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HEALTH EQUITY QUANTITATIVE ANALYSIS
FOR VIBRANT HEALTH

Health, Socioeconomic, and Environmental Impacts in Wyandotte County, Kansas

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Prepared by LivZero
In Partnership with Greenlink Analytics, Inc.

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Background

In June 2022, Vibrant Health, LivZero, and Greenlink Analytics partnered to conduct a quantitative analysis to inform a data-driven, equitable community engagement process that will assist Vibrant Health in better understanding the social determinants of health impacting the communities they serve in Wyandotte County, Kansas. With these insights, Vibrant Health aims to improve their offerings and establish and design a new multi-use facility that addresses the needs and priorities of their patients. Vibrant Health's focus area is Northeast Kansas City, Kansas. This analysis, along with future research and community engagement, will help determine needs of this area, how to effectively promote health equity, and how to have the best impact on improving health outcomes for Vibrant Health's patients.

Introduction

Health inequities are influenced by many elements beyond genetics and personal choice, such as economic stability, the built environment, historical context, and sociocultural indicators. According to the Community Health Council's Health Equity Action Transformation (H.E.A.T) Report, "Wyandotte County, Kansas, has consistently ranked last of the state's 105 counties for social determinants of health."[1] This report details the relationships between the social determinants of health and how environmental, structural, institutional, and systemic factors are influencing the health outcomes of the residents of Wyandotte County, Kansas. It should help Vibrant Health better understand any gaps in services they currently provide, as well as identify additional needs of the community that intersect with and exacerbate current health inequities. The analysis aims to view health inequities through a holistic lens and provides suggestions for an interdisciplinary stakeholder and community engagement process and robust program development.

This analysis can be used to:

1. Supplement the social determinants of health assessment that will be disseminated to the community via Vibrant Health's Community Health Workers, identifying areas of health inequities that are not currently being addressed by the assessment.

2. Serve as baseline data, identifying programmatic gaps in Vibrant Health's healthcare offerings and providing health equity metrics that Vibrant Health can use to measure its community impact.

3. Understand the relationships between inequities outside of yet influencing health outcomes, including socioeconomic and environmental factors, that will support more holistic and upstream programmatic and policy design.

4. Inform a data-driven community engagement process, ensuring community engagement specialists can allocate resources in areas most burdened by critical inequities.

Centering Health Equity

Vibrant Health serves many multicultural communities, including refugee, migrant, Latine/x, Hispanic, Asian, African, and Black communities who have too-often experienced historical, systemic, and institutional marginalization. These issues extend to access to an affordable and holistic healthcare system. While the largest racial/ethnic groups in Wyandotte County are White, Hispanic or Latine, and Black or African,[2] 90% of the community Vibrant Health serves is non-white.[3] Additionally, of its patients, more than 62% are "Best Served in a Language Other than English."[4]

This analysis focuses on the racial disparities related to the social determinants of health disproportionately affecting the Hispanic or Latine and Black or African communities in Wyandotte County. Centering racial equity will enable Vibrant Health to best understand and prepare for the health, socioeconomic, and environmental inequities impacting the communities they serve while acknowledging and addressing past and current injustices.

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[1] CHC Health Equity Action Transformation (H.E.A.T) Report
[2] United States Census Bureau, Wyandotte County, Kanasas, Race and Hispanic Origin, 2021
[3] Patients by Race and Hispanic or Latino/a Ethnicity, Vibrant Health, 2021
[4] Patients Best Served in a Language Other than English, Vibrant Health, 2021

Analysis Results

Determinants

When evaluating correlations, the closer the correlation coefficient r is to -1.0 or 1.0 indicates a strong relationship between one or more determinants. The social determinants of health described in this analysis focuses solely on strong positive or strong negative relationships with a correlation (r) of at least < -0.7 and lower or < 0.7 and higher.

Health Indicators

Of all health indicators analyzed, Wyandotte County's most significant health feature was the strong positive relationship asthma had with other chronic health issues, including coronary heart disease, chronic obstructive pulmonary disease,diabetes, mental health, and stroke with strong correlations ranging from 0.78 to 0.91. This means that as asthma levels increase, so does the prevalence of these health issues.

