

Migrant Support Systems in Sanctuary Cities

Analyzing Select
Destinations of
Governor Abbott's
Refugee Removal
Program

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PLANA4577 | Geographic Information Systems (GIS)
Final Project Report

Methods | Approach

Background | Migration

Normally, the protocol when a migrant arrives at the southern border seeking asylum is to send them to an asylum processing center run by the U.S. government. Often, these facilities are located close to the border itself, which adjoins Texas, New Mexico, Arizona, and California, but they are not limited to these areas. USCIS will often bus or fly asylum seekers to locations that are significantly far away from the border.

However, these locations do not include a busy Midtown transit hub, the home of the Vice President, or a wealthy island in the Atlantic Ocean.

Governor Greg Abbott of Texas has been shipping confused Venezuelan migrants to locations in sanctuary cities including the Port Authority Bus Terminal in New York City, Kamala Harris's home in D.C., and the Martha's Vineyard Airport in Massachusetts. Abbott's is as a political move, a calculated attempt to force sanctuary cities into "putting their money where their mouth is".

Unfortunately, limited information has been given to migrants, and news articles have documented Venezuelans arriving in front of the Vice President's home with no information about what to do next or why they were there. We suspect that these terminal destinations are not well-equipped for the influx of asylum seekers and generate serious harm for a vulnerable group.



Brianna Stewart| ABC News

Research Question

Are certain destinations of Governor Abbott's refugee removal program better alternatives for the well-being of asylum seekers than a Texas bordertown?

Scope of Research

In answering this question, we will generate a Refugee Support System Score based on a variety of factors for each study location. The scope of our research will be focused on four geographic locations and the data available for the year 2020. The four study areas are based on a few of the more high profile drop-off spots of Governor Abbott's migrant removal stunts and are as follows:

El Paso Greyhound Bus Station

El Paso, TX
31.756868, -106.489883

Martha's Vineyard Airport

West Tisbury, MA
41.390880, -70.611650

Number One Observatory Circle

Washington, D.C.
38.921577, -77.066599

Port Authority Bus Terminal

New York, NY
40.756532, -73.990386

Definitions | Study

Some definitions are required to proceed with our study, including a working understanding of how to consider fraught political terms. We used the below concepts to guide our analysis.

MIGRANT: *An individual who changes their country of usual residence, irrespective of the reason for migration or immigration status.*

LANGUAGE SPOKEN: *We argue that, for the purposes of our study, a single language be used to categorize languages according to the major categories of the ACS. By using a classifier of “language spoken by the majority” in any given nation—rather than “official language”—we are working against certain political hegemonies that determine official languages.*

ASSETS: *Existing, physical resources within a community that we argue are valuable to support migrants upon their arrival in a new place. We define the three assets specifically in greater detail below.*

SHELTER: *A location that provides overnight housing for the unhoused, irrespective of immigration status.*

FREE CLINIC: *A location where free health services are provided to anyone, irrespective of immigration status.*

ASYLUM ORGANIZATION: *A physical location that houses organizations self-advertising as supporting asylum seekers through advocacy, legal aid, food assistance, or other means.*

DENSITY: *A metric that divides a tally by the number of people living within a specific jurisdiction. In our study, density is used to generate metrics of asylum support assets per residents living within a locally reasonable travel distance.*

DATASETS

COLLECTED	CLEANED
American Community Survey 5-Year Estimate Language Spoken	Assign languages from DHS dataset to categories from ACS Language Spoken
US DHS Yearbook of Immigration Statistics Aliens Apprehended by Region and Country of Nationality, table 34d	Generate migrant linguistic values from converted language categories Country of Origin of Unlawful Apprehensions
TIGER/Line Shapefile, 2020 US Census Tract TIGER files	Primary mode of transportation ACS 2020

SPATIAL JOINS

NETWORK	POPULATION	PLACEMENT
Creation of network based on street centerlines US TIGER files	Population per Census Tract 2020 US Census	Population per Census Tract, clipped to network For each study location
Assignment of service area based on primary mode of travel, networked from drop off locations at each site 1 mi - Walking 2 mi - Mixed public transit 5 mi - Public transit / driving 20 mi - Driving	Languages per Census Tract, by household 2020 ACS	Languages per Census Tract, clipped to network For each study location
	Generate overall balance of languages per census tract 2020 ACS	Mapping scraped asset data For each study location

Methodology | Overview

SCORING

Density of assets by census tract
Scraped data divided by population

Density of assets by clipped census tract
Scraped data divided by population
clipped by network serviced area

Language similarity metric by census tract
Processed data from typical migrant compared to
joined data from ACS Language using similarity
calculation

Language similarity metric by clipped census tract
Processed data from typical migrant compared to
joined data from ACS Language clipped by network
serviced area

FINAL AGGREGATE SCORING

Series of maps with scores by census tract
Maps of jurisdiction as well as service area
for each location

Series of graphs with scores by census tract
Bar charts, other visualizations for each jurisdiction as
well as serviced area

AGGREGATE SCORING

Addition of scores by census tract
Processed data scored and
weighted

**Addition of scores for census tracts clipped
to service area**
Processed data, clipped by networked
census tract, scored and weighted

Addition of all scores by jurisdiction
Addition of scores by census tract within local
jurisdiction

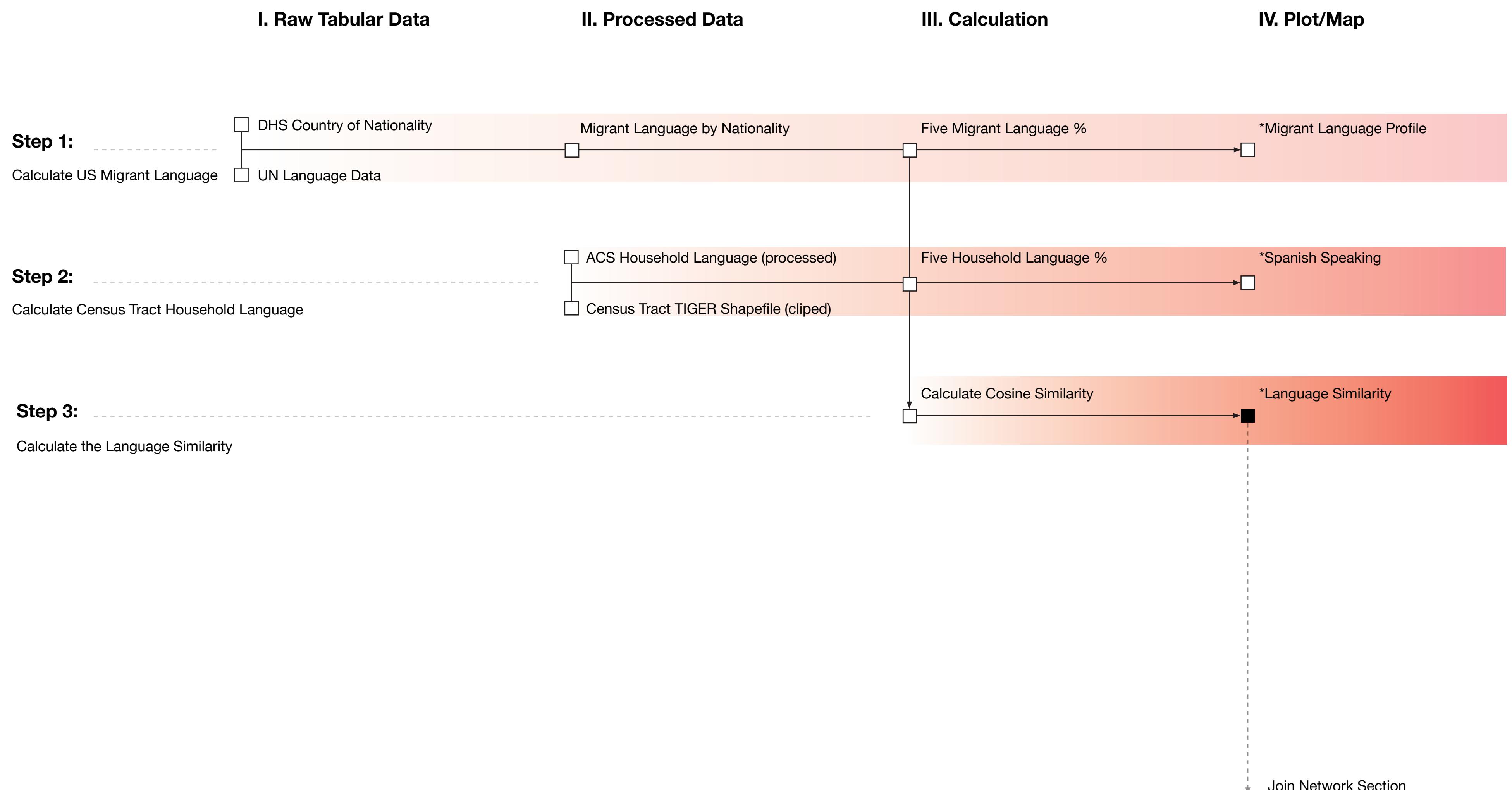
Addition of all scores for networked service areas
Addition of scores by census tract within networked
service area

