



Green Communities Action Plan

Town of Medfield

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Prepared for:

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1. INTRODUCTION

This Action Plan is designed to guide the Town of Medfield in qualifying as a Green Community under the Massachusetts Department of Energy Resources (DOER) Green Communities Program. Qualifying communities will be eligible for the Green Communities Grant and Loan program to promote energy efficiency and alternative energy projects. Funding for this program, estimated at approximately \$10 million annually, originates from the Regional Greenhouse Gas Initiative. DOER has provided Planning Assistance to Massachusetts cities and towns to assist them in qualifying as a Green Community. This Action Plan is the result of Planning Assistance provided to the Town of Medfield.

There are five criteria that a municipality must meet to be designated a Green Community, which were established by Massachusetts General Law Chapter 25A Section 10, effective July 2, 2008:

- 1. Provide for the 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.*
- 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 initial application to the date of final approval.*
- 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 initial participation in the program.*
- 4. Purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.*
- 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.*

ICF International and Horsley Witten Group, Inc. (ICF/HW) were jointly contracted by DOER to provide Planning Assistance to more than fifty communities, over two rounds of assistance. ICF/HW provided assistance to each community over an approximate three month period. The assistance varied by community based on needs, but generally included working meetings, public meetings, ongoing communication and research, and model language (zoning language, policy language, etc.) for use in meeting the Green Community criteria. Each community was assigned a primary contact at either ICF or HW who worked closely with the community. Additional technical expertise was provided as needed to assist with specific criteria. Technical expertise from ICF was provided in the areas of energy use baseline inventories, energy use reduction plans, and the Stretch Energy Code (Criteria 3 and 5). Expertise from HW was provided in the areas of as-of-right zoning and expedited permitting (Criteria 1 and 2).

This Action Plan describes the progress to date and the subsequent steps to be completed in order for the community to meet all five Green Communities criteria. A timeline of activities and individual(s) or committee to whom the task has been delegated has been provided for each criterion, with the ultimate goal of qualifying as a Green Community within one year of the adoption of the Action Plan.

1.1. APPLICATION

Prior to applying for Planning Assistance through the Green Communities program, the Town of Medfield already had a strong and active Energy Committee. The Medfield Energy Committee (MEC) had been tracking municipal energy use and advocating for efficiency since its creation by the Board of Selectmen in March 2008. The application included a letter of commitment from Mark Fisher, Chairman of the Board of Selectmen. The letter indicated that the Board of Selectmen had committed to meeting the Green Community requirements within one year and had appointed ME C Chair Marie Nolan to be responsible for local coordination of the Planning Assistance.

| Green Communities Criteria | Status at Time of Application (per DOER) |
|---|--|
| 1. As-of-Right Siting | No Progress Presented in Application |
| 2. Expedited Permitting | |
| 3. Energy Use Baseline Inventory and Reduction Plan | Some Progress Presented in Application |
| 4. Policy to Purchase Only Fuel Efficient Vehicles | No Progress Presented in Application |
| 5. Minimize life-cycle costs in energy construction | |

1.2. INITIAL SITE VISIT

Leiran Biton of ICF International (ICF) conducted an initial site visit at a public meeting of the Medfield Energy Committee, which was coordinated by Medfield Energy Committee (MEC) Chair Marie Nolan. The meeting date and attendees are included below.

DATE OF SITE VISIT

Wednesday, December 14, 2010

ATTENDEES

| | | |
|------------------|------------------------------|--|
| Michael Sullivan | Town Administrator | Town of Medfield |
| Kenneth Feeney | Superintendent | Town of Medfield, Public Works |
| Walter Tortorici | Building Inspector | Town of Medfield |
| Charles Kellner | Finance & Ops Director | Medfield Public Schools |
| Marie Nolan | Chair | MEC |
| Fred Bunger | MCAN liaison | MEC |
| Lee Alinsky | Member | MEC |
| Penni Conner | Member | MEC |
| Fred Davis | Member | MEC |
| Cynthia Greene | Member | MEC |
| John Nunnari | Resident | Town of Medfield |
| Leiran Biton | Program Coordinator | ICF/Green Communities Assistance Program |
| Kelly Brown | Central Regional Coordinator | MA DOER/Green Communities Program |

Prior to the initial meeting, the Town had already made considerable progress on two of the five criteria required to be designated a Green Community. Specifically, the town has reduced its energy use in recent years and is on track to meet the amount required (for Criterion 3), and has already held a well-attended session about proposed changes to the building code (for Criterion 5). Significant hurdles

remain for the Town to complete the other three criteria, as well as to complete the final steps for the energy use-related and building code-related criteria.

During the meeting, the group discussed ways for the Town to meet the five criteria. Considerable attention was given to Criteria 1 and 2, relating to the as-of-right siting and expedited permitting of renewable or alternative energy facilities, respectively, given that changes to the Zoning Bylaw would be required to meet these criteria. For Criterion 3 (energy baseline and reduction plan), much of the discussion revolved around previous efforts that the Town had undertaken, and whether the Town would be able to take credit for these improvements under the Green Communities program. There was also much discussion about the vehicle policy required to meet Criterion 4 and how it would affect the Town's budget. Regarding Criterion 5, adoption of the Stretch Energy Code, the Town had already done some public outreach, and discussion within the group was focused mainly on setting up additional education. Discussion during the meeting indicated that much of the development in Town already exceeds the base code.

In addition to the five designation criteria, the Green Communities Grant Program was discussed. Grants are only available to communities that have been designated by DOER as Green Communities. At the meeting, an aggressive schedule was decided upon to enable the Town to complete all items by Spring 2011 and submit to DOER for designation as a Green Community immediately thereafter. Therefore, the schedule presented in this Action Plan is designed to be similarly aggressive.

2. GREEN COMMUNITIES CRITERIA

The following section includes a review of each of the five Green Community criteria with a description of the progress made to date, the methodology proposed for meeting the criteria as well as any remaining task(s) to be completed to fulfill the Green Communities requirements. Each of these task(s) identifies steps the community will take to fulfill the requirements, the person(s) and/or municipal boards responsible for tasks, and the timeline for completion. The Action Plan outlined below is also presented in a matrix format in Section 3.1, for easy reference.

2.1. AS-OF-RIGHT SITING

BACKGROUND

The first Green Communities criterion states that a city or town must *provide for the 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.*

- As-of-right siting is defined as siting that provides for the allowed use of, and does not reasonably regulate, or require a special permit.
- An applicant can meet this requirement by providing as-of-right siting for one of the three types of facilities described.
- If a community has as-of-right siting in place for R&D and/or manufacturing facilities in general, this can meet the requirement, but the community must demonstrate that the Zoning Bylaw applies to renewable and alternative energy R&D or manufacturing.
- An applicant providing as-of-right siting for R&D and/or manufacturing must show that land is available for the construction of a facility or facilities of 50,000 square feet or larger in the aggregate. Zoning districts with previously developed but vacant or underutilized structures or sites are preferred over those that would site clean energy facilities on land that is currently wooded, actively farmed, otherwise undeveloped.
- An applicant can meet this requirement with as-of-right siting for renewable or alternative energy generation with one of the following project requirements:
 - On-shore wind: a turbine of a minimum 600 kW in size or above
 - Off-shore wind: a turbine of a minimum 2.5 MW or above
 - Solar Photovoltaic: a single ground-mounted system of a minimum of 250kW or above
 - Biomass CHP: a minimum of 5 MW in a stand-alone building
 - Ocean, wave, or tidal: no minimum threshold

Additional details on this requirement are included in three guidance documents developed by DOER to provide details on meeting requirements for Wind, Large-Scale PV, and R&D and Manufacturing.

PROGRESS TO DATE

No progress had been made on Criterion 1 prior to assistance. The existing Zoning Bylaw did not allow the by-right construction of renewable/alternative energy generating, manufacturing, or research and development facilities. Relevant sections of the Zoning Bylaw are discussed in **Appendix A**.

METHOD FOR MEETING

To meet Criterion 1, the Town of Medfield plans to allow for the as-of-right siting of certain types of renewable energy manufacturing and research and development facilities in Industrial districts. The proposed amendment to the Zoning Bylaw is attached as **Appendix B**. This amendment has been placed on the Warrant for Town Meeting as Article 32 and is sponsored by the Energy Committee. Town Meeting will take place on April 25, 2011.

In order to meet this criterion through as-of-right renewable energy manufacturing and research and development facilities, the Town will need to submit a letter from legal counsel that demonstrates that the uses are allowed by-right, that the uses are clearly allowed, and that development is feasible.

Specifically, the letter must include the following documentation (see **Appendix A**):

- The applicable section(s) of the Zoning Bylaw;
- Important zoning definitions;
- Relevant sections of the Zoning Use Table;
- A key to the Zoning Use Table, which will help DOER interpret the Table;
- Any related local regulations applicable to facilities sited under the Zoning Bylaw, such as Site Plan Review regulations, so that DOER can confirm that the related local regulations are non-discretionary;
- Yield calculations, either included in the text of the letter, or attached to it; and
- A copy of the Zoning Map that shows the area zoned (see **Appendix C**).

In addition, because the Town is allowing only specific types of renewable energy technologies—specifically wind, solar, and geothermal power—the Town must justify the exclusion of each type of renewable energy from the as-of-right siting allowance. Prior to submitting a Green Communities designation application, ICF/HW recommend that the Town participate in preliminary consultation to determine whether the Zoning Bylaw as amended will meet Criterion 1.

STEPS COMPLETED DURING ASSISTANCE

- ICF/HW provided guidance regarding the requirements for as-of-right siting of alternative/renewable energy generation or R&D/manufacturing facilities during the initial site visit on December 14, 2010.
- ICF/HW provided technical assistance through the dissemination and discussion of the following guidance documents, materials, and/or information:
 - The DOER guidance materials: ***Model As-of-Right Bylaw for Large Scale Photovoltaic Installations, Guidance for As-of-Right Siting of Renewable or Alternative Energy R&D or Manufacturing Facilities***
 - Customized guidance document (see **Appendix D**) to support Medfield staff through the process of conducting a yield analysis and documenting compliance.
 - DOER webinar on solar power: ***Solar 101 Webinar***
- ICF/HW reviewed the Town of Medfield's existing Zoning Bylaw and zoning map, as well as the Town's proposed amendment to the Zoning Bylaw, to determine compliance with the requirements for Criterion 1. ICF/HW suggested several changes to the article provisions based on that review, and the Town adjusted the amendment to include some, but not all, of the suggested changes.
- The amendment to the Zoning Bylaw was submitted as an article on the Warrant for Town Meeting.
- ICF/HW coordinated between the Town and DOER to determine whether including only wind, solar, and geothermal in the by-right siting provision would prevent the Town from meeting Criterion 1.

