



CITY OF HOUSTON
OFFICE OF SUSTAINABILITY

SUMMER 2021

Climate Action Through Youth-Led Engagement

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INTRODUCTION

THE ENERGY CAPITAL → GREEN ENERGY CAPITAL OF THE WORLD

The City of Houston (the City) has long been the energy leader of the world. After enduring multiple 500-year storms in just four years, the City recognizes the need for a more sustainable future. The City has already begun the transition to become the green energy capital, as they are the top municipal user of renewable energy in the United States. In addition, the City plans to attract 50+ Energy 2.0 companies to the area by 2025.

HOUSTON'S WORSENING CLIMATE

Climate change is an increasing threat to the safety and prosperity of Houstonians. Houston has become much hotter, rainier, and experienced an increase in extreme winter weather events. With the changing climate, disasters are projected to increase and intensify not only in Houston but throughout the world.

As Houston experiences reoccurring climate disasters, the City recognizes that underserved communities, such as communities of color-, low- and moderate-income households, immigrants and refugees, youth and those with limited English proficiency have been facing disproportionate impacts in the aftermath of disasters. With the increasing number of disasters year over year, many community members have said that they now accept flooding and severe storms as a norm in Houston.

It is crucial that adaptation strategies are equitable and prioritize these communities to establish fair, long-term, and low-carbon practices.

The City recognizes marginalized communities must be placed front and center when it comes to climate action planning. The City plans on developing community-driven action plans, including:

1. **The Complete Communities:** This initiative by the Mayor promotes and facilitates the implementation of innovative community-identified projects and programs that address needs and improve access to services for residents in 10 historically under-resourced neighborhoods in Houston.
2. **The Sunnyside Solar Farm:** This project is set to be one of the largest solar farms in the country and aims to bring jobs and renewable energy into the community. Previously, it was an old toxic landfill site and was transformed into a solar farm that will bring jobs and renewable energy into the community. This community driven plan in Sunnyside is a way to address decades of environmental injustice.

"[Some] thing that has concerned me about my community are the floods that occur during rainstorms. The streets around my community get easily flooded."

—HOUSTON RESIDENT, DISTRICT H

CLIMATE ACTION IN HOUSTON

THE HOUSTON CLIMATE ACTION PLAN

The **Houston Climate Action Plan** (HCAP) is a science-based, community-driven strategy to reduce greenhouse gas emissions, meet the Paris Agreement goal of carbon neutrality by 2050, and lead the global energy transition. The HCAP builds upon **Resilient Houston**, the City's resilience strategy, which identified climate change as a key threat to the City's future. Mayor Sylvester Turner launched Resilient Houston on February 12th, 2020 followed by the launch of Houston Climate Action Plan on Earth Day's 50th Anniversary—April 22nd, 2020. These crucial initiatives are focused on transitioning Houston into a clean energy leader; increasing community resilience across the City; and prioritizing health, job creation, equity, and sustainability. The HCAP is composed of four main sections in order of implementation: Transportation, Energy Transition, Building Optimization, and Materials Management.

CLIMATE ACTION IN HOUSTON, CON'T

YOUTH CLIMATE AMBASSADORS

The solutions to imbalances within marginalized communities begin with addressing the needs of those who are most vulnerable to climate change. This plan cannot be properly executed without community action and input. Equitable community engagement is necessary, specifically for individuals from systemically excluded communities. The Youth Houston Climate Youth Ambassador Pilot Program (Ambassadors) was created as a recommendation from the Youth Engagement Working Group, which is one of the six community-based working groups formed to create HCAP implementation projects. The Ambassadors' goals are to:

1. Inform and educate underserved communities on the impacts of climate change
2. Identify personal behaviors that can reduce carbon impact
3. Highlight the City's strategy to reduce emissions through the Houston Climate Action Plan

Young people recognize climate change as an imminent and immediate threat to our communities. Young individuals are cognizant of the history of racism that has created systematic inequalities in the United States. Now



Ambassadors collaborate with Zoo Crew at Houston Zoo to address conservation.

young individuals have stepped up to address the gaps and advance climate action. City officials are now applauding the problem-solving skills and unique perspective that youth bring, and six young adults were commissioned through the Hire Houston Youth Program to serve as the first cohort of Youth Climate Ambassadors for the Houston Office of Sustainability. Ambassadors engage in community outreach, collaborate with other young Houstonians with similar goals, and educate and gather data from their communities.

During Summer 2021, Ambassadors collaborated with Houston Zoo learning about community-based social marketing. The Houston Zoo's Take Action initiative, the Naturalists at the zoo, and the Ambassadors were able to share ideas concerning the common goal of community engagement, climate change mitigation, and conservation.

