

# Introduction

The value of a sustainable community is unequivocal. Not only does it emphasize the well-being of our air, land and water, ensuring improved public health, but it guarantees economic prosperity for future generations. It is clear that environmental resources are finite and sensitive to human activities. Therefore, it is necessary to alter our actions and become sustainable to avoid further damage. But how do we know if we have reached an acceptable standard of sustainability?

Environmental, social and economic demands, known as the “Three Pillars”, are the driving factors required to build sustainable communities. This project examines the “three pillars” to determine if Fairfield County, Connecticut has achieved an acceptable level of sustainability. Furthermore, it reveals towns that are sustainable, while exposing towns that need to increase efforts.

Obviously, the largest component of sustainability is the health of the environment. It is mandatory to conserve the natural resources and lessen the adverse impacts to the ecosystem. The quality of the land, air and water, along with good waste management practices, are vital to the health of the environment. Environmental integrity greatly influences community sustainability.

Social responsibility is one of the largest components of sustainability. This includes information on the demographics, along with the health of the community. A sustainable community promotes good health through access to unpolluted air, clean waters and healthy land. Social aspects include environmental education programs, community supported agriculture and access to recycling centers. Most importantly, the social component includes town initiatives which promote green living and social responsibility. With sustainable social factors comes enhanced quality of life for the community.

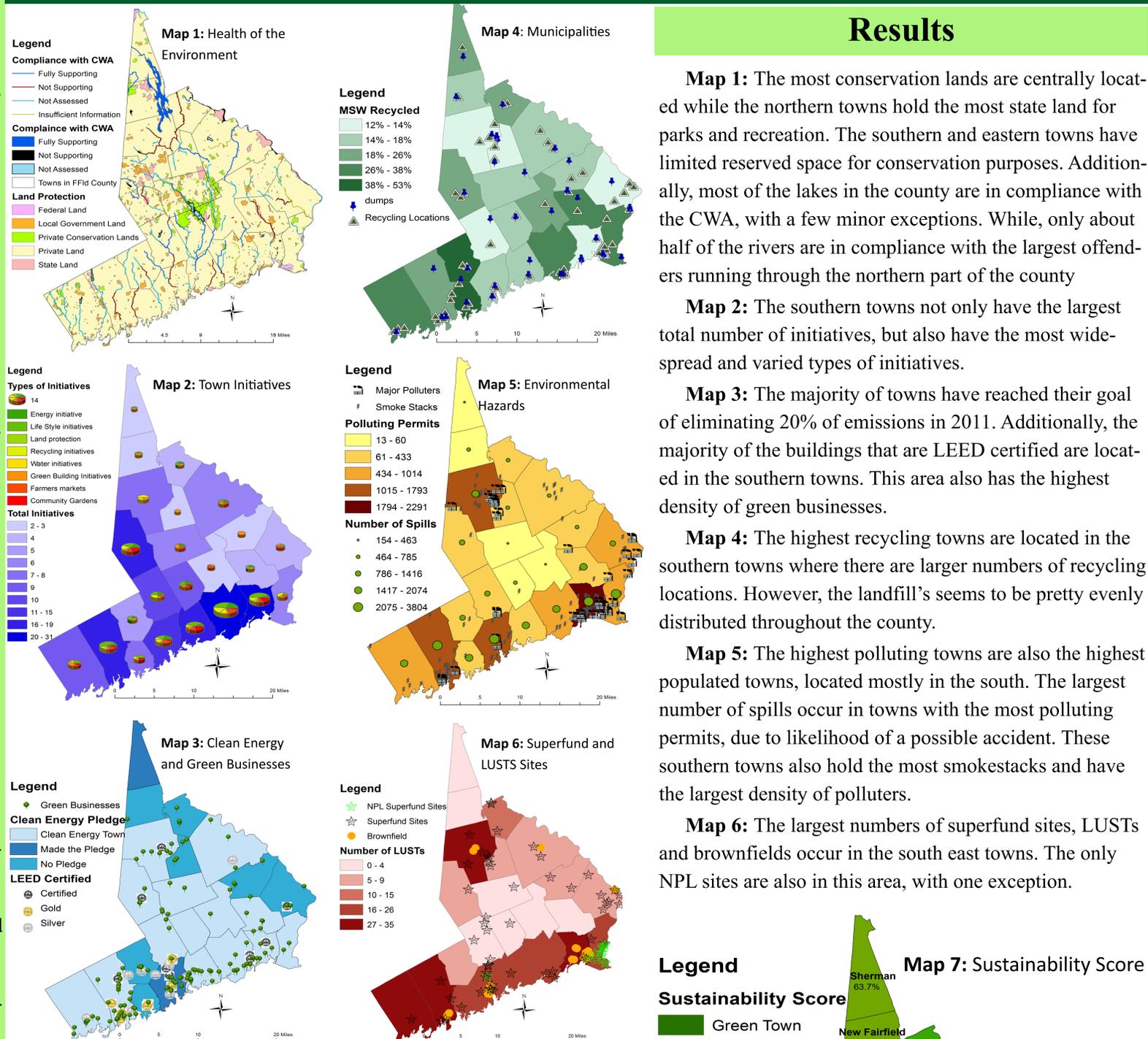
Economic prosperity is an influential driving force and therefore it is important to examine sustainability from an economic point of view. This includes the consumption of resources, including energy. The increasing demand of renewable energies can spur economic growth and encourage innovation of new clean technologies. Also, an interest in sustainability can create additional business opportunities, such as green businesses.



