

COMPETITIVE DISCRETIONARY GRANT ALLOCATION EQUITY ANALYSIS



TEAM BREAKDOWN



Daniel Strick
MSDS 2025



Anthony Huang
MSDS 2025



Carlos Garcia
MSDS 2025



John Salloum
MSDS 2025
Team Lead

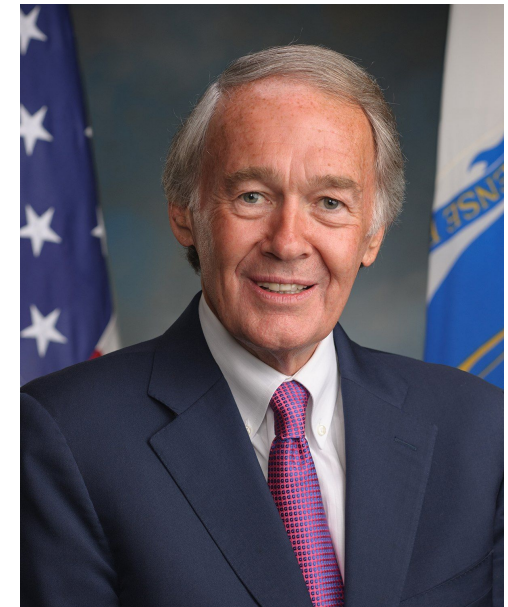


Atul Aravind Das
MSDS 2025

PROJECT OVERVIEW

Each year, federal funding in the form of competitive discretionary grants is distributed to communities across Massachusetts for various projects and purposes. The goal of this project is to examine the equity of this allocation process on a local level, especially amongst BIPOC, low-income, and underserved communities. By creating a data analysis, we hope to help Senator Markey's office determine which parts of Massachusetts continue to be underserved in the allocation process.

- Analyze and Visualize Discretionary Funds
- Assess Demographic Impact on Funding
- Identify Trends in Recipients
- Create Visualizations for Actionable Insights



Senator Edward John Markey (MA)

DATA STRUCTURE + ENRICHMENT

- Massachusetts Funding Initiatives (invest.gov)
- Location Name Irregularities:
 - Higher granularity intra-city labeling
 - Statewide funding initiatives
 - Inter-city funding initiatives
- Notable Features:
 - Agency Name
 - Bureau Name
 - Program Name
 - Category
 - Subcategory
 - Project Name
 - City
 - County
 - Funding Amount Excluding Loans
 - Funding Source
 - Program Type
- Features Needed:
 - P1_001N - Total Population
 - P1_002N - Population consisting of one race
 - P1_003N - White Population
 - P1_004N - Black or African American Population
 - P1_005N - American Indian and Alaskan Native Population
 - P1_006N - Asian Population
 - P1_007N - Native Hawaiian and Other Pacific Islander Population
 - P1_008N - Population of other race
 - P1_009N - Population of two or more races
 - B19013_001E - Median Household income (Within the last 12 months)

DATA ENRICHMENT - A VISUALIZATION

Initiative	City	Funding Amount	...
1	Cityville	\$1,000,000	
2	Village Town	\$200,000	
3	West County	\$5,000,000	
4	East Outpost	\$60,000	

City	GEO_ID ¹
Cityville	0600000US2500334655
Village Town	0600000US2500344385
West County	0600000US2500353050
East Outpost	0600000US2500456945

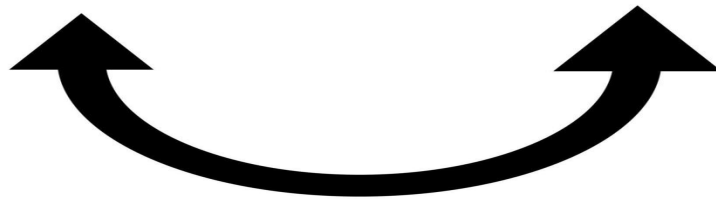


Census API

¹ US Census Bureau, 2020 Decennial Data

DATA ENRICHMENT - A VISUALIZATION (2)

Initiative	City	Funding Amount	GEO_ID	...	GEO_ID	Population ¹	Median Income ²	...
1	Cityville	\$1,000,000	0600000US2500334655		0600000US2500334655	17062	\$106001	
2	Village Town	\$200,000	0600000US2500344385		0600000US2500344385	69420	\$56906	
3	West County	\$5,000,000	0600000US2500353050		0600000US2500353050	177013	\$98182	
4	East Outpost	\$60,000	0600000US2500456945		0600000US2500456945	033636	\$17500	



