HOUSTON-GALVESTON AREA COUNCIL

Cloverleaf Livable Centers Study

FINAL REPORT | MARCH 07, 2023

prepared by

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EXECUTIVE SUMMARY

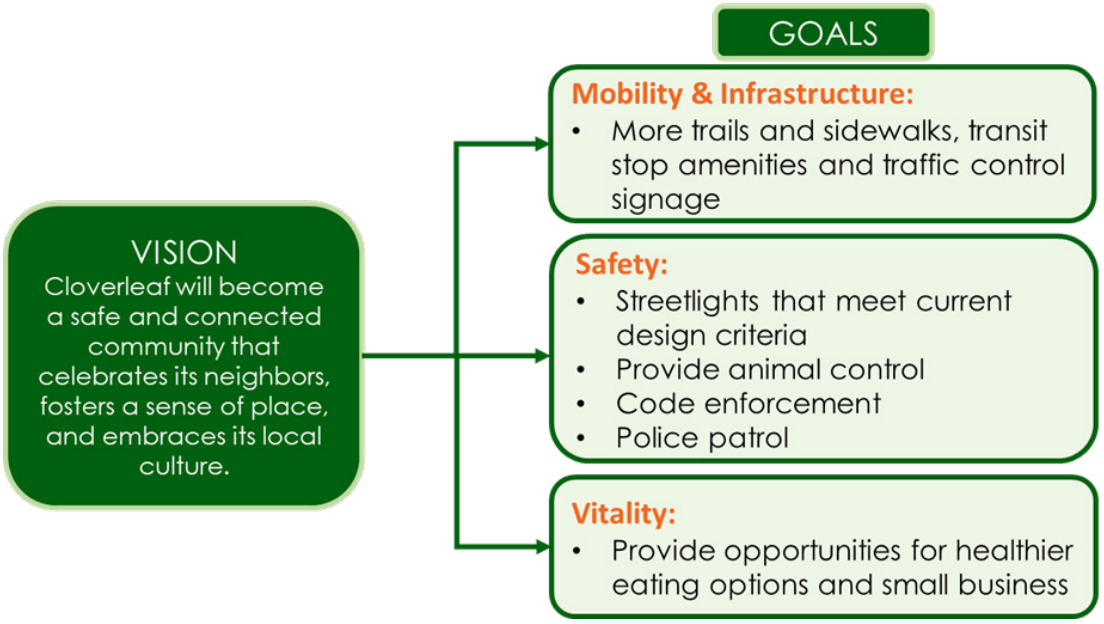
Overview

Cloverleaf is a 2.3 square mile community located in east Harris County, and is home to 28,831 people, with over 75% of residents identifying as Hispanic/Latino. Cloverleaf also has over 7,000 households, and is densely populated with 7,878 people per square mile. By comparison, the City of Houston has a population density of 3,598.4 people per square mile. Once just a plot of land bought by The Nadolney family in 1935, Cloverleaf grew into a young and thriving community. From 1935 to the 1950's Cloverleaf became a fast-growing and successful community with hundreds, if not thousands of new homes and businesses including 14 churches, a number of "mom and pop" shops, gas stations, restaurants, and more. One of the most important elements of Cloverleaf's history is the cultural change that has occurred over the last 40 years. In the span of a single generation, Cloverleaf has changed from a community inhabited almost entirely by white residents to one dominated by Hispanic residents. There is a lack of sidewalks, speeding, signage, and lighting contributes to the overall need for a sense of connectivity and safety within the community.

The Cloverleaf Livable Centers Study, initiated by the Houston-Galveston Area Council of Governments (H-GAC) and Harris County PCT 2 Commissioner Adrian Garcia, seeks to improve connectivity and mobility, stimulate equitable economic development, and create a better quality of life for Cloverleaf residents. This 10-month study effort, with multiple presentations, public engagement events, and project reports, was developed to investigate the possible development of an array of housing options, retail/office, and civic destinations within walking distance.

Goals

Prior to the beginning of this study, H-GAC and the Project Management Team (PMT)were strategic with the approach, stating how imperative it is for the community to not only have a role in enhancing their community, but to also ensure the vision and goals matched Cloverleaf's needs. With the help of multiple community stakeholders and public influence, the team worked to develop vision and goals, as shown below.



These goals will help contribute to a safer environment and connectivity for residents, but this project will serve as the foundation for Cloverleaf to make significant progress by creating improvements to landmarks, mobility connectivity, community health, and potential future investments. The recommendations in this study will improve the quality of life for the Cloverleaf community.

EXECUTIVE SUMMARY

Process

The 10-month long project commenced in May 2022 which entailed multiple public meetings and Task Force meetings. The PMT held four Task Force Meetings and four Community Meetings in efforts to engage with the public and stakeholders. The first Task Force and Community Meetings were held to discuss data collection techniques and analyze the existing conditions report for Cloverleaf. Task Force Meetings #2 and #3, and Community Meeting #2 were organized to discuss input received from the community, including public concerns, opportunities, produce the goals and vision of the study, and alternative design concepts.

To conclude the efforts, the Project Team held two final Community Meetings at key locations where Cloverleaf residents gather. Partnering with Cloverleaf Elementary School, Community Meeting #3 was held at Cloverleaf Elementary after a Parent-Teacher Association meeting. The fourth and final community event took place at North Shore Rotary Park on a Saturday. In both instances, the PMT showcased the final selection of projects and policies. School parents, children, and residents had the opportunity to provide valuable feedback and to speak with the PMT in person regarding the effects the plan will have on them and their families.

Project Overview

Within the past several months the PMT and the public's influence has created 15 short-term, mid-term, and long-term project recommendations to enhance the connectivity and mobility of the community. Short-term recommendations are intended to be constructed within 5 years, mid-term recommendations within 6-10 years, and long-term recommendations at more than 10 years for completion. This includes enhancing transit stops, creating future trails, and enhancing the image of the community by installing creative crosswalks and murals. Additional recommendations were made to enhance the safety components within the Galena Park Independent School District (Galena Park ISD), such as creating safe routes to school plans, roadway reconstruction, installation and upgrade of all street lighting, and construction of multi-use trails.

The list of recommended projects, as well as a price breakdown for each project type, is shown below. For more information please visit www.hcp2.com/Projects/Cloverleaf-Study.

Short-Term Projects (0-5 yrs)

1. Safe Routes to School – build treatments to provide children more comfortable and safer access to their schools.
2. Sidewalk Construction – construct sidewalks in coordination with the Harris County Flood Control District (HCFCD).
3. Safety Improvements – install quick-build safety improvements in roadways and at intersections to reduce crashes.
4. Evaluation of adding a transit route along alderson street
5. Drainage Improvement Project – incorporates construction of sidewalks in coordination with HCFCD on their drainage improvement project.

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Mid-Term Projects (6-10 yrs)

6. Construction of a multi-use trail along the HCFCD ditch.
7. Ironwood Multi-Use Trail – construction of a linear park from Frontage Road to Hillsboro Street.
8. Pedestrian Bridge Connections – construction of pedestrian-only bridge connections in key areas across the HCFCD ditch.
9. Safety Improvements – upgrade of previous quick-build treatments to permanent materials.
10. Community Loop Safety Enhancement – construction of remaining sidewalk segments to complete the community loop, including traffic calming treatments.

Long-Term Projects (10+ yrs)

11. Barbara Mae Boulevard Collector Reconstruction – new pavement, curb and gutter, underground storm sewer system, and sidewalks.
12. Alderson Street Collector Reconstruction
13. Construction of Multi-Use Trail – trail connecting the recently constructed Carpenters Bayou Trail to the HCFCD ditch.
14. Roadway Reconstruction – reconstruction of all local streets, providing sidewalks on both sides.
15. Frontage Road Multi-Use Path – construction of an 8-foot-wide multi-use path along the IH 10 frontage road.

SHORT-TERM

Project	Cost Estimates
① Safe Routes to School	
School Zone Extensions	----
Multi-Use Trail	$200K
Quick-Build Safety Improvements	$50K
② Sidewalk both sides of roadway	$24M
③ Safety Projects	$500K
④ Evaluate adding a transit route along Alderson Street	$50K
Restripe stop bars and crosswalks	$750K
Install all street lights missing at intersections	$500K
Develop safe routes to school plan	$50K per plan

Total $26.1M

MID-TERM

Project	Cost Estimates
⑥ Harris County Flood Control District Ditch Multi-Use Trail	$1M
⑦ Ironwood Multi-Use Trail Including Linear Park	$2M
⑧ Pedestrian Bridge Connections	$750K per bridge
⑨ Safety Projects	$500K
⑩ Community Loop sidewalk on both sides of roadway	$7.6M
Install and upgrade all street lights in neighborhood to meet current design standards	$8M
Install identified safe routes to school plan infrastructure	$500K

Total $20.35M

LONG-TERM

Project	Cost Estimates*
⑪ Barbara Mae Boulevard Collector Reconstruction	$10M
⑫ Alderson Street Collector Reconstruction	$7M
⑬ Harris County Flood Control District Ditch Multi-Use Trail	$500K
⑭ Total Roadway Reconstruction	$207M
Swale and sidewalk for all roadways both sides	$200M
⑮ Frontage Road Multi-Use Path	$1M

Total $18.5M

*Costs do not include the total roadway reconstruction.

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Project Recommendations Estimated Cost

In addition to the recommended projects, the project team developed a list of policy recommendations to enhance the safety and look of Cloverleaf. These policy based projects were evaluated to help fast-track identified infrastructure improvements and address some quality of life concerns expressed by the community.

Policy Recommendations:

- ***Lower Speed Limits***: implement 20 mph speed limit on all roads and reduce the school zone speed limit to 15 mph.
- ***Illegal Dumping***: implement additional bulk items and brush days. Create hazardous materials drop off locations within the community.
- ***Safety***: implement a sheriff's bicycle patrol unit expanding to all trail locations.
- ***Animal Control***: increase animal control presence by implementing mandatory spay/neuter and microchips policy, as well as providing additional funding for staffing the Harris County Pets facility. Additional funding will enable staff to operate the spay/neuter bus five days a week, as well as hire much needed staff.
- ***Complete Streets Engineering Standards***: Add an additional chapter in Harris County's Engineering Design Construction Standards to include traffic calming measures.

Additionally, a list of creative placemaking opportunities was developed to help create the sense of place in the neighborhood. Creative placemaking seeks to animate public and private spaces and rejuvenate structures. Below is a list of various locations, as well as the phases, that offer the most immediate impact from placemaking.

- North Shore Rotary Park (Short-Term)
- Transit Stops (Mid-Term) – several bus stop locations throughout the community.
- Gateway Art (Mid-Term) – underpass at IH 10 at Freeport Street.
- Sculptures and installations along future trails and vacant lots (Mid-and Long-Term).
- Art Park (Long-Term) – an art park can be created at the underpass that intersects with the cemetery near IH 10 and Beltway 8.

With all these identified projects in the horizon, the intent of this report is to help guide the County in developing actionable work program that can create a greater living experience for the Cloverleaf community. Cloverleaf has endless possibilities with the help and funding from Harris County and H-GAC and dedication of the residents to show support, we can make the project's vision, and goals a reality.

PROJECT OVERVIEW

Study Purpose

The H-GAC's Livable Centers Program seeks to facilitate the creation of walkable, mixed-use places that provide multimodal transportation options, improve environmental quality, and promote economic development. Studies create the groundwork for future implementation projects by identifying potential investments and generating implementation designs and plans. The Program aims to deliver implementable ideas that capitalize on a community's existing opportunities while remediating long-standing challenges.

The Cloverleaf Livable Centers Study was initiated by Harris County PCT 2 and the H-GAC to understand and address the existing and future multimodal infrastructure needs surrounding the Cloverleaf neighborhood. The vision of the Study is to create a safe, well-connected, walkable, and accessible neighborhood that is transportation-focused and forward-thinking. With this vision at the forefront, the Cloverleaf Livable Center Study vision statement is:

*Cloverleaf will become a **safe** and **connected** community that **celebrates** its **neighbors**, fosters a sense of place, and embraces its local culture.*

Study Area

The Cloverleaf neighborhood is in unincorporated Harris County, with approximately 29,000 residents. The neighborhood has a land area of approximately 2.3 square miles. The study area is defined by Alderson Street to the north, IH 10 to the south, the Sam Houston Tollway to the east, and Evanston Street to the west, as illustrated in Figure 1.

Figure 1: Study Area Map

Project Goals

One of the goals of this study is to identify impactful projects in the Cloverleaf neighborhood to help create equitable outcomes of investment for the community. A list of goals was developed based on previous community plan recommendations and feedback from the various community meetings and events.

Mobility and Infrastructure:

The study goal of Mobility and Infrastructure seeks to provide opportunities for multimodal transportation options that provide a safe, walkable environment to major destinations throughout the community. This will include enhancing infrastructure while maintaining Cloverleaf's character by implementing branding elements, amenities, and streetscape improvements to create a sense of place and promote walkability.

> More trails and sidewalks
> Increase transit stop amenities
> Increase traffic control signage

Safety:

The study goal of Safety seeks to improve the livable experience of the community by fostering a safe and inclusive environment. This is supported by infrastructure and policy enhancements that provide safe scenarios for all forms of active travel around Cloverleaf.

> Streetlights that meet current design criteria
> Provide animal control
> Code enforcement
> Police patrols

Vitality:

The study goal of Vitality seeks to create and restore opportunities and prosperity for the small businesses in the community. These community-based small businesses will serve as anchors and catalysts for new businesses and activity, while at the same time, enhancing the neighborhood's unique character and preserving its history.

> Provide opportunities for healthier eating options and small business

Project Timeline and Process

The project process began in May 2022. Shortly after the kick-off meeting, a Task Force group composed of residents and organizations ingrained in the neighborhood and was developed to guide the project team on study goals, key community issues, and identify the projects in this plan.

The 10-month process also included public outreach. Four public meetings were held, and the attendees had the opportunity to give feedback on the goals and the projects. Other ways the team reached people that live, work, and visit Cloverleaf was through an online survey, water bill inserts, and attendance to organized community events.

Figure 2 illustrates the project timeline and process that was conducted. The following chapter provides explanation of the public engagement that was held for this study.

Figure 2: Project Timeline and Process

PUBLIC ENGAGEMENT

Having a well thought out public engagement plan ensures the study develops realistic and implementable projects that reflect the true needs of the community. There were a variety of engagement strategies and groups for the study. The Cloverleaf neighborhood has a large number of non-English speaking residents. Therefore, it was important that the project team deploy strategies that reached these specific households and that the team was prepared to communicate with residents in their preferred language. Not only was all material created in English and Spanish, but all events also had live translation and were equipped with project members that were bilingual.

East Side Riders Bicycle Group

Community Task Force

As part of the study's outreach efforts, a Community Task Force was formed. The Community Task Force was composed of 61 individuals from 32 organizations. Community Taskforce members include:

Name	Title	Company
Bianca Reyes		Light of Houston Bilingual Academy
Bill Anders	Commissioner	Harris County ESD 12
Bill Palko		North Shore Rotary
Carlos Garza	Group Leader	East Side Riders Cycling Club
Celia Garcia		HCWICID #36
Chantal Robinson		HCWICID #36
Charles Grant		North Shore Rotary
Charlotte Jackson		Baldree Empowerment Council
Colleen Gilligan-Gilbert		Greens Bayou Coalition
Cristina Peña		HCWICID #36
Danielle Lozano		Pineforest Jewelry
Deputy Tommy Berry		HCSO-PCT. 2 Liaison
Dorlee Vargas		
Dr. John Moore	Superintendent	Galena Park ISD
Ed Russell	Fire Chief and Business Administrator	Harris County ESD 12 Fire Department
Erika Garza		La Michoacana Meat Market
Gabriella Crain	Executive Assistant	HCWICID #36
Garret C. Berg	Manager Community Relations	Port Houston
Jaime Arroyo	Pastor	CFC Zion Church
Janeen Spates		Harris County Community Services
Jason Moreno		Harris County Community Services
Jeff Hubbard		Hubbard Electric
Jeffrey English	Planner	TxDOT
John Whitaker		Elevated Asset Management, LLC

PUBLIC ENGAGEMENT

Name	Title	Company
JoMarie Flores		Vazquez Funeral Home
Karla Green		Baldree Empowerment Council
Ken Fickes	Director	HCTD
Kristina Zatopek	Community Engagement Manager	Harris County Cultural Arts Center
Lavada Varner		
Lee Brown	Principal	Galena Park ISD Cloverleaf Elementary
Luz Lopez	Cloverleaf Resident	Community Advocate
Major David Jones		PCT 3 Constable Sherman Eagleton
Margie Buentelo	President and CEO	North Channel Area Chamber of Commerce
Maria Aguirre	Director Community Relations	Port Houston
Maria Marial		
Marshall Hutton	Assistant Fire Chief	Harris County ESD 12
Michelle Bonton	Executive Director	Harris County Cultural Art Center
Michelle Cavazos	Principal	Galena Park ISD Sam Houston Elementary
Mini Izaguirre	Dean Administration	San Jacinto College North
Noel Perez		Oak Street Health
Patty Montroy		Montroy Sheet Metal Inc.
Paul Drexler	Executive Director of Operations	Galena Park ISD
Paul LaChapelle	Manager	Harris County PCT 2 Baldree Community Center
Paul Weisser	Assistant Director	HCTD
Regina Duncan	Manager	HCWICID #36
Rhonda Lee		Carter/Connelly Funeral Home
Rick Montroy		Montroy Sheet Metal Inc.
Roland Hobbs	Director	North Channel EMS
Ronald S. Holder	Board of Director	HCWICID #36
Sergeant Donnie Williams		HCSO/Community Engagement
Sergeant Nicholas Powell		HCSO-CPOP
Sydni Ligons		H-GAC Transportation
Tamara Monroy		
Terence T. Narcisse	Founder and Executive Director	East Harris County Empowerment Council
Thien Cao	Grants and Planning Manager	HCTD
Tiffany Burton		San Jacinto College North
Vanessa Vega-Barreto	Community Relations Coordinator	Port Houston
Victoria Lara	Economic Development Director	Harris County PCT 2 Commissioner Adrian Garcia
Walter Peacock		Harris County Community Services
Wayne O'Quinn	Director for Education Foundation	Galena Park ISD
Yolanda Arguelles		San Jacinto Funeral Home

Task Force Meetings

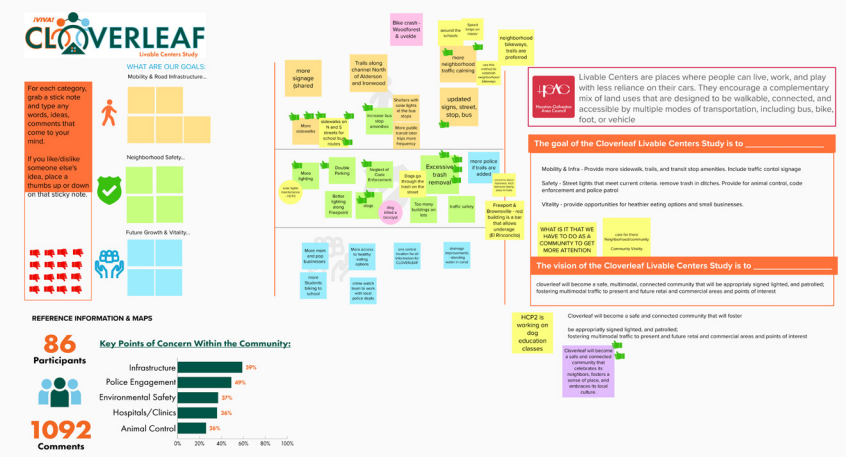
> Task Force Meeting #1 – June 23, 2022

> Task Force Meeting #2 – September 22, 2022 (Virtual)

> Task Force Meeting #3 – November 29, 2022 (Virtual)

> Task Force Meeting #4 – February 7, 2023 (Virtual)

The first meeting was held in-person at the Leon Z. Grayson Community Center and the other three were held virtually. Task Force members were sent email invitations. The Task Force was encouraged to give feedback interactively through a whiteboard exercise utilizing a web-based platform called 'Mural' designed to help groups visually collaborate and brainstorm ideas. The second meeting was to go over issues and opportunities and develop goals for the study and a vision statement. A complete summary of each meeting can be found in Appendix A.



Mural Exercise at Virtual Task Force Meeting

Mini murals on traffic signal control cabinets throughout Cloverleaf

Murals on public buildings and infrastructure

Community Meetings

The project team hosted four community meetings for this study. The first two public meetings were held at the Leon Z. Grayson Community Center while two of the final project meetings were held at Cloverleaf Elementary and North Shore Rotary Park. The purpose of the first round of outreach was to collect and gather feedback about how residents moved around the neighborhood, their preferred destinations, their perceived transportation and mobility issues, what they liked about their community, what they would like to improve, and the community's health concerns. The map in Figure 3 represents how participants provided feedback on areas of concern including flooding, where they live, play, work and run errands, and on locations where they feel safe or unsafe with in the community.

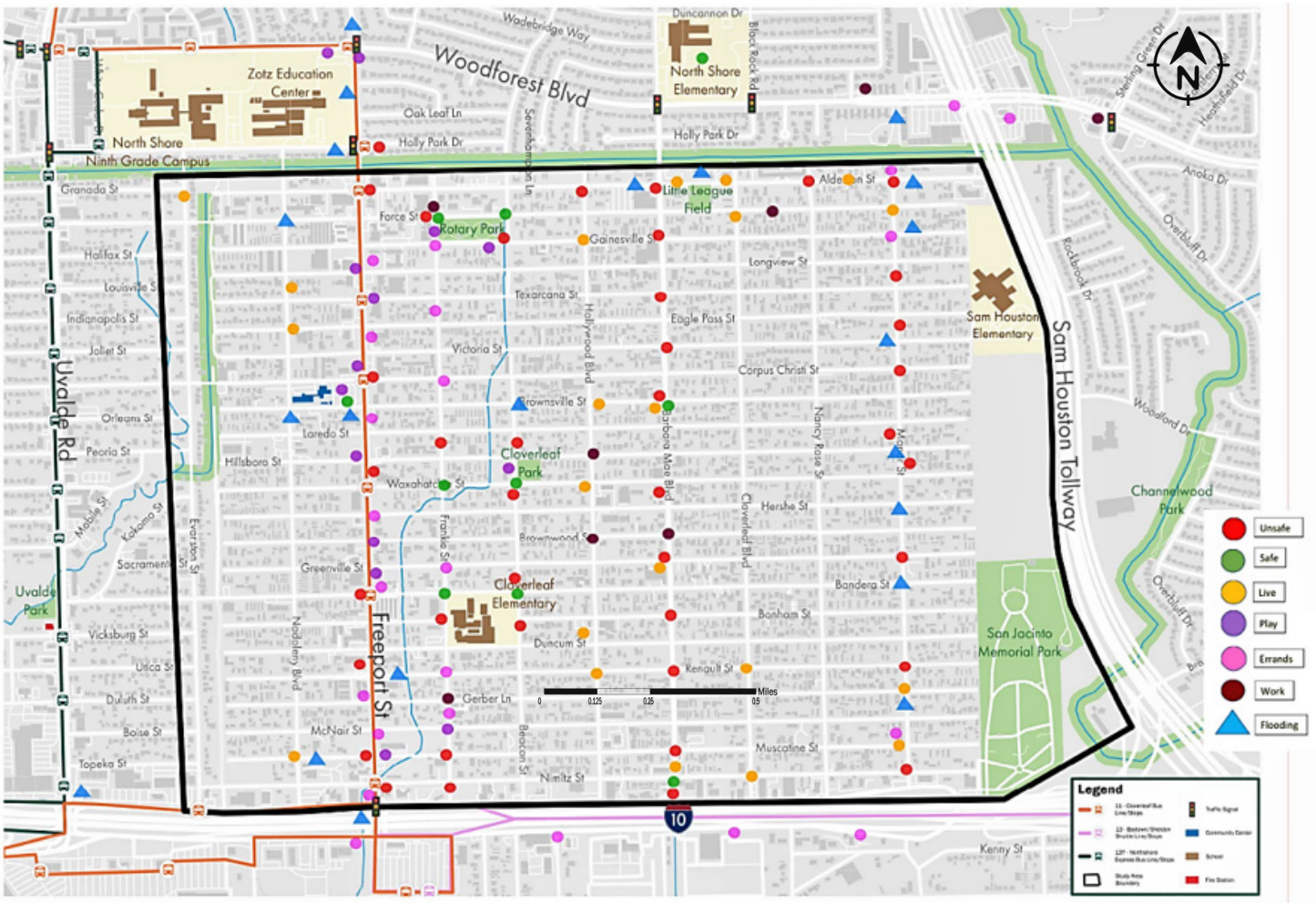


Figure 3: Community Engagement Map Exercise

The purpose of the second round of outreach was to obtain input on the identified projects and implementation timelines. The purpose of the third round of outreach was to provide an overview of the identified recommended projects and implementation timelines that provide a strong starting point in identifying a combination of short-, mid-, and long-term initiatives that can improve the community through a better built environment. The last meetings focused on presenting a summary of revised concepts, project recommendations, and implementation timelines based on community collective feedback.

PUBLIC ENGAGEMENT

Methods the project team used to inform the community to these meetings include:

> More than 12,000 bilingual invitation fliers to residents within the study area through their local water bill with HCWICID #36.

> Packs of bilingual invitation fliers were handed out by the study team at the locations within the study area.

> Information was included on the Harris County PCT 2 webpage (www.hcp2.com/Projects/Cloverleaf-Study)

In addition, information about the Community Meetings was shared through social media by Harris County PCT 2, Cloverleaf Elementary School, the study Task Force, members of the community, and agency partners. members of the community, and agency partners. A complete summary of each meeting can be found in Appendix A.

Community Meetings

> Community Meeting #1 – July 12, 2022

> Community Meeting #2 – December 13, 2022

> Community Meeting #3 – February 23, 2023

> Community Meeting #4 – February 25, 2023

Interactive Community Meeting

Interactive Community Meeting

Interactive Community Meeting

Interactive Community Meeting

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PUBLIC ENGAGEMENT

Focus Groups

To help supplement information received from the public, two focus group meetings were held before finalizing the Existing Conditions report. These focused discussions were an opportunity for the project team to hear directly from a special group of residents about the issues they encounter in the neighborhood.

The first was a Walkable/Bikeable community meeting held in July 2022 at the Leon Z. Grayson Community Center for residents of all ages in the Cloverleaf community that prefer or wish to walk and/or bike around the neighborhood. Attendees were asked to share their thoughts on ways to improve pedestrian and cyclist connectivity and mobility.

The second focus group meeting was with Cloverleaf senior residents in July 2022. The project team facilitated open-ended conversations by having the senior resident's comment on study area maps specific problem areas and locations where recommendations could have the most beneficial impact for the community.

In addition, a total of five individuals attended the Walkable/Bikeable Community Meeting in addition to six study team members.

Bike and Walk Meeting

Senior Focus Group

Community Health Survey

As part of the initial community engagement efforts, a health survey was completed by 39 residents and Task Force members. The survey was developed to better understand residents' health concerns in Cloverleaf and what aspects of the community are negatively impacting their health, but it also sought to uncover some strengths of the community that could be drawn upon for health resources. Respondents were 50% Hispanic/Latino, 29% White, 16% Black, and 4% Asian/Pacific Islander. Majority were female (67%) and were from various age groups with 36% 65 years or older, 28% between 45-64 years, 24% between 25-44, and 12% between 18-24 years.

When asked what the three main health concerns of the residents were, almost one-quarter of the responses were focused on crime and safety issues. This was followed by infrastructure needs, environmental concerns, the need for animal control and lack of healthcare facilities and services.

Crime issues ranged from a general lack of safety, lack of police presence, and concerns around gun violence and drug use. Environmental concerns focused on air quality and pollution, drainage and flooding, and neighborhood nuisance issues. Many of the nuisance concerns were on heavy trash and dumping in the open drainage ditches, which has implications for flooding and cleanliness. Lastly, stray dogs, the need for animal control services, and the closing of the local health clinic were major concerns of the residents.

Many of these concerns were supported by responses to additional questions in the health survey. In response to the question of "what is preventing you from living a healthier life in Cloverleaf?" The top three responses were public safety and crime, environmental issues (air quality, flooding, heavy trash), and lack of sidewalks and bike lanes. Additionally, when asked what barriers were preventing walking or biking, the top responses were violence or crime, stray dogs, no sidewalks or poor-quality sidewalks, and no bike lanes.

Figure 4: Community Health Survey Responses

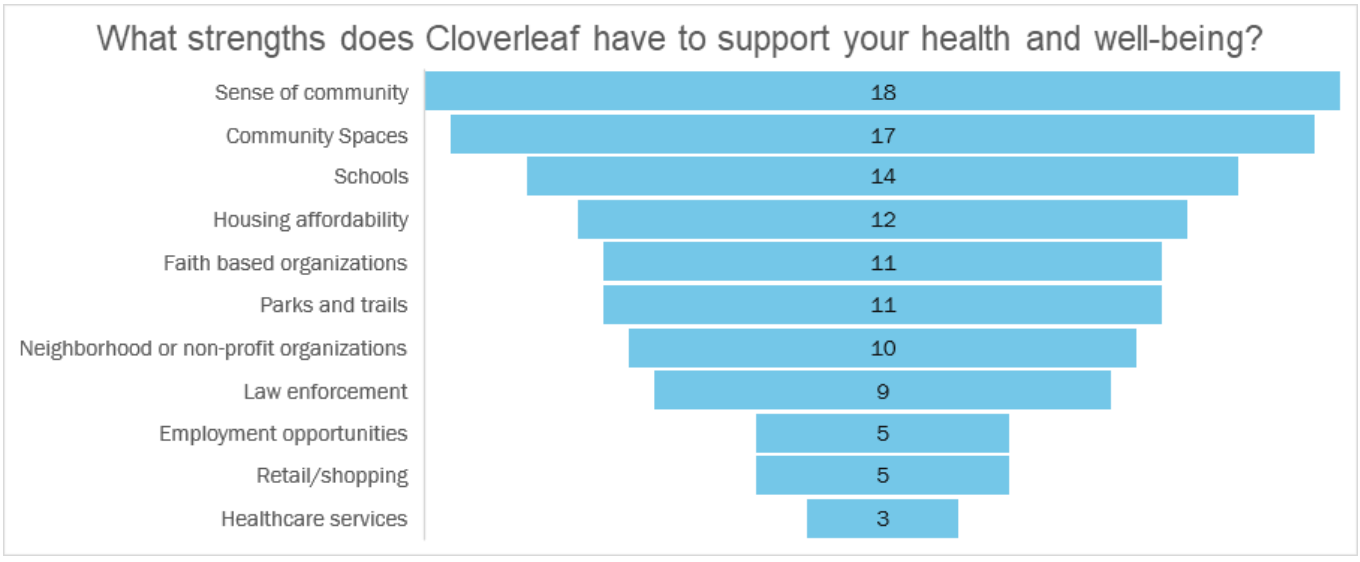


Figure 5: Community Strengths Survey Responses

Overview

The purpose of the existing conditions analysis is to highlight the historical context, existing resources, gaps and identify opportunities and challenges that could be addressed in the final recommendations. The in-depth area analysis involved data collection from various sources, discussions with community members and field research. More detailed community information can be found in Appendix A – Existing Conditions Report.

I. Neighborhood Context

Area Size

Cloverleaf is a community located in east Harris County PCT 2, just north of the Houston Ship Channel. The area is bounded by IH 10 to the south, Beltway 8 to the east, Alderson Road to the north, and Evanston Road to the west and is 2.3 square miles. The Cloverleaf community was designated as target area by the U.S. Department of Housing. This designation is given when 51% or greater of a community's residents earn a low-to-moderate income.

Figure 6: Study Area Map

Population

According to the U.S. Census Bureau American Community Survey 2015-2019, 5-Year Estimates, the Cloverleaf community has a population of 28,831, and it is densely populated with 7,877 people per square mile. By comparison, the City of Houston has a population density of 3,598.4 people per square mile.

Neighborhood History

R.F. Nadolney purchased 200 acres of Houston Manor, previously the Greens Bayou Homesite, in February 1935. The Nadolney family platted and began construction of houses and carried the notes on the houses. The first 200 acres yielded 48 blocks with 24 to 26 lots per block for residential and commercial development. Because this community was developed in a rural setting and away from Houston proper, the streets were narrow and ditches on each side of the roadways were used to convey storm water.

In the mid-1930s, the main thoroughfare was Market Street, now known as IH 10. East/west streets were numbered, and north/south streets were named after Nadolney family member's favorite places. By June 1945 R.F. Nadolney had purchased a total of 1,000 acres and started the development process for nearly 6,000 lots of land.

Nadolney's company, Clover Leaf Farms, had an office at 6903 Harrisburg. Cloverleaf became a fast-growing and successful community. Businesses sprouted along Market Street fueled by the nearby Brown shipyard and a military munitions facility. Blue collar workers flocked to the "mom and pop" grocers, gas stations, and beer joints. In addition to the hundreds of new homes and new businesses, 14 churches were founded in the community

In the early 1950s, Market Street became State Highway 73. This was the first major alternate to State Highway 90 as a route into Houston. East/west street names in Cloverleaf were changed from numbers to match the street names of the Denver Harbor community.[1] The original final plat for the Cloverleaf Community was recorded in Harris County in 1941. In the 1950s the residents of Cloverleaf developed a water district. Construction was completed on the toll highway Beltway 8 in 1994.

One of the most important elements of Cloverleaf's history is the cultural change that has occurred over the last 40 years. In the span of a single generation, Cloverleaf has changed from a community inhabited almost entirely by white residents to one dominated by Hispanic residents. Revitalization in Cloverleaf has been an ongoing effort for the past 15 years. Harris County funding and other local funding have contributed to the revitalization of Cloverleaf's housing stock and infrastructure, yet there is still considerable work yet to be done with an increasing population density putting a strain on aging infrastructure.

Health in All Policies (HiAP) is a collaborative approach to improve populations health and well-being by incorporating health considerations into decision-making across sectors and policy areas. This plan includes a unique health lens provided by Harris County Public Health to ensure a HiAP approach is taken. Throughout this document there are call out boxes labeled "Public Health Focus" which provide a deeper insight into the health impacts of the various topics being discussed and how they are related to the community.