AMBASSADOR OUTREACH AND ENGAGEMENT

Creating accessible educational material on the Houston Climate Action Plan was a significant portion of the Ambassadors' accomplishments. Throughout the outreach process, the Ambassadors identified specific needs for educational resources and created condensed and easy to understand educational materials. Some of the materials created include a survey, flyer, and a two-page document giving an overview of the HCAP. All materials were translated from English to Spanish to serve the needs of the community. The educational materials are critical in ensuring the HCAP is accessible to all Houstonians, who serve as an integral part of the implementation process.

Only 51% of Harris county residents believe the threat of climate change or global warming is a "very serious problem."

SOURCE: RICE UNIVERSITY'S 2020 KINDER HOUSTON AREA SURVEY

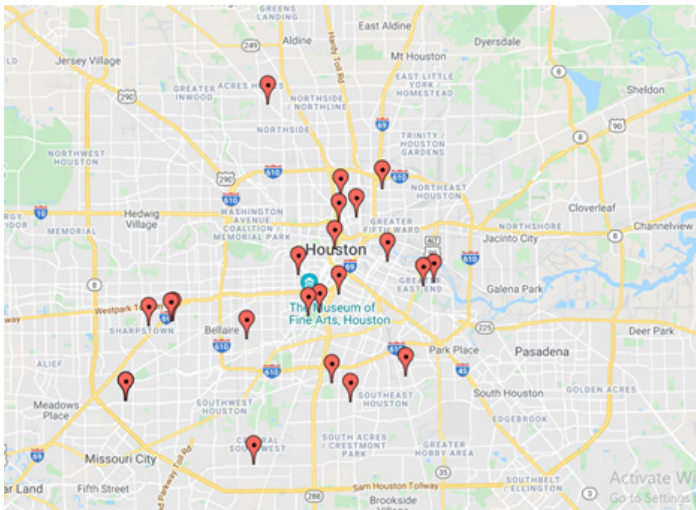
AMBASSADOR OUTREACH AND ENGAGEMENT, CON'T

AMBASSADORS' IMPACT

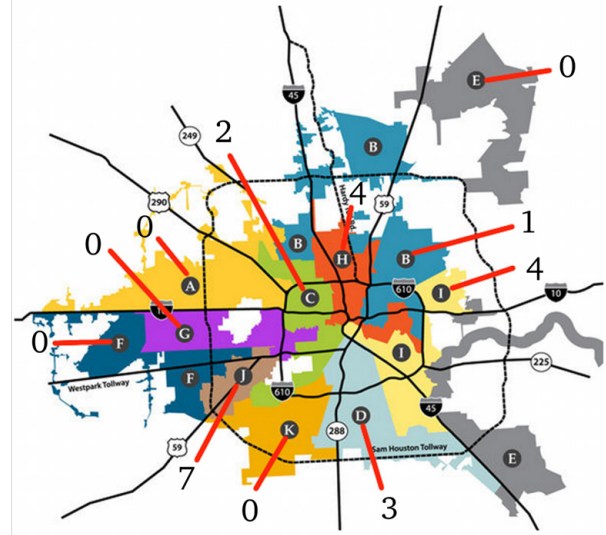
The Ambassadors program communicated the impacts of climate change and gathered feedback from historically underserved communities on climate challenges and environmental injustice. The Ambassadors served as a critical link between the City and the **Complete Communities** through innovative and inclusive climate action outreach.

As Ambassadors, providing easy-to-understand materials to the public about climate change was very pivotal as we believe the key to tackling climate change starts at the grassroots level. Interactions with community members have and will continue to inform the implementation of the Houston Climate Action Plan.

In collaboration with the Office of Sustainability, the Ambassadors reached community members from all over Houston through their outreach events. Focusing on low-income communities of color, the Ambassadors created meaningful connections while communicating awareness about the Houston Climate Action Plan. Data was gathered by administering more than 120 surveys, community conversations, and one-on-one interactions that were helpful in engaging community members as they filled out the survey. Ambassadors were also able to capture Houstonians' concerns and priorities through one-on-one interactions and conversations.



This map displays outreach locations visited by the Youth Climate Ambassadors.



This map displays the number of outreach events per district.

"Gentrification is definitely a big concern of mine, I fear that minorities will/are being left behind in the climate justice battle."

—HOUSTON RESIDENT, DISTRICT J

INTERPRETATION

KEY TAKEAWAYS & RECOMMENDED NEXT STEPS

A successful implementation of the Houston Climate Action Plan will include inclusive and targeted investment into underserved neighborhoods that do not contribute to rising property values and cultural erasure. (See *DATA ANALYZED & TAKEAWAYS* section to view a full summary of survey data from Houston residents.)

This approach and our conversations with community members have led the Ambassadors to recommend the following:

1. Funding for Outreach Materials

The Ambassadors encountered several language barriers, including Vietnamese, Chinese, and Arabic, which are the top three most spoken languages in Houston after English and Spanish. Funds for translation services are imperative to forming meaningful connections with community members from all districts. All-encompassing community outreach will require funding to translate content about the Houston Climate Action Plan in several languages. Additionally, the Office of Sustainability would benefit from having resources to fund quality educational content in video formats, which is even more consumable than flyers and 2-pagers. Funding would allow for the creation of videos catered to the needs and concerns of different audiences.

