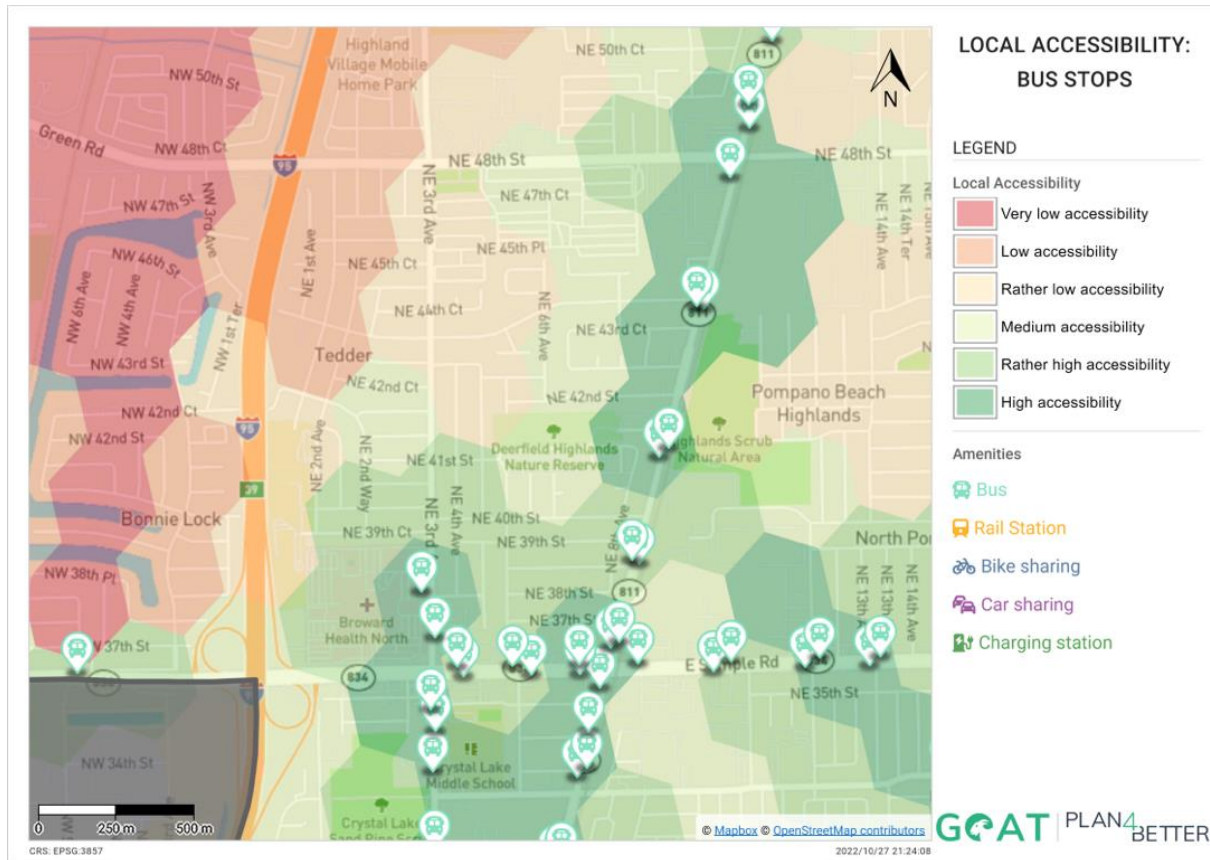


# GOAT – GEO OPEN ACCESSIBILITY TOOL

## INTERACTIVE PEDESTRIAN ACCESSIBILITY ANALYSIS TOOL



**LOUIS A. MERLIN, PH.D., AICP**  
FLORIDA ATLANTIC UNIVERSITY

**M.SC. ELIAS PAJARES**  
TECHNICAL UNIVERSITY OF MUNICH  
PLAN4BETTER GMBH

**STEVE POSTMA, GRADUATE STUDENT**  
FLORIDA ATLANTIC UNIVERSITY

February 2, 2023 | Safe Streets Summit | Hollywood, FL

Source: Deerfield Beach Tedder and Tallman Pines Neighborhood Connectivity Study , FAU Planning Workshop, 2022

# THE 15-MINUTE CITY



“an urban set-up where locals are able to **access all of their basic essentials** at distances that would not take them more than **15 min by foot or by bicycle**”

Moreno, C., Allam, Z., Chabaud, D., Gall, C., Pratlong, F. (2021). Introducing the “15-Minute City”: Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities. *Smart Cities*, 4, 93-111.

