Equity in Transit:
2020

LINK
HOUSTON

Hugo Guerrero

Sixth Ward Resident

"I live in the historic Sixth Ward. My primary method of getting around is public transportation. I can catch the bus one block from the house, and it takes me to the office in Downtown, my kids' daycare in Midtown, doctor's or dentist's appointments in Downtown, or any sporting event. On the weekends, the kids and I ride our bikes to the METRO Rail to get to the Museum District and/or the zoo. The kids really enjoy riding the METRO rail and bus. If given the option to drive a car or ride public transportation, the kids and I pick the latter. Letting someone else do the driving allows me to have quality time with my kids and/or work on my to-do list. Because of the reliability and flexibility of public transportation we have the luxury of owning only one vehicle, which we use sparingly. Knowing that our carbon footprint is being minimized by our lifestyle gives us peace of mind that our kids will have a better environment to work, live, and play!"

LINK HOUSTON

LINK Houston is a 501(c) (3) nonprofit organization that advocates for a robust and equitable transportation network so that all people can reach opportunity. We envision a world in which all people in Houston can easily access not only jobs but also educational experiences, medical appointments, grocery stores, greenspace, and other important destinations, regardless of their mode of transportation. To make that vision a reality, we support transformative and inclusive policies, systems, initiatives, and infrastructure development that connect people to opportunity by transit, walking, rolling, and biking. We move ideas into action through community engagement, research, and shaping public policy.

BOARD OF DIRECTORS

DISCLAIMER

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Executive Summary

Public transit connects people to opportunity and advances equity when it exists in certain places and operates a quality service. Achieving equity in and through transit refers to the fair and just distribution of benefits and burdens of transit services and infrastructure across communities. ***Equity in Transit: 2020*** **examines how to improve Metropolitan Transit Authority of Harris County, TX (METRO) transit services, particularly for people who ride the local bus.**

Over 4.5 million people live in the METRO service area and 69% are people of color (e.g., Black, Indigenous, people of color). The service area also includes:

- 218,000 households living in poverty
- 304,000 households with one or more persons with a disability
- 91,000 households with no vehicle
- 59,000 people commuting primarily by transit
- 430,000 jobs paying less than $15,000 annually

The 2020 update to the Transportation Equity Demand Index (TEDI) found the eastern and southeastern area of Houston, southwest area of Houston, and Greater Greenspoint high-demand areas continue to warrant strategic and disproportionately high investments. About 867,000 people in Houston live in these three high-demand areas. Ridership on local bus and light rail never dipped below 43% of normal ridership during the deepest depths of the COVID-19 pandemic, a clear indicator of the important role local transit plays in connecting essential workers to jobs and the vital nature of many other trips.

The four principal recommendations from the 2018 baseline report remain relevant and constitute the core recommendations in 2020: frequency, span of service, reliability, and accessibility. METRO made meaningful progress in key aspects of the four recommendations in 2019 and 2020, but many opportunities and much work remain, such as:

Increase frequency by continuing to prioritize the regularity of local bus routes during the COVID-19 pandemic; ensuring all system-wide service changes in 2021 prioritize the local bus network, whose ridership is most swiftly recovering; prioritizing implementation of METRONext projects serving people in TEDI high-demand areas; and advancing Bus Operations Optimized System Treatments (BOOST) improvements on local bus routes, prioritized by TEDI rating (i.e., the combined 25-Richmond and 50-Broadway corridor and the 2-Bellaire corridor as potential next priorities).

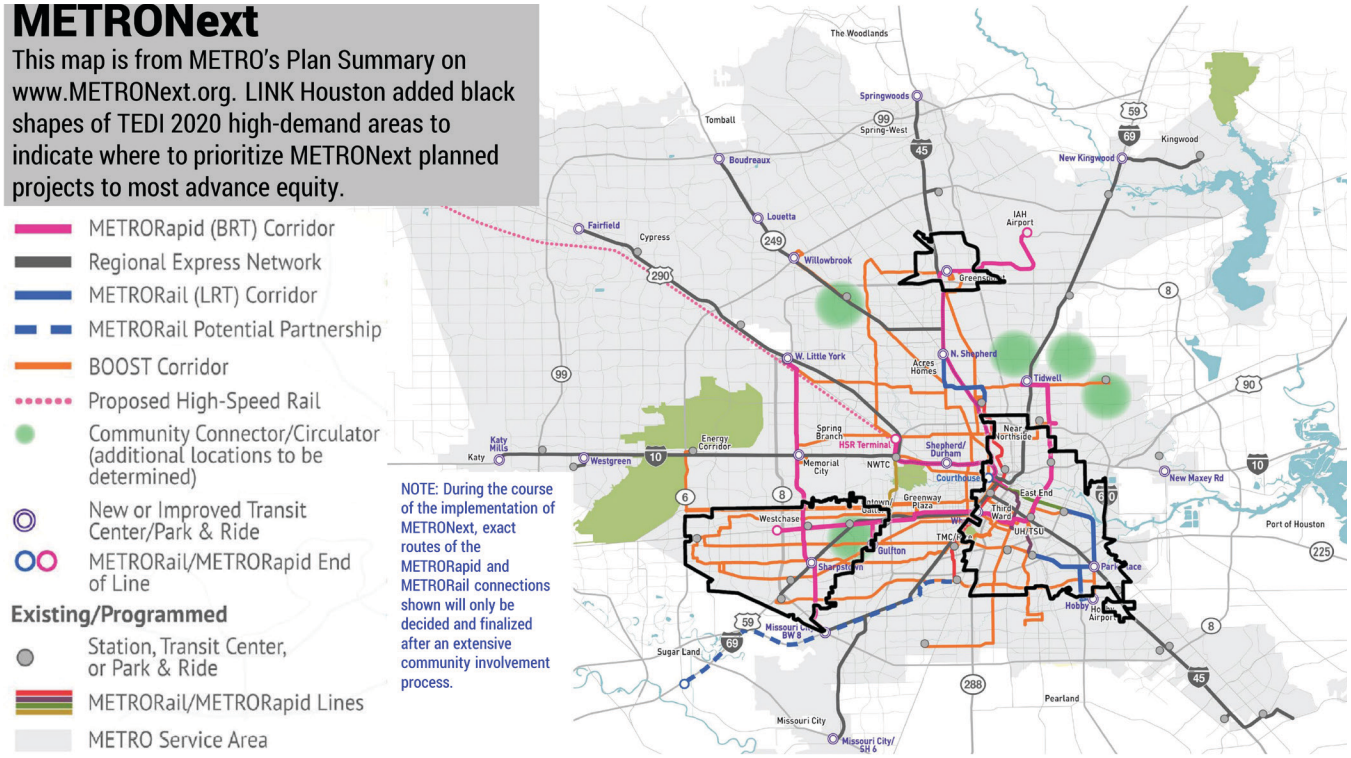
Extend service hours by strategically increasing the span on routes serving essential workers and communities with high demand for equity in transit (where feasible given COVID-19's budgetary implications).

Improve reliability for on-time buses by focusing on making expected and real-time bus schedule information readily available to riders, especially given the exceptional circumstances of COVID-19.

Pursue accessibility and other transit stop upgrades by continuing efforts to ensure every bus stop and station is brought into a full state of accessibility; prioritizing improvements in communities with high demand for equity; completing a substantial portion of METRONext funded bus stop accessibility improvements in 2021; and reevaluating the process and metrics governing how bus stops qualify for necessary amenities (i.e., shelter, seating, lighting, trash bins, etc.), with special consideration of transfer points and stops with off-peak service frequency of 30-minutes or longer.

METRO and partners should continue equitable implementation of METRONext by prioritizing projects on the local bus network in the near-term, specifically in the three TEDI high-demand areas (refer to Figure ES-1). Doing so will advance equity by improving transportation options for people walking, rolling, biking, and riding local transit in areas where the population is 88% people of color. Given the economic challenges created by COVID-19 on individuals and families, local bus improvements are the best way to quickly, but substantially, improve access to opportunity in Houston.

Figure ES-1. METRONext and 2020 TEDI High-Demand Areas.



Note: www.METRONext.org contains a complete summary of each METRONext plan element listed in the legend in Figure ES-1. The report and related information are available on www.LINKHouston.org by searching for "Equity in Transit: 2020." The webpage also includes an interactive StoryMap summary, the Executive Summary in Spanish, and links to access TEDI data in an Excel spreadsheet and ArcGIS geodatabase formats.

Keith Downey

Kashmere Garden Super Neighborhood President

"Twenty percent of our residents do not own vehicles. They depend on public transportation. What we need in our community is more frequent bus service and more reliable bus service. There is a late-night connector that we helped advocate for with our partners in Trinity Gardens."

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Introduction

Report Purpose

Equity in Transit: 2020 examines how to improve the Metropolitan Transit Authority of Harris County, TX (METRO) services, especially for people who ride local bus routes. Stories from transit riders' and stakeholders' experiences complement quantitative data in the updated Transportation Equity Demand Index (TEDI), a metric first developed and examined in the *Equity in Transit: 2018* report. METRO reviewed the 2018 recommendations in detail and incorporated many aspects into the agency's METRONext long-range plan. The information and recommendations in this report aim to influence transit improvements, particularly in areas with significant populations of people of color that continue to lag in services and infrastructure investment as a result of the impacts of historic racism, forced segregation, and economic marginalization. The analysis strives to provide transparency regarding METRO's performance and impact on people of color and asset-limited communities. Drawing on this analysis, transit riders and advocates can continue to hold transit decision-makers accountable to their commitments.

