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The Shared City
Care-networks and the Urban
Neighborhood Re-imagined

# HOUF

SECOND WARD

Houston is organized in Super Neighborhoods and the Second Ward Super Neighborhood is located east of Downtown Houston and south of Buffalo Bayou. There are a handful of risks that threaten the livelihood of residents in Second Ward but there is a potential to develop it into a vibrant and pleasant neighborhood due to its proximity to downtown and the opportunity to connect to Buffalo Bayou's future open spaces.

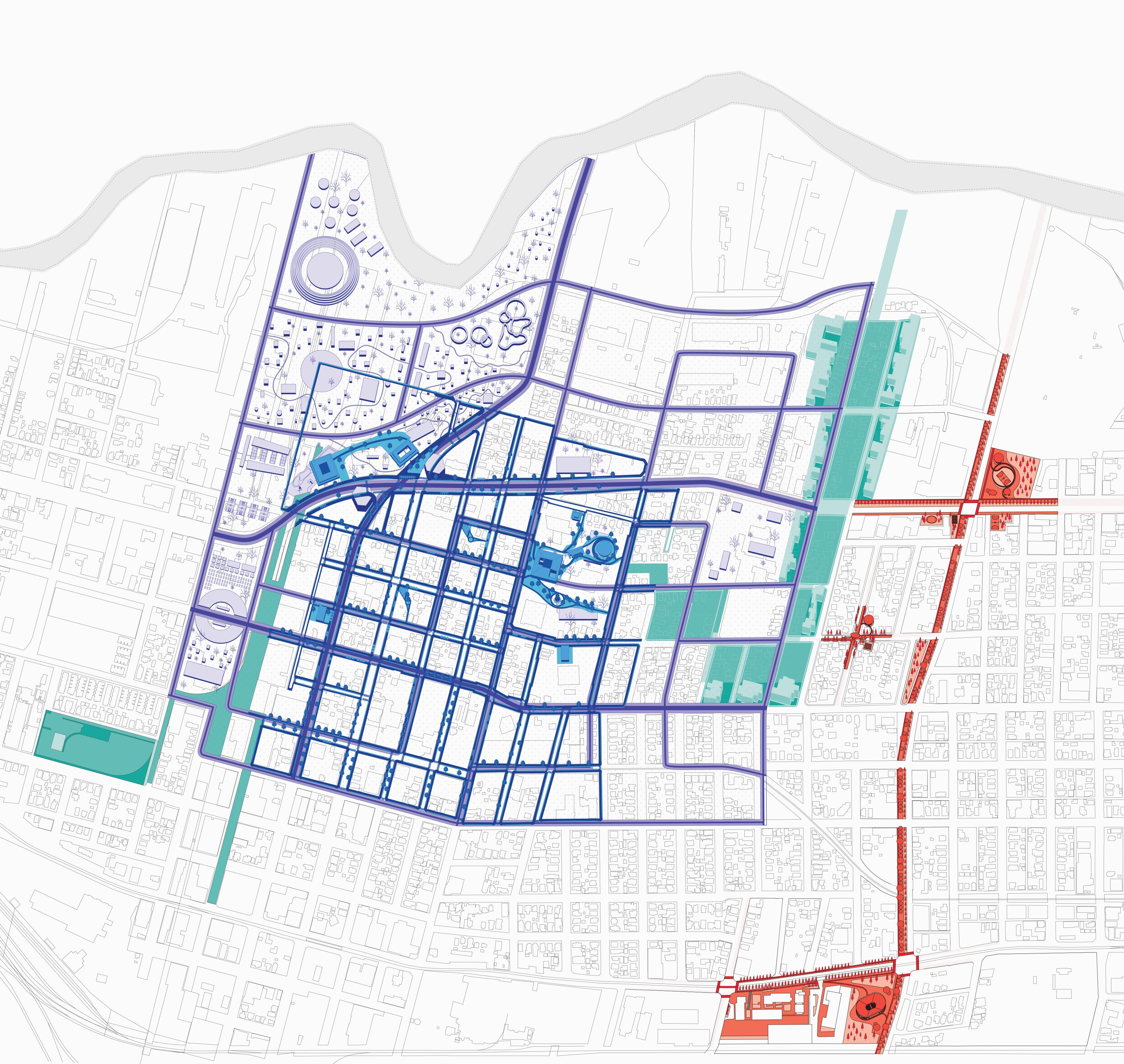
Second Ward's current population is primarily Hispanic (73%), and residents share a collective heritage and culture. From 2015 to 2019, the median income has risen from \$32,027 to \$47,502 (lower than the national level of \$62,843). Majority of the residents are young or middle aged, 67% of the population are in the 18-64 age bracket, and only 9% of the population is over 65+ years old. Although the elderly demographic is currently low,in a decade or two, it will increase drastically as the population in the age group of 40-64 move into the elderly age bracket.

