Town of Weston: Toward a Sustainable Future

PRESENTATION TO WESTON BOARD OF SELECTMEN

SUSTAINABLE WESTON WORKING GROUP
APRIL 3, 2018
Presentation: Objective and Agenda

Objective

To provide an overview of Weston’s sustainability status, progress and governance as compared to neighboring towns, and to identify a path toward a more sustainable future.

Agenda

1. Sustainability – Urgency for Change
2. Weston Today
3. Comparative Analysis
4. Governance for Sustainability
5. Opportunities for Weston
6. A Way Forward
Sustainability: what is it?

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

– Brundtland Commission, 1987

“Our Common Future”
Report to the United Nations General Assembly

Sustainable development

• **Concerted effort** towards a sustainable and resilient future
• ‘**Triple bottom-line**’
  1) economic development
  2) environmental protection
  3) social objectives
• **Continuous improvement through**
  • key areas of focus & goals
  • supporting implementation
  • measuring & evaluating results
Not managing sustainability means exposure to serious risks

- Increasing greenhouse gas (GHG) emissions
- Resource scarcity
- Health risks
- Changing legislation
- Loss of biodiversity
- Pollution
- Extreme weather events
- Increasing energy prices

TOWN OF WESTON: TOWARD A SUSTAINABLE FUTURE
MA Legislature has an ambitious sustainability agenda

2008 MA Global Warming Solutions Act

Sets GHG emission reduction goals across municipal, commercial, residential sectors:
- **2020**: 10-25% below MA 1990 GHG emission levels
- **2050**: 80% below MA 1990 GHG emission levels

2018 MA Senate Committee on Global Warming & Climate Change

Proposals being discussed in current legislative session including:
- **S479** – 2030/40 emissions benchmarks
- **S2302** – clean energy future
- **S1974** – clean fuel standard
- **S1821** – combating climate change including “Carbon Tax”
- **H3994** – MA participation in the Paris Climate Agreement
Weston has disproportionately high GHG emissions

Greenhouse Gas Emissions Per Household Per Year (2013)

- Weston: 82.3 tons
- US avg: 48.5 tons

80 tons of CO2 equivalent to:

- 2072 tree seedlings grown for 10 years
- 94.4 acres of U.S. forests in one year
- 201,716 Miles driven

Source: 2013 data from [http://coolclimate.berkeley.edu/maps](http://coolclimate.berkeley.edu/maps)
Weston has made some progress towards sustainability

<table>
<thead>
<tr>
<th>Policy</th>
<th>Governance</th>
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</table>
| • 2005 Environmental Policy  
• 2007 Preferable Procurement Policy  
• **2011 Green Community Designation**  
• 2011 Stretch Energy Code  
• 2011 Renewable Energy Overlay District: zoning & planning | • 2011-17 Environmental Baseline Committee  
• 2011-17 Solar PV Panels Exploratory Committee  
• 2016 PTO Green Chairs  
• Facilities (energy efficiency); DPW (recycling); Land Use  
• **Planning Board, Buildings, Community Preservation Committee, Conservation, Recreation, Forest & Trails, Tree Advisory, Traffic & Sidewalk, Stormwater, Rail Trail...** |

<table>
<thead>
<tr>
<th>Savings &amp; Grants - $$$</th>
<th>Citizen Activity</th>
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</table>
| • 2011-17 Municipal energy consumption: **15.7% reduction ~ $650K**  
• 2011-17 Fuel efficient municipal vehicles: **19.2% energy savings**  
• 2017 Solar PV energy generated = $345K: **14% of total energy use**  
• 2011-17 Green Community Grants = $380K | • Land’s Sake community farm, environmental education  
• **2013 Weston Climate Group: Home Energy Assessment Campaign – 392 home assessments done (goal 300)**  
• 2013-16 Recycling rate (excl. yard waste) risen 2%  
• 2017 Plastic Bag Ban  
• 2018 BoH letter to Governor re. health implications of fracked gas infrastructure |
## 350MA Sustainability Questionnaire Results

### Administrative - Max 46 Points for:
- Creating climate action plan
- Sustainability Committee in place
- Green Community Designation