Methodology | Overview

Inputs | Language

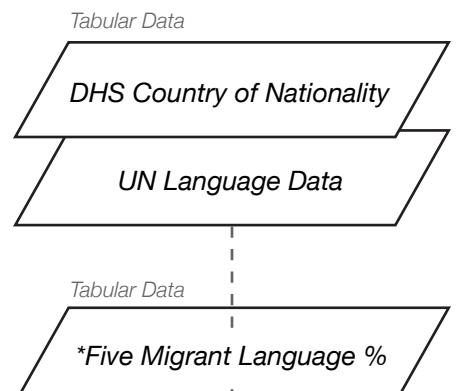
*Process Language Data Detail (p. 14)

To measure the language compatibility for migrants, we will use immigration data from DHS for unlawful aliens arriving in the US, looking specifically at the year of 2020. This will allow us to generalize, for the purposes of generating qualitative values for our study, the linguistic make-up of migrants in a given timeframe. Then, we will calculate the language similarity between migrant linguistic profile and local household language profile in our four study areas.

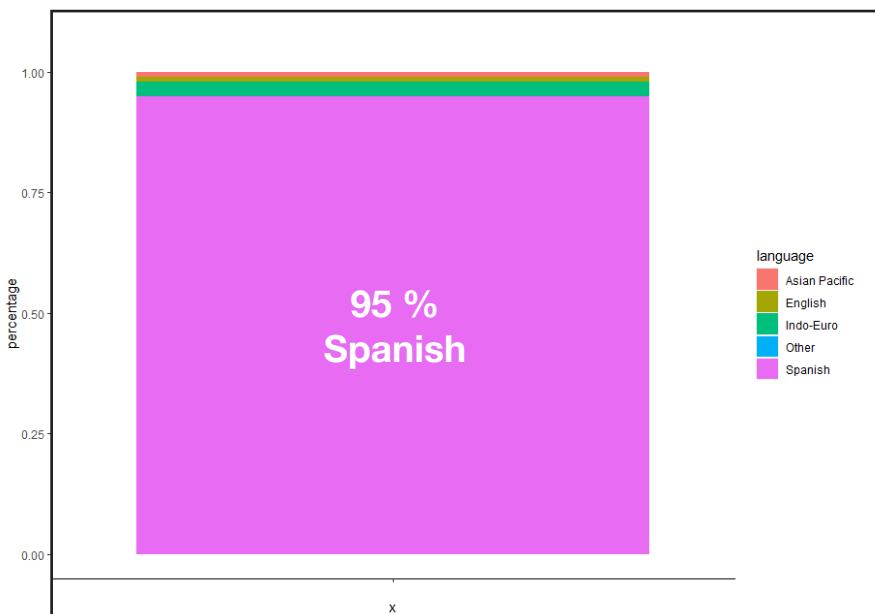


Inputs | Processed Language Data Detail

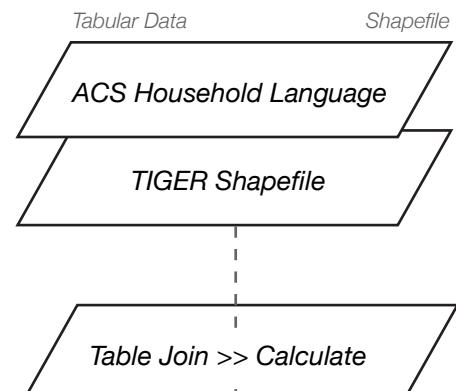
R Studio



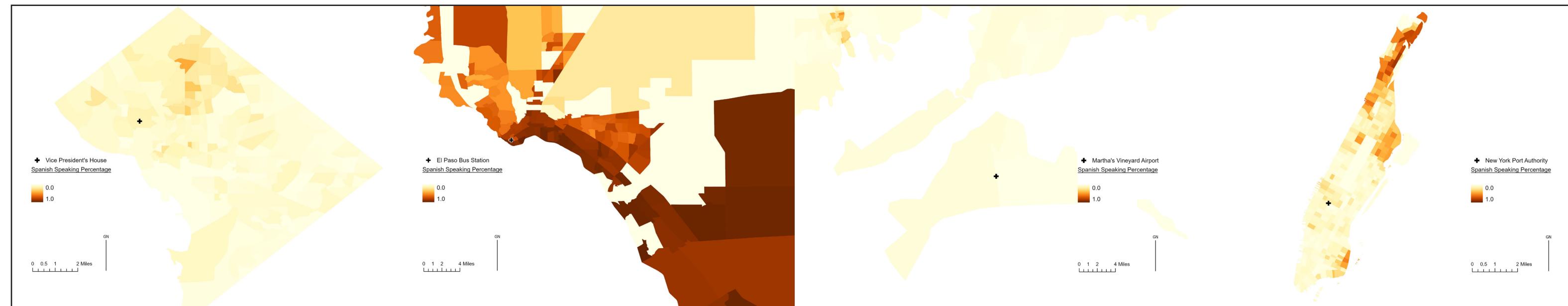
Migrant Language Profile



ArcGIS



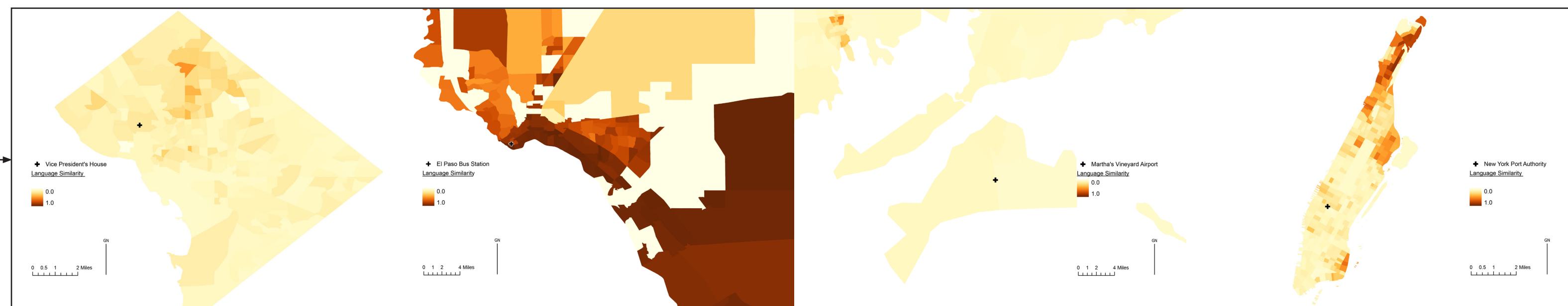
Household Spanish Speaking Maps by Census Tract



Calculate Cosine Similarity

$$\text{Cos}(x, y) = \frac{x \cdot y}{\|x\| * \|y\|}$$

Language Similarity between Migrant Language and Household Language



Python code:

```

(total_en_perc * !EN_Perc! + total_es_perc * !ES_Perc! +
total_eu_perc * !EU_Perc! + total_asia_perc * !Asia_Perc!
+ total_other_perc * !Other_Perc!) / math.sqrt((total_
en_perc ^ 2 + total_es_perc ^ 2 + total_eu_perc ^ 2 +
total_asia_perc ^ 2 + total_other_perc ^ 2) * math.sqrt(
EN_Perc ^ 2 + ES_Perc ^ 2 + EU_Perc ^ 2 + Asia_Perc ^ 2
+ Other_Perc ^ 2))
  
```

Step 1:
Calculate the US Migrant language profile

- (R Studio)
1. Data cleaning.
 2. Filter the most spoken languages in "UN language data."
 3. Join "Aliens by Country of Nationality" and "UN language data" to get the most spoken languages.
 4. Create a function to categorize languages into five ACS languages: English, Spanish, Indo-Euro, Asia-Pacific, Other.
 5. Make a binary language dataset.
 6. Summarize migrant spoken languages and the percentages.
 7. Export the migrant spoken languages and percentages dataset: "migrant_language.csv" file.
 8. Plot the US Migrant language profile.