TABLE 1. HEALTH INEQUITIES ACROSS WYANDOTTE COUNTY, KANSAS

	Mean	25th Percentile	50th Percentile	75th Percentile	Min	Max
Lack of Healthcare Access	24%	18%	23%	30%	10%	45%
Cancer	6%	5%	6%	7%	4%	9%
Asthma	11%	10%	11%	12%	9%	17%
Coronary Heart Disease	6%	6%	6%	7%	3%	13%
Chronic Obstructive Pulmonary Disease	7%	6%	7%	9%	4%	14%
Diabetes	13%	10%	13%	16%	8%	29%
High Cholesterol	30%	29%	30%	31%	23%	38%
Mental Health	17%	15%	17%	19%	11%	26%
Stroke	4%	3%	4%	5%	2%	10%

Racial Disparities

The risk for health issues is not evenly distributed across neighborhoods or populations. Income-stressed and non-white communities, especially those that identify as Black, African, Latine/x, and/or Hispanic are disproportionately impacted by health, socioeconomic, and environmental inequities simultaneously. Wyandotte County's data shows strong positive correlations between a lack of health insurance and the Hispanic/Latine/x population (r = 0.83); asthma rates and the Black/African-American population (r = 0.75); and stroke and the Black/African-American population (r = 0.75). Additionally, the data shows strong negative correlations between White populations and lack of access to healthcare, asthma, diabetes, and mental health, indicating that as the percentage of White population increases, the prevalence of the health factors listed decrease.
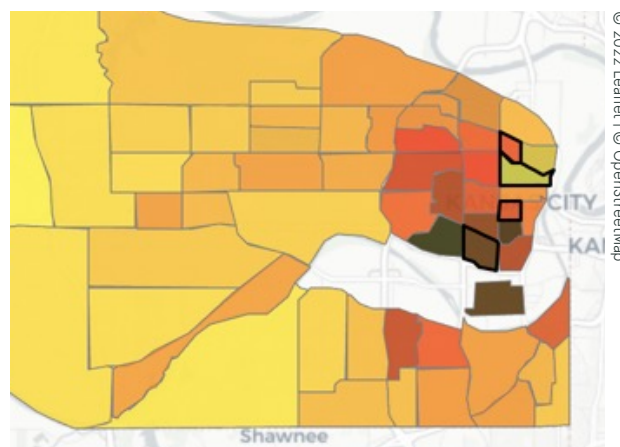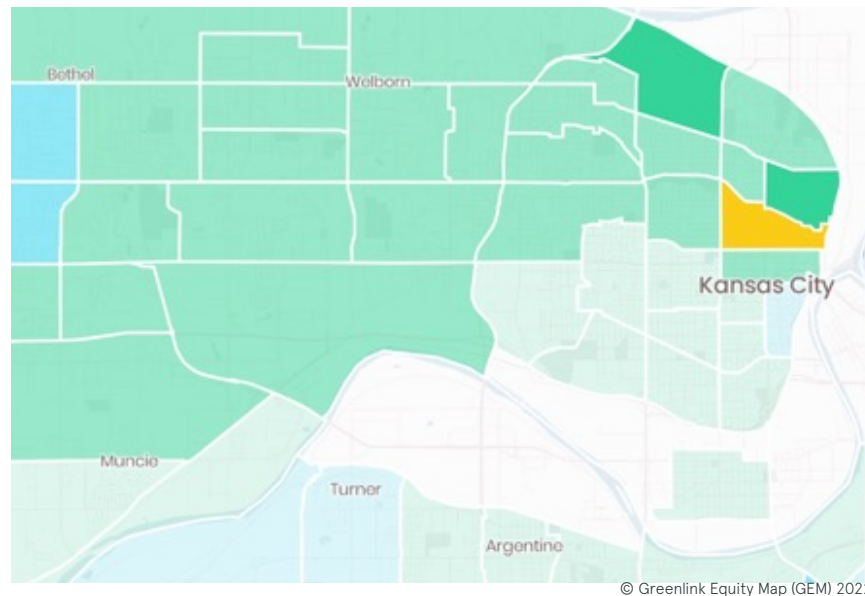

