

# AMERICAN TEXTILE HISTORY MUSEUM



## Sustainability Plan

**To:** American Textile History Museum  
**From:** Matt Lee, Sean Hayes, Nick Avendano and Lynelia Raposo  
**Date:** July 14, 2008  
**RE:** Sustainability Project Plan

- I. Introduction:** A number of sustainability issues have been identified by the American Textile History Museum as critical factors impacting the long term health of the organization. The following assessment will analyze these factors as well as the corresponding opportunities and recommendations needed to establish a sound strategy and sustainability plan.
- A. Client Requirements:** The key sustainability factors that have been identified by the ATHM include the following: Energy Use, Lighting, Water Usage, Paper/Plastic use reduction, green office, technology disposal and potentially obtaining LEED certification.
- B. Balanced Scorecard:** The balanced scorecard will translate ATHM's mission and established goals into an integrated set of performance measures based on several critical success factors.
- 1. Critical Success Factors:** The following factors are key aspects impacting the organization's sustainability plan and play a significant role in the ATHM's balanced scorecard.
- a. Tone at the Top:** In order for a sustainability plan to be successful it must have the support of top level management. By doing so, the tone throughout the entire organization will be clear.
  - b. Integration:** Integrating all current and future social and environmental costs and benefits into decisions.
  - c. Financial Management:** The appropriate management of the organization's financial resources is essential to the organization's long-term sustainability.
  - d. Financial Controls:** A policy and corresponding procedures must be put in place to limit future withdrawals from the endowment fund for operations. Procedures must also ensure consistent repayment of funds if borrowed from endowment.
  - e. Quality Body of Work:** Maintaining an acceptable standard of quality for all artifacts is critical to maintaining the integrity of the ATHM.
  - f. Marketing/Publicity:** The ATHM must have effective means of marketing to both its members and the general public. Brochures, literature and free publicity over the web and through the local newspaper are critical to promoting not only the museum but its environmentally friendly values.
  - g. Technology:** Effective use of technology for member database management, email communications and marketing through the website all support ways in which the ATHM can achieve its objectives without incurring unusually large expenses.
  - h. Membership:** Membership levels are at the core of the ATHM's success. Although a secondary driver of income, ATHM did derive about 20K in 2007 from dues.

**II. Strategy:** The ATHM is primarily focused on pursuing a sustainability plan that not only has a positive financial impact but also is environmentally friendly. Our goal is to integrate the assessment of social and environmental risks into the evaluation of processes and project decisions.

- A. Current Mission Statement:** The American Textile History Museum tells America’s story through the art, science, and history of our textiles. ATHM is accredited by the American Association of Museums.
  
- B. ATHM’s High Level Strategic Objectives:** Future goals and objectives of the ATHM must be tied to strategy. The goals outlined below address the financial, customer, internal and environmental objectives of the organization. Each area will have supporting objectives (noted later in the Balanced Scorecard) that are focused on helping the ATHM achieve these goals.
  - 1. Financial Perspective:** Increase profit margin by 5% within 1 year and 10% within 3 years. Per the 2007 unaudited financials, Profits were 903K. Our goal would be to reach profits 950K by the end of 2009 mostly through increased revenue and decrease in expenses obtained through efficiencies in operating process.
  - 2. Financial Perspective:** Increase endowment fund by 2% through increased fundraising campaign.
  - 3. Customer Perspective:** Increase # of paid visitors through the museum doors by 10% within year one. This will have an immediate impact on revenue received from admission.
  - 4. Internal Perspective:** Reduce administrative expenses and operating expenses by 10% within three years. Per the 2007 unaudited financial statements, general operating expenses were roughly 823K. Our plan is to reduce that expense by 10% by YE 2011.
  - 5. Financial Perspective:** Increase grants from Federal and local organizations by implementing some environmentally initiatives. By moving towards environmentally friendly equipment and processes, ATHM can begin to apply for the many grants given annually to eco-friendly businesses.
  - 6. Internal Perspective:** Increasing the awareness levels on employees at the ATHM will go a long ways towards changing the culture to a more environmentally conscious group. It can be as simple as hanging posters around the museum just reminding people of the difference that they can make.

**III. Why go Green? (High Level Summary)** A decade ago most people associated environmentally-sound home building with unsightly solar panels and bad water pressure. Today many buildings across the country have been able to incorporate eco-friendly and aesthetically pleasing structures into one. Here are some high level benefits of “going green”:

**A. You can save energy - and money:** Given the astronomical rise in fuel prices in the past few years, it’s no surprise that energy efficiency is the top reason consumers choose green building these days.

**1. Energy Loss:** The typical house/building loses 15 percent to 20 percent of its heat or air-conditioning leakage from ducts alone, according to Energy Star, a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy.

**a. Energy-conscious construction** can significantly reduce that waste. Some of the savings come from materials that provide extra thermal resistance, such as straw-bale

construction and insulated concrete forms. More can come from designs that maximize exposure to winter sun and minimize summer heat.

**b. Green builders** and re-modelers also favor energy-efficient appliances and water-conserving fixtures. Energy savings from all these techniques usually pay for their higher up-front costs in two to seven years, says Elliot Johnson, an Austin architect specializing in this type of design.

**B. Health of Employees:** Compared with outdoor air, indoor air can be two to five times more polluted, according to the U.S. Environmental Protection Agency.

**1. A major cause:** volatile organic compounds (VOCs) commonly found in paints, stains and glues. When these products dry, they release chemicals and continue to do so for years. This can exacerbate allergies and asthma, and cause headaches and nausea.

**2. Air quality:** Providing adequate ventilation can also improve air quality. Years ago the air would turn over naturally because houses were so poorly insulated, but today buildings are so tightly sealed that you need to circulate fresh air.

**C. Save the planet:** Another reason you might choose this type of construction is less practical and more philosophical: You want to leave the smallest footprint you can on the planet.