Weston: 13

### Buildings - Max 52 Points for:
- Municipal energy reduction plan
- Municipal solar farm
- Commercial/Residential energy reduction action

Weston: 22

### Transportation - Max 27 Points for:
- Fuel Efficient/EV town vehicles
- Anti-idling policies
- Permeable paving, bike lanes

Weston: 6

### Other GHG/Sustainability - Max 71 for:
- Sustainable land management practices
- Support for local farms/food security
- Rejection of new fossil fuel infrastructure
- Plastic bans/hazardous recycling

Weston: 14

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### Weston compared to sustainable neighbors

<table>
<thead>
<tr>
<th>Town</th>
<th>Administrative</th>
<th>Buildings</th>
<th>Transportation</th>
<th>Other GHG/Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acton</td>
<td>14</td>
<td>22</td>
<td>6</td>
<td>13</td>
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<tr>
<td>Concord</td>
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<td>Framingham</td>
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<td>Natick</td>
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<tr>
<td>Wayland</td>
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<tr>
<td>Weston</td>
<td>13</td>
<td>22</td>
<td>6</td>
<td>14</td>
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Green Community Designation is the new normal

- 210 designated Green Communities as of 2017
- Max. Award $250,000/year, per town
- Weston received $382,382 since 2011:
  - $138.7 Middle School boiler
  - $243.7 schools energy efficiencies & Fire HQ

Weston has not maximized Green Community funding

Green Communities Designation - Total Funding Received

Weston: $382K since 2011

Green Communities establish governance for sustainability

- Town received grant funding for **administrative costs**
- Town has **employee dedicated to sustainability**
- Town has **permanent energy/sustainability committee**
- Town has **active citizen’s group** or initiative

**Total Green Communities Grant Funding Awarded**
- > $1,000,000
- $600,000 – $1,000,000
- < $600,000
- New GC designation (2017)
Weston energy efficiencies have run out of steam


- **Total municipal energy usage:**
  ~75,000 MMBtu (not weather normalized)
- **Trend 2011 – 2017:** down 15.7%
- **Buildings are by far largest category**

Source: Annual Report 2017, EBC
Weston water usage far exceeds neighboring towns’

Weston generates significant waste per household

![Bar chart showing waste (excl. recycling) per household served for various towns. Weston has the highest waste generation.](chart.png)
Weston recycles at a low rate compared to other towns

- **Single Stream (SS) recycling** is a factor
- **PAYT/SMART towns:**
  - Acton
  - Concord
  - Natick
  - Sudbury
  - Wayland

## Governance for sustainability has paid off in surrounding towns

<table>
<thead>
<tr>
<th>Town</th>
<th>Town Government</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td>Concord</td>
<td>• 2017 Appointed Director of Sustainability, Kate Hanley&lt;br&gt;• 2016 Established Energy Future Task Force&lt;br&gt;• 2011 Adopted Sustainability Principles&lt;br&gt;• 2007 Established Comprehensive Sustainability Energy Committee&lt;br&gt;• Natural Resources Commission&lt;br&gt;• Solar Committee</td>
<td>• 2017 Approved Article 51, setting ambitious goal&lt;br&gt; 25% town-wide GHG reduction by 2020&lt;br&gt; 80% town-wide GHG reductions by 2050&lt;br&gt; Created full-time sustainability position&lt;br&gt; • 2017 300 residential solar installs&lt;br&gt; • 2011 Adopted 4 sustainability principles</td>
</tr>
<tr>
<td>Lexington</td>
<td>• 2010 Established Sustainable Lexington Committee&lt;br&gt;• Lexington Global Warming Solutions Action Coalition&lt;br&gt;• Community Preservation Committee&lt;br&gt;• Conservation Commission</td>
<td>• 2017 Launched Community Choice Program, green power @ 10.4cts/kWh = $1.4m total savings for residents and small businesses in first year&lt;br&gt; • 2013 Approved Article 33, climate change resolution:&lt;br&gt; Consider climate change in all decisions and processes&lt;br&gt; Prepare for impact from climate change&lt;br&gt; Reduce GHG emissions&lt;br&gt; Develop and implement climate action plan</td>
</tr>
<tr>
<td>Natick</td>
<td>• 2016 Established Sustainability Committee&lt;br&gt;• 2014 Appointed Sustainability Coordinator, Jillian Wilson-Martin&lt;br&gt;• 2003 Appointed Environmental Expert&lt;br&gt;• Conservation Committee</td>
<td>• 2017 600 residential solar installs&lt;br&gt; • 2017 90% of land area within ¼ mile of open space&lt;br&gt; • 2003-17 40% reduction in waste, 43% of waste recycled&lt;br&gt; • 2004-15 37% Reduction in municipal GHG emissions</td>
</tr>
<tr>
<td>Wayland</td>
<td>• 2017 Established Energy and Climate Committee&lt;br&gt;• 2009 Established Initiatives Advisory Committee&lt;br&gt;• Community Preservation Committee&lt;br&gt;• Conservation Commission</td>
<td>• 2011-17 &lt;$900k secured in grant funds for sustainability&lt;br&gt; • 2012-7 &lt;200 residential/small business solar installs&lt;br&gt; • 2011-7 11% municipal energy savings&lt;br&gt; • 2017 25% of municipal electricity costs offset by 4 solar sites = $100,000&lt;br&gt; • 2017 $60,000 savings per year from LED street lights</td>
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# Creating a Sustainability Committee: Best Practices