Guidance from DOER indicates that the community must provide a justification for excluding each type of renewable energy, as defined in existing DOER guidance (see **References**).

- A public hearing on the Zoning Bylaw is planned to be held at a meeting of the Planning Board on April 4, 2011.
- ICF/HW provided the MEC with a preliminary list of specific goals and timelines in order to complete this criterion in time for a Spring 2011 application for Green Communities designation.

STEPS TO BE COMPLETED

| Task | Date to be Completed |
|---|----------------------|
| 1A: Planning Board considers recommendation of adoption of the proposed Zoning Bylaw amendment. | Early April 2011 |
| 1B: Vote on Article 32 at Town Meeting. | April 25-26, 2011 |
| 1C: Prepare letter from legal counsel, including yield calculations and justification for any excluded use types. | May 2011 |
| 1D: Finalize paperwork for submission to DOER. | Early June 2011 |

PERSON RESPONSIBLE

The Medfield Energy Committee, under the direction of Marie Nolan, is primarily responsible for coordinating the completion of this criterion. She will coordinate with Town Administrator Michael Sullivan and Town Counsel Mark Cerel to complete these tasks.

2.2. EXPEDITED PERMITTING

BACKGROUND

The second Green Communities criterion states that a city or town must *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 initial application to the date of final approval.*

- The expedited application and permitting process applies only to the proposed facilities which are subject to the as-of-right siting provision.
- An applicant can meet this requirement by applying the expedited permitting process of MGL c 43D to these zoning districts.
- Once designated a Green Community, the applicant will be required to report annually on their permitting of clean energy projects within as-of-right zoning districts. Communities not adhering to the 365 day permitting requirement will be at serious risk of losing their Green Community designation.

Additional details on this requirement are included in the *Guidance for Expedited Permitting Options* document developed by DOER.

PROGRESS TO DATE

The existing Site Plan Review process in the Town, as documented in the Zoning Bylaw (see **Appendix A**), is sufficient to ensure an expedited permitting process that meets the requirements of Criterion 2.

METHOD FOR MEETING

Because the existing Zoning Bylaw allows for an expedited permitting process, the Town intends to meet this criterion through its existing Bylaw.

In order to meet this criterion through a local expedited permitting process, the Town Counsel must supply a letter with the following information:

- An affirmation that there are no preclusions for expedited permitting.
- The language included in the Zoning Bylaw that addressing approval procedures (Z.B. §14.13).
- Associated timing from any applicable bylaws.

The Town must submit this letter with a copy of the applicable map demonstrating the extent to which the areas where expedited permitting is available overlap with the as-of-right zoning area (I-E district).

STEPS COMPLETED DURING ASSISTANCE

- ICF/HW provided guidance regarding the requirements for expedited permitting for as-of-right alternative/renewable energy generation and R&D/manufacturing facilities during the initial site visit on December 14, 2010.
- ICF/HW provided technical assistance through the dissemination and discussion of the following guidance documents, materials, and/or information:
 - The DOER guidance document on *Expedited Permitting Options*.
- ICF/HW reviewed the Town of Medfield's existing Zoning Bylaw to determine compliance with the requirements for Criterion 2.
- ICF/HW provided the Town with sample constructive approval language, and suggestion insertion of such language into the Zoning Bylaw amendment.
- ICF/HW provided the MEC with a preliminary list of specific goals and timelines in order to complete this criterion in time for a Spring 2011 application for Green Communities designation.

STEPS TO BE COMPLETED

| Task | Date to be Completed |
|--|----------------------|
| 2A: Prepare letter from legal counsel, including yield calculations. | May 2011 |
| 2B: Finalize paperwork for submission to DOER. | Early June 2011 |

PERSON RESPONSIBLE

As with Criterion 1, the Medfield Energy Committee and MEC Chair Marie Nolan are primarily responsible for coordinating the completion of this criterion. Ms. Nolan will coordinate with Town Administrator Michael Sullivan and Town Counsel Mark Cerel to complete these tasks.

2.3. ENERGY USE BASELINE INVENTORY AND REDUCTION PLAN

BACKGROUND

The third Green Communities criterion states that a city or 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 percent within 5 years of initial participation in the program.*

- There are a number of acceptable tools for performing the inventory including:

- DOER’s MassEnergyInsight (MEI) (www.massenergyinsight.net)
 - ENERGY STAR Portfolio Manager
 - ICLEI software
 - Other tools proposed by the community and deemed acceptable by DOER
- The 20 percent reduction goal should be applied in aggregate across building, street lights and vehicles on an MMBTU (million British thermal units) basis.
- The baseline year should consist of the most recent year of complete data. However, to allow communities to take credit for energy efficiency measures completed in recent years, a community may provide a baseline that goes back 24 months, and provide a reduction plan that begins in the following year. At this time, a community may provide a baseline that goes as far back as calendar year 2008.

Additional details on this requirement are included in the *Energy Reduction Plan Guidance and Outline* document developed by DOER.

PROGRESS TO DATE

Prior to assistance, the Town had made significant progress in gathering and incorporating data into the EPA ENERGY STAR Portfolio Manager energy tracking tool, and in implementing significant energy reduction measures. The Medfield Energy Committee (MEC) was formed in March 2008, and was tasked with reducing municipal energy consumption by 20 percent by 2010. In April 2008, the Town signed onto the ENERGY STAR community Energy Challenge with EPA Region 1 (New England Region) committing to the 20 percent reduction. The Town benchmarked all its buildings in 2008 and achieved greater than a 20 percent reduction in building energy use in only two years. Details of these achievements are reported in the Town of Medfield Annual Reports for 2008 and 2009, the relevant sections of which are presented in **Appendix E**. In addition, the Town achieved large reductions in energy use from traffic signals by recently converting them from conventional incandescent lights to high efficiency Light Emitting Diode (LED) lights, resulting in savings of approximately 60 percent.

Streetlights are not owned by the Town and need not be included in the energy baseline. The Town is served by NSTAR and Bay State Gas for electricity and natural gas, respectively.

INVENTORY TOOL USED OR PLANNED TO BE USED

The MEC will use the EPA ENERGY STAR Portfolio Manager tool to track its energy use. The Town should coordinate with DOER regarding which companion tools they intend to use as the baseline is developed.

STEPS COMPLETED DURING ASSISTANCE

- ICF/HW provided guidance regarding the requirements for development of a baseline energy-use inventory during the initial site visit on December 14, 2010, and also during subsequent e-mail exchanges and telephone conversations.
- ICF/HW provided the MEC with a preliminary list of specific goals and timelines in order to complete the energy-use baseline and adopt the energy-use reduction plan in time for a Spring 2011 application for Green Communities designation.
- ICF/HW provided technical assistance through the dissemination and discussion of the following guidance documents, materials, and/or information:
 - Information on the DOER Mass Energy Insight tool and available training opportunities.
 - The DOER guidance: *Energy Reduction Plan Guidance and Outline*.

- **Energy Reduction Plan Template** to support Medfield staff through the process of completing the Plan.
- A list of **Sample Energy Efficiency Measures**.
- The MEC completed the baseline and drafted an Energy Reduction Plan (ERP).
- ICF/HW conducted regular conference calls to discuss plans for the community to meet this criterion.
- ICF/HW assisted the Town to generate reports using Portfolio Manager.

STEPS TO BE COMPLETED

| Task | Date to be Completed |
|---|----------------------|
| 3A: Energy Committee presents Energy Reduction Plan (ERP) to Board of Selectmen and School Board. | April 2011 |
| 3B: Board of Selectmen votes on the ERP. | May 2011 |
| 3C: School Board votes on the ERP. | May 2011 |
| 3D: Finalize paperwork for submission to DOER. | May-June 2011 |

PERSON RESPONSIBLE

The Medfield Energy Committee, under the direction of Marie Nolan, is primarily responsible for coordinating the completion of this criterion.

2.4. POLICY TO PURCHASE ONLY FUEL EFFICIENT VEHICLES

BACKGROUND

The fourth Green Communities criterion states that a city or town must *purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable*.

- To meet this criterion, municipalities need to adopt a written, efficient fleet policy (by local official or body with authority to enact policies) that requires their departments and divisions to purchase only fuel efficient vehicles.
- Both general government and school districts are required to enact a fuel efficient vehicle policy for a municipality to meet this requirement, and letters documenting adoption must be provided.
- The municipality is required to develop and maintain a vehicle inventory for non-exempt vehicles and a plan for replacing these vehicles with vehicles that meet the fuel efficiency ratings below. The fuel efficiency ratings are set to ensure that at least 5 or more automatic transmission models of mass production are available for sale in Massachusetts. Based on 2010 EPA data, vehicles are to have a combined city and highway MPG no less than the following:
 - 2 wheel drive car: 29 MPG
 - 4 wheel drive car: 24 MPG
 - 2 wheel drive small pick-up truck: 21 MPG
 - 4 wheel drive small pick-up truck: 19 MPG
 - 2 wheel drive standard pick-up truck: 17 MPG
 - 4 wheel drive standard pick-up truck: 16 MPG
 - 2 wheel drive sport utility vehicle: 21 MPG
 - 4 wheel drive sport utility vehicle: 18 MPG
- Recycling of vehicles is only allowed if the replacement vehicle meets the fuel efficient criteria prescribed above. Please be advised that a recycled Ford Crown Victoria does not meet the MPG rating and therefore would not meet fuel efficient vehicle requirements.

- Heavy duty vehicles, defined as having a manufacturer’s gross vehicle weight rating (GVWR) of more than 8,500 pounds, are exempt from municipal Efficient Fleet Policies. Examples include fire engines, ambulances, and some public works vehicles.
- Police cruisers, passenger vans, and cargo vans are exempt from this criterion. However, municipalities must commit to purchasing fuel efficient cruisers, passenger vans, and cargo vans when they become commercially available. Police and fire department administrative vehicles must meet fuel efficient requirements.
- Emergency response vehicles that are under 8,500 pounds and for which there are fuel efficient models available are NOT exempt.

Additional details on this requirement are included in the ***Guidance and Model Policy for Purchasing only Fuel Efficient Vehicles***, developed by DOER.