2. Investment in Green Workforce Development

In conjunction with goal three of the Building Optimization section of the HCAP, investing in skilled local jobs involves improving access to educational resources and job training. This may include the funding of vocational training in renewable energy technology. These local jobs are critical to Houston's transition from the energy capital to the green energy capital and create a multitude of co-benefits in bringing money into low-income communities, bridging the educational gap, and even reducing crime. Many community members expressed the need for job opportunities and education. These words appeared a total of 15 times in responses. Connecting local youth and other community members with improved education, training, and job opportunities can help avoid displacement and build wealth.

3. Funding for Six Full Time Climate Ambassadors

During the 8-week duration of our internship, we were only able to begin the process of capturing the perspectives of Houston's underserved populations. A common theme in the survey results was the need for community outreach programs and educational information. In order to effectively communicate about the Houston Climate Action Plan, there needs to be a long-term team of at least six climate ambassadors to sustain the work. While the Office of Sustainability works full-time in implementation, these teams would also continue the ambassador role, serving as the crucial link between the community and the City and bringing an equity lens to implementation projects.

"I think of a Houston that revitalizes [its] inner loop with green spaces and programs to help unemployed/at-risk people find jobs while providing them constant support with the process."

—HOUSTON RESIDENT

A Houston resident from District J calls for "education on multiple levels to support past growth, day to day changes, and future possibilities- getting people to think and act positively to support climate changes."

DATA ANALYZED & TAKEAWAYS

A survey was developed and designed to accommodate those who did not have any prior knowledge of the Houston Climate Action Plan. To expand engagement, the Ambassadors drafted two surveys, one in English and one in Spanish, and the data was analyzed separately. The Ambassadors recognize that they were unable to reach certain Houston communities due to language barriers. The surveys were finalized after attending a few community events and receiving feedback that informed edits. In total, we collected 133 survey responses in both English and Spanish. The majority of the surveys were taken via paper during events that occurred at food drives and farmer's markets between the dates of July 13th and August 1st. Many of the surveys were taken in the Southwest area of Houston (i.e., Sharpstown, Gulfton, and Bellaire).

ENGLISH SURVEY

For the English survey the following information was observed from 100 responses:

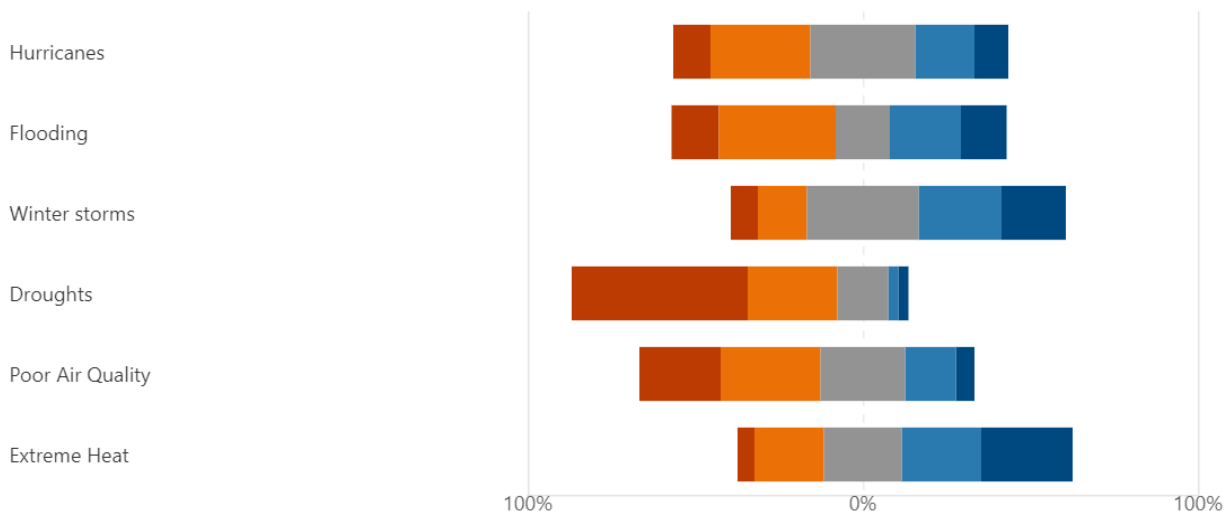
Majority of the survey recipients were young Latina women. This statistic was most likely affected by several of our events being held near or at a WIC center in predominantly Latino areas.