Step 2:
Calculate census tract household language %

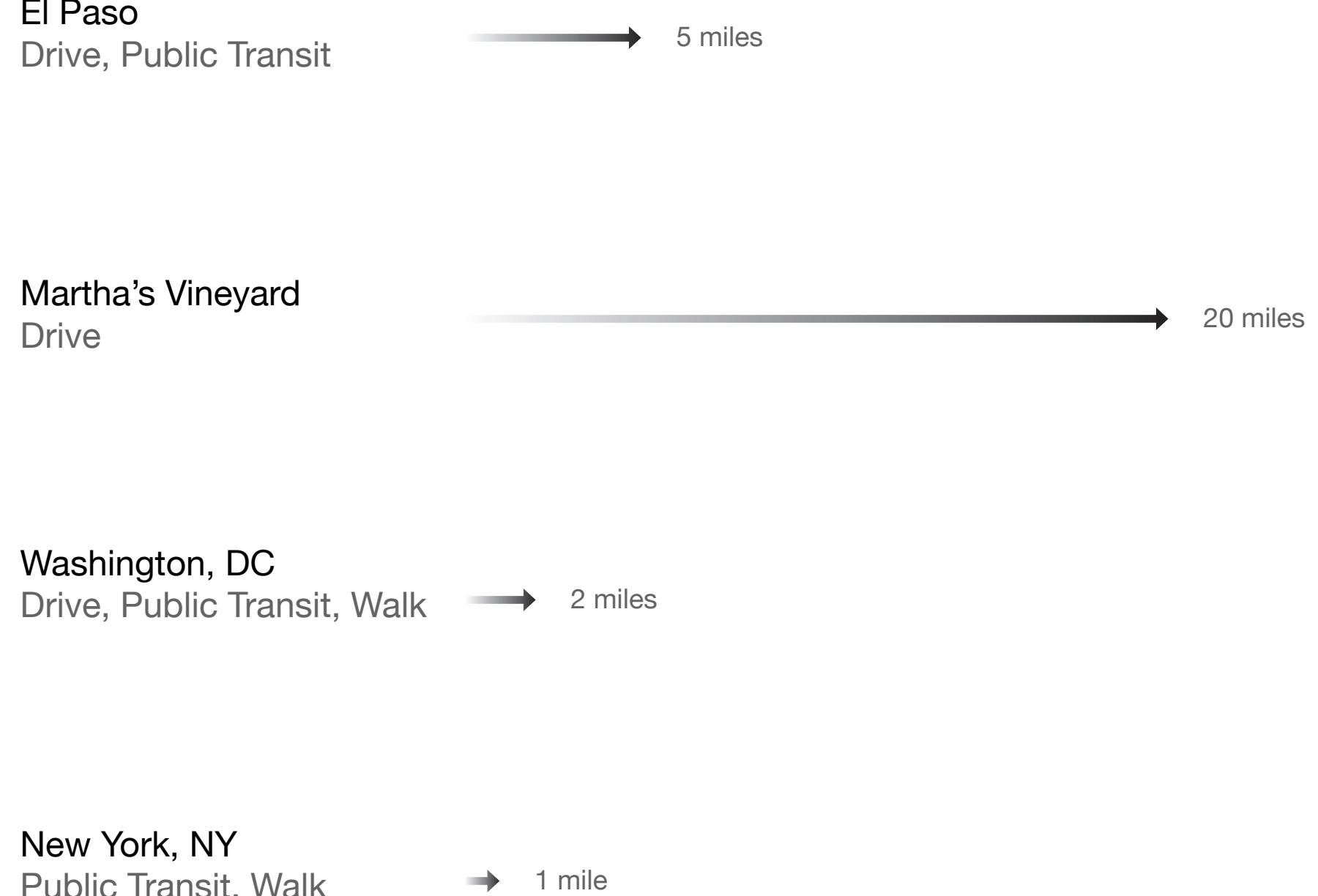
- (ArcGIS)
1. Data cleaning.
 2. Join "Household Language" data with "United States Census Tract" shapefile by GEOID.
 3. Create language percentage columns: EN_Perc, ES_Perc, EU_Perc, Asia_Perc, Other_Perc.
 4. Calculate the percentage of household languages by census tract.

Step 3:
Calculate the language similarity

- (R Studio)
1. Rename "migrant_language.csv" columns into: total_en_perc, total_es_perc, total_eu_perc, total_asia_perc, total_other_perc.
 2. Export the csv file.
 - (ArcGIS)
 3. Import "migrant_language.csv" file.
 4. Create the language similarity column: similarity.
 5. Calculate the language similarity based on the matrix of "migrant_language.csv".
 6. Use Cosine Similarity: $\text{Cos}(x, y) = \frac{x \cdot y}{\|x\| * \|y\|}$ formula to measure the similarity between migrant language profile and each census tract household language profile.
 - (* No similarity = 0; perfect similarity = 1.)
 7. Map the language similarity for four study areas.

Inputs | Network

Questions regarding commuting from the ACS were processed to understand the primary mode of transit in each study site. These modes of transit were then used to assign networked distances for study for each case, defining a locally reasonable travel distance in each case.



Inputs | Assets

We defined “assets” in this context as existing, physical resources within a community that we argue are valuable to support migrants upon their arrival in a new place. The three specific assets we collected from GoogleMaps through a custom Python script are shelters, free clinics, and asylum organizations.