<table>
<thead>
<tr>
<th>Structure</th>
<th>Responsibilities</th>
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<tbody>
<tr>
<td><strong>4-6 appointed members</strong>, staggered 3-year terms</td>
<td><strong>Recommend</strong> sustainability goals</td>
</tr>
<tr>
<td><strong>Possible members:</strong></td>
<td><strong>Assess</strong> impacts of potential projects</td>
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<tr>
<td></td>
<td><strong>Engage &amp; educate</strong> residents</td>
</tr>
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<td></td>
<td><strong>Coordinate</strong> with other boards and committees</td>
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<td></td>
<td><strong>Recommend</strong> relevant proposals</td>
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<td></td>
<td><strong>Support implementation</strong></td>
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<td></td>
<td><strong>Monitor &amp; measure</strong> effectiveness</td>
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<td></td>
<td><strong>Ensure</strong> continuous improvement</td>
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<td></td>
<td><strong>Stay abreast of relevant legislation</strong></td>
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<td></td>
<td><strong>Prepare</strong> annual town-wide GHG emissions inventory and reduction <strong>report</strong></td>
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<td></td>
<td><strong>Green Community reporting</strong></td>
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<td></td>
<td><strong>Seek and obtain</strong> grants and funding</td>
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<td><strong>Desired expertise:</strong></td>
<td></td>
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<tr>
<td></td>
<td>building/energy systems</td>
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<tr>
<td></td>
<td>water infrastructure</td>
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<tr>
<td></td>
<td>waste prevention and management</td>
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<tr>
<td></td>
<td>land use</td>
</tr>
<tr>
<td></td>
<td>education &amp; engagement of residents</td>
</tr>
<tr>
<td><strong>Appointed</strong> sustainability ‘<strong>champion</strong>’, reporting to the Town Manager</td>
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Weston sustainability opportunities needing time and attention

<table>
<thead>
<tr>
<th>Revenue Generation</th>
<th>Grants &amp; Network Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Updated energy efficiency assessment</td>
<td>• Green Communities</td>
</tr>
<tr>
<td>• Recycling and PAYT</td>
<td>− 10% of grant to administration of projects/program</td>
</tr>
<tr>
<td>• Schools solid/food waste</td>
<td>− Seed-funding for Sustainability/Energy Manager</td>
</tr>
<tr>
<td>• Electric vehicles e.g. school buses, charging sites</td>
<td>− Share expertise and lessons learned</td>
</tr>
<tr>
<td>• Additional solar array(s)</td>
<td>• Metro Area Planning Council for MetroWest:</td>
</tr>
<tr>
<td>• Electricity aggregation</td>
<td>− LED street lighting</td>
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<tr>
<td></td>
<td>− Climate resiliency plan</td>
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<table>
<thead>
<tr>
<th>Coordination &amp; Collaboration</th>
<th>Educate &amp; Engage</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Embed Sustainability Aspects in Town projects:</td>
<td>• Town-wide goals to encourage participation</td>
</tr>
<tr>
<td>− Town Center redesign</td>
<td>• Town website &amp; newsletters</td>
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<tr>
<td>− Rail Trail</td>
<td>• Residential energy campaign</td>
</tr>
<tr>
<td>• Consistent approach to sustainability across Town departments, committees, initiatives</td>
<td>• PTO Green Chairs to liaise with schools</td>
</tr>
<tr>
<td>• Address largest gas leaks</td>
<td>• Weston Recreation course</td>
</tr>
<tr>
<td>• Address aging infrastructure for storm resilience</td>
<td>• WHS June Academy, MS J-Term, Field School Steam Fair</td>
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</tbody>
</table>
An ongoing, systemic approach to a more sustainable Weston