Equity in the Center

Equity in transit refers to the fair and just distribution of benefits and burdens of transit services and infrastructure across communities. Over 4.5 million people live in the METRO service area, of which 3.2 million are people of color. Additionally, about 218,000 households live in poverty; 304,000 households have one or more persons with a disability; 91,000 households own no vehicles; 59,000 people commute primarily by transit; and 430,000 jobs pay less than $15,000 annually. Pursuing equitable transportation policies, programs, and investments means addressing inequities, including institutional barriers and systemic racism, to advance individual and societal economic resilience and prosperity. Centering equity requires that transportation decision-makers and advocates first ask current and potential riders what they need and then work together for solutions.

Highlights of the Past Two Years

In 2019 and 2020, METRO and other stakeholders introduced and continued transportation initiatives that included general commitments to equity in and through transit:

- **METRO** adopted the METRONext long-range plan in August 2019 and, in November 2019, 68% of voters supported the bond referendum to help fund the $7.5 billion long-term plan.
- The **City of Houston** released the Climate Action Plan, Resilient Houston, and Vision Zero Houston, all of which included commitments to alternative transportation investments. The city passed the Walkable Places Ordinance and the Transit-Oriented Development Ordinance to enable higher density, mixed-use development on certain street corridors, including design elements to improve people's experience walking, rolling, biking, and riding transit. After extensive community engagement, Mayor Sylvester Turner created a new vision for the Texas Department of Transportation's proposed I-45 North expansion, including recommendations to improve access to transit services from neighboring communities. The **Houston Commission on Disabilities** authored a special report about making intersections safer for people with disabilities.
- **Harris County** launched a Vision Zero initiative and is developing an Equity in Transportation Plan to guide equitable investments in all modes of transportation infrastructure. Harris County Precinct One Commissioner Rodney Ellis funded 50 miles of high-comfort bikeways and committed $30 million for street and sidewalk improvements, increasing safe access to bus routes and light rail lines in the Third Ward near Texas Southern University.

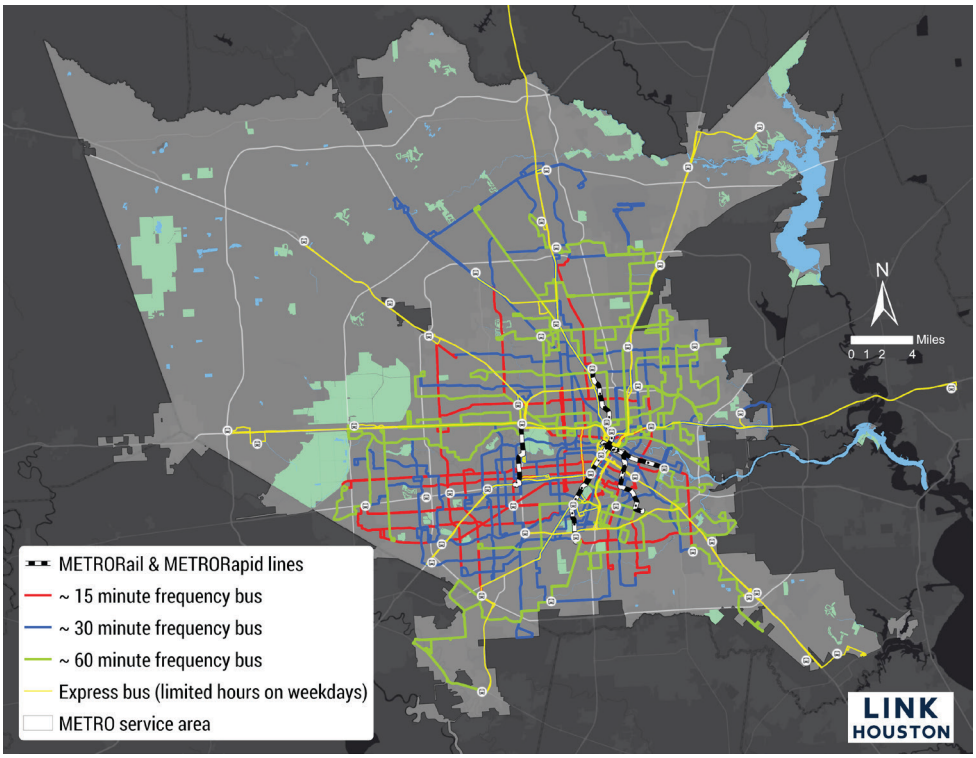
These initiatives demonstrate a philosophical shift by officials and agencies: an increasing willingness and ability to discuss equity as an essential element of planning processes, funding distribution, implementation, and other aspects of government work.

No accounting of the past two years would be complete without discussing COVID-19. The COVID-19 pandemic began in spring 2020 and continues to create uncertainty in society, widely disrupting life and business. METRO found ways to safely sustain services, especially local bus and rail. The agency's proactive response balanced demand with service and health and safety protocols for staff and riders amidst fluctuating revenue.

Continued Demand for Equity

Transit connects people to opportunity and advances equity when it exists in advantageous places and operates a quality service. Achieving equity in and through transit refers to the fair and just distribution of benefits and burdens of transit services and infrastructure across communities. Some level of demand for equitable mobility exists everywhere. This section briefly overviews transit service and ridership in Houston and presents findings about where demand for equity in transit is highest.

Figure 1. METRO's Fixed Route Transit Network.

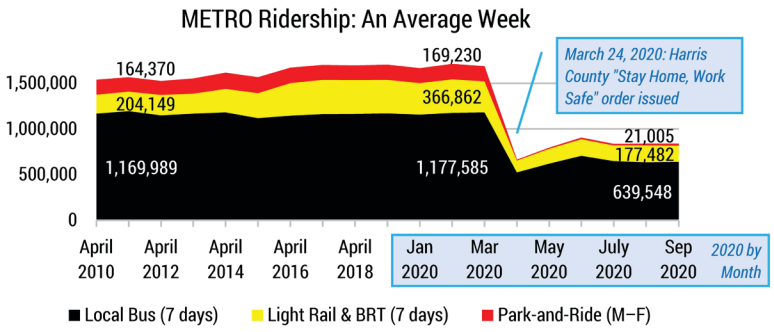


Transit in Houston

Equity in Transit: 2020 focuses on local bus routes operated by METRO. Local bus service is the backbone of the region's deeply affordable transportation network (Figure 1). METRO also operates STAR Vanpool, community connectors (i.e., point-to-point service within a geographic zone), and most of the region's high-occupancy vehicle/high-occupancy toll lanes. The recently opened METRORapid Silverline, a bus rapid transit (BRT) line in Uptown, is the region's first true rapid local bus (i.e., light rail–like service using rubber tire buses).

Ridership on METRO fixed-route services modestly increased year over year from 2010 to the first quarter of 2020. Ridership on local bus and light rail routes during the COVID-19 pandemic never dipped below 43% of normal ridership, a clear indicator of the important role of local transit in the region (Figure 2). METRO's 2015 New Bus Network significantly increased local bus and light rail service on weekends and ridership on Saturdays and Sunday increased substantially. From April 2010 to April 2019, Sunday ridership on local bus increased 51% and light rail increased 174%.

Figure 2. Transit Ridership, 2010 to Present.



Dwyannetta Coleman

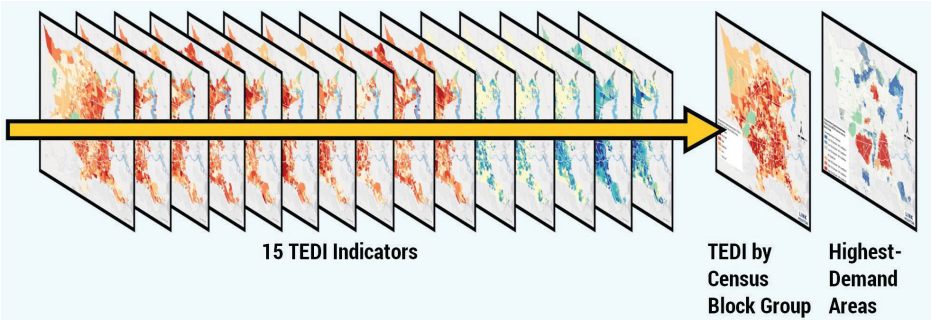
Southwest Houston Resident

"I mainly get around Houston by METRO. The service hasn't changed [for me] since COVID-19. The bus is still on time, and everybody is wearing masks because it's mandatory. Sometimes the bus is a bit overcrowded and the driver stops picking up individuals. Most of the stops on my route now have shelters, which is good, because they protect you from the rain or the sun."

Transportation Equity Demand Index

The Transportation Equity Demand Index (TEDI), comprising 15 indicators, covers aspects of both personal equity and community equity. The index identifies locations for more equitable transit investments by measuring fundamental demographic demand, likely high-transit use, and human and built environment feasibility (i.e., people density, jobs density, and walkable street network) (Figure 3).