Outputs | Refugee Support System Score

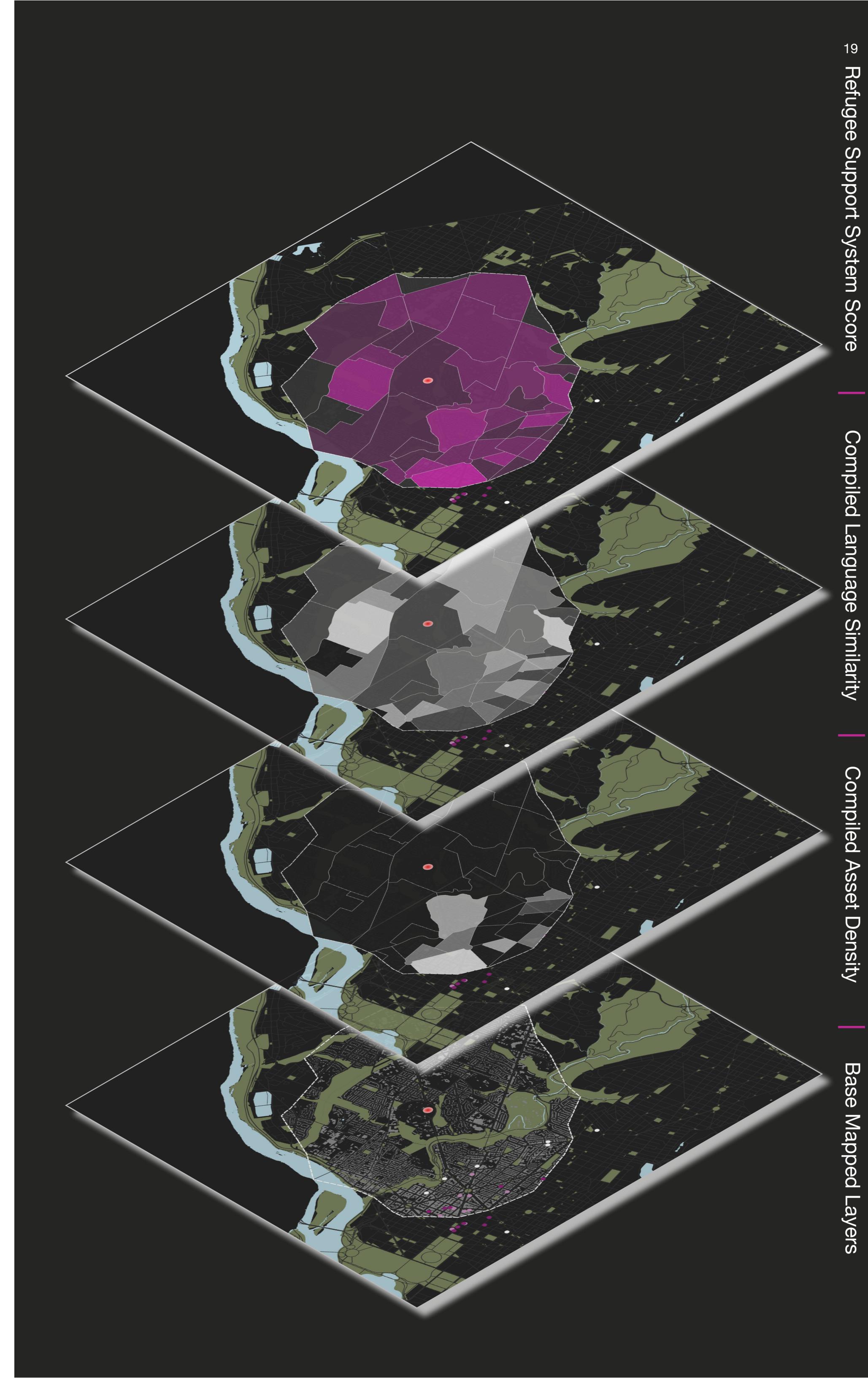
Weighted Density of Shelters
Count within census tract divided by population, multiplied by 1,000

Weighted Density of Free Clinics
Count within census tract divided by population, multiplied by 1,000

Weighted Density of Asylum Organizations
Count within census tract divided by population, multiplied by 1,000

Weighted Language Similarity Scores
Language similarity index multiplied by population, divided by 1,000

COMPILE



Study | Maps

Central Greyhound Bus Station

El Paso, TX

- El Paso Central Greyhound Bus Station
- Shelters
- Free Clinics
- Asylum Organizations
- Typical Journey Zone