[1]Harris County Community Services Department (2019). Cloverleaf Concerted Revitalization Area (CRA) Plan https://csd.harriscountytx.gov/Documents/Cloverleaf.CRA%2009%2004%202019.pdf

II. Socio Demographics

Age

The Cloverleaf community has a relatively younger population. The median age is 30.4 years. The median age of the City of Houston population is 33.3. Cloverleaf's older population (65 years of age and older) is 7.8% compared to the 11% of the City of Houston population.[2,3]

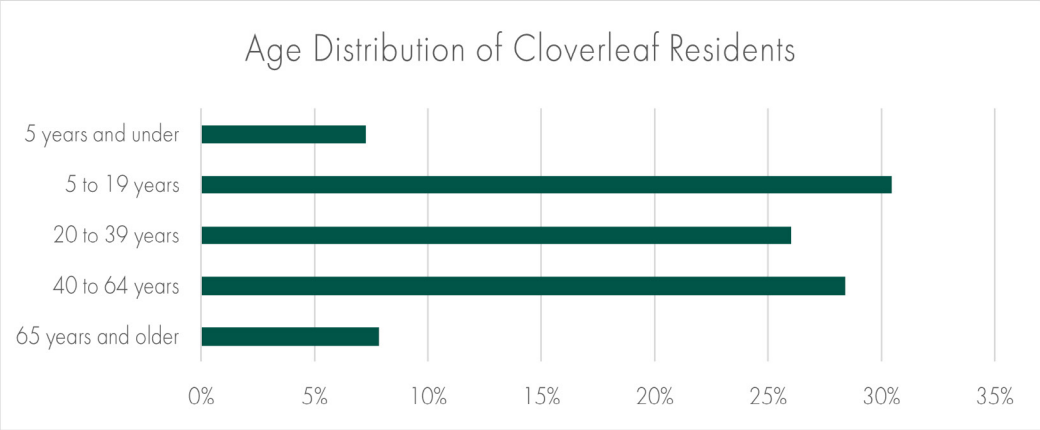


Figure 7: Age Distribution Of Cloverleaf Residents, Source: 2020 ACS 5-Year Estimates Data Profiles

Income

Cloverleaf has a lower median income than that of the City of Houston. Houston's median household income is approximately $53,600, while the Cloverleaf's median income is $49,276. However, at 27.8%, the poverty rate in Cloverleaf is significantly higher than that of the populations of Houston's with a 19.6% poverty rate.[4,5]

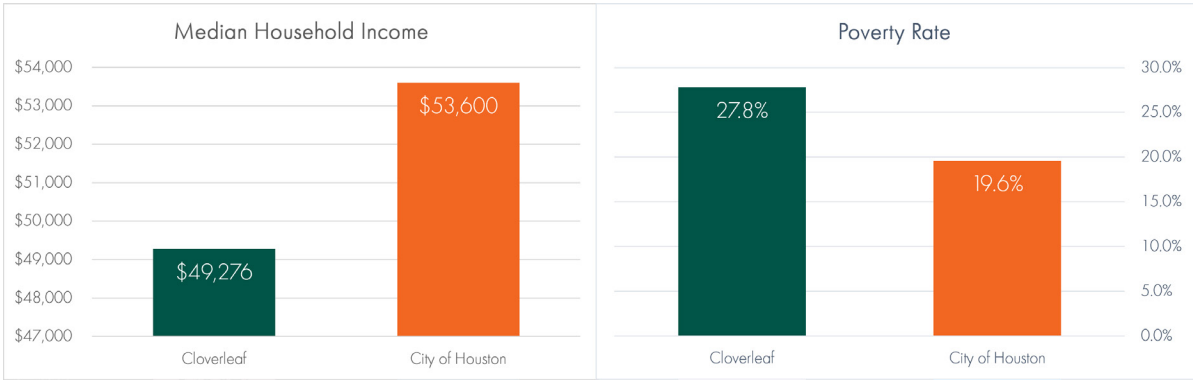


Figure 8: Median Household Income Related To Poverty Rate, Source: 2020 ACS 5-Year Estimates

[2] U.S. Census Bureau (2020). Age and Sex, Table S0101, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=ACSST5Y2020.S0101

[3] U.S. Census Bureau (2020). Age and Sex, Table S0101, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=ACSST5Y2020.S0101

[4] U.S. Census Bureau (2020). Income in the past 12 months, Table S1901, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=ACSST5Y2020.S1901

[5] U.S. Census Bureau (2020). Income in the past 12 months, Table S1901, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=ACSST5Y2020.S1901

Level of Education

In the population group of 25 years of age and older, Cloverleaf has a higher level of high school education attainment – 27.6% versus 22.1% – compared to the City of Houston. Interestingly enough, Cloverleaf also has a higher share of members with some college degree and almost the same levels of an associates degree as Houston; however, Cloverleaf community members attainment of post-secondary education at rates notably less than their peers in the City of Houston.[6,7]

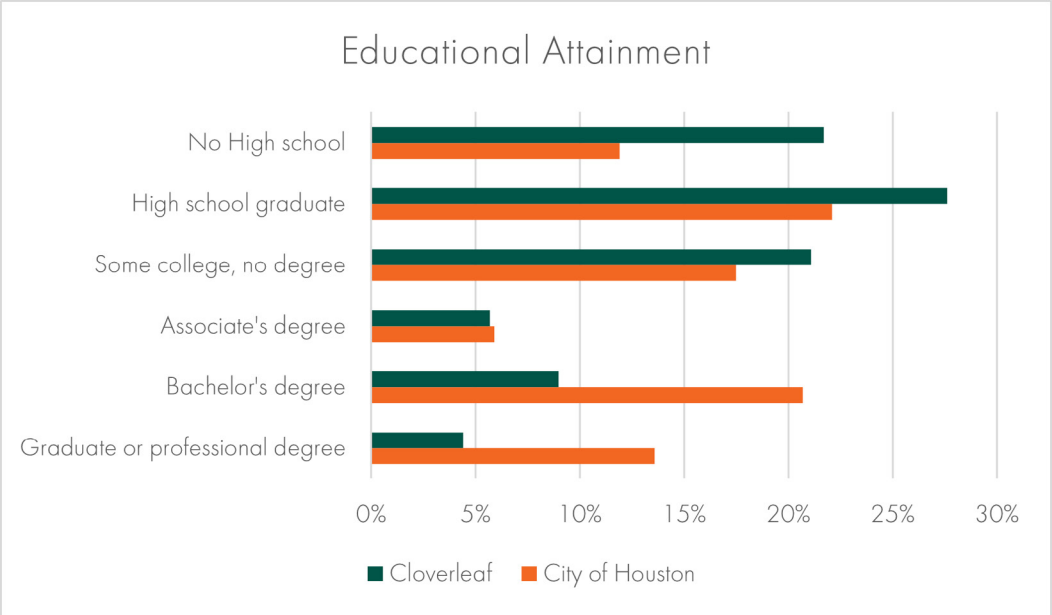


Figure 9: Educational Attainment, Source: 2020 ACS 5-Year Estimates

Public Health Focus

Generally, median annual income increases with higher levels of educational attainment. Access to quality education creates a pathway to better job opportunities with health insurance, paid leave, and retirement benefits. Individuals with at least a bachelor's degree are significantly less likely to experience unemployment, can maintain health insurance coverage, and are able to withstand the financial stresses from a loss of income.[8]

[6] U.S. Census Bureau (2020). Educational attainment, Table S1501, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=ACSST5Y2020.S1501

[7] U.S. Census Bureau (2020). Educational attainment, Table S1501, AmericanCommunity Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=ACSST5Y2020.S1501

[8] Baum, S., Ma, J., & Payea, K. (2013). Education pays: The benefits of higher education for individuals and society. The College Board. https://research.collegeboard.org/pdf/education-pays-2013-full-report.pdf Cohen, A. K., & Syme, S. L. (2013). Education: a missed opportunity for public health intervention. American journal of public health, 103(6), 997-1001

Growth Rate

Based on 2010 and 2020 US Census population data, the Cloverleaf community had a .50% annual growth rate over the 10-year period. In comparison, the City of Houston had a .98% annual growth rate over the same time period. Thus, the City of Houston population is growing at nearly twice the rate annually of the Cloverleaf community.[9,10,11,12]

The H-GAC 2040 RTP updates regional planning assumptions regarding future population and jobs. Population in households is estimated to grow from 5.8 million in 2010 to 9.6 million by 2040, an increase of 3.7 million of new-born, migrants and immigrants, or 64% of population growth for the next 26 years. Employment is estimated to grow from 2.7 million in 2010 to 4.2 million by 2040, an increase of 1.5 million of workers, or 53% total employment growth over the next 26 years.[13]

Household Size

The average household size of the Cloverleaf community population is 3.66 persons, which is .23% greater than the average household size of the City of Houston population at 2.61 persons.[14,15]

Race/Ethnicity

More than 75% of the Cloverleaf population identify as Hispanic and/or Latino, whereas 44.5% of the City of Houston population and 40% of the Texas population identify as such.[16,17,18]

[9] U.S. Census Bureau (2020). Race, Table P1, Decennial Census Redistricting Data. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=DECENNIALPL2020.P1
[10] U.S. Census Bureau (2020). Race, Table P1, Decennial Census Redistricting Data. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=DECENNIALPL2020.P1
[11] U.S. Census Bureau (2010). Race, Table P1, Decennial Census Redistricting Data. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=DECENNIALPL2010.P1
[12] U.S. Census Bureau (2010). Race, Table P1, Decennial Census Redistricting Data. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=DECENNIALPL2010.P1
[13] Houston Galveston Area Council (2016). Regional Transportation Plan (RTP). https://www.h-gac.com/getmedia/b6dc64b9-f5ea-4e7e-b708-38f64d15eccd/2040-RTP-revised-April-2016.pdf
[14] U.S. Census Bureau (2020). Households and Families, Table S1101 American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=DECENNIALPL2020.P2
[15] U.S. Census Bureau (2020). Households and Families, Table S1101 American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=ACSST5Y2020.S1101
[16] U.S. Census Bureau (2020). Race, Table P1, Decennial Census Redistricting Data. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=DECENNIALPL2020.P1
[17] U.S. Census Bureau (2020). Race, Table P1, Decennial Census Redistricting Data. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=DECENNIALPL2020.P1
[18] U.S. Census Bureau (2020). Hispanic or Latino, and Not Hispanic or Latino by Race, Table P2, Decennial Census Redistricting Data. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=DECENNIALPL2020.P2

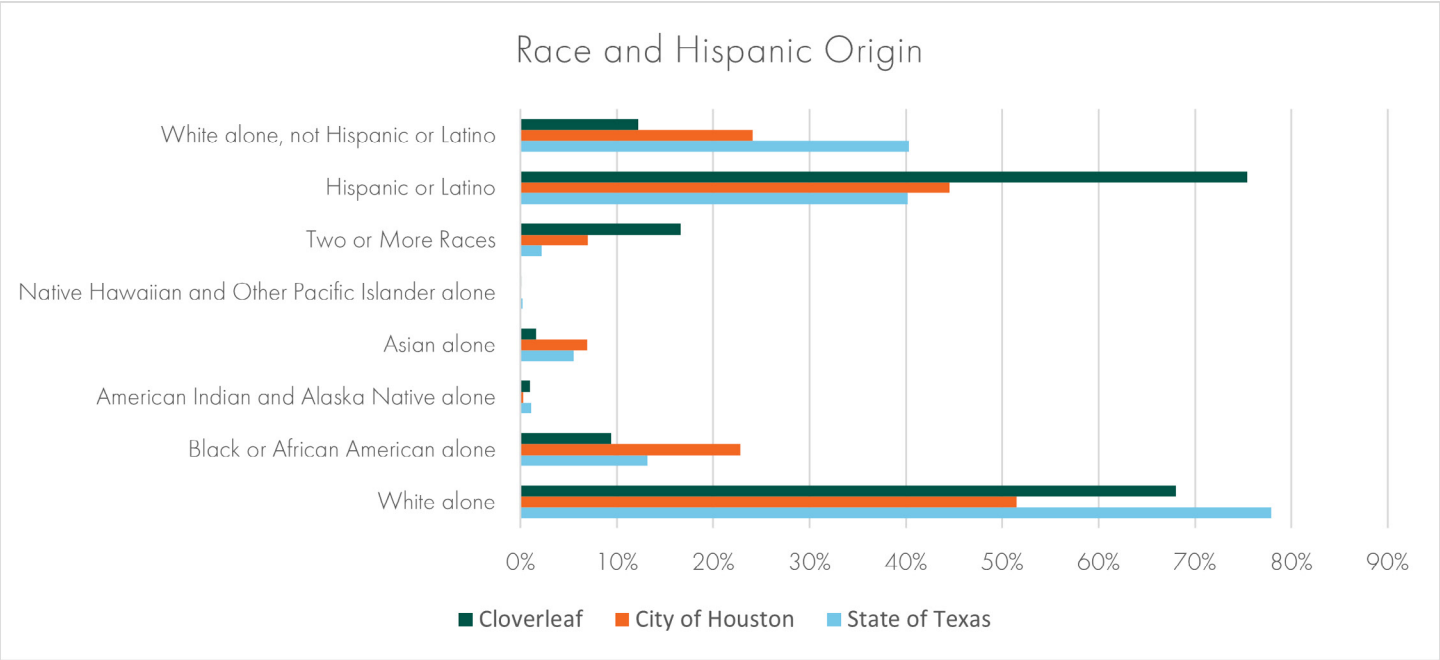


Figure 10: Race and Hispanic Origin, Source: 2020 Decennial Census

Household Language

The majority of households in the Cloverleaf community are Spanish speaking. 68.4% of the Cloverleaf community population speak a language other than English in their home, compared to the 48.4% of the City of Houston. English only is spoken in 31.6% of Cloverleaf households compared to 51.6% of the City of Houston's households.[19,20]

Disability Status

The population of people with disabilities in the Cloverleaf community is 9.5%, nearly 44% greater than that of the disabled population in the City of Houston at 6.6%.[21,22]

Zero Vehicle Households

Approximately 4% of the Cloverleaf community population does not have a car. This is half as much as the 8.5% of the City of Houston population that does not have a car.[23,24]

[19] U.S. Census Bureau (2020). Language Spoken at Home, Table S1601, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=ACSST5Y2020.S1601
[20] U.S. Census Bureau (2020). Language Spoken at Home, Table S1601, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=ACSST5Y2020.S1601
[21] U.S. Census Bureau (2020). Disability Characteristics, Table S1810, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=ACSST5Y2020.S1810
[22] U.S. Census Bureau (2020). Disability Characteristics, Table S1810, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=ACSST5Y2020.S1810
[23] U.S. Census Bureau (2020). Physical Housing Characteristics for Occupied Housing Units, Table S2504, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4815628&tid=ACSST5Y2020.S2504
[24] U.S. Census Bureau (2020). Physical Housing Characteristics for Occupied Housing Units, Table S2504, American Community Survey 5-year Estimates. Retrieved from https://data.census.gov/cedsci/table?g=1600000US4835000&tid=ACSST1Y2020.S2504

III. COMMUNITY HEALTH

Evidence shows that an individual's zip code is a stronger predictor of health than their genetics. The design of a community and built environment can impact health by influencing human behaviors and environmental exposures.[25] The built environment describes the man-made spaces that form a community such as buildings, roads, sidewalks, parks, schools, work sites, and homes. It can also encompass services provided to a community, such as public transportation, water, and sanitation. Access to parks and trails can influence physical activity and mental health, the presence of grocery stores improves access to affordable, healthy foods, and the presence of industry can potentially influence exposure to air pollutants. Overall, the quality of the built environment and where a person lives ultimately influences overall health and well-being.[26]

Historically, communities of color and lower socioeconomic status (SES) have experienced inequitable investment in their community infrastructure and services. The quality of the built environment is generally poorer and makes improving health and quality of life more difficult. For example, many low SES communities lack sidewalks, crosswalks, and lighting, or this infrastructure is outdated and poorly maintained. As a result, these communities face barriers to engage in physical activity and active transportation.[27] Therefore, the built environment is a key intervention area for improving health equity. Health equity is a state in which every person has the opportunity to attain their full health potential, and no one is disadvantaged from achieving this potential because of socioeconomic or environmental conditions. By investing in the built environment and improving community spaces to support and encourage healthy behaviors, health equity can be achieved and health outcomes can be improved in the most socially vulnerable communities.

SES is the combination of education, income, occupation, and other factors and is a predictor for overall wealth and social status. Historically, minority communities are more likely to experience low SES from lower educational attainment and employment access. Having fewer financial resources and limited to no health insurance coverage can result in reduced access to healthcare and poorer physical and mental health. This can perpetuate a cycle of economic instability, poverty, crime, and ultimately lead to shortened lifespan. Investing in communities to improve education and economic opportunities can increase SES for individuals and improve overall quality of life.

Chronic diseases, such as heart disease, diabetes, asthma, and obesity are the leading cause of death and disability in the United States. These chronic conditions are often preventable by engaging in healthy behaviors, like consuming a healthy diet, engaging in physical activity, and avoiding tobacco use.[28] Mental illness is a chronic disease that affects millions of people and has a direct relationship to physical and emotional well-being. Mental health conditions include anxiety, depression, mood disorders, and substance abuse issues.[29]

[25]Design for Health. (2017). Integrating Health into Comprehensive Planning. Retrieved from Resources: http://designforhealth.net/integrating-health-into-comprehensive-planning/

[26] Harris Cares, (2020). Harris Cares: A 2020 Vision of Health in Harris County. Harris County Public Health, Retrieved from: https://publichealth.harriscountytx.gov/Resources/Harris-Cares

[27] Thornton, C. M., et al. (2016). Disparities in pedestrian streetscape environments by income and race/ethnicity. SSM-population health, 2, 206-216.

[28] Centers for Disease Control and Prevention (2022). About chronic disease. National Center for Chronic Disease Prevention and Health Promotion. Retrieved from https://www.cdc.gov/chronicdisease/about/index.htm

[29] Texas Department of State Health Services (2019). Behavioral risk factor surveillance system (BRFSS) 2013-2017 Data file. Retrieved from: https://dshs.texas.gov/chs/brfss/default.shtm

Poor mental health can impair the ability to maintain good physical health or engage in healthy behaviors.[30] People with multiple chronic conditions have poorer overall health, utilize more health services, and spend more on health care.[31] It is estimated that chronic disease and mental health conditions account for 90% of the $4.1 trillion spent annually on healthcare.[32]

Although chronic diseases affect more than half the nation's population, there are definitive health inequities and disparities present in many communities. For example, low-income, Black, and Hispanic populations are at higher risk for many of these conditions, including high blood pressure, diabetes, and obesity.[33]

Cloverleaf Health Profile

The health profile for the Cloverleaf study area is concerning regarding the higher rates of chronic diseases, physical inactivity, and poorer health. As detailed in Figure 11, rates of chronic conditions like COPD, heart disease, asthma, and diabetes are elevated compared to the City of Houston and Harris County. A significant portion of residents in the study area are obese (41%), do not engage in physical activity (41%), and have higher rates of fair or poor health (38%). About 20% of the population suffers from depression and poor mental health. Obesity and physical inactivity have negative implications for preventing chronic diseases, maintaining a healthy weight, and improving overall physical and mental health.

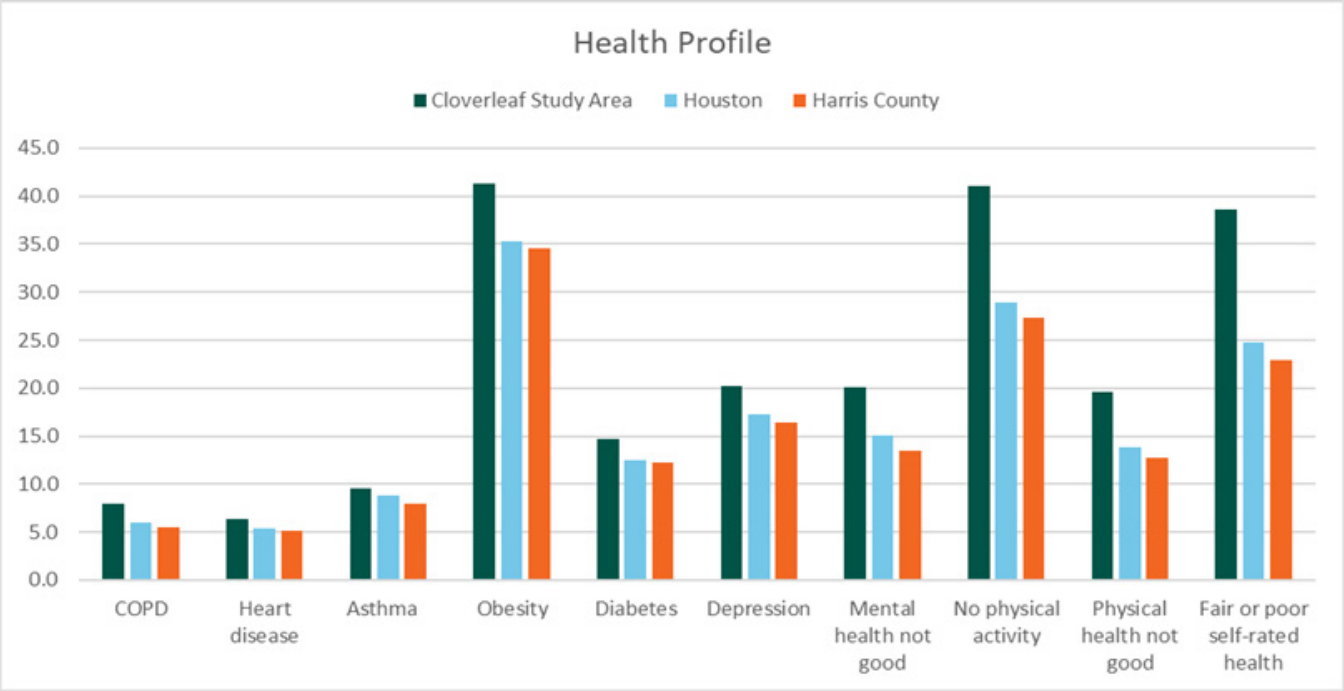


Figure 11: Health Profile, Source: 2019 BRFSS

Within the study area, 54% of residents do not have health insurance, compared to 33% in Houston and 34% in Harris County. Not having health insurance reduces access to health services for preventative and acute care and results in poorer health outcomes overall. Life expectancy in the study area is lower at 76 years compared to 78 years in Houston and Harris County. In 2020, the top three causes of death were heart disease, COVID-19, and cancer.

[30] Office of Disease Prevention and Health Promotion (2019). Mental health and health disorders. HealthyPeople2020. Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/ mental-health-and-mental-disorders

[31] Buttorff C, Ruder T, Bauman M. Multiple Chronic Conditions in the United States. Santa Monica, CA: Rand Corp.; 2017.

[32] Centers for Disease Control and Prevention (2022). Health and economic costs of chronic diseases. National Center for Chronic Disease Prevention and Health Promotion. Retrieved from https://www.cdc.gov/chronicdisease/about/costs/index.htm

[33] Price, J. H., Khubchandani, J., McKinney, M., & Braun, R. (2013). Racial/ethnic disparities in chronic diseases of youths and access to health care in the US. BioMed Research International, 787616. doi:10.1155/2013/787616

Neighborhood Safety

The long-term health consequences of exposure to crime and perceived lack of neighborhood safety can significantly reduce use of outdoor space, potentially resulting in less physical activity, higher BMI, and poorer physical health.[34,35] The presence of crime and perception of safety are also linked to higher rates of stress, anxiety, and depression.[36] Between 2019 and 2020, in the Cloverleaf study area, there were 14 homicides, 465 instances of assault, 185 instances of aggravated assault, 95 robberies, 28 sexual offenses, and 152 drug and narcotics violations.[37,38] According to Figure 12, crime rates in Cloverleaf are elevated compared to the City of Houston and Harris County.

Inequities affecting economic factors, social environments and family structures all contribute to crime. Historically communities of color have been economically and socially disadvantaged. Communities with higher crime rates often have increased poverty and unemployment rates compared to communities that are more economically stable.[39] One study found clear associations between SES and crime, where young people born into low SES families experienced rates of crime that were over three times of those born into high SES families.[40]

One approach to improving community safety is by using lighting and improving walkability and other features to improve community design.[41] This multi-disciplinary approach called Crime Prevention through Environmental Design (CPTED) uses architectural design to prevent crime. CPTED aims to minimize crime and fear of crime while building a sense of community. Increasing street lighting, neighborhood patrol, and greenspace are all examples of CPTED. Overall, by reducing crime and improving perceptions of safety, residents can benefit from increased opportunities to be more active and connect with their community.

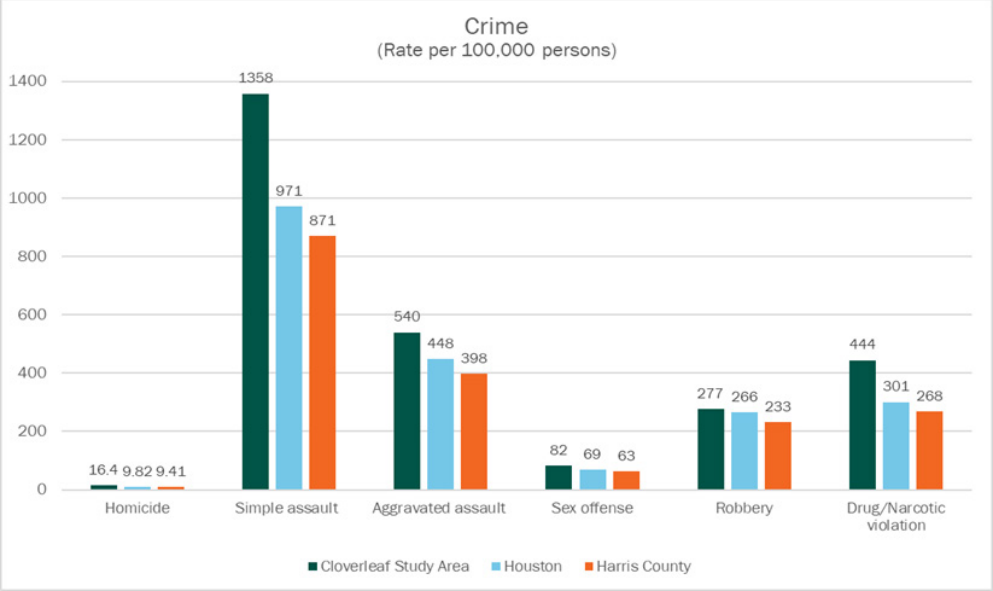


Figure 12: Crime Rates, Source: 2019 BRFSS

[34] Foster, S., & Giles-Corti, B. (2008). The built environment, neighborhood crime and constrained physical activity: an exploration of inconsistent findings. Preventive medicine, 47(3), 241-251.
[35] Richardson, A. S., Troxel, W. M., Ghosh-Dastidar, M., Hunter, G. P., Beckman, R., Colabianchi, N., ... & Dubowitz, T. (2017). Pathways through which higher neighborhood crime is longitudinally associated with greater body mass index. International Journal of Behavioral Nutrition and Physical Activity, 14(1), 155.
[36] Baranyi, G., Di Marco, M. H., Russ, T. C., Dibben, C., & Pearce, J. (2021). The impact of neighbourhood crime on mental health: A systematic review and meta-analysis. Social Science & Medicine, 282, 114106. https://doi.org/10.1016/j.socscimed.2021.114106
[37] 2019-2020 National Incident-Based Reporting System (NIBRS)
[38] 2019-2020 Harris County Sherriff's Office (HCSO)
[39] Rutter, M., Giller, H., & Hagell, A. (1998). Antisocialbehavior by young people. Cambridge, UK: Cam-bridge University Press.
[40] Fergusson D, Swain-Campbell N, Horwood J. (2004) How does childhood economic disadvantage lead to crime? Journal of Child Psychology and Psychiatry 45:5 pp 956-966
[41] Loukaitou-Sideris A. (2006). Is it safe to walk? Neighborhood safely and security considerations and their effects on walking. *7* «ann LiL;20:219-232

Neighborhood Nuisances

Harris County Public Health (HCPH) investigates complaints that violate the Texas Neighborhood Nuisance Abatement Act, a law intended to eliminate public nuisances in unincorporated areas of Texas. Examples of neighborhood nuisances include accumulated rubbish or heavy trash, standing water, conditions that harbor insects and rodents, abandoned swimming pools, overgrown weeds, and unsound structures. In the Cloverleaf study area, over the last five years (2017-2022) there have been 227 nuisance complaints (Figure 13). There have been 75 complaints around rubbish, 54 complaints related to rodents, insects, and unsanitary conditions, 42 complaints about weeds, 26 unsafe structures, 20 other, and 10 refuse complaints.

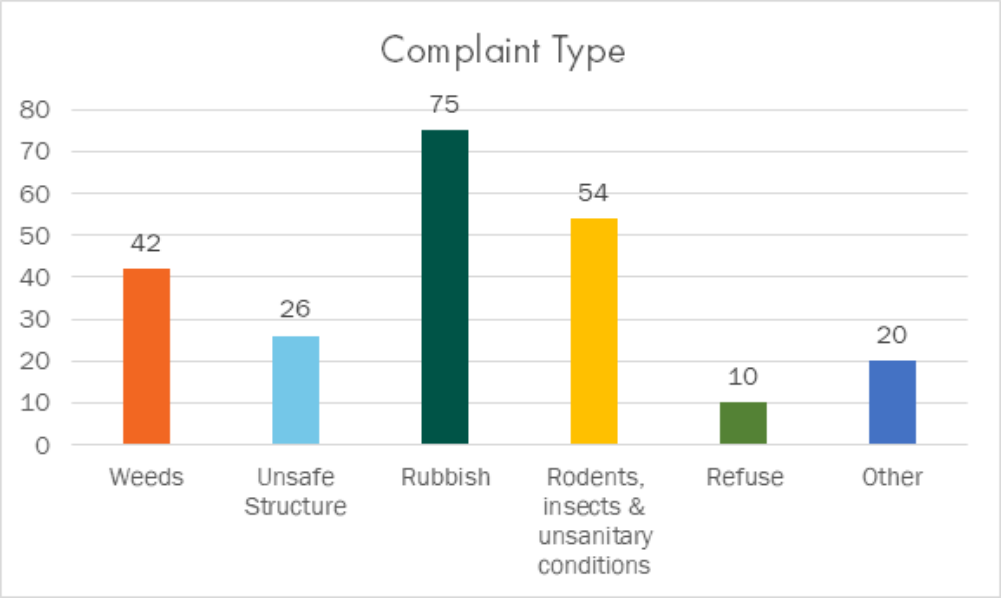


Figure 13: Neighborhood Complaints,
Source: HCPH Neighborhood Nuisance Program

Environmental Exposures

Air quality is a concern in Cloverleaf and Harris County, and traffic is one of the most significant sources of air pollution, both indoors and outdoors. Cloverleaf is bounded on the east by the Sam Houston Tollway and on the south by Interstate 10. Studies show air pollutant concentrations are generally highest within the first 500 feet of a roadway, reaching background levels within approximately 2,000 feet; however, there are no existing standard setbacks for schools and residences in Harris County. People who live, work, or attend school near major roads have a higher risk of experiencing a variety of short- and long-term health effects, including asthma, reduced lung function, impaired lung development in children, and cardiovascular effects in adults.[42] In Harris County, in 2017, asthma and COPD accounted for 18% of preventable hospitalizations and cost $426 million.[43]

The environment has a direct relationship to health from exposures to contaminants in soil, air, and water through particulate matter or physical contact. Hazardous substances can irritate the skin or eyes, cause or aggravate respiratory diseases, and increase the risk of cancer, genetic mutations, and birth defects.[44] Exposure to hazardous contaminates are also indirectly linked to an increased risk of cardiovascular disease, diabetes, stroke, and Alzheimer's disease.[45] The presence of air pollution, toxic land uses, and unattractive environments can also discourage active transportation and physical activity, therefore creating or worsening chronic health conditions.[46] For example, in areas with heavy traffic and close proximity to hazardous sites, fewer students walk to school and communities experience higher rates of mobility disabilities and higher levels of stress and anxiety.[47,48,49] Cloverleaf is north of the Houston Ship Channel which is predominantly used by oil and gas industries for refining and shipping products. Due to its proximity to the Ship Channel, Cloverleaf residents may be impacted by the presence of industry.

Houston Ship Channel

[42] Environmental Protection Agency (EPA). (2015). Best Practices for Reducing Near-Road Pollution Exposure at Schools, 22 p.
[43] Harris County Public Health (HCPH) (2020). Harris Cares: A 2020 Vision of Health in Harris County. Retrieved from https://publichealth.harriscountytx.gov/Resources/Harris-Cares
[44] Centers for Disease Control and Prevention (2021). Health and Ecological Hazards Caused by Hazardous Substances Retrieved from: https://www.epa.gov/emergency-response/health-and-ecological-hazards-caused-hazardous-substances
[45] Harris Cares, 2020. Harris Cares: A 2020 Vision of Health in Harris County. Harris County Public Health, Retrieved from: https://publichealth.harriscountytx.gov/Resources/Harris-Cares
[46] Thompson, S. (2007). A planner's perspective on the health impacts of urban settings. New South Wales public health bulletin, 18(10), 157-160.
[47] Zhu, X., & Lee, C. (2009). Correlates of walking to school and implications for public policies: survey results from parents of elementary school children in Austin, Texas. Journal of Public Health Policy, 30(1), S177-S202.
[48] Matthews, S. A., & Yang, T. C. (2010). Exploring the role of the built and social neighborhood environment in moderating stress and health. Annals of Behavioral Medicine, 39(2), 170-183.
[49] Downey, L., & Van Willigen, M. (2005). Environmental stressors: the mental health impacts of living near industrial activity. Journal of health and social behavior, 46(3), 289-305.

IV. EXISTING LAND USE AND FUTURE DEVELOPMENT

The built environment and land use in a community are intricately linked by influencing access to community resources, schools, parks, employment, or exposure to industry and environmental contaminants. The built environment can foster community identity, contribute to a sense of place, and provide places to develop social connections. Community centers, religious institutions, libraries, parks, and trails physically connect people to each other as well as to the community itself. Developing strong social connections in a community is associated with longer life expectancy and lower rates of social isolation, depression, and chronic diseases.[50]

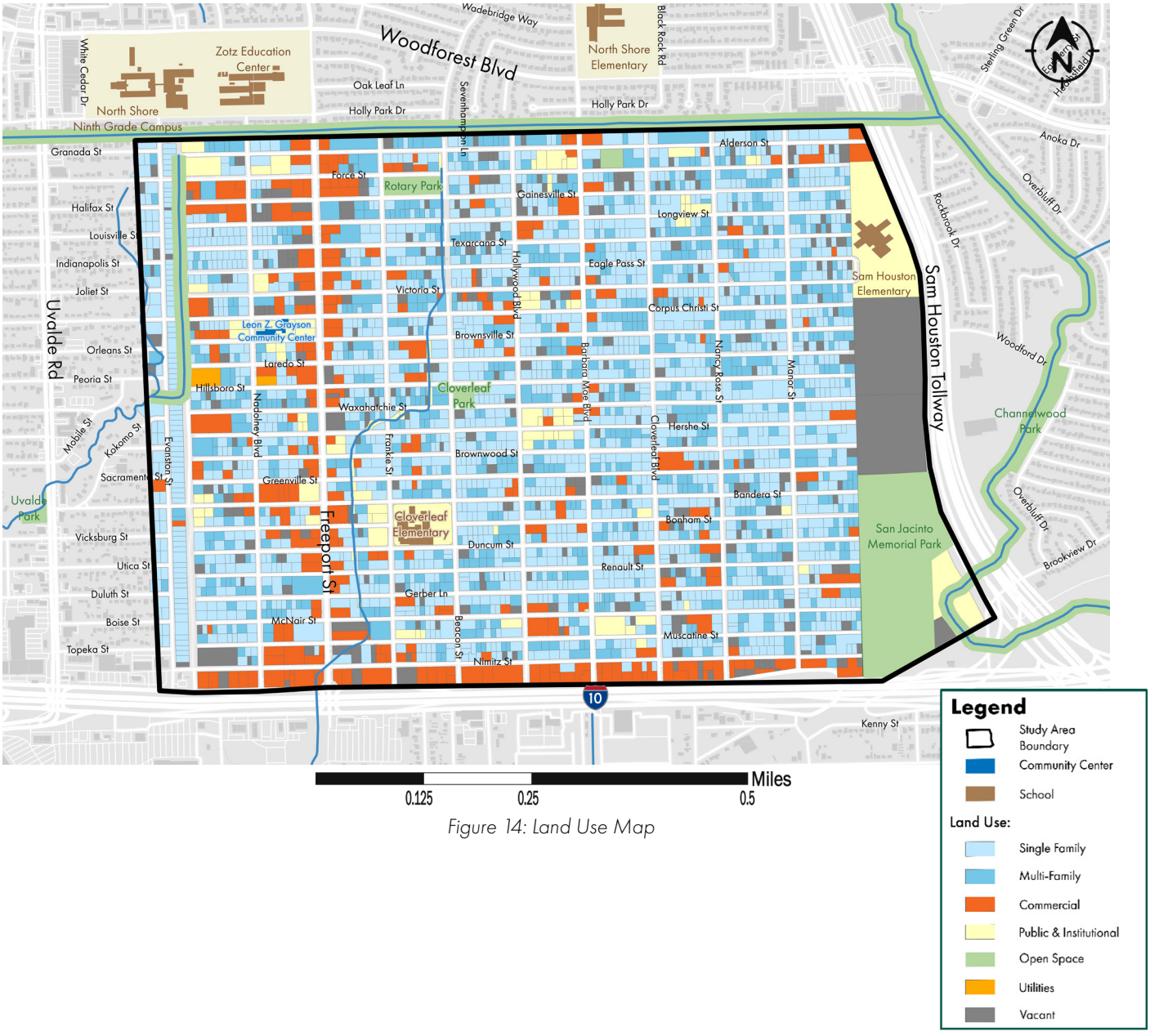


Figure 14: Land Use Map

[50] Haslam, C., Cruwys, T., Haslam, S. A., & Jetten, J. (2015). Social connectedness and health. Encyclopedia of Geropsychology, 2015, 46-1.

