The Motorola Solutions Foundation is the charitable and philanthropic arm of Motorola Solutions, originally founded in 1953. With employees located around the globe, Motorola Solutions seeks to benefit the communities where it operates. The company achieves this by making strategic grants, forging strong community partnerships and fostering innovation.

About the Motorola Solutions Foundation

Speaker

Monica Mueller, Executive Director
At CNT, we think cities are the answer to big problems like climate change and poverty.
For decades, we've been reimagining how cities use resources like land and water.
We believe that what's good for the economy can also be good for the environment.
Some big challenges lie ahead, but we're working on creative, data-driven solutions that are good for everyone.
Together, we can build a world where all people can thrive.
URBAN SUSTAINABILITY TECH CHALLENGE

- ...connected teams of community organizations and students in STEM programs
- ...identified real-world problems to better understand through data science
- ...used CNT’s resources to advise on data collection, analysis, and presentation skills
To increase the collective impact of our member organizations on improving education and economic development outcomes for the Austin community.

Vision
We will create a thriving Austin community.

SPEAKER
Jose Abonce, ACT
Center of Neighborhood Technology

UIC Group :
  • Pratik Kulkarni
  • Aditya Manmode
  • Pranita Nadarge
  • Raj Moona
Austin Neighborhood

• Austin was created in 1865, when developer Henry Austin purchased 470 acres for a temperance settlement named “Austinville”

• Second largest community area by population and the second-largest geographically

• One of seventy-seven officially designated community areas in Chicago, Illinois. Located on the city's West Side
Austin Demographic Information

- In the mid-1960s, African-Americans began moving into Austin neighborhood.
- By 1970, the Austin community was 32% Black. A decade later, it was 73% Black and this trend has continued.
What are the Objectives?

Identify

Identify “Absentee Landlord” in Austin Neighborhood

Determine

Determine other variables, if any, that affect the ill maintenance of properties with “Absentee Landlord”

Use

Use data analytics and visualization techniques to represent the data insights
Some properties in Austin with Absentee Landlords
Process-flow overview

Data Collection

Data cleansing and modification

Visualizations

Insights
DATA COLLECTION

FREEDOM OF INFORMATION ACT (FOIA)

COOK COUNTY ASSESSORS WEBSITE
DATA CLEANSING AND MODIFICATION

1. String manipulation on columns to compare addresses accurately
2. Consolidation of zip code datasets
3. Cross Mapping PINs with data available on Cook County assessors website
4. Classification of properties based on ownership
Visualizations
Of total 40k records, these graph represent the distribution across zip codes in Austin.
Property Ownership

Ownership across Zipcodes

Count of Ownership for each Zip Property. Color shows details about Ownership. The marks are labeled by count of Ownership. The data is filtered on Absentee, which keeps Yes.
Properties with Repair Conditions
1: Above Average
2: Average
3: Below Average

Count of Repair Condition broken down by Repair Condition. Color shows details about Absentee. The marks are labeled by count of Repair Condition. The data is filtered on Ownership and Repair Condition. The Ownership filter keeps SELF. The Repair Condition filter ranges from 0 to 3. The view is filtered on Repair Condition, which keeps 1, 2 and 3.
Properties with Repair Conditions
1: Above Average
2: Average
3: Below Average

Repair Condition

Count of Repair Condition broken down by Repair Condition. Color shows details about Absentee. The marks are labeled by count of Repair Condition. The data is filtered on Ownership and Repair Condition. The Ownership filter keeps PMC. The Repair Condition filter ranges from 0 to 3. The view is filtered on Repair Condition, which keeps 1, 2 and 3.
Building estimates for below average maintained properties

Average of Estimate (Building) for each Building_Area broken down by Absentee and Ownership. Color shows details about Building_Area. The marks are labeled by average of Estimate (Building). The data is filtered on Repair Condition, which keeps 3. The view is filtered on Building_Area and Ownership. The Building_Area filter keeps Between 5k & 10k, Greater than 10k and Less than 5k. The Ownership filter keeps PMC and SELF.
## Land Estimate for below average repair condition

<table>
<thead>
<tr>
<th>Absentee</th>
<th>Ownership</th>
<th>Land_Area</th>
<th>Avg. Estimate (Land)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>SELF</td>
<td>Less than 5k</td>
<td>36,192</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Between 5k &amp; 10k</td>
<td>59,575</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Greater than 10k</td>
<td>75,750</td>
</tr>
<tr>
<td>Yes</td>
<td>PMC</td>
<td>Less than 5k</td>
<td>37,190</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Between 5k &amp; 10k</td>
<td>42,780</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Greater than 10k</td>
<td>84,750</td>
</tr>
<tr>
<td>Yes</td>
<td>SELF</td>
<td>Less than 5k</td>
<td>31,903</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Between 5k &amp; 10k</td>
<td>56,815</td>
</tr>
</tbody>
</table>