1/4 mi
1 mi
0 1/2 mi



SUNLAND PARK

MISSION HILLS

GRANDVIEW

LINCOLN PARK

CENTRAL EL PASO

DOWNTOWN

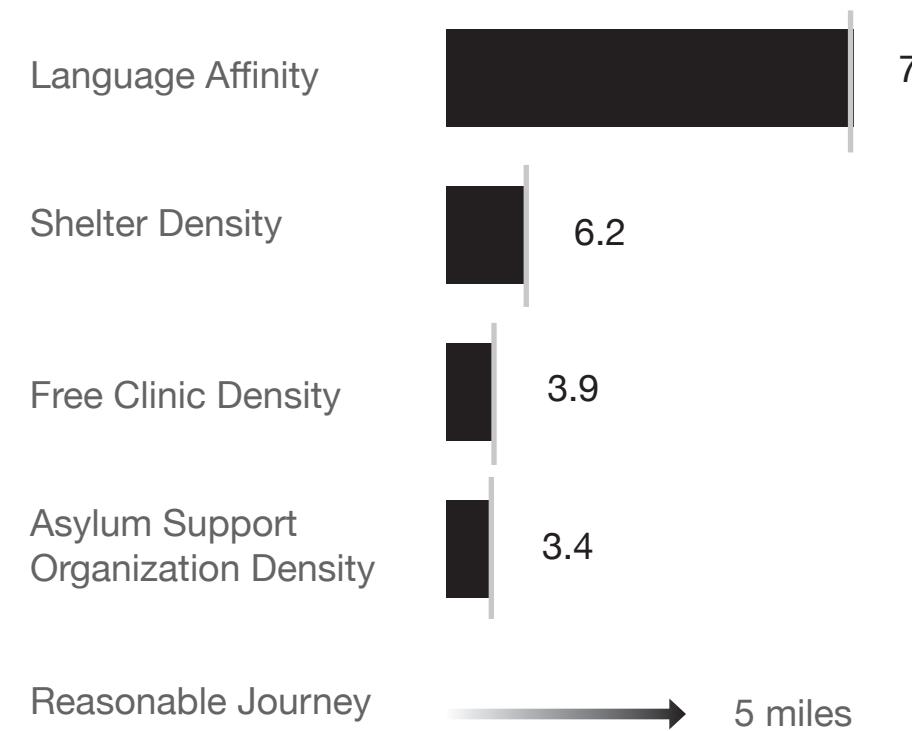
BUENA VISTA

Central Greyhound Bus Station

El Paso, TX

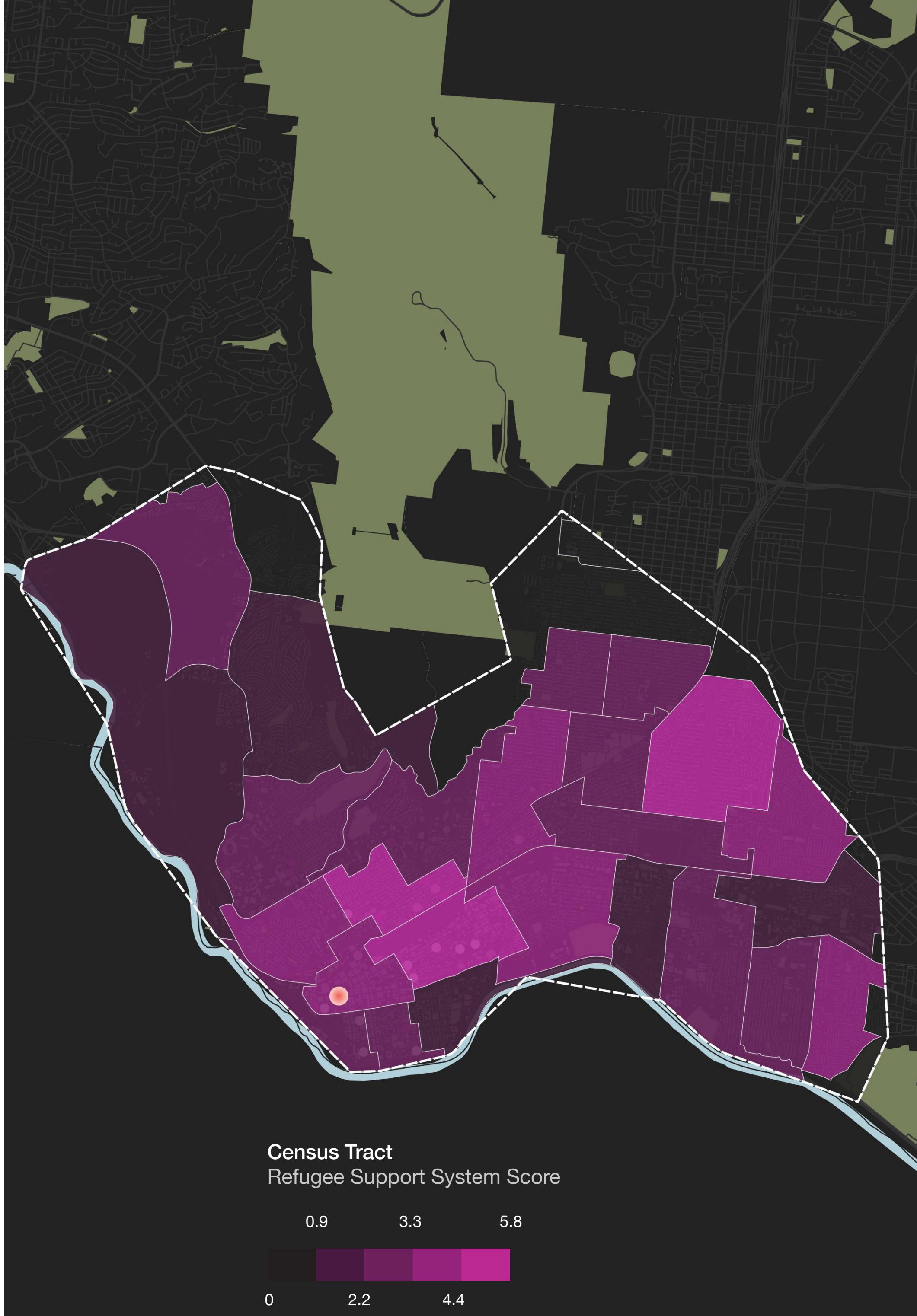


Just across the border from the Mexican city of Juarez, El Paso is among the more popular destinations for migrants seeking entry to the United States. Given this consistent flow, the city has a tight core of support assets and is uniquely equipped to provide guidance to migrants due to high relevant language resources within a locally reasonable travel distance.



83.6

Refugee Support System Score



Martha's Vineyard Airport

West Tisbury, MA

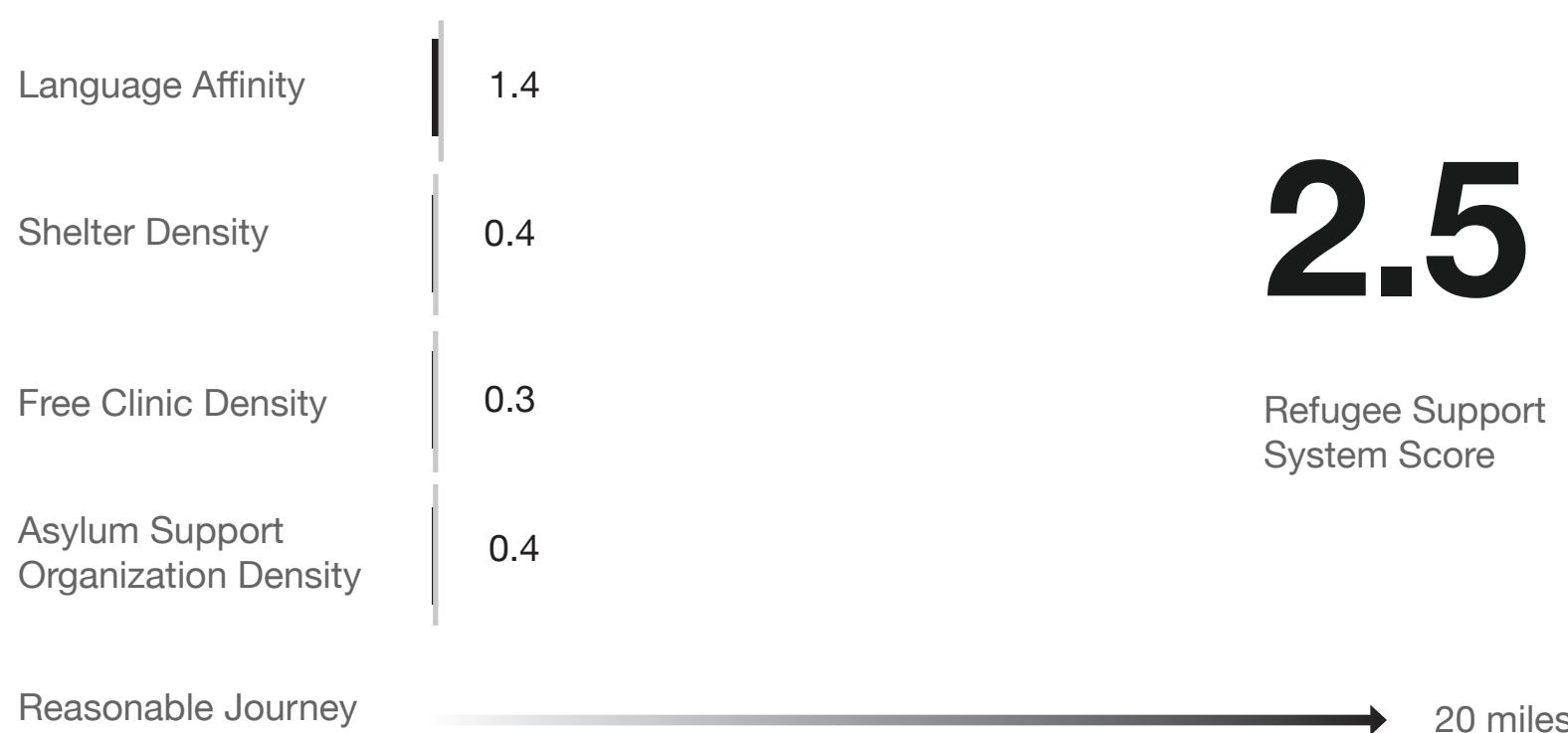


Martha's Vineyard Airport

West Tisbury, MA



50 Venezuelan migrants touched down at Martha's Vineyard Airport on September 14, 2022, no doubt extremely confused by their new location. A small, extremely wealthy island primarily occupied by vacationers, Martha's Vineyard was completely unequipped to handle their arrival due to an essentially non-existent support system and complete lack of relevant language resources.