**1. Steps/Measures:** Planning construction to minimize the waste of building materials; reducing water consumption by adding low-volume toilets or rainwater filtration systems; and working with products that are sustainable (wool carpeting, bamboo flooring, cotton insulation) or recycled (salvaged wood, steel made with reused rebar, insulation made from paper products).

**D. Will it pay off:** On average most environmental friendly projects cost between 2 percent and 4 percent more than standard construction (source EPA).

**1. Offsets to costs:** There are also some significant tax credits available on the state and federal level that may help pay for improvements. Tax credits of up to \$500 for installing energy-efficient windows, insulation, doors, roofs, boilers and air conditioners.

**2. Payback Period:** Before investing in these types energy efficiencies, it is important to consider whether your monthly utility savings and any tax breaks or government grants will pay for the added cost in a reasonable amount of time.

**3. LEED Certification:** The Leadership in Energy and Environmental Design is a third party green building rating system that distinguishes environmentally-friendly buildings by awarding project design points in six rigorous categories: sustainable sites, water efficiency, energy and atmosphere, material and resources, indoor environmental quality and innovation.

**IV. Corporate Objectives and Metrics:** The ATHM must use the high level strategic objectives noted above to succeed in implementing our sustainability plan. Table I below outlines performance metrics and risks that must be considered using this Balanced Scorecard approach.

<b>Strategic Objectives</b>	<b>Performance Metric</b>	<b>Risks</b>
<i>Financial</i>		
Increase profit margin by 5% (minimum) within 1 year.	$\frac{(\text{CY PM} - \text{PY PM})}{\text{PY PM}}$ <p>*PM – Profit Margin</p>	<ol style="list-style-type: none"> <li>1. Increasing competition for donations in the area may limit fundraising potential.</li> <li>2. Efforts to increase revenue and control expenses may fall short of objective.</li> <li>3. Economic downturns may impact financial performance.</li> </ol>
<i>Customer</i>		
Increase active involvement by 10% within 1 year.	$\frac{(\text{CY \# active members} - \text{PY \#})}{\text{PY \# of active members}}$	<ol style="list-style-type: none"> <li>1. Costs may increase as a result of more marketing to potential members.</li> <li>2. More resources may be required to serve a larger number of active members.</li> </ol>
<i>Internal Process</i>		
Reduce administrative and operating expenses 10% within first year.	$\frac{(\text{CY Expenses} - \text{PY Expenses})}{\text{PY Expense}}$	<ol style="list-style-type: none"> <li>1. Improving the ATHM’s internal processes may incur higher administrative costs initially before future savings are realized.</li> <li>2. Cost control is largely dependent on new eco-friendly methods. Maintaining efficient processes will require consistent training.</li> <li>3. Inability to generate necessary volunteer hours.</li> </ol>
<i>Environmental Objectives</i>		
Be recognized as one of the museum industry leaders in terms of being “eco-friendly”	# of new donations attributed to their new socially responsible mission	<ol style="list-style-type: none"> <li>1. Improve upon current practices of expending unnecessary energy.</li> <li>2. Improve marketing campaign regarding their new initiatives.</li> </ol>

ProForma Financials	Pro-Forma from			Explanation	% change
	YTD Budget	Initiatives	YTD vs. ProForma		
<b>Revenue</b>					
Admissions	3,439.00	3,782.90	343.90	Increased awareness	10%
<b>Fundraising</b>					
Donations - Foundations	359,453.00	377,425.65	17,972.65	Marketing Efforts	5%
Donations -	150,000.00	157,500.00	7,500.00	Marketing Efforts	5%
Donations - Individual	330,000.00	346,500.00	16,500.00	Marketing Efforts	5%
Public Funding - Federal	0.00	0.00	0.00	Marketing Efforts	5%
Public Funding - State	0.00	0.00	0.00	Marketing Efforts	5%
Special Events Revenue	91,000.00	95,550.00	4,550.00	Marketing Efforts	5%
Total Fundraising	930,453.00	976,975.65	46,522.65		
Membership	20,245.00	22,269.50	2,024.50	Marketing Efforts	10%
Increased Revenue from Initiatives			48,891.05		
<b>Expenses</b>					
<b>General Operating</b>					
Supplies	18,076.66	17,172.83	903.83	Paper Initiative	5%
Water & Sewer	753.03	677.73	75.30	Water Initiative	10%
Electricity	81,028.61	64,822.89	16,205.72	Electricity Initiative	20%
Copying	9,850.99	9,358.44	492.55	Paper Initiative	5%
Printing	16,983.12	16,133.96	849.16	Printing Initiative	5%
Postage	10,503.29	9,978.13	525.16	Paper Initiative	5%
Mail Services	2,979.88	2,830.89	148.99	Paper Initiative	5%
Total decrease in Initiative related expenses	<u>140,175.58</u>	<u>120,974.86</u>	<u>(19,200.72)</u>		
Total Savings in Year 1 through Initiatives	813,961.42	882,053.19	68,091.77	Year 1 Savings	

**V SWOT:** Presents some of the Strengths, Weaknesses, Opportunities and Threats facing ATHM

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Long History in the Local Community</li> <li>• History Location</li> <li>• Several avenues exist for raising revenue</li> <li>• Chairpersons for the art, finance, and special events committee all provide vast experience</li> <li>• Effective security system protecting priceless artifacts</li> <li>• Willingness to listen to suggestions regarding eco-changes</li> <li>• Benefit of being able to get an environmentally friendly message to thousands of annual museum visitors</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Ineffective communication to existing members</li> <li>• Low number of active volunteers</li> <li>• Several areas have exceeded budget</li> <li>• Little control over how endowment funds are invested</li> <li>• Older facility not energy efficient</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Use of space for private parties and functions</li> <li>• Creating of a complete brand image with improved signage, presentation, mailings promoting sustainability initiatives</li> <li>• Conduct efficiency review to reduce operating expenses</li> <li>• Availability to book additional special events and programs</li> <li>• Special events for schools hope to appeal to a greater market</li> <li>• Improved communication and monitoring of budget could reduce overspending</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Impact of market fluctuation on invested funds</li> <li>• Impact of economic and climate factors on donations</li> <li>• Several non-profits in area continuously raising funds</li> <li>• Use of endowment funds to run the museum in recent years</li> <li>• Budget restrictions may limit ability to invest in long term cost cutting programs</li> </ul>