- Ages 18-34: 42%; under 18: 16%
- Latino/a/x: 46%; Black/African American: 25%
- Female recipients: 69%

Community members reported that they were most severely affected by the extreme Houston heat and the last extreme winter weather event in February 2021. However, it is important to note that when further asked, many community members conveyed that they accepted annual street flooding and inaccessibility as a norm, which may affect the definition of the responses "moderate" or "somewhat" to flooding and hurricanes. According to the survey, droughts affected community members the least, which could be connected to a lack of knowledge of when droughts occur. In relation to these climate disasters, most residents reported that they did not receive financial assistance. Of those who did, the majority received federal funds.

- 27% of recipients said they experienced "very severe" extreme heat, while 24% said "severe".
- 52% of recipients said they were "not at all" affected by droughts.
- 59% of recipients did not receive financial assistance after a climate disaster.
- The graph below represents "To what degree have these disasters affected you and your family in the past 20 years?"

■ Not at all ■ Somewhat ■ Moderate ■ Severe ■ Very severe



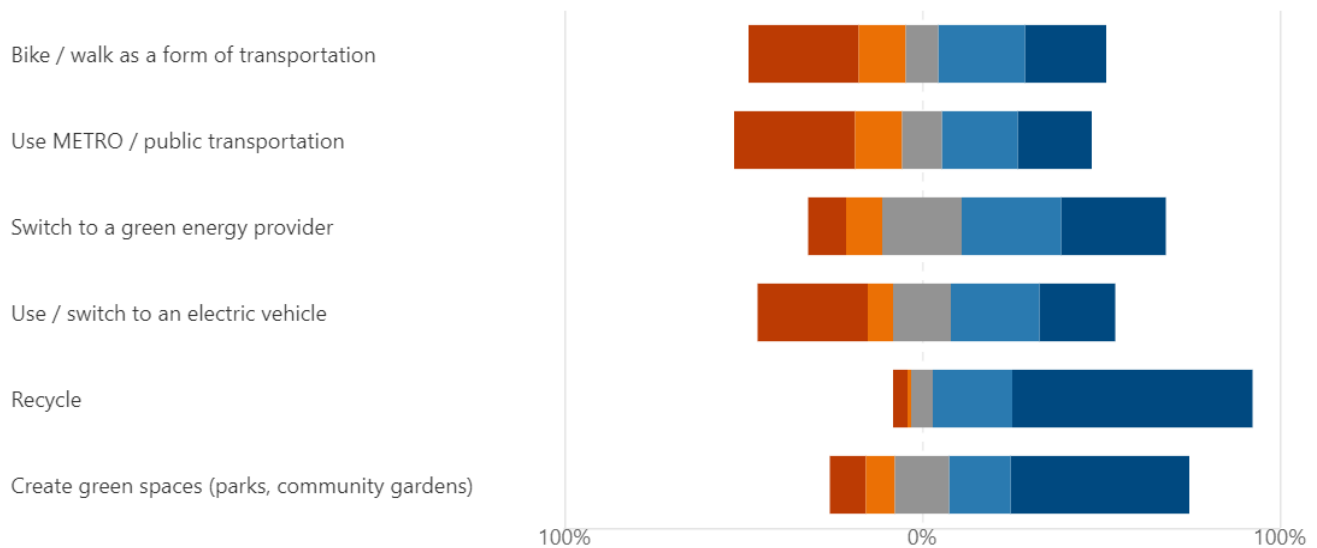
DATA ANALYZED & KEY TAKEAWAYS, CON'T

ENGLISH SURVEY, CON'T

In relation to taking green actions in everyday life, most residents are very likely to recycle, while being very unlikely to use the Metro system. They report that the largest barrier to a personal green transition is cost, while the second largest was being a non-homeowner. This latter statistic may have been affected by the significant number of young community members filling out the survey.

- 67% of people are very likely to recycle.
- 34% of people are very unlikely to use METRO/public transportation.
- “Cost” was the most frequent selection as a barrier for green upgrades, appearing 59 times within 79 responses. “Non-homeowner” appeared 43 times.
- 14% of people said that they did not know enough about green energy transition.
- The graph below represents “How likely are you to take the following actions?”

■ Very unlikely ■ Somewhat unlikely ■ Neither likely nor unlikely ■ Somewhat likely ■ Very likely