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FIGURE 1. TOP 10% STROKE RATES IN BLACK/AFRICAN AMERICAN POPULATIONS & MENTAL HEALTH RATES IN LATINX/HISPANIC POPULATIONS
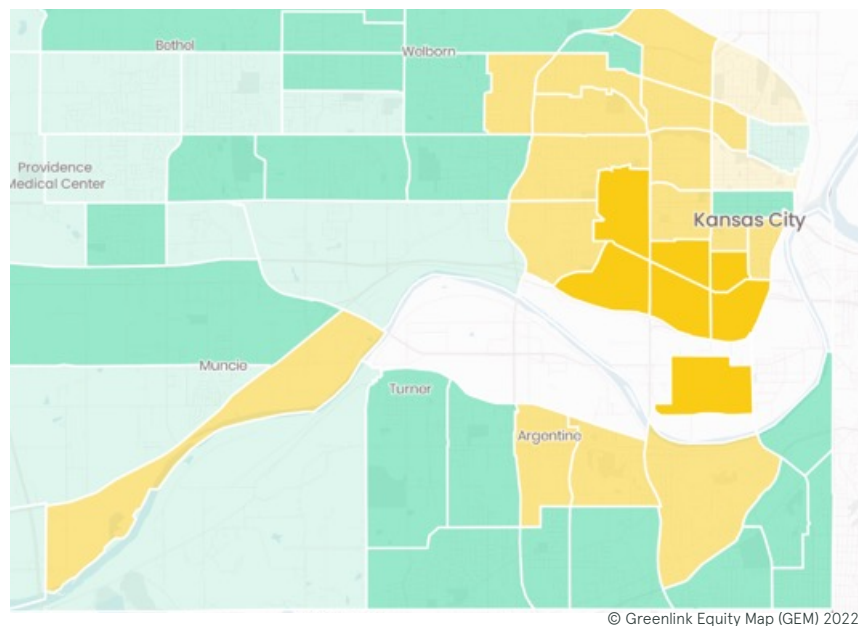
Analysis Results

FIGURE 2. 2019 CORRELATION OF RACIAL COMPOSITION (PERCENT BLACK) AND ASTHMA RATE

© Greenlink Equity Map (GEM) 2022

In Figure 2, the yellow-highlighted census tract indicates a strong relationship between racial composition (percent Black) and asthma rates. Census tract 411 has a population that is 80% Black, a median asthma rate of 16.5%, and median income of $13,824.[5]

In Figure 3, the yellow-highlighted census tracts indicate strong relationships between racial composition (percent Latinx/Hispanic) and a lack of health insurance. For example, in census tract 423, the uninsured rate is as high as 44.8% with a median income of $26,264, and a Latine/x/Hispanic population of more than 69%.[6]