Each neighborhood should fulfill six essential urban social functions to ensure a high quality of life:

- 1) Living
- 2) Working
- 3) Commerce
- 4) Healthcare
- 5) Education
- 6) Entertainment

# BENEFITS OF THE 15-MINUTE CITY



More walking mode choice



Greater physical activity



Even non-walk trips are shorter and more convenient



Enjoyable and high-value neighborhoods

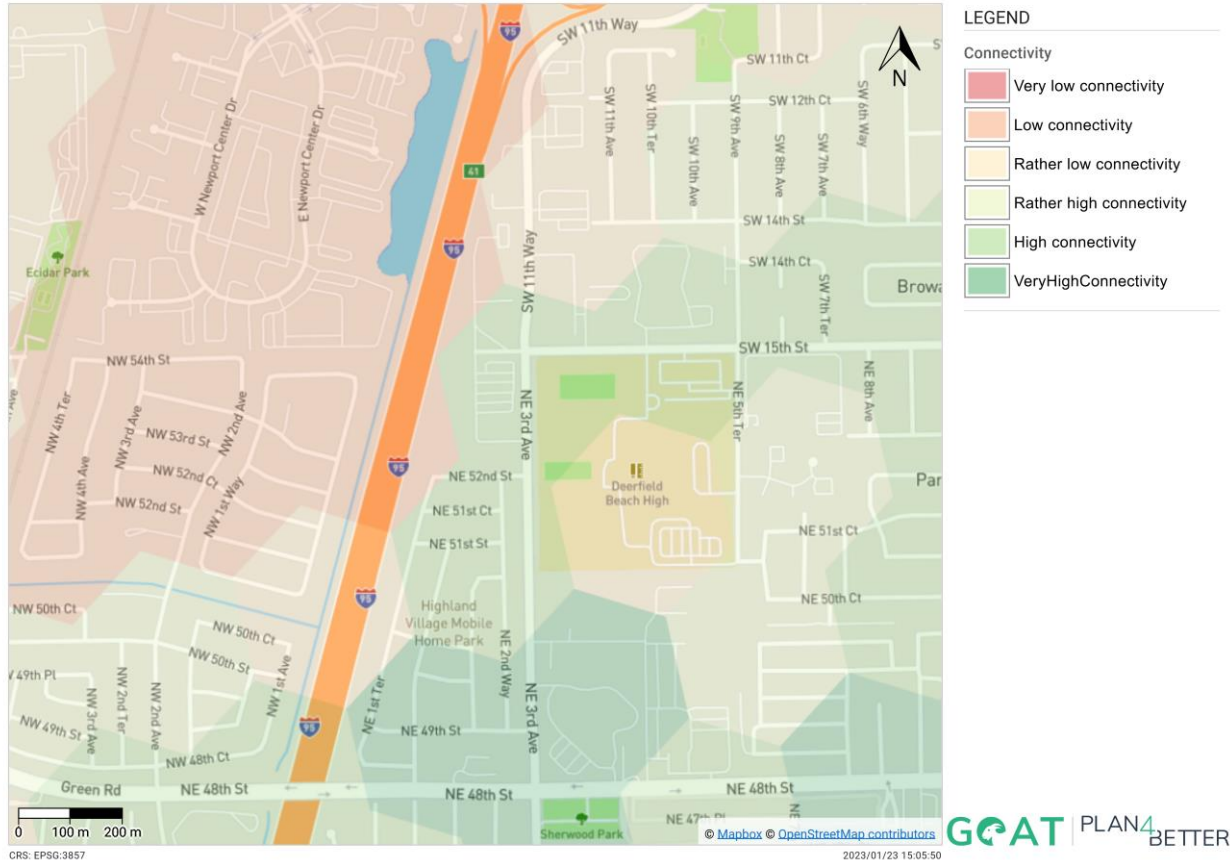


Stronger support for regional transit

Cities pursuing this strategy:

- Portland, Oregon
- Tempe, Arizona
- Montreal, Canada
- Oslo, Norway
- Lisbon, Portugal
- Vancouver, Canada
- San Antonio, Texas
- Los Angeles, California

# BUILDING PEDESTRIAN ACCESSIBILITY



The ease of access of a **particular group of people to a particular type of destination**

A **connected pedestrian network** is essential to good pedestrian accessibility

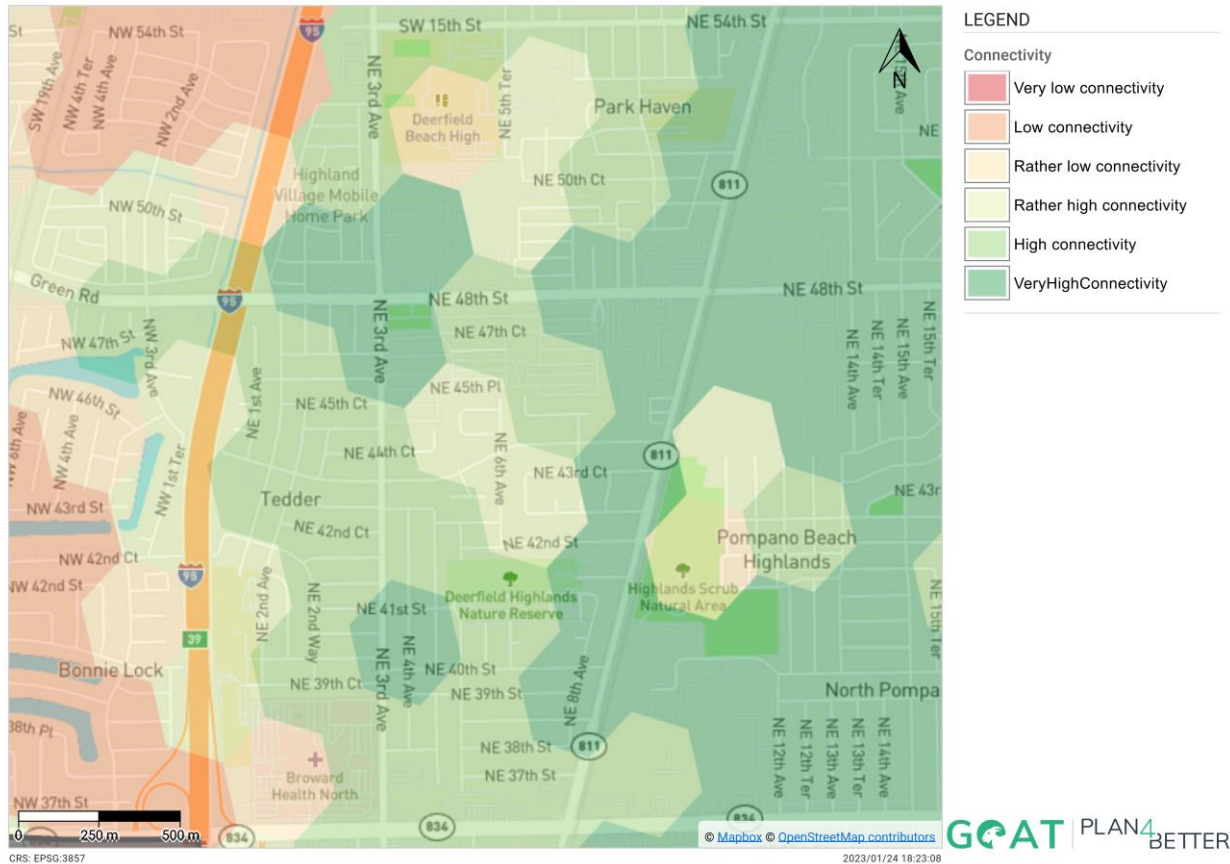
The **proximity of origins and destinations** is the other component