Census API

¹ US Census Bureau, 2020 Decennial Data

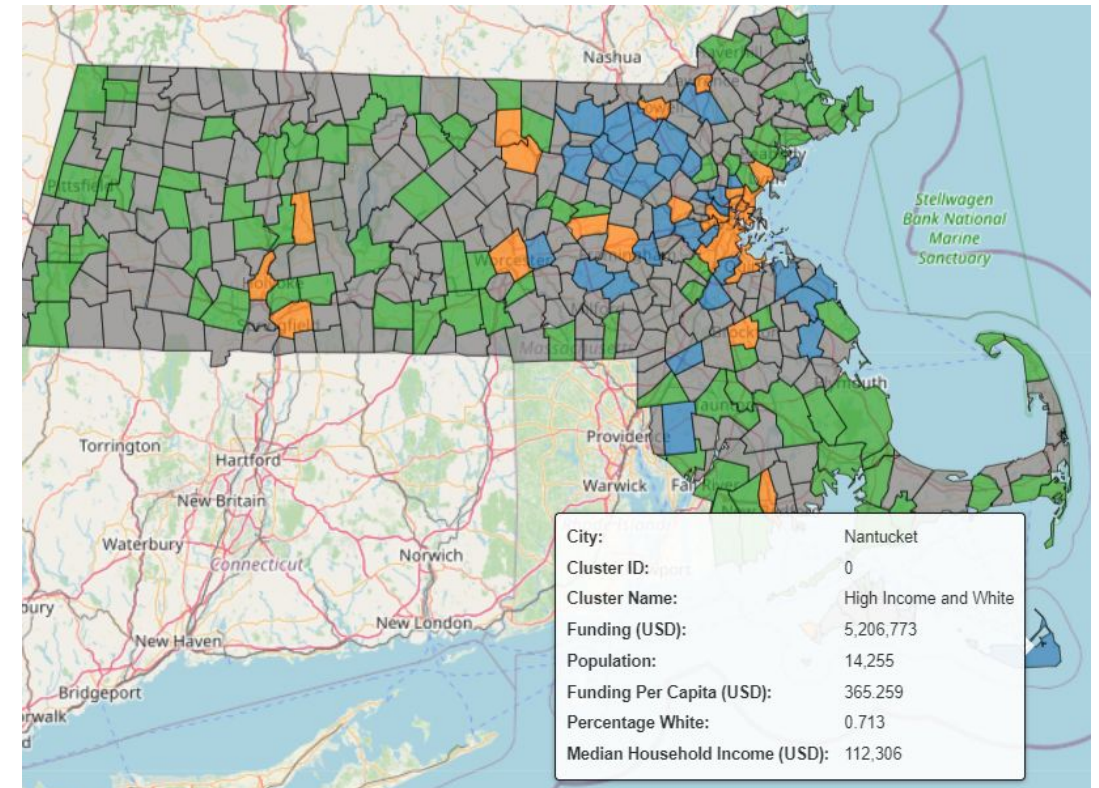
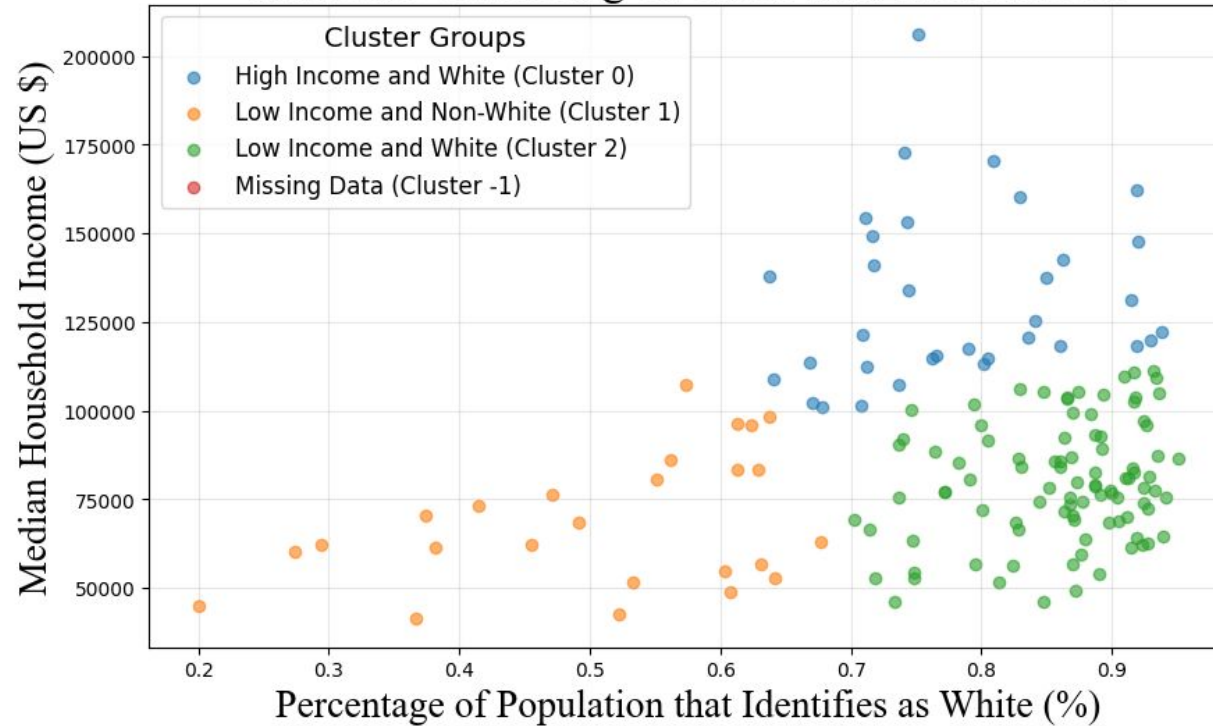
² US Census Bureau, 2020 ACS Data