One Observatory Circle

Washington, DC

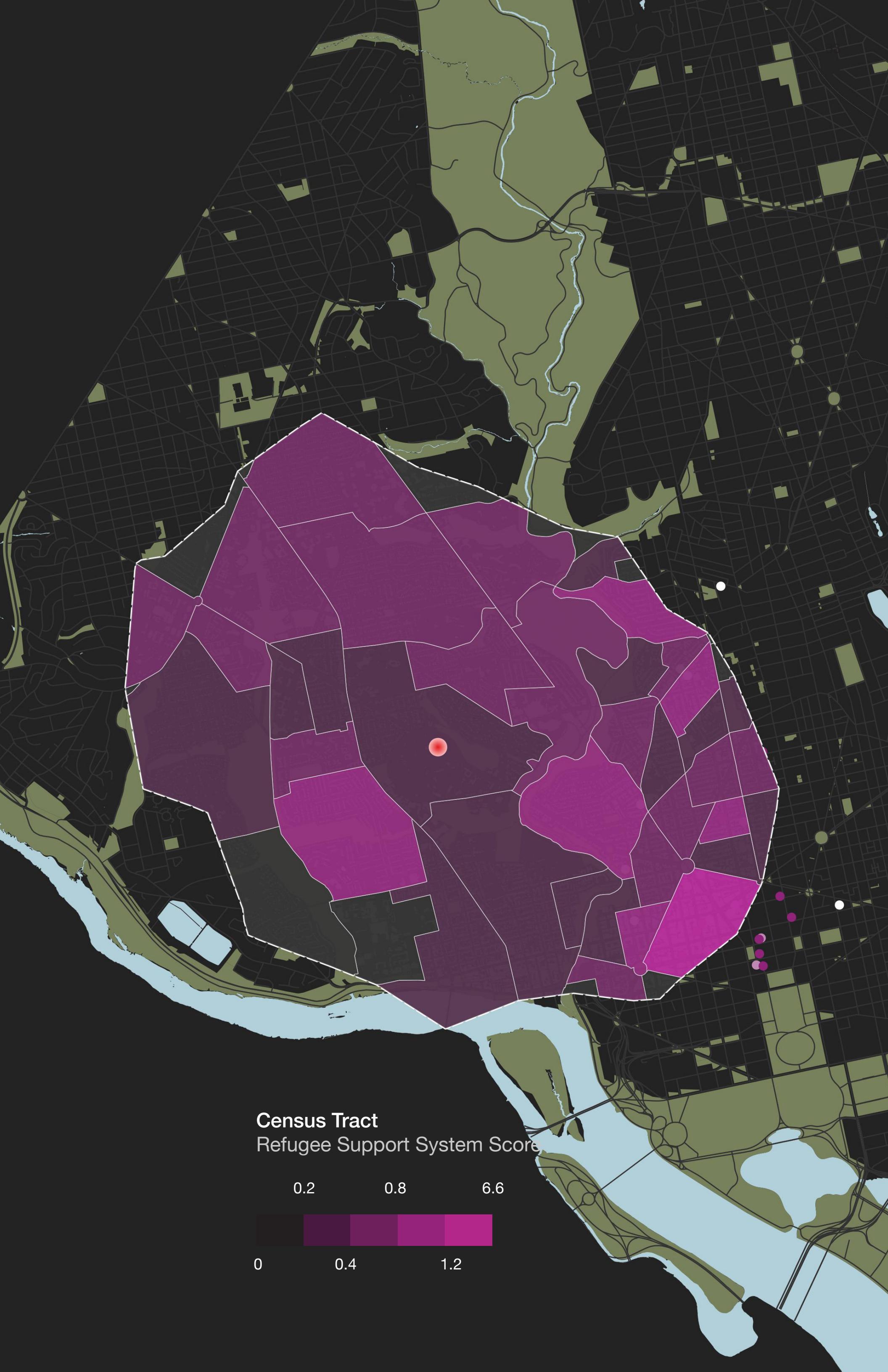
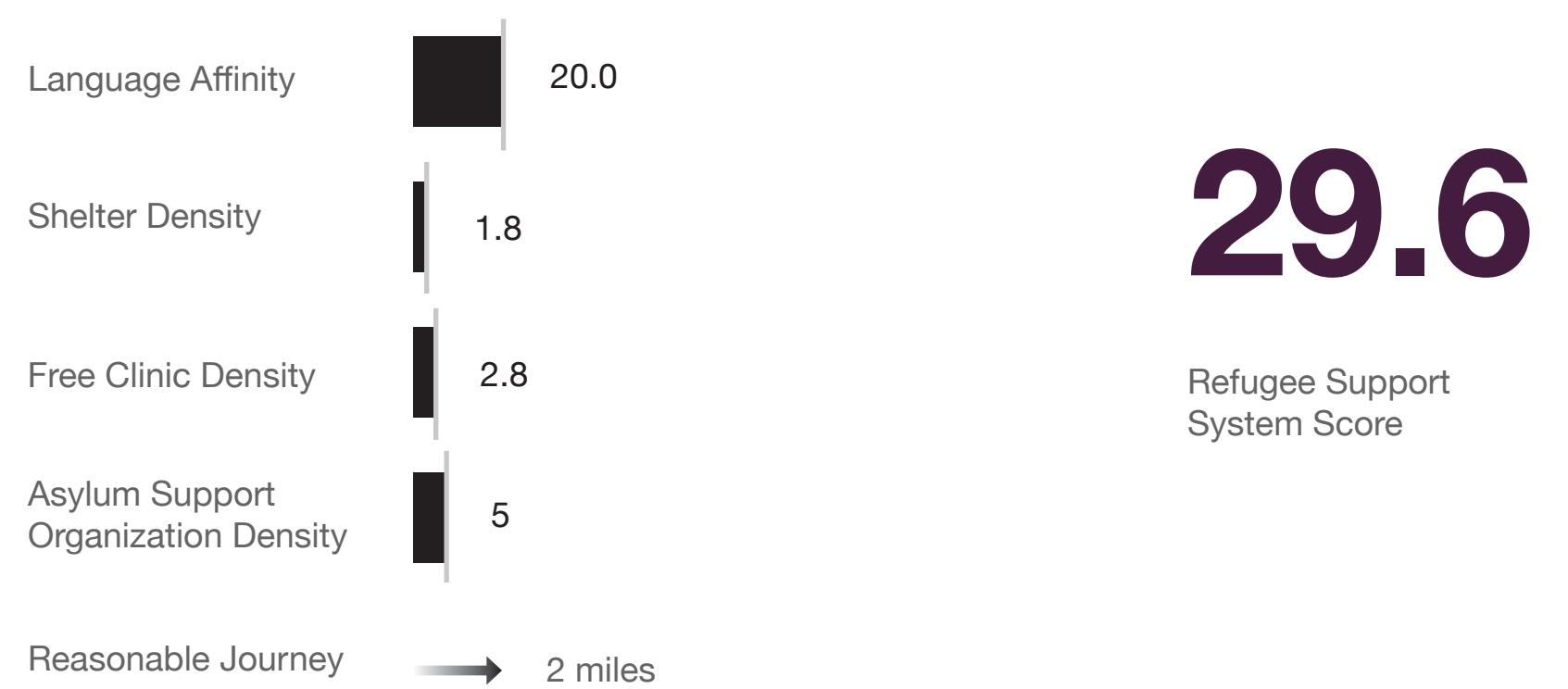