Average of Estimate (Land) for each Land_Area broken down by Absentee and Ownership. Color shows details about Land_Area. The marks are labeled by average of Estimate (Land). The data is filtered on Repair Condition, which keeps 3. The view is filtered on Land_Area and Ownership. The Land_Area filter keeps Between 5k & 10k, Greater than 10k and Less than 5k. The Ownership filter keeps PMC and SELF.
Ownership across number of bedrooms

Repair Condition based on Number of Bedrooms

Sum of Number of Records for each Bedrooms broken down by Absentee and Repair Condition vs. Ownership. Color shows details about Bedrooms. The marks are labeled by sum of Number of Records. The view is filtered on Repair Condition and Absentee. The Repair Condition filter has multiple members selected. The Absentee filter keeps Yes.
KEY LEARNINGS

- Requesting datasets from Government
- Performing data manipulation on large datasets
- Deriving insights from the available dataset using visualization technique
- Becoming aware out the community concerns and issues they face
**Conclusion**

Maximum properties identified as “Absentee landlords” have ‘average maintenance’ condition.

No correlation between “Absentee Landlord” and ill maintenance of the properties based on given data.
**Recommendation**

Get more data for the PINs with unavailable data

- Other attributes might become relevant like ‘number of apartments’, ‘number of bedrooms’, etc.

Look at the data for the following variables

- Income of the Owner
- If property is a single family or multi-family
- Licensed landlord (Yes/No)
ANY QUESTIONS?
THANK YOU
The COFI model uses parents’ strengths and commitment to their children and to their neighborhoods to help make positive change in their own lives, their families and their communities. It emphasizes the commonalities (rather than the differences) between family and community leadership, and between private and public issues. COFI’s Family Focused Organizing is a systematic and proven model of how people who are far outside the centers of power, become leaders, build organizations, and win.

SPEAKER

Emily Creahan, COFI
Do Residents of Englewood Pay More For Utility?

Unexpectedly high cost of living experienced by residents with low income

Annamariya Tharayil, IIT
Himanshu Mishra, IIT (presenter)
Jen Jenkins, UIC

December 10, 2019
## The problem

<table>
<thead>
<tr>
<th>COFI's Claim</th>
<th>Context</th>
<th>Problem statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents of the Englewood</td>
<td>Englewood is a low-income community.</td>
<td>Check if the claim can be justified and supported by data</td>
</tr>
<tr>
<td>community are paying unreasonably higher utility bills than other communities of Chicago</td>
<td>The residents generally feel that they are being sidelined by the City because of their low-income.</td>
<td>Identify the key reasons behind the claim</td>
</tr>
</tbody>
</table>
Englewood

- One of the 77 official communities of City of Chicago

- Geographically bounded by W Garfield Boulevard on the north, S Racine Avenue on the west, 75th Street on the south, and Dan Ryan Expressway on the east
Englewood

- One of the 77 official communities of City of Chicago
- Income. 40% to 50% people falls below the US poverty line (approx. $25,750 annual income for a household of four persons in 2019)
Englewood

- One of the 77 official communities of City of Chicago
- Income. 40% to 50% people falls below the US poverty line
- Demography. Primary race is Black/African American (94.98%)
Challenge Deep-Dive

**Challenge**
Collect utility bills for Englewood community and few other communities to validate the claim.

**Approach**
- FOIA requests to related city departments
- Manual bill drive by COFI organizers
- Public sources

**Limitations**
- Personal privacy information involved
- Manual bill drive is logistically infeasible
- Lack of authenticity of public sources.
Acquiring Data

- FOIA request with the Water Management Department
- FOIA request with the Revenue Department
- Public source and news articles

- We received 35 records for residences on N Sangamon Street in Englewood
- Shut-off data for City of Chicago from 2007 to 2018
Analysis
<table>
<thead>
<tr>
<th>35 Records</th>
<th>Building Type</th>
<th>Past Due Day</th>
<th>Average Bill</th>
<th>Water Bill</th>
</tr>
</thead>
</table>

**Note:** The table contains 35 records with columns for Building Type, Past Due Day, Average Bill, and Water Bill.
35 Records
35 Records

Building Type

Past Due Day

Average Bill

Water Bill
Building Type

![Bar chart showing the count of different building types: 16 one-story apartments, 18 two-to-six apartments, and 1 non-residential building.]
57 days for metered residences
versus
184 days for non-metered residences
Average Bill

monthly
Water Bill Charges

Per month
Comparison

Water Charge in Dollars

<table>
<thead>
<tr>
<th>Type</th>
<th>Metered</th>
<th>Non-Metered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Story</td>
<td>21</td>
<td>37</td>
</tr>
<tr>
<td>2-6 Apartment</td>
<td>52.12</td>
<td>59.43</td>
</tr>
</tbody>
</table>