Residential Uses

Properties are considered to be residential when the primary function of the property is to provide a place for a person to live. This could include detached houses designed for one family, duplexes, or mobile homes or multi-family properties, such as apartments or condominiums, where a greater number of family units live in a single building or on a single property.

Over three-fourths of the land in the Cloverleaf community is used for residential purposes. Most of the residential land consists of single-family residences, nearly 800 of those are mobile homes. Of all the land in the community, 52% of it is single-family residential, while multi-family properties make up 26% of the land in the community. Multi-family development is evenly dispersed throughout the Cloverleaf community.

Cloverleaf Elementary

Public Health Focus

The ability to access and afford nutritious foods directly influences food security and healthy diet. Access requires that grocery stores be located within a community and are accessible by multiple modes of transportation.[51] Residents that live within one-mile of a grocery store are more likely to consume a healthy diet than those without access.[52] Research shows that access to public transportation reduces the likelihood of food insecurity.[53] When people do not have access to healthy foods, they are at greater risk of chronic diseases, such as obesity, heart disease, type 2 diabetes, hypertension, and certain types of cancers and depression.[54]

Public/Institutional Use:

Public or institutional uses include schools, community centers, health clinics, and churches. These uses consist of 3% of the land within the project area. The Galena Park Independent School District is a main institution within Cloverleaf, with Sam Houston Elementary and Cloverleaf Elementary, that ensures accessible education and a sense of community. There are a couple of churches in the area that serve community residents.

Commercial Use:

Properties designated as commercial provide goods or services for the community. This includes restaurants, grocery stores, convenience stores, automotive services or sales, and more. In the Cloverleaf community, 8% of the land is used for commercial purposes, and commercial development tends to be auto oriented, aggregating along major arterials, such as Market Street and Freeport Street. Freeport Street is a major commercial area, with restaurants, services, retail, and multi-family development. This corridor is the spine of the Cloverleaf community.

Vacant Use:

Vacant properties account for 10% of the land in the community. These vacancies indicate there is still capacity for growth here. Most of these vacant parcels are peppered throughout the Cloverleaf community. The largest vacant parcel is located along the Sam Houston Tollway Frontage Road, south of Sam Houston Elementary, and north of San Jacinto Memorial Park.

[51] Trust for America's Health (2021). Public Transit Access to Full-Service Grocery Stores Will Help Address Country's Obesity Crisis. Retrieved from https://www.tfah.org/story/public-transit-access-full-service-grocery/
[52] Ploeg, M. V. & Rahkovsky, I. (2016). Recent evidence on the effects of food store access on food choice and diet quality. Retrieved from
[53] Department of Health and Human Services, Administration for Children and Families, Office of Family Assistance.
[54] Guide to Community Preventive Services (2014). Promoting good nutrition. Retrieved from https://www.thecommunityguide.org/topic/nutrition

Utilities Use:

Utilities makeup 1% of the land dedicated in the study area, nearly two acres in size.

Open Space Use:

Properties designated as open space account for approximately 45 acres within the community. This includes North Shore Rotary Park, Cloverleaf Park, and San Jacinto Memorial Park cemetery. Cloverleaf and North Shore Rotary Parks are amentized local parks with recreational opportunities for community residents, including playground space, basketball court, and covered picnic tables.

Sidewalk Along Bandera Street, Next To Cloverleaf Elementary

V. MULTIMODAL INFRASTRUCTURE

Mobility is the ability to move around and within a community and impacts how residents access health care, jobs, parks, and groceries. Multimodal transportation is the use of different forms of transportation for mobility, like walking, biking, using public transportation, or driving, and is a key component of a healthy community.

Connectivity

People Walking

Getting around Cloverleaf on foot is a task that often requires the pedestrian to walk along the edge of the roadway, in the grassy area next to a ditch, or in the middle of the street. The existing street grid pattern and short blocks in the study area provide a strong foundation to support walking and biking to businesses and community destinations; however, pedestrian and bicycle infrastructure within the neighborhood is nearly nonexistent (Figure 15).

Public Health Focus

Research shows that adults in lower SES neighborhoods walk more as a form of transportation versus for leisure.[55] This is because walking, biking, and using public transportation are less expensive alternatives to vehicle ownership and low-income households tend to make up the most households with limited vehicle access.[56] Approximately 6% of households in Cloverleaf study area do not have access to a vehicle, so many residents may need to utilize other forms of transportation. Walking and biking can improve health by integrating physical activity into daily life; however, that may not be an option because pedestrians often do not feel safe where vehicle travel is prioritized.[57]

[55] Hearst, M.O., Sirard, J.R.,Forsyth, A et al (2013). The relationship of area-level sociodemographic characteristics, household composition and individual-level socioeconomic status on walking behavior among adults. Transportation Research Part A: Policy and Practice, 50, 49-157, https://doi.org/10.1016/j.tra.2013.01.006.

[56] Tomer, A (2011). Transit Access and Zero-Vehicle Households. Brookings, Metropolitan Policy Program. https://www.brookings.edu/wp-content/uploads/2016/06/0818_transportation_tomer.pdf

[57] Clarke, P., Ailshire, J. A., & Lantz, P. (2009). Urban built environments and trajectories of mobility disability: findings from a national sample of community-dwelling American adults (1986–2001). Social science & medicine, 69(6), 964-970. Berry, T. R., Spence, J. C., Blanchard, C., Cutumisu, N., Edwards, J., & Nykiforuk, C. (2010). Changes in BMI over 6 years: the role of demographic and neighborhood characteristics. International journal of obesity, 34(8), 1275-1283.

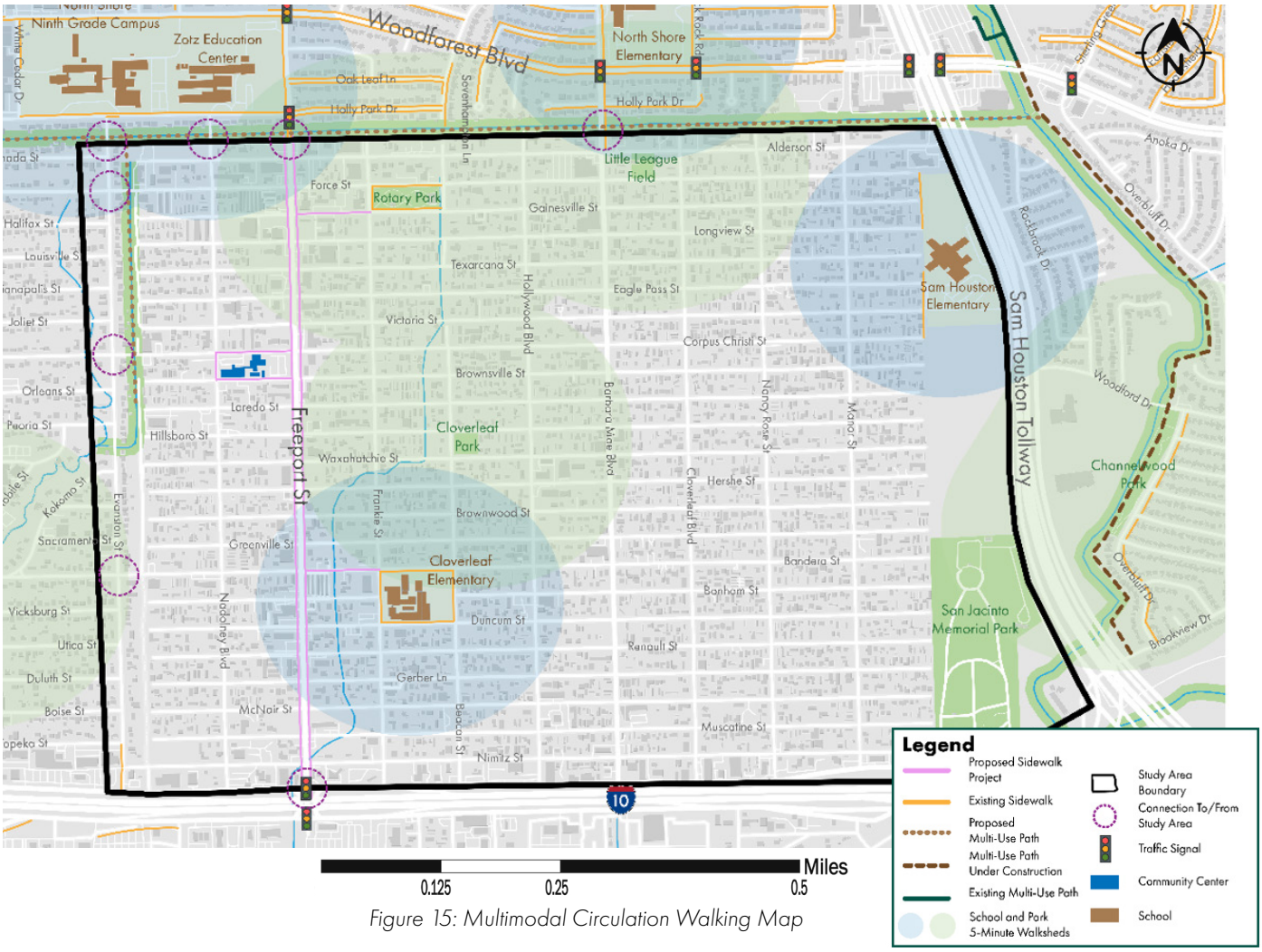


Figure 15: Multimodal Circulation Walking Map

At present, only the blocks around Cloverleaf Elementary, North Shore Rotary Park, and a small portion by Sam Houston Elementary have sidewalks. In 2020, Harris County PCT 2 completed the renovation of North Shore Rotary Park which included the construction of six-foot sidewalks along Force Street, Frankie Street, and Gainesville Street to provide access to the newly established recreational facilities. In 2019, Galena Park Independent School District completed the reconstruction of Cloverleaf Elementary which included the installation of sidewalks around the school at Bandera Street, Beacon Street, Frankie Street, and Duncum Street. However, due to lack of connecting sidewalks, ADA accessible curb ramps were only built at the southeast corner of Bandera Street and Frankie Street.

Harris County PCT 2 recently completed the engineering design of the Freeport Street Pedestrian Improvement project, which will build a eight-foot wide concrete sidewalk and pedestrian amenities on both sides of Freeport Street from IH 10 to Alderson Street. It will also build sidewalks on Bandera Street to provide safe routes to Cloverleaf Elementary. A sidewalk will also be built around the Leon Grayson Community Center on Corpus Christi Street, Nadolney Street, Brownsville Street, and on Gainesville Street to access to North Shore Rotary Park. The goal of the project is to improve pedestrian safety and comfort to key neighborhood activity centers spurring economic activity. The project is expected to advance to construction.

People Biking

Things are not any better for people wanting to ride their bikes in Cloverleaf. There is no bicycle infrastructure (bike lanes, protected bike lanes, trails, etc.) or designated bicycle routes within the community. Most of the streets in Cloverleaf are narrow, with one lane of vehicle traffic in each direction. However, the existing street grid pattern provides a strong foundation for future shared-use facilities with traffic calming elements. Proposed on-street and regional bicycle and trail facilities (Figure 15) adjacent to the study area include:

Residents Riding Their Bikes Along Freeport Street

- Bicycle Facility – Evanston Street from East Freeway to Holly Park Drive
- Bicycle Facility – Ironwood Boulevard Trail from Holly Park Drive to Laredo Street
- Regional Trail – Ironwood Boulevard Trail from Holly Park Drive to Laredo Street
- Regional Trail – Holly Park Drive Trail from West Canal to Carpenters Bayou
- Regional Trail – Carpenters Bayou from Woodforest Boulevard to East Beltway 8

Resident Riding Their Bicycle In Cloverleaf

Call to Action

Add sidewalks or shared use paths that provide connections within the community and to existing bicycle facilities and regional trails.

Houston-Galveston Area Council
REVIVE 2 THRIVE Community Revitalization Initiative
Harris County Public Health Building a Healthy Community

EXISTING CONDITIONS

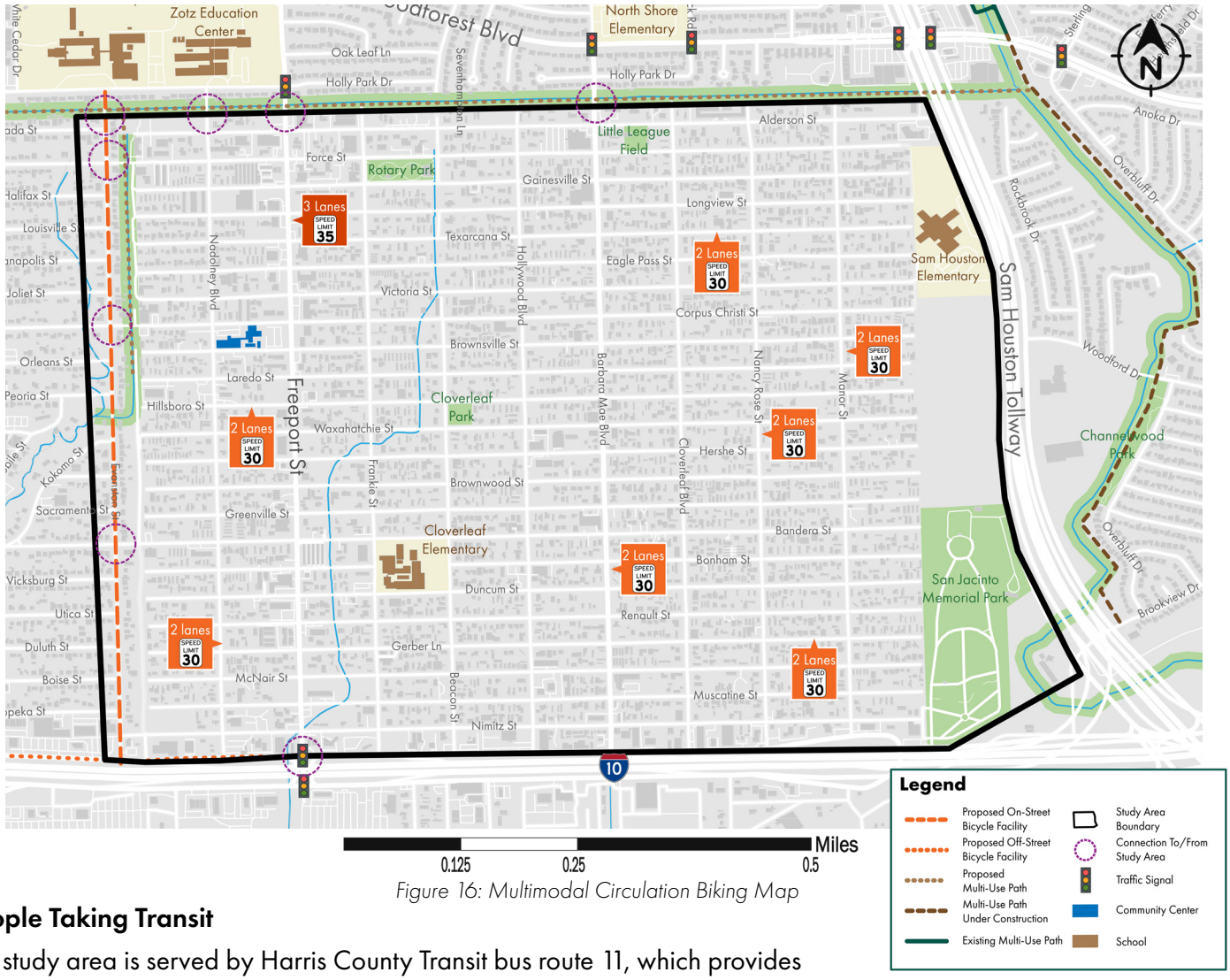


Figure 16: Multimodal Circulation Biking Map

People Taking Transit

The study area is served by Harris County Transit bus route 11, which provides circulation from the Freeport Walmart to the Jim Fonteno Courthouse Annex. It operates Monday to Saturday from 7:00 a.m. to 6:00 p.m. with an hour headway. The Jim Fonteno Courthouse Annex serves as a "transit hub" where riders can transfer to routes 12 and 14. Route 12 services the Flukinger Community Center in Channelview, and route 14 services the Mesa transit center which can connect individuals to Downtown Houston.

The challenges with regards to transit in the area are the limited service, the connections between transit lines, and safe pedestrian access to and from the stops. Route 11 services Cloverleaf through Freeport Street with stops every four blocks. Bus stops are not well identified at the moment, but the Freeport Street Pedestrian Improvement project will enhance bus stops along the corridor. Connections between transit routes are very limited, with a person needing to make two transfers to reach key employment hubs. In addition, there are no connections to north-south routes and its associated destinations.

Route 11 Bus Stop On Freeport Street

Call to Action

Add or update transit signage and shelters that allow visibility and easy access to the bus, are comfortable and convenient, provide clear information, and are safe.

Figure 17: Multimodal Circulation Transit Map

People Driving

The street grid structure was developed in the 1930s and 1940s as the Nadolney family began the development of nearly 6,000 lots of land in what is now considered the Cloverleaf neighborhood. The study area's roadway system is comprised of 32 local streets and one collector, Freeport Street. East-west local streets average a width of 16 feet, while the north-south local streets average 20 feet. Even with their narrow roadway characteristic, most roads have 30 mph speed limit, with Freeport Street being the only road with a 35-mph speed limit. A 20-mph school zone limit is signed around Cloverleaf and Sam Houston Elementary Schools (Figure 16). Stormwater ditches parallel both sides of the streets, as opposed to curb and gutter. It is customary for ditches to be used for drainage as it is standard practice to use these types of facilities for stormwater management in a rural setting.

Harris County PCT 2 completed design for the construction for a BetterStreets2Neighborhood (BS2N) project. The BS2N Cloverleaf pavement rehabilitation project aims to preserve asphalt roadways and improve them by restoring the base, overlaying it with new asphalt, and adding striping. These street improvements will update the aging infrastructure of the streets and provide better quality roads and safer travel for residents of this community. Figure 17 shows the streets that would be repaired by this project.

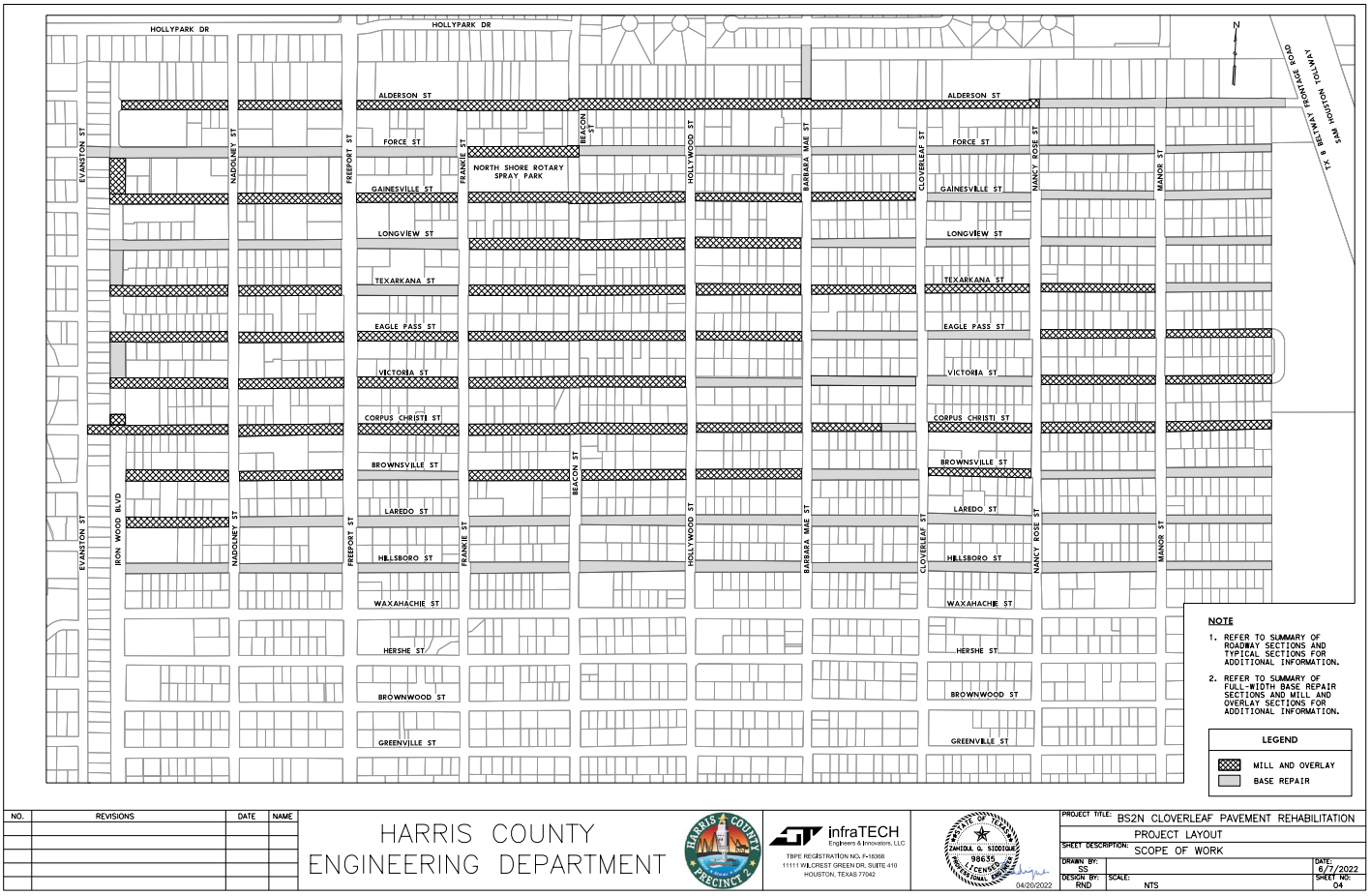


Figure 18: Design Complete of Cloverleaf Pavement Rehabilitation

While the internal grid roadway pattern can help provide local connectivity, the neighborhood itself has poor connectivity to the surrounding areas. Between IH 10 to the south and Sam Houston Tollway to the east, the points of connection to/from the neighborhood are on local streets on the north and west portions of the neighborhood, with the exception of Freeport Street on the south side of the neighborhood. Because IH 10 and Sam Houston Tollway are access controlled freeways, Average Daily Traffic (ADTs) on local east-west streets that connect to the North Shore neighborhood are registering 700 vehicles per day, while non-connecting east-west local streets are averaging 300 vehicles daily. Even though they are identified as local streets, north-south streets such as Manor Street, Nancy Rose Street, and Cloverleaf Street are operating similar to collectors with volumes nearing 3,100 vehicles per day, as compared to other north-south streets such as Nadolney Boulevard and Hollywood Boulevard carrying approximately 1,100 vehicles per day (Figure 18).

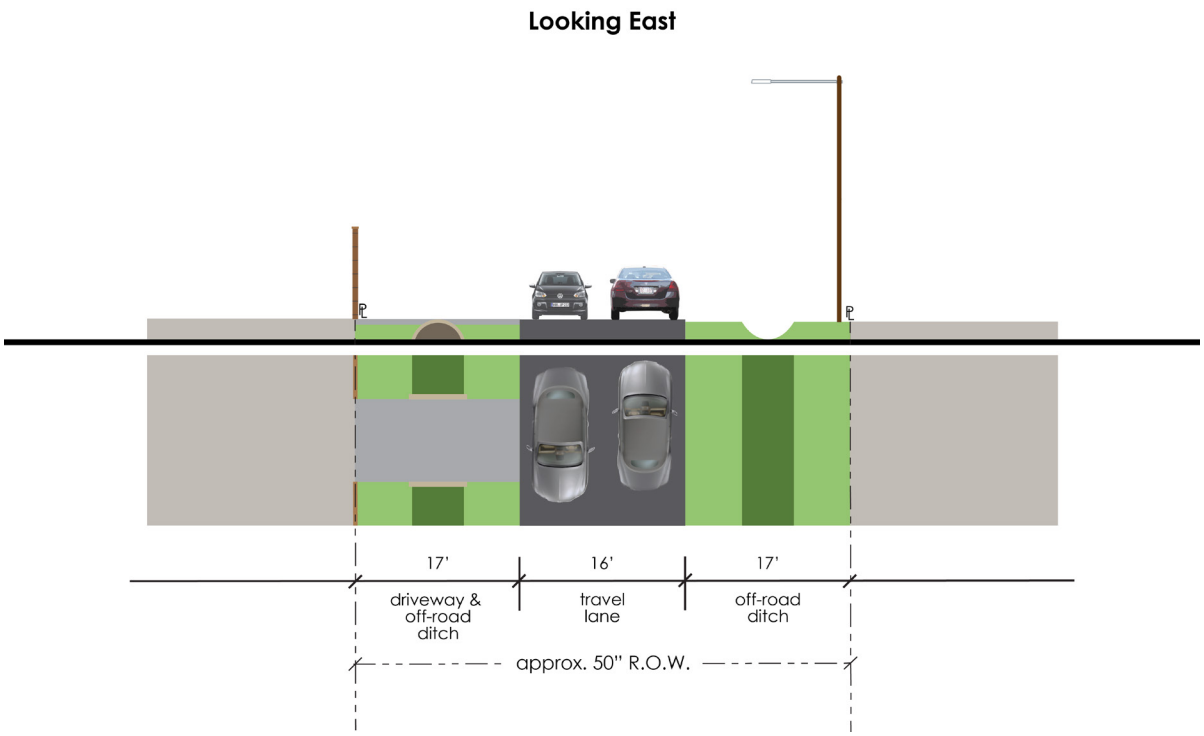


Figure 19: Typical East/West Street Cross-Section

Typical Cloverleaf Street Cross-Section

Figure 20: Multimodal Circulation Driving Map

Safety Assessment

Analysis of the study area crash data was performed using Texas Department of Transportation (TxDOT) crash system database, which looked at a five-years of crash data from years 2015 through 2021. Ultimately this analysis will be used to identify crash trends that can be targeted for mitigation. Crash frequency and severity, as well as notable crash trends, are summarized for the study area and each on the following section.

The study area saw a total of 1,407 crashes, of which almost 2% of crashes (27) were identified as fatal or serious injured. 50% of all crashes took place at intersections, with the majority taking place at an angle (41%), crashing into a fixed object like an electric pole or a parked car (24%), or rear ending another vehicle (11%). Lighting is another crash factor gleaned from the data. 12% of all crashes (177) in the study area were classified as 'Dark – not Lighted', inferring that the crash took place in a location without any streetlights, while 19% of crashes (268) took place at a location that had streetlights, but were still classified as 'Dark.'

The high crash locations for the study area are noted below:

High crash segments:

- Freeport Street from East Freeway to Alderson Street
- Barbara Mae Boulevard from Alderson Street to Corpus Christi Street
- Alderson Street from Barbara Mae Boulevard to Manor Street High

High crash intersections:

- Nimitz Street and Frankie Street
- Nimitz Street and Beacon Street
- Barbara Mae Boulevard and Alderson Street
- Barbara Mae Boulevard and Corpus Christi Street
- Manor Street and Alderson Street

Figure 21: Multimodal Circulation Safety Heat Map

Call to Action

Implement traffic calming measures such as speed humps, speed cushions, speed tables, intersection improvements, upgrading the street lighting system, or radar signs to reduce crashes for all modes of travel.

EXISTING CONDITIONS

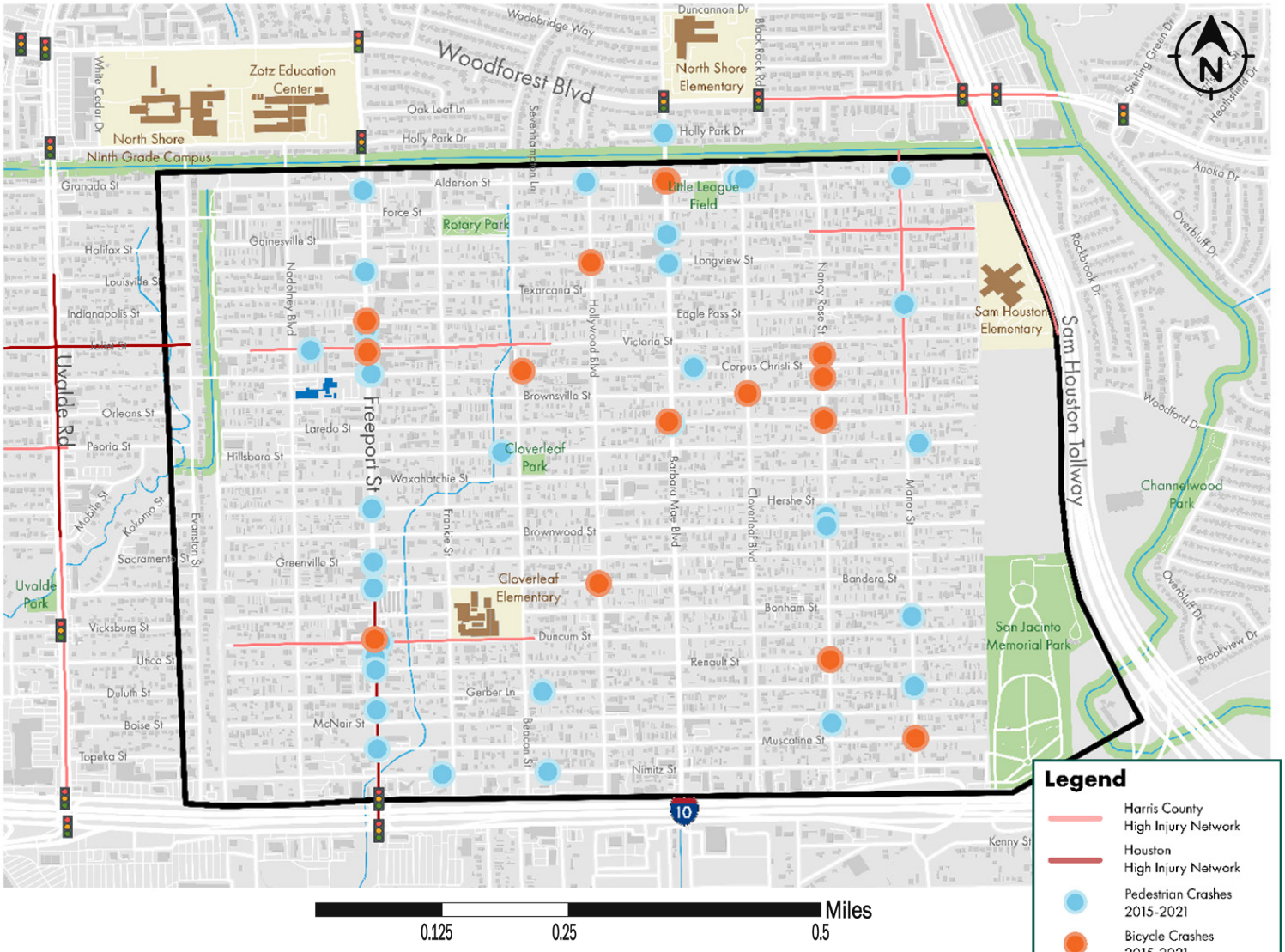


Figure 22: Multimodal Circulation Safety Bike And Pedestrian Map

Vision Zero research indicates that people biking and walking are disproportionately impacted compared to any other mode of transportation. Of the 2% (27 total) of crashes identified as fatalities or serious injuries, 44% (12 individuals) were pedestrian or bicycle crashes. While the majority of bicycle and pedestrian crashes have taken place in the high crash locations identified above, there is also a concentration taking place on Manor Street and Nancy Rose Street.

Public Health Focus

Pedestrian crashes and fatalities are a major safety concern in Texas and have been increasing in recent years.[58] Several factors can lead to motor vehicle crashes, such as excessive speed, distracted driving, and driving under the influence of drugs and alcohol. A lack of sidewalks and bike lanes, incomplete and unconnected sidewalks, and unsafe crossings make walking and biking dangerous for people. Poor lighting can also play a role in crashes as data shows that most pedestrian and bicyclist fatalities occur in dark conditions.[59]

[58] Pedestrian Traffic Fatalities by State, 2021 Preliminary Data. Governors Highway Safety Association. https://www.ghsa.org/resources/Pedestrians22

[59] Harris Cares, 2020. Harris Cares: A 2020 Vision of Health in Harris County. Harris County Public Health, Retrieved from https://publichealth.harriscountytx.gov/Resources/Harris-Cares

VI. INFRASTRUCTURE

Stormwater

A preliminary drainage study conducted by Jones & Carter[60] in December of 2020 stated that the Cloverleaf community's stormwater infrastructure did not meet current Harris County Engineering Department design criteria. To put that statement into context we must examine the history of the Cloverleaf Community.

Stormdrain Near Intersection

The Cloverleaf subdivision was built distant from the City of Houston proper and in a rural setting. This meant the roadways were platted with 50 to 60 feet of right-of-way (ROW) with parallel ditches on each side of the roadway for stormwater conveyance. Freeport Street was platted with 90 feet of ROW and with parallel ditches on each side of the roadway. These roadway configurations and ROW corridors are present to this day. Recently, Freeport Street was reconfigured and rebuilt with curb and gutter and an underground stormwater conveyance system. Since 1930, Harris County has adopted design guidelines and design criteria that have been updated frequently with the most recent change taking place in September of 2020. The latest update requires projects to design to the two-year event and protect infrastructure from the 100-year event.

The Cloverleaf community has two bayous: Greens Bayou is to the west and Carpenters Bayou is to the east of the study area. According to Federal Emergency Management Administration (FEMA) Federal Insurance Rate Maps (FIRM), both the Carpenters and Greens Bayou are zoned AE and 100-year floodplain. According to FEMA, AE flood zones are areas that present a 1% annual chance of flooding and a 26% chance over the life of a 30-year mortgage. A portion of the 100-year flood plain encompasses the southeast corner of the Cloverleaf community (Figure 23). Also, a portion of the Goodyear Tributary that branches off the Greens Bayou 100-year flood plain encroaches onto a small portion of the Cloverleaf community to the west of the study area (Figure 22). There is a HCFCD channel that is located north of the study area, channel N110-00-00. Finally, there is a HCFCD channel P102-00-00 that runs east from Greens Bayou to the Cloverleaf community then north and south primarily east of Freeport Street (Figure 23). The Greens Bayou watershed encompasses the Cloverleaf community from Alderson Road to the North and IH 10 to the south with Cloverleaf Street being the dividing highpoint between the Greens Bayou watershed and the Carpenters Bayou watershed. The Carpenters Bayou watershed is everything east of Cloverleaf Street (Figure 23). The outfall to Carpenters Bayou is HCFCD channel N105-00-00 (Figure 23).