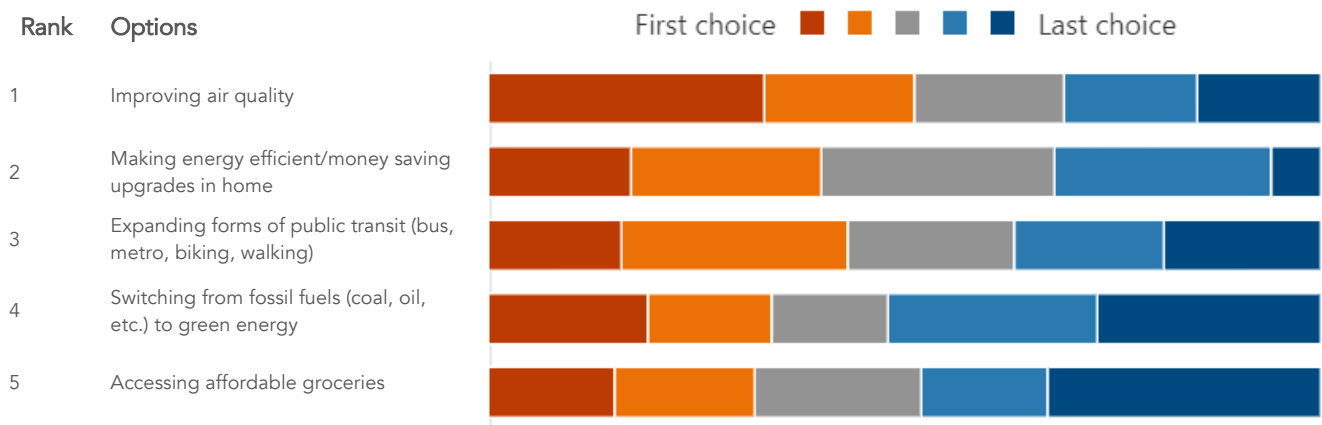


DATA ANALYZED & KEY TAKEAWAYS, CON'T

ENGLISH SURVEY, CON'T

Regarding community goals, most resident's first priority was improving air quality. Their idea of a Green Houston is a city that is more environmentally friendly and has more parks and outdoor spaces available. Residents worry that dependency on fossil fuels and politics will prevent Houston from reaching their goals and addressing concerns of flooding, heat, air quality, and gentrification.

- 33% of recipients put "improving air quality" as their first-choice goal and 18% put it as their second choice
- "a lot of plants, clean fresh air, transportation accessibility such as more sidewalks...bike trails, etc."
- "reducing environmental impacts on both the land and disadvantaged citizens"
- People worry that "dependency on fossil fuels" and "politics" will prevent Houston from getting there.
- The main community concerns are "flooding", extreme heat, air quality, and "gentrification".
- The graph below represents "Rank these community goals from highest to lowest priority (1st being highest, 5th being lowest)"



SPANISH SURVEY

For the Spanish survey the following information was observed:

Majority of the survey recipients were Latina women. This statistic was most likely affected by several of our events being held near or at a WIC center in predominantly Latino areas and the survey language.

- Ages 19-34: 39%; 35-54: 27%; 55-74: 33%
- 84.8% Latino/a/x
- 85% Female recipients

The results from the Spanish survey in this section were similar in outcome to the English results. There was no significant difference except for the following: of those who did receive financial assistance after a climate disaster, most received money from family or friends.

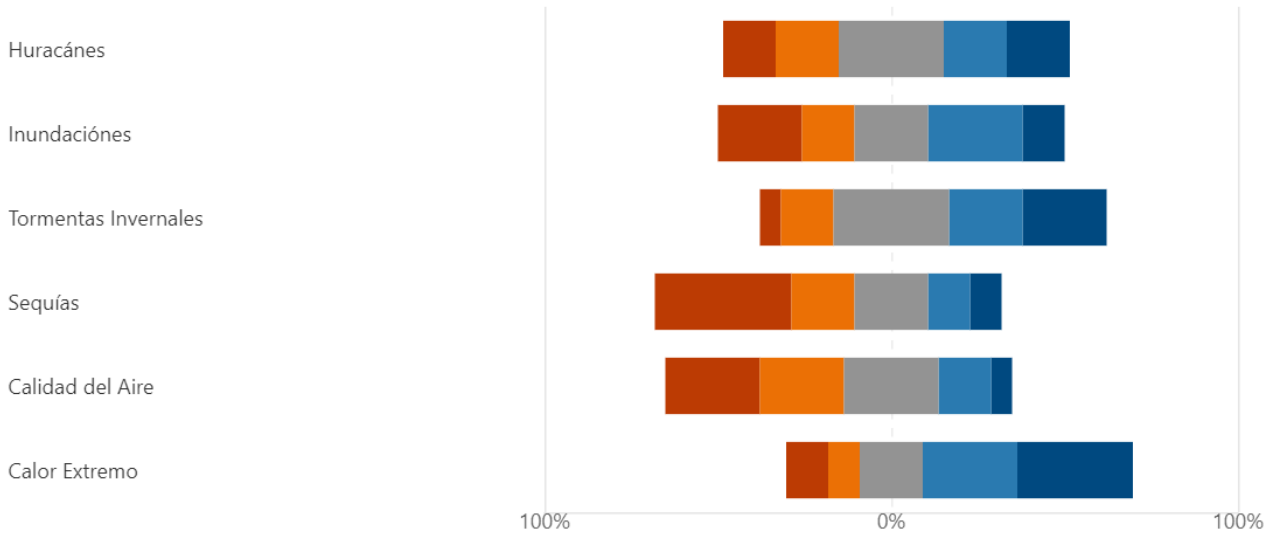
- 33.3% of recipients said they experienced "very severe" extreme heat, while 27.3% said "severe".
- 39.4% of recipients said they were "not at all" affected by droughts.
- 81.2% of recipients did not receive financial assistance after a climate disaster.