PROGRESS TO DATE

Prior to assistance, the community had not yet assembled a vehicle inventory or enacted a fuel efficient vehicle inventory.

Town Administrator Michael Sullivan and Charles Kellner, Finance and Operations Director of the Medfield Schools, are currently developing a vehicle inventory. Based on the inventory, the Town will determine the implications of adopting a fuel efficient vehicle policy on budgets.

STEPS COMPLETED DURING ASSISTANCE

- ICF/HW provided guidance regarding the requirements for development of the vehicle replacement policy during the initial site visit on December 14, 2010.
- ICF/HW provided technical assistance through the dissemination of the following guidance documents, materials, and/or information:
 - The DOER guidance materials: ***Guidance and Model Policy for Purchasing only Fuel Efficient Vehicles***.
 - Examples of fuel-efficient vehicle policies, including replacement plans from neighboring communities.
 - A cost-benefit analysis regarding police vehicle repurposing that was performed by the Town of Franklin (see **Appendix F**).
- ICF/HW provided the MEC with a preliminary list of specific goals and timelines in order to complete this criterion in time for a Spring 2011 application for Green Communities designation.
- The Town assembled a list of non-exempt vehicles (see **Appendix G**). ICF/HW reviewed this list and provided additional guidance about possibly exempt vehicles and

STEPS TO BE COMPLETED

| Task | Date to be Completed |
|--|-----------------------------|
| 4A: Complete vehicle inventory. | April 2011 |
| 4B: Energy Committee recommends and presents the vehicle policy and replacement plan for adoption by the Town and Schools. | April 2011 |
| 4C: Board of Selectmen votes on the vehicle policy. | May 2011 |
| 4D: School Board votes on the vehicle policy. | May 2011 |
| 4E: Finalize paperwork for submission to DOER | May-June 2011 |

PERSON RESPONSIBLE

Schools Finance and Operations Director Charlie Kellner and Town Administrator Michael Sullivan are primarily responsible for developing a vehicle inventory for the Schools and Town, respectively. Similarly, they are each responsible for overseeing implementation of the fuel efficient vehicle policies to their respective boards, pending agreement to an acceptable policy.

2.5. MINIMIZE LIFE-CYCLE COSTS IN ENERGY CONSTRUCTION

BACKGROUND

The fifth Green Communities criterion states that a city or town must *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.*

- The recommended way for cities and towns to meet this requirement is by adopting the BBRS Stretch Code, an appendix to the MA State Building Code. Should a community choose not to adopt the Stretch Code and choose 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 Stretch Code is an optional appendix to the Massachusetts building energy code that allows cities and towns to choose a more energy-efficient option. This Stretch Code option increases the energy efficiency code requirements in any municipality that adopts it, for all new residential and many new commercial buildings, as well as for those residential additions and renovations that would normally trigger building code requirements.
- In a town, the Stretch Code must be adopted as a general bylaw by its Town Meeting. In a city, the Stretch Code must be adopted by the City Council. It is advised in cities that the City Council adopt the Stretch Code by general ordinance.

Additional details on the Stretch Code are available through a number of documents available on the DOER Green Communities web site, and cited in the **References** section of this report.

PROGRESS TO DATE

The Town of Medfield is interested in pursuing the adoption of the Stretch Energy Code. Prior to assistance, the Town hosted a well attended Stretch Code information session at which Michael Berry of ICF spoke. Mr. Berry manages the Massachusetts New Homes with ENERGY STAR Program, and has delivered dozens of presentations on the Stretch Code.

METHOD FOR MEETING

The Town of Medfield intends to meet Criterion 5 through adoption of the Stretch Energy Code.

STEPS COMPLETED DURING ASSISTANCE

- ICF/HW provided guidance regarding the life cycle costing requirement and the option of meeting the requirement by adopting the Stretch Code, during the initial site visit on December 14, 2010.
- ICF/HW provided technical assistance through the dissemination and discussion of the following guidance documents, materials, and/or information:
 - The DOER guidance materials: *Stretch Code Overview, Frequently Asked Questions, Residential Cash Flow Analysis*

- ICF/HW contacted BBRS on behalf of the Town to determine whether a planned Public Works complex would be subject to the Stretch Code or would receive an exemption. Based on the conversation with BBRS, it was the opinion of ICF/HW that the Stretch Code would apply.
- ICF/HW contacted the Medfield Building Inspector, Walter Tortorici, to discuss any potential concerns.
- The Energy Committee sponsored an article for placement on the Warrant for Town Meeting (see Article 33 in **Appendix B**).
- ICF/HW worked with MEC Chair Marie Nolan to plan for a Public Information session on the Stretch Code on March 16, 2011.
 - ICF/HW produced a customized Q&A handout for this meeting (see **Appendix H**).
- ICF/HW provided the MEC with a preliminary list of specific goals and timelines in order to complete this criterion in time for a Spring 2011 application for Green Communities designation.

STEPS TO BE COMPLETED

| Task | Date to be Completed |
|--|----------------------|
| 5A: Energy Committee votes on whether to recommend the Stretch Code. | March 2011 |
| 5B: The Board of Selectmen votes on whether to recommend the Stretch Code. | April 2011 |
| 5C: Vote on Article 33 at Town Meeting. | April 25-26, 2011 |
| 5D: Finalize paperwork for submission to DOER | May-June 2011 |

PERSON RESPONSIBLE

Marie Nolan and the Energy Committee are primarily responsible for organizing and arranging the Stretch Code seminars, following up on public education, and ensuring passage through the Board of Selectmen and the Public Meeting. They will be supported by Building Inspector Walter Tortorici.

3. CONCLUSIONS

As evidenced by this Action Plan and previous sustainability accomplishments, the Town of Medfield has demonstrated its commitment to a greener energy future. Through the Planning Assistance program, the Town has taken many steps that have positioned it to become designated as a Green Community. Passage of the stretch code remains the most significant challenge, though the fuel efficient vehicle policy may be a difficult process as well. The table on the following page presents a summary of remaining tasks to be completed in order to meet all five Green Community criteria, along with a targeted timeline for completion.

As part of the Planning Assistance application, all communities were required to submit a letter of commitment, stating that they would strive to meet all five Green Community criteria within one year of the delivery of this Action Plan. The Town of Medfield is on track to meet this commitment and qualify as a Green Community by Spring 2011. The Town should apply for preliminary consultation with DOER, especially with regard to Criterion 1, to confirm that the Town meets the Criteria before it applies. Information on the preliminary consultation process is presented in the revised Designation and Grant Program Guidance (see **References**).

3.1. SUMMARY OF TASKS AND TIMELINE FOR 2011

| Criteria | Task | Apr | May | Jun |
|----------|--|-----|-----|-----|
| 1 | 1A: Planning Board considers recommendation of adoption of the proposed Zoning Bylaw amendment. | | | |
| | 1B: Vote on Article 32 at Town Meeting. | | | |
| | 1C: Prepare letter from legal counsel, including yield calculations and justification for any excluded use types. | | | |
| | 1D: Finalize paperwork for submission to DOER. | | | |
| 2 | 2A: Prepare letter from legal counsel, including yield calculations. | | | |
| | 2B: Finalize paperwork for submission to DOER. | | | |
| 3 | 3A: Energy Committee presents Energy Reduction Plan (ERP) to Board of Selectmen and School Board. | | | |
| | 3B: Board of Selectmen votes on the ERP. | | | |
| | 3C: School Board votes on the ERP. | | | |
| | 3D: Finalize paperwork for submission to DOER. | | | |
| 4 | 4A: Complete vehicle inventory. | | | |
| | 4B: Energy Committee recommends and presents the vehicle policy and replacement plan for adoption by the Town and Schools. | | | |
| | 4C: Board of Selectmen votes on the vehicle policy. | | | |
| | 4D: School Board votes on the vehicle policy. | | | |
| | 4E: Finalize paperwork for submission to DOER | | | |
| 5 | 5A: Energy Committee votes on whether to recommend the Stretch Code. | | | |
| | 5B: The Board of Selectmen votes on whether to recommend the Stretch Code. | | | |
| | 5C: Vote on Article 33 at Town Meeting. | | | |
| | 5D: Finalize paperwork for submission to DOER. | | | |
| All | Apply for preliminary consultation with DOER. | | | |
| | Complete and submit Green Communities designation application to DOER, with all required documentation. | | | |
| | Complete and submit Green Communities grant application to DOER | | | |

REFERENCES

The reference materials below are available to assist communities in meeting the Green Communities criteria. Many of the materials are available on the Green Communities Web site (www.mass.gov/energy/greencommunities) under the Green Communities Grant Program or the Green Communities Library. Others are available through other Web sites, or upon request from a Green Communities representative.

Designation and Grant Application Process

- FY2011 Designation and Grant Program Guidance
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/GC-Program-Guidance-Mar28-2011.pdf
- FY2011 Designation Application
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/GC-Designation-App-Mar28-2011.pdf

Criteria #1: As-of-Right Siting

- Guidance for As-of-Right Siting of Renewable or Alternative Energy R&D or Manufacturing Facilities
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/11-09_rd_renewables_guidance.pdf
- Model As-of-Right By-law for Use of Wind Facilities
<http://www.mass.gov/Eoeea/docs/doer/gca/gc-model-wind-bylaw-mar-10-2009.pdf>
- Model As-of-Right By-law for Large Scale Photovoltaic Installations
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/Model-Solar-Bylaw-REV-Dec-2010.doc

Criteria #2: Expedited Permitting Process

- Guidance for Expedited Permitting Options
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/criteria_2_guidance_032610.doc
- Chapter 43D Expedited Permitting Web site
<http://www.mass.gov/?pageID=ehedsubtopic&L=4&L0=Home&L1=Start%2C+Grow+%26+Relocate+Your+Business&L2=Licensing+%26+Permitting&L3=Chapter+43D+Expedited+Permitting&sid=Ehed>
- Chapter 43D Fact Sheet -including sample warrant language
http://www.mass.gov/?pageID=ehedterminal&L=5&L0=Home&L1=Start%2c+Grow+%26+Relocate+Your+Business&L2=Licensing+%26+Permitting&L3=Chapter+43D+Expedited+Permitting&L4=Chapter+43D+Information&sid=Ehed&b=terminalcontent&f=permitting_chapter43d_factsheet&csid=Ehed
- Chapter 43D Application
http://www.mass.gov/Ehed/docs/permitting/chapter43d/2009_chapter_43d_application.doc
- A Best Practices Model for Streamlined Local Permitting
http://www.mass.gov/Ehed/docs/permitting/permitting_bestpracticesguide.pdf
- Municipal Self Assessment Checklist
http://www.mass.gov/Ehed/docs/permitting/chapter43d/muni_checklist.doc