[60] Jones & Carter. (2020). *Preliminary Drainage Study for Cloverleaf Area Road and Drainage Repair in Harris County, Texas.*

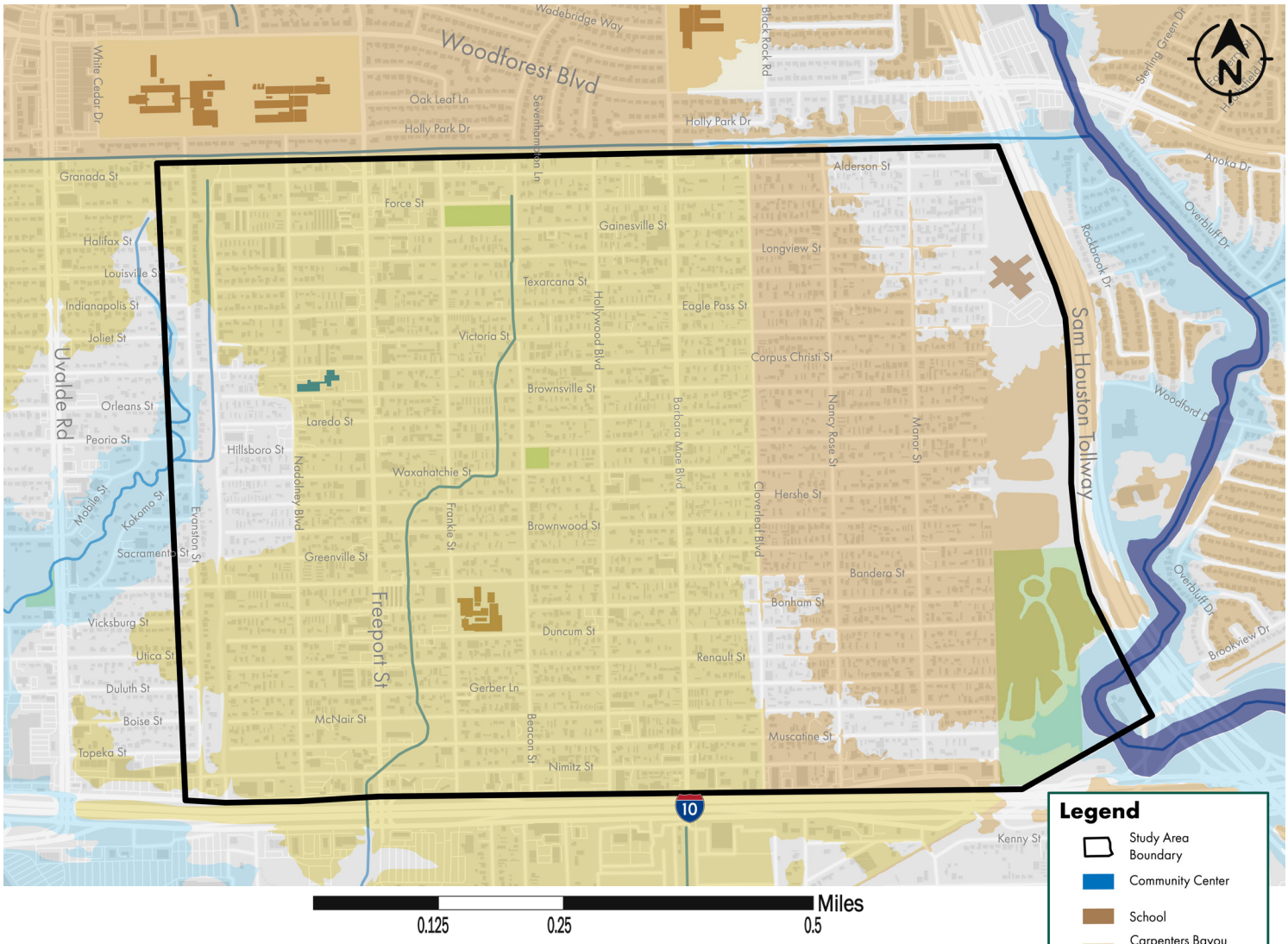


Figure 23: Watershed Map

The preliminary drainage study by Jones & Carter found significant ponding in the Southeast portion of the Cloverleaf community. The report targeted three areas for drainage improvements: Target 1 was the area near McNair Street and Nancy Rose Street. Target 2 was the area near Beacon Street and Duncum Street. Target 3 was the area near Victoria Street and Nancy Rose Street. The Jones & Carter recommendation was for the County to concentrate their drainage improvement effort on Target 1 and gave three options the County could pursue.

Each of the options would outfall at a proposed detention pond, north of the San Jacinto Memorial Park cemetery. Each of these options proposed large trunklines of concrete boxes along streets draining south to north connecting to a trunkline on Hershe Street that would drain from west to east and outfall at the proposed detention pond. According to Jones & Carter these recommendations would require ROW acquisition and roadway reconstruction. Any ROW acquisition and reconstruction of roadways should offer the opportunity to also construct bike and pedestrian facilities.

In 2022, HCFCD hired CDM Smith to provide preliminary engineering and final design for a drainage project in the Cloverleaf community. The project number is HCFCD Project ID # N2100-00-00E001. The project is mostly to relieve the flooding issues on the east half of Cloverleaf. The limit of the project is Hershe Street to the south,

Alderson Street to the north, and Hollywood Street to the west and Manor Street to the east. The project proposes to put in place a trunkline of 12 x 6 boxes under Hillsboro and 10 x 6 boxes under Nancy Rose (Figure 24). The streets will need to be demolished and put back in order to bury the boxes. The final design proposes a detention pond north of the San Jacinto Memorial cemetery and then out fall into Carpenters Bayou (Figure 24). The final design also proposes to regrade ditches and replace the culverts underneath existing driveways. The existing ditches will remain.

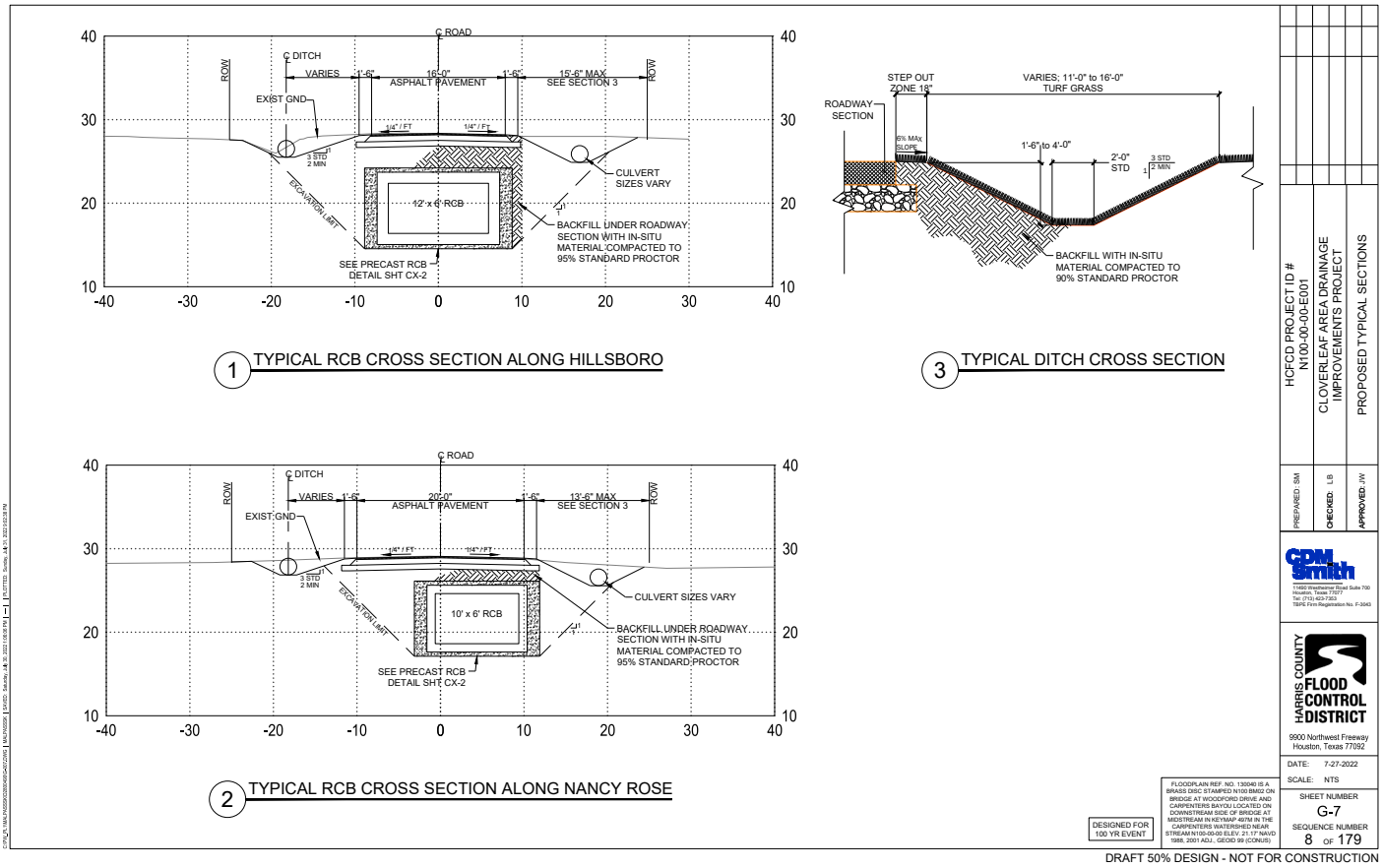


Figure 24: 12 x 6 and 10 x 6 boxes-N100 00 00 E001 Cloverleaf 50Pct Plans 20220815

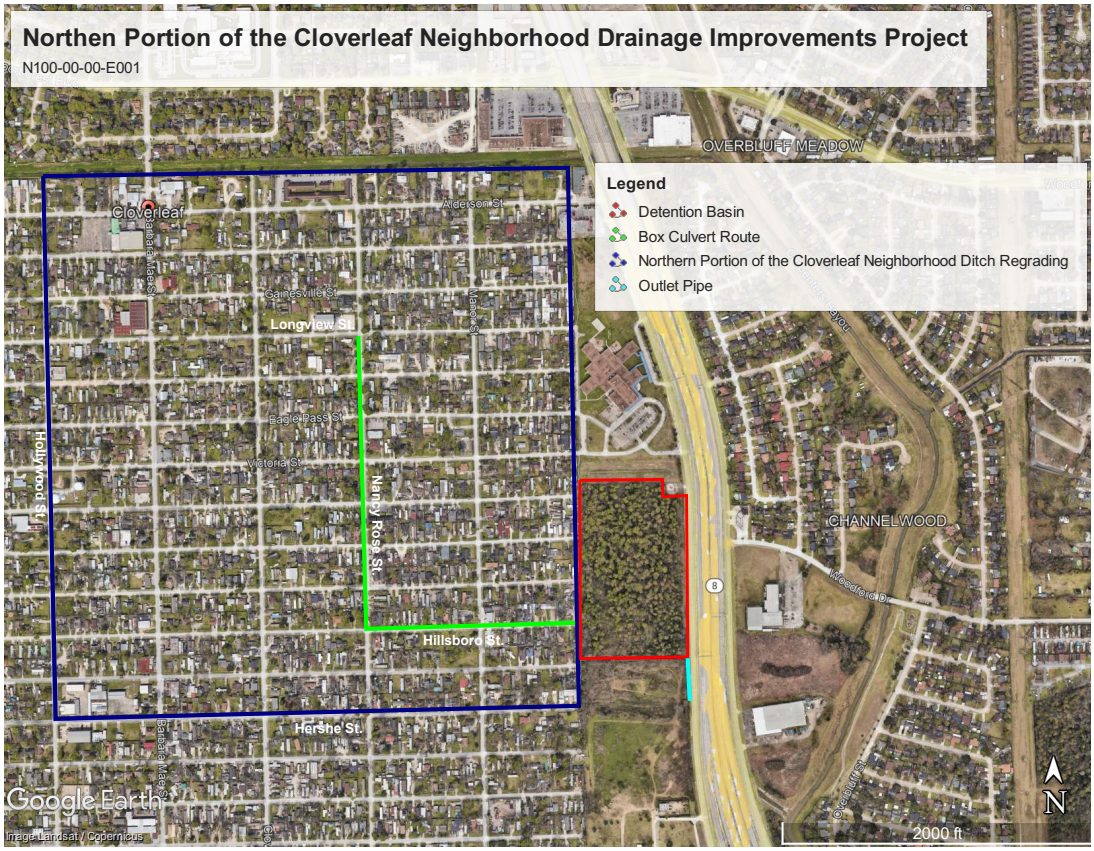


Figure 25: Dentention Pond CMD Project Boundary

Public Health Focus

Flooding events increase risk of physical injury, trauma, skin infections, and gastrointestinal illness as a result of exposure to debris, bacteria, viruses, fungus, and various chemicals in water. Human and animal waste can contaminate flood waters and cause gastrointestinal illness and wound infections. The presence of mold in homes and businesses after flooding events can lead to and worsen respiratory issues such as asthma, bronchitis, or other respiratory infections.[61]

The pools of stagnant water left behind after flooding are the ideal breeding ground for mosquitoes. In the weeks following a flooding event, increased populations of mosquitoes are usually observed. Mosquitoes are mainly a nuisance pest, but some species can transmit deadly vector-borne diseases, such as West Nile virus, Dengue, and St. Louis Encephalitis.[62]

[61] Centers for Disease Control and Prevention. (2019). Flood Waters or Standing Waters. Retrieved from https://www.cdc.gov/healthywater/emergency/extreme-weather/floods-standingwater.html

[62] Mosquito and Vector Control-Harris County Public Health (n.d.). Retrieved from http://publichealth.harriscountytx.gov/About/Organization-Offices/Mosquito-and-Vector-Control

Lighting

The 2020 Preliminary Drainage Study conducted by Jones & Carter also provided detailed information about the types of lighting facilities CenterPoint Energy maintains in the study area (Figure 26). Based on car crash reports and public feedback, there is a sense of under-illumination throughout the neighborhood. This could be in part due to the low lighting wattage or the overgrown trees near street light facilities. CenterPoint Energy lighting maps were analyzed to see if they meet current spacing requirements and meet lumens or foot-candles requirements. Per CenterPoint lighting guidelines the light poles need to be spaced 200 feet apart on residential street in a staggered position. Currently, the majority of the poles are not staggered and are randomly spaced over 250 feet and some are spaced up to 400 feet. The majority of the intersections in Cloverleaf have at least one light, but there are a quite a few intersections without at least one light. Lighting wattage should be 45-watt LED light in residential areas and a 95 watt or 115-watt LED light along major thoroughfare or collector streets.

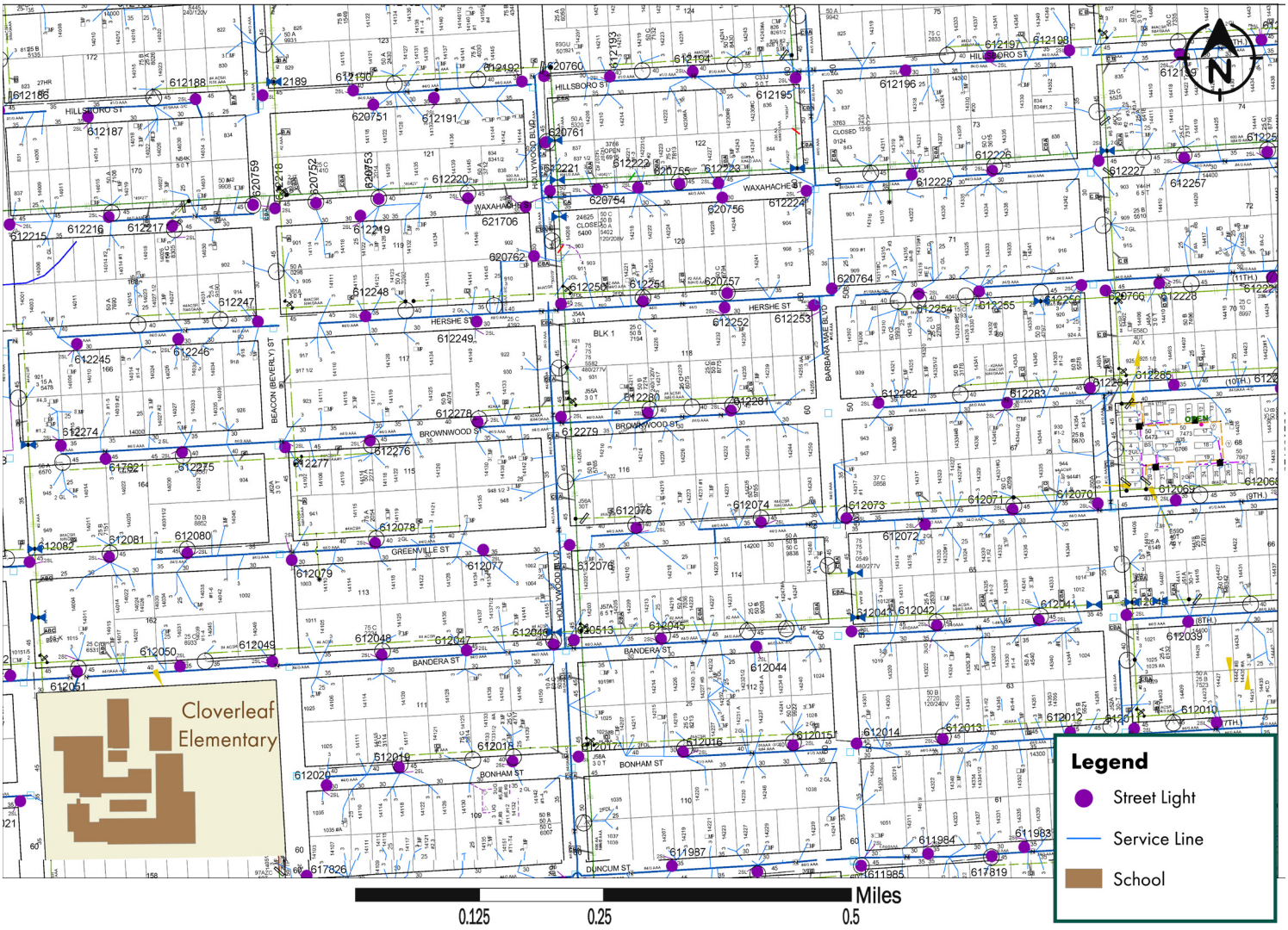


Figure 26: Streetlight Map

Call to Action
Update street lighting to meet current standards to improve the comfort and safety of people traveling and deter illegal activity.

VII. ECONOMIC DEVELOPMENT

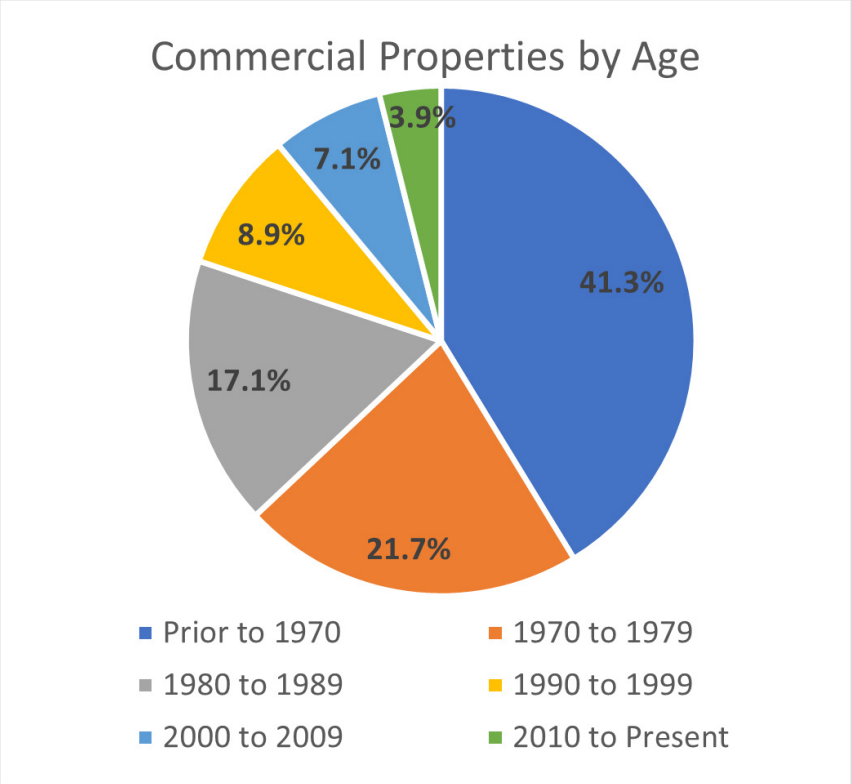
Commercial Properties

The Cloverleaf study area has two notable commercial districts or corridors: Freeport Street which bisects the study area through its western quarter and the IH 10 East Freeway North frontage road on the study area's southern border. Nearly every property on the East Freeway is classified as commercial by the Harris County Appraisal District (HCAD), though the longer Freeport Street with both of its sides located in the study area contains a larger number of commercial properties and more commercial building square footage. A total of 88 commercial properties are located on one of these two roadways, nearly one third of all commercial properties in the study area. Over one third of the study area's commercial square footage is in these two corridors, over 400,000 sf of space. The remainder of the commercial property is nearly evenly scattered across the study area. Six other roads contain at least 10 commercial properties, and five others contain greater than 50,000 sf of commercial space.

Street	Properties	Share
Freeport	50	17.8%
East Freeway	38	13.5%
Nimitz	14	5.0%
Bandera	12	4.3%
Barbara Mae	12	4.3%
Brownsville	12	4.3%
Duncum	10	3.6%
Force	10	3.6%
Alderson	9	3.2%
Victoria	9	3.2%
All Others	105	37.4%

Table 1: Commercial Properties by Street, Source: Harris County Appraisal District (HCAD) 2021 Certified Data

The overwhelming majority of commercial property and square footage in the study area was built prior to 1990, around 80% each. Fewer commercial buildings have been built since 2000 than in any single time period prior to 1990 and fewer than 4% of commercial properties have been developed since 2010.



Retail Properties

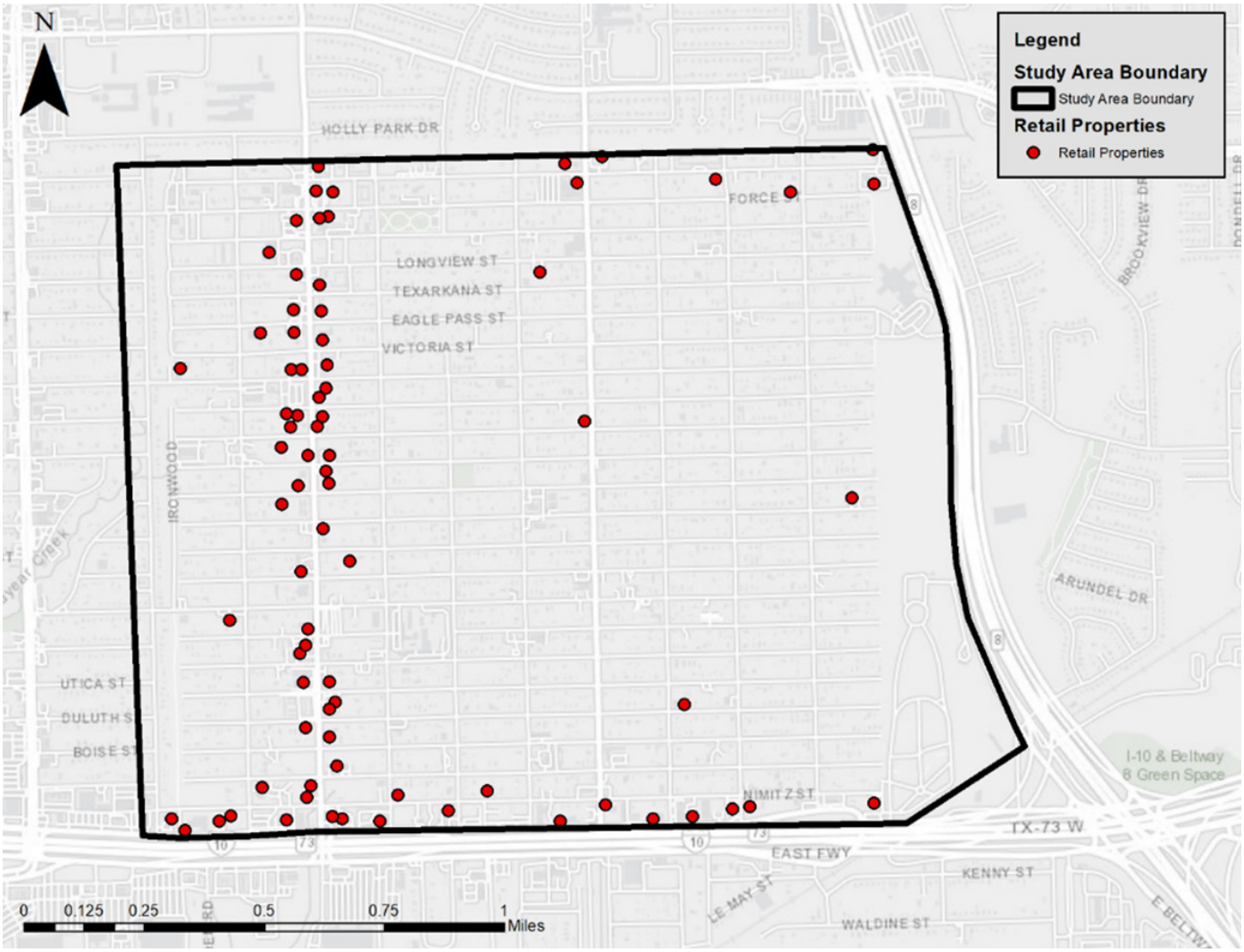
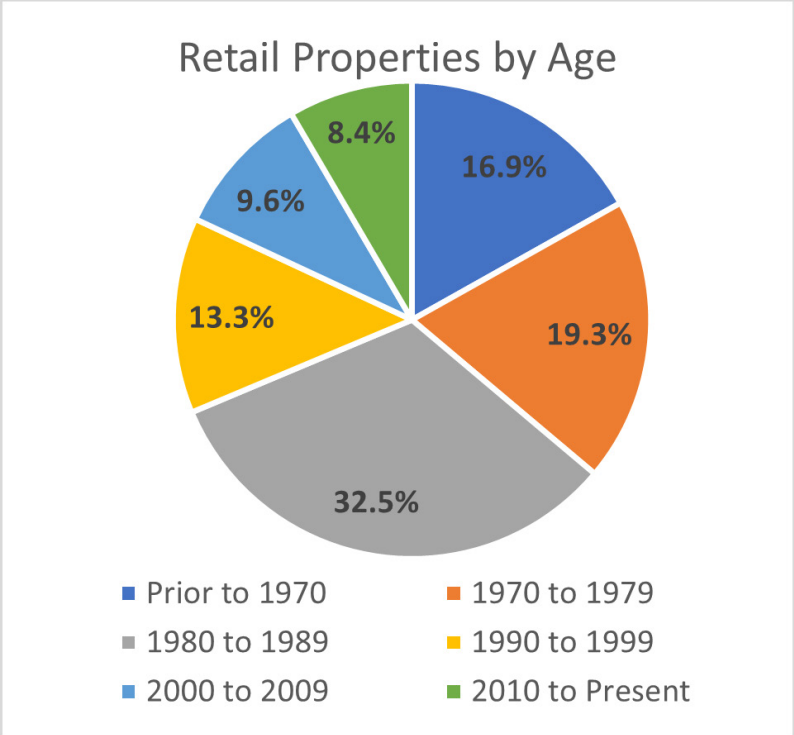


Figure 27: Map of Retail Properties Within Study Area, Source: CoStar July 2022

The main retail corridors through the study area are identical to the main commercial corridors, Freeport Street and the East Freeway. These corridors are even more significant when looking only at the retail component of commercial property. Over half of all retail buildings and over 60% of retail square footage is located in these two corridors. Much of the remaining retail is located quite close to these two corridors and along Alderson on the study area's north end. Only six retail buildings are not located within a single city block of one of these three roadways Retail buildings in the study area are, on average, slightly newer than commercial buildings as a whole. Greater than 30% of retail properties and nearly 45% of retail square footage has been built since 1990, though development has been limited in the past decade. Around one third of both properties and square footage were built in the 1980s.

Street	Properties	Share
Freeport	32	38.6%
East Freeway	14	16.9%
Alderson	5	6.0%
Nimitz	4	4.8%
Barbara Mae	3	3.6%
Corpus Christi	2	2.4%
Eagle Pass	2	2.4%
Longview	2	2.4%
Market Street	2	2.4%
Waxahachie	2	2.4%
All Others	15	18.1%

Table 2: Retail Properties by Street, Source: CoStar July 2022



Public Health Focus

Communities with opportunities for economic growth are more likely to have access to education, better employment, higher wages, and access to health insurance, all of which are social determinants of health. In these communities, individuals report better mental, physical, and overall health.[63] When residents have equitable access to economic opportunities within their local neighborhood, they may spend less time traveling to work and have more time for activities that support health such as being active, spending time with loved ones, or cooking healthy meals.

Sales Tax Information

Sales Tax Collection Annual Average by Collecting Entity

The study area has generated an annual average of over $350,000 in sales tax collections since 2018, representing about a 6% share of the taxes collected in both of Harris County's Emergency Service Districts that cover the area, ESD 6 and ESD 12. While over 40% of active sales tax permits in the study area are held by businesses on the two primary commercial corridors, the remaining permits are scattered throughout the area, matching up quite closely with HCAD's commercial property parcels.

Collecting Entity	Study Area Annual Average	Study Area Share	Total Area Annual Average
Houston	$351,426	0.05%	$727,682,794
Harris County ESD 6	$177,400	6.07%	$2,924,519
Harris County ESD 12	$177,962	6.02%	$2,956,839

Table 3: Sales Tax Revenue Source: State Of Texas – Comptroller of Public Accounts, August 2022

[63] Venkataramani, A. S., Brigell, R., O'Brien, R., Chatterjee, P., Kawachi, I., & Tsai, A. C. (2016). Economic opportunity, health behaviours, and health outcomes in the USA: a population-based cross-sectional study. The Lancet Public Health, 1(1), e18-e25.

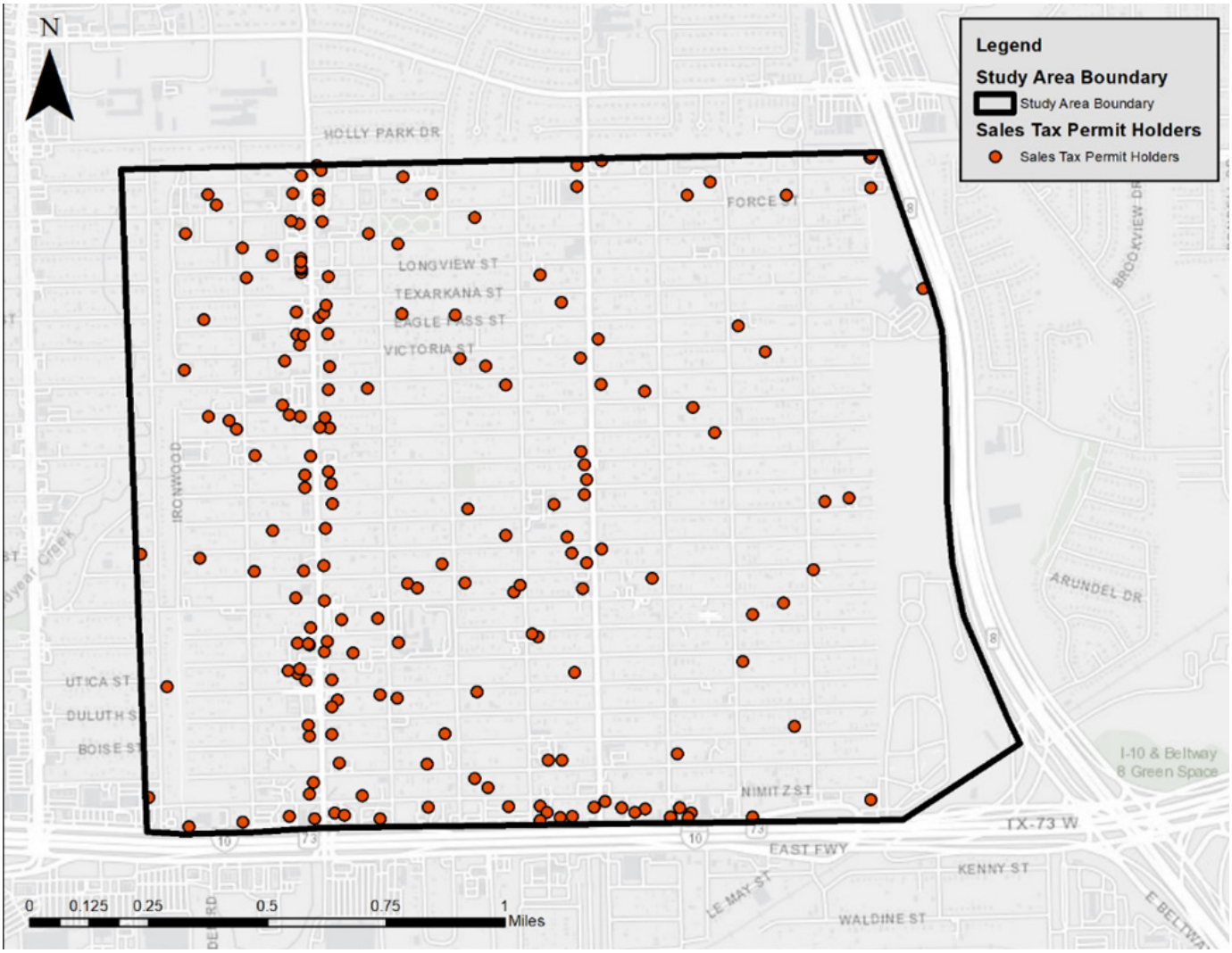


Figure 28: Sales Tax Permit Holders Within Study Area,
Source: State of Texas – Comptroller Of Public Accounts, August 2022

Property Tax Information

Few parts of the study area have concentrations of properties with high assessed value per acre. Only the Freeport and East Freeway corridors have concentrations of such properties at a scale larger than a city block. Similarly, there are no sizable concentrations of properties with low assessed value per acre. Individual city blocks may have concentrations of high or low assessed value properties, but these blocks are largely not clustered and can be found throughout the district. The most notable collection of like-valued properties not located on one of the main commercial corridors are the relatively high-valued single-family homes located along Evanston Street on the study area's far west side.

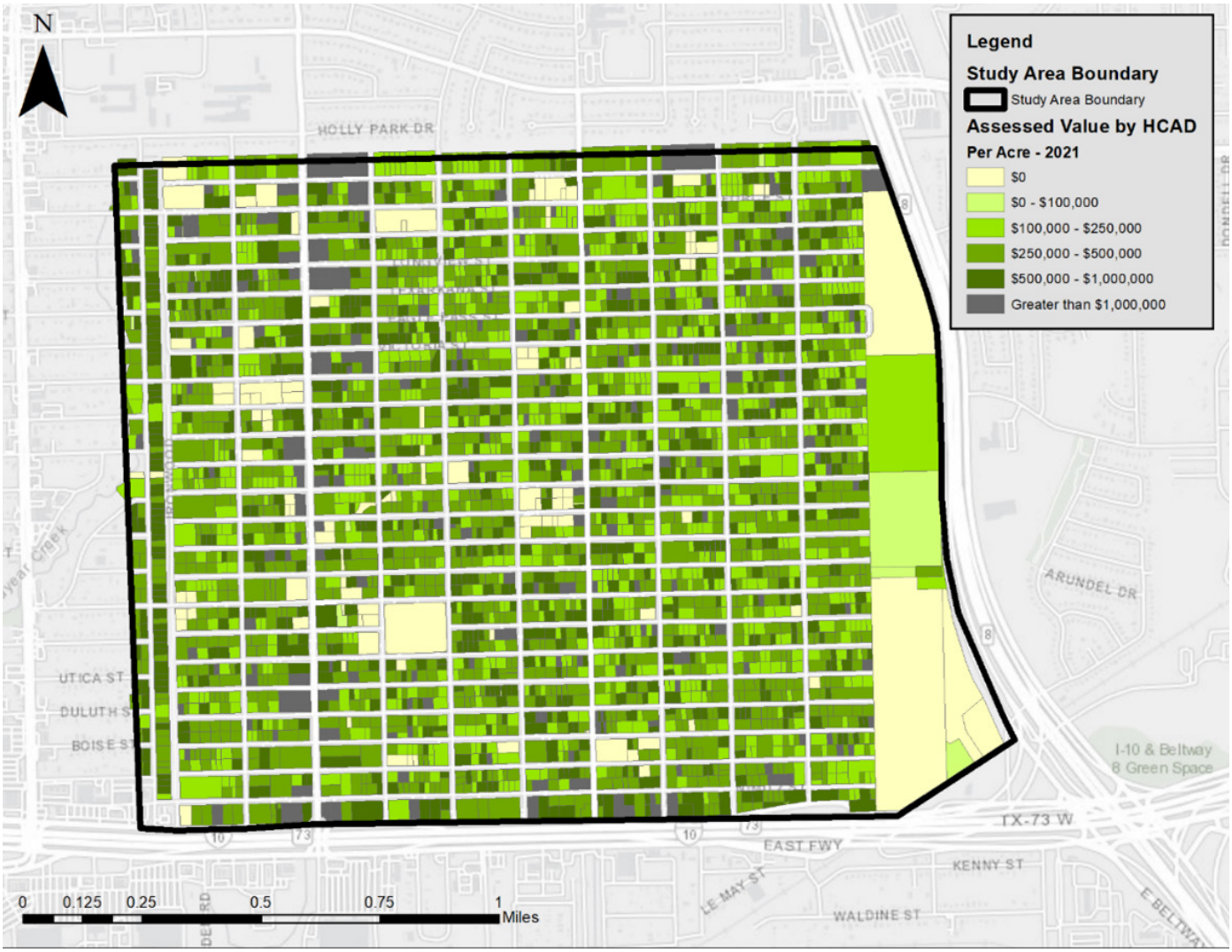


Figure 29: Assessed Value Per Acre Within Study Area,
Source: Harris County Appraisal District (HCAD) 2021 Certified Data

Owner Name	Acres
San Jacinto Memorial	40.0
Galena Park ISD	27.7
Northstar Cemetery Texas San Jacinto LLC	19.1
Sepelio LLC	15.4
County Of Harris	6.2
Harris County WCID No 36	4.2
Arnold Tommy N	3.3
Gentry Partners LLC	3.2
Spring Fresh Enterprises LLC	3.1
Sinotex Storage Cloverleaf LLC	2.8

Table 4: Top Property Owners By Land,
Source: Harris County Appraisal District (HCAD) 2021 Certified Data

Only four property owners hold more than 10 acres of land in the study area, only one of which is a commercial user.