**Balanced Scorecard: The Balanced Scorecard** (BSC) began as a concept for measuring whether the smaller-scale operational activities of a company are aligned with its larger-scale objectives in terms of vision and strategy. It was developed and first used at [Analog Devices](#) in 1987. By focusing not only on financial outcomes but also on the human issues, the Balanced Scorecard helps provide a more comprehensive view of a business, which in turn helps organizations act in their best long-term interests. The [strategic management](#) system helps managers focus on performance metrics while balancing financial objectives with customer, process and employee perspectives. Measures are often indicators of future performance.<sup>1</sup>

**Table III A: Balanced Scorecard**

**High Level Corporate Objective: Increase Revenue by 5% (minimum) within 1 year.**

Supporting Objectives	Metric (Performance Measures)	Critical Success Factor	Initiatives
<b>Financial</b> Reduce operating expenses incurred for energy and water usage	<u>CY Electricity – PY Electricity)</u> PY Electricity  <u>CY Water – PY Water)</u> PY Water  <u>CY Paper Expense – PY Paper Expense)</u> PY Paper Expense	Cost analysis of existing electric usage vs. new lighting.  Cost analysis of existing water consumption vs. new consumption levels.  Period over period paper expense evaluation  Staff must be committed to the process.	<b><u>Internal Process:</u></b> 1. Determine the process for training employees and measuring the cost savings initiatives.  2. Conduct review of staff members list to determine who is following protocol.  3. Establish procedures for: a. Energy Savings b. Water usage c. Recycling Efforts  <b><u>Internal Process:</u></b> 1. Use email to communicate to current employees on a monthly basis what the cost savings were.  <b><u>Training/Education:</u></b> Educate staff on importance and illustrate cost savings to be achieved
<b>Financial</b> Increase profitability by <u>5%</u> over the next year by	<u>(CY Margin – PY Margin)</u> PY Margin	Marketing the new environmentally friendly initiatives.  Pictures, virtual tours of museum, and what the ATHM is doing to promote and environmentally friendly exhibit.  Train employees on cost cutting initiatives.	<b><u>Facilities Maintenance:</u></b> 1. Better usage of water and electricity  <b><u>Marketing:</u></b> 1. Create brochure and ad campaign promoting initiatives.
<b>Customer</b> Increase gate revenue by <u>10%</u> within 1 year. <a href="http://www.Balancedscorecard.com">www. Balancedscorecard.com</a>	<u>(CY Gate #'s – PY Gate #'s)</u> PY Gate #'s	Effective marketing of upcoming exhibits and re-opening.  Form a Membership Committee if one doesn't already exist.  Work with local schools to promote museum for field trips.	<b><u>Technology:</u></b> 1. Contact web designers and request proposals for re-designing the website to meet the ATHM's objectives. 2. Conduct housekeeping project of database and update mailing lists.  <b><u>Internal Process:</u></b> 1. Form a separate committee focused specifically on marketing the new initiatives.