Criteria #3: Energy Baseline and Plan for 20% Reduction

- MassEnergyInsight
<http://www.massenergyinsight.net>
- MassEnergyInsight Training Schedule
<http://www.massenergyinsight.net/training.html>
- Energy Reduction Plan Guidance and Outline
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/GUIDANCE%20FOR%20CRITERIA%20THREE.pdf

Criteria #4: Fuel Efficient Vehicles

- Guidance and Model Policy for Purchasing Only Fuel Efficient Vehicles
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/GC-Guide-Criterion4-Feb22-2011.pdf

Criteria #5: Minimize Life Cycle Costs (Stretch Code)

- Stretch Code Adoption Process for a Town
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/GC-Guide-Criterion5-Feb10-2011.pdf
- Stretch Code Frequently Asked Questions
http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/Stretch-Code-QA-Feb10-2011.pdf
- Stretch Code Overview
http://www.mass.gov/Eeops/docs/dps/inf/summary_of_the_ma_building_code_appendix_120.doc
Appendix 115 AA (August 2010)
http://www.mass.gov/Eeops/docs/dps/8th_edition/115_appendices.pdf

Note that the Stretch Code is Appendix 115 AA to the 8th Edition of the Massachusetts Building Code, and is identical to Appendix 120 AA of the 7th Edition. Communities currently adopting the Stretch Code should reference Appendix 115 AA rather than Appendix 120 AA.

APPENDIX A: Description of Medfield Zoning Bylaws

This section discusses the Town of Medfield's Zoning Bylaw in detail as it relates to the Green Communities program.

The Zoning Bylaw is available on the Town's website:

<http://www.town.medfield.net/index.cfm?pk=download&id=18571&pid=18559>

As written, the current Zoning Bylaw does not meet Criterion 1 because it does not allow for the as-of-right siting of renewable or alternative energy generating, manufacturing, or R&D facilities. If Article 32 (see **Appendix B**) is adopted, the Bylaw will meet Criterion 1 because, as amended, it will allow some renewable energy manufacturing and R&D facilities to be built by-right in designated areas.

The Zoning Bylaw (Z.B.) amendment targets such development for the Industrial Extensive (I-E) district (Z.B. §3.1). The I-E district is shown on the Zoning Map presented in **Appendix C**.

The Zoning Use Table (Z.B. §5.4) begins on page 20 of the Zoning Bylaw, and the relevant section is §5.4.5 (Wholesale and Manufacturing) on pages 23 and 24. The amendment would add another approved use to this section of the Table, with a 'PB' use code in the 'I-E' district. Per Z.B. §5.2, 'PB' indicates "a use which is permitted by right in the District but which requires Site Plan Approval from the Planning Board in accordance with Section 14."

Site plan review regulations are outlined in Z.B. §14.13.

When preparing the yield calculations to satisfy the requirements of Criterion 1, Z.B. §6.2 (Table of Area Regulations) should be consulted, as it provides lot area, frontage, and width requirements, as well as yard size requirements. Also, Z.B. §6.3 should be consulted, since it provides maximum permitted stories, floor area ratios, and lot coverage, as should Z.B. §8.1, which provides off-street parking requirements.

The Primary Aquifer Zone (PAZ), as detailed in Aquifer Protection District section (Z.B. §16.6) completely overlaps with the I-E district. For areas that fall within two districts, the more stringent zoning provisions apply. In this case, Z.B. §16.6.1(b) prohibits manufacturing and research and development within the PAZ district, which therefore preempts the allowances within the I-E district. The proposed amendment to the Zoning Bylaw would change §16.6.1(b) to specifically allow target uses in the PAZ (see **Appendix B**, Article 32).

APPENDIX B: Articles for Town Meeting

The following articles related are sponsored by the Energy Committee on the Spring 2011 Town Meeting. If Article 32 is approved, the Town will be able to meet Criterion 1, and if Article 33 is approved, the Town will be able to meet Criterion 5.

Article 32. To see if the Town will vote to amend the Zoning Bylaw as follows:

SECTION 5, USE REGULATIONS, Paragraph 5.4.5.3 Manufacturing, by adding a new USE n, as follows:

| | | | | | | | | |
|--|----|-----|-----|-----|-----|----|-----|-----|
| | A | R-E | R-T | R-S | R-U | B | B-I | I-E |
| n. energy R & D and manufacturing (solar, wind and geothermal only) | NO | NO | NO | NO | NO | NO | NO | P-B |

SECTION 14.13. SITE PLAN APPROVAL BY PLANNING BOARD, by adding a new Paragraph 14.13.4 as follows:

14.13.4 Failure of the Planning Board to render a final decision on a completed application for Site Plan Approval for a building or use under Section 5, Paragraph 5.4.5.3 n: energy R & D and manufacturing (solar, wind and geothermal, only) within three hundred, sixty-five days of its filing shall constitute approval of the site plan.

SECTION 16.6.1, PERMITTED USES IN PRIMARY AQUIFER ZONE, by adding a clause at end of Subparagraph (b) as follows:

provided that a building or use under Section 5, Paragraph 5.4.5.3 n: energy R & D and manufacturing (solar, wind and geothermal, only) shall be permitted as of right, subject to the prohibitions and limitations on use, storage, and disposal of hazardous materials contained in this section 16.

Article 33. To see if the Town will vote to accept or enact as a bylaw the “Stretch Energy Code”, 780 CMR Appendix 115AA, a copy of which is on file in the office of the Medfield Town Clerk, or do or act anything in relation thereto.

APPENDIX D: Criterion 1 Guidance

The following memorandum was supplied by ICF/HW to the Town of Medfield for the purposes of properly documenting the progress on Criterion 1.

Horsley Witten Group

Sustainable Environmental Solutions

90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com



MEMORANDUM

TO: Green Community Act Applicants
FROM: Horsley Witten Group, Inc.
DATE: January 8, 2010
RE: Guidance for Meeting Green Communities Act Criteria 1

The following memorandum is being provided as guidance for any community that is seeking to meet Green Communities Act Criteria 1 through the as-of-right siting of research & development (R&D) or manufacturing facilities (these facilities are henceforth referred to as the “target uses”).

Documentation Letter to DOER:

In order to meet Criteria 1 through the as-of-right siting of the target uses, the community must provide a letter from municipal counsel certifying that the criteria has been met and summarize the pertinent sections of their zoning bylaw/ordinance. DOER has provided the following sample letter in its guidance materials:

Sample Letter:

The town's light industrial district, section 4.3 of the zoning bylaw, allows the by-right construction of manufacturing facilities that meet the definitions provided. The text of this section, relevant portions of the town's site plan review regulations, and the table of uses are attached. Manufacturing of renewable/alternative energy products is clearly allowed, and in fact such a facility was permitted in 2007 and built last year. ABC Industries assembles solar panels from components produced on-site and in other locations around the globe. Finally, the light industrial district covers an area of 250+ acres near a highway interchange. Over 50% of the land in this district is vacant and developable. The district has no stated FAR limit, the impervious surface limit is 70%, buildings can be of up to 3 stories and only one parking space is required per 1000 square feet. Thus, as indicated in the attached calculation, plenty of space exists for 50,000 square feet of floor area to be built.

This sample letter reaches a level of detail this is appropriate for communities that have ample developable land in which the target uses are allowed. For communities that are closer to their build-out capacity and are looking at development opportunities on a lot-by-lot basis, the letter to DOER may need to cite specific information about parcels or

vacant buildings that are eligible for development of the target uses. The recommended process for documenting the above items to DOER is provided in the guidance below.

Municipal Demonstration and Documentation Process:

In order to meet Criteria 1 through the as-of-right siting of the target uses, the community must demonstrate the following three items:

Item 1: The target uses are permitted **as-of-right** in the designated zoning district;

Item 2: The target uses are clearly **allowed** based on definitions provided within the zoning bylaw/ordinance; and

Item 3: The development of a facility with a minimum 50,000 sq ft. of gross floor area (GFA), or the development of multiple smaller facilities that can cumulatively reach the threshold of 50,000 sq ft. GFA, is **feasible** in the designated zoning district.

Demonstration of Item 1:

In order to demonstrate that the target uses are permitted as-of-right, the letter to DOER must cite and document the following information, as applicable:

- The specific designated district(s) in which the target uses are allowed;
- All relevant sections of the zoning bylaw/ordinance referencing the target uses such as the use table and any key that will help interpret the use table;
- Any special regulations applicable to the target uses that may restrict the dimensions/density of buildings such as restrictions on maximum GFA;
- Any potential overlay districts that overlap with the designated zoning district in which the target uses are allowed and may restrict the development or trigger additional permitting processes such as a water resource protection overlay or a flood plain overlay;
- If restrictive special regulations or overlay districts DO EXIST in the designated zoning district, these restrictions and associated regulations should be clearly identified and the letter must provide appropriate documentation demonstrating that the as-of-right development of the target uses is still achievable; and
- Any local regulations applicable to the as-of-right permitting of the target use, such as site plan review.

Demonstration of Item 2:

In order to demonstrate that the target uses are allowed in the designated zoning district, the letter must provide any relevant definitions from the zoning bylaw/ordinance. It is important to note that the community can meet Criteria 1 by allowing ONLY ONE or BOTH of R&D or manufacturing facilities. The critical point within this demonstration process is to illustrate that the activities needed for renewable or alternative energy R&D or manufacturing facilities are not limited by the definition(s) provided within the zoning bylaw/ordinance. If the municipality allows R&D or manufacturing facilities and DOES

NOT have an applicable zoning definition, this is understood to mean the municipality allows EVERY type of R&D or manufacturing use, including facilities related to renewable or alternative energy. Additionally, the municipality may provide a general definition for R&D or manufacturing, such as the definitions provided by DOER here:

Research and Development Facilities: are those used primarily for research, development and/or testing of innovative information, concepts, methods, processes, materials, or products. This can include the design, development, and testing of biological, chemical, electrical, magnetic, mechanical, and/or optical components in advance of product manufacturing. The accessory development, fabrication, and light manufacturing of prototypes, or specialized machinery and devices integral to research or testing may be associated with these uses.

