Our Goal
To choose the best solution for reducing the urban heat island effect in Boston in terms of environmental, economic, and social implications.

Background
Temperatures in cities are higher than surrounding areas. This is known as the urban heat island effect (UHI). UHI poses a threat to the environment, human health, and biodiversity. We looked at strategies to reduce the UHI effect for the city of Boston by looking at data from previous studies, conducting interviews, and performing cost analyses. These address economic, environmental, social, and political aspects to find the optimal solution.

Possible Solutions

Decision Matrix Contents

<table>
<thead>
<tr>
<th>Categories to Evaluate</th>
<th>Cool Roofs</th>
<th>Rooftop Gardens</th>
<th>Cool Pavement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albedo</td>
<td>0.65</td>
<td>0.85</td>
<td>0.24</td>
</tr>
<tr>
<td>Cost Per Square Foot</td>
<td>$4-$6</td>
<td>$25-$200</td>
<td>$0.30-$1</td>
</tr>
</tbody>
</table>
| Percent Energy Cost Reduction to Building | 40-50% | 20% | 75%

Decision Matrix Results

Best Solution
According to the modified decision matrix, rooftop farms scored a total 72 points from three categories: environmental, economic, and social factors. Therefore, it is the optimal solution for reducing the urban heat island effect.

Acknowledgements
Thank you to Professor Rajib Mallick, Sarah Moylan from Green City Growers, BNY Mellon employees, Abby King, and our advisors.

References

Initial Research
Review Case Studies
Additional Research on Possible Solutions
Interviews & Surveys
Create Decision Matrix
Determine Best Solution

Rooftop Farm at Fenway Park