One Observatory Circle

Washington, DC

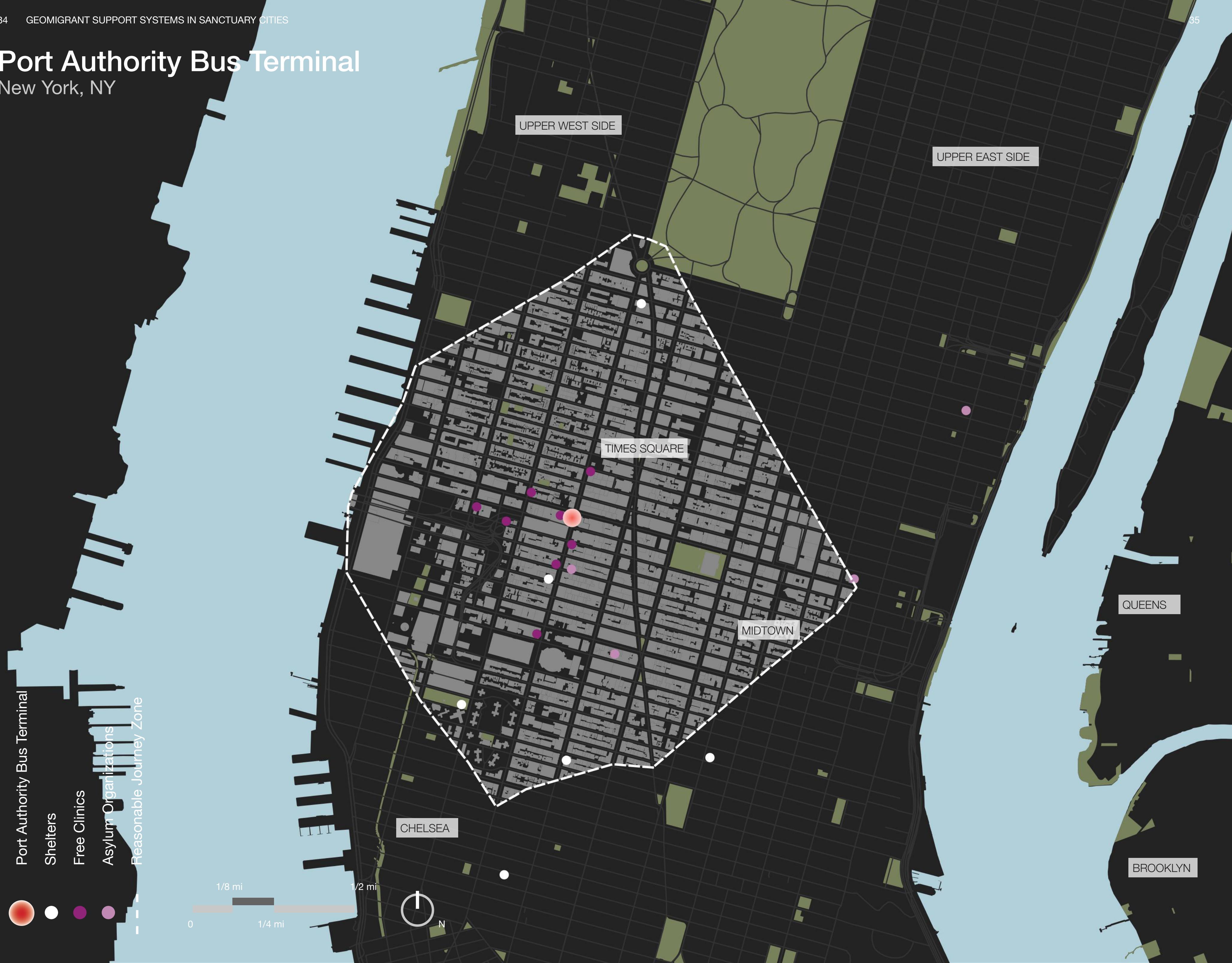


On September 15, 2022, nearly 150 migrants were dropped off on Massachusetts Avenue in front of the Home of the Vice President of the United States. The destination of their two-day bus journey from Texas was a largely residential neighborhood with extremely limited language resources nearby. A small cluster of support assets exists towards the perimeter of a locally reasonable travel distance.



Port Authority Bus Terminal

New York, NY

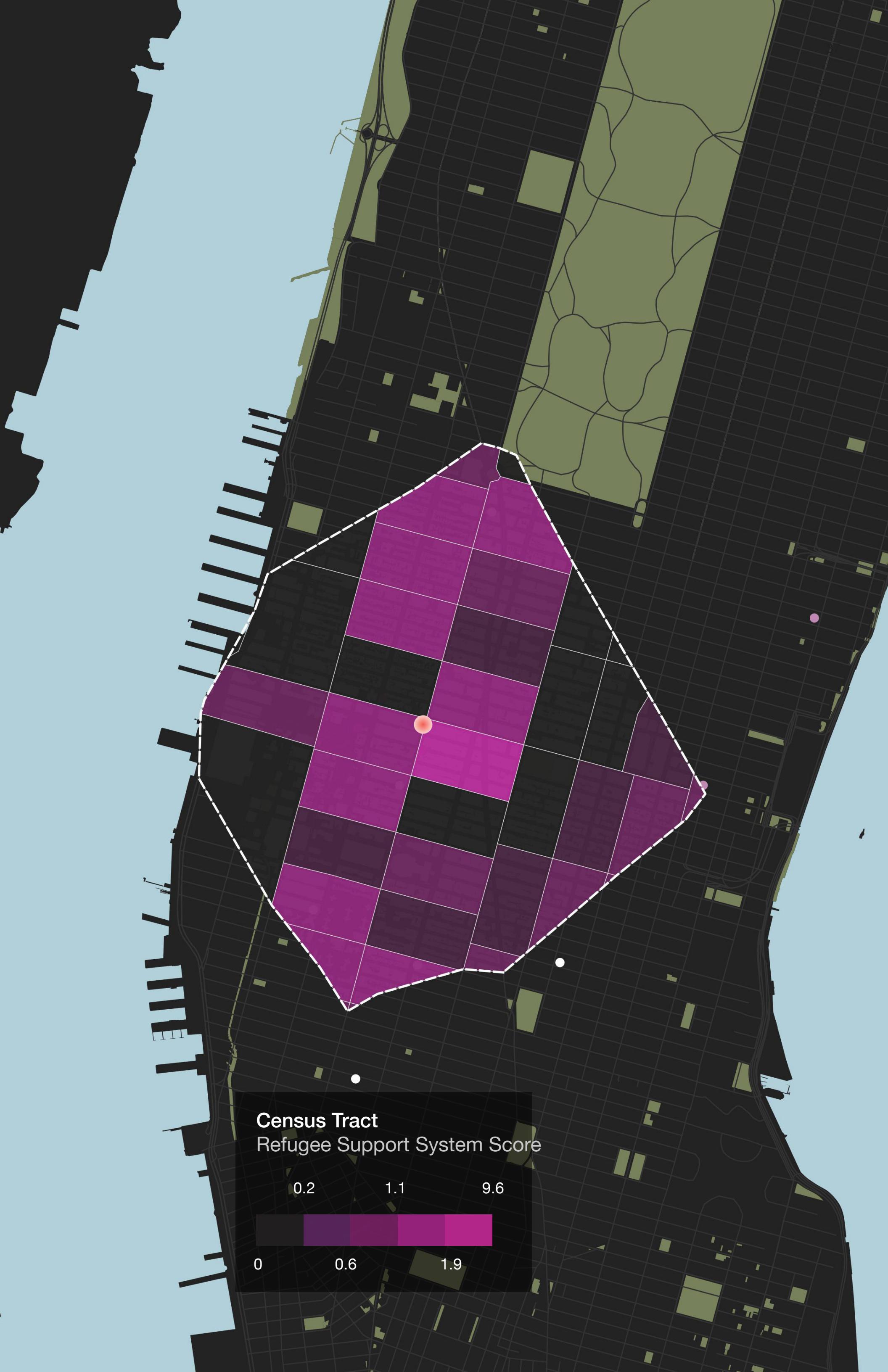
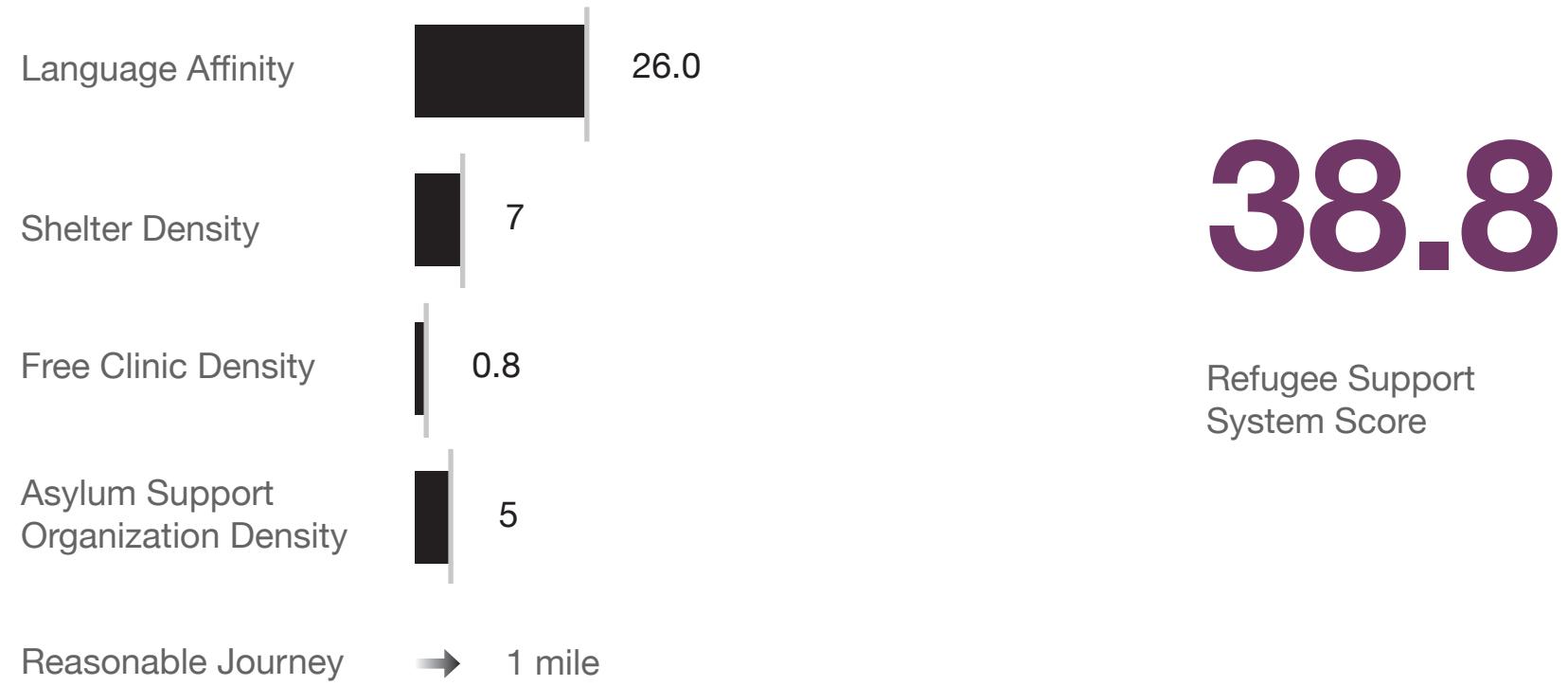


Port Authority Bus Terminal

New York, NY



A large quantity of migrants have been arriving at New York's Port Authority Bus Terminal. They arrive in the nation's largest city in a busy commercial neighborhood overrun with hordes of tourists, a cacophonous streetlife, and relatively limited language similarities. While the big city may provide more support assets for migrants than other places, many of these locations are not accessible within a locally reasonable travel distance.