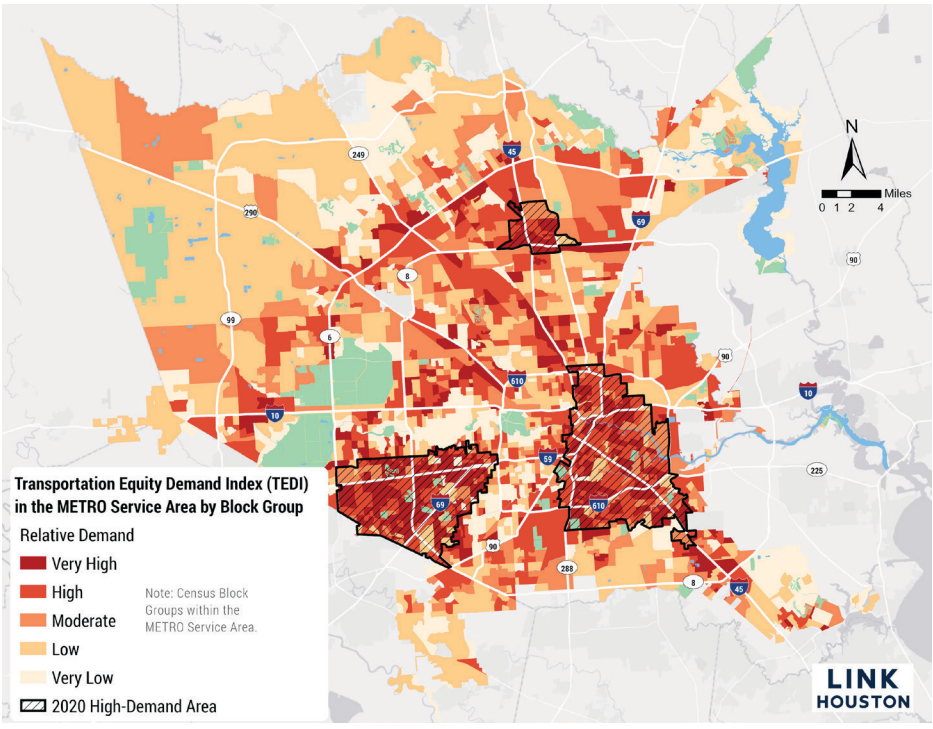
Figure 3. Illustration of the TEDI Methodology.



TEDI 2020 UPDATE

The 2020 TEDI analysis incorporates two years of recent data (Figure 4). TEDI shows where people most need affordable transportation options based on the 15 socio-economic-environment factors.

Figure 4. 2020 TEDI Update Results and Updated High-Demand Areas.



TEDI 2020 OBSERVATIONS

In 2018, the TEDI analysis identified four high-demand areas for more equitable transit investments:

- Eastern and southeastern area of Houston (i.e., portions of about two dozen super neighborhoods east of I-45 North and SH-288, generally within the I-610 North and East Loop and extending a few miles south of I-610 South Loop)
- Southwest area of Houston (i.e., portions of eight super neighborhoods outside the I-610 loop generally south of Westheimer Road down to Bissonnet Street-Fondren Road-West Airport Blvd)
- Spring Branch (i.e., including portions of five super neighborhoods)
- Greater Greenspoint

The 2020 TEDI update found the eastern and southeastern area of Houston, southwest area of Houston, and Greater Greenspoint high-demand areas more or less persist as locations continuing to warrant improvements and investments that advance equity in and through transit. The three 2020 high-demand areas cover 137-square miles and are home to 867,000 people, a decrease of 18-square miles and 117,000 people from 2018. The high-demand areas include high rates of poverty (24% of households in 2020), more households with no vehicle (12% of households in 2020), and more people using transit to access work (5.4% of employed people in 2020). Overall, high-demand areas represent environments conducive to quality transit due to high population density, more jobs paying less than $15,000 per year, and better-connected street networks. In 2020, 88% of residents inside high-demand areas are people of color (eastern and southeastern area of Houston: 90%, southwest area of Houston: 86%, Greater Greenspoint: 94%), whereas 65% of all other areas of METRO's service are people of color.

The Spring Branch high-demand area from 2018 did not appear in the 2020 update results. Spring Branch experienced modest socio-economic improvement from 2018 to 2020, leading to no longer showing up in the statistical analysis as an area of especially high-demand for transportation equity. The change in Spring Branch appears to stem from a relatively smaller concentration of households in poverty and fewer single-parent, female-headed households with children when compared to the rest of the METRO service area.

In early 2020, prior to the COVID-19 schedule disruptions, METRO showed modest improvement to frequent transit coverage in TEDI high-demand areas within a quarter mile of transit stops (i.e., the portion of the three 2020 TEDI high-demand areas within a quarter-mile of transit stops was slightly higher than the portion of the four 2018 high-demand areas within a quarter mile of transit stops). As another measure, Table 1 documents the proximity of transit to residents in the three 2020 high-demand areas and reflects both overall socio-economic and METRO service improvements. Similar to 2018, the most pronounced difference in transit service by time of day continues to be the level of service after 6 p.m. While most fixed routes operate near to or past 12:00 a.m., transit service operates less frequently in the evening, resulting in half the coverage on a weekday and one-third on a weekend.

Table 1. Transit Proximity to Residents of the Three 2020 TEDI High-Demand Areas.

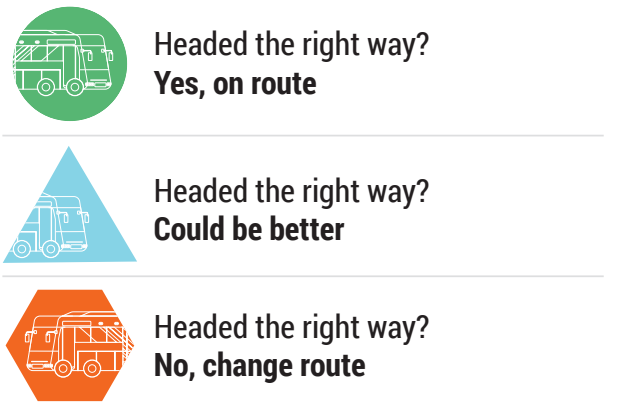
2020 TEDI High-Demand Areas: 867,000 total population	People in Proximity		Percent of High-Demand People in Proximity	
	Weekday	Sunday	Weekday	Sunday
Population within 1/4-mile of any transit:	661,000	656,000	76.3%	75.7%
Population within 1/4-mile of 15-minute or better frequency transit:				
Early A.M. (before 6 a.m.)	380,000	139,000	44%	16%
A.M. Peak (6 a.m. to 9 a.m.)	471,000	363,000	54%	42%
Midday (9 a.m. to 3 p.m.)	370,000	363,000	43%	42%
P.M. Peak (3 p.m. to 6 p.m.)	454,000	363,000	52%	42%
Late P.M. (after 6 p.m.)	255,000	115,000	29%	13%

The appendix contains more information about TEDI methodology and results by super neighborhood.

Demand for Equity Persists

About 867,000 people in Houston live in the three high-demand areas identified in the 2020 TEDI. Ridership never dipped below 43% of normal ridership on local bus and light rail during the COVID-19 pandemic, demonstrating demand to continue to advance equity and justice in and through transit in Houston. The next four sections discuss progress made on each of the four recommendations in the *Equity in Transit: 2018* report. A simple three classification rating system summarizes the status of each recommendation (Figure 5).

Figure 5. Simple Rating System for Recommendations.



Recommendation 1
Yes, on route

Frequency

THE PRINCIPAL FREQUENCY RECOMMENDATIONS FROM THE 2018 BASELINE REPORT:

- Ensure all frequent network local bus routes come every 15 minutes or faster
- Add 10 more specific routes to the frequent network
- Make every non-frequent bus route at least 30-minute frequency
- Ensure all light rail lines operate at minimum 15-minute frequency (especially at night)

THE SEVERAL IMPROVEMENTS MADE IN 2019-2020 ON LOCAL BUS SERVICE FREQUENCY:

- As one example, METRO responded to community requests by increasing frequency on the Route 3-Langley
- As another example, the final METRONext plan includes increases in local bus frequency on many routes
- METRO opened the region's first bus rapid transit line

THE MOST ADVANTAGEOUS WAYS TO CONTINUE PURSUING THE FREQUENCY GOAL IN 2021:

- Continue to prioritize the frequency of local bus routes during the COVID-19 pandemic
- Ensure all system-wide service changes in 2021 prioritize the local bus network, whose ridership is most swiftly recovering
- Prioritize implementation of METRONext projects serving people in TEDI high-demand areas, such as by specifically by advancing Bus Operations Optimized System Treatments (BOOST) improvements on local bus corridors, prioritized by TEDI rating (i.e., the combined Route 25-Richmond and Route 50-Broadway corridor and Route 2-Bellaire corridor are the next highest priority corridors given TEDI analysis)

Improvements to Frequency are Generally "On Route"

In response to advocacy from northeast community members, METRO extended Route 3-Langley and increased frequency from 60 minutes to 30 minutes on weekdays and 45 minutes on weekends, created a new Route 79-Irvington, and created a unique community connector zone to provide late evening connections (i.e., 8:00 p.m. to 12 a.m.). As another example, METRO met with residents and stakeholders in Gulfton in early 2020 to plan a new route and other route adjustments; COVID-19 delayed the implementation.

METRO continues community engagement and planning for certain near-term METRONext service plan changes, such as the BOOST improvements on the Route 54-Scott and Route 56-Airline-Montrose routes. The Route 54-Scott BOOST corridor will serve the TEDI 2020 eastern and southeastern area of Houston high-demand area. The Route 56-Airline-Montrose BOOST will connect to the Greater Greenspoint high-demand area. Based on TEDI 2020 ratings of all 17 BOOST corridors, the next priorities for BOOST improvement are Route 25-Richmond and Route 50-Broadway corridor (serves the southwest area of Houston and eastern and southeastern area of Houston high-demand areas) and the Route 2-Bellaire corridor (serves the southwest area of Houston high-demand area).