DATA ANALYZED & KEY TAKEAWAYS, CON'T

SPANISH SURVEY, CON'T

- The graph below is the result for the question "Qué severo han sido los efectos de desastres para ti y tu familia?" or "To what degree have these disasters affected you and your family in the past 20 years?"

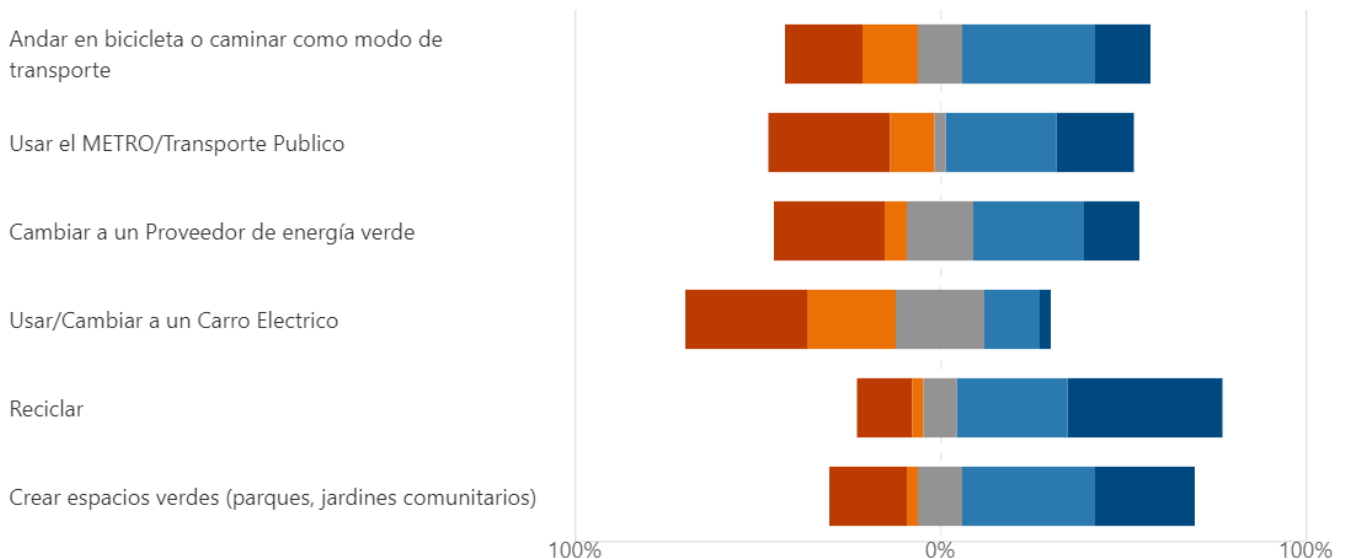
■ Para Nada ■ Algo ■ Moderado ■ Severo ■ Muy Severo



In relation to taking green actions in everyday life, the results were similar in both English and Spanish. The main difference is that the largest barrier to a personal green transition is being non-homeowner and cost.

- 42.4% of people are very likely to recycle.
- 33.3% of people are very unlikely to use METRO/public transportation.
- "Cost" and "non-homeowner" were the most selected reasons for not personally transitioning to green energy, appearing 15 times.
- Some mentioned that the website was "difficult to navigate".
- The graph below represents "Qué tan probable es que hagas las siguientes acciones?" or "How likely are you to take the following actions?"

■ Muy Improbable ■ Improbable ■ Ni probable ni improbable ■ Algo Probable ■ Muy Probable



DATA ANALYZED & KEY TAKEAWAYS, CON'T

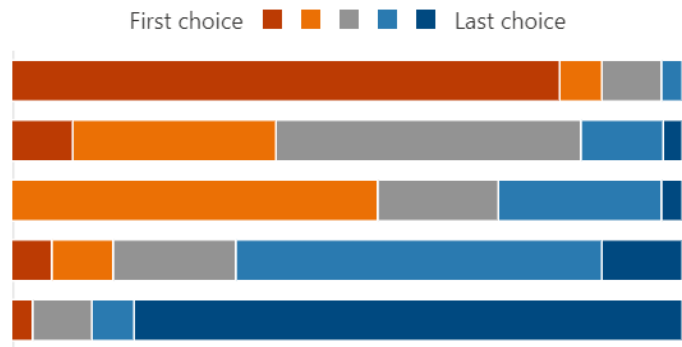
SPANISH SURVEY, CON'T

Similar to the English report, most resident's first priority for community goals was improving air quality. They want Houston to expand green spaces such as gardens and parks. Spanish speaking residents worry that lack of information and funding will prevent Houston from getting to a Green Houston, in addition to having other concerns regarding crime.