DATA ENRICHMENT - A VISUALIZATION (3)

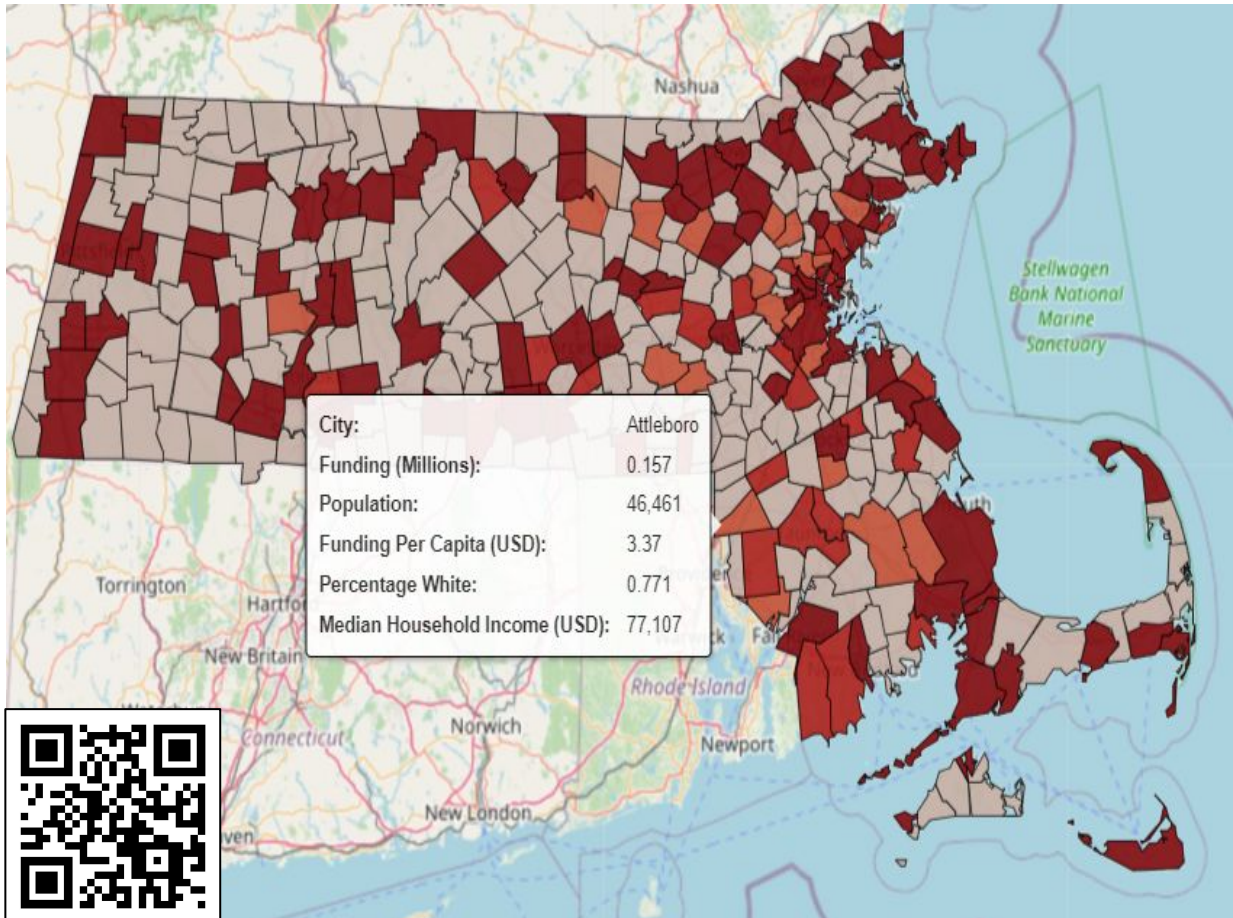
Initiative	City	Funding Amount	GEO_ID	Population	Median Income	...
1	Cityville	\$1,000,000	0600000US2500334655	17062	\$106001	
2	Village Town	\$200,000	0600000US2500344385	69420	\$56906	
3	West County	\$5,000,000	0600000US2500353050	177013	\$98182	
4	East Outpost	\$60,000	0600000US2500456945	033636	\$17500	