Among the top 10 property owners by building square footage, eight are commercial users. Only four own more than 50,000 sf of building space.

Five ownership groups own more than $2M worth of property in the study area based on total appraised value in 2021.

Land Use	2019	2020	2021
Multifamily	$1,073,330	$1,268,342	$1,292,028
Commercial	$529,259	$576,864	$622,543
Single Family	$363,863	$425,613	$487,816
Mobile Home	$264,292	$265,976	$270,079
Vacant	$158,271	$157,353	$166,031

Table 5: Assessed Valuation Per Acre Trend By Land Use,
Source: Harris County Appraisal District (HCAD) 2021 Certified Data

The most valuable properties in the study area over the past five years have been multifamily properties, whose assessed value per acre rose greater than 15% per year each year between 2018 and 2020 and has nearly doubled since 2016. Single family properties have increased 63% since 2016, topping 10% per year each year from 2019 to 2021. The mobile home subset of single-family homes, however, increased only 7% during this time. Commercial property values have increased 42% since 2016.

Employment Demographics

Employment

According to the most recently available data from the US Census Bureau Longitudinal Employer-Household Dynamics (LEHD), there were 1,073 jobs located in the study area in 2019, an increase of more than 300 jobs since 2015. Most of this increase came in 2018 and in the Administration & Support, Waste Management and Remediation industry category. This category became the largest employment category in the study area in 2018, displacing the previous top categories of construction, manufacturing, and retail.

The share of people who work in the study area who commute less than 10 miles increased by over 6 percentage points between 2015 and 2019. The top zip code of residence for those who work in the study area is 77015, which contains the entirety of the study area. Greater than 2.5% of workers also commute in from nearby zip codes 77044, 77049, and 77530, all of which are located on the East Beltway 8 and IH 10 East Freeway corridors.

	2019		2018		2017		2016		2015	
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
Total All Jobs	1,073	100.0%	1,019	100.0%	706	100.0%	747	100.0%	770	100.0%
Less than 10 miles	435	40.5%	384	37.7%	291	41.2%	287	38.4%	263	34.2%
10 to 24 miles	349	32.5%	356	34.9%	257	36.4%	255	34.1%	282	36.6%
25 to 50 miles	164	15.3%	170	16.7%	81	11.5%	117	15.7%	148	19.2%
Greater than 50 miles	125	11.6%	109	10.7%	77	10.9%	88	11.8%	77	10.0%

Table 6: Study Area Worker Commuting Data, Source: Us Census Bureau Longitudinal Employer-Household Dynamics (LEHD), Data Available as of July 2022

Employers

Nielsen-Claritas' 2022 estimates of employment in the study area show 1,508 employees working at 243 different employers. Educational services and accommodation and food services are the top employment categories in this estimate, with other services, retail trade, manufacturing, public administration, and construction all employing at least 100 people. The largest numbers of businesses are found in the other services and retail trade categories while the industry category with the highest total sales is wholesale trade, the only category with more than $100M in sales. No single employer employs more than 100 people in the study area.

Commuter Travel

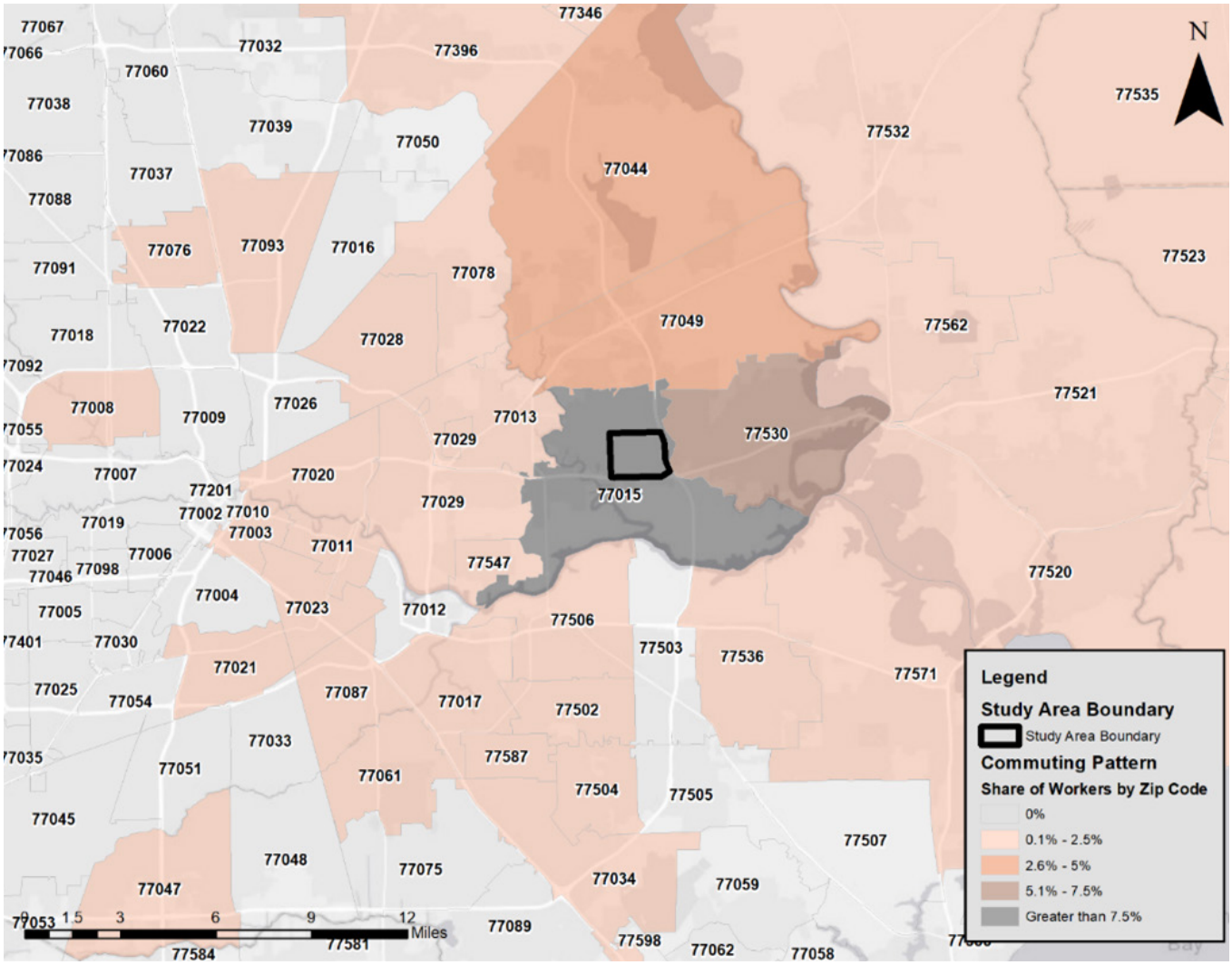


Figure 30: Commuting Pattern To Study Area,
Source: Us Census Bureau Longitudinal Employer–Household Dynamics (LEHD), Data Available As Of July 2022

Housing Choice

Single Family Housing

While there are a strong number of active listings, the present sales trend in 2022 in the study area would result in significantly fewer homes sold than in 2021 or 2020. Median days on market have been quite low in all three years tracked, though the median current listing has been on the market for over a month. Prices, however, have continued to increase. 2022 sales have, thus far, seen a 50% increase in price per square foot compared to 2020 sales. Current listings are asking for $9 more than the 2022 sales price per square foot, pushing median prices above $200,000 for the first time.

Year	Total	Median Price	Median SF	Median Price/SF	Median Days on Market
Active Listings	14	$239,950	1,974	$129.89	37
2022 Sales	8	$162,000	1,226	$120.69	10
2021 Sales	27	$144,000	1,410	$101.50	13
2020 Sales	23	$130,000	1,520	$79.00	13

Table 7: Single Family Home Sales Trends, Source: Houston Area Realtors (HAR), Multiple Listing Service (MLS), July 2022

Year	Total	Median Price	Median SF	Median Price/SF	Median Days on Market
Active Listings	2	$1,288	1,952	$0.70	4
2022 Rentals	6	$1,175	971	$1.21	19
2021 Rentals	10	$963	1,404	$0.69	34
2020 Rentals	14	$863	850	$0.96	89

Table 8: Single Family Rental Trends, Source: Houston Area Realtors (HAR), Multiple Listing Service (MLS), July 2022

In contrast to the steady trends seen in single family sales, prices and square footages for single family rentals have fluctuated significantly. With only 30 transactions recorded since 2020, this uneven pattern may be the result of a small sample size. One trend that is seen is a significant decrease in the median number of days on market.

Multifamily Housing

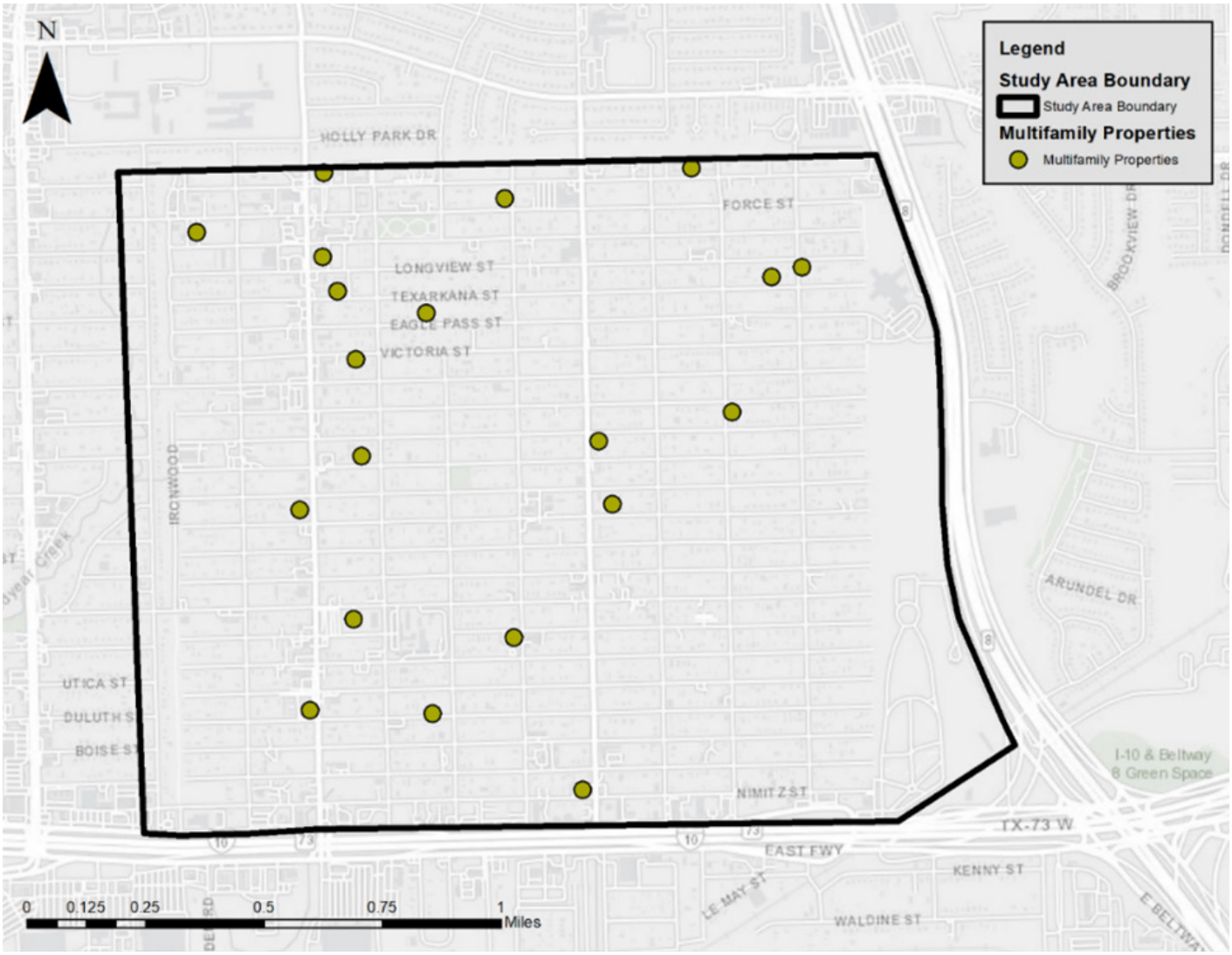


Figure 31: Multifamily Property Map, Source: CoStar July 2022

Multifamily properties are scattered throughout the study area, though most are located in the northern half of the area. Freeport Street and Alderson Street are the primary multifamily corridors in the study area. Occupancy is above 90% with rents topping $1.20 per square foot, though the overall average price is only $622 per month. Nearly all multifamily units in the study area were built prior to 1990. Newer units are smaller, on average, and command higher rents per square foot.

Class	Units	Occupancy	Average Rent	Rent/SF
B	175	97.7%	$524	$0.96
C	447	90.8%	$678	$1.31
Unclassified	11	90.9%	N/A	N/A
Total	633	92.7%	$622	$1.20

Table 9: Multifamily Statistics By Class, Source: CoStar July 2022

Year Built	Units	Occupancy	Average Rent	Rent/SF
Prior to 1970	119	98.3%	$730	$1.11
1970 to 1979	166	93.4%	$614	$1.16
1980 to 1989	333	90.4%	$612	$1.27
1990 to 1999	0	N/A	N/A	N/A
2000 to 2009	0	N/A	N/A	N/A
2010 to Present	15	93.3%	N/A	N/A

Table 10: Multifamily Statistics By Age, Source: CoStar July 2022

Public Health Focus

Housing affordability has indirect impacts on health. Households spending 30% or more of their income on housing costs are referred to as housing-cost burdened households. These households are often forced to choose between paying rent or paying for essentials like groceries, prescription drugs, or health insurance. Additionally, housing-cost burdened households generally have poorer health and see healthcare providers less frequently than non-burdened households.[64]

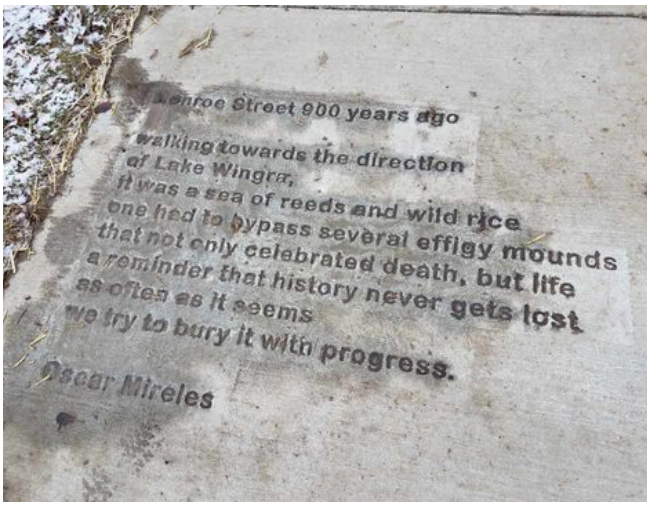
[64] Pollack, C. E., Griffin, B. A., & Lynch, J. (2010). Housing affordability and health among homeowners and renters. American journal of preventive medicine, 39(6), 515-521.

VIII. Public Art and Placemaking

Cloverleaf is virtually a blank slate for public art with many opportunities for placemaking projects. The project team conducted two site visits to assess the challenges and opportunities of the neighborhood. The team explored corridors, roadways, and other locations and areas throughout the study area. They focused observations on public space such as ROW sites and infrastructure along streets, corridors, and highways. They also observed park land and potential trails, school campuses and adjoining areas, and other public buildings and their sites. Public art and placemaking is nearly non-existent in Cloverleaf. A couple of murals were seen, including one significant public artwork on a large-scale water tower in WCID 36: but no other public art or placemaking was found.

Well-travelled locations that many people see present the best sites, so that maximum visibility and public impact is delivered with each project. Civic art contributes to all of the other elements and initiatives that enhance "quality of life" in a community. The process of creating civic art can strengthen the community elements of livability: equity, a sense of connectedness among people, tolerance, shared values, civic involvement, a connection to history and heritage, and even safety, volunteerism, and educational achievements.

Public art in the ROW contributes to creating "complete streets" for people, not just cars. Today's streets are being redesigned with space for amenities – such as trees, landscaping, art, benches, sidewalks, transit, bike lanes, and other amenities. Public art can be incorporated and funded as a percentage of each project that improves mobility in the area. As new amenities for parks, trails, and greenways are added and expanded, public art that enhances places for people is a great feature to incorporate. It all works together to boost livability and local pride – and to spur desired economic and land development.



Public Art: Imprinted Sidewalk Poetry

IX. Call to Action

Based on the findings of this Existing Conditions Report and the feedback from the community, a "Call to Action" is warranted. The Cloverleaf community was developed and platted in the 1930s and has experienced limited infrastructure changes since then. The existing street grid system was developed with drainage ditches on either side of the roadway network that made it difficult to provide pedestrian accommodations. The street grid system has inadequate sidewalks, no bike lanes, and no trail system. Transit is limited to one corridor within the community. To ensure that members of the Cloverleaf community can reside in a safe, well-connected, walkable, and accessible neighborhood, an uncompromising livable centers plan with a forward-thinking vision, sustainable goals, and a set of implementable projects must be completed. The plan must have assignments for entities to implement these projects, and projects must be completed to improve the community's quality of life. This "Call to Action" must be answered.

RECOMMENDATIONS CONCEPT

Introduction

As the study progressed it became clear based on community and stakeholder feedback the need for the PMT to assess and provide recommendations for both infrastructure and non-infrastructure needs.

This section details the process that the PMT, the Task Force, and the community undertook to create recommendations that would address the needs, goals, and vision of the Cloverleaf community, and would serve as "Call to Action". This section will describe and enumerate the number of interactions with the Task Force, focus groups, and the community at large. This section will also describe the needs assessment process, the development of conceptual recommendations for placemaking, for infrastructure, and for new or augmented policy recommendations to accompany the placemaking and infrastructure recommendations. The recommendations will span the planning horizon of more than eleven years with a limit of twenty years. The recommendations will be grouped into three categories: short-term, mid-term and long term. The timelines for these groups are 1 to 5 years for the short-term, 6 to 10 years for the mid-term, and more than 11 years for the long term. It is advisable that both H-GAC and Harris County PCT 2 review this plan yearly with a major update to the plan be conducted in 10 years. Cost estimates were also developed for each project recommendation and used to help categorize each recommendation in their appropriate timeline.

Recommendations for the short-term are projects that are low in costs, easy to implement, could be implemented within 5 years, and were prioritized by the feedback received from the Task Force and the community at large. Policy recommendations proposed were also considered short-term recommendations. Recommendations for the mid-term are projects that could be implemented within 6 to 10 years, are modest in costs, and will need some interagency coordination, permitting and approvals, as well as project budgeting and programming. Finally, long term recommendations are projects with major costs, harder to implement and would necessitate interagency coordination permitting and approvals, as well as project budgeting and programming.

Furthermore, this section will also describe the potential land use changes that could be realized in the mid-term and long term. Because counties in Texas do not have land use regulation authority (i.e., zoning), these potential land use changes will need to happen organically and as a result of infrastructure upgrades, with little or no incentives provided by Harris County PCT 2. These potential land use changes were also analyzed through an economic development lens. The potential land use changes were compared using sales tax and property tax revenue using a base year or base condition (i.e., current sales and tax revenue) to changes in the mid term and changes in the long term.

An Implementation Plan will follow this section and will be formulated using the recommendations and their timelines. Responsible agencies will be assigned projects to implement and possible funding sources will be listed with each project.

Goals

Development Process

A list of goals were developed based on previous community plan recommendations and feedback from the community. The development of goals began with a Task Force meeting and continued with the project management team presenting the input obtained at the first Community-wide Meeting and soliciting feedback from attendees. The list of goals were then evaluated within the context of Harris County PCT 2 goals to ensure they were consistent with desired outcomes.

The goals listed below focus on developing and/or updating infrastructure to ensure that residents of Cloverleaf can safely and efficiently live, work, stay, and play.

List

Goals for the Cloverleaf Livable Centers Study include:

Mobility and Infrastructure:

> More trails and sidewalks
> Increase transit stop amenities
> Increase transit control signage

Safety:

> Street lights that meet current design criteria
> Provide animal control
> Code enforcement
> Police patrol

Vitality:

> Provide opportunities for healthier eating options and small business

Development Process

The success of a livable centers study is dependent on the engagement of the community; thus stakeholder engagement was an essential step in developing the vision. A vision statement for the future of Cloverleaf was defined based on the recommended goals and further input from the Task Force members.

To ensure that members of the Cloverleaf community can reside in a safe, well-connected, walkable, and accessible neighborhood, the transportation-focused and forward-thinking vision of Cloverleaf will serve as a guide to the development of an uncompromising livable centers plan.

Placemaking

UP Art Studio, the Public Art and Placemaking subconsultant for the H-GAC Cloverleaf Livable Centers Study, researched sites, areas and corridors throughout Cloverleaf. This research was conducted by driving around Cloverleaf several times with three different team members. Additional research was conducted using Google Maps. The public spaces researched includes the public right of way along roadways and other vacant sites. Parkland, schools, and other public buildings and their sites were explored.

Why Placemaking

Public art works in concert with other core elements of a livable community. These include quality community services (schools, medical care), walkability and public space, opportunities for outdoor fitness and recreation, urban design, economic stability, jobs, diversity and authenticity. The process of creating civic art can strengthen the community elements of livability: equity, a sense of connectedness among people, tolerance, shared values, and civic involvement, a connection to history and heritage, even safety, volunteerism, and educational achievements.

Public art in the right of way contributes to creating "complete streets" for people, not just cars. Today's streets are being redesigned with space for amenities – such as trees, landscaping, art, benches, sidewalks, transit, bike lanes, and other amenities. Public art can be incorporated and funded as a percentage of each project that improves mobility in the area. As new amenities for parks, trails and greenways are added and expanded, public art that enhances places for people is a great feature to incorporate. It all works together to boost livability and local pride – and to spur desired economic and land development.

Advancing placemaking projects will allow Cloverleaf to attract partners, job, and investors, while deterring crime and being responsive to the people and community groups that are proud to call Cloverleaf home.

Public Art: Mural Playscape

Public Health Focus

Connecting people and places, or placemaking, through community art and culture is way to enhance community spaces. By drawing on the unique characteristics of community, placemaking can create a sense of belonging and build pride which can improve social interactions and connectedness.[65] Social connectedness, or social cohesion, plays a large role in mental and physical health. Strong social connections are associated with longer life expectancy and lower rates of social isolation, depression, and chronic diseases.[66] Community art can also serve as destinations that attract visitors and create places that people want to be. These destinations can improve local economies by spurring economic development. Overall, integrating art into community spaces builds social cohesion, improves health, and enhances quality of life.

[65]Vey, J. S. (2018). Why we need to invest in transformative placemaking. Brookings. https://www.brookings.edu/research/why-we-need-to-invest-in-transformative-placemaking/

[66]Haslam, C., Cruwys, T., Haslam, S. A., & Jetten, J. (2015). Social connectedness and health. Encyclopedia of Geropsychology, 2015, 46-1.

Sites

Cloverleaf will see the greatest benefits by siting public art projects in places where they will excite and uplift people. These projects can all bring meaning and joy to the people who live, work, play, and operate businesses in Cloverleaf and change the way they feel about these places.

All around Cloverleaf, basic infrastructure and underutilized sites are waiting to be embraced as blank canvases for exciting art installations that brighten people's daily lives and create optimism and pride.

1. Site Research

In researching potential sites throughout Cloverleaf, for this report, the team explored different areas and corridors. Research was conducted by driving around Cloverleaf. Additional research was conducted using Google Maps.

The public spaces researched include the public right of way along roadways. The team explored parkland and other public buildings and sites.

2. Catalog of Site Types and Opportunities

In this catalog each major category contains information about each site type. Each category also contains Potential Opportunity Sites – these specific, potential sites can be revisited annually. Based on the team's research and exploration of Cloverleaf, these sites offer priority opportunities for public art since they are public places and spaces.

This comprehensive list can inform a robust discussion of County priorities, for initial, short-term, and long-term efforts.

A. Opportunity Sites: Public Sector

I. Roadway Right-of-Way (ROW)

The ROW along roadways offers prime locations. These include:

> Highway gateway entrances to Cloverleaf

> Major corridors and their intersections

> Business corridors with sidewalks (e.g. streets and intersections with multiple retail and restaurant destinations)

Elements of the ROW and transportation system that can be enhanced with art and design include:

> Sidewalks

> Crosswalks and adjoining roadways

> Frontage roads

> Medians and esplanades

> Bus stops and transit locations

Existing Structures. Many functional, utilitarian but bland structures in the public realm can be beautified with public art. Many of these are in the ROW. All require the approvals of the entities responsible for them and their maintenance. Examples include:

> Retaining walls

> Overpasses

> Underpasses

> Street light poles

- Bridges and bridge crossings
- Traffic control cabinets
- Water towers
- Utility infrastructure (e.g., cabinets, poles)
- Communications structures (e.g., cell phone towers)

II. New Capital Improvement Programs (CIP)

New CIPs will be planned and implemented in Cloverleaf on an ongoing basis. At the earliest scoping and planning phases, Cloverleaf can advocate for these projects to include funding for public art.

Percent for Art Funding

County-funded CIPs (e.g. for Complete Street roadway improvements) can include an allocation of 1.75% of the total budget for public art. For example, new sidewalks can readily be imprinted with "Sidewalk Poetry" which is affordable within this allocation. The County may also be able to designate a percent for art for water and waste-water and other project types.

CIP Project Types

- Mobility improvement projects
- Drainage improvement projects (e.g. water retention ponds, channels)
- Water and wastewater projects
- Parks, trails, greenways, and bikeways

III. Green Space

Green Space includes parks, trails/trailheads/bikeways, linear parks, and bayou waterway greenways. Cloverleaf includes two neighborhood parks, Cloverleaf Park and the North Shore Rotary Park.

Public art can be sited at the entrances to also serves as wayfinding and a gateway to the park. Installations along the perimeter of the park also serve as street art for a drive-by audience. Creative mile markers can be placed throughout a future trail.

Art installations could feature lighting and/or reflective elements to enhance the perception and reality of safety for early morning or evening use.

Specific Opportunity Sites

- Two small park areas
  - Cloverleaf Park
  - North Shore Rotary Park
- Planned Linear Parks (future planned developments)
- Undeveloped parkland owned by Cloverleaf, the City, the County, or public agencies.
- Bayous

IV. Transit Stops and Infrastructure

Cloverleaf has bus routes that run throughout its boundaries. It is recommended to engage with Harris County Transit Department (HCTD) , to discuss coordinated public art projects to enhance people's experience at bus stops and other transit facilities as they are developed.

Improved bus stops and stations that have windscreens, light poles, and utility cabinets offer surfaces that are frequently enhanced with public art by transit agencies.

Roads that serve as transit corridors are priority sites for public art in the ROW. Thousands of people each year will see the art as they look out the window during their rides. Optimizing investments so that they enhance daily life for transit riders can be considered an equity initiative

Transit Types include:

> Bus Stops

> Bus Route Corridors

V. Public Facilities

Community facilities are considered priority sites for public art investments because they are daily destinations for many people. While both interior and exterior spaces can be considered, exterior sites have the most visibility.

There are two schools within Cloverleaf's boundaries. Routes to these schools within Cloverleaf should be considered. Neighborhood schools and visible locations along the adjoining streetscapes are priority sites for art installations because they:

> Serve as focal points of identity for neighborhoods

> Define the community's sense of connection and character

> Offer natural partnering and youth-engagement opportunities

Specific Opportunity Sites

Priority sites recommended for a long-term public art program in Cloverleaf include:

> **Fire and police stations.** Murals that communicate a positive message of safety and security could be an especially good fit at or near the fire station. No police stations exist within Cloverleaf boundaries.

> **Public Affordable Housing.** Upbeat outdoor artwork can brighten and uplift the lives of everyone who lives in public housing and passes by it. Cloverleaf can seek out partners in the governmental entities that operate housing on public land. New, future housing could also be scoped to include a budget for public art.

> **Public Schools.** School routes are daily destinations for children, families, school staff and participants in meetings on campus, providing opportunities for public art.

> **Community or Recreational Centers.** The entrance area around the Community Center offers a site for public artwork as it attracts many visitors including families. The underutilized parking area provides an opportunity for temporary projects that can inform a future, permanent project.

B. Opportunity Sites: Private Sector

Public entities need to proceed with caution when they expend public dollars on private property. While it is possible to do so, such projects require a careful approach taken in consultation with legal counsel. A clear case should be made for public benefit. A partnership approach often works best, which may be formalized in a Memorandum of Understanding and other documentation.

Even without contributing public funds, Cloverleaf can advocate for public art on privately owned sites. It can use all reasonable efforts to request that property owners fund investments in public art and placemaking on private property – especially at the start of new projects and on redevelopment sites.

A new Public Art Grant program could provide funding assistance to local commercial property owners to enhance commercial properties, instill a sense of pride and identity, and engage business owners in the beautification of the community. Alternatively, or additionally, this program could fund stipends directly to artists, who have ideas for art projects in Cloverleaf. The grants would be awarded through a competitive selection process annually. The murals would be on public or private sites, as requested and approved by commercial property owners.

Property Types include:

- Retail areas–Sites of mixed-use and commercial developments
- Major underutilized and re-developing properties
- Empty storefronts
- Blank visible walls
- Vacant lots, greenfield/brownfield sites, undeveloped parcel
- Vacant or abandoned buildings
- Underutilized properties
- Underutilized parking lots
- Properties blighted by graffiti, garbage, etc.
- Private multi-family housing complexes that include common spaces and outdoor plazas, etc.

Specific Opportunity Sites

- Retail/commercial businesses along roadways
- Vacant land throughout the community

3. Recommended Priority Sites

For the short-term and beyond, the sites in the chart below offer the most immediate impact.

Type of Site	Priority Sites	Examples of Suitable Project Types
Highway Gateways	• IH 10 at Freeport Street • IH 10 near Uvalde Street (adjacent) Beltway 8 at Woodforest Boulevard (adjacent)	• Murals and LED lighting
Streetscapes	• Freeport Street Corridor	• Temporary sculptures and installations artistic street furnishings
Parks, Trails, Open Space	• North Shore Rotary Park Cloverleaf Park • Sites of Future Linear Parks and/or Trails (mid-term)	• Murals sculptures crosswalks • Lighting installations • Trailhead art (mid-term)
Public Buildings	• Community Center • Cloverleaf Fire Station • Schools	• Large-scale murals • Tactical urbanism installation • Temporary markets (farmer's market, art market, etc.)
Retail and Business corridors	• Freeport Street and Woodforest Boulevard (adjacent)	• Murals • Sculptures and installations in esplanades
Vacant Land	• Areas throughout the District	• Large-scale temporary installation (mid to long term)
CIP Infrastructure Improvement Sites	• TBD (mid to long term)	• TBD

Table 11: Site types and examples of suitable project types

Recommended Projects

Overview of Recommended Projects

For recommended timelines, Harris County PCT 2 should select projects that it wants to pursue as the first of a series. In the first year, a three-pronged approach is recommended. Harris County PCT 2 should concurrently initiate:

> One to three "Quick Win Projects" (short-term)

> One to two "Pilot Projects" (mid-term)

> Planning for two to four larger-scale "Signature Projects" (long term corresponding to CIPs)

Several relatively simple projects can be fully planned and delivered in FY 2023 and 2024. In addition, more complex projects that require additional planning, engineering, and lead time should be selected and start the initial planning and development stage.

Descriptions and more information for each project type follows in this section. The final selection of specific projects should be made by Harris County PCT 2. A summary of these projects is in the following table.

Type	Potential Sites	Estimated Timeframe	Estimated Budget
Quick Win Projects			
Murals	• Cloverleaf Fire Station • North Shore Rotary Park (enhance current infrastructure, seating, sports courts, etc.) • Schools • Water towers (two ground level towers) • Private property facade grants	Short-term	$30/SF as a starting budget guideline
Painted, Crosswalks, and Playscapes	• Near schools and parks • Major intersections (i.e. Freeport St. at Alderson St.) • Sidewalks around the perimeter of the schools can be painted • New sidewalks (imprinted)	Short-term	$30,000 – $80,000 per intersection
Mini Murals	• Several County-owned traffic signal control cabinets	Short-term	$3,000+ each
Temporary Public Art Installations	• North Shore Rotary Park and Cloverleaf Park • Community Center Parking Lot - installations and events (farmer's market, art market, temporary bicycle course, etc.) • Future site of linear park (mid-term) • Vacant land owned by the County (mid-term)	Short- and mid-term	$15,000 – $200,000+ each

Table 12: Quick win projects potential sites with estimated timeframes and budget

Type	Potential Sites	Estimated Timeframe	Estimated Budget
Pilot Projects			
Sculptures	• Wide esplanades at Freeport Street near IH 10 • Vacant lots owned by the county • Underutilized school fields	Mid-term	$15,000 – $200,000+ each
Sidewalk Poetry	• Sidewalks being upgraded • New trails being constructed • New sidewalks being constructed (mid to long term)	Mid-term	$10,000 – $20,000
Transit Stops	• Several transit stops throughout Cloverleaf should be enhanced with artist-designed seating and shade	Short-term	$20,000 – $50,000
Art Banners	• Entry corridor (e.g. Freeport Street) • Near parks and schools	Short-term	$25,000
Signature Projects			
Gateway Underpass Art	• IH 10 at Freeport Street	Short- (for painting) to mid-term (for lighting)	$100,000+ for artwork; $150,000+ for lighting
Large-scale sculpture or installation	• North Shore Rotary Park • Community Center Parking Lot • Future site of linear park • Vacant land owned by the County • New CIP site (mid- to long-term)	Mid-to long-term	$100,000+
Art Park and Sculpture Garden	• Underpass area near cemetery – lighting is important; could be the site of an annual painting event	Long-term	$200,000+
Enhancement to (future) Hike and Bike Trail	• Highly visible trailheads for entering the Trail • Artist-enhanced furnishings along trail	Mid-term	$20,000 – $30,000+ each

Table 13: Pilot projects potential sites with estimated timeframes and budget

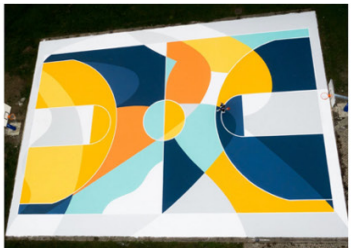
Final Recommendations

Short-Term

North Shore Rotary Park

North Shore Rotary Park provides multiple opportunities for public art and placemaking projects, including:

- > Creative sports courts
- > Enhance seating
- > Enhance current infrastructure
- > Re-paint entrance installation
- > Paint playscape
- > Create sculpture



RECOMMENDATIONS CONCEPT

Murals

Public buildings and infrastructure provide a great opportunity for murals.

Creative Crosswalks

We recommend creative crosswalks at major intersections, especially near schools and parks.

RECOMMENDATIONS CONCEPT

Mini Murals

Mini murals on traffic signal control cabinets throughout Cloverleaf.

Creative Placemaking and Tactical Urbanism

Activate Community Center parking lot – with installations and events (farmer's market, art market, temporary bicycle course, etc.).