Pedestrian accessibility also depends upon high-quality infrastructure (**Complete Streets**)

A weak pedestrian network, with large blocks and broken connectivity

# ANALYZING THE PEDESTRIAN NETWORK

## NETWORK ANALYSIS WITH GOAT



- Analyzes pedestrian network by small hexagons
- Shows how much territory is reachable from each hexagon
- Green = High network connectivity
- Red = Low network connectivity
- *In the case of Deerfield Beach, I-95 greatly reduces connectivity, as do some of the megablocks*

# ANALYZING PROXIMITY MULTI-ISOCHRONES IN GOAT

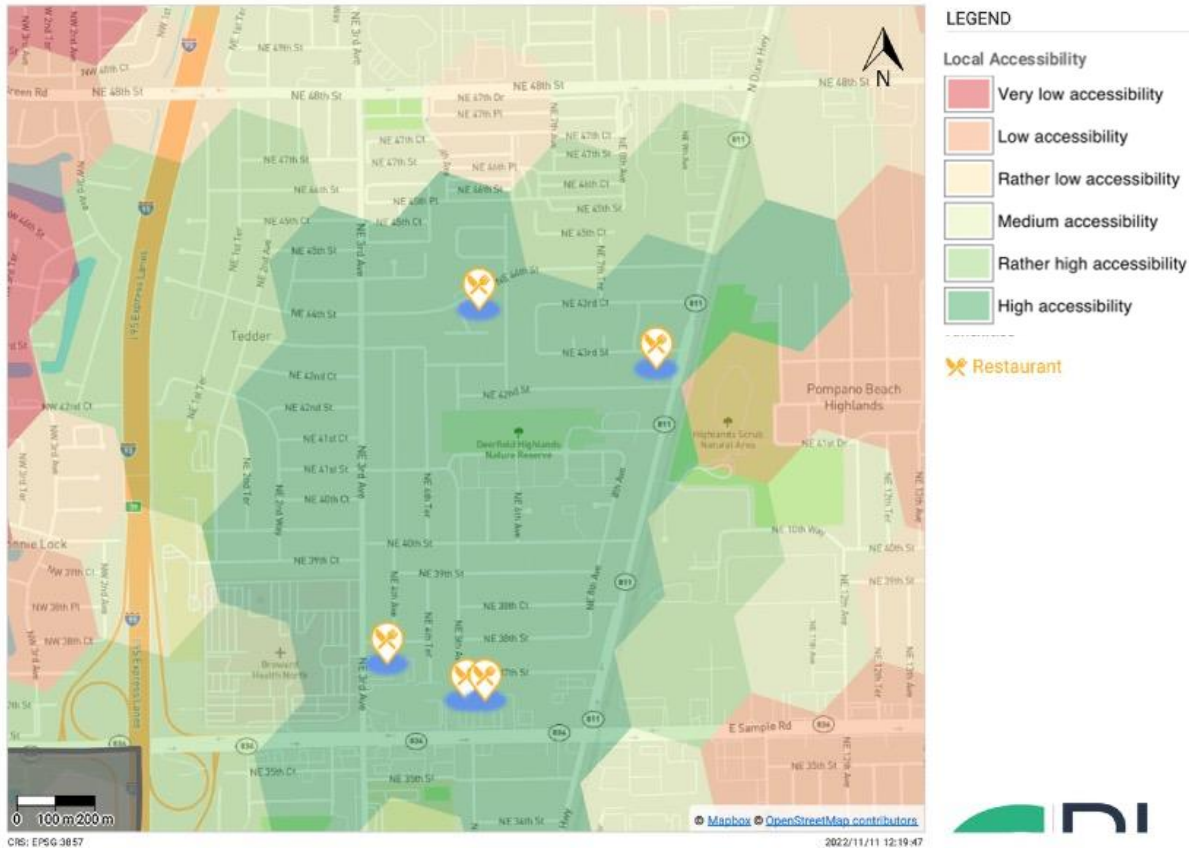


Figure 6 Heat Map Accessibility for Restaurants

Source: Deerfield Beach Tedder and Tallman Pines Neighborhood  
Connectivity Study , FAU Planning Workshop, 2022

Where are the restaurants?

Where are the areas within walking  
distance of restaurants?

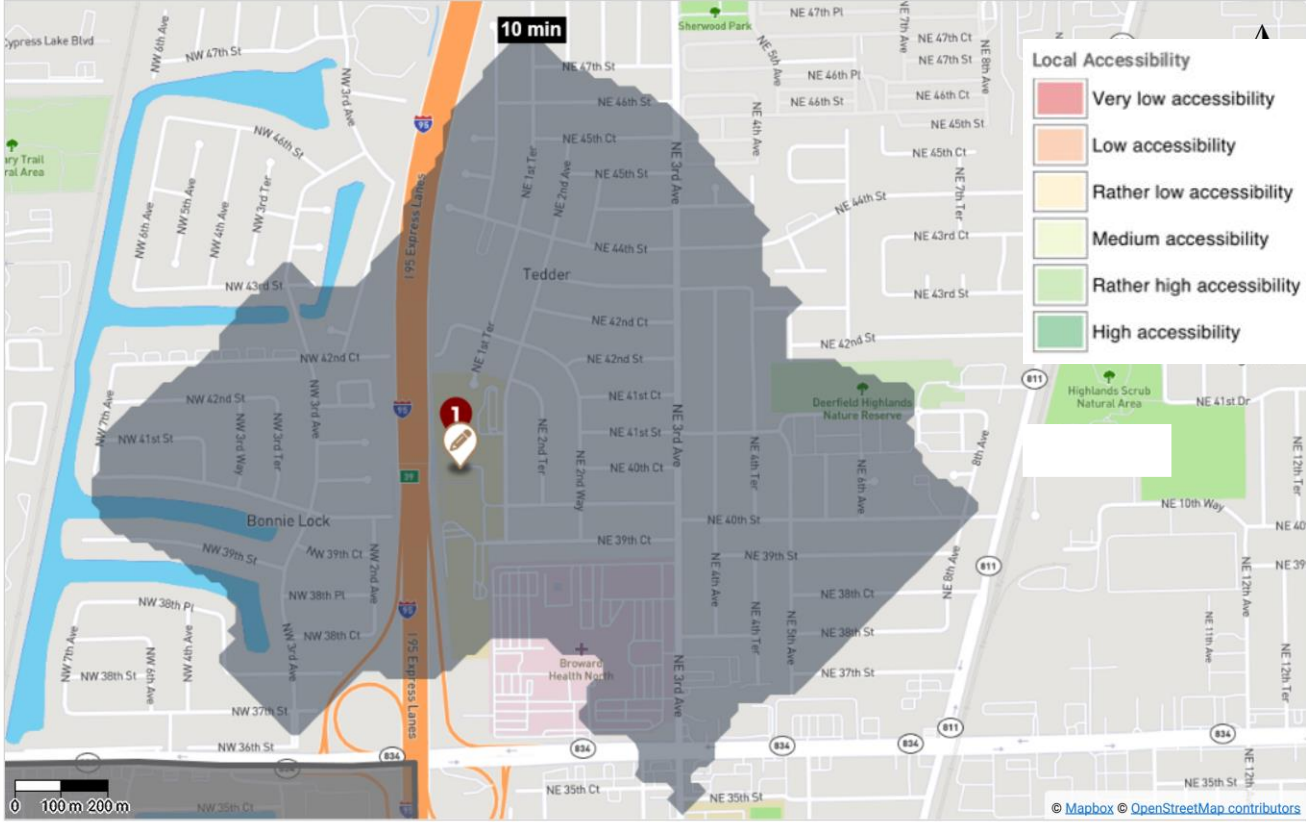
Where are the underserved areas?