Manufacturing Facilities: are those used primarily for heavy or light industry or the manufacture or assembly of a product including processing, blending, fabrication, assembly, treatment and packaging

Or, the general definitions found within the Zoning Ordinance for Newburyport, MA here:

Research and Development: Establishment devoted to research and development activities.

Manufacturing: Facilities engaged in the mechanical or chemical transformation of materials or substances into new products including the assembly of component parts, the fabrication of products, or treatment of articles or merchandise and the blending of materials.

All of the above definitions are also understood to mean the municipality allows every type of R&D or manufacturing use, including facilities related to renewable or alternative energy. The risk associated with providing a general definition is that the community may end up allowing undesired types of R&D or manufacturing facilities. When drafting new definitions or revising existing definitions relative to meeting the Green Communities Act, the municipality must be careful that its definitions do not restrict certain activities that may be needed for renewable or alternative energy R&D or manufacturing facilities. If a municipality has an existing definition that is potentially restrictive (i.e.: does not allow for chemical manufacturing or R&D in biotechnology), or if a municipality simply wishes to provide further clarity to its definitions, it may wish to consider adding the following sentence to its use definitions:

This use shall specifically include activities associated with renewable or alternative energy research, services, and products.

Demonstration of Item 3:

In order to demonstrate that the development of 50,000 sq ft. of floor space for the target uses is feasible in the designated districts, the municipality must perform a yield calculation. As discussed earlier, the type of yield calculation performed and the level of

detail it needs to reach will be dependent on the amount of developable land or vacant buildings that are available within the designated districts. While the guidelines for Criteria 1 only request information regarding zoning regulations, the guidance also states that the locations in which the target uses are allowed must be “feasible and practical”. This means that it may be necessary to also review non-zoning restrictions on development such as wetlands and conservation easements to ensure that no other restrictions or local permitting processes can potentially hinder the development of the target uses. The recommended steps for performing a yield calculation are divided into two categories:

- Yield calculations for the redevelopment of vacant or underutilized buildings; and
- Yield calculations for new development on undeveloped or vacant sites.

The use of vacant buildings is preferred by DOER over siting facilities on undeveloped lots so identifying development opportunities in pre-existing buildings should be the municipality’s first step when calculating yield.

Calculating yield for vacant or underutilized buildings:

1. **Identify the development opportunities.** Identify all vacant or underutilized buildings within the designated districts.
2. **Cross-check applicable regulations.** Identify all zoning bylaw/ordinance requirements that may impact or restrict the development potential of vacant structures within the designated districts. Potential sections of zoning to review include:
 - Nonconforming Structures
 - Do any of the vacant buildings identified qualify as nonconforming?
 - What are the permit requirements for changing use?
 - What are the permit requirements for expanding/altering structure?
 - What are the permit requirements for lot improvements?
 - Is there a time limit in which abandoned/unused structures can still be protected under nonconformance regulations?
 - Design Overlay District or Historic District
 - Does the overlay district overlap with any identified buildings/lots?
 - What are the use regulations/restrictions?
 - What are the permit triggers and requirements?
 - Parking Requirements
 - Will new parking spaces be needed?
 - Landscaping Requirements
 - Will landscaping improvements be needed?
 - Stormwater Regulations (may be outside of zoning)
 - Will stormwater improvements be needed?
 - Demolition Regulations (may be outside of zoning bylaw/ordinance)
 - Will demolition be needed for structures on the site?

- What are the permit triggers and requirements?
- Wetlands Bylaw (outside of zoning bylaw/ordinance)
 - Wetlands/wetland buffers on site?
 - How does this impact the potential permitting process (is it still as-of-right)?

3. **Calculate the developable GFA.** Calculate the total amount of useable floor space that is available within the identified vacant or underutilized buildings that IS NOT restricted by zoning regulations or subject to a special permit or any other discretionary permit.

4. **Documentation to DOER.** List the specific vacant or underutilized buildings that surpass the 50,000 sq ft. GFA threshold and are eligible for the as-of-right siting of the target uses. If no single building is eligible, list all vacant or underutilized buildings and calculate if the cumulative usable floor space will surpass the 50,000 sq ft. GFA threshold. In the letter to DOER, provide a listing of all eligible buildings, document their status as vacant or underutilized, and document all applicable zoning regulations.

Calculating yield for undeveloped or vacant lots:

1. **Identify the development opportunities.** Identify all undeveloped or vacant lots within the designated districts that are available for development.
2. **Cross-check applicable regulations.** Identify all zoning bylaw/ordinance requirements that may impact the development potential of undeveloped or vacant lots within the designated district. Potential sections of zoning to review include:
 - Dimensional Requirements
 - Minimum lot area.
 - Minimum street frontage.
 - Maximum percentage lot coverage.
 - Maximum percentage building coverage.
 - Minimum floor area ratio.
 - Maximum height.
 - Minimum setbacks.
 - Waiver process for dimensional requirements.
 - Parking Requirements
 - Parking ratios/requirements for target uses.
 - Parking stall requirements.
 - Parking landscaping requirements.
 - Is there potential to reduce parking through off-site or shared parking arrangements if necessary?
 - Water Resource Protection Overlay District (also can be Aquifer Protection Overlay District)
 - Does overlay district overlap with any lots designated district?
 - What are the use regulations/restrictions?

- What are the permit triggers and requirements?
- Flood Plain Overlay District
 - Does overlay district overlap with any lots designated district?
 - What are the use regulations/restrictions?
 - What are the permit triggers and requirements?
- Design Overlay District or Historic District
 - Does the overlay district overlap with any lots in designated district?
 - What are the use regulations/restrictions?
 - What are the permit triggers and requirements?
- Landscaping Requirements
 - Minimum landscaping requirements (if applicable)
- Buffer to Residential Districts
 - Proximity of lots in designated district to residential districts.
 - Is there an increased buffer distance?
- Earth Removal Bylaw (may be outside of zoning bylaw/ordinance)
 - What are applicability thresholds?
 - What are permit triggers and requirements?
- Stormwater Regulations (may be outside of zoning)
 - Permit triggers and requirements?
- Wetlands Bylaw (outside of zoning bylaw/ordinance)
 - Wetlands/wetland buffers on site?
 - What are permit triggers and requirements?
- Local Septic System Regulations (outside of zoning)
 - Will septic system be necessary on site?
 - Permit triggers and requirements.
- Regulations regarding conservation/other easements.
 - Are there any easements in the designated district that restrict development potential?

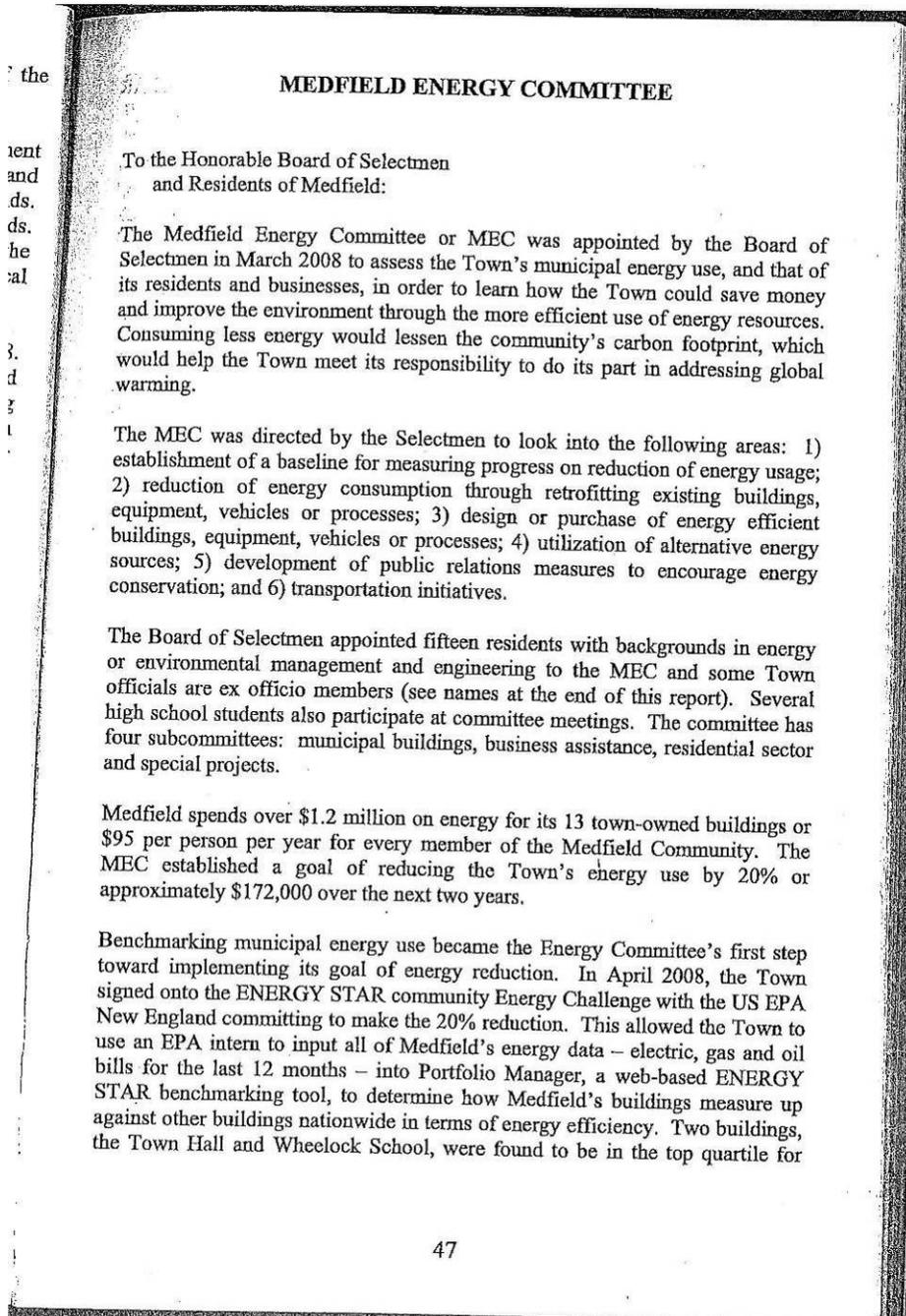
3. **Calculate the developable acreage.** Calculate the total amount of developable acreage that is available in the district that IS NOT restricted by zoning regulations or subject to a special permit or any other discretionary permit.