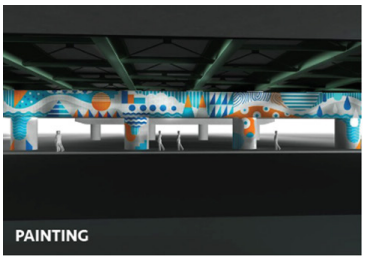
Mid-Term

Transit Stops

Several transit stops throughout Cloverleaf should be enhanced with artist-designed seating and shade.

Gateway Art

The underpass at IH 10 at Freeport Street is the main gateway into the Cloverleaf community. A Gateway Art Project can include painting and lighting, and/or a sculpture element. The wide esplanade at this intersection also provides an opportunity for public art.



Mid-and Long-Term

Sculptures and Installations

Sculptures and other installations should be installed in vacant lots and along future trails.

Long-Term

Art Park

An art park should be created at the underpass that intersects with the cemetery near IH 10 and Beltway 8.

An art park is a development that showcases public art, including murals, sculptures, and installations. This is done in an outdoor museum type setting that provides enriching experiences that connect art, nature, and history.

RECOMMENDATIONS CONCEPT

Houston-Galveston Area Council

REVIVE 2 THRIVE Community Revitalization Initiative

Harris County Public Health Building a Healthy Community

Land Use Regulations Overview

Land use regulations allow municipalities to establish and guide the future of growth and development patterns. Land use text description and policy direction include orderly and clearly defined land use categories. This text is accompanied by a land use map showing where land use categories are designated. Land use categories should be applied to provide a transition between land uses (uses of property) and in turn reduce conflicts between adjacent uses or incompatible uses. Overall, a future land use plan is a regulatory guide and decision-making tool for City staff, Commissions, and City Councils.

Per Texas Local Government Code, municipalities have authority to enact zoning regulations for the purpose of public health, safety, morals, or general welfare. This authority permits municipalities to enforce land use regulations via the adoption of a Comprehensive Plan. However, this authority does not extend beyond a municipal boundary and is not applicable to County regulations. Therefore, these regulations are not enforceable in Harris County.

Existing Conditions Section

The Existing Conditions Report included a current perspective of how land use is distributed within Cloverleaf based on data from the Harris County Appraisal District. These uses were distributed into six use categories: single-family, multi-family, public/institutional, commercial, vacant, utilities, and open space. The analysis showed that 52% of the land is dedicated to single-family residential use; 26% for multi-family uses; 3% for Public/Institutional uses; 8% for Commercial uses; 10% for Vacant uses; and 1% for Utilities. See the Existing Conditions Report for maps and more information on existing land uses.

Connection between Land Use and Mobility/Transportation

Mobility and transportation improvements are key to improving quality of life and safety for the residents of Cloverleaf. In order to create a thriving livable center that supports a user-friendly mobility network that will have access to amenities, support local businesses, and provide a safe link for residents and visitors to move throughout the community, land use recommendations can enhance those improvements by supporting neighborhood stability for not only residents, but business owners a well, and offer opportunity for economic revitalization. A land use pattern and policy should promote preservation of community character while creating an emergence of mixed-use retail, service, and residential opportunities.

Potential Land Use Changes

Overview of Maps:

The potential land use scenarios for the Cloverleaf community look beyond the immediate short-term improvements that may occur and plans for extended future mid- to long-term improvements. The scenarios presented take into account the mobility and transportation and placemaking recommendations proposed. The intent of these recommendations is to achieve a well-rounded community where people can live, work, and play. Mobility and transportation improvements are fundamental to establishing this change, and the land uses recommendations are intended to support and augment those mobility and transportation recommendations.

To achieve the potential land use scenarios, the community should have the flexibility to create a mixed-use Livable Center. Alone the existing land use categories, single-family; multi-family; public/institutional; open space; and utilities, do not provide flexibility or guidance to achieve dynamic and thriving mixed-use environment. It will potentially increase the land use category palette to include the following mixed-use categories:

> *Neighborhood Mixed-Use:* A mix of residential, commercial, and public institutional uses that complement the character and design of the surrounding neighborhood in terms of density and height. The mixture of uses may be vertically or horizontally distributed within a property or across a conglomeration of adjacent properties replatted as one development. Within mixed-use buildings, it is encouraged for residential units to be located

above the first floor, but there is not a requirement for one building to contain more than one type of use. Typical first floor uses include, but are not limited to, small office spaces, professional services, and small-scale retail establishments and restaurants. Live and/or work housing options are permissible in neighborhood mixed-use areas to ensure access to housing options and services within close proximity for the local workforce. Where practical, buildings should be situated close to the public right-of-way, and parking is located behind buildings. Properties classified as neighborhood mixed-use should be in close proximity to pedestrian and bicycle facilities.

> *Community Mixed-Use:* A mix of residential, commercial, and institutional uses at a medium level of intensity. Community mixed-use development is typically larger in scale than neighborhood mixed-use. Building footprints may be block-scale but could be smaller depending on block configuration and overall development density and opportunity. Within mixed-use buildings, it is encouraged for residential units to be located above the first floor, but there is not a requirement for one building to contain more than one type of use. Typical first floor uses include, but are not limited to, professional services, offices, institutional uses, restaurants, and retail including grocery stores. The mix of uses may be vertically or horizontally distributed, and there is no requirement that a single building contain more than one use. Live and/or work housing options are permissible in community mixed-use areas to ensure access to housing options and services within close proximity for the local workforce. Properties classified as community mixed-use should be located in close proximity to pedestrian and bicycle facilities.

> *Commercial/Flex Mixed-Use:* A mix of commercial, institutional, and light industrial uses at a medium level of intensity. Commercial/flex mixed-use development is typically larger in scale than neighborhood mixed-use, but a similar scale to commercial mixed-use. Building footprints may be block-scale but could be smaller depending on block configuration and overall development density and opportunity. The mixture of uses may be vertically or horizontally distributed within a property or across a conglomeration of adjacent properties replatted as one development. Properties classified as commercial/flex mixed-use should be located along major arterials and in close proximity to pedestrian facilities.

Mid-Term Scenario

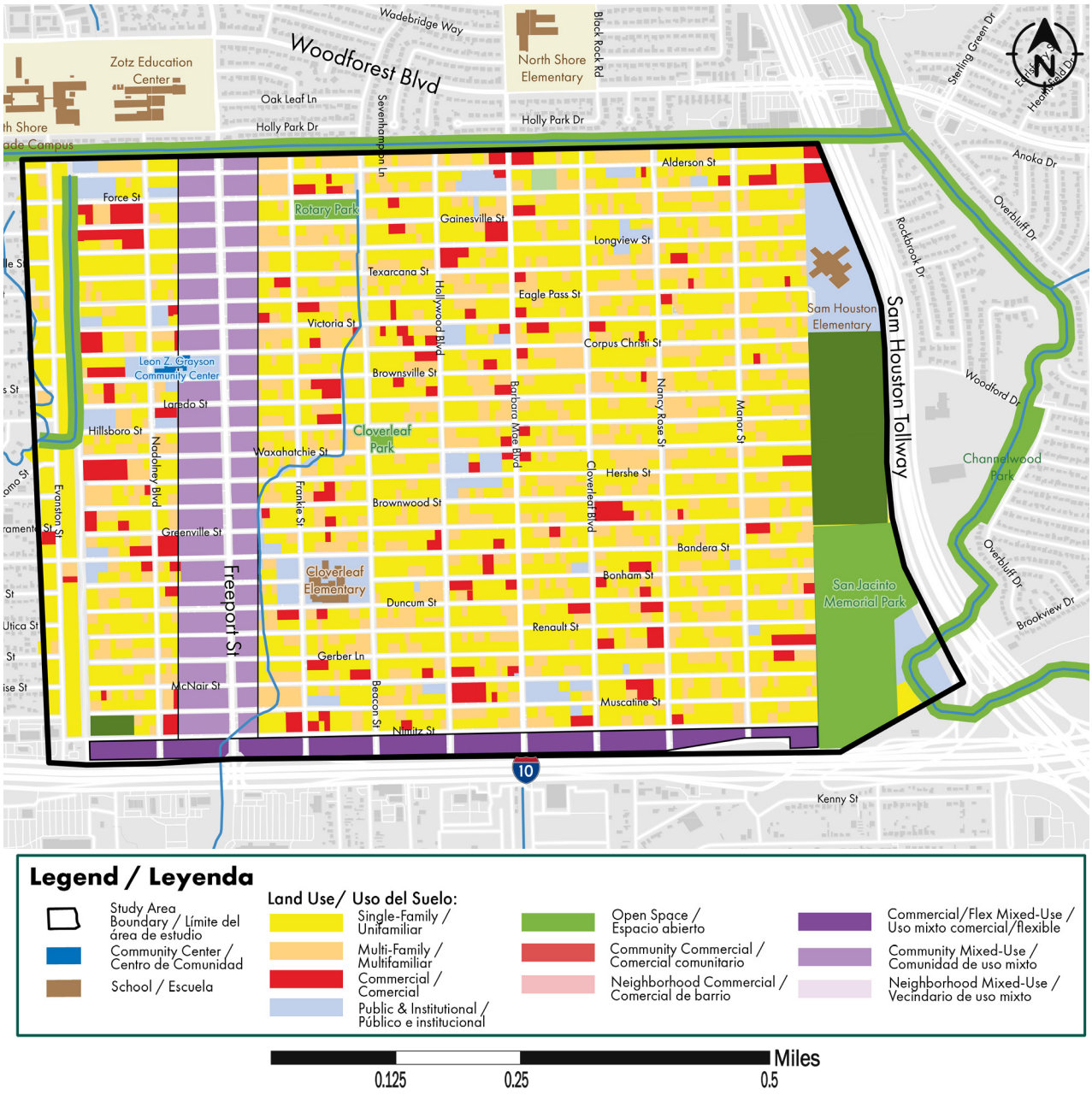


Figure 32: Mid-Term Scenario Map

This land use scenario looks at the mid-term perspective, 5 to 10 years from now. It follows short- to mid-term mobility and transportation recommendations by focusing improvements along the IH 10 Westbound Frontage road and Freeport Street. It is envisioned that the Cloverleaf Community should be encouraged to develop with commercial/flex mixed-uses applied along the IH 10 westbound frontage road.

This corridor directly fronts IH 10 West and is the first view visitors and residents have when entering the community from the south. The IH 10 westbound frontage road is characterized by a mixture of community-oriented businesses, such as Captain Tom's and Community Bank of Texas, and industrial and commercial uses in warehouse type buildings. The commercial/flex mixed-use category is gives opportunities to build on the existing development pattern and focus on rehabilitating and retrofitting industrial structures and support infill to allow a mixture of

commercial, institutional, or light-industrial mixture of uses within the same structure or property lines. It is not appropriate for residential uses to be located within the commercial/flex mixed-use category. Similarly, structures over three stories would not be appropriate if they are adjacent to existing residential uses. Below features examples suitable for the commercial/flex mixed-use category.

Land Use Scenario for IH 10 Westbound Frontage Road

This scenario expands past the commercial/flex mixed-use vision for the IH 10 westbound frontage road to include Freeport Street. The intersection of Freeport Street and IH 10 westbound frontage is seen as one of the key gateways for the community, with Freeport Street centered as an active commercial corridor with small-scale local businesses, restaurants, and shops. This scenario envisions a community mixed-use designation along Freeport Street to support the existing businesses and uses while encouraging a mixture of residential, commercial, and institutional uses to develop at a medium level of intensity. This scale of development is less intense in nature than the commercial/flex mixed use category and does not encourage industrial uses. Additionally, community mixed-use provides opportunity for live/work housing options with first floor or store front uses reserved for professional services, offices, institutional uses, restaurants, retail, and other similar scale uses. Residential living spaces are encouraged on the second or third story or back of lot. Buildings along Freeport Street should be a maximum of three stories for properties immediately adjacent to existing single-family uses. Collectively these land use changes in the mid-term will thrive in close proximity to improved mobility networks. Below features examples suitable for the community mixed-use category.

Land Use Scenario for Freeport Street

Long-Term Scenario

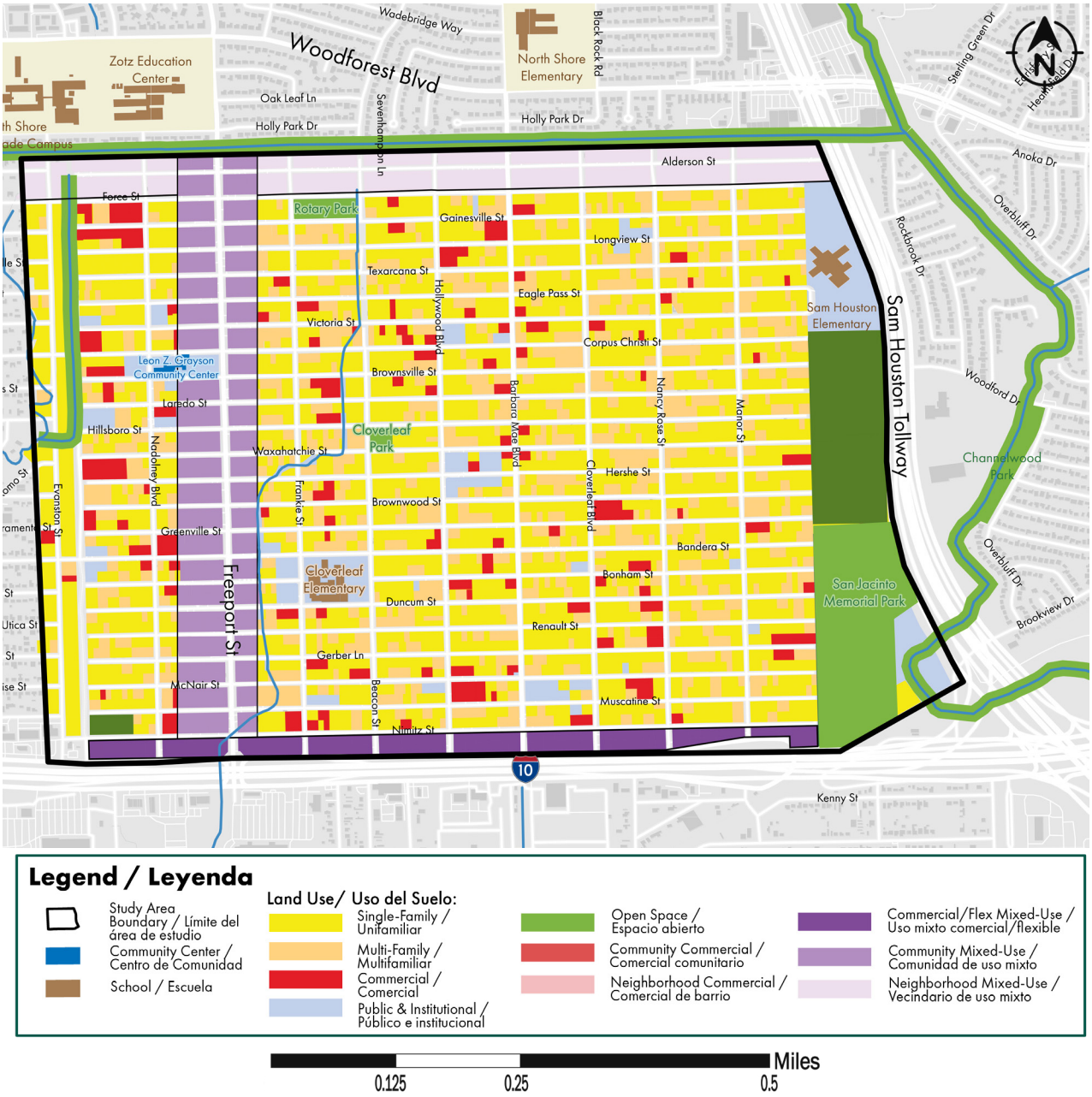


Figure 33: Long-Term Scenario Map

This scenario looks at the long-term perspective, which is 11 or more years in the future. It expands on the mid-term scenario that is centered around the IH 10 westbound frontage road and Freeport Street, and incorporates proposed land uses on Alderson Street. The focus on Alderson Street, builds on the mobility improvements and potential on-street parking.

The long-term scenario envisions Alderson Street designated as neighborhood mixed-use to create a Main Street ambiance on the corridor. The land use category is similar to the community mixed-use category and encourages a mixture of residential, commercial, and public institutional uses, but on a small-scale, as known as a mom-and-pop scale. These uses may be integrated horizontally or vertically as a property is retrofitted or developed, but they should complement the existing character and design of the surrounding neighborhood. Where possible, buildings

along Alderson Street should be situated close to the public right-of-way with a minimal front setback, and parking lots are encouraged to be constructed behind buildings. Should incentivized on-street parking be provided on the north side of Alderson Street, patrons should also utilize on-street parking to access local businesses were optimal. Buildings along Alderson Street should be a maximum of two stories for properties immediately adjacent to existing single-family uses. Below features examples suitable for the neighborhood mixed-use category.

Land Use Scenario for Alderson Street

Public Health Focus

Communities with greater population density, mixed land use, and a connected street network encourage walking and cycling and support the use of public transportation.[67,68] Multimodal transportation also has a number of economic benefits as walkable and bikeable communities have been shown to improve the resale value of homes, attract new businesses, and increase retail sales.[69]

[67] New South Wales Ministry of Health (NSW) (2020). Healthy Built Environment Checklist. http://health.nsw.gov.au/
[68] McAslan, D. (2017). Walking and Transit Use Behavior in Walkable Urban Neighborhoods. Michigan Journal of Sustainability, 5(1). http://dx.doi.org/10.3998/mjs.12333712.0005.104
[69] Litman TA (2022) Economic value of walkability. Victoria Transport Policy Institute. Retrieved from https://vtpi.org/walkability.pdf

Economic Development

Subconsultant CDS examined the draft Cloverleaf Livable Center concept plan created by the Consor team with input and review by Harris County PCT 2, Harris County Public Health, and the Cloverleaf stakeholders and community members. Based on the plan elements and the phasing/timing envisioned in the plan, draft projections of the potential impact of the conceptual improvements on property and sales tax revenue generated within Cloverleaf were produced.

Assumptions and Inputs

Developing the projections required a set of assumptions upon which various elements of the analysis relied.

Baseline Property Value Appreciation

CDS assumed that past trends in appreciation rates of real property appraised value (the value used for tax revenue calculations before applying exemptions) by Harris Central Appraisal District (HCAD) land use category would continue absent any Livable Center programmatic improvements. For non-residential uses, the average compound annual growth rate (CAGR) from 2012 to 2022 provided the appreciation factor. For the various types of residential uses, CDS used the CAGR from 2012 to 2020 in order to exclude the unusual impacts of the COVID-19 pandemic on residential values. The baseline rates are as follows:

HCAD Land Use	CAGR
Cemetery	0.0%
Commercial	5.4%
Duplex	7.5%
Institutional	0.0%
Mobile Home Exempt Non-Exempt	3.9% 10.0% 3.9%
Multifamily	10.6%
Religious	0.0%

HCAD Land Use	CAGR
Single Family Exempt Non-Exempt	9.3% 10.0% 9.3%
Single Family (Aux) Exempt Non-Exempt	4.4% 10.0% 4.4%
Triplex	13.3%
Utilities	4.3%
Vacant	5.4%

Table 14: Baseline compound annual growth rates

Note that the CAGR for properties classified under three residential uses that HCAD indicates as having homestead exemptions applied have a CAGR of 10%. This is because during periods of rapid HCAD appraised value appreciation, HCAD's estimates of Assessed value (equivalent to an estimate of actual market value) far outpaced the maximum annual 10% increase Appraised value allowed by Texas law. Thus, our analysis assumed that Appraised value for these homestead residential properties would always rise at 10% annually until the point at which a 10% increase in one year would exceed the projected Assessed value for that year; in that year and thereafter, CDS made the Appraised value equal the Assessed value and applied the regular baseline appreciation rate.

Impact of Concept Plan Improvements – Residential

It is important to note that CDS did not perform a residential (or commercial) market study for this analysis, as it was not part of the Livable Center study scope of work. Therefore, the projections of value changes reflect CDS' general knowledge and experience regarding the impacts of public improvements to infrastructure and quality of life amenities.

Because the concept plan calls for adding sidewalk and trail/greenway improvements during the mid/long term time frame, CDS believes these improvements to safety, mobility, and health in the community should have a modest

net positive impact on residential property values (both rental and owner-occupied housing) above baseline appreciation. This will take the form of slightly accelerated property value appreciation, projected at the following schedule:

	Short-Term					Mid-Term				
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Additional Appreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	2.0%
	Long-Term									
	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Additional Appreciation	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%

Table 15: Projected additional residential appreciation

Residential Exemptions

CDS applied the percentage homestead exemption amount for each taxing jurisdiction (rather than the minimum flat dollar amount) to the appraised value of all acreage that is noted as having a homestead exemption as of 2022. While other exemptions, such as disabled veterans, may be applicable to some homestead properties, CDS did not consider non-homestead exemptions in its projections.

Impact of Concept Plan Improvements – Commercial

Because the concept plan improvements, particularly in the long-term time frame, will support and encourage denser commercial/residential activity, CDS projected that commercial property value growth will come from increments of new development/redevelopment that occur in the mid- and long-term time frames specifically along Freeport Street, IH 10 westbound frontage road and potential main street type redevelopment along Alderson Street. CDS has projected the new development to be a mix of purely commercial/retail use and other properties which will have a mix of commercial/retail, and residential (multifamily) uses. The projected net new development schedule is as follows:

	New Development Square Feet									
	Short-Term					Mid-Term				
New Development	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Commercial/retail only							4,500		4,500	
Mixed-Use										
	Long-Term									
	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Commercial/retail only	12,000					4,500				4,500
Mixed-Use				25,000				25,000		

Table 16: Projected new commercial/mixed use development

To assign a property value to this new development, CDS examined reasonable comparable properties. For pure commercial/retail, CDS examined the HCAD Appraised values of the improvements on other recently built retail-focused properties in Cloverleaf or close by and averaged them to produce a 2022 value of $164.28 per square foot. For commercial/multifamily mixed-use, CDS averaged this calculated value with the Appraised value factor of the improvements on a recently built workforce (market rate) multifamily property in the East End of Houston which has few on-site amenities (example: no pool). The resulting value was $152.60 per square foot. These values are assumed to appreciate as with existing development at commercial and multifamily appreciation factors.

The new commercial development will also create additional productive space for sales tax revenue. To project this, CDS examined recent work on taxable sales productivity of an upscale portion of the urban core of Houston for retail and restaurant spaces. They estimated the taxable sales productivity (net of the fees levied by the State of Texas Comptroller's office) of the current commercial space in Cloverleaf, which includes a substantial amount of industrial uses in addition to more standard retail space. The latter value was considerably lower than the former. CDS ultimately estimated a taxable sales productivity for new retail-occupied space in Cloverleaf at a level in between the two estimates at $75.00 per square foot of new retail-occupied space and $150.00 per square foot of new restaurant-occupied space. Owing to a share of sales being for non-taxable food and pharmacy items, the taxable sales in small grocer/pharmacy businesses is estimated at 70% of regular retail space, or $52.50 per square foot.

It should not be assumed that all new commercial space will necessarily be occupied by businesses that produce taxable sales. Retail space may host banks, insurance agents, realtors, income tax preparers, etc. For the analysis, CDS assumed the following shares of new development space to be occupied by retail and restaurant businesses that produce taxable sales:

Businesses with Taxable Sales

Development Type	Retail Occupant Share	Restaurant Occupant Share	Small Grocer/Pharmacy Share
Retail Only	40%	15%	20%
Mixed-Use	30%	5%	0%

Table 17: Projected shares of new development

CDS assumed that no additional large-scale ("big-box") grocery businesses will open in Cloverleaf. Some additional non-taxable grocery sales may occur in a small corner-store format or associated with a pharmacy.

Property Tax Impacts Summary

The following is a summary of the real property tax impacts of the Livable Center concept plan as projected by CDS. Please note that all amounts are in 2022 dollars and represent the sum of all property tax jurisdictions at their 2022 tax rates. Business personal property tax is not included.

RECOMMENDATIONS CONCEPT

	Short-Term					Mid-Term				
Baseline Rev.	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Non-Homestead Residential	$5,297,932	$5,739,717	$6,221,399	$6,746,733	$7,319,836	$7,945,219	$8,627,831	$9,373,094	$10,186,956	$11,075,940
Homestead Residential	2,128,984	2,338,651	2,558,679	2,797,562	3,059,537	3,347,002	3,662,477	4,008,734	4,388,819	4,806,085
Non-Residential	3,388,892	3,541,903	3,689,648	3,843,570	4,003,927	4,170,989	4,345,038	4,526,367	4,715,279	4,912,094
TOTAL	$10,815,809	$11,620,271	$12,469,726	$13,387,864	$14,383,300	$15,463,211	$16,635,347	$17,908,194	$19,291,055	$20,794,119
Cumulative	*$10,815,809*	*$22,436,080*	*$34,905,806*	*$48,293,670*	*$62,676,970*	*$78,140,181*	*$94,775,527*	*$112,683,722*	*$131,974,777*	*$152,768,896*
	Long-Term									
Baseline Rev.	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**
Non-Homestead Residential	$12,047,199	$13,108,577	$14,268,679	$15,626,052	$17,114,331	$18,746,251	$20,535,795	$22,498,315	$24,650,669	$27,011,366
Homestead Residential	5,264,215	5,767,263	6,319,684	6,926,378	7,592,734	8,324,678	9,128,726	10,012,046	10,982,519	12,048,813
Non-Residential	5,117,142	5,330,769	5,553,334	5,874,317	6,217,390	6,584,333	6,977,087	7,397,769	7,848,685	8,332,352
TOTAL	$22,428,556	$24,206,609	$26,141,697	$28,426,748	$30,924,455	$33,655,262	$36,641,608	$39,908,130	$43,481,872	$47,392,532
Cumulative	*$175,197,452*	*$199,404,060*	*$225,545,758*	*$253,972,506*	*$284,896,961*	*$318,552,223*	*$355,193,831*	*$395,101,961*	*$438,583,833*	*$485,976,365*
With LC Concept Plan Improvements Revenue	**Short-Term**					**Mid-Term**				
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Non-Homestead Residential	$5,297,932	$5,739,717	$6,221,399	$6,746,733	$7,319,836	$7,945,219	$8,627,831	$9,560,556	$10,390,696	$11,523,408
Homestead Residential	2,128,984	2,338,651	2,558,679	2,797,562	3,059,537	3,347,002	3,662,477	4,015,653	4,396,015	4,821,200
Non-Residential	3,388,892	3,541,903	3,689,648	3,843,570	4,003,927	4,170,989	4,370,555	4,553,256	4,771,950	4,971,813
TOTAL	$10,815,809	$11,620,271	$12,469,726	$13,387,864	$14,383,300	$15,463,211	$16,660,863	$18,129,465	$19,558,660	$21,316,421
Cumulative	*$10,815,809*	*$22,436,080*	*$34,905,806*	*$48,293,670*	*$62,676,970*	*$78,140,181*	*$94,801,044*	*$112,930,509*	*$132,489,169*	*$153,805,590*

With LC Concept Plan Improvements Revenue	Long-Term									
	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Non-Homestead Residential	$12,533,906	$13,638,163	$14,845,134	$16,326,286	$17,783,528	$19,377,250	$21,120,551	$23,258,083	$25,365,932	$27,672,786
Homestead Residential	5,279,935	5,783,610	6,336,684	6,948,609	7,615,853	8,348,720	9,153,729	10,043,425	11,015,152	12,082,751
Non-Residential	5,263,981	5,485,506	5,716,394	6,418,345	6,809,975	7,271,013	7,724,288	8,767,409	9,349,658	10,028,236
TOTAL	$23,077,821	$24,907,279	$26,898,211	$29,693,241	$32,209,356	$34,996,983	$37,998,568	$42,068,918	$45,730,743	$49,783,772
Cumulative	*$176,883,411*	*$201,790,690*	*$228,688,902*	*$258,382,142*	*$290,591,498*	*$325,588,481*	*$363,587,049*	*$405,655,967*	*$451,386,709*	*$501,170,482*

Table 18: Study area property tax projections

Concept Plan Improvements Less Baseline

	Short-Term					Mid-Term				
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Annual	$-	$-	$-	$-	$-	$-	$25,517	$221,270	$267,605	$522,302
Cumulative	$-	$-	$-	$-	$-	$-	*$25,517*	*$246,787*	*$514,392*	*$1,036,695*
	Long-Term									
	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Annual	$649,265	$700,670	$756,514	$1,266,493	$1,284,901	$1,341,721	$1,356,960	$2,160,788	$2,248,871	$2,391,241
Cumulative	*$1,685,960*	*$2,386,630*	*$3,143,144*	*$4,409,636*	*$5,694,537*	*$7,036,258*	*$8,393,218*	*$10,554,006*	*$12,802,876*	*$15,194,117*

Table 19: Study area property tax projections

The projections indicate that implementation of the Livable Center concept plan could produce approximately an additional $15M in property tax revenue during the 20-year projection period.

Sales Tax Impacts Summary

Based on the aforementioned assumptions, CDS projected the taxable sales generated by new commercial and mixed-use development in the Cloverleaf study area. CDS did not assume any increase in taxable sales generated by businesses in existing commercial uses, though that is a possible outcome if sufficient new traffic and spending activity become attracted to the area. The projections are in 2022 dollars.

New Development Spurred by Concept Plan Improvements

	Short-Term					Mid-Term				
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
City of Houston/ WCID #36	$-	$-	$-	$-	$-	$-	$2,835	$2,835	$5,670	$5,670
ESD 6	-	-	-	-	-	-	1,418	1,418	2,835	2,835
ESD 12	-	-	-	-	-	-	1,418	1,418	2,835	2,835
TOTAL	$-	$-	$-	$-	$-	$-	$5,670	$5,670	$11,340	$11,340
Cumulative	*$-*	*$-*	*$-*	*$-*	*$-*	*$-*	*$5,670*	*$11,340*	*$22,680*	*$34,020*
	Long-Term									
	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
City of Houston/ WCID #36	$13,230	$13,230	$13,230	$20,730	$20,730	$23,565	$23,565	$31,065	$31,065	$33,900
ESD 6	6,615	6,615	6,615	10,365	10,365	11,783	11,783	15,533	15,533	16,950
ESD 12	6,615	6,615	6,615	10,365	10,365	11,783	11,783	15,533	15,533	16,950
TOTAL	$26,460	$26,460	$26,460	$41,460	$41,460	$47,130	$47,130	$62,130	$62,130	$67,800
Cumulative	*$60,480*	*$86,940*	*$113,400*	*$154,860*	*$196,320*	*$243,450*	*$290,580*	*$352,710*	*$414,840*	*$482,640*

Table 20: Annual projected incremental sales tax revenue

CDS projects that the Livable Center concept plan could help generate roughly $480,000 in additional sales tax revenue at Cloverleaf properties during the 20-year projection period.

Infrastructure Introduction

As described in the Existing Conditions Section, Cloverleaf has limited infrastructure changes since it was platted in 1930. The existing street grid system has inadequate sidewalks, no bike lanes, no trail system, and transit is limited to one corridor within the community. The PMT in collaboration with community stakeholders have developed infrastructure recommendations to ensure that members of the Cloverleaf community can reside in a safe, well-connected, walkable, and accessible neighborhood.

Needs Assessment

Understanding Cloverleaf's existing conditions and stakeholder concerns is key to identifying the opportunities available in the Cloverleaf community. The results of the needs assessment led to understanding areas of concern for individuals including flooding; where they live, play, work, and run errands; and locations where they feel safe or unsafe with in the community. As detailed in the Existing Conditions Section, participants provided comments on key points of concern within the community, to include infrastructure-related items including road infrastructure, environmental safety, and flooding. A health survey inquiring what is preventing individuals from living a healthier life in Cloverleaf, and infrastructure-related concerns stemming from this survey included environmental issues (such as flooding); lack of sidewalks and bike lanes; heavy or speeding traffic; limited public transportation; and lack of parks, trails, or other areas for recreation.

In addition to the stakeholder feedback obtained, several existing plans and previous studies were analyzed as part of the needs assessment as detailed in the Existing Conditions Section.

Recommendation Concepts

Recommendations provide a starting point to identify a combination of short-, medium-, and long-term initiatives that can improve the social, physical, and economic health and wellbeing of the community through better built environments. While some of these recommendations can be implemented relatively quickly, others require additional planning and analysis, budgeting, and partnerships with numerous stakeholders.

Recommendations for the short-term include projects that are low in costs, easy to implement, could be implemented within 5 years, and are prioritized by the feedback received from the task force and the community at large.

Recommendations for the mid-term include projects that could be implemented within 6 to 10 years, are modest in costs, and would need some interagency coordination for permitting and approvals, as well as project budgeting and programing. Long-term recommendations that could take more than 10 years to implement are projects with major costs, harder to implement, and would necessitate interagency coordination for permitting and approvals, as well as project budgeting and programming.

Neighborhood-wide and critical areas recommendation concepts include the following:

RECOMMENDATIONS CONCEPT

① Safe Routes to School

Build treatments to provide children more comfortable and safer access to their schools.

- Manor St. from Victoria St. to Gainesville St.
- Victoria St. from Nancy Rose St. to Sam Houston Elementary
- Eagle Pass St. from Nancy Rose St. to Sam Houston Elementary
- Sam Houston Elementary Multi-use Path from Gainesville St. to Hillsboro St.
- School Zone reduced speed limit extension

Existing School Zone

Proposed School Zone Extension

Proposed Multi-Use Path

Install quick-build safety improvements to slow down vehicles.

- Sam Houston Elementary
- Cloverleaf Elementary

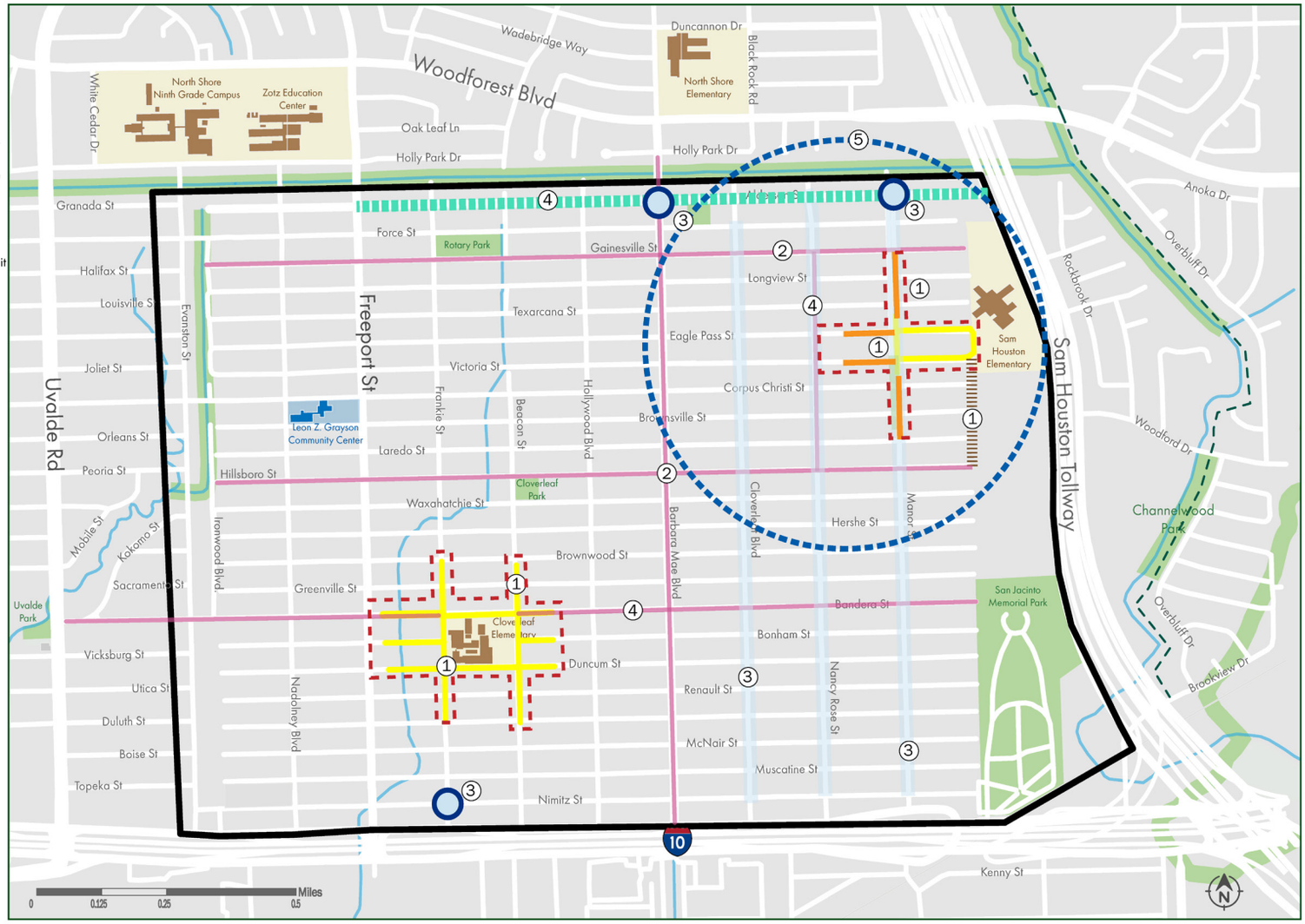
Work with the Galena School District to build school bus stops platforms at the locations where kids wait for the bus.