FIGURE 3. RACIAL COMPOSITION (PERCENT LATINX/ HISPANIC) AND LACK OF HEALTH INSURANCE

© Greenlink Equity Map (GEM) 2022

[5] Greenlink Equity Map, Racial Composition (Percent Black) and Asthma Rates, 2022 (2019 data shown)
[6] Greenlink Equity Map, Racial Composition (Percent Latinx/Hispanic) and Health Insurance Stress, 2022 (2019 data shown)
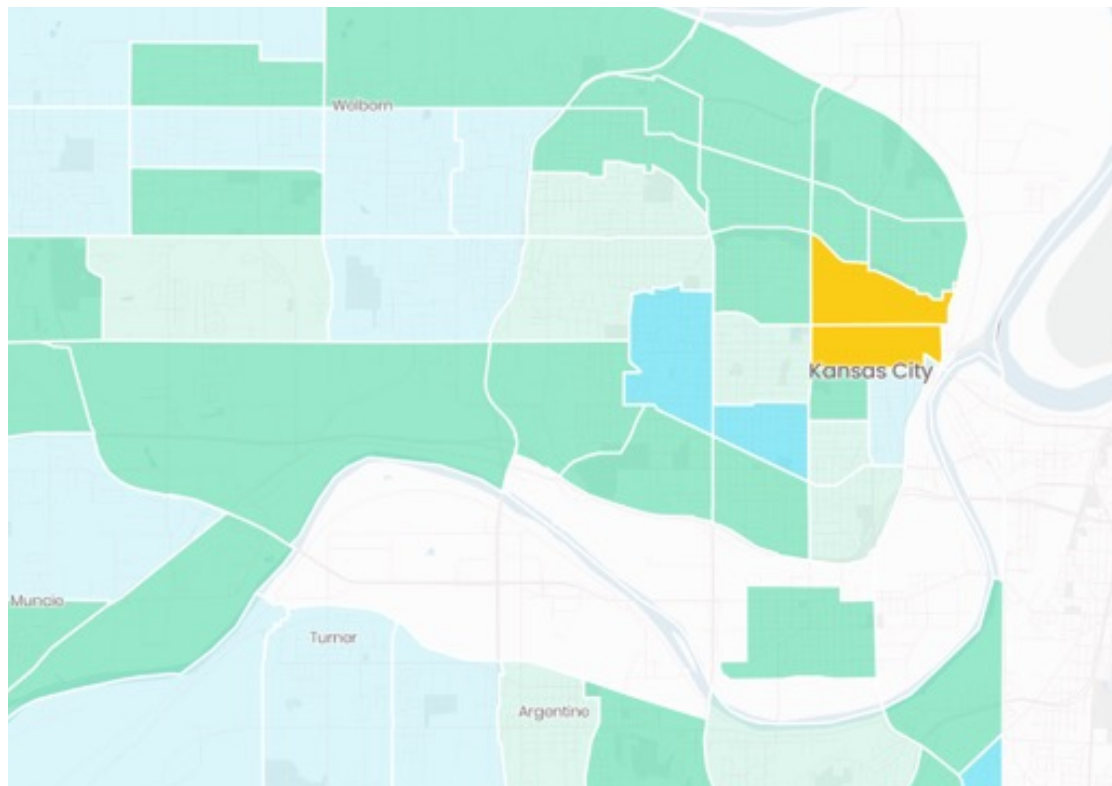
Socioeconomic & Health Indicators

Of the socioeconomic and health indicators analyzed, Wyandotte County's data shows strong positive relationships between low income and multiple health issues, such as asthma, coronary heart disease, chronic obstructive pulmonary disease, diabetes, mental health, and stroke with r values ranging from 0.73 to 0.8. This means as poverty increases, so does the prevalence of chronic health issues. Additionally, the data show a strong positive relationship between lack of health insurance and mental health (r = 0.85); and attainment of high school diploma (highest education attainment) and coronary heart disease (r = 0.76) and cancer (r = 0.73). As the rate of the uninsured increases, so does the likelihood of reporting mental health conditions, and populations that attain a high school diploma but do not continue to higher education are more likely to develop cancer and coronary heart disease.

Housing and Environmental Factors

Of the socioeconomic and environmental indicators analyzed, Wyandotte County's data shows strong positive correlations between low income and energy burden - electric and gas (r = 0.89). Energy burden is the percentage of household income spent on their utility bills, so low income levels contribute to the likelihood of experiencing high levels of energy burden. The quality of the housing stock, energy efficiency of home appliances, and energy rate structures can all directly contribute to energy burden as well.

In Figure 4, the yellow-highlighted census tracts (411 and 418) indicate strong relationships between low income levels and energy burden. Census tract 411 (top yellow shaded area) has a median income of $13,824 and average energy burden as high as 31.23%. Census tract 418 (bottom yellow shaded area) has a median income of $12,321 and average energy burden of 33.86%.[7]

FIGURE 4. 2019 INCOME AND ENERGY BURDEN

© Greenlink Equity Map (GEM) 2022

[7] Greenlink Equity Map, Income Stress and Energy Burden, 2022 (2019 data shown)

Top 10%

Census Tracts & Zip Codes

(90th Percentile) with Intersectional Racial Equity Implications [8]