With the increase of elderly population, health becomes important in Second Ward. USDA's Food Desert Atlas indicates that 65% of the residents of Second Ward live more than a mile away from a grocery store, as the neighborhood doesn't have one. Additionally, although automobile services are a leading industry in the neighborhood, over 600 low-income families (20% of residents) don't own a vehicle, which makes it even more difficult to access grocery stores outside of Second Ward. Residents report higher rates of obesity, poor mental, and physical health than adults in Houston, indicating an overall lack of healthy lifestyle, which can lead to significant financial consequences for them.

There are a handful of environmental and man-made risks present in the neighborhood. Majority of the housing in Second Ward was built before 1978, the year lead paint was banned in the country. Residents living in the older houses face the risk of lead poisoning, which can have extreme health consequences. The northern portion of the neighborhood is dominated by industrial warehouses, many of which are vacant today, but have led to pollution of the Buffalo Bayou. The Buffalo Bayou partnership aims to repurpose the industrial relics and extend the neighborhood fabric to the bayou by creating a safe and resilient public waterfront edge open to spatial development, supporting an ecologically rich habitat. The relocation of the Center for Pursuit to the south of Second Ward, close to East Downtown which is currently being gentrified, also allows for further development of the neighborhood as a growing part of the city.

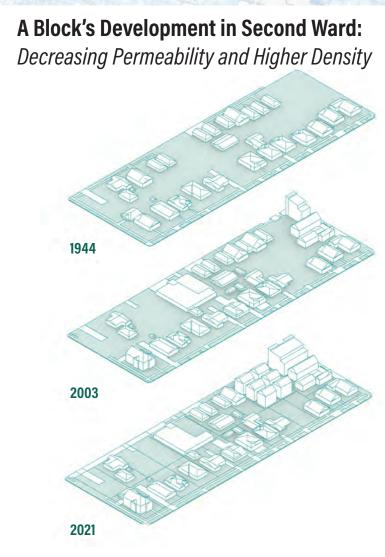
Global warming has increased environmental risks in Second Ward, especially heat waves and flooding. Historically, heatwaves in Houston lasted 2-5 days, but by 2010, they would last 19-47 days. Summers have become longer and scientists predict that in the next 20-30 years, Houston could have 40-55 extra days of summer. Cooling centers, equipped with air conditioning to cool people down, are absent in Second Ward. Heatwave or not, lack of walkability is a major consequence of the heat. The risk of flooding in Second Ward is quite high and Harris County experiences major flooding every two years. FEMA maps identify the area surrounding Buffalo Bayou as a floodplain and a majority of Second Ward could experience 1-6 feet of flooding in case it occurs. The architecture and urban fabric of Second Ward lack safety measures for heatwaves and flooding and are not designed for these risks.

Although Second Ward has many clear risks, there is a strong presence of a close knit community that can be enhanced by injecting additional networks of connectivity and care. Through careful interventions, the aim is to mitigate these risks and improve the livelihoods of the residents.



## **BLOCK SWAP** SELIN SAHIN

This project responds to the lack of adequate and healthy housing in Second Ward, Houston. With the understanding that a majority of the housing stock in the neighborhood was built before 1978 - the year lead-based paint was banned the U.S.A.- and with the knowledge that the high flood risk (which by itself is already a very important problem) puts even the very few newly encapsulated walls under constant threat, the project proposes an urban transformation model - Block Swap - which allows new densities to be achieved without displacing people from the area while generating more open space to increase ground permeability against flooding and create more open space against the Texas heat.



PREDOMINANT USE OF CARS

LACK OF INCENTIVE TO WALK

**HEAT AND SUN** 

DISPERSED PROGRAMS

INTROVERTED SPACES

Around 4,700 households (20%) in the East End have limited access to a

vehicle. Around 3,000 of these households have no vehicle and the remain-

Low/Moderate Income Areas

der have more workers than available vehicles.

**Households with Limited Access to Vehicles** 

No vehicles or fewer vehicles than workers

Roughly one-third - 351,000 - of Houston residents live less than 20

71.3% of residents in Second Ward choose to drive alone for daily commute

and over 16.8% of households don't have access to vehicles

minutes from work. And of those, 77.6% drive to work alone.