Documentation to DOER. If the total amount of developable acreage clearly surpasses the threshold that would be needed to construct a 50,000 sq ft. building (after accounting for parking lot, access roads, and infrastructure), then the letter to DOER should simply provide the appropriate documentation of such with reference to all applicable zoning regulations. If there are only a limited number of developable lots, or if there are no individual or contiguous lots in the designated district that are large enough to support a building 50,000 sq ft., then the municipality must provide calculations on a lot-by-lot basis. To do so, the municipality must first identify the specific lots that are eligible and calculate the maximum GFA that is achievable on each lot (after accommodating for parking lot, access roads, and infrastructure). In these cases, the letter to DOER should provide documentation of the specific developable lot(s) that are eligible, show the calculations for the GFA on each lot, demonstrate that the 50,000 sq ft threshold can be met, and document all applicable zoning regulations.

APPENDIX E: Medfield Energy Committee Annual Reports

The following are the Annual Reports by the Medfield Energy Committee (MEC) for 2008, 2009, and 2010.

2008 Town of Medfield Annual Report



energy efficient buildings. The MEC applied for and received ENERGY STAR labels and national recognition for these two buildings.

Concurrently, MEC worked with NSTAR to identify 93 municipal accounts, about 60 of these were town building-related, and came up with an energy intensity metric which helped in the assessment of which buildings are "energy hogs". The top energy users are undergoing utility audits to identify how to make them more efficient.

NSTAR was asked by the MEC to audit the Kingsbury High School in July. Some of the energy conservation measures identified by NSTAR, such as changing the daily load profile by modifying the schedules on which the HVAC and lighting systems operate, are leading to energy savings immediately. August 2008 kWh represents a 34% improvement over 2007, and a savings of \$40-60,000/year.

The Medfield School Department already had a utility energy audit done for Dale Street School prior to the creation of MEC and over the past couple of years has begun implementing the energy savings measures recommended for that school. In November 2008, MEC performed a lighting audit for the Blake Middle School and recommended energy saving opportunities and lighting improvements.

The MEC's next steps on the municipal side are to continue to input monthly data into the Portfolio Manager system to track energy use, and with the help of the local utilities, will audit more town buildings, assessing their energy usage. We will then determine effective energy efficiency measures to implement and, by doing so, save the Town energy and money.

Over this past year, MEC has worked with other Medfield organizations in getting the word out on the benefits of going green. MEC helped MEMO develop the successful green theme for Medfield Day and staffed a booth at the September event to educate residents on ways to save energy. MEC participated in the Global Warming Forum held by the Medfield League of Women Voters in November. MEC members have also presented energy savings tips and strategies at a MEMO meeting and have approached some individual businesses about ways to reduce their energy costs. In addition, MEC members participated in a field survey of plant energy use with the Medfield Department of Public Works at the Medfield Wastewater Treatment Plant and pumping stations in April. Earlier in the year, MEC became an active member of the Massachusetts Climate Action network, a coalition of locally-organized groups fighting the climate crisis.

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The MEC meets monthly usually on Thursday evenings in Town Hall. The public is invited to attend the meetings, participate in MEC activities and offer suggestions on how the Town can best meet the challenges of reducing energy consumption and minimizing its environmental footprint.

Respectfully submitted,

Marie Nolan, Chair
Lee Alinsky
Esther Babson, high school student
Fred Bungler
Penni Conner
~~Tom Cunningham~~
Fred Davis
Cynthia Greene
Charles Kellner, School Dept. ex officio
James Redden
Rayna Rubin
Jim Ryan
Osler Peterson, Selectman, ex officio
~~Mike Petit~~
Emre Schweighoffer
David Stephenson
Mike Sullivan, Town Administrator, ex officio
Leo Surette
~~Mark Warren~~

MEDFIELD ENERGY COMMITTEE

To the Honorable Board of Selectmen
and Residents of Medfield:

Since its inception in 2008, the Medfield Energy Committee or MEC has been directed by the Selectmen to look into six areas: 1) establishing a baseline for measuring progress on reduction of energy usage; 2) reducing energy consumption through retrofitting existing buildings, equipment, vehicles or processes; 3) designing or purchasing energy efficient buildings, equipment, vehicles or processes; 4) utilizing alternative energy sources; 5) developing public relations measures to encourage energy conservation; and 6) implementing transportation initiatives.

Medfield spends over \$1.2 million on energy for its 13 town-owned buildings or \$95 per person per year for every member of the Medfield Community. The MEC established a goal of reducing the Town's energy use by 20% or approximately \$172,000 over the next two years.

In 2008, the MEC benchmarked the municipal energy use of the 13 town-owned buildings. In 2009, the Town made significant strides in meeting its second goal of reducing energy consumption. The MEC, in partnership with local utilities NSTAR and Bay State Gas, conducted a detailed analysis of several schools and town water well locations. The efficiency upgrades at those Medfield town buildings have led to a dramatic reduction of energy use and an estimate around savings of over \$175,000. Over the life of the new equipment, the reduction in greenhouse gas emissions associated with these projects is estimated to be equivalent to taking over 400 cars off the road.

By working closely with NSTAR and Bay State Gas, the Town has also been able to secure incentive rebates from the utilities of over \$190,000 for energy-saving projects. The utilities' energy efficiency programs provided expertise and incentives that shortened the payback time of implementing the necessary improvements. Specifically, efficiency upgrades at four town wells led to saving more than 170,000 kilowatt-hours of electricity a year, and resulted in rebates from NSTAR of over \$40,000 for the installation of variable-speed motors. In addition, numerous electricity and natural gas efficiency improvements at Medfield schools including the installation of more efficient lighting and ventilation equipment have greatly benefited the town and its students. Anticipated annual energy savings from these projects are over 600,000 kilowatt-hours of electricity and nearly 26,000 therms of gas. The financial incentives from NSTAR and Bay State Gas for these projects totaled \$150,000.

Over this past year, MEC has worked with other Medfield organizations to get the word out on the benefits of going green. MEC staffed a booth at Medfield Day in September to educate residents on ways to save energy and participated in the Energy Reduction Forum held by Medfield Green in November 2009. MEC is an active member of the Massachusetts Climate Action network, a coalition of locally-organized groups working to reduce the climate crisis.

In 2010, the MEC is evaluating whether the Town should become a Green Community under the state's Green Communities Act. Doing so could make state funding for energy efficiency and renewable energy projects available to Medfield. We plan to continue our efforts to look for ways to reduce the carbon footprint of our municipal and commercial buildings as well as in our homes.

The MEC meets monthly usually on the third Thursday evening in Town Hall. The public is invited to attend the meetings, participate in MEC activities and offer suggestions on how the Town can best meet the challenges of reducing energy consumption and minimizing its environmental impact.

Respectfully submitted,

Marie Nolan, Chair
Lee Alinsky
Fred Bunger, MCAN liaison
Penni Conner
Fred Davis
Cynthia Greene
Maureen Howells, Medfield Green liaison
Charles Kellner, School Dept, ex officio
James Redden
Osler Peterson, Selectman, ex officio
Emre Schveighoffer
Mike Sullivan, Town Administrator, ex officio

APPENDIX F: Costs and Benefits of Recycling Police Cruisers

The following letters are public documents and are reproduced here with the permission of the Town of Franklin.



TOWN OF FRANKLIN

DEPARTMENT OF PUBLIC WORKS

Franklin Municipal Building
257 Fisher Street
Franklin, MA 02038-3026

Date: February 9, 2006

For: Mr. Jeffery Nutting, Town Administrator, Town of Franklin

Re: Capital Replacement of Service Vehicles

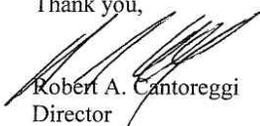
Dear Jeff,

I believe it is essential that we start a replacement program of the "old police cruisers" that have been kept in service as transportation for various Town of Franklin departments. While I agree that for the short term (a year or two) the use of these vehicles is economical, after that they become a burden due to high repair costs and down time. The annual cost to maintain one of these cars far out surpasses the actual value of the car. The attached letter from Mr. Lombardi, Central Motors Foreman verifies this (attachment).

At this time, I recommend that we start a replacement program of new vehicles. The replacement vehicles would either be small pick-ups (Ford Rangers) or compact cars (Ford Focuses). These new vehicles would be minimally equipped with 4 cylinder engines, 2-wheel drive and have few options (no power locks, windows, etc.). These new vehicles would be much more economical to operate. Not only would they have much better fuel economy but also being "new", they would be under warrantee without their wear and tear of the old cruisers. While I would expect these new vehicles to last eight to ten years, the pay-off from the savings of maintaining the old cruisers would four to five years.

| <u>Cruiser Replacement Program</u> | | | | | | | | | | |
|------------------------------------|-----------|------|-------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--|
| Car # | Type | Year | Department | FY 08 Replacement | | FY 09 Replacement | | FY 10 Replacement | | |
| | | | | Type | Cost | Type | Cost | Type | Cost | |
| E-2 | Crown Vic | 2000 | Engineering | | | Ranger EC | 15 K | | | |
| E-4 | Crown Vic | 2000 | Engineering | | | Ranger | 13K | | | |
| HD-1 | Chevy Imp | 1995 | Health | Ranger | 13K | | | | | |
| A-1 | Crown Vic | 2000 | Assessor | Focus | 12K | | | | | |
| Bldg-3 | GMC Trk | 1999 | Bldg | | | | | Ranger EC | 15K | |
| E-1 | Taurus | 1999 | Engineering | | | | | Ranger EC | 15K | |
| A-2 | Crown Vic | 2001 | Assessor | Focus | 12K | | | | | |
| CP-1 | Crown Vic | 2000 | Planning | | | | | Focus | 12K | |
| | | | | | Total: \$41,000.00 | | Total: \$39,000.00 | | Total: \$39,000.00 | |

Thank you,


Robert A. Cantoreggi
Director

Used Police Cruisers verses New Compact Vehicles for a 10 year period.