In addition, METRONext includes planned investments in additional service hours (i.e., more buses on the street) on many existing and a few new local bus routes. METRO views the bus

network in three color categories: red means a bus generally comes at least every 15-minutes most of every day; blue means a bus comes about every 30-minutes; and green means a bus comes about every 60-minutes. The following is an outline of additional local bus service frequency improvements included in METRONext:

- Increase frequency on nine existing red 15-minute frequent network routes
- Convert three blue 30-minute frequency routes to red 15-minute frequent network routes
- Increase frequency on 17 existing blue 30-minute frequency routes (i.e., add bus trips to increase frequency at certain times and days)
- Convert five green 60-minute routes to entirely or in part blue 30-minute frequency;
- Increase frequency on 23 existing green 60-minute frequency routes (i.e., add bus trips to increase frequency at certain times and days)
- Add four new green 60-minute routes
- Create route extensions to make new connections in various places

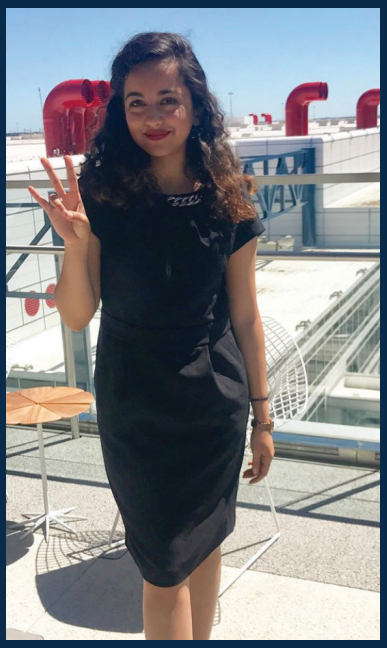
In August 2020, Houston's first bus rapid transit (BRT) line, a product of Uptown Houston District, METRO, City of Houston, and the Texas Department of Transportation, opened in the Galleria area. BRT is a comparable quality transit experience to light rail, operated using rubber-tire buses. In addition, the Houston-Galveston Area Council (H-GAC) Transportation Policy Council approved funding for the Inner-Katy BRT to connect the Northwest Transit Center to Downtown, including stations in communities along the route. In-process improvements to the Northwest Transit Center include better lighting, a customer service office, and restrooms. The Downtown Transit Center also received significant improvements this year.

METRO implemented the new BRT service and facility improvements despite COVID-19 forcing emergency schedule changes. METRO did not just return some routes to higher frequency; METRO also increased frequency on some routes to above pre-COVID-19 levels. System-wide changes began in March 2020 and included reducing frequency and making route-by-route adjustments (Figure 6). METRO staff continue to monitor every route, every day, for opportunities to adjust services to ridership demand.

Figure 7 compares TEDI demand to fixed route frequency on Sundays pre-COVID. Opportunities to improve frequency exist, such as in portions of the east-southeast and Greater Greenspoint. Creating seven-day frequent bus service must remain a high priority for METRO as Houston gradually emerges into a post-COVID new normal.

Hina Uddin

University of Houston Alumnus



"I used the METRORail in Houston as a sophomore in college to commute to my first ever internship. I remember being so worried about losing the opportunity to partake in an internship like my peers just because I didn't have a car on campus. It turned out that using METRO to get from my dorm at UH to my internship at city hall was even easier than driving a car!

I look forward to seeing METRORail Houston expand to more neighborhoods in Houston, particularly, to suburban Richmond where I live now."

Figure 6. Timeline: COVID-19 Impact on METRO Service Frequency.

March 2020
Emergency order issued; all routes on Saturday schedule; fare collection suspended; cleaning and social distance protocols established

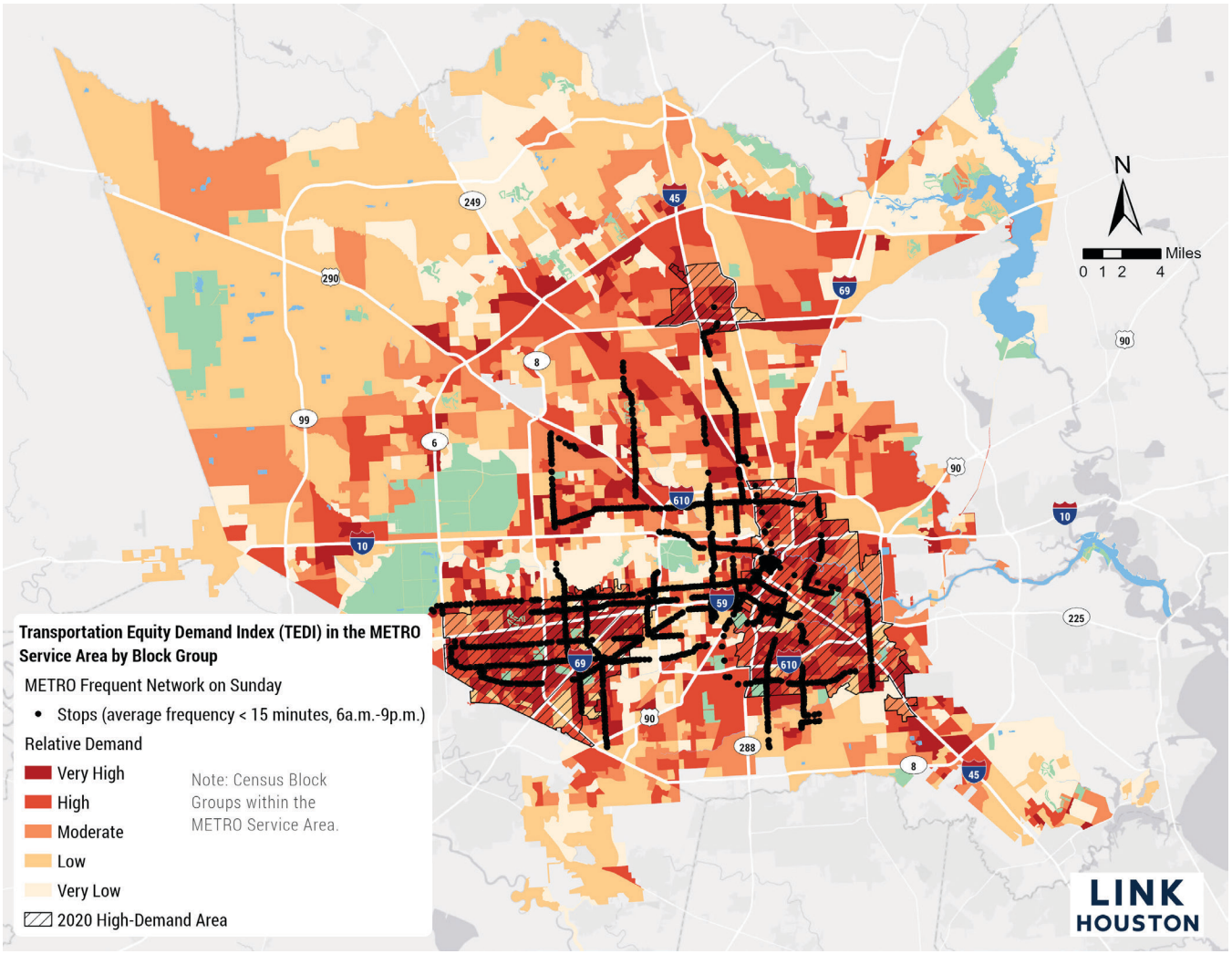
April 2020
Additional systemwide changes; all routes 30-minute or 60-minute frequency; bus trips added as necessary for social distancing

May - June 2020
Returned some routes to higher frequency; added service based on social distancing (in some cases increasing frequency above pre-COVID-19 levels)

July - October 2020
Returned additional routes to higher frequency; resumed fare collection; added service based on social distancing (in some cases increasing frequency above pre-COVID-19 levels)

Nov 2020 - Jan 2021
Continue reduced frequency; transition to a temporary new normal for 2021; publish schedules in printed route maps and online media

Figure 7. TEDI 2020 and METRO Frequently Served Stops on Sundays.



Recommendation 2
No, change route

Span of Service

THE PRINCIPAL SPAN OF SERVICE RECOMMENDATION FROM THE 2018 BASELINE REPORT:

- Extend service hours on 12 specific local bus routes connecting TEDI high-demand communities to extended-hour activity centers (e.g., the airports, convention center, Galleria-Uptown, higher education institutions, and the Texas Medical Center)

THE MINIMAL PROGRESS MADE IN 2019-2020 ON LOCAL BUS SPAN OF SERVICE:

- METRO did not implement any system-wide change to span of service
- METRONext does not include any planned system-wide change to span of service
- In a few instances, requests by communities resulted in route-specific adjustments to span of service in late evenings

THE MOST ADVANTAGEOUS WAY TO CONTINUE PURSUING THE SPAN OF SERVICE GOAL IN 2021 IS TO:

- Preserve the span of service hours and, where feasible given COVID-19's budgetary implications, strategically extend service on routes serving essential workers and TEDI high-demand areas

Improvements to Span of Service are "Off Route"

METRO adjusted span of service in late evenings in a few cases where communities and advocates specifically sought such changes (e.g., in northeast Houston). METRO did not implement any system-wide changes in 2019 or 2020, and METRONext does not contain any specific service-hour extensions or plans to create a nighttime-service network.