Average Bill in Dollars

<table>
<thead>
<tr>
<th>Type</th>
<th>Metered</th>
<th>Non-Metered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Story</td>
<td>49.23</td>
<td>149.66</td>
</tr>
<tr>
<td>2-6 Apartment</td>
<td>156</td>
<td>250</td>
</tr>
</tbody>
</table>
Consumption

Actual consumption in several cases goes up to 2.4 times than expected.
Conclusion

Penalties are the main reason of high bill amount

- Non-metered residences have a higher bills than metered residences.
- Non-metered residence have more past due days.
- Past due bills resulted in a penalty of 1.25% of the bill.
- Due to cumulation of penalties, non-metered residences have to pay higher bills than metered residences
Learnings

- Government processes take a long time (FOIA requests)
- Look out for various unconventional data sources
- Be simple and specific in requesting data
- Data collection is often the biggest hurdle to overcome
QUESTIONS?
Thank You!
OUR TEAM

Jesenia Frausto
Erica Johnson
Honey Salve
Ankita Gosain
Jatin Bansal
AGENDA

Objective

Streets in Focus

Visualizations

Recommendations

Feedback

Humboldt Park

Outcomes

Data Analysis
NEIGHBORHOOD AT A GLANCE

**Paseo Boricua (Division Street):** Puerto Rican-centric main commercial corridor between Western Avenue and California Street

- Marked by the 50 ft steel Puerto Rican flags
- Home to Pedro Albizu Campos High School and highlights various elements of Puerto Rican culture, activism, art and cuisine
- Abundance of art and murals highly valued by youth
# Neighborhood at a Glance

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Population</th>
<th>White</th>
<th>Hispanic</th>
<th>African American</th>
<th>Asian</th>
<th>Non Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humboldt Park</td>
<td>55,011</td>
<td>23.1%</td>
<td>49.7%</td>
<td>23.3%</td>
<td>1.6%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Pilsen</td>
<td>78,877</td>
<td>18.9%</td>
<td>70.7%</td>
<td>6.2%</td>
<td>2.6%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Lincoln Park</td>
<td>67,260</td>
<td>77.1%</td>
<td>6.5%</td>
<td>6.2%</td>
<td>7.1%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>
OBJECTIVE

Improve **Street vitality** factor for:

Division Street between Western and California Avenue
NEED FOR COMMUNITY DEVELOPMENT

SAFETY
- Redesign streets that make being physically active safe and easy for all ages and abilities

MOBILITY
- Encourages people to walk around freely

ACCESSIBILITY
- A shorter commute and proximity to daily necessities also gives you more free time.

LIVELINESS
- Encourages people to walk around
- Potential Opportunities to get off the couch and be social

ECONOMIC DEVELOPMENT
- Increase in footfall for businesses on the street
STREETS IN FOCUS

W Division St

W 18th St

N Lincoln Ave
DATA COLLECTION

**Walk Score Data**
- Used python to scrape data from Walk Score website modal

**Pin placing on Google Map and Google Earth**
- Segregated and pinned the various street vitality factors

**Python : Data cleaning**
- Used to clean the KML files derived from Google Earth
- Combined data from both sources to create a master data
INFLUENCING FACTORS

- TREES
- STREET LIGHTS
- TRASH BINS
- MURALS
- ART, CULTURE & ENTERTAINMENT
- FOOD & DRINKS
- RETAIL STORES
- BUS STOPS
- SCHOOLS
- BENCHES
- ERRANDS
- BICYCLES
DATA VISUALIZATION
TREES AND VERTICAL GARDENS

Humanizes the street by attracting people to outdoor activities.

Urban forestation can lower people’s stress levels and enhance well-being

Types of green spaces that can be added:
- Tree-lined streets
- Flowerbeds
- Parks & Campuses
UTILIZE WIDE PAVEMENTS

Underutilized pavements offer huge potential for usable and desirable open spaces
ADD STREET LIGHTS

- Efficient and people-oriented lighting facilitates the occupancy of public spaces at night, enhancing safety.

- When installed on the pedestrian and cyclist scale, public lighting creates the necessary conditions to move more safely when there is no natural light.
PLACE TRASH BINS STRATEGICALLY

- Sidewalk trash cans and recycle bins are essential to the health and function of the community.
- Their presence along streets with high pedestrian discourages littering, resulting in a healthier more aesthetically pleasant environment.

Placement: minimum 4 trash bins at an intersection (1 each corner)
ORGANIZE TOURS AND ART WALKS

Offering education about neighborhood murals will help preserve area's culture and heritage

Comparatively, W Division Street has more number of murals and centers for art/culture/entertainment
MISSION

Dr. Pedro Albizu Campos Puerto Rican High School’s mission is to provide a quality educational experience needed to empower students to engage in critical thinking and social transformation, from the classroom to the Puerto Rican community, based on the philosophical foundation of self-determination, a methodology of self-actualization and an ethics of self-reliance.

SPEAKERS

Yuritza Stanley, student, Albizu Campos

Marvin Garcia, Albizu Campos
QUESTIONS?
THANK YOU!
THANK YOU!