WHO: Majority Latine/x and/or Hispanic

Lack of Healthcare Access

WHERE: Zip Code 66105
Census Tracts: 423 & 424

WHO: Majority Black and/or African American

Asthma Rates

WHERE: Zip Code 66104
Census Tracts: 408 & 411

WHO: Majority Black and/or African American

Stroke Rates

WHERE: Zip Code 66104
Census Tracts: 408 & 418

WHO: Majority Black and/or African American

Diabetes Rates

WHERE: Zip Code: 66104
Census Tracts: 408 & 418

WHO: Majority Latine/x and/or Hispanic

Mental Health

WHERE: Zip Code 66104 & 66105
Census Tracts: 420.01 & 423

[8] U.S. Census Bureau (2020). American Community Survey 5-year estimates

This report highlights how health, housing, economic, and environmental factors are inextricably linked. For example, asthma rates can have a number of causes, such as air pollution and unhealthy housing conditions. Results for Wyandotte County, Kansas show that the higher the rate of asthma, the greater the likelihood of acquiring chronic health issues. Similarly, energy burden can be an indication of poor housing infrastructure and the result of past unjust policies such as redlining. The connections in Wyandotte County are cross-cutting and intersectional: the higher the energy burden, the greater the likelihood of being income stressed, and as income stress increases, so does the likelihood of acquiring chronic health issues.

When accounting for influencers of negative health outcomes simultaneously, patterns in the data regarding the cluster of inequities communities are facing begin to be exposed. Specifically, health outcomes do not impact communities equally. The socioeconomic and health disparities within Black and/or African American and Latine/x and/or Hispanic communities in Wyandotte County are disproportionate to that of their white counterparts. Within the Black and/or African American communities, there are strong relationships between race and the likelihood of experiencing threatening health issues, such as high rates of asthma, stroke, and diabetes. Similarly, the Latine/x and/or Hispanic communities have a greater likelihood of facing inequitable access to healthcare and higher rates of mental health.

Like race, geography also plays a role in determining negative health outcomes for non-white communities: rates of health and socioeconomic inequities within the 90th percentile were concentrated within six (6) census tracts and two (2) zip codes. Twenty-three percent (23%) of Vibrant Health's patients are from these two zip codes.[9] Additionally, high rates of income stress and energy burden were found within the same geography; This can be due to an array of reasons, such as past unjust housing policies and environmental hazards nearby (such as superfund, industrial sites, or transportation thoroughfares) and worth further investigation.

Correlational analysis helps better demonstrate the relationship between social determinants of health and the patterns in which they cluster, though it does not prove causation. Overall, these findings should be used to direct where to invest time, efforts, and resources in communities disproportionately impacted by health inequities, as well as to support residents to tell their stories and ground-truth their lived experiences so that the data accurately reflects what is happening at the neighborhood level.

[9] Patients by Zip Code, Vibrant Health, 2021

Suggestions

Racial Equity

Understanding racial disparities is central to designing an equitable community engagement process. The majority of Vibrant Health's patients are non-white and are better served in a language other than English. Not considering the relationships race and culture have on determining health outcomes could lead to gaps in services and an unequal distribution of inequities. Centering race in program and policy development could help ensure that needs are met for those disproportionately impacted by these inequities, encouraging holistic program design that will better society at large.

Community Outreach and Engagement

GEOGRAPHY

The cluster of inequities found in this analysis that are most relevant to Vibrant Health's patient demographics are concentrated within six census tracts - 408, 411, 418, 420.01, 423, and 424 - and just two zip codes - 66104 and 66105. This suggests that to ensure a data-driven, equitable community engagement process, resources and efforts should be prioritized in the areas of most need. The second largest concentration of Vibrant's patients live in the 66104 zip code. Additionally, Vibrant's area of focus - Northeast Kansas City, Kansas - lies within the same zip code. This assures that the focus area could be a high impact location to facilitate engagement and establish a future facility.

LANGUAGE AND ACCESSIBILITY

Obstacles to facilitating equitable community engagement must be taken into account. The majority of Vibrant Health's patients are non-white and are best served in a language other than English, 56% of them speaking Spanish[10]; This entails that outreach and educational materials should be accessible in the languages Vibrant Health's patients can speak and understand proficiently. More so, Vibrant Health should ensure interpreters are available to assist with translations and help build trust and reach out to communities where resources are often inaccessible. Similarly, age, ability, and health literacy rates should be considered to encourage engagement that is digestible and administered equitably.

COMMUNITY LIAISONS

Community liaisons are embedded community members from diverse backgrounds, cultures, and identities. They differ from community organizers in a few ways: 1) They come directly from the neighborhoods you are working in; 2) Their lived experiences genuinely reflect the inequities found in this analysis; and 3) They are in greatest need of removing barriers that prevent them from engagement. When selecting the community liaisons for Vibrant Health's Health Equity & Engagement Project, it is important to consider how accurately the individuals will represent the populations and neighborhoods most affected by elements influencing negative health outcomes.