A relatively large concentration of people living in TEDI high-demand areas work hourly jobs paying less than $15,000 per year. Many hourly jobs in healthcare, grocery stores, restaurants, maintenance, airports, hospitality, and retail sales require employees to work on-site at all hours of the day or night. People employed in these jobs need affordable transportation options that can get them to and from work on time early in the morning and late in the evening. The 12 local bus routes identified in 2018 remain the priority routes to connect economically marginalized communities to extended-hour activity centers, specifically the Texas Medical Center, Uptown, airports, convention center, universities, and community colleges (i.e., bus routes 2, 6, 9, 11, 14, 26, 33, 36, 40, 50, 73, and 102).

Anomymous

University of Houston Alumnus

"The bus is often not on time; you never knew when it was going to come. Even if you texted the bus stop number to see what time the bus was coming, it was never really accurate. Frequency is a big deal. The bus could take forever. Safety too. Especially at night, the bust stops are not lit, so you are waiting in the dark. It's very demoralizing. A lot of the times the bus drivers get confused, so they drive right past you."

Recommendation 3
Could be better

Reliability

THE PRINCIPAL RELIABILITY RECOMMENDATIONS FROM THE 2018 BASELINE REPORT:

- Set 90% as the goal for local bus punctuality.
- Eliminate schedules for routes/lines operating every eight minutes or faster.
- Provide real-time next arrival and departure information at all transit centers, transfer points, and heavily used stops.
- Confirm schedules and frequency posted at stops match information on the website and mobile apps.

THE MODEST PROGRESS MADE IN 2019-2020 ON LOCAL BUS SERVICE RELIABILITY:

- METRO piloted real-time schedule information on solar-powered tablets.
- METRO began implementation of the first BOOST local bus route improvements, which include measures to improve reliability.

THE MOST ADVANTAGEOUS WAY TO CONTINUE PURSUING THE RELIABILITY GOAL IN 2021 IS TO:

- Focus primarily on making expected and real-time schedule information consistently available to riders, especially given the exceptional circumstances of COVID-19.

Improvements to Reliability "Could be Better"

METRO recently launched a pilot program to better share schedule information. While real-time information on solar-powered tablets attached to certain stops does not guarantee the bus is on-time, the information helps riders make informed decisions about their travel. This is important because METRO's goal for on-time performance of the local bus network remains 75%. Actual local bus on-time performance in November 2018 was 74.6% of bus trips and 78.3% in February 2020 (last data due to COVID-19 disruption). The COVID-19 pandemic forced METRO to balance significant challenges, including loss of revenue; increased expenses; staff safety; uncertainty about the fiscal future; and varying, continued demand for services. The agency has not reported monthly on-time performance for local bus service since February 2020 and resumed public reporting of light rail on-time performance in June. METRONext implementation, including reliability elements, is in the initial stages. METRO's approved 2021 budget funds some local bus-related projects, which may improve reliability when in operation.

The METRONext plan includes a BOOST network of 17 much improved local bus routes designed in part to improve reliability through optimized stop locations and traffic signal priority. BOOST does not change where the bus goes, but the upgrades should improve how reliable buses come and go. Additionally, METRO plans to improve operations in and out of certain transit hubs (e.g., Downtown, Midtown, Northwest, and Texas Medical Center transit centers) to increase reliability.

Recommendation 4
Yes, on route

Accessibility

THE PRINCIPAL ACCESSIBILITY RECOMMENDATIONS FROM THE 2018 BASELINE REPORT:

- Fulfill commitments to universal accessibility so stops are reachable regardless of age, size, or ability and prioritize construction of bus stop amenities (i.e., shelters, seating, lighting, trash bins) where off-peak service frequency is 30 minutes or longer (the longer you wait, the more you need a seat).

THE SEVERAL IMPROVEMENTS IN 2019-2020 TO LOCAL BUS SERVICE ACCESSIBILITY:

- Several hundred transit stops on local bus routes were made accessible.
- More than 1,000 additional bus stops improvements were engineered in preparation for near-future construction.
- METRO continued to prioritize accessibility in the agency's budget and received $30 million from the Houston-Galveston Area Council additional funds.

THE MOST ADVANTAGEOUS WAYS TO CONTINUE PURSUING THE ACCESSIBILITY GOAL IN 2021:

- Continue efforts to ensure every bus stop and station is brought into a full state of accessibility per Americans with Disabilities Act (ADA) standards established by the U.S. Department of Transportation: Federal Transit Administration, prioritizing improvements in communities with high demand for equity.
- Complete a substantial portion of METRONext funded bus stop accessibility improvements in 2021.
- Reevaluate the process and metrics governing how bus stops qualify for necessary amenities (i.e., shelter, seating, lighting, trash bins), with special consideration of transfer points and stops with off-peak service frequency of 30 minutes or longer.frequency of 30-minutes or longer.

Improvements to Accessibility: Generally "On Route"

METRO committed to designing accessibility solutions at 1,100 of the 9,300 stops in the system in 2020 and completed the task by October. METRO plans to implement 750 stop accessibility improvements in 2020. As of October, the agency completed updates at 312 transit stops. While COVID-19 drastically complicated many aspects of life and transit operations, METRO moved ahead of schedule on some facility improvements, including at the Downtown Transit Center and Northwest Transit Center. The agency's fiscal year 2021 budget continues investment in universal access, including $30 million awarded by the H-GAC Transportation Policy Council to improve accessibility to/from transit stops.

The METRO Board approved a contract to construct $9.4 million of transit stop accessibility improvements in 2020. METRONext also includes about 10 more community circulators, service solutions, which can be tailored to community preferences and context (e.g., a circulating small bus that connects people curb-to-curb to destinations within a zone or to transfer points on the fixed-route network).

Conclusion

METRO reviewed the *Equity in Transit: 2018* report in detail during the development of the METRONext plan. The agency incorporated many aspects of the four recommendations and in a few instances exceeded expectations. While METRO made progress toward equity since 2018, the transit agency and its partners must continue prioritizing projects on the local bus network in TEDI high-demand areas. The 2020 TEDI update found three of the four high-demand areas from 2018 remain: the three updated 2020 high-demand areas cover 137-square miles and are home to 867,000 people, a decrease of 18-square miles and 117,000 people within the four 2018 high-demand areas. The 2020 high-demand areas–the east and southeastern area of Houston, southwest area of Houston, and Greater Greenspoint–include higher rates of poverty (24% of households), more households with no vehicle (12% of households), more people using transit to access work (5.4% of employed people), and high percent of the population are people of color (88% of residents). Overall, high-demand areas continue to represent environments favorable to quality transit due to high population density, more jobs paying less than $15,000 per year, and better-connected street networks. As in 2018, the 2020 analysis shows service to be less frequent after 6:00 p.m., half the coverage on a weekday and one-third on a weekend, presenting a challenge for people whose job requires employees to work on-site at all hours of the day or night.

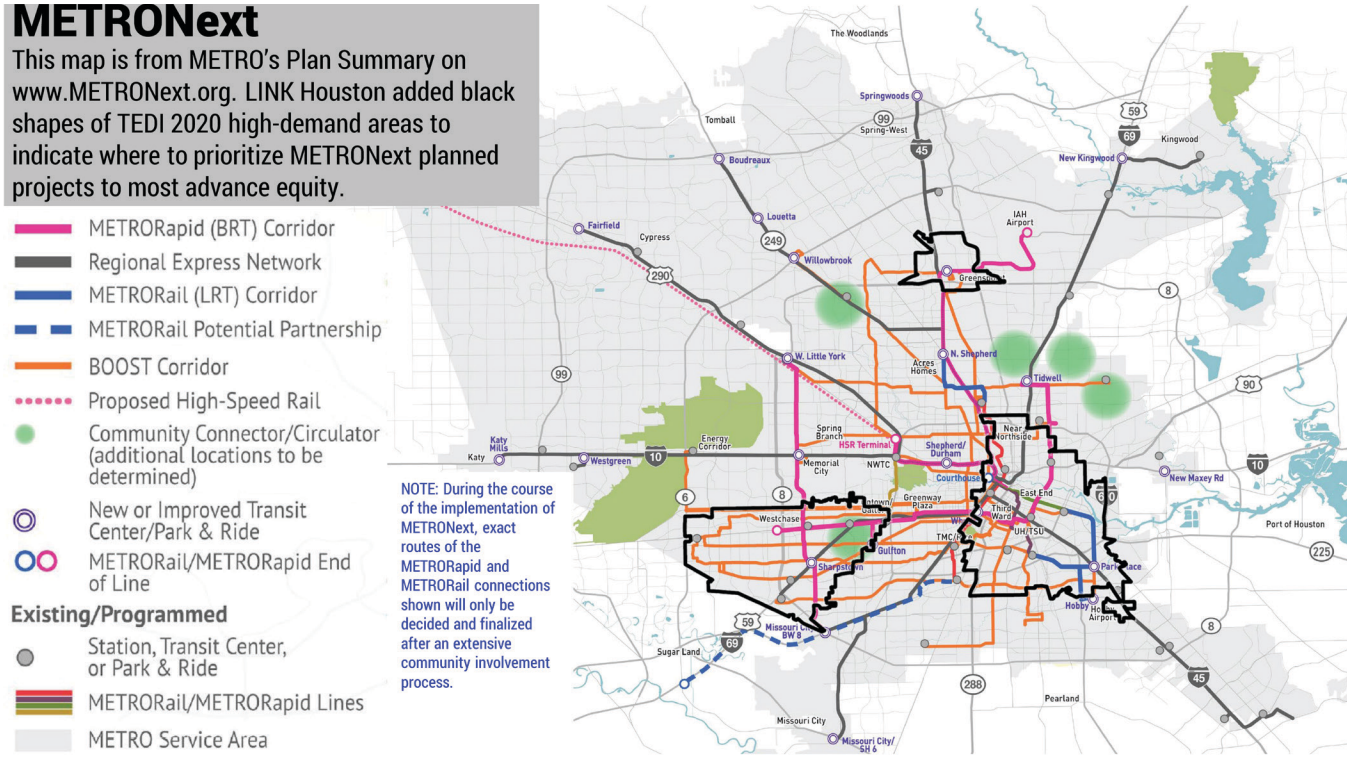
Recent frequency updates, along with route changes, and a specialized late-night service connector in northeast Houston, as a start, provide residents in a low-car-ownership area with better options to reach opportunities. In Gulfton, the most densely populated and diverse neighborhood in Houston, residents continue to ride transit for essential trips during the COVID-19 pandemic, appreciate some of the updates to bus stop amenities, and eagerly await more improvements. METRO recently launched a pilot program to better share schedule information. While real-time information on solar-powered tablets attached to certain stops does not guarantee the bus is on-time, the information helps riders make informed decisions about their travel. Despite COVID-19 ongoing impact to METRO operations, the agency continues its commitment to universal accessibility, completing on-the-ground improvements on more than 312 transit stops in 2020.