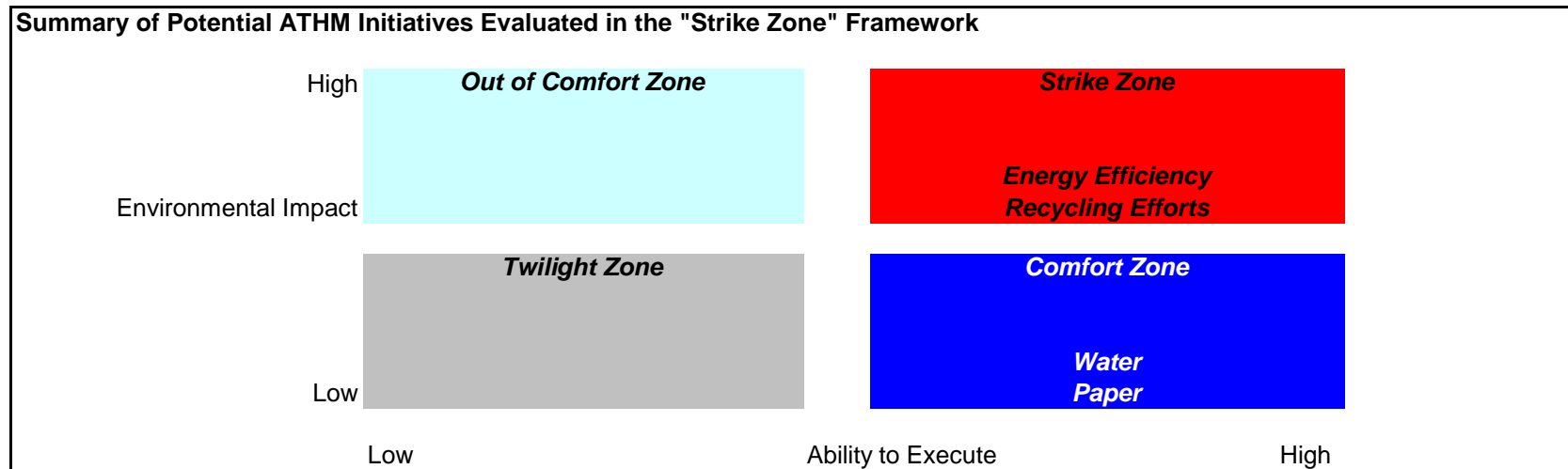


**Table III B: Balanced Scorecard**

**High Level Corporate Objective: Increase Endowment by 2% annually.**

Supporting Objectives	Metric (Performance Measures)	Critical Success Factor	Initiatives
<p><b>Financial</b> Increase endowment fund by 2% through increased fundraising campaign.</p>	<p style="text-align: center;"><u>(CY Principle Balance – PY Principle Balance)</u> PY Principle Balance</p>	<p>Increased participation and interest in the ATHM and the new initiatives should drive increase contributions.</p>	<p><b>Internal Process:</b> 1. Increase awareness in the community about the new initiatives set forth by the ATHM. This will promote the eco-friendly initiatives put forth by the museum and establish goodwill in the community. 2. Recruit group of volunteers to follow up on prior donations early in the year. <b>Marketing:</b> 1. Send email notifications to prior donors and local businesses.. <b>Technology:</b> 1. Have a donation link on the ATHM website.</p>
<p><b>Business Process</b> Utilize the web to process <u>all</u> applications/renewals and newsletters</p>	<p style="text-align: center;"><u>(CY Postage Expnese – PY Postage Expense)/</u> PY Postage Expense</p>	<p>User-friendly and secure website.</p>	<p><b>Technology:</b> 1. Contact web designers and request proposals for re-designing the website to meet the ATHM’s objectives. <b>Incentives:</b> 1. Implement bonus incentive for members to donate through the website.</p>
<p><b>Customer</b> Increase number of visitors who attend 3 or more times annually by 15%.</p>	<p style="text-align: center;"><u>(PY # - CY #)</u> PY #</p>	<p>Sign-in process at each visit with email address to increase database.  Periodic incentives for repeat ticket purchases. Examples include: * Advance private showings of new exhibits</p>	<p><b>Internal Process:</b> 1. Have a sign-in sheet at entrance. 2. Create a membership committee. <b>Marketing:</b> 1. Create and distribute a calendar of events at each month <b>Incentives:</b> 1. Create incentive program to encourage members to revisit the mansion. 2. Give offers/promotion codes</p>
<p><b>Learning and Growth</b> Create 3 art association partnerships within 1 year.</p>	<p style="text-align: center;"># of partnerships</p>	<p>Communication with other similar type associations.  Shared vision and benefits for both parties.  Internal liaison to maintain relationships.</p>	<p><b>Internal Process:</b> 1. Contact other museums in area and organize meetings.  2. Develop shared list of benefits and opportunities that each organization wants to make available to the other.</p>

**IV. Strike Zone Analysis:** Below you will see what is known as a “Strike Zone” analysis framework, created to evaluate the business strategy implications of proposed environmental initiatives. In this 2x2 matrix we detail our initiatives according to two independent dimensions: Environmental Impact and Ability to Execute. Environmental Impact, as it sounds, is a relative measure of whether the proposed initiative will have high or low impact on reducing environmental footprint. Ability to execute: measures ATHM’s ability to implement the initiative in question, based on its current internal capabilities.



Based on our analyses, energy efficiency and recycling initiatives are in the “Strike Zone”. Electricity and Natural Gas accounted for nearly 20% of general operating expenses at ATHM in 2007. There are, essentially, two ways to benefit from reducing energy consumption. These include using energy that is more efficient and the fact that energy efficient projects can be a positive contributor to the bottom line when the initial upfront cost is recouped through cost savings. A chain effect occurs among equipment relevant for energy efficiency projects. Less electricity needed for lighting will lead to less produced by the lighting system, which in turn results in less work needed by the cooling system to maintain the same required level for the artifacts. In regards to recycling efforts, it really begins with education. Most individuals are not aware of the benefits of recycling just 1 plastic bottle. By recycling 1 plastic bottle not only saves anywhere from 100 to 1000 years in the landfill but also saves the environment from the emissions in producing new bottles as well as the oil used to produce that bottle<sup>2</sup>. For every 1 ton of plastic that is recycled we save the equivalent of 2 people’s energy use for 1 year, the amount of water used by 1 person in 2 month’s time and almost 2000 pounds of oil. Recycling is a very environmentally green activity; however, there are ways that you can make it greener as well as building a strong beginning if you do not currently recycle.

<sup>2</sup> <http://www.environment-green.com/>

**VII. Overall Corporate Strategy:** The corporate strategy for the ATHM should be a balanced approach between artistic creativity, business minded goal setting and increased environmental awareness to promote sustainability. Increasing awareness of the ATHM, performance tracking, and bottom-line financial performance must now serve as the foundation for the ATHM's future sustainability initiatives.

- A. **Common Language Dictionary:** This serves as a basis for creating and assessing overall business risk and establishing a meaningful enterprise-wide risk management framework. It will help bring all employees and council members of the ATHM onto the same page when establishing and monitoring sustainability objectives.
1. **Risks:** The possibility of an event occurring that will have an impact on the achievement of objectives. Risk is measured in terms of impact and likelihood. Economic factors, attractiveness of exhibits and programs, willingness among members to volunteer and attend events, rental cancellations are all risks that may impact the ATHM's objectives.
  2. **Information for Decision-Making Risk:** Risk that arises when information used to support business decisions is incomplete, out of date, inaccurate, late or simply irrelevant to the decision-making process. This impacts the ATHM, in particular, if marketing campaigns are undertaken without thoughtful consideration to how successful the exhibit may be financially.
  3. **Performance Measures:** Measures used to evaluate whether or not established objectives are being achieved.
  4. **Critical Success Factors:** Minimum level of activities that must be performed well for the ATHM to achieve its strategic objectives.
  5. **Targets:** Specific goals set forth by the ATHM to support the achievement of high level strategic objectives.
  6. **Control Activities:** Policies and procedures that help provide assurance that management directives are carried out. These include approvals, verifications, reconciliations, reviews of operating performance, security of assets and segregation of assets.
  7. **Initiatives:** Steps that must be taken to ensure that critical success factors are in place to support the ATHM's goals and objectives.