#### **Houston Heat Map**

HALF A MILE UNDER TEXAN SUN SARINE VOSGUERITCHIAN My project tackles two interrelated issues that are present in Second Ward - heat and walkability. The global warming and climate crisis are progressively worsening, and their effects have already changed the way residents of the neighborhood interact with the urban fabric. Although the neighborhood is close knit demographically, public and community centers are quite dispersed. Coupled with the lack of shading and introverted dispersed architecture, residents are not encouraged to walk to these programs, instead reverting to the convenience of cars. The Esplanade park is an initiative on Navigation boulevard that has improved walkability in the west end of the neighborhood and I aim to learn from it centers are missing in the neighborhood, and so, residents who don't have air conditioning in their homes don't have safe havens to resort to when Percentage of People Who Walk to Work the need arises. I aim to mitigate these issues through shaded pathways connecting these communal programs and identifying prime locations for

# **BIKE WARD**

PRIM RATTANATHUMAWAT This project seeks to change the city's car-oriented culture and people's conception about bikeability, walkability and multimodal transportation in Houston. The projects identified to expand access to healthy food and active living opportunities across the neighborhood through a high-comfort bikeway network and street design for the community. Great bikeways are an investment in a more equitable, healthy, safe, and resilient community. A network of high-comfort bikeways has many benefits—from mobility choice for people without a car to reducing greenhouse gas emissions. Obesity, asthma, chronic obstructive pulmonary disorder (COPD), stroke, and heart attacks are all correlated to environments and behaviors that favor vehicles. Encouraging the shift from vehicle usage to

active transportation like biking can lead to better health outcomes.

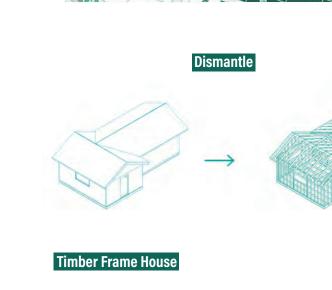
the implementation of cooling centers in the neighborhood.

# **DRIVERLESS DELIGHT 2050**

DORIS DUANMU Autonomous Vehicles in Houston Second Ward, 2050. As current passenger introduction of shared-ride AVs helps transform the neighborhood into a Meanwhile, the adoption of AV fleets gives the car-dominated surfaces back to the community, allowing development in the future programs on commercial retails, parks, recreational sports, and community gathering

# After Hurricane Harvey

**Second Ward Flood Map:** 



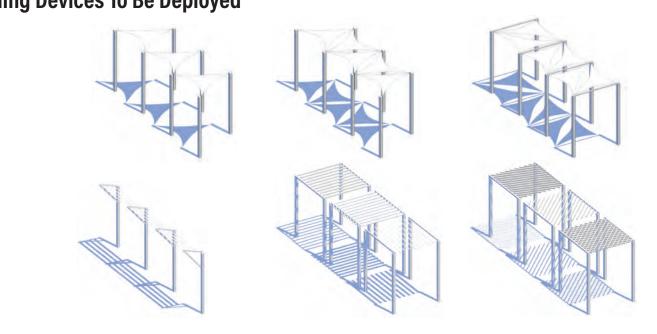
Lead Exposure Risk Map:

2015-2019

### Mapping a Five To Ten Minute Walk in Second Ward

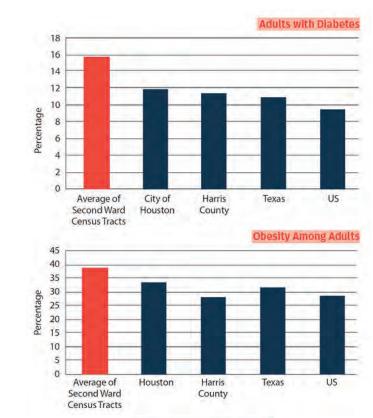


**Shading Devices To Be Deployed** 



#### **Second Ward Health Concerns**

Residents report higher rates of obesity, poor mental, and physical health than adults in other parts of Houston, indicating an overall lack of a healthy lifestyle, which can lead to significant financial consequences for them.