Given the economic challenges created by COVID-19 on individuals and families, local bus improvements are the best way to quickly, but substantially, improve access to opportunity in Houston. METRO and partners must:

- **Increase frequency** by continuing to prioritize the regularity of local bus routes during the COVID-19 pandemic; ensuring all system-wide service changes in 2021 prioritize the local bus network, whose ridership is most swiftly recovering; prioritizing implementation of METRONext projects, refer to Figure 8, serving people in TEDI high-demand areas; and advancing BOOST improvements on local bus routes, prioritized by TEDI rating (i.e., the combined 25-Richmond and 50-Broadway corridor and the 2-Bellaire corridor as potential next priorities).
- **Extend service hours** by strategically increasing the span on routes serving essential workers and communities with high demand for equity in transit (where feasible given COVID-19's budgetary implications).
- **Improve reliability for on-time buses** by focusing primarily on making expected and real-time bus schedule information readily available to riders, especially given the exceptional circumstances of COVID-19.
- **Pursue accessibility and other transit stop upgrades** by continuing efforts to ensure every bus stop and station is brought into a full state of accessibility; prioritizing improvements in communities with high demand for equity; completing a substantial portion of METRONext funded bus stop accessibility improvements in 2021; and reevaluating the process and metrics governing how bus stops qualify for necessary amenities (i.e., shelter, seating, lighting, trash bins), with special consideration of transfer points and stops with off-peak service frequency of 30 minutes or longer.

Prioritizing improvements in TEDI high-demand areas will advance equity for thousands of Houstonians who would benefit from more affordable transportation options and improve access to opportunity in the Houston region.

Figure 8. METRONext and 2020 TEDI High-Demand Areas.



Note: www.METRONext.org contains a complete summary of each METRONext plan element listed in the legend in Figure 8. The report and related information are available on www.LINKHouston.org by searching for "Equity in Transit: 2020." The webpage also includes an interactive StoryMap summary, the Executive Summary in Spanish, and links to access TEDI data in Excel spreadsheet and ArcGIS geodatabase formats.

Xochitl Avalos

Community Engineer
BakerRipley, Harbach

"Last year in December I went to the meeting of the METRO Board of Directors, and I let them know some of the things that concern me. I would like to have more security here on the platform at Palm Center. And one of the things that I also requested is for METRO to establish a park-and-ride because when I come to Palm Center to use public transit, I leave my car nearby, but many times I notice that it's not safe. When I return to the car there are several broken windows of other cars. That worries me; and not just for me, but for other people who need to use public transit and maybe they have stopped using it because of those things."

Appendix

The Transportation Equity Demand Index (TEDI) identifies the areas of highest demand for equitably improving affordable transportation relative to all other parts of the METRO service area. The primary statistical method was to transform each of 15 indicators into a normalized percentile rank and average all together by changing a census block group's actual indicator value to a number between 1 and 100 based on how the block group compares to all others in the METRO service area. The percentile rank reveals how high or low the indicator was for a block group in comparison to all other block groups. Higher values mean higher relative priority and/or feasibility for equitable transportation in a block group. The TEDI rating of a block group is the average of all 15 indicators, each given equal weight as each is important, compared to all other block groups in the METRO service area. Table 2 provides details on each of the 15 TEDI indicators and Figure 9 depicts the relative distribution of each indicator.

Table 2. Transportation Equity Demand Index Indicators.

CATEGORY	INDICATOR	FORMAT	GEOGRAPHY	YEAR	UPDATED	SOURCE
Fundamental Demographic Demand	**Households in Poverty**	Percent	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Single Parent Female Headed Households with Children Under Age 18	Percent	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Households with One or More Persons with a Disability	Percent	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Homes of Workers with Jobs Paying Less Than $15,000 Annually	Number	Block	2017	Annual	U.S. Census Bureau, Longitudinal Employer-Household Dynamics
	Work Sites of Workers with Jobs Paying Less Than $15,000 Annually	Number	Block	2017	Annual	U.S. Census Bureau, Longitudinal Employer-Household Dynamics
Likely Higher Transit Use *(i.e., propensity, latent demand, or induced demand)*	**People of Color Population**	Percent	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Zero Vehicle Available Households	Percent	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Workers Commuting by Transit	Percent	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Homes of Workers with High School Education or Less	Number	Block	2017	Annual	U.S. Census Bureau, Longitudinal Employer-Household Dynamics
	Work Sites of Workers with High School Education or Less	Number	Block	2017	Annual	U.S. Census Bureau, Longitudinal Employer-Household Dynamics
Human and Built Environment Suitability	**Population Density**	Number	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Household Density	Number	Block Group	2014–2018	Annual	U.S. Census Bureau, American Community Survey
	Street Intersection Density	Number	Block Group	2018	Annual?	Center for Neighborhood Technology
	Average Block Perimeter—Feet	Number	Block Group	2018	Annual?	Center for Neighborhood Technology
	Compact Neighborhood Score	Number	Block Group	2018	Annual?	Center for Neighborhood Technology

Figure 9. Transportation Equity Demand Index: Individual Indicator Maps.

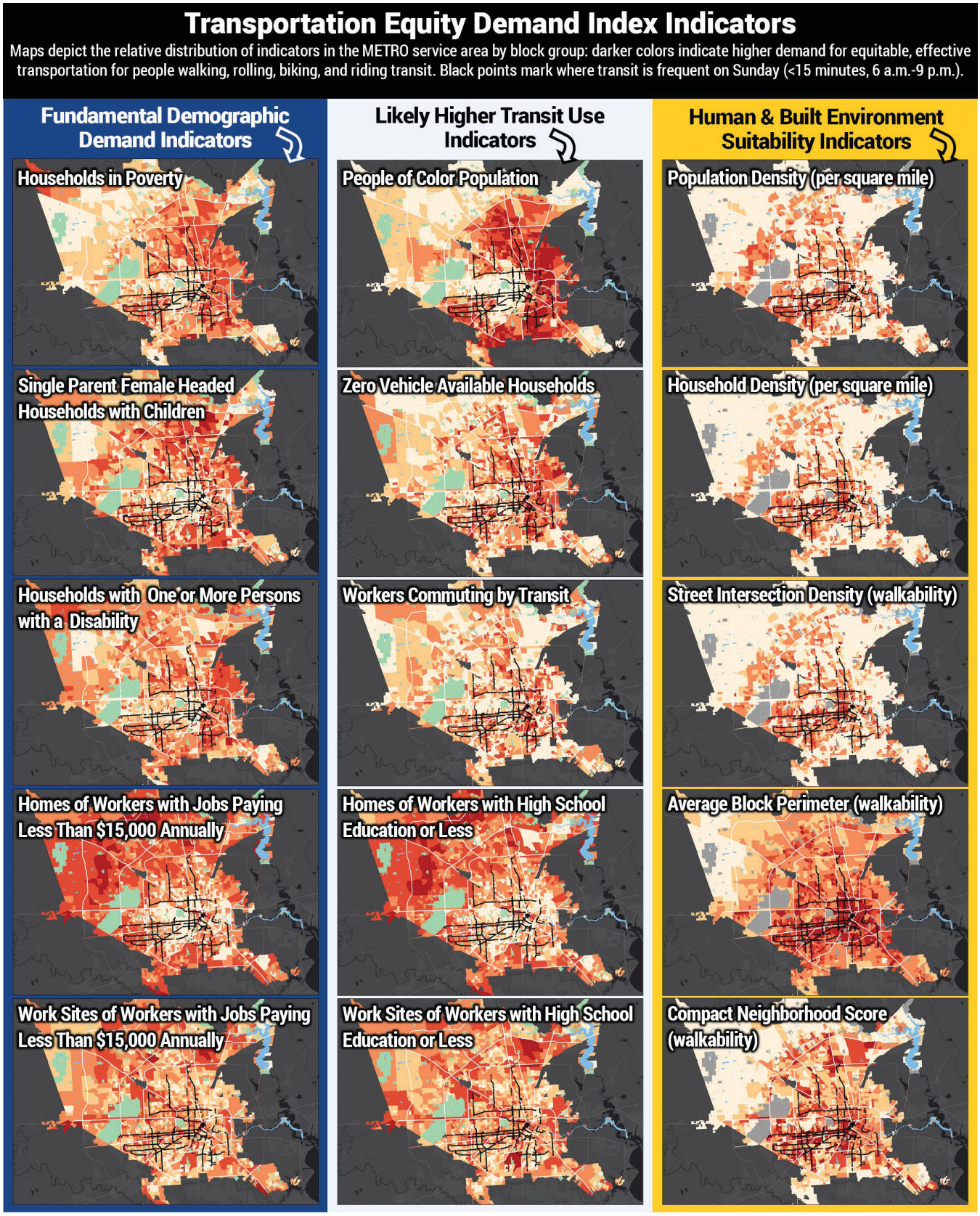


Figure 10. Transportation Equity Demand Index, Houston METRO Service Area.