INITIAL CLUSTERING AND EDA

K-means Clustering of Cities in Massachusetts

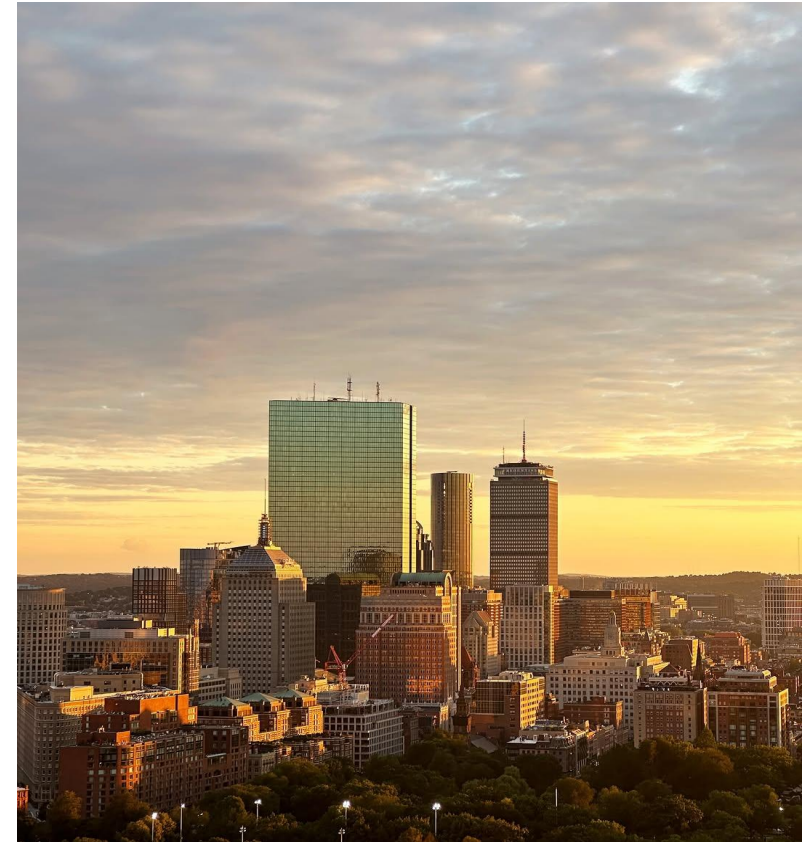


MAIN VISUALIZATIONS AND GRAPHS



KEY TAKEAWAYS AND CONCLUSIONS

- Dashboards allow the client to visualize grant distribution
- Facilitates greater understanding of trends, more informed decision making
- Low income, highly diverse cities received the most funding
- The two most funded categories were Environmental Remediation and Clean Energy
- Main problem faced was regarding dropped rows, which removed potentially useful data



Thank you!