- 81.8% of recipients put "improving air quality" as their highest community goal.
- Most people want more green spaces for a Green Houston.
- Lack of information and money is what they believe could prevent a Green Houston.
- Crime is a prevalent community concern.
- The graph below represents "Organiza estos objetivos comunitarios de mayor a menor prioridad (el primero es el más importante, el último es el menos importante)" or "Rank these community goals from highest to lowest priority (1st being highest, 5th being lowest)"

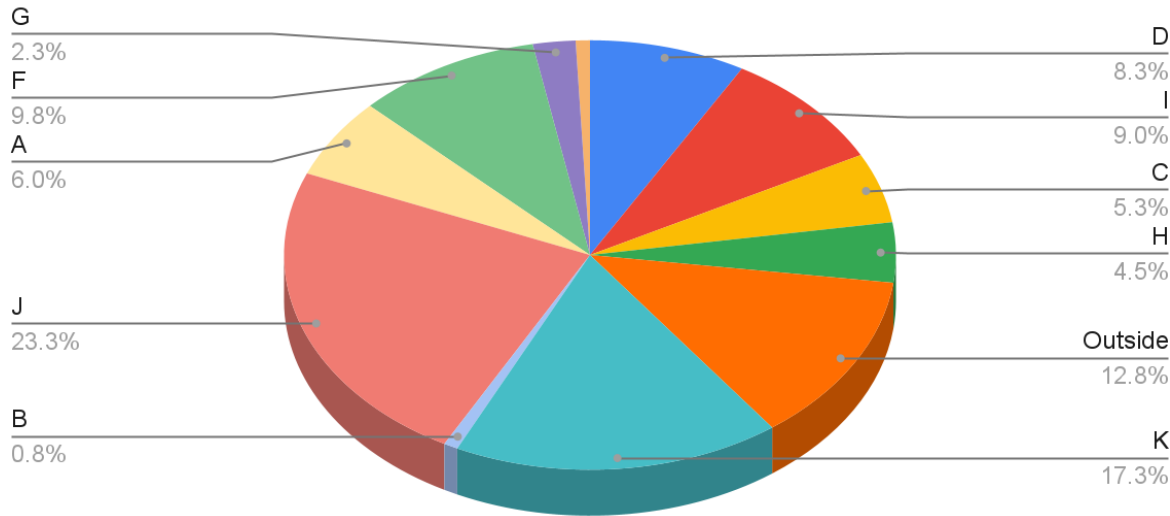
Rank	Options
------	---------

- | | |
|---|-----------------------------------|
| 1 | Mejorar la calidad del aire |
| 2 | Hacer actualizaciones ecológic... |
| 3 | Expandir las formas de transp... |
| 4 | Cambiar de combustibles fósil... |
| 5 | Acceso a un Super Mercado |



Additional Documents

I. Distribution of Surveys Among Districts (133)



II. Flyers Created

HOUSTON CLIMATE ACTION PLAN

FOCUS AREAS	PURPOSE
<ul style="list-style-type: none"> TRANSPORTATION <ul style="list-style-type: none"> • Transit-oriented and walkable communities • Vehicle electrification ENERGY TRANSITION <ul style="list-style-type: none"> • Renewable energy generation • Green infrastructure and technology BUILDING OPTIMIZATION <ul style="list-style-type: none"> • Energy efficiency • Operations and maintenance MATERIALS MANAGEMENT <ul style="list-style-type: none"> • Landfill waste reduction • Composting and recycling 	<p>The Houston Climate Action Plan provides evidence-based measures to reduce greenhouse gas emissions and address the negative impacts of climate change. The plan demonstrates how the City will mitigate today's climate hazards and contribute to the global effort to reduce emissions.</p>
<p>Take our "Green" Survey</p>	<p>DID YOU KNOW? Greenhouse gases are heat-trapping gases in the atmosphere THAT CAUSE... Climate Change, a long-term change in global or regional climate patterns WHICH IS WHY WE NEED... Sustainable solutions that reduce emissions and improve quality of life</p>