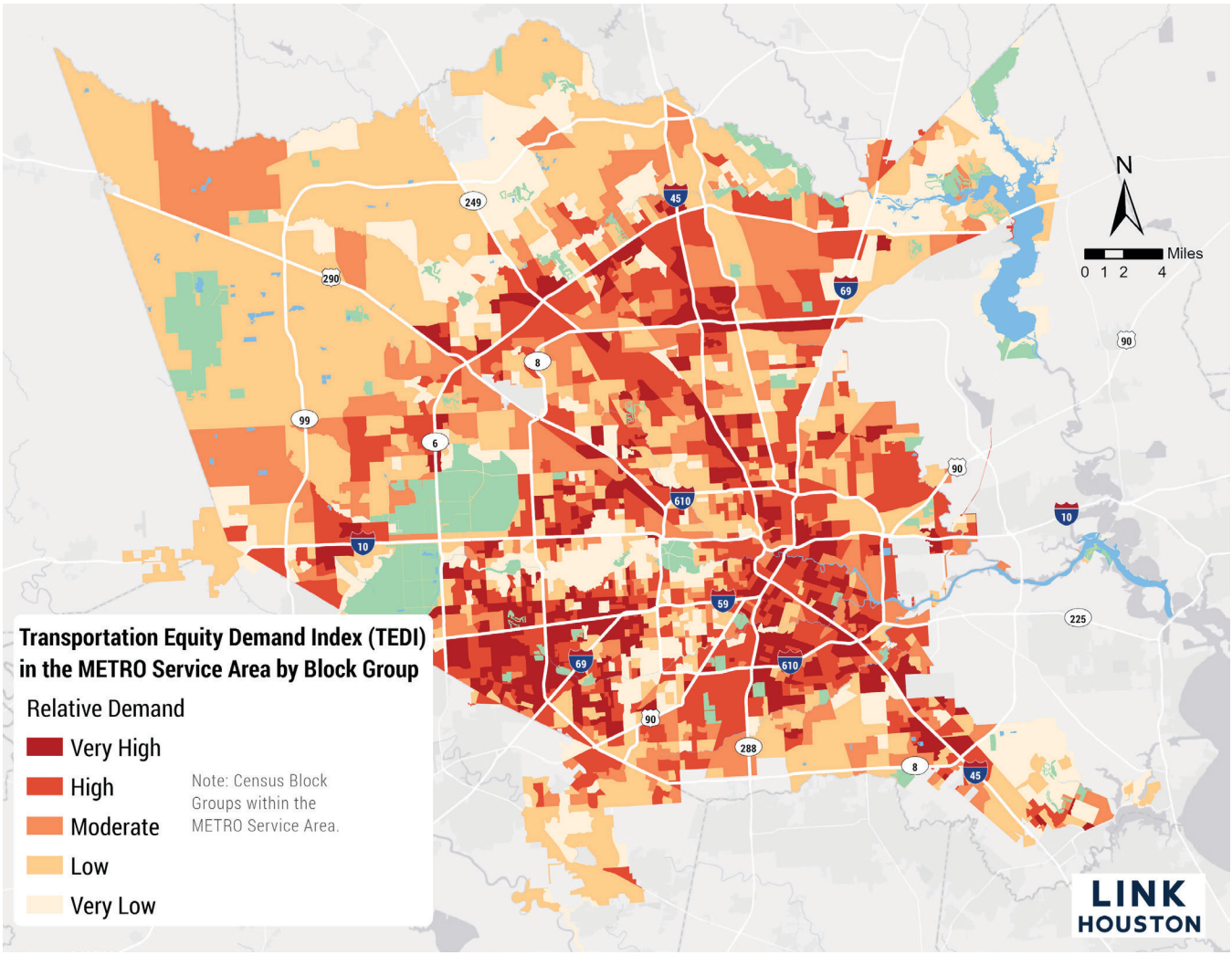


Figure 10 illustrates TEDI results by block group. The darker areas are locations where affordable transportation (i.e., transit, walking, rolling, and biking) is in relatively high demand in Houston.

Advocates conducted further analysis to identify the highest-demand areas of the region. ArcGIS Pro software tools were used, specifically the Optimized Hot Spot Analysis tool (i.e., which iterates Getis-Ord Gi* and Moran's I statistics), to identify statistically significant concentrations of demand.

Figure 11. TEDI Concentration Analysis: "High TEDI Demand 99% Confidence" Areas.