Date: Feb 2006

Used Police Cruisers, Anticipated Costs

| Year | Initial Costs (1) | Annual Costs (2) | Fuel Costs (3) | Annual |
|----------------|--------------------|--------------------|---------------------|---------------------|
| 1 | \$ 1,200.00 | \$ 400.00 | \$ 2,083.33 | \$ 3,683.33 |
| 2 | | \$ 750.00 | \$ 2,083.33 | \$ 2,833.33 |
| 3 | | \$ 750.00 | \$ 2,083.33 | \$ 2,833.33 |
| 4 | \$ 1,200.00 | \$ 400.00 | \$ 2,083.33 | \$ 3,683.33 |
| 5 | | \$ 750.00 | \$ 2,083.33 | \$ 2,833.33 |
| 6 | | \$ 750.00 | \$ 2,083.33 | \$ 2,833.33 |
| 7 | \$ 1,200.00 | \$ 400.00 | \$ 2,083.33 | \$ 3,683.33 |
| 8 | | \$ 750.00 | \$ 2,083.33 | \$ 2,833.33 |
| 9 | | \$ 750.00 | \$ 2,083.33 | \$ 2,833.33 |
| 10 | \$ 1,200.00 | \$ 400.00 | \$ 2,083.33 | \$ 3,683.33 |
| Totals: | \$ 4,800.00 | \$ 6,100.00 | \$ 20,833.33 | \$ 31,733.33 |

Total Ten Year Cost: \$ 31,733.33
Avg Per Year: \$ 3,173.33

- (1) Biased on costs to make car with 100k road worthy, good for 5 years
- (2) Anticipated Costs, ie. Drive train, suspension, brakes, emissions, etc.
- (3) Biased on EPA Data from Ford Motor Company (12 Miles per gallon), 10000K miles per year @ \$2.50 per gallon

New Ford Ranger/Focus, Anticipated Costs

| Year | Initial Costs (1) | Annual Costs (2) | Fuel Costs (3) | Annual |
|----------------|---------------------|------------------|--------------------|---------------------|
| 1 | \$ 13,000.00 | | \$ 961.54 | \$ 13,961.54 |
| 2 | | | \$ 961.54 | \$ 961.54 |
| 3 | | \$ 100.00 | \$ 961.54 | \$ 1,061.54 |
| 4 | | | \$ 961.54 | \$ 961.54 |
| 5 | | | \$ 961.54 | \$ 961.54 |
| 6 | | \$ 300.00 | \$ 961.54 | \$ 1,261.54 |
| 7 | | \$ 250.00 | \$ 961.54 | \$ 1,211.54 |
| 8 | | | \$ 961.54 | \$ 961.54 |
| 9 | | \$ 100.00 | \$ 961.54 | \$ 1,061.54 |
| 10 | | | \$ 961.54 | \$ 961.54 |
| Totals: | \$ 13,000.00 | \$ 750.00 | \$ 9,615.38 | \$ 23,365.38 |

Total Ten Year Cost: \$ 23,365.38
Avg Per Year: \$ 2,336.54

- (1) Biased on costs of new vehicle off of State Bid List
- (2) Anticipated Costs, ie. Drive train, suspension, brakes, emissions, etc.
- (3) Biased on EPA Data from Ford Motor Company (26 Miles per gallon), 10000K miles per year @ \$2.50 per gallon

| | |
|------------------------------------|-----------------------------------|
| Total Cost Savings For New: | \$ 836.79 per year |
| | \$ 8,367.95 10 year Period |



TOWN OF FRANKLIN

DEPARTMENT OF PUBLIC WORKS

Franklin Municipal Building
257 Fisher Street
Franklin, MA 02038-3026

Date: July 23, 2008

For: Mr. Jeffery Nutting, Town Administrator
Town of Franklin
Franklin, MA 02054

Re: Capital Replacement of Service Vehicles

Dear Jeff,

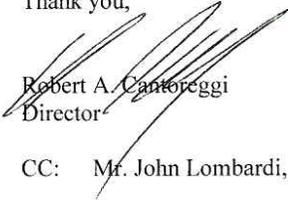
As you remember, I recommended that the Town of Franklin start a replacement program of new vehicles for various departments instead of just recycling old Police Cruisers. (Attachment letter dated February 9th, 2006)

At the time my main reason for replacement of new vehicles was the burden due to high repair costs and down time. The annual cost to maintain one of these cars far out surpasses the actual value of the car. Now it makes even more sense for new vehicles due the high cost of fuel. When I originally did my study, the cost of fuel was only \$2.50, now it is around \$4.00.

Attached I have updated my study to not only include the increased cost of fuel but also the comparisons of the used police cars to not only Ford Ranger Pick-up but to Ford Hybrid Escapes and Toyota Hybrid Priuses. All vehicles looked at would be a significant savings over used police car.

Once Again, I strongly recommend that we start a replacement program of new vehicles. These new vehicles would be much more economical to operate. Not only would they have much better fuel economy but also being "new", they would be under warrantee without their wear and tear of the old cruisers. While I would expect these new vehicles to last eight to ten years, the pay-off from the savings of maintaining the old cruisers would be two to three years.

Thank you,


Robert A. Cantoreggi
Director

CC: Mr. John Lombardi, Head Town Mechanic

Phone: 508-520-4910 • Fax: 508-520-4939 • E-mail: DPW@franklin.ma.us


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Used Police Cruisers verses New Compact Vehicles for a 10 year period.

Date: July 2008

Used Police Cruisers, Anticipated Costs

| Year | Initial Costs (1) | Annual Costs (2) | Fuel Costs (3) | Annual |
|----------------|-------------------|------------------|----------------|--------------|
| 1 | \$ 1,200.00 | \$ 400.00 | \$ 3,333.33 | \$ 4,933.33 |
| 2 | | \$ 750.00 | \$ 3,333.33 | \$ 4,083.33 |
| 3 | | \$ 750.00 | \$ 3,333.33 | \$ 4,083.33 |
| 4 | \$ 1,200.00 | \$ 400.00 | \$ 3,333.33 | \$ 4,933.33 |
| 5 | | \$ 750.00 | \$ 3,333.33 | \$ 4,083.33 |
| 6 | | \$ 750.00 | \$ 3,333.33 | \$ 4,083.33 |
| 7 | \$ 1,200.00 | \$ 400.00 | \$ 3,333.33 | \$ 4,933.33 |
| 8 | | \$ 750.00 | \$ 3,333.33 | \$ 4,083.33 |
| 9 | | \$ 750.00 | \$ 3,333.33 | \$ 4,083.33 |
| 10 | \$ 1,200.00 | \$ 400.00 | \$ 3,333.33 | \$ 4,933.33 |
| Totals: | \$ 4,800.00 | \$ 6,100.00 | \$ 33,333.33 | \$ 44,233.33 |

Total Ten Year Cost: \$ 44,233.33

Avg Per Year: \$ 4,423.33

(1) Biased on costs to make car with 100k road worthy, good for 5 years

(2) Anticipated Costs, ie. Drive train, suspension, brakes, emissions, etc.

(3) Biased on EPA Data from Ford Motor Company (12 Miles per gallon), 10000K miles per year @ \$4.00 per gallon

New Ford Ranger, Anticipated Costs

| Year | Initial Costs (1) | Annual Costs (2) | Fuel Costs (3) | Annual |
|----------------|-------------------|------------------|----------------|--------------|
| 1 | \$ 13,000.00 | | \$ 1,538.46 | \$ 14,538.46 |
| 2 | | | \$ 1,538.46 | \$ 1,538.46 |
| 3 | | \$ 100.00 | \$ 1,538.46 | \$ 1,638.46 |
| 4 | | | \$ 1,538.46 | \$ 1,538.46 |
| 5 | | | \$ 1,538.46 | \$ 1,538.46 |
| 6 | | \$ 300.00 | \$ 1,538.46 | \$ 1,838.46 |
| 7 | | \$ 250.00 | \$ 1,538.46 | \$ 1,788.46 |
| 8 | | | \$ 1,538.46 | \$ 1,538.46 |
| 9 | | \$ 100.00 | \$ 1,538.46 | \$ 1,638.46 |
| 10 | | | \$ 1,538.46 | \$ 1,538.46 |
| Totals: | \$ 13,000.00 | \$ 750.00 | \$ 15,384.62 | \$ 29,134.62 |

Total Ten Year Cost: \$ 29,134.62

Avg Per Year: \$ 2,913.46

(1) Biased on costs of new vehicle off of State Bid List

(2) Anticipated Costs, ie. Drive train, suspension, brakes, emissions, etc.

(3) Biased on EPA Data from Ford Motor Company (26 Miles per gallon), 10000K miles per year @ \$4.00 per gallon

New Ford Escape Hybrid, Anticipated Costs

| Year | Initial Costs (1) | Annual Costs (2) | Fuel Costs (3) | Annual |
|----------------|-------------------|------------------|----------------|--------------|
| 1 | \$ 23,000.00 | | \$ 1,176.47 | \$ 24,176.47 |
| 2 | | | \$ 1,176.47 | \$ 1,176.47 |
| 3 | | \$ 100.00 | \$ 1,176.47 | \$ 1,276.47 |
| 4 | | | \$ 1,176.47 | \$ 1,176.47 |
| 5 | | | \$ 1,176.47 | \$ 1,176.47 |
| 6 | | \$ 300.00 | \$ 1,176.47 | \$ 1,476.47 |
| 7 | | \$ 250.00 | \$ 1,176.47 | \$ 1,426.47 |
| 8 | | | \$ 1,176.47 | \$ 1,176.47 |
| 9 | | \$ 100.00 | \$ 1,176.47 | \$ 1,276.47 |
| 10 | | | \$ 1,176.47 | \$ 1,176.47 |
| Totals: | \$ 23,000.00 | \$ 750.00 | \$ 11,764.71 | \$ 35,514.71 |

Total Ten Year Cost: \$ 35,514.71
Avg Per Year: \$ 3,551.47

- (1) Biased on costs of new vehicle off of Kelly Blue Book Values
(2) Anticipated Costs, ie. Drive train, suspension, brakes, emissions, etc.
(3) Biased on EPA Data from Ford Motor Company (26 Miles per gallon), 10000K miles per year @ \$4.00 per gallon

New Toyota Prius Hybrid, Anticipated Costs

| Year | Initial Costs (1) | Annual Costs (2) | Fuel Costs (3) | Annual |
|----------------|-------------------|------------------|----------------|--------------|
| 1 | \$ 21,000.00 | | \$ 888.89 | \$ 21,888.89 |
| 2 | | | \$ 888.89 | \$ 888.89 |
| 3 | | \$ 100.00 | \$ 888.89 | \$ 988.89 |
| 4 | | | \$ 888.89 | \$ 888.89 |
| 5 | | | \$ 888.89 | \$ 888.89 |
| 6 | | \$ 300.00 | \$ 888.89 | \$ 1,188.89 |
| 7 | | \$ 250.00 | \$ 888.89 | \$ 1,138.89 |
| 8 | | | \$ 888.89 | \$ 888.89 |
| 9 | | \$ 100.00 | \$ 888.89 | \$ 988.89 |
| 10 | | | \$ 888.89 | \$ 888.89 |
| Totals: | \$ 21,000.00 | \$ 750.00 | \$ 8,888.89 | \$ 30,638.89 |