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HOUSTON CLIMATE ACTION PLAN

ÁREAS DE ENFOQUE	PROPÓSITO
<ul style="list-style-type: none"> TRANSPORTE <ul style="list-style-type: none"> • Comunidades transitables • Electrificación de vehículos TRANSICIÓN ENERGÉTICA <ul style="list-style-type: none"> • Desarrollo de energías renovables • Infraestructura y tecnología verde OPTIMIZACIÓN DE EDIFICIOS <ul style="list-style-type: none"> • Eficiencia energética • Operaciones y mantenimiento MANTENIMIENTO DE DESPERDICIO <ul style="list-style-type: none"> • Reducción de residuos en vertederos • Abono orgánico y reciclaje 	<p>El Plan de Acción Climático de Houston proporciona medidas para reducir la emisión de gases de efecto invernadero al igual que medidas que previenen los efectos negativos del cambio climático. El plan demostrará como la ciudad se adaptará para mejor mitigar los desafíos climatológicos que enfrenta la ciudad hoy y en el futuro.</p>
<p>Toma nuestra encuesta ecológica</p>	<p>¿SABÍAS? Gases invernaderos atrapan calor en la atmósfera ESTO CAUSA... Un cambio climático global durara por décadas. Para parar esto SE REQUIRE... Energía renovable que no contamina la atmósfera con gases de efecto invernadero, como energía solar or energía eólica</p>

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We distributed this flyer at several of our community events and centers, which was available in both English and Spanish. The purpose of this flyer was to create an introduction to the Houston Climate Action Plan and inform residents of the purpose behind it. The flyer also contained a QR code which linked Houstonians to the survey.

ADDITIONAL DOCUMENTS, CON'T

III. Summary Created

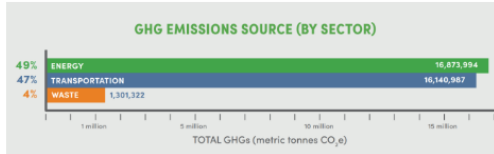


HOUSTON CLIMATE ACTION PLAN SUMMARY

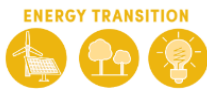
What is the Climate Action Plan?

The Houston Climate Action Plan (HCAP) establishes how the city will achieve carbon neutrality by 2050 and remain consistent with the 2015 Paris Climate Accords. The objective is to fulfill Houston's role in climate change mitigation and build the city's resilience to climate disasters through internal city policies and community organizing efforts.

Major Plan Components



Houston's greenhouse gas emissions (GHG) originate from the energy sector (49%), transportation (47%), and waste management (4%). HCAP is divided into 4 sections to mitigate emissions from these sources, and they are:



TRANSPORTATION	TARGET
<ul style="list-style-type: none"> Goal 1: Shift regional fleet to electric and low-emission vehicles. Goal 2: Reduce vehicle miles traveled (VMT) per capita. Goal 3: Provide equitable and safe mobility choices. 	<ul style="list-style-type: none"> 1 Convert non-emergency, light-duty municipal fleet to 100% EV by 2030. 2 Reduce VMT per capita 20% by 2050. 3 Zero traffic-related fatalities and serious injuries on Houston streets by 2030. 500 miles of high-comfort bike lanes by 2025.
ENERGY TRANSITION	TARGET
<ul style="list-style-type: none"> Goal 1: Grow Houston's investment in renewable and resilient energy. Goal 2: Make Houston the leader in carbon capture technology and energy innovation. Goal 3: Restore, protect, and enhance Houston's natural ability to capture and store carbon. 	<ul style="list-style-type: none"> 4 5 million MWh local solar per year by 2050. 5 Attract or incubate 50 Energy 2.0 companies in Greater Houston by 2025. 6 4.6 million new native trees planted by 2030.
BUILDING OPTIMIZATION	TARGET
<ul style="list-style-type: none"> Goal 1: Reduce building energy use and maximize savings. Goal 2: Expand investment in energy efficiency. Goal 3: Invest in skilled local jobs to optimize building operations. 	<ul style="list-style-type: none"> 7 Adopt the 2021 ICC model building code by 2025 with a minimum 5-year update. 8 Double the current number of PACE projects by 2025. 9 70% of non-residential buildings operated by trained building operator by 2030.
MATERIALS MANAGEMENT	TARGET
<ul style="list-style-type: none"> Goal 1: Reduce waste and transform the circular economy. Goal 2: Optimize waste operations and create power from waste. Goal 3: Ensure safe and cost-effective long-term disposal capacity. 	<ul style="list-style-type: none"> 10 Reduce residential waste 50% by 2040. 11 Convert municipal solid waste fleet to low-emission vehicles by 2030. 12 Adopt Long Range Solid Waste Plan in 2020.

Implementation

The city and the Youth, Equity, Transportation, Building Optimization, Materials Management, and Energy Transition community working groups will work together to implement HCAP.

An example of a city action to advance Energy Transition is goal E1.1.3: "Develop and enforce standards to accommodate solar and battery installation in new commercial and industrial buildings"

An example of a working group action to advance curb Transportation emissions is Goal T1.1.3: "Work with EVolve Houston Coalition to advance EV awareness, availability, and affordability across public and private sectors"

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This two-pager is a condensed version of the Houston Climate Action Plan for Houstonians, ensuring greater accessibility without compromising accuracy. In addition, the two pager is also available in Spanish and was distributed at specific events.