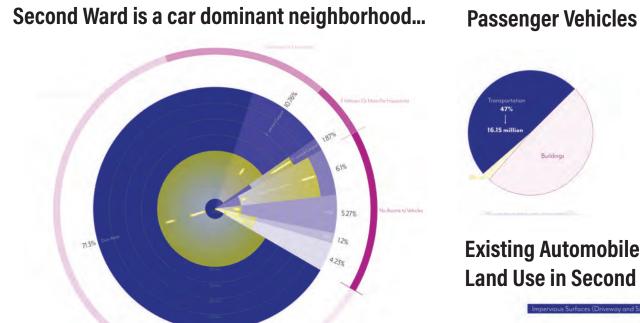


Bike-Friendly City

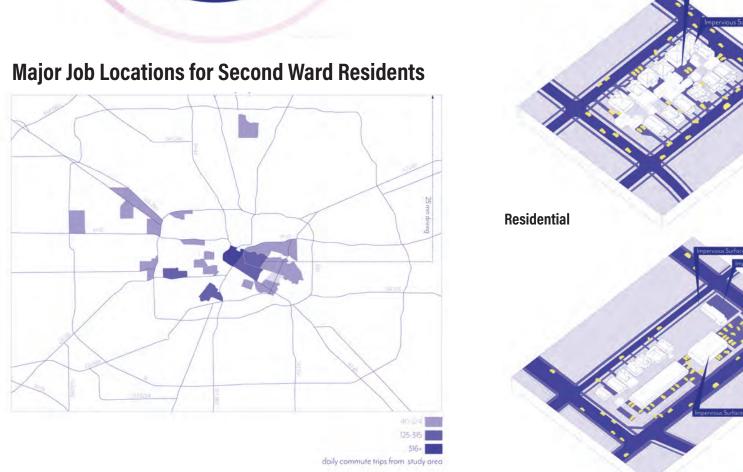


## Revision bike paths for Develop Sustainable, **Resilience Network**

#### ke paths can be reimagine with another layer of stromwater management



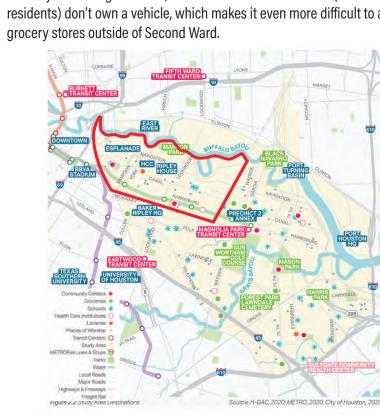
Existing Automobile Infrastructure and Land Use in Second Ward

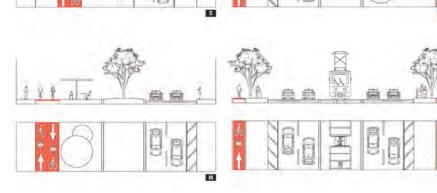


**Retail Commercial** 

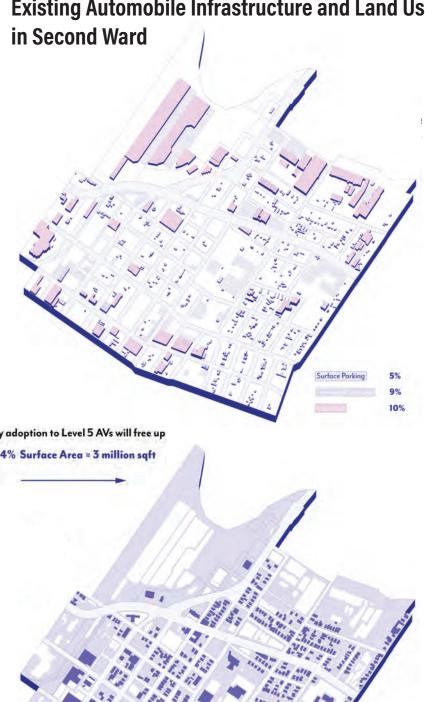
#### **Access to Amenities**

USDA's Food Desert Atlas indicates that 65% of the residents of Second Ward live more than a mile away from a grocery store, as the neighborhood doesn't have one. Additionally, although automobile services are a leading industry in the neighborhood, over 600 low-income families (20% of residents) don't own a vehicle, which makes it even more difficult to access grocery stores outside of Second Ward.