**VIII. Change Management:** is a structured approach to transitioning individuals, teams, and organizations from a current state to a desired future state. The current definition of Change Management includes both organizational change management processes and individual change management models, which together are used to manage the people side of change.

- A. **Establish a Sense of Urgency:** Often employees do not take the need for change seriously enough; the organization is often very complacent. The effective change leader will educate the organization about the urgent need for change and the consequences of sticking to the status quo. The world reached 1 billion people in 1800; 2 billion by 1922; and over 6 billion by 2000. It is estimated that the population will swell to over 9 billion by 2050. That means that if the world's natural resources were evenly distributed, people in 2050 will only have 25% of the resources per capita that people in 1950 had. Other museums are already going green. ATHM will have to take new steps toward being sustainable in order to compete with the market. Understanding how important this is and what the benefits are to the museum will help facilitate change amongst the employees.
- B. **Create a Guiding Coalition:** The change leader should assemble a group of people who support the need for change and have enough institutional clout to make change happen; the task is then to get this coalition to work together as a team. For ATHM the change leader should be Jim Coleman but Jim must have the support of the board of directors. The only way for this to be successful is to have the passion for the change to come from

the top. Convincing people that change is necessary is very difficult and requires this collation to lead the change not just manage it.

- C. Develop a Vision and Strategy:** A change leader needs to present a picture (or vision) of what the organization will look like after the change and to propose strategies to move the organization to this ideal state. The goal of the vision is to get employee buy-in, so employee participation in articulating the vision is useful. Determine the values that are central to this change. For ATHM the mission should still be to tell America's story through the art, science and history of our textiles all while maintaining the message of doing so with the sustainability of our society in mind as well.
- D. Communicate the Change Vision:** The change leader must coordinate a communications effort that broadcasts the new vision and strategies. Management must communicate the vision of change to all relevant employees to further develop buy-in. Kotter believes that the guiding coalition should "model the behavior expected of employees." This change should be talked about all the time not just at special meetings or newsletters. You need to make sure that you are open and honest to address people's concerns and anxieties over the change. The key is to lead by example.
- E. Empower Action:** Management should remove barriers that impede change. Employees should know that acting in accord with the vision will be rewarded. Risk taking should be encouraged. ATHM employees should be encouraged to come up with their own ideas on how to make the museum more eco friendly. The museum should have small incentives for employees to make a conservative effort to be "greener". Make sure there is a structure for change and also barriers to measure the change. If there are people resisting the change they must be identified early and educated on why this change is vital to the continuation of the museum.
- F. Generate Short-Term Wins:** By breaking up the desired change into smaller steps, change leaders can create a feeling of progress as well as opportunities to reward employees for success. This progress should be communicated widely so it is recognized throughout the organization that change is happening. For example the 3 bullets below show how easy it is to make a difference in our society.
1. For every ton of paper that is recycled, the following is saved: 7,000 gallons of water; 380 gallons of oil; and enough electricity to power an average house for six months.
  2. You can run a TV for six hours on the amount of electricity that is saved by recycling one aluminum can.
  3. By recycling just one glass bottle, you save enough electricity to power a 100-watt bulb for four hours.
- G. Consolidate Gains and Produce More Change:** Change leaders can use the increased credibility that comes with early "wins" to alter whatever in the organization doesn't fit the vision. Recruiting and promoting those who can advance the change process (or perhaps even help lead it) is vital in continuing progress. Employees will see the difference they are making by taking responsibility for going green and will be motivated to continue to be a difference maker. The museum is focused on preserving America's textile history which makes it easy to add preserving our earth as an additional focus.
- H. Anchor New Approaches in the Culture:** Emphasizing the benefits of the change effort, and linking it to organizational success, is one way to help anchor the new approach. The idea is to have new practices replace the old culture. (This final step takes time; it comes last in the transformation process). The new culture of ATHM on being green is going to open doors to new members and funding. People who really have a passion for sustainability prefer to align themselves with business' who share the same values.

**IX. Reasons for going Green for Museums:** Green design is not just for science museums. Green is clearly aligned with the missions and stewardship responsibilities of natural history, environmental, technology, and children's museums, not to mention aquaria, botanical gardens, and zoos. And because green design saves organizations money in the long run and costs only marginally more to implement (as we've shown above) than does traditional building design here are some reasons museums have gone green in recent years:

- Find Funding
- Improve Quality
- Impact/Effect
- Location & Audience
- Organizational Mission

**A. Funding Proposals:** In order for ATHM to find additional funding, they will be required to write proposals as to why they are deserving. Below we've attached some questions to help formulate the proposals for the different grant requests:

- 1. Organizational Mission** — Does your institution's mission substantially mirror the funder's mission statement?
- 2. Location and Audience** — Is your institution located within the funder's geographic area of interest, and does it serve the audience(s) the funder is interested in serving?
- 3. Impact/Effect** — Do your institution's intended outcomes match the funder's expected outcomes in a way you can articulate?

*If you match up with a funder's interests in those three areas, you're a promising applicant and can think about the top two tiers of the pyramid, which is where your organization will distinguish itself from other applicants:*

- 4. Quality** — Can you demonstrate a level of quality in both your planning and performance that sets you apart from other applicants?
- 5. Edge** — What distinguishes your institution from all the other wonderful institutions working in your particular field or geographic area? Is what you do innovative (green will be innovative for a few more years). Do you plan to maximize any grant funds received by extending benefits and/or educational opportunities to others? Every successful application requires an edge; be sure to explain yours.