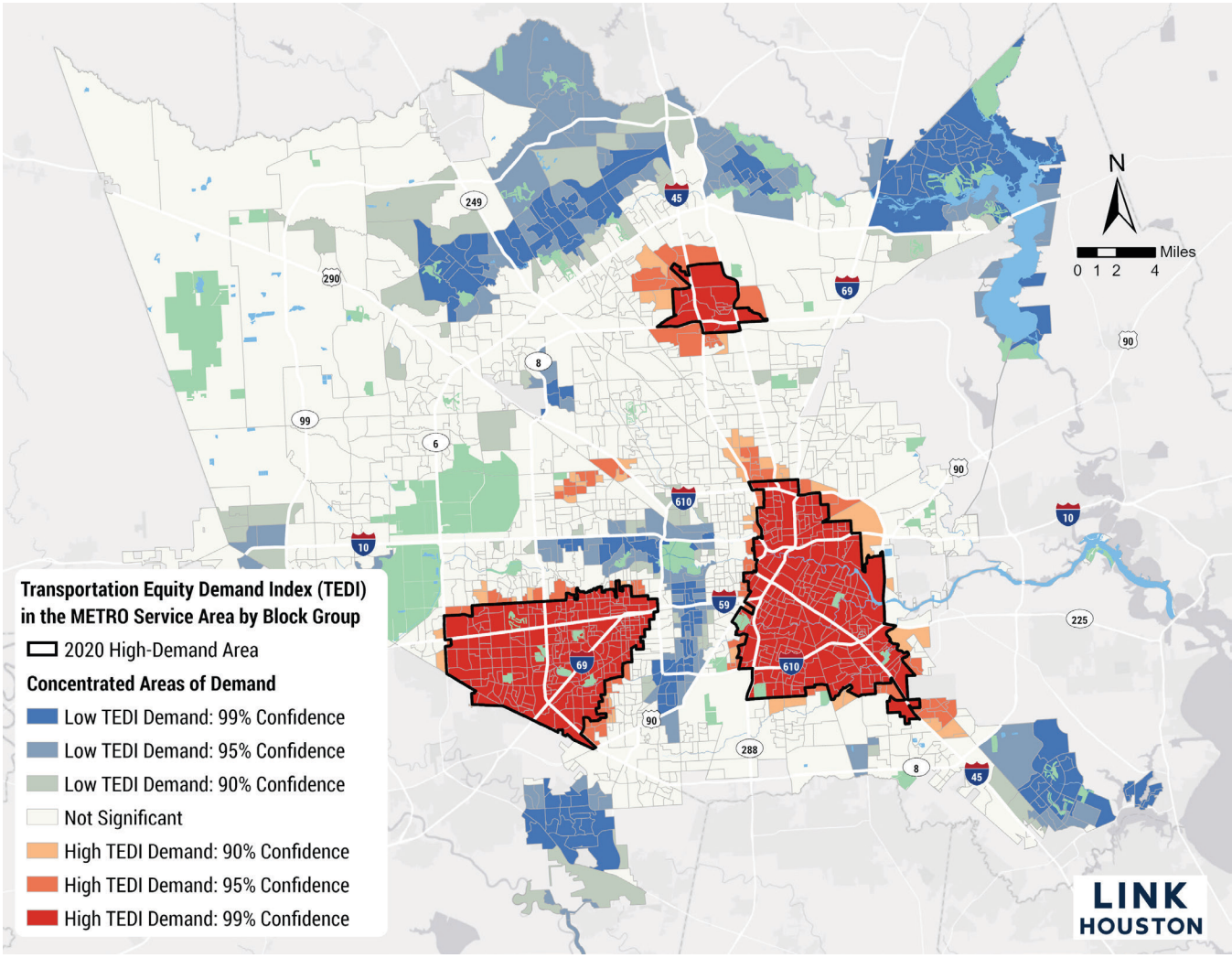
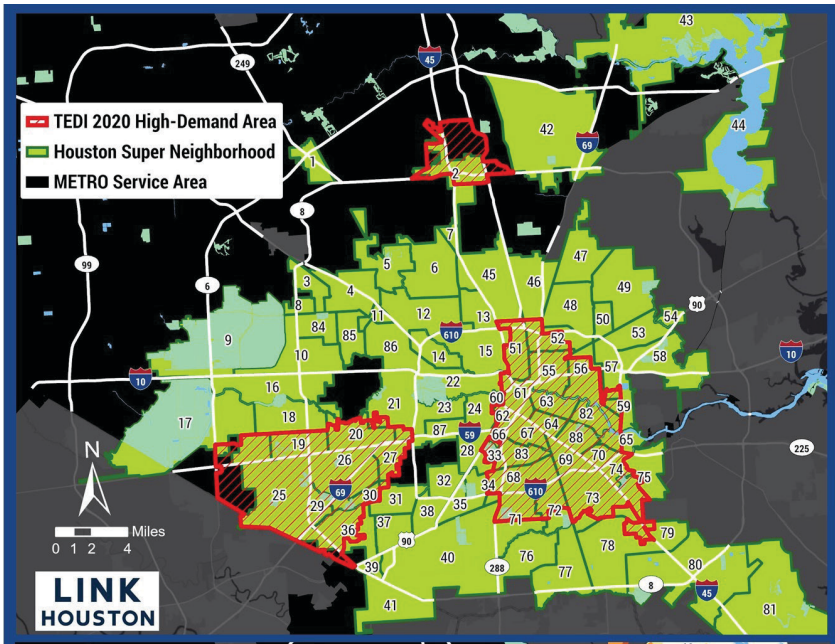
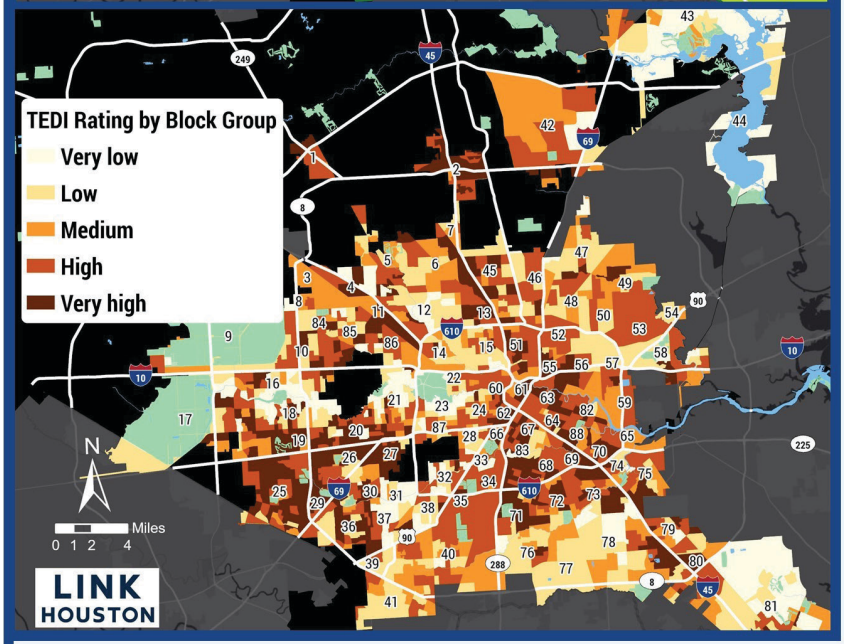


Figure 11 illustrates the results of the spatial statistics. The High TEDI Demand 99% Confidence areas are the priority list of high-demand areas for equitable and affordable transportation, whether that be transportation infrastructure (sidewalks, crosswalks, bikeways, and transit stops/stations) or transportation services (i.e., public transit operations).

Figure 12 summarizes TEDI analysis by Houston super neighborhood.

Figure 12. TEDI analysis by Houston Super Neighborhood.





2020 Transportation Equity Demand Index by Houston Super Neighborhood

Super Neighborhood Key

Neighborhoods with a substantial portion in a TEDI high-demand area.

#	Name	TEDI Rating (1-10)	Category
1	Willowbrook	7.1	High
2	Greater Greenspoint	5.9	High
3	Carverdale	6.7	High
4	Fairbanks-Northwest Crossing	4.6	Medium
5	Greater Inwood	2.2	Low
6	Acres Home	4.2	Low
7	Hidden Valley	2.9	Low
8	Westbranch	4.9	Medium
9	Addicks Park Ten	3.1	Low
10	Spring Branch West	3.5	Low
11	Langwood	5.5	High
12	Central Northwest	4.8	Medium
13	Independence Heights	4.2	Medium
14	Lazybrook-Timbergrove	4.3	Medium
15	Greater Heights	4.4	Medium

Continued

#	Name	TEDI Rating (1-10)	Category
16	Memorial	4.2	Medium
17	Eldridge-West Oaks	5.5	High
18	Briar Forest	2.3	Low
19	Westchase	6.1	High
20	Mid West	4.2	Medium
21	Greater Uptown	4.3	Medium
22	Washington Avenue Coalition-Memorial Park	3.9	Low
23	Afton Oaks-River Oaks Area	4.8	Medium
24	Neartown-Montrose	4.2	Medium
25	Alief	4.5	Medium
26	Sharpstown	6.0	High
27	Gulfton	6.4	High
28	University Place	3.7	Low
29	Westwood	4.6	Medium
30	Braeburn	3.4	Low
31	Meyerland Area	4.2	Medium
32	Braeswood	4.1	Low
33	Medical Center Area	5.0	Medium
34	Astrodome Area	4.9	Medium
35	South Main	4.0	Low
36	Brays Oaks	3.7	Low
37	Westbury	6.2	High
38	Willow Meadows-Willowbend Area	5.9	High
39	Fondren Gardens	4.2	Medium
40	Central Southwest	1.8	Low
41	Fort Bend Houston	1.0	Low
42	IAH-Airport Area	4.6	Medium
43	Kingwood Area	2.7	Low
44	Lake Houston	6.6	High
45	Northside-Northline	6.6	High
46	Eastex-Jensen Area	3.5	Low
47	East Little York-Homestead	3.8	Low
48	Trinity-Houston Gardens	3.2	Low
49	East Houston	3.6	Low
50	Settegast	5.6	High
51	Near Northside	4.7	Medium
52	Kashmere Gardens	5.8	High
53	El Dorado-Oates Prairie	6.7	High
54	Hunterwood	6.8	High
55	Greater Fifth Ward	1.9	Low
56	Denver Harbor-Port Houston	3.9	Low
57	Pleasantville Area	5.5	Medium
58	Northshore	5.3	Medium
59	Clinton Park Tri-Community	6.3	High
60	Fourth Ward	5.9	High
61	Downtown	6.2	High
62	Midtown	6.7	High
63	Second Ward	5.2	Medium
64	Greater Eastwood	4.9	Medium
65	Harrisburg-Manchester	4.3	Medium
66	Museum Park	5.7	High
67	Greater Third Ward	5.6	High
68	Greater OST-South Union	6.7	High
69	Gulfgate Riverview-Pine Valley	5.0	Medium
70	Pecan Park	3.9	Low
71	Sunnyside	6.6	High
72	South Park	5.5	Medium
73	Golfcrest-Bellfort-Reveille	6.5	High
74	Park Place	3.6	Low
75	Meadowbrook-Allendale	5.7	High
76	South Acres-Crestmont Park	5.1	Medium
77	Minnetex	6.3	High
78	Greater Hobby Area	6.9	High
79	Edgebrook Area	5.2	Medium
80	South Belt-Ellington	3.2	Low
81	Clear Lake	5.5	High
82	Magnolia Park	4.8	Medium
83	Macgregor	2.0	Low
84	Spring Branch North	3.4	Low
85	Spring Branch Central	5.4	Medium
86	Spring Branch East	2.2	Low
87	Greenway-Upper Kirby Area	3.5	Low
88	Lawndale-Wayside	2.5	Low

Ashlei Howard

St. Louis, MO

“I’m Ashlei from Saint Louis, Missouri, and I had the opportunity to attend a seven-week educational program in Houston, Texas, to further my medical education. I sought out an Airbnb that would be near the bus line so I could save money on traveling expenses and not drive my car to Texas. Thankfully, I ended up one block from the 41 Kirby-Polk bus line and METRO provided a student discount. This enabled me to save money while allowing me the opportunity to study on the 50-minute ride to and from classes each day. I loved the METRO app that allowed me to map out my local travel and the text messaging feature that provided real time arrival times for buses. This feature was AMAZING!”

Xochitl Avalos

Community Engineer

BakerRipley, Harbach

"I am fascinated, passionate about the city, with my community. I care not only for my area but for the entire city. I would like people to use [public transit] more. It is a very good means of transportation that I can use to relax and not drive on a particular day. It's also economical because you're going to leave your car, you are going to utilize public transportation, it's cheap, $1.25 [and] that seems like a very good price to me [to] travel in a safe, calm way, and avoid the traffic. I [encourage everyone] to utilize it, to give yourselves the opportunity to get to know the routes that are spread widely throughout the city."

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