② Sidewalk Construction

Construct sidewalks in coordination with the Harris County Flood Control District drainage project.

- Bandera St. from Uvalde Rd. to San Jacinto Memorial Park
- Hillsboro St. from Ironwood St. to Sam Houston Elementary Multi-Use Path
- Gainesville St. from Ironwood St. to Sam Houston Elementary Multi-Use Path
- Nancy Rose St from Hillsboro St. to Gainesville St.

Proposed Sidewalk



③ Safety Projects

Install quick-build safety improvements in roadways and at intersections to reduce crashes.

④ Evaluate Adding a Transit Route Along Alderson St.

⑤ Drainage Improvement project area

NEIGHBORHOOD RECOMMENDATIONS

Restripe Stop Bars and Crosswalks

Conduct a lighting study to assess dark spots in the neighborhood

Conduct a one-way street anlaysis to implement temporary sidewalks

Develop Safe Routes to School Plan

- Sam Houston Elementary
- Cloverleaf Elementary
- North Shore Elementary
- Zotz Education Campus

Exhibit 1: Short-Term Recommendations - 1 to 5 years

Houston-Galveston Area Council
REVIVE 2 THRIVE Community Revitalization Initiative
HARRIS COUNTY PRECINCT 2
Harris County Public Health Building a Healthy Community

Short-term (See Exhibit 1)

1. Establish a Safe Route to Schools Program

Safe Route to Schools (SRTS) is a national program to make it safer for students to walk and bike to school and encourage more walking and biking where safety is not a barrier. To begin incorporating SRTS elements in Cloverleaf:

- > Develop SRTS plans for Sam Houston Elementary School, Cloverleaf Elementary School, North Shore Elementary School, and Zotz Education Campus.
- > Install safety treatments along Manor Street from Victoria Street to Gainesville Street, Victoria Street from Nancy Rose Street to Sam Houston Elementary, and Eagle Pass Street from Nancy Rose Street to Sam Houston Elementary.
- > Continue building the multi-use path along Sam Houston Elementary from Gainesville Street to Hillsboro Street.
- > Extend the existing School Zone reduced speed limit area around Sam Houston Elementary and Cloverleaf Elementary.
- > Collaborate with Galena Park Independent School District to build school bus stops platforms at the locations where kids wait for the bus.

Public Health Focus

SRTS is a proven strategy that is endorsed by the Centers for Disease Control to have a proven impact on health and safety within 5-years of implementation.[70] By creating a safer environment for active transportation near schools through infrastructure changes, SRTS reduces the risk of pedestrian and bicycle crashes.[71] Increased walking and biking to school reduces motor vehicle congestion at drop-off and pick-up and improves air quality.[72] Additionally, students who walk or bike to and from school experience health benefits from regular physical activity as well as improved academic performance. Students who actively arrive to school are more ready to learn, have increased focus, better problem-solving capability, and perform better on tests.[73]

2. Sidewalk Construction

Work with the Harris County Flood Control District (HCFCD) drainage project to incorporate the construction of sidewalks at Bandera Street from Uvalde Road to San Jacinto Memorial Park, Hillsboro Street from Ironwood Boulevard to Sam Houston Elementary Multi-Use Path, Gainesville Street from Ironwood Street to Sam Houston Elementary Multi-Use Path, and Nancy Rose Street from Hillsboro Street to Gainesville Street.

3. Vision Zero Safety Projects

Vision Zero is a nationwide safety initiative to eliminate all traffic fatalities and severe injuries among all road users, and to ensure safe, healthy, equitable mobility for all. In 2019, Harris County adopted their Vision Zero order and made the commitment to integrate Vision Zero engineering solutions into their transportation plans and projects to reach the overarching goal of zero traffic fatalities and severe injuries in Harris County by 2030.

[70] Centers for Disease Control and Prevention. (2018). Safe Routes to School (SRTS). https://www.cdc.gov/policy/hst/hi5/saferoutes/index.html

[71] Ragland, D. R, Pande, S., Bigham, J., & Cooper, J. F. (2014). Ten Years Later: Examining the Long-Term Impact of the California Safe Routes to School Program. UC Berkeley: Safe Transportation Research & Education Center. Retrieved from https://escholarship.org/uc/item/8m59g6vx

[72] United States Environmental Protection Agency. (October 2022) Idle-Free Schools Toolkit for a Healthy School Environment. Retrieved from https://www.epa.gov/schools/idle-free-schools-toolkit-healthy-school-environment

[73] Howie, E. & Pate, R. (2012). Physical activity and academic achievement in children: a historical perspective. ScienceDirect. 1, 160-169. https://doi.org/10.1016/j.jshs.2012.09.003

Public Health Focus

As more residents walk and bike around Cloverleaf, the feeling of overall community safety may improve. Focused investment in sidewalks, bike lanes, street crossings, and street lighting can contribute to safety, walkability and bikeability while also benefitting the local economy and long term health of Cloverleaf.

Based on the crash analysis detailed in the Existing Conditions chapter, the following intersections and corridors have the highest number of fatal and severe injury crashes in Cloverleaf:

Intersections

> Nimitz Street at Frankie Street;

> Nimitz Street at Beacon Street; and

> Barbara Mae Boulevard at Alderson Street.

Corridors

> Freeport Street from East Freeway to Alderson Street;

> Barbara Mae Boulevard from Alderson Street to Corpus Christi Street; and

> Alderson Street from Barbara May Boulevard to Manor Street

To begin addressing safety issues at these locations, a crash safety analysis needs to be conducted to evaluate the appropriate safety countermeasures that need to be installed. Quick safety countermeasures could range from installation of rumble strips on approaching stops signs, rubber speed cushions and pinch-points at mid-block locations, speed-feedback aware signs, and vertical centerlines and modular intersection medians. A four way stop warrant analysis is also recommended for intersections no having four way stops based on volume, traffic accidents and pedestrian volumes.

Permanent examples of Vision Zero safety improvements include installation of concrete speed humps and mini-chokers at mid-block locations, raised intersections, mountable curb intersection medians, and traffic circles.

4. Evaluation of Adding A Transit Route and/or Microtransit Service

Work with HCTD to solicit public input on the potential for adding transit routes in Cloverleaf on the most useful and accessible streets to provide reliable public transportation to the most-visited destinations. In addition, HCTD will evaluate the implementation of a curb2curb service that enhances transit options in the area. This on-demand service would operate in areas without immediate transit access and allows members to schedule pick up at specific locations via app or phone call and be dropped off at their destination – all within a defined zone.

Public Health Focus

Access to public transportation has many direct and indirect health benefits. Riders typically make walking or biking trips to get to and from transit stops which improves physical activity and has associated health benefits. Increased use of transit can also reduce air pollution which can have a positive impact on respiratory health.[74, 75]

[74] Brown, B. B., Werner, C. M., Tribby, C. P., Miller, H. J., & Smith, K. R. (2015). Transit use, physical activity, and body mass index changes: objective measures associated with complete street light-rail construction. American journal of public health, 105(7), 1468-1474.

[75] Cappellano, F., & Spisto, A. (2014). Transit oriented development & social equity: From mixed use to mixed framework. In Advanced Engineering Forum (Vol. 11, pp. 314-322). Trans Tech Publications

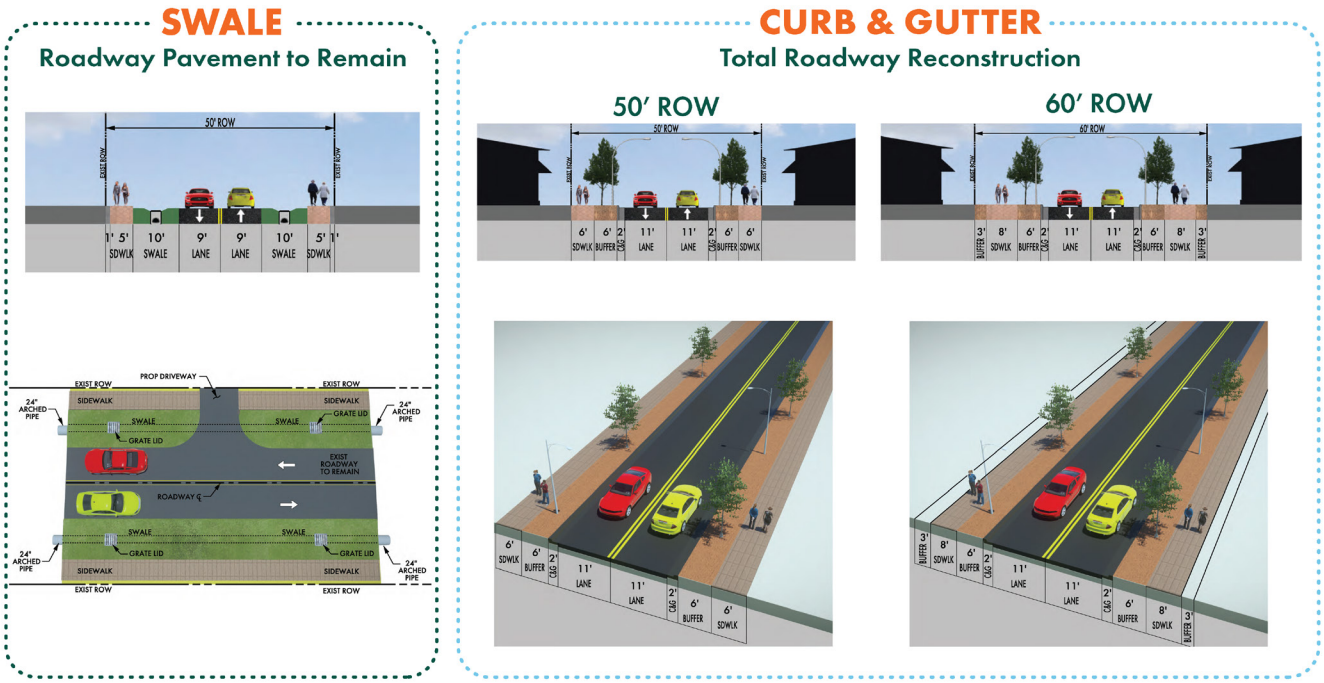


Figure 34: Roadway and sidewalk potential configurations

5. Drainage Improvement Project Area

HCFCD will construct a trunkline of 12x6 boxes under Hillsboro and 10x6 boxes under Nancy Rose. To date the design phase of this project is over 50% complete. Since the street will need to be demolished to accomplish the project's purpose, it would be beneficial to incorporate sidewalks in conjunction with the drainage improvement project. This would require a change in design scope to include sidewalk or a change order during construction to include sidewalks. This could be accomplished using the swale and sidewalk option (Figure 34).

Additional neighborhood-wide short-term improvements:

- Restriping all existing stop bars and crosswalks.
- Conducting a lighting study to reaffirm this plan's assessment of dark spots in the neighborhood.
- Install street lighting missing at roadway intersections.
- Conducting a one-way street analysis to assess which corridors, if any, could change to one-way couplets in order to install temporary sidewalks .
- A four-way stop warrant analysis is also recommended for intersections not having four-way stops based on volume, traffic accidents and pedestrian volumes. The traffic accident heat map in the Existing Conditions Report can be used as a basis for determining intersections for the four-way stop warrant analysis.

RECOMMENDATIONS CONCEPT

6 Harris County Flood Control Ditch Multi-Use Trail

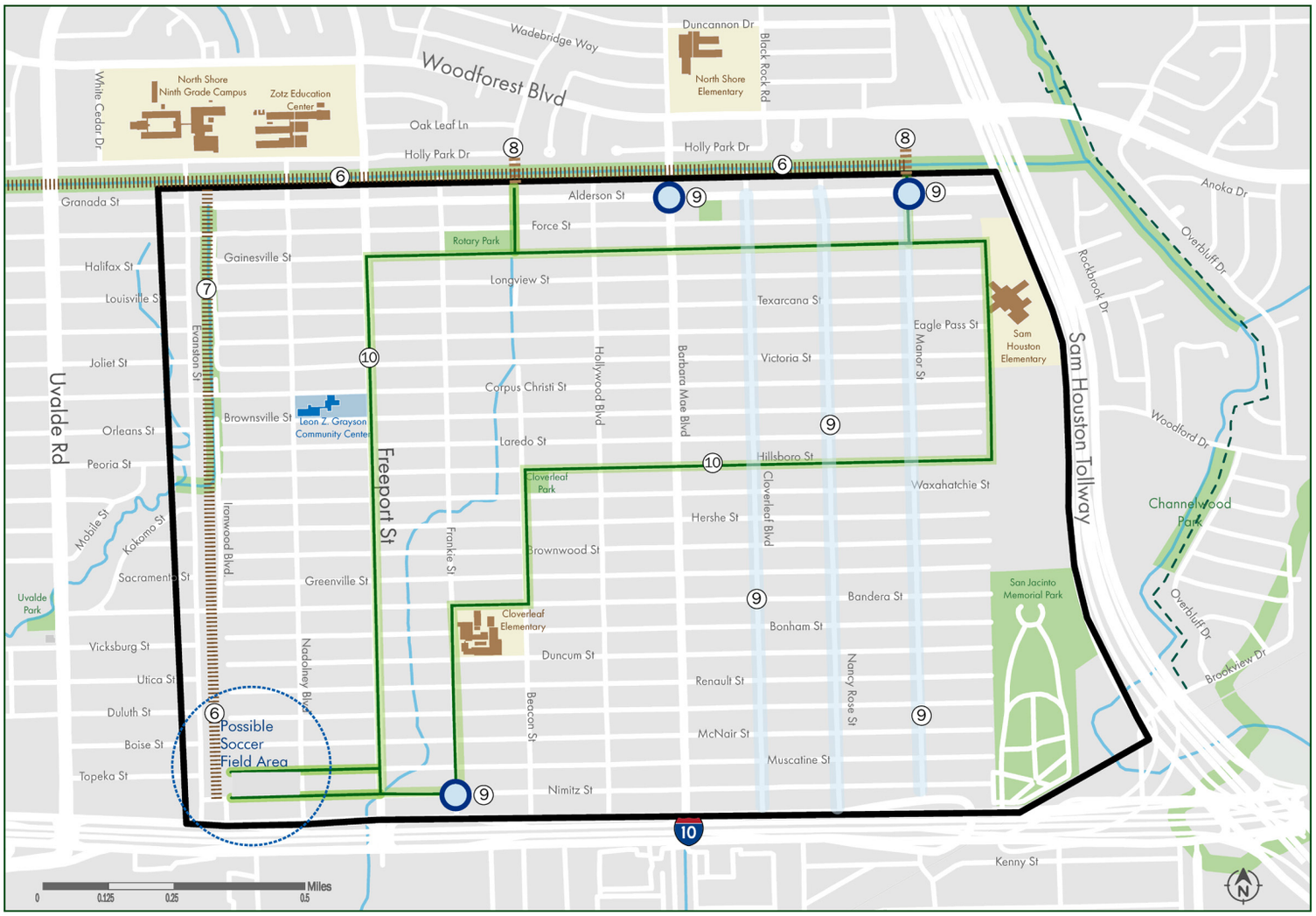
Contruction of a 12-ft. trail along Harris County Flood Control District Ditch just north of Alderson St. from Manor St. to the Carpenters Bayou trail.

7 Ironwood Multi-Use Trail

Construction of a linear park from Frontage Rd. to Hillsboro St., then transition to a12-ft. trail along the Harris County Flood Control District Ditch to the identified Carpenters Bayou future trail.

8 Pedestrian Bridge Connections

Construction of 12-ft. wide pedestrian only connections across the Harris County Flood Control District Trail at Beacon St. and Manor St.



9 Safety Projects

Upgrade previous quick-build treatments to permanent materials in roadways and at intersections to reduce crashes.

10 Community Loop

Construction of traffic calming treatments to slow down vehicles and create a walking and biking neighborhood loop

NEIGHBORHOOD RECOMMENDATIONS

This street light recommendation has been moved to short-term.

Install Street Lights at Intersections Identified in the Light Study

Install Identified Safe Routes to School Plan Infrastructure

- Sam Houston Elementary
- Cloverleaf Elementary
- North Shore Elementary
- Zotz Education Campus

Exhibit 2: Mid-Term Recommendations - 6 to 10 years

Houston-Galveston Area Council | REVIVE 2 THRIVE Community Revitalization Initiative | Harris County Precinct 2 | Harris County Public Health Building a Healthy Community

Mid-Term (See Exhibit 2)

6. HCFCD Ditch Multi-Use Trail

The construction of a 12-foot trail along HCFCD Ditch just north of Alderson Street from Nadolney Street to Manor Street on the Cloverleaf neighborhood side.

7. Ironwood Multi-Use Trail

The construction of a 12-foot trail and a linear park from the IH 10 frontage road to the HCFCD Ditch north of Alderson Street.

8. Pedestrian Bridge Connections

The construction of 12-foot-wide pedestrian-only connections across the HCFCD Trail at Beacon Street and Manor Street to connect the community of North Shore.

9. Vision Zero Safety Projects

Upgrade the previous quick-build treatments to permanent materials in roadways and at intersections with the highest crash rates to facilitate the reduction of crashes.

10.Community Loop

Installation of traffic calming treatments to slow down vehicles and creation of a walking neighborhood loop. The addition of a potential community loop seeks to create a safe connection that defines the Cloverleaf community character and unified sense of place. While a proposed alignment is identified, this concept can be named and modified according to the Cloverleaf community input. This would involve sidewalks on each side of the street or on one side of the street if cost prohibited. The swale-sidewalk option would be one way to accomplish this (Figure 4).

Additional community-wide mid-term improvements:

- Installation of identified SRTS plan infrastructure at Sam Houston Elementary School, Cloverleaf Elementary School, North Shore Elementary School, and Zotz Education Campus.
- Neighborhood-wide recommendations include installing and upgrading all streetlights in the neighborhood to meet current design standards.

An additional project recommendation based on comments received at various community meetings is for Harris County to evaluated the feasibility of a regional park in an empty lot consisting of 13 acres in the 100-year floodplain, and at the intersection of IH 10 westbound frontage road and Rockglen Street. The site is outside the Cloverleaf Livable Centers study area, but the intent is for the park to serve regional needs and attract softball/baseball or soccer tournaments. Its own master plan will need to be conducted.

Public Health Focus

The presence and quality of lighting in public spaces, streets, and sidewalks impact actual safety and perceptions of safety. Adequate lighting in neighborhoods helps to alleviate fear of crime, improve comfort, improve pedestrian safety, and promote active transportation. Lighting is an element of CPTED that increases visibility in dark locations and allows for natural surveillance. Additionally, improved lighting increases visibility of motorists and pedestrians in low-light conditions, which reduces the number of vehicle and pedestrian crashes.[76, 77]

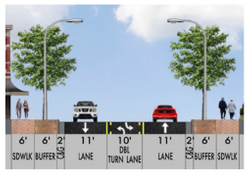
[76] Painter, K. (1996). The influence of street lighting improvements on crime, fear and pedestrian street use, after dark. Landscape and urban planning, 35(2-3), 193-201.

[77] Reynolds, K. D., Wolch, J., Byrne, J., Chou, C. P., Feng, G., Weaver, S., & Jerrett, M. (2007). Trail characteristics as correlates of urban trail use. American Journal of Health Promotion, 21(4_suppl), 335-345.

RECOMMENDATIONS CONCEPT

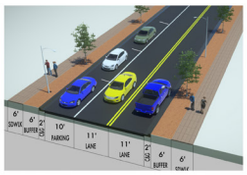
11 Barbara Mae Blvd. Collector Reconstruction

Reconstruction of Barbara Mae Blvd. as collector road from I-10 Frontage Rd. to Holly Park Dr. to improve traffic flow, walking environment, and spur economic development.



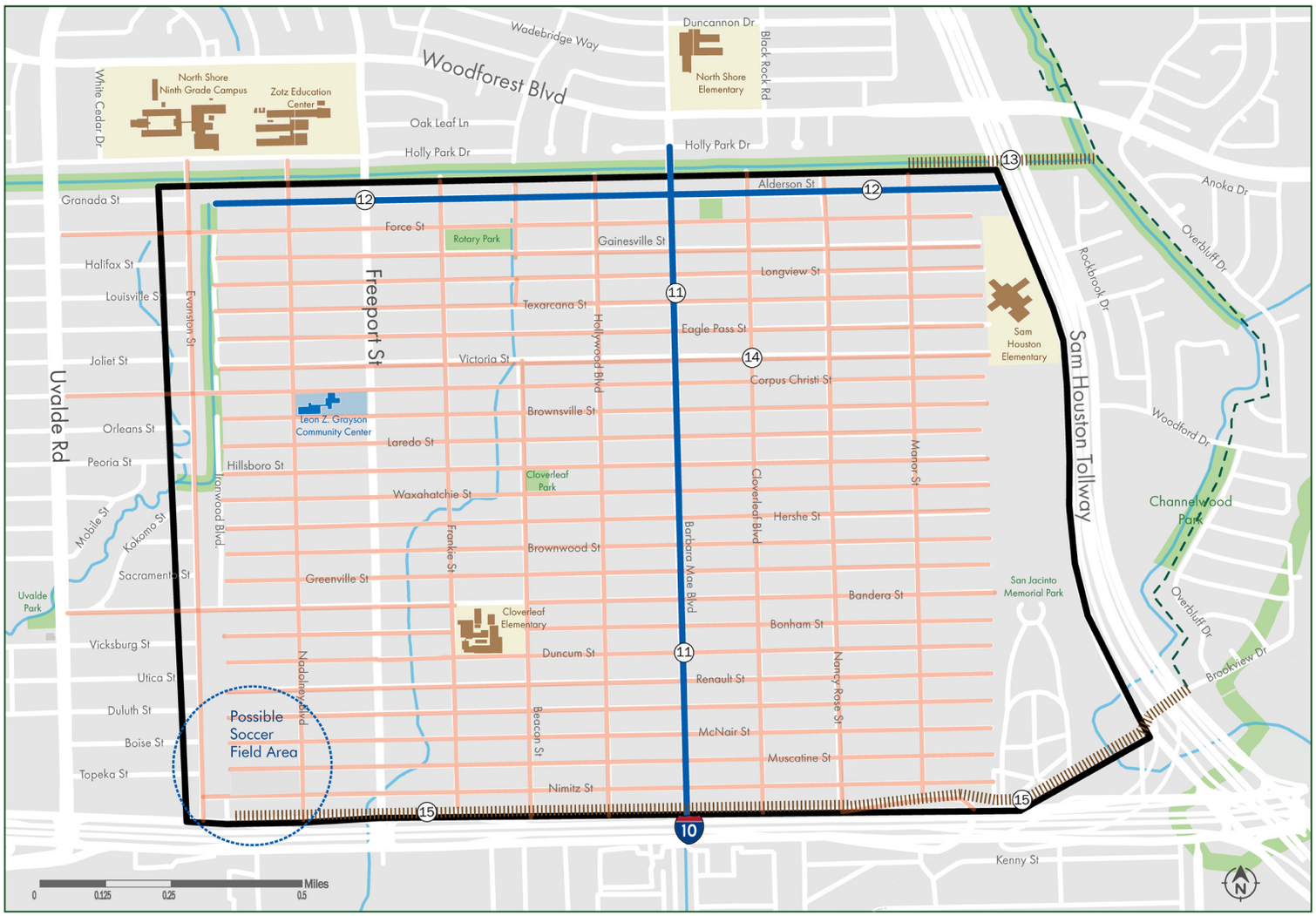
12 Alderson St. Collector Reconstruction

Reconstruct Alderson St. as collector road from Ironwood Blvd. to Sam Houston Tollway Frontage Rd. to improve walking and spur economic development. See roadway layout board for conceptual design options.



13 Harris County Flood Control Ditch Multi-Use Trail

Continuation of the 12-ft. trail along the Harris County Flood Control District Ditch just north of Alderson St. from Manor St. to the Carpenters Bayou trail.



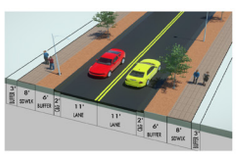
NEIGHBORHOOD RECOMMENDATIONS

This street light recommendation has been moved to mid-term.

Install and Upgrade all Street Lights in neighborhood to meet County design standards

14 Roadway Reconstruction

Reconstruction of all local streets to include curb and gutter, underground stormwater facilities, 5-ft. sidewalks on both sides of the streets, signage, crosswalks, and curb ramps.



15 Frontage Rd. Multi-Use Path

Construction of an 8-ft. multi-use path along the I-10 Frontage Rd. from Uvalde Rd. to the recently constructed Carpenters Bayou trail. Sidewalks/ Shared Use Path could be constructed as part of I-10 E Widening project CSJ 0508-01-375 along the frontage roads.

Exhibit 3: Long-Term Recommendations - 11+ years

H-GAC Houston-Galveston Area Council
REVIVE 2 THRIVE Community Revitalization Initiative
HARRIS COUNTY PRECINCT 2
Harris County Public Health Building a Healthy Community

Long-Term (See Exhibit 3)

11. Barbara Mae Boulevard Collector

The reconstruction of Barbara Mae Boulevard as a collector road from the IH 10 frontage road to Holly Park Drive to improve traffic flow, create a walking environment, and spur economic development. This would include curb and gutter and sidewalks (Figure 35).

12. Alderson Street Collector

The reconstruction of Alderson Street as collector road from Ironwood Boulevard to Sam Houston Tollway frontage road to improve walking and spur small scale redevelopment. This would include curb and gutter and sidewalks (Figure 35). On street parking could be used as an incentive to spur small scale redevelopment (Figure 35).

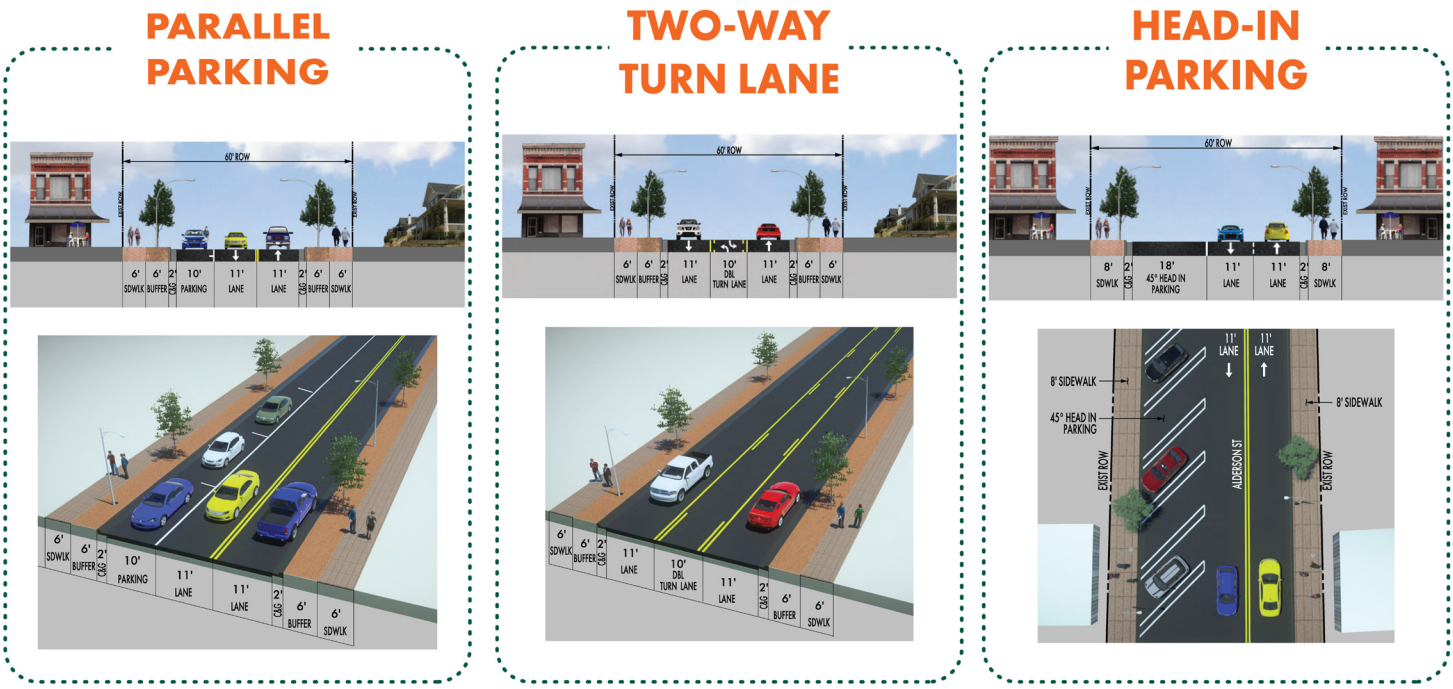


Figure 35: Alderson Street and Barbara Mae Boulevard Potential Configurations

13. HCFCD Ditch Multi-Use Trail

Continued construction of the 12-ft. trail along HCFCD Ditch just north of Alderson Street from Manor Street to the Carpenters Bayou trail.

Public Health Focus

Expanding sidewalks and adding bike lanes and parking in front of retail may reduce space for vehicle parking, but studies show that walkable shopping areas increase local retail sales and reduce commercial vacancies.[78]

[78] Litman TA (2022) Economic value of walkability. Victoria Transport Policy Institute. Retrieved from https://vtpi.org/walkability.pdf

14. Roadway Reconstruction

The reconstruction of all local streets to include curb and gutter, underground stormwater facilities, 5-foot sidewalks on both sides of the streets, signage, crosswalks, and curb ramps would bring up the facilities to current design standards.

Another option instead of total roadway reconstruction is only to provide sidewalks on both sides of the roadway utilizing the swale-sidewalk option (Figure 34). If still cost prohibited, then construction of sidewalk on one side of the roadway utilizing the swale and sidewalk option.

15. Frontage road Multi-Use Path

The construction of an 8-foot multi-use path along the IH 10 frontage road from Uvalde Road to the recently constructed Carpenters Bayou trail would facilitate pedestrian and bicycle connections. Sidewalks/shared use path could be constructed as part of IH 10 East widening project along the frontage roads.

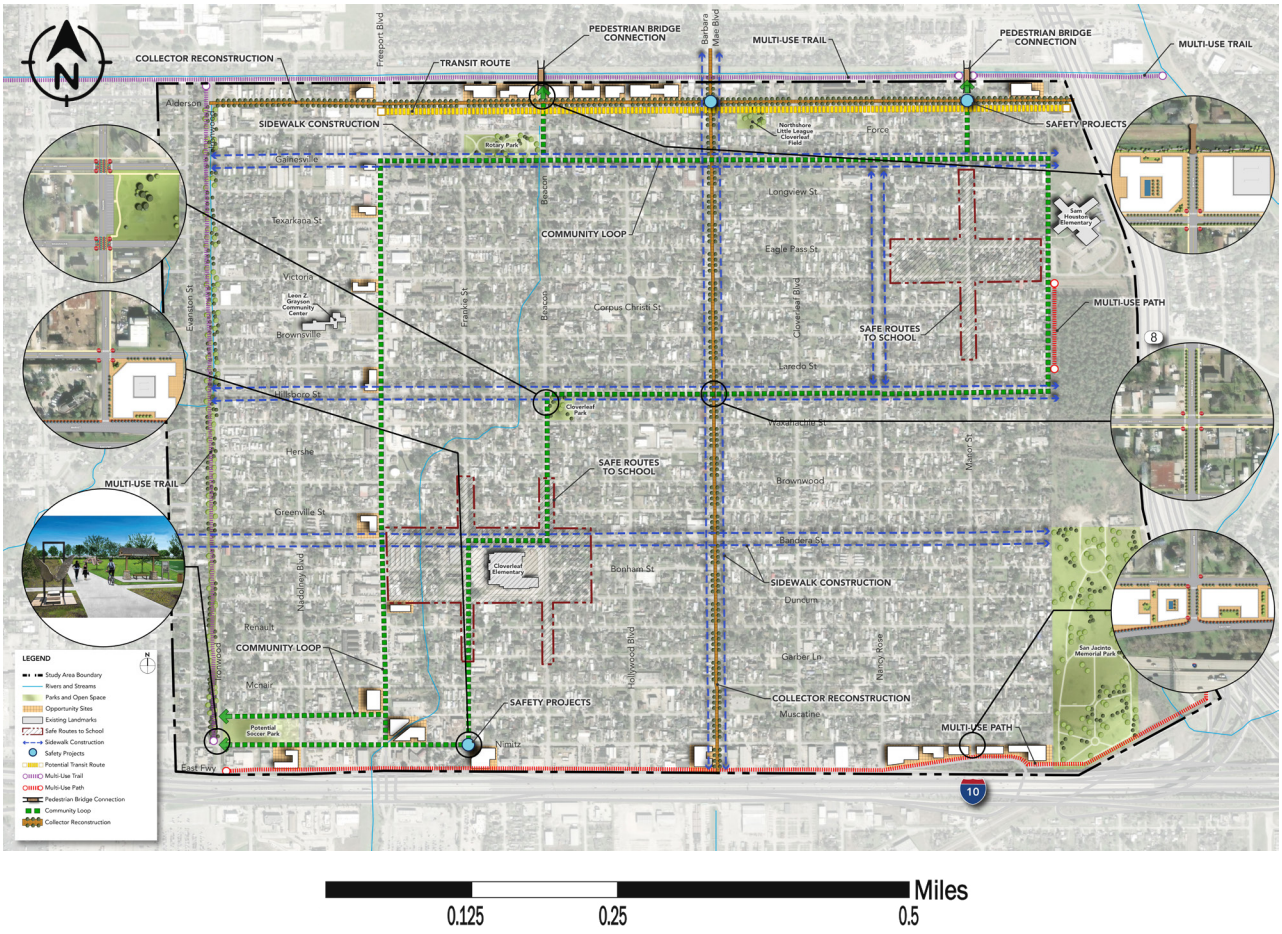


Exhibit 4: Combined Build- Out Rendering

Exhibit 5: Ironwood Trail Build-Out Rendering

Public Health Focus

Communities and residents that live near trails see increases in physical activity, improved social interactions with families, friends, and neighbors, increased exposure to nature, and improved overall quality of life.[79, 80] Parks and greenspace improve water quality, reduce flooding, improve air quality, and provide habitats for wildlife. They also provide spaces for recreation, social gatherings, and physical activity, which reduces the risk of chronic diseases like obesity, heart disease and diabetes. Exposure to nature and outdoor physical activity can also benefit mental health by reducing stress and anxiety.[81] Research shows that having safe and convenient access to parks and trails is an important indicator of use.

Cost per recommendation

After developing infrastructure recommendations based on feedback from the Task Force and the Cloverleaf Community a strategy to assist in prioritizing projects and categorizing them in an implementation timeline was developed. Part of that strategy was to use preliminary project costs as a tool. Putting a cost to a project would also help agency staff responsible for implementation to budget and program these project recommendations in the agency's CIP. A methodology would need to be developed to describe how the costs were developed for each project. The methodology is described in the following pages.