**B. Written Proposal:** When it's time to sit down and actually write the proposal, you'll find that making the case for a sustainable energy or building project is relatively easy. Environmental sustainability is a component of organizational sustainability. Any green project or program that saves your organization money is good for its bottom line and, therefore, contributes to its organizational sustainability. Be sure to include the math in your proposal and/or budget to demonstrate the improvement to your bottom line. For museums, a green project can be designed to preserve art and artifacts by reducing harmful gasses released by everyday construction materials; by controlling ultraviolet light and other damaging climate factors; and/or by preserving or enhancing the environment, whether it's the construction of a new sculpture garden or preserving historic structures in the community. In other words, your case statement is not just about green; it's about fulfilling your mission and being an effective steward of financial and cultural resources. Noted below are examples of some of the leading foundations nationally and locally and some of the grants that they have received and some that are available.

1. The [Kresge Foundation](#) has become a leading group in the funding of green building initiatives nationwide and encourages museums to apply.
2. In 2004 the [Museum of Broadcast Communications](#) in Chicago was awarded \$1.2 million for its new building, as well as \$100,000 for green education programs, by the [Illinois Clean Energy Community Foundation](#) (ICECF).

3. **Museums** in urban locations may find that their city has a green fund that is open to nonprofits. In 2001, for example, Chicago's [Field Museum](#) implemented a solar-energy project with the support of the City of Chicago's [Energy Reliability](#) program and a partnership involving the Illinois Department of Commerce and Community Affairs (DCCA), the City of Chicago Department of Environment, Commonwealth Edison, and [Spire Solar Chicago](#). Similarly, Burlington, Vermont's Electric Department awarded \$56,340 to ECHO for planning and assistance with the LEED process.
4. **Individual Donors.** It's harder, of course, to track the motivations of individual donors. None of the museum staff interviewed for this article could quantify the relationship between sustainability and generalized individual giving, but one museum, ECHO, was able to tie sustainability to a major individual gift. In fact, its third-largest private gift came from a donor motivated by the green aspects of the project.
5. **City of Boston:** In addition the grants noted above, the city of Boston received funding that allowed them to give out 5 grants (\$20,000 each) as well as other funding sources.
6. **EPA:** In addition to the financial savings that can be gained by moving towards Eco-friendly products, there are much larger financial benefits such as grants that can be received for green initiatives. Just last September UMass-Lowell granted out 68K to eco-friendly organizations within Massachusetts.<sup>3</sup> The EPA has also bestowed hundreds of thousands of dollars to Massachusetts Organizations for their work on Eco-friendly projects much like our initiatives noted above.<sup>4</sup>
7. **Other notable grants** that can be applied for are:
  - a. U.S. Environmental Protection Agency Sustainable Development Challenge Grant Program <http://www.epa.gov/ecocommunity/sdcg> provides challenge grants to communities to develop place-based approaches to sustainable development that links environmental protection, economic prosperity, and community well-being, which can be replicated in other communities. Grants are available at two funding levels: (1) \$30,000 to \$100,000 and (2) \$100,001 to \$250,000.
  - b. The Department of Environmental Management <http://www.state.ma.us/dem/grants.htm> has several grant programs that fund infrastructure improvements. The largest program is Rivers and Harbors Grant Program which provides matching grants to fund the design and construction projects that address problems on coastal and inland waterways, lakes and great ponds. Projects require a 50% local match, except dredging projects which require a 25% match. Projects requiring less than \$300,000 in state funds are preferred. The Historic Landscape Preservation Grant programs funds the preservation and restoration of landscapes listed or eligible for listing on the State or National Register of Historic Places.

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<sup>3</sup> [http://www.uml.edu/Media/News%20Articles/UML\\_bestows\\_grants\\_t.html](http://www.uml.edu/Media/News%20Articles/UML_bestows_grants_t.html)

<sup>4</sup> <http://www.epa.gov/region01/pr/2001/nov/011102.html>

**X. Stakeholders:** Maintaining a positive cash flow while reducing the effects on the environment is a crucial aspect of business sustainability that must be kept for stakeholders. In the chart below we see who we envision the stakeholders to be and the benefits of transitioning to a more environmentally friendly institution. Taking even the smallest steps toward a greener environment gives a payback almost instantly. The following stakeholders will be affected and we show the benefits of being part of this movement.

<b>Stakeholders</b>	<b>Benefit</b>
Employees	Higher morale, employee retention, better work atmosphere, team efforts towards a common goal of lessening the environmental footprint
Members	Part of a movement, environmental actions are the future, new beginnings, greater respect for an institution that holds positive environmental practices
Volunteers	Loyalty and increase in numbers. People like to work in environmentally friendly places. It gives them a nice feeling to be part of something bigger than themselves
City of Lowell	Align with the City of Lowell in minimizes impact on the environment. Get recognition as being part of a movement within the city. Serve as a guide, as an example for others to follow. Museums educate, use this initiative to get to the community to follow suit.
Donors	Feel even better about Donating when they are supporting an institution that supports the earth's wellbeing. Opens opportunity pursue other grants based on business sustainability

**XI. Requirements & Goals:** Noted below in our table are some easy to implement actions that ATHM could implement and see immediate savings on their bottom line. These actions have contributed to our financial analysis calculations on the Pro-Forma financial statements.