Conclusions

None of the three alternate destinations in our study generated higher Refugee Support System Scores than did the Central Greyhound Bus Station in El Paso, Texas.

Refugee Support System Scores

El Paso
Central Greyhound Bus Station

83.6

Martha's Vineyard
Martha's Vineyard Airport

2.5

Washington, DC
Drive, Public Transit, Walk

29.6

New York, NY
Public Transit, Walk

38.8

Takeaways | Study

Our analysis suggests that there is little competitive advantage, and therefore no cause, reason, or legitimacy, for migrants to be moved north from the southern border by local power brokers. Most migrants, as detailed in our study, speak Spanish and benefit greatly from the high Spanish resources in proximity to the border. The long history of migration, resettlement, and asylum that defines the border zone has likely contributed to the dense core of support assets in downtown El Paso that our study suggests is somewhat extraordinary, especially when compared to a famously immigrant dense city like New York City.

Appendix | Data

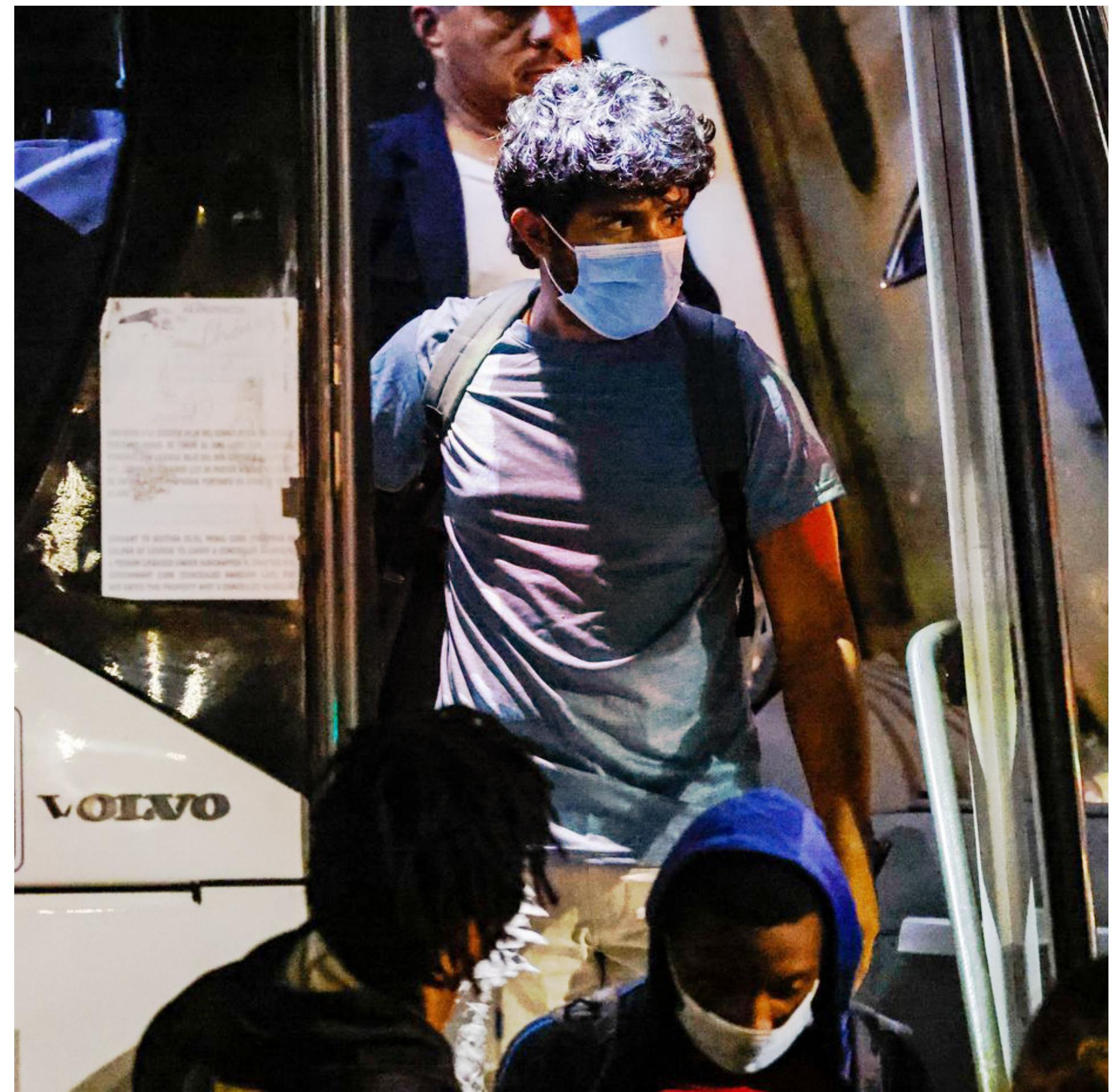
Limitations | Migration Context

The analysis of this report is indebted to a series of premises that all contain limitations in this fraught political field. In many ways, the report is a thought experiment that assumes that a “typical” migrant has acted rationally by boarding a plane or bus to a far away location. We assume that migrants were not only aware of where they were going but felt that they would fare better there. Not only the migrants, then, but the political actors involved from the office of Governor Abbott were also organizing these refugee shipments in the best interests of relevant parties.

In reality, both reporting surrounding the migrant relocating and the suspected intentions of the power brokers casts doubt on these assumptions. The value of

our study, therefore, is pronounced in its investigative method. Our method could be applied to many similar alternative destinations for migrants to assess and challenge the decisions of those in power.

The method could also be developed to help migrants make a decision about where to chart a new life in our country. By expanding the definition of assets, one could imagine a customizable tool that affords a detailed pre-analysis of destination for someone many miles away. While beyond the scope of this report, we argue that the methodology presented here could provide a basis for this type of tool.



Imelda Garcia | The Dallas Morning News

Limitations | Data About People

A data-centric limitation to our approach here is that migration, in this context, is an undocumented phenomenon undertaken by a striking diversity of people. Our construction of the linguistic needs of a “typical” migrant is a vast simplification that, while extremely useful for our study, must be acknowledged as such.

The assumption that everyone in every country speaks the same language is one example of the limitations of our approach. Given the lack of granularity in the DHS data, however, there is little we can do within the scope of this project but work under this assumption. We would argue that by using a classifier of “language spoken by the majority” in any given nation—rather than “official language”—we are contributing a minor but

politically valuable adjustment to our language classifying method that undercuts certain political hegemonies that determine “official” languages.

Moreover, the inherent desire of some undocumented migrants to evade apprehension and documentation likely suggests that elements of the DHS dataset are incomplete. To circumvent this limitation, we are working under the knowledge that the dataset can only tell the story of its own creation, and under the premise that in a study that critically investigates a move by the state of Texas, we can assume that the state was involved in the creation of the DHS dataset in question.



Ray Ewing | Politico

Data Sources | Tabular, Geographic

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EL PASO

DGRT AUTHORITY

MARSHAS WINEYARD

HOME OF THE VP