[79] Corning, S. E., Mowatt, R. A., & Charles Chancellor, H. (2012). Multiuse Trails: Benefits and Concerns of Residents and Property Owners. Journal of Urban Planning and Development, 138(4), 277–285. https://doi.org/10.1061/(ASCE)UP.1943-5444.0000124

[80] Gordon, P. M., Zizzi, S. J., & Pauline, J. (2004). Use of a Community Trail Among New and Habitual Exercisers: A Preliminary Assessment. Preventing Chronic Disease, 1(4), A11.

[81] Lynch, M., L.H. Spencer & R.T. Edwards. (2020). A Systematic Review Exploring the Economic Valuation of Accessing and Using Green and Blue Spaces to Improve Public Health. International Journal of Environmental Research and Public Health. 17(11), 4142

Methodology

> Utilized Harris County Bid Tabs and Average Unit Bid Prices

> Compared City of Houston Bid Tabs to Harris County Bid Tabs and Average Unit Bid Prices

> Where unit prices were not available from the City of Houston or Harris County, average unit prices from the TxDOT were utilized.

> Basis of Estimate: Developed costs for segment of roadway for east to west roads (50-foot ROW) and south to north roads (60-foot ROW). Divided by length of segment to get costs per lineal feet then extrapolated by lineal feet of roadway.

> Used 25% for contingency

> Basis of Estimates can be found in Appendix B:

- Cloverleaf Sidewalks Curb and Gutter East West Roads Est Basis 222114.xlsx
- Cloverleaf Sidewalks Curb and Gutter North South Est Basis 222114.xlsx
- Cloverleaf Swale and Sidewalk East West Roads Est Basis 222114.xlsx
- Cloverleaf Swale and Sidewalk North South Roads Est Basis 222114.xlsx

> Complete estimates were provided for Ironwood trail the IH10 8-foot-wide multiuse path and illumination upgrades and can also be found in Appendix B:

- Cloverleaf 8-foot multiuse path IH10 frontage Est 2221128.xlsx
- Cloverleaf Ironwood Trail Est 2221117.xlsx
- Cloverleaf Illumination.xlsx

The cost estimate for the Ironwood trail was used as a basis for the trail north of Alderson Street and along the HCFCD ditch. The cost for the trail along Ironwood Boulevard was divided by the length to get price per lineal feet and then extrapolated for the trail along the HCFCD ditch.

Overall Costs for the Entire Study Area (Long-Term)

> Total reconstruction to curb and gutter, sidewalks and concrete pavement = $222,711,821.00*

> Swale and sidewalks, both sides of street, exist pavement remains = $206,108,662.93*

> Swale and sidewalk on one side of the street, exist pavement remains – $103,054,331.47*

**Includes Alderson Street and Barbra Mae Boulevard*

Individual Roadway Corridor Costs

> Alderson Street - convert to collector, curb and gutter, sidewalks, and concrete pavement = $6,852,573.25# (Long Term)

> Barbara Mae Boulevard

- Swale and sidewalks, both sides of roadway, pavement remains = $6,755,874.88 (Short-Term)
- Swale and sidewalks, one side of the roadway, pavement remains = $3,377,937.44 (Short-Term)
- Total reconstruction to curb and gutter, sidewalks and concrete pavement = $9,243,152.00 (Long Term convert to collector)

 # Does not Include on street parking

The illumination cost estimates were formulated based on existing CenterPoint illumination mapping. The mapping of the study area was evaluated based on current illumination design criteria (i.e. spacing and location). Illumination poles that were missing at intersections were determined to be furnished and installed in the short-term. For the mid term the number of illumination poles were derived based on bringing the whole system to meet current design criteria. TxDOT average unit bid prices were then used to come up with the cost estimates (Appendix B).

RECOMMENDATIONS CONCEPT

Cost Estimates

SHORT-TERM

Project	Cost Estimates*
① Safe Routes to School	
School Zone Extensions	——
Multi-Use Trail	$200K
Quick-Build Safety Improvements	$50K
② Sidewalk both sides of roadway	$24M
③ Safety Projects	$500K
④ Evaluate adding a transit route along Alderson Street	$50K
Restripe stop bars and crosswalks	$750K
Install all street lights missing at intersections	$500K
Develop safe routes to school plan	$50K per plan

MID-TERM

Project	Cost Estimates*
⑥ Harris County Flood Control District Ditch Multi-Use Trail	$1M
⑦ Ironwood Multi-Use Trail Including Linear Park	$2M
⑧ Pedestrian Bridge Connections	$750K per bridge
⑨ Safety Projects	$500K
⑩ Community Loop sidewalk on both sides of roadway	$7.6M
Install and upgrade all street lights in neighborhood to meet current design standards	$8M
Install Identified safe routes to school plan infrastructure	$500K

LONG-TERM

	Cost Estimates*
⑪ Barbara Mae Boulevard Collector Reconstruction	$10M
⑫ Alderson Street Collector Reconstruction	$7M
⑬ Harris County Flood Control District Ditch Multi-Use Trail	$500K
⑭ Total Roadway Reconstruction	$207M
Swale and sidewalk for all roadways both sides	$200M
⑮ Frontage Road Multi-Use Path	$1M

*Cost Estimates are construction costs

POLICY RECOMMENDATIONS

Policy Introduction – Non-infrastructure Recommendation Based on Public Feedback

Through feedback obtained from Community-wide Meetings, Task Force meetings, and other stakeholder meetings, several shared concerns emerged, including public safety, animal control, rubbish, unsanitary conditions, weeds, unsafe structures, and refuse. The needs assessment and feedback demonstrated that these elements have a detrimental impact on the health and safety of the Cloverleaf community and need to be remedied to ensure a safe, vibrant, livable community; achieve the goals of this plan; and support the forward-thinking vision.

Recommendations

Recommendations for the short-term include projects that are low in costs, easy to implement, could be implemented within five years, and are prioritized by the feedback received from the task force and the community at large. Recommendations for the mid-term include projects that could be implemented within 6 to 10 years, are modest in costs, and would need some interagency coordination for permitting and approvals, as well as project budgeting and programing.

Policy recommendations include for the short-term are as follows:

Lower Speed Limits

Community members expressed concern about the high-speed volumes and crashes taking in the neighborhood. Research shows that a person walking is more likely to be killed or severely injured when hit by a car at high speeds. By implementing 20 mph speed limit on all roads and reducing the school zone speed limit to 15 mph, safety for users of all modes of transportation would be greatly improved.

Illegal Dumping

Community members expressed concerns with dumping and debris accumulation in ditches and other public and private areas. To reduce these nuisances, additional bulk item and brush days can be implemented through collaboration with the Harris County Neighborhood Nuisance and the HCWICID #36. Additionally, identify a hazardous materials drop off location within the neighborhood that could provide a service twice a year.

Safety

Public safety is at the forefront of community concerns. With the implementation of transportation infrastructure improvements noted in the previous section comes the need to implement a sheriff's bicycle patrol unit, focusing patrols along the Ironwood Boulevard trail and Freeport Street, and expanding to all trail locations in the long-term.

Animal Control

Feedback obtained from the community demonstrated a need for an increase in Animal Control presence. Recommendations include implementing a mandatory spay/neuter and microchips policy tied to county pet licenses, enforcing mandatory spay/neuter and microchip implants before animals are reclaimed, and establishing a responsible pet ownership and animal safety education program. Harris County would need to approve the pet licensing requirement. Additionally, there is a need for additional funding for staffing of the current Harris County Pets facility. Also, current vacant animal control positions need to be filled to be at an optimal staffing level capable of handling the need for services.

Policy recommendations include for the mid-term are as follows:

Complete Streets Engineering Standards

Complete Streets is a national initiative to provide safe and convenient access for people of all ages, abilities, and modes to travel. To provide safer and more comfortable access for pedestrians, bicyclists, motorists and transit riders, Harris County should develop Complete Streets engineering design standards to facilitate the planning, design, construction, and maintenance of a street for all users.

Animal Control

In continuation of the short-term recommendations for the Animal Control department, additional funding is needed for staffing the Harris County Pets facility, staff to operate the spay/neuter bus five days a week, and staff for additional late shift positions.

Finally, short-term policy implementation should continue during this timeframe.

How policy recommendations are tied to infrastructure

Although these policy recommendations are not physical in nature, they can greatly shape the quality of life for the community. They work in conjunction with and are closely tied to the short-, mid-, and long-term infrastructure recommendations detailed in the previous section.

IMPLEMENTATION APPROACH AND TIMELINE

Keys to Cloverleaf's future success has been identified through this Livable Centers Study. A clear path has been developed, projects have been identified, timelines have been assigned, and responsible parties and costs have been identified to blaze that path. The Cloverleaf community is fortunate that the Harris County PCT2 Revive2Thrive Community Revitalization initiative is underway and should take the lead role in collaborating, coordinating, and programming not only the recommended infrastructure projects but the policy recommendation in this plan.

The implementation plan for infrastructure and policy recommendations is outlined in the following tables.

IMPLEMENTATION APPROACH AND TIMELINE

Policy Recommendations

#	Project Name	Type of	Timeline	Project	Responsible Party	Funding
20	Lower Speed Limits	Advocacy/ Roadway	Short-Term 0-5 years	$30K	HCP2	HC General Fund
21	Illegal Dumping	Advocacy	Short-Term 0-5 years	$100K	HCNN, HCWCID#36	HC General Fund
22	Safety	Advocacy	Short-Term 0-5 years	$450K/yr	HC Sheriff, HCP2	HC General Fund
23	Animal Control	Advocacy	Short-Term 0-5 years	$150K/yr	HCP2, HCPH	HC General Fund
24	Complete Streets Engineering Standards	Advocacy	Mid-Term 6-10 years	$250K	HC, HCP2, HC Engineering	HC General Fund
25	Animal Control	Advocacy	Mid-Term 6-10 years	$250K/yr	HCP2, HCPH	HC General Fund

Infrastructure Recommendations

#	Project Name	Type of Improvement	Timeline	Project Costs	Responsible Party	Funding
1	Establish Safe Route to Schools (SRTS) Efforts	Bike/Ped	Short-Term 0-5 years	$100K Study $200K Trail	Galena Park ISD,HCP2	Safe Routes to School Fed. grant
2 & 5	Drainage Improvement Project Area & Priority Routes - Sidewalk Construction	Bike/Ped	Short-Term 0-5 years	$24M both sides $12M one side	HCFCD	ARPA, 2022 Bond & HUD/ GLO funds
3	Vision Zero Safety Projects	Intersection	Short-Term 0-5 years	$1.25M	HCP2	2022 Bonds
4	Evaluation of adding A Transit Route and/or Microtransit Service	Transit	Short-Term 0-5 years	$50K	HCTD	MPO-FTA Fees
6	HCFCD Ditch Multi-Use Trail	Bike/Ped	Mid-Term 6-10 years	$1M	HCP2, HCFCD	2022 Bond & HUD/GLO funds
7	Ironwood Multi-Use Trail	Bike/Ped	Mid-Term 6-10 years	$2M	HCP2, HCFCD	2022 Bond & HUD/GLO funds
8	Pedestrian Bridge Connections	Bike/Ped	Mid-Term 6-10 years	$1.5M	HCP2, HCFCD	2022 Bond & HUD/GLO funds
9	Vision Zero Safety Projects	Roadway	Mid-Term 6-10 years	$8.5M	HCP2	HC General Fund
10	Community Loop	Bike/Ped	Mid-Term 6-10 years	$7.6M both sides $3.8M one side	HCP2	ARPA, 2022 Bond & HUD/ GLO funds
11	Barbara Mae Boulevard Collector	Roadway, Streetscape/Corridor	Long-Term 10 + years	$10M	HCP2	2022 Bond & HUD/GLO funds
12	Alderson Street Collector	Roadway, Streetscape/Corridor	Long-Term 10 + years	$7M	HCP2	2022 Bond & HUD/GLO funds
13	HCFCD Ditch Multi-Use Trail	Bike/Ped	Long-Term 10 + years	$500K	HCP2, HCFCD, HCTRA	2022 Bond & HUD/GLO funds
14	Roadway Reconstruction	Roadway & Drainage	Long-Term 10 + years	$200M both sides $100M one side	HCP2	2022 Bond & HUD/GLO funds
15	Frontage Road Multi-Use Path	Bike/Ped	Long-Term 10 + years	$1M	TxDOT, HCTRA, BNSF RR	MPO - Funding Categories

Community-Wide Recommendations

#	Project Name	Type of	Timeline	Project	Responsible Party	Funding
30	Restriping	Bike/Ped	Short-Term 0-5 years	$750k	HC, HCP2, HC Engineering	HC General Fund
31	Lighting Study	Intersection	Short-Term 0-5 years	$500k	HC, HCP2, HC Engineering, CenterPoint Energy	HC General Fund
32	Streetlights	Study	Short-Term 0-5 years	$150k	HC, HCP2, HC Engineering, CenterPoint Energy	HC General Fund
33	Safe Route to Schools (SRTS)	Bike/Ped	Mid-Term 6-10 years	$500	Galena Park ISD, HCP2	HC General Fund
34	Streetlights	Roadway, Streetscape/Corridor	Mid-Term 6-10 years	$8M	HC, HCP2, HC Engineering, CenterPoint Energy	HC General Fund

ARPA	= AMERICAN RESCUE PLAN ACT
BNSF RR	= BURLINGTON NORTHERN SANTA FE RAILROAD
GLO	= GENERAL LAND OFFICE
HC	= HARRIS COUNTY
HCP2	= HARRIS COUNTY PRECINCT 2
HCFCD	= HARRIS COUNTY FLOOD CONTROL DISTRICT
HCPH	= HARRIS COUNTY PUBLIC HEALTH
HCTRA	= HARRIS COUNTY TOLL AUTHORITY
HCTD	= HARRIS COUNTY TRANSIT DISTRICT
HCNN	= HARRIS COUNTY NEIGHBORHOOD NUISANCE
HCWCID	= HARRIS COUNTY WATER CONTROL IMPROVEMENT DISTRICT
HUD	= HOUSING AND URBAN DEVELOPMENT
ISD	= INDEPENDENT SCHOOL DISRICT
MPO	= METROPOLITAN PLANNING ORGANIZATION
TxDOT	= TEXAS DEPARTMENT OF TRANSPORTATION

IMPLEMENTATION APPROACH AND TIMELINE

The projects have been grouped by type (infrastructure or policy) and then by timeline. For each project, the following information has been provided:

> Project name: title of proposed project

> Type of improvement: Facility type (infrastructure) or advocacy (policy)

> Timeline: Short-term, mid-term, or long-term

> Project cost: Estimated study, design, and construction cost

> Responsible party: Agency responsible for implementing the project or policy

> Funding: Possible source of funds for the project or policy update

Implementation and Performance Management

Through an inclusive and robust public engagement process comprised of a wide cross section of community perspectives and interests and a comprehensive analysis of existing conditions, the project team developed with the collaboration of the community and stakeholders a prioritized list of infrastructure and policy recommendations. This section details the approach to translating the recommendations into actionable strategies for project and policy implementation.

Prioritization

The infrastructure and policy-based projects were evaluated to develop a prioritized list of short-, medium-, and long-term projects. The prioritization timeframe indicates when a project or policy change will be initiated. The timelines will be revisited based on the County's funding and ability to deliver the projects.

Short-term (0-5 years) – Projects that have relative ease of implementation and relatively small in costs. This category would also include projects that serve as catalysts to enable significant benefits to be captured in the future. Some listed projects may be underway and/or poised to commence with secured funding.

Mid-term (6-10 years) and Long-term (10+ years) – Projects that have relative ease of implementation but typically face some challenge or barrier that makes them longer in nature. This can include funding availability, right-of-way or environmental issues or the complexity of agencies and partnership involved to successfully execute. Some mid-term, or long-term projects may be able to be implemented opportunistically.

To successfully address the initiatives, a set of recommended projects has been identified for implementation. These are specific, tangible projects in mobility, infrastructure, placemaking, land use, vitality enhancements, and policy including multi-use trails, pedestrian bridge crossings, roadway reconstruction, quick-build and safety improvements, Safe Route to Schools (SRTS), Vision Zero, Complete Streets projects and advocacy programs to enhance Cloverleaf's mobility, infrastructure, vitality, and safety.

The projects identified and descriptions are listed below, and are categorized by type of improvement content area: Facility type (infrastructure) or advocacy (policy).

Infrastructure projects descriptions:

Bicycle/Pedestrian

» 1. Establish SRTS Efforts (Short-Term)

- Collaborate with Galena Park ISD to develop a SRTS plan, school bus stop platforms, and school zone extensions; install quick build safety improvements to slow down vehicles; and add connection to schools with a multi-use path..

» 2 & 5. Drainage Improvement Project Area and Priority Routes – Sidewalk Construction (Short-Term)

- Incorporate construction of sidewalks in coordination with HCFCD on their drainage improvement project. Also provide sidewalks on priority corridors utilizing the swale and sidewalk method.

» 6 & 13. HCFCD Ditch Multi-Use Trail (Mid-Term) and (Long-Term)

- Construct 12-foot-wide multi-use trail along HCFCD ditch north of Alderson Street on the Cloverleaf neighborhood side.
- Continue construction of the 12-foot-wide multi-use trail along HCFCD ditch connecting to the recently constructed Carpenters Bayou trail. (Trail connection can be re-aligned through Woodforest Boulevard).

» 7. Ironwood Multi-Use Trail (Mid-Term)

- Construct 12-foot-wide multi-use trail and a linear park.

» 8. Pedestrian Bridge Connections (Mid-Term)

- Construct 12-foot-wide pedestrian-only bridge connections in key areas across the HCFCD ditch.

» 15. Frontage Road Multi-Use Path (Long-Term)

- Construct 8-foot-wide multi use path along the IH 10 frontage road.

» 30. Restriping (Community-Wide) (Short-Term)

- Restripe stop bars and pedestrian crosswalks.

» 33. SRTS (Community-Wide) (Mid-Term)

- Install identified SRTS plan infrastructure to community schools.

Roadway/Streetscape/Corridor/Drainage

» Vision Zero Safety Projects (Short-Term) and (Mid-Term)

3. Intersection (Short-Term)

- Conduct a crash safety analysis, a four-way stop warrant analysis for intersections not having four-way stops, add quick safety countermeasures, and consider permanent examples of Vision Zero safety improvements.

9. Roadway (Mid-Term)

- Upgrade previous quick-build treatments to permanent materials.

» 10. Community Loop (Mid-Term)

- Construction the remaining sidewalk segments from the short-term corridors to complete the community loop and include traffic calming treatments to create a walking neighborhood loop.

» 11. Barbara Mae Boulevard Collector (Long-Term)

- Reconstruct Barbara Mae Boulevard as a collector road including new pavement, curb and gutter, underground storm sewer system, and sidewalks.

» 12. Alderson Street Collector (Long-Term)

- Reconstruction of Alderson Street as collector road including new pavement, curb and gutter, underground storm sewer system, and sidewalks. Incentivize small scale redevelopment using on-street parking.

» 14. Roadway Reconstruction (Long-Term)

- Roadway reconstruction of all streets to provide sidewalks on both sides of the roadway utilizing the swale-sidewalk option.

» 32 & 34. Streetlights (Community-Wide) (Short-Term) and (Mid-Term)

- Install streetlights at intersections identified in the light study.
- Install and upgrade all streetlights in the neighborhood to meet County design standards.

Transit

» 4. Evaluation of Adding a Transit Route and/or Microtransit Service (Short-Term)

- Evaluate implementation of additional transit routes in Cloverleaf on the most useful and accessible streets as well as a curb2curb service.

Study

» 31. Lighting Study (Community-Wide) (Short-Term)

- Conduct a lighting study to assess dark spots in the neighborhood.

Policy projects descriptions:

Advocacy/Roadway

» 20. Lower Speed Limits (Short-Term)

- Implement 20 mph speed limit on all roads and reduce the school zone speed limit to 15 mph.

Advocacy

» 21. Illegal Dumping (Short-Term)

- Implement additional bulk items and brush days. Identify a hazardous materials drop off location within the neighborhood that could provide a service twice a year.

» 22. Safety (Short-Term)

- Implement a sheriff's bicycle patrol unit expanding to all trail locations.

» 22 & 25. Animal Control (Short-Term) and (Mid-Term)

- Increase Animal Control presence by implementing a mandatory spay/neuter and microchips policy tied to county pet licenses, enforcing mandatory spay/neuter and microchip implants before animals are reclaimed, and establishing a responsible pet ownership and animal safety education program.
- Provide additional funding for staffing the Harris County Pets facility, staff to operate the spay/neuter bus five days a week, and staff for additional late shift positions.

» 24. Complete Streets Engineering Standards (Mid-Term)

- Harris County should develop Complete Streets engineering design standards to facilitate the planning, design, construction, and maintenance of a street for all users.

Funding Strategy

A critical factor in the implementation of these projects is funding. Funding for infrastructure projects typically comes from a mix of sources including local, state, and federal funding. Funding sources will also vary by mode of transportation. Cloverleaf's future success relies upon clear and consistent communication among interested parties to identify, fund, and execute appropriate improvements in a manner that benefits the community. Harris County PCT 2 will likely need to explore a combination of funding strategies to achieve project and policy implementation.

Funding Sources

Local

- Harris County 2022 Bond: In November 2022, Harris County residents voted to approve the three bond proposals. Proposition B will provide up to $900M in investments for potential improvements to road rehabilitation and added capacity; roadway and neighborhood drainage improvements; walking, biking, and mass transit access; and safety projects to reduce transportation-related fatalities and injuries. Proposition C will provide up to $200M in investments that may include new construction and/or maintenance of park facilities and trails, including floodable parks, trail projects, and inclusive parks for people with disabilities.
- Harris County General Fund: The General Fund revenue is collected primarily from property taxes, fines, and fees for County services. It includes the Public Contingency Fund, mobility transfers from the Harris County Toll Road Authority (HCTRA), and COVID Response and Recovery (R&R) funds totaling a cash balance of more than $500M. Harris County has the best possible credit rating (AAA) and has a stable property tax base through the pandemic and strong support from grants.
- The Harris County Commissioners Court recently approved an initial $53M for Harris County Toll Road Authority's "Tollways to Trailways" plan. It includes 236 miles of active transportation projects with the goal of increasing access to trailways, bikeways, parks, transit hubs, schools, and communities. HCTRA will use this opportunity to strengthen partnerships with other agencies who own and operate the parks, streets, waterways, and utility easements where these projects are built. Likewise, meaningful community engagement will ensure that HCTRA builds infrastructure that meets the needs of the neighborhoods served by Tollways to Trailways.

Federal

- American Rescue Plan Act (ARPA): ARPA was passed by Congress in March 2021 to provide additional relief to address the continued impact of COVID-19 on the economy, public health, state and local governments, individuals, and businesses. ARPA funding provides for State and Local Fiscal Recovery Funds (SLFRF) that can be spent at the discretion of the jurisdiction receiving the funds so funds can best serve local communities. Harris County expects to receive $915M in ARPA funding from the US Treasury. Funds must be committed by the end of 2024 and spent by the end of 2026.
- The Federal Housing and Urban Development (HUD) approved the Texas General Land Office's (GLO) Mitigation Action Plan granting $750M directly to Harris County and $488M to H-GAC on March 18, 2022. The funds are for projects that help Harris County recover from Hurricane Harvey and mitigate future flooding events.
- SRTS: SRTS is a national program that encourages walking and biking to school for grades K-8 through funding infrastructure improvements, enforcement, tools, safety education, and other incentives. The Texas Department of Transportation (TxDOT) administers SRTS funds for locally sponsored infrastructure projects that facilitate walking and biking to school. Projects may be located anywhere in the state as long as they are within two miles of K-8 schools.

Public Health Focus

Air pollution from vehicle traffic can negatively impact health by causing or worsening respiratory diseases such as asthma, bronchitis, and COPD. Long-term exposure to poor air quality can increase risk of heart disease, reduce cognitive function, and even cause cancer.[82] Increasing opportunities to walk and bike for transportation and reducing vehicles emissions is one way to reduce air pollution and improve air quality.[83]

Air Quality Benefits

The effectiveness of Livable Centers projects is based on the premise that locating jobs and services close to housing in a pedestrian and bike-friendly transit-oriented environment will provide more opportunities for people to commute and make other trips via walking, transit, or biking, thereby potentially reducing vehicle miles traveled (VMT) and thus improving air quality. The Livable Centers Air Quality Methodology developed by H-GAC was used to estimate air quality benefits (between 2022 and 2045) based on implementing all of the Cloverleaf Liveable Center recommendations. The methodology, assumptions, and results are discussed in this section.

Methodology:

Primary inputs included Traffic Analysis Zone (TAZ) level socio-economic data such as households and population and related Auto Origin-Destination (O-D) trip rates. The Livable Centers Methodology was used in conjunction with two templates provided by H-GAC, and ridership data from Harris County Transit District for Monday thru Friday and also for Saturday as listed below:

- 01_2021_EmissionVMTReductions.xlsx [refer to as "Flow template" hereinafter] (see Appendix C).
- 02_2021_EmissionAirQualityEstimate.xlsx [refer to as "VMT and Emmision Reduction template" hereinafter] (see Appendix C)
- DR Route 11 Cloverlear M-F.xls (see Appendix C)
- DR Route 11 Cloverelaf Saturday.xls (see Appendix C)

The Livable Centers Air Quality Methodology is summarized in the following four steps:

Step 1:

Generate Trip Flows: The first step involves calculating the total Auto O-D trips within all TAZs encompassing a Livable Center. The template contains the OD- trip date from H-GAC's Travel Demand Forecast Model. TAZ zones IDs for Cloverleaf study area (zone 1247 and 1248) and 1 mile buffer zone (1245 and 1246) was collected from H-GAC website (see Figure 32). Internal trips and trips to/from additional 1 mile buffer zones were transferred from 'Flow template' to the 'VMT and Emmision reduction" template (see Appendix C).

[82] Air Pollution and Your Health. (n.d.). National Institute of Environmental Health Sciences. Retrieved February 27, 2023, from https://www.niehs.nih.gov/health/topics/agents/air-pollution/index.cfm

[83] Air Quality and Health | Climate Program | Harris County Public Health. (n.d.). Retrieved February 27, 2023, from https://publichealth.harriscountytx.gov/Services-Programs/All-Programs/Built-Environment-BE-Program/Climate-Program/Air-Quality-and-Health

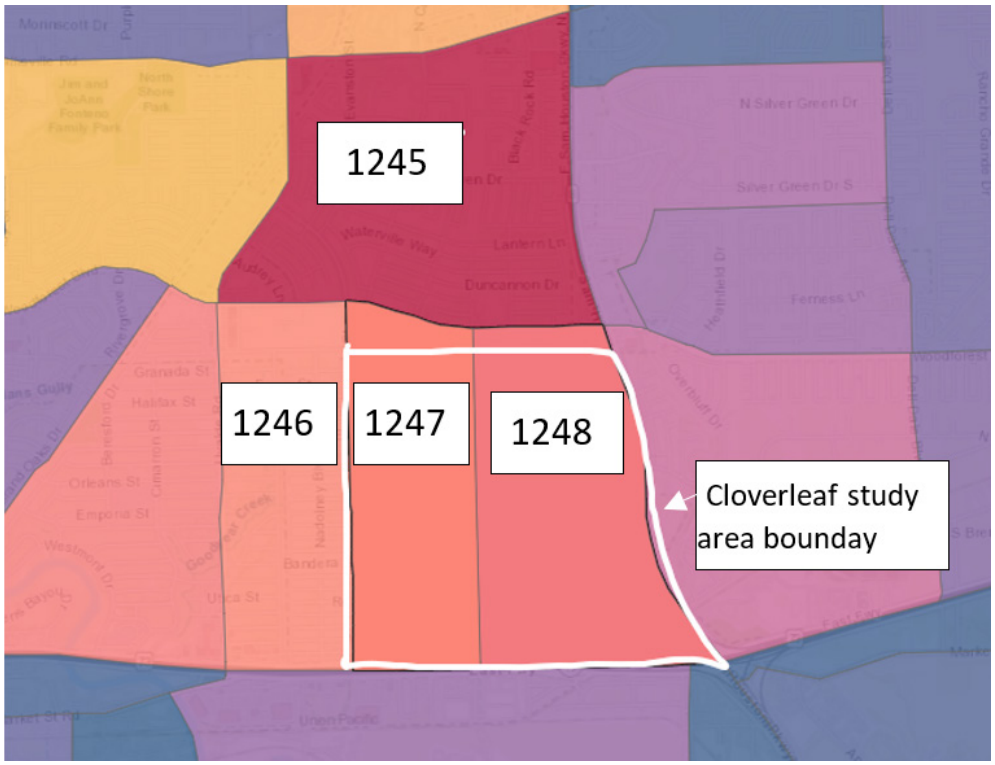


Figure 36: Internal TAZs and 1 mile buffer zones.

Step 2: Mode Shift

2a – Pedestrian Mode Shift: The mode shift to pedestrian activities is based on the proportion of new sidewalk coverage relative to the maximum possible sidewalk coverage with the Livable Center. The maximum share of mode shift is 27%. A total of 395,046 linear feet of sidewalk is part of the infrastructure conceptual recommendations within the Cloverleaf Livable Centers Study. As there are no sidewalk in the existing conditions, 27% (maximum allowable) pedestrian shift was calculated by the template.

2b – Bike Mode Shift: Based on the literature, mode shifts rates of 1.72% and 1% was assumed within the template for internal and external Auto O-D trips, respectively.

2c – Transit Mode Shift: Based on the template, a maximum of 12.9% of bike riders can shift to transit system if the bus-stop is significantly upgraded. To receive the transit ridership, the Cloverleaf Livable Centers Study meets both of the requirements listed below:

- Stop infrastructure upgrade

- Accessibility to stop upgrade

The template was filled with the average ridership information for seven stops along Freeport Street. Bus services in the area is provided by Harris County Transit District on weekday and Saturday. Average ridership along the Freeport Street was very low at two riders per day. The template was slightly modified to account for no-bus services on Sunday and first year of stop data starting 2022.

The H-GAC Air Quality estimation methodology depends on the existing ridership informations for existing bus stops. However, the methodology does not consider new transit stops. As several new transit routes have been proposed to be studied for feasibility and viability in the Cloverleaf study area, it can be expected that transit ridership could possibly increase more than what is currently calculated.

Step 3:

3a – Infrastructure VMT Reduction: In the absence of available data, the default values from the template has been used.

3b – Land Use VMT Reduction: In this step, trip reductions as a result of built-environment or land-use mix are calculated. The template assumes that overall VMT reduction due to built-environment mode-shift is typically between 5% and 12%. These bonus percentages were assigned to population density breaks from H-GAC's Activity-Connectivity Explorer tool. The information obtained from the H-GAC tool (https://datalab.h-gac.com/ace/) and used in the calculations are as follows:

Cloverleaf livable study area: 1.4 square miles

H-GAC tool zones study area: 2.44 square miles

Year	Population	Population Density
Pop 2018	17,579	7,205
Pop 2045	17,174	7,039

Year	Job	Job Density
Job 2018	2,495	1,023
Job 2045	2,682	1,099

Step 4:

Results Summary: In the final step, the emissions reductions from the VMT reduction are calculated using emissions factors, available within the template. The total annual emissions (ton/year) are calculated separately for each pollutant and includes emission outputs from "Engine Starts" and "Running." The summary of the results are as follows:

Year	Auto LC Internal Daily Trips	New Pedestrian Daily Trips	New Bike Daily Trips	New Daily Transit Trips	General Auto Trip Reduction Due to Densification Daily Trip	Total Daily VMT Reduction	Total Annual VMT Reduction
Planning Horizon Totals		6,899	1,436	5	0	9,455	3,450,938
Planning Horizon Averages		287	60	0	0	394	143,789

		Emission Reduction				
Year	Auto LC Internal Daily Trips	CO (ton/year)	NOX (ton/year)	VOC (ton/year)	CO2 (ton/year)	PM10 (ton/year)
Planning Horizon Totals		13.28	0.68	0.90	1010	0.02
Planning Horizon Averages		1	0	0	42	0

ENDORSEMENTS

As part of the Cloverleaf study process, a robust public engagement process was employed that kept the Task Force, the community at large, and H-GAC and Harris County PCT 2 informed and involved throughout the entire process. This process has awakened the community and has raised expectations for a better quality of life for the residents of Cloverleaf. This engagement was included in the data collection process, the issue and opportunity process, the vision and goal development, the recommendation concepts process, and the final study documentation process. Towards the conclusion of the study process, endorsements and recommendation enhancements or refinements were received and will provide momentum going forward. These will be discussed here.

Endorsements

The Study Team met separately with the Harris County PCT 2 Commissioner Adrian Garcia and his executive staff, HCTD, TxDOT and HCTRA. These are some of the responsible parties that would be implementing the recommendations. Below, are the meeting dates and endorsements:

> HCTD – Met virtually on 11/14/2022 at 4:00 pm.

- Agreed to study additional transit routes and curb2curb service.
- Asked Study Team to begin the process by distributing a HCTD survey at subsequent community and Task Force meeting.

> TxDOT – engaged in several email conversations regarding the 8-foot-wide multi-use trail along the IH 10 westbound frontage road. Met on 12/06/2022.

- Agreed to add this recommendation to their IH 10 East Planning and Environmental Linkage Study and assigned a CSJ number to it 0508-01-375.

> County Commissioner Garcia and executive staff – Met virtually on 1/23/2023 10:00 am.

- Commissioner Garcia commented he enjoyed the presentation that was made by the Study Team.
- Asked executive staff what it would take to prioritize the short-term recommendations.

> HCTRA – Met virtually on 2/20/2023 at 2:00 pm.

- Had no objection to the trail along the HCFCD ditch that would cross Sam Houston Tollway and connect to the trail at Carpenters Bayou and would be added to their Tolls to Trails initiative.
- Had no objection to the trail along the IH 10 westbound frontage road then crossing the Sam Houston Tollway at the interchange with IH 10, and ultimately connecting to the trail at Carpenters Bayou.
- Had no objection to the placemaking strategy to light up the IH 10 and Sam Houston Tollway interchange and having events to make the location more appealing, safe, and user-friendly for users of the trail.

Recommendation Enhancements and Refinements

Once the Study Team had developed the recommendation concepts, cost ,and implementation strategy, the team met with the Task Force once and the community at-large twice. During these meetings, recommendation enhancements or refinements were part of the feedback, especially to try to progress projects in the timeline or to inform the Study Team of the recommendations that were already being implemented by the responsible party. There were no objections to the recommendations; instead, the feedback received was positive and reflected a "let's get started viewpoint."

The streetlight timeline recommendation was modified based on feedback from the HCWCID. Instead of replacing the missing streetlights at intersections in the mid-term it was moved to the short-term. In fact, HCWCID has just completed an audit of the street light system. Also, the long-term recommendation for the placement of street light to meet design standards for all of the study area was moved to mid-term. The Study Team also received feedback that HCWCID would like to install murals on their facilities within the next two years.

For the short-term along with the safety projects for the intersection of Alderson Street at Barbara Mae Street and Alderson Street at Manor Street (recommendation #3), investigate providing traffic calming measures along the Alderson Street corridor.

For recommendation #10 the community loop, investigate extending the traffic calming measures to parts of Hollywood Boulevard.

Finally, as part of the short-term neighborhood-wide recommendations to restripe all stop bars and crosswalks, include auditing stop signs for MUTCD placement and compliance and adding street names plates to all intersections that do not meet Harris County design standards.

CONCLUSION

As demonstrated by the endorsements and refinements mentioned earlier, the residents in the Cloverleaf community are eager to enhance their quality of life. As mentioned in the Existing Conditions section of this report, historically, communities of color and lower socioeconomic status have experienced inequitable investment in their community infrastructure and services. Lower socioeconomic status is a combination of education, income and occupation, and the Cloverleaf community is more than 75% Hispanic. This Cloverleaf Livable Centers Study, is a plan to help rectify these inequities. This study not only considered infrastructure improvements, but also investigated policy recommendations, placemaking, economic development, and potential land use as properties change hands in the future. The study also examined reduction in VMT and emissions. These are all necessary elements to make a community more able to be vibrant and to thrive.

By implementing this plan, the call for action will have been met. In the next 20 years, there will be a change to the Cloverleaf community, and it will be produce an enhanced quality of life.

APPENDIX A- PUBLIC ENGAGEMENT

APPENDIX B - PROJECT COST ESTIMATES