<b>Requirements &amp; Goals</b>	<b>Action</b>	<b>Savings</b>
Energy Use	Adjust thermostat	Save about three percent of your heating costs for every degree you lower your thermostat during the winter. Cut cooling costs up to six percent for every degree you raise your thermostat in the summer. This begins by educating employees on the impact of energy and creating a culture in which everyone tries to do their part to make a difference.
Lighting	Replace bulbs with energy-saving bulbs	Energy Saving bulbs use about 75% less energy than standard bulbs and last up to 10 times longer. Average cost at local Supercenter: \$1.90 a bulb, switch 50 bulbs: cost \$95.00. Save on average \$35.00 in energy cost over the life of each bulb: 50 bulbs over their lifetime will save you \$1,750.00 in electricity bills.
	Turn off lights when exiting a room	Make signs to emphasize. <i>Educate</i> employees on the importance and how much of a difference that they can actually make.
Water Usage	Low Flow Faucets in Bathroom	Faucet: If an aerator is already installed on your faucet, it will have its rated flow imprinted on the side. This should read 2.75 gpm (gallons per minute) or lower. Replace if over 2.75gpm. If no aerator is installed, check to see if there are threads just inside the tip of the faucet. This change can reduce water consumption by 25 - 50%
Paper Use Reduction	Double Sided printing	An office that prints on average 1000 sheets of paper weekly (only 2 stacks) by printing double sided this would mean a savings of \$120.00 a year on paper. This also means a savings of 3 trees a year
	Online	Online Bill payment, paperless invoicing and statements: This saves money on paper and stamps
	Create Reuse Area for office supplies	Implement system in which people can drop off office supplies they don't need. Assign some space for "fillers" the paper that come in delivery of goods and reuse them when sending out packages
Plastic use reduction	Reusable Cups	Invest in Reusable mugs. According to a life cycle analysis by the University of Victoria in 1994, the energy required to make a reusable mug is larger than what is required to make a disposable cup but if your employees only use this reusable cup at work in the long run it will generate a savings.
LEED Certification	Existing Buildings	To be LEED certified the project total needs to be from 34-42 points. The checklist can be found by visiting <a href="https://www.usgbc.org/ShowFile.aspx?DocumentID=4093">https://www.usgbc.org/ShowFile.aspx?DocumentID=4093</a> Complete information can be found on their website: <a href="http://www.usgbc.org/DisplayPage.aspx?CategoryID=19">http://www.usgbc.org/DisplayPage.aspx?CategoryID=19</a>
Technology Disposal	Donation	Donate computers, monitors, or TV's. For those residents with curbside trash collection, CRTs will be picked up curbside by making an appointment with BFI. In Lowell, call 978-649-7564, ask for Customer Service, and tell them what you have. By making an appointment, you are reserving space on the truck. CRTs are picked up on the first and third Thursday of each month.
Recycling	Donation	In the City of Lowell webpage it mentions to please "Consider contributing your unused latex paint to the Lowell High School Drama Club. They can use any color of the rainbow. If your paint is uncontaminated, not drying or not rusty, please contact the Recycling Coordinator at 978-446-7277 to arrange a donation to Lowell H.S." If you would rather get rid of it contact City of Lowell HHW Program Information, Household Hazardous Waste, (978) 446-7277: For paint etc.
Other Recommendations	Communication	<a href="http://www.paperrecycles.org/">http://www.paperrecycles.org/</a> to create customized paper recycling poster, employee education is an ongoing activity. Don't let up. Keep it short, positive, and engaging.
	Align to the Cause	"Stories of the past...visions of the future", As mentioned in our kickoff meeting exhibit(s) that show how art that can be found in recycling and/or other measures of sustainability are a great way to tie the past and future of ATHM.



## **XII. Major Benefits of Sustainability:**

- A.** Higher return on investment (ROI). A study found that green buildings with many sustainable features can save energy up to 60% in comparison with conventional buildings.
- B.** Sustainable buildings with sufficient sun light and good indoor air quality among other things can increase employee productivity between 2-16%. It will also reduce absenteeism and improve employee retention
- C.** It provides a solid platform for a great marketing strategy. It has the potential to attract government attention, differentiate the institution from competitors, provide a competitive advantage and increase public image.
- D.** It saves money. An organization automatically finds opportunities to start saving by understanding how things are wasted.

**XIII. Marketing Efforts:** Marketing is about finding the needs and wants of the customers and fulfilling those needs. In order to do that an organization needs to know who its customers are and what are their needs. A cheap and efficient way to accomplish this is through visitor studies during which the museum can talk to the users about their needs, wants, and knowledge levels as well as find areas in need of improvement. Once armed with the necessary information about its target sector one of the most useful and cost friendly methods to carry out a marketing campaign is the Internet. There are two ways in which the Internet can be used; distribution of e-newsletter, i.e., e-mail and the ATHM web site.

Electronic Newsletter:

**A. Newsletter:** An e-newsletter would serve to raise participation levels for events, exhibitions, and classes-if applicable-it would also educate the public and would do all this at a very low cost. Due to its low cost it can be sent out with higher frequency than a printed newsletter. Although it might be necessary to continue to mail out newsletters for a short period time, the content on them could be reduced thus leading to reduction in costs. The newsletters being mailed should also direct people to the museum's website and inform individuals of how to sign up to start receiving the newsletter via e-mail instead. In the museum's "Visitors sign-in" book an "E-mail" column should be added, if not already there, to increase the number of individuals in the distribution list. Some of the items that can be included on the virtual newsletter include:

1. Information about exhibitions
2. Reminders of upcoming events and activities
3. Spotlight new merchandise in the store

**B. Website:** Studies have shown that museums are more likely to attract visitors when those potential visitors are able to see at least a portion of collections held at the museum online. Besides helping attract new visitors the website should also serve as a place where people can view past e-newsletters as well as sign up to be included in the distribution list. A section where the museum's sustainability initiatives are highlighted should be added to show the museum commitment to its community.

Potential Marketing Initiates

**C. Partnerships:** The museum might benefit from forming partnerships with other organizations in the private sector, non-profit groups and municipal governments. This might be more beneficial through partnership and packaging arrangements in which there are cultural and non-cultural opportunities such as hotels, bus tour operators and retailers. Some examples of how this can be done are:

1. Work with convention planners who need convenient destinations and activities for delegates' and spouses' programs
2. Collaborate with hotels to develop weekend escape packages
3. Offer a discount to visitors who have attended a Lowell Devils' or Spinners' game

**XIV. Performance Awards and Rewards:** Many companies have programs that provide awards to employees for exemplary sustainability performance. The awards can be handed out to teams as well as individuals. The incentives can be in the form of cash gifts, public acknowledgement the accomplishment or plaques handed at a museum function. Another option is to tie annual individual performance reviews and compensation to sustainability performance. In other words sustainability performance would be another area in which employees would have to excel in order to receive a raise or bonus if applicable. Starting a program that provides employees the opportunity to receive a percentage of the savings generated by reduced consumption of energy and water or reduced waste generation can prove beneficial for the museum and the employees. After educating employees about the many actions that can be taken on a daily basis to produce savings a program that allows employees to receive a small percentage of those savings would help create interest and increase collaboration on behalf of the employees.