Figure 2: The Three Pillars

# How Sustainable is Fairfield County?

## A Measure of the Towns' Sustainability Practices by Examining Environmental, Social and Economic Factors



### Methods

The majority of this data was gathered through research and organized into excel tables. The maps are made up of different social, environmental, and economical factors that determine the town's sustainability score. Each town is ranked from 0 –10 based on how they fall within each category. A total of 19 factors were evaluated for a total possible score of 190, which was then converted into a percentage.

Common GIS tools implemented include clipping, queries on tables, symbology, select by attributes & location. The most critical tools were joins, geocoding, summarize and statistics. Geocoding was essential for each map and summarize/statistics helped determine the measurements for each scale.

### Results

**Map 1:** The most conservation lands are centrally located while the northern towns hold the most state land for parks and recreation. The southern and eastern towns have limited reserved space for conservation purposes. Additionally, most of the lakes in the county are in compliance with the CWA, with a few minor exceptions. While, only about half of the rivers are in compliance with the largest offenders running through the northern part of the county

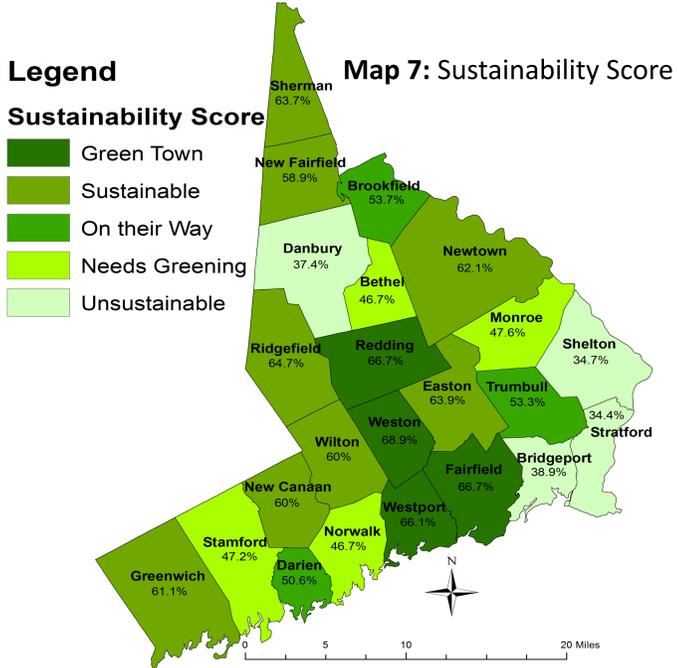
**Map 2:** The southern towns not only have the largest total number of initiatives, but also have the most widespread and varied types of initiatives.

**Map 3:** The majority of towns have reached their goal of eliminating 20% of emissions in 2011. Additionally, the majority of the buildings that are LEED certified are located in the southern towns. This area also has the highest density of green businesses.

**Map 4:** The highest recycling towns are located in the southern towns where there are larger numbers of recycling locations. However, the landfill's seems to be pretty evenly distributed throughout the county.

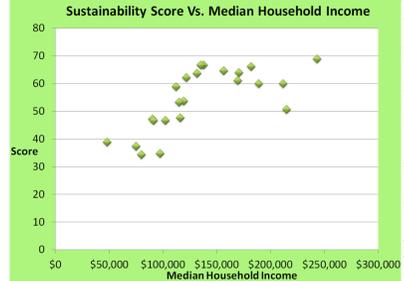
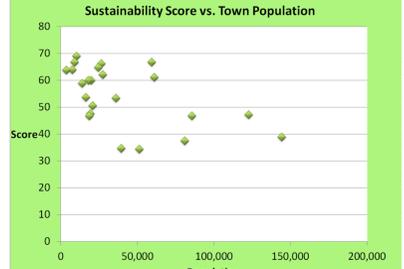
**Map 5:** The highest polluting towns are also the highest populated towns, located mostly in the south. The largest number of spills occur in towns with the most polluting permits, due to likelihood of a possible accident. These southern towns also hold the most smokestacks and have the largest density of polluters.

**Map 6:** The largest numbers of superfund sites, LUSTs and brownfields occur in the south east towns. The only NPL sites are also in this area, with one exception.



### Conclusion

In general, sustainability within Fairfield County has proven to be a high priority for many of the residents. Using these 19 criteria, the most sustainable towns are Weston, Redding, Westport and Fairfield, with Weston being the highest scorer. The least sustainable towns are Bridgeport, Danbury, Shelton and Stratford.



Figures 1 & 2 show the relationship between sustainability, income and population.

In order to take the project one step farther, I wanted to see if there was a correlation between sustainability, population and income. By examining the scatter plots, it seems that there is a definite association between sustainability and income. For the most part, the higher the income, the more sustainable practices within a town. This is possibly due to the additional resources available with a larger income and the willingness to pay extra for more environmental products and services.

Although the correlation between sustainability and population seems to be a little more scattered, there is still a decreasing trend. This shows that the higher the population, the less sustainable the town, although this is not always the case. However, there is a definite relationship between environmental hazards and population. In all cases, the highest populating towns also seem to have the most spills, polluting permits, superfund sites, and polluters.

### Map Projection and References

- All maps displayed on 1:300,000 Scale
- Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
- Projection: Lambert Conformal Conic
- Datum: North American 1983
- Data Sources: CT DEP, ESRI, MAGIC
- Online sources: Fairfield County Green Businesses, CT Green Scene, Building CT Green, Green & Sustainable Living in Fairfield, A Network for Sustainable Communities, Fairfield County Connecticut Air Quality Info, Live Green Connecticut, Green Village Initiative, On the Green.