Total Ten Year Cost: \$ 30,638.89
Avg Per Year: \$ 3,063.89

- (1) Biased on costs of new vehicle off of State Bid List
(2) Anticipated Costs, ie. Drive train, suspension, brakes, emissions, etc.
(3) Biased on EPA Data from Ford Motor Company (45 Miles per gallon), 10000K miles per year @ \$4.00 per gallon

Overall Comparison:

| Vehicle | Cost per Year | Ten Year Cost | Savings |
|-------------------------|---------------|---------------|--------------|
| Used Police Car | \$ 4,423.33 | \$ 44,233.33 | |
| New Ford Ranger | \$ 2,913.46 | \$ 29,134.62 | \$ 15,098.72 |
| New Ford Escape Hybrid | \$ 3,551.47 | \$ 35,514.71 | \$ 8,718.63 |
| New Toyota Prius Hybrid | \$ 3,063.89 | \$ 30,638.89 | \$ 13,594.44 |

APPENDIX G: Non-Exempt Vehicle Inventory

Town of Medfield Vehicle Inventory as of 2/14/2011

| | |
|------------------------------|----|
| Exempt Vehicles (1): | 9 |
| Miscellaneous Equipment (2): | 22 |

| Non Exempt Vehicles: | | | |
|----------------------|-------------------|------|----------------------|
| Item | Department | Year | Manufacturer & Model |
| 1 | Civil Defense | 2001 | Ford Expedition |
| 9 | DPW | 1999 | Ford Explorer |
| 31 | School | 2000 | Ford Expedition |
| 71 | Park & Recreation | 2001 | Toyota Tundra |
| 72 | Park & Recreation | 2006 | Ford 350 |
| 80 | Police | 2008 | Ford Ranger |
| 94 | School | 2008 | Ford F150 |
| 103 | Water | 2005 | Magnum MWT0500 |
| 104 | Water | 2006 | Ford E250 |

| Questionable Vehicles: | | | |
|------------------------|-------------|------|-----------------------|
| Item | Department | Year | Manufacturer & Model |
| 12 | DPW | 2000 | Ford F250 |
| 17 | DPW/Highway | 2000 | Cat Skid Steer Loader |
| 53 | Highway | 1997 | Ford F350 |
| 67 | Highway | 2006 | Cat Skid-Steer Loader |
| 73 | Police | 1983 | International Truck |
| 85 | School | 1993 | Ford Bronco |
| 88 | School | 2000 | Ford F250 Pickup |
| 91 | School | 2003 | Ford Cutvan |

| Electric Vehicles: | | | |
|--------------------|--------|------|------------------|
| 89 | School | 2002 | Ford Think Wagon |
| 90 | School | 2002 | Ford Think Wagon |

(1) Exempt vehicles are over 8,500 lbs and emergency or first responders and police cruisers, as well as COA vans, tractors.

(2) Miscellaneous equipment includes trailers, chippers, snowblower, compressor.

APPENDIX H: Stretch Code Information



The Medfield Energy Committee invites you to an Informational Public Meeting on the “Stretch Code” for Increased Energy Efficiency

Wednesday, March 16, 2011

@ 7:00 p.m.

Chenery Room, second floor,
Medfield Town Hall

AGENDA

A. Introduction to the Massachusetts Green Communities

Program: *Leiran Biton, ICF International*

B. Workshop Facilitator: *Mike Berry, ICF International*

Mike Berry is a Project Manager for the Massachusetts New Homes with ENERGY STAR Program and holds a Massachusetts Construction Supervisors License and has managed programs for the DOE, the DHCD in Boston, HUD, and several utility programs.

Overview: What is the Stretch Code?

- How does the Stretch Code compare to the current Building Code?
- Why isn't the Stretch Code being developed as a mandatory statewide code?

What does the Stretch Code Mean to My Community?

- What are the additional costs associated with using the Stretch Code for builders and property owners? How will the increased costs affect development in our community?
- How does the Stretch Code impact both new construction and renovation projects?
- What technical training opportunities will be provided for contractors, developers and building inspectors?

What is the Adoption Process for the Stretch Code?

- How can the Stretch Code be adopted in my community?
- Which municipalities have adopted the Stretch Code and what were the key contributors to their success?



Frequently Asked Questions about the 'Stretch' Energy Code

1. What is the 'stretch' code?

The 'stretch code' is an optional appendix to the Massachusetts building energy code that allows cities and towns to choose a more energy-efficient option. This option increases the efficiency requirements in any municipality that adopts it, for all new residential and many new commercial buildings, as well as for those residential additions and renovations that would normally trigger building code requirements.

2. How is the stretch code different from the existing 'base' energy code?

The stretch code appendix offers a streamlined and cost effective route to achieving approximately 20% better energy efficiency in new residential and commercial buildings than is required by the base energy code. This is largely achieved by moving to a performance-based code, where developers are required to design buildings so as to reduce energy use by a given percentage below base code, rather than being required to install specific efficiency measures. Developers have flexibility to choose cost effective and appropriately designed solutions. New residential construction must use the performance-based approach, but residential renovations and most commercial buildings may instead opt to follow a 'prescriptive' route that specifies a set of mini-mum energy efficiency requirements for different building materials and systems. In the commercial case these add up to approximately a 20% improvement over the base code. Many of these changes have been endorsed by the federal Department of Energy and are likely to be incorporated into the commercial chapter of the next International Energy Conservation Code (IECC) in 2012.

3. What are some of the expected benefits to a municipality of a more stringent energy code?

The stretch code allows municipalities to take meaningful action on energy use and climate change; it will yield significant cost savings for local residents and businesses, and will increase design and construction firm competitiveness in the growing green building marketplace.

4. What is the anticipated cost of the stretch code?

Construction costs are estimated to rise approximately \$3,000 for a typical single family home, and by 1% to 3% of total costs for commercial buildings. However, after energy cost savings on heating and electricity are included these higher performance standards save money. In addition, the state's electric and gas utilities provide financial incentives that further reduce the upfront costs of high performance buildings.

For example, a residential home purchased with a 30-year mortgage would typically result in net savings to the homeowner in the first year due to energy bill savings that are larger than the in-crease in mortgage payments from construction and financing costs. Case studies of commercial buildings utilizing the improvements on which the commercial code changes are based have shown paybacks of 1 to 2 years, when standard incentives from electric utilities are included on the benefits side.

5. Does the stretch code apply to major renovation projects as well as new construction?

For commercial buildings: no; for residential buildings: yes. The stretch code has less stringent energy performance requirements for renovations than for new buildings. In addition, those doing additions and renovations have the option of using a simple 'prescriptive' path to code compliance. The prescriptive path specifies a set of minimum energy efficiency requirements for different building materials and systems, instead of requiring energy performance modeling and testing. This flexibility is available due to the greater design constraints involved in working with an existing building. Due to the wide variety in types and conditions of commercial buildings, at this time there are no widely-accepted standards for renovating such buildings, so only new commercial buildings are covered by the stretch code requirements.

6. Does the stretch code apply to minor additions to existing buildings?

Additions to existing buildings that are large enough to require code compliance are treated in the same way as new construction for commercial buildings, and in the same way as renovations in residential buildings. In both cases those doing additions can follow the performance approach to code compliance or a simplified prescriptive path. For residential additions, the prescriptive path is very similar to the base energy code but also requires the use of a checklist to ensure quality installation of insulation and air sealing, use of Energy Star windows, doors and skylights as appropriate, and tighter duct sealing for new heating and cooling systems.

7. If I'm doing a small residential remodeling project, like a kitchen or a bathroom renovation, will I have to meet the stretch energy code?

If a small renovation involved replacing a couple of windows and opening part of an exterior wall cavity, then only those new windows and wall cavity would have to be brought up to meet the stretch energy code, just as the plumbing in the kitchen or bathroom being remodeled would have to comply with the plumbing code. However, improving a kitchen or bathroom would not trigger required changes to the rest of the home such as attic insulation or a new heating system. Only the systems being modified have to be brought up to code. Despite not being required, your contractor, utility company and code official may help advise on cost effective changes – often with tax and rebate incentives to reduce your energy bills that you may want to consider doing at the same time.

8. What financial savings/rebates are there from building to the stretch code?

The stretch code is designed to allow builders to get the maximum benefits of the existing ENERGY STAR® Homes program with its full range of training, support and financial incentives. A new home that is constructed 30% more energy efficient than code can qualify for \$1,250 from the Sponsors of the ENERGY STAR Homes Program, and additional rebates are available for installing high efficiency heating and cooling equipment, appliances and lighting. The utility and non utility partners also subsidize the cost of hiring a HERS rater to work with the builder.

For existing home renovations there are tax credits for the homeowner as well as the same utility incentives on efficient equipment, appliances, and windows. There are also major incentives available to add insulation and reduce air leakage in existing homes, through the MassSave program sponsored by the gas and electric utility companies.

9. What building types are covered by the commercial stretch code?

New buildings, and new additions to existing buildings covered by the commercial energy code, that are greater than 5,000 ft² in size are covered by the stretch code appendix. New commercial buildings smaller than 5,000 square feet, as well as renovation to existing commercial buildings are exempt from the stretch code and remain covered by the base energy code.

10. How soon after a town or city adopts it would the stretch code take effect?

In order to provide consistency among communities, once adopted the stretch code can only go into effect on January 1st or July 1st and there must be at least six months between adoption and when the stretch code becomes mandatory. If Medfield voted to adopt in April 2011, then on July 1, 2011 the stretch code would run concurrent to the existing base code and on January 1, 2012 the stretch code would replace the base energy code as the sole, mandatory energy code in Medfield.

11. How would the stretch code be implemented and enforced?

Once the stretch energy code is adopted by a town or city, it supplements the base energy code language and becomes the binding energy code language for building projects in that municipality. Implementation and enforcement of the code is similar to existing code, where the developer is responsible for submitting documentation of compliance to the building inspector for review, and the building inspector conducts a site review.