## XV. Additional Recommendations

- A. Free NStar Analysis.** 1-800-592-2000. An NStar representative will come to your building free of charge and give you an analysis of where you have potential cost savings. In addition, they provide a free energy calculator which will help determine your potential cost savings (see link)  
<http://www.energyguide.com/ha/calclaunch.asp?zipcode=01803&referrerid=65&callingpage=calclaunch.asp>
- B. Insulate** your walls and ceilings if not already done. This can save 20 to 30 percent of museum heating bills and reduce CO2 emissions by 140 to 2100 pounds per year. Seeing that Massachusetts is in a colder climate, consider superinsulating. That can save 5.5 tons of CO2 per year for average sized gas-heated homes (even more for a large museum), 8.8 tons per year for oil heat, or 23 tons per year for electric heat. (If you have electric heat, you might also consider switching to more efficient gas or oil.)
- C. Modernize** your windows. Replacing all your ordinary windows with argon filled, double-glazed windows saves 2.4 tons of CO2 per year for homes with gas heat, 3.9 tons of oil heat, and 9.8 tons for electric heat.
- D. Weatherize** museum, using caulk and weather stripping to plug air leaks around doors and windows. Caulking costs less than \$1 per window, and weather stripping is under \$10 per door. These steps can save up to 1100 pounds of CO2 per year. Ask your utility company for an energy audit to find out where the museum is poorly insulated or energy inefficient. This service may be provided free or at low cost. Make sure it includes a check of your furnace and air conditioning.
- E. Clean** or replace air filters as recommended. Energy is lost when air conditioners and hot-air furnaces have to work harder to draw air through dirty filters. Cleaning a dirty air conditioner filter can save 5 percent of the energy used. That could save 175 pounds of CO2 per year.
- F. Buy energy-efficient compact fluorescent bulbs** for your most-used lights. Although they cost more initially, they save money in the long run by using only 1/4 the energy of an ordinary incandescent bulb and lasting 8-12 times longer. They provide an equivalent amount of bright, attractive light. Only 10% of the energy consumed by a normal light bulb generates light. The rest just makes the bulb hot. If every American household replaced one of its standard light bulbs with an energy efficient compact fluorescent bulb, we would save the same amount of energy as a large nuclear power plant produces in one year. In a typical home, one compact fluorescent bulb can save 260 pounds of CO2 per year.
- G. Wrap your water heater** in an insulating jacket, which costs just \$10 to \$20. It can save 1100 lbs. of CO2 per year for an electric water heater, or 220 pounds for a gas heater.
- H. Use less hot water by installing low-flow shower heads.** They cost just \$10 to \$20 each, deliver an invigorating shower, and save 300 pounds of CO2 per year for electrically heated water, or 80 pounds for gas-heated water. (I'm not sure is this is applicable to sprinkler heads if they even have them)
- I. Reduce the amount of waste** you produce by buying minimally packaged goods, choosing reusable products over disposable ones, and recycling. For every pound of waste you eliminate or recycle, you save energy and reduce emissions of CO2 by at least 1 pound. Cutting down your garbage by half of one large trash bag per week saves at least 1100 pounds of CO2 per year. Making products with recycled materials, instead of from scratch with raw materials, uses 30 to 55% less for paper products, 33% less for glass, and a whopping 90% less for aluminum.

## XVI. General Sustainability Principles for Museums

- A.** Policies must take a long-term perspective, including both present and future generations.
- B.** Social, economic and environmental goals must be treated as interdependent.
- C.** The price of a product or a service must cover its long-term social, economic and environmental costs.
- D.** Sustainability must be incorporated into missions, visions and organizational structures.
- E.** Policies should mark a transition away from unsustainable behaviors.
- F.** Clear goals and measurable indicators are needed to guide policy.

- G.** Decision-making should involve the precautionary principle
- H.** Decision-making should involve the community and other stakeholders.
- I.** Opportunities for access to information, participation in decision-making and access to justice should be available to all.
- J.** Sustainability is a global objective. When acting locally, we should be thinking globally – environmental, social and economic problems are global in extent.
- K.** The concept of waste is eliminated as resources are used more efficiently and returned safely to productive use, for example through recycling.
- L.** Museums should build the public's awareness and practical knowledge of sustainability by showcasing success stories in exhibitions and by coordinating broader discussion and research on sustainability.
- M.** Museums should assist in the education of the community for sustainability by creating an understanding of the interdependence of natural, economic and social systems.
- N.** Museums should assist in the building of community capacity by involving community in decision-making on research, exhibitions and other public programs.

**XVII. Factors to consider in purchasing decisions include (Procurement)**

- A.** Assessing the life cycle impacts of products and services;
- B.** Investigating the claims of 'green' products and purchasing products that meet appropriate 'green' or 'eco' standards
- C.** Choosing suppliers who take back packaging for reuse, or purchasing packaging that can be recycled;
- D.** Finding a supply of paper with maximum recycled content, bearing in mind the need for sound archiving practices;
- E.** Investing in copiers and printers that do double-sided copying and printing;
- F.** Using refillable toner cartridges for printers;
- G.** Purchasing appliances with a 4-star (or better) energy rating;
- E.** Developing and implementing a long-term sustainable purchasing policy and action plan;
- H.** Appointing a sustainability manager/coordinator and a sustainability committee.