**What:**
- Are objectives met?
- Are changes working?
- Educate & Engage

**Who:**
- Contractors
- Sustainability Taskforce
- Town Manager/staff
- DPW

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**Measure & Evaluate**

**Prioritize**

**Implement**

**Ongoing considerations**
- Legislation
- Town Projects
- Citizen’s Initiatives
- GC Best Practice
- Technology

**What:**
- What is most urgent?
- What is in the budget? ROI?
- What is most promising?

**Who:**
- Board of Selectmen
- Finance Committee
- Sustainability Taskforce

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**What:**
- How to make it happen?
- Educate & Engage

**Who:**
- DPW/ Facilities/Schools
- Town Manager
- Sustainability Taskforce
- Citizen groups (PTO, SW)
Establishing a Sustainability Taskforce is a key next step for Weston

Suggested next steps

1. Create multidisciplinary Sustainability Taskforce and hire consultant
   - Complete RFP for updating Energy Efficiency Assessment, consider grant funding
   - Assess how consultant can further support taskforce’ work within agreed timeline
   - Consider Sustainability Committee best practices

2. Sustainability Taskforce drafts Sustainability Action Plan for Weston
   - Identify opportunities and priorities, leveraging grant funding where possible
   - Formulate vision for sustainability and key sustainability goals
   - Prepare a plan and timeline toward achieving these goals, evaluating the need for a dedicated sustainability position and/or permanent Sustainability Committee herein

3. Sustainability Taskforce presents the plan and ensures follow-up
Sustainable Weston Working Group

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Appendix
## Why is Sustainability Important? - Top GHG Emitters

<table>
<thead>
<tr>
<th>2015 total CO2* emissions rank</th>
<th>Country</th>
<th>2015 per capita CO2 emissions (metric tons)</th>
<th>2015 CO2 emissions per capita rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>6.59</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>USA</td>
<td>15.52</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>1.58</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>Saudi Arabia</td>
<td>16.85</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Australia</td>
<td>15.83</td>
<td>2</td>
</tr>
</tbody>
</table>

* CO2 emissions estimated from the combustion of coal, natural gas, oil and other fuels, including industrial waste and non-renewable municipal waste

Source: Union of Concerned Scientists
https://www.ucsusa.org/global-warming/science-and-impacts/science/each-countrys-share-of-co2.html#WqBLUkyZOgQ

Source: World Resources Institute
Global carbon emissions surge - US carries a carbon debt

CO2 Emissions worldwide 1850-2014
(billion metric tons/year)

Cumulative CO2 Emissions 1850-2011
(% of World Total)

https://wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters
Far reaching health issues of climate change now recognized

Source: American College of Physicians [https://www.acponline.org/advocacy/advocacy-in-action/climate-change-toolkit]
Local example of health issues from climate change

Reported Cases of Lyme Disease – United States, 2001

Reported Cases of Lyme Disease – United States, 2016

1 dot placed randomly within county of residence for each reported case

1 dot placed randomly within county of residence for each confirmed case

Source: https://www.cdc.gov/lyme/stats/index.html
Why is Sustainability Important? – Weston Carbon Footprint

Source: UC Berkeley CoolClimate Network, http://coolclimate.berkeley.edu/maps