of Montague, would benefit from long and short term energy saving measures being implemented in these two buildings; and

WHEREAS, the GMRSD has determined that, although it received a scoping audit of these two buildings from Siemens Building Technologies, Inc. that showed significant savings are available, it is unable to engage in an Energy Services Performance Contract to improve energy efficiency in these two buildings; and

WHEREAS, the Montague Energy Reduction Plan is the means by which the town is planning energy use reduction from municipal and school buildings and which will primarily be achieved through an Energy Services Performance Contract that will include the Hillcrest and Sheffield Elementary Schools; now, therefore, be it

RESOLVED, that the GMRSD School Committee approves the Montague Energy Reduction Plan, which describes how to reduce municipal and school energy use by 20% or more within five years, primarily through the Energy Services Performance Contract.

All voted in favor per roll call vote.

MOTION:

Jeff Singleton moved and Sandra Brown seconded:

WHEREAS, improving the energy efficiency of school-owned motor vehicles will reduce fuel consumption and energy costs and reduce total lifetime costs of vehicle ownership; and

WHEREAS, the most recently published US Environmental Protection Agency data define fuel efficient vehicles as having a combined city and highway MPG no less than:

Car:	2 wheel drive: 29 MPG	4 wheel drive: 24 MPG
Small pick-up truck:	2 wheel drive: 20 MPG	4 wheel drive: 18 MPG
Standard pick-up truck:	2 wheel drive: 17 MPG	4 wheel drive: 16 MPG

NOW, THEREFORE BE IT ORDERED

The GMRSD School Committee adopts a policy that the GMRSD purchase only fuel efficient vehicles whenever such vehicles are commercially available and practicable, provided however that the following vehicles shall be exempt:

- Heavy-duty vehicles such as school buses, fire-trucks, ambulances, and public works trucks
- Police cruisers, provided however that police cruisers will no longer be exempt when fuel-efficient cruisers become commercially available and practicable.

And that the GMRSD maintain an annual vehicle inventory for non-exempt vehicles and develop a plan and process for replacing these vehicles with vehicles that meet the fuel efficiency ratings above, including goals for when the existing fleet will be replaced, and annually review said plan.

This policy is enforced by the GMRSD School Committee or their designees.

All voted in favor per roll call vote.

Respectfully submitted,

Robin E Hamlett

Robin E. Hamlett
Recording Secretary
Gill-Montague Regional School Committee