#### **Existing Automobile Infrastructure and Land Use**



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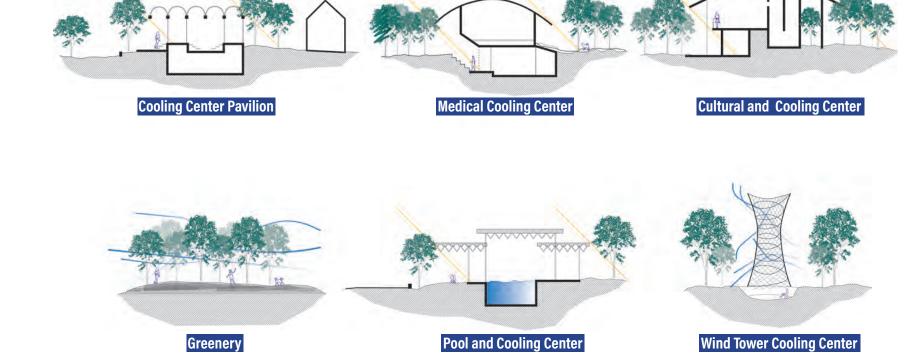
**Re-Thinking the Plot** 

**Mid-Rise New Housing** 

# adjacent block move in. The structural timber from the newly emptied housing is collected to be sorted out and processed in a nearby site. The material is reused in **Cooling Center Typologies in Section**

**Block Swap** 

that taps into the bayou.



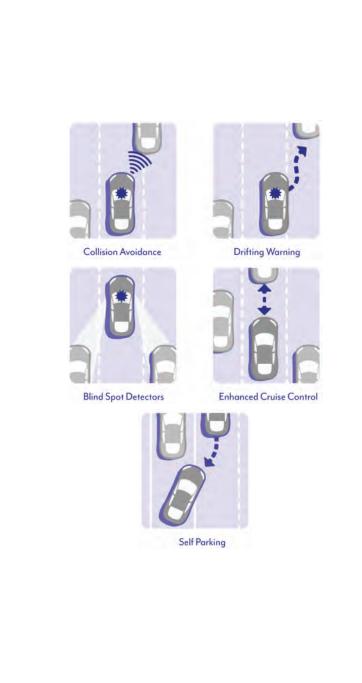






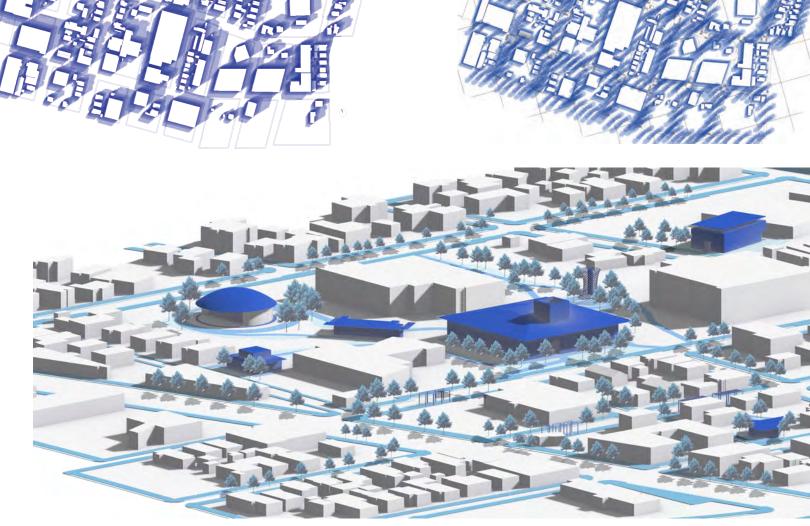


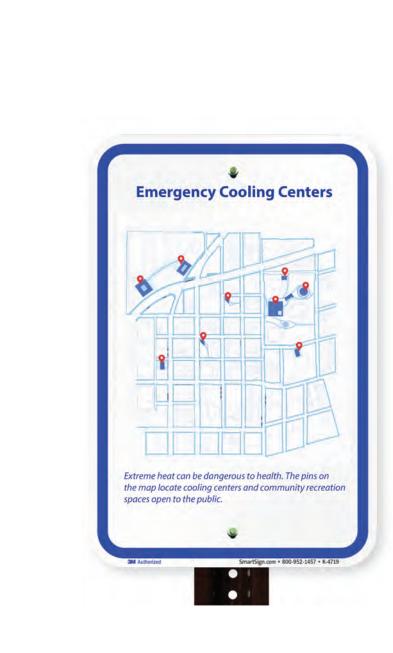
#### **Autonomous Vehicle Driving Mechanism**



Block Swap leverages empty land as a starting point for a 'seed' building to start a metabolic transformation. Once the seed is complete, the occupants in the the construction of new housing which will be built on a portion of the newly opened up area. Once that building is complete too, another nearby block goes through a similar transformation and the process is repeated. Through this operation, new multi-story, mixed housing is generated around a green corridor

**Shadow Study of Neighborhood Post-Intervention Shadow Study of Neighborhood** 





**Neighborhood Street Signage** 