Interdisciplinary Planning and Programming Opportunities

HEALTH, HOUSING, AND ENERGY

Taking an interdisciplinary approach to healthcare is vital to improve health outcomes. As this analysis shows, all indicators influencing health outcomes should be viewed as a network of interdependent relationships. Health issues are housing issues, environmental issues, economic issues, etc. As Vibrant continues to dive deeper into the social determinants of health affecting their patients and address the gaps in their current programs and services, they should develop an internal "wealth and well-being wheel" - a visual tool that helps identify the structures influencing one's health - and begin program design that addresses the structures raised. This wheel should include (but not limited to): 1) Physical environment, such as location of residence, residence quality, access to green space, walkability, educational opportunities, air quality, transportation, and access and affordability to health food; 2) Social Circumstances, such as work conditions, citizenship statues, culture and tradition, history of incarceration, gender, literacy, and education level; and 3) Medical Care, such as access to healthcare, quality of insurance, patient engagement, health literacy, distance to resources, provider linguistic and competency, and affordability. Using the data provided in this analysis should be used as a jumping off point in the creation of this "wealth and well-being wheel" and help measure Vibrant Health's effectiveness over time.

[10] Language Demographics, Vibrant Health, 2021

Suggestions

Future Research

This analysis provides baseline data for Vibrant Health to measure their impact on the health outcomes of the communities they serve. However, there are limitations within this analysis, as correlational data only point us to the relationships between two indicators and does not prove causation. The indicators researched for this analysis are limited to data available, with a focus on health inequities. This data is only part of a larger narrative in which there are multiple factors impacting one's health. To ensure program development meets the wrap-around services needed from Vibrant Health's patients, this analysis should be paired with qualitative research and ground-truthed alongside residents. It should also be used as a supplemental document to patient-centered data and other place-based data within Vibrant Health and Wyandotte County at large.

Appendices

Appendix A - Indicators Analyzed

- Electric-Gas Burden
- Income Stress (a measure of average household income, where low incomes indicate higher levels of stress)
- High Living Costs
- Owner Occupied Units
- Renter Occupied Units
- Single Family Units
- Multi-Family Units
- Access to Healthcare
- Cancer Rates
- Asthma Rates
- Coronary Heart Disease Rates
- Chronic Obstructive Pulmonary Disease Rates
- Diabetes Rates
- High School Attainment
- Mental Health Rates
- Stroke Rates
- Urban Heat Intensity Index
- Racial Demographics:
  - Percent White
  - Percent Black and/or African American
  - Percent Latine/x and/ or Hispanic
  - Percent American Indian and Alaskan Native
  - Percent Native Hawaiian or Other Pacific Islander
  - Percent Asian
  - Other

Appendix B - Health Inequities Across Wyandotte County, KS

	Mean	25th Percentile	50th Percentile	75th Percentile	Min	Max
Lack of Healthcare Access	24%	18%	23%	30%	10%	45%
Cancer	6%	5%	6%	7%	4%	9%
Asthma	11%	10%	11%	12%	9%	17%
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Stroke	4%	3%	4%	5%	2%	10%

About LivZero and Greenlink

LivZero is a climate equity firm that partners with community-based and environmental organizations to develop upstream, intersectional climate solutions that genuinely reflect community experience. We are committed to addressing the historic and systemic barriers that prevent communities most burdened by climate change from being the decision-makers and storytellers in climate policy and program development through community-driven design so that they can be the primary leaders and creators of local climate solutions.

Greenlink Analytics is an Atlanta-based 501(c)(3) nonprofit organization working to advance a clean energy transition as fast and fair as possible. Our team combines expert knowledge, data analytics, and machine learning to solve the most pressing climate and social issues, including energy burdens and pollution impacts, with the goal of improving lives and the environment.

We are among the best in the nation at helping people understand the impact of decisions made by and for them at the community, city and state level. We produce highly technical analysis and translate it into understandable formats that enable better decisions for the future. Data allows people to understand where they've come from and charts a course towards where they want to go. Knowledge is power, after all. Ultimately, we help develop the policy and program decisions that address the bedrock issues of climate change and inequitable development in the U.S.