Also:

- Schools
- Health care
- Services
- Shopping
- Groceries
- Parks
- Cafes

# WHICH HOUSEHOLDS ARE WITHIN WALKING DISTANCE OF THE SCHOOL?

## ISOCHRONES IN GOAT



Planning walk to school campaigns



Identifying key crossings for safety guards



Planning for improved network connectivity

# IMPROVING PEDESTRIAN ACCESSIBILITY

## SCENARIO PLANNING IN GOAT

Can we improve accessibility by improving network connectivity or adding destinations?

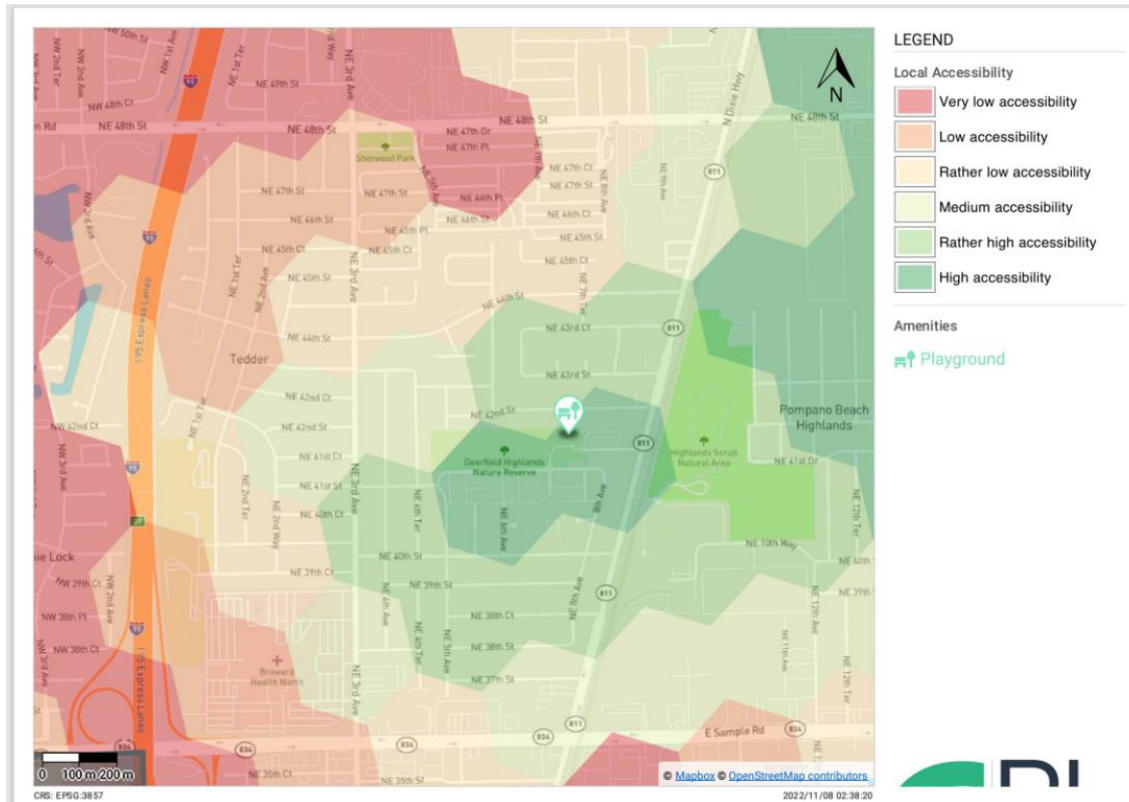


Figure 4 GOAT Heat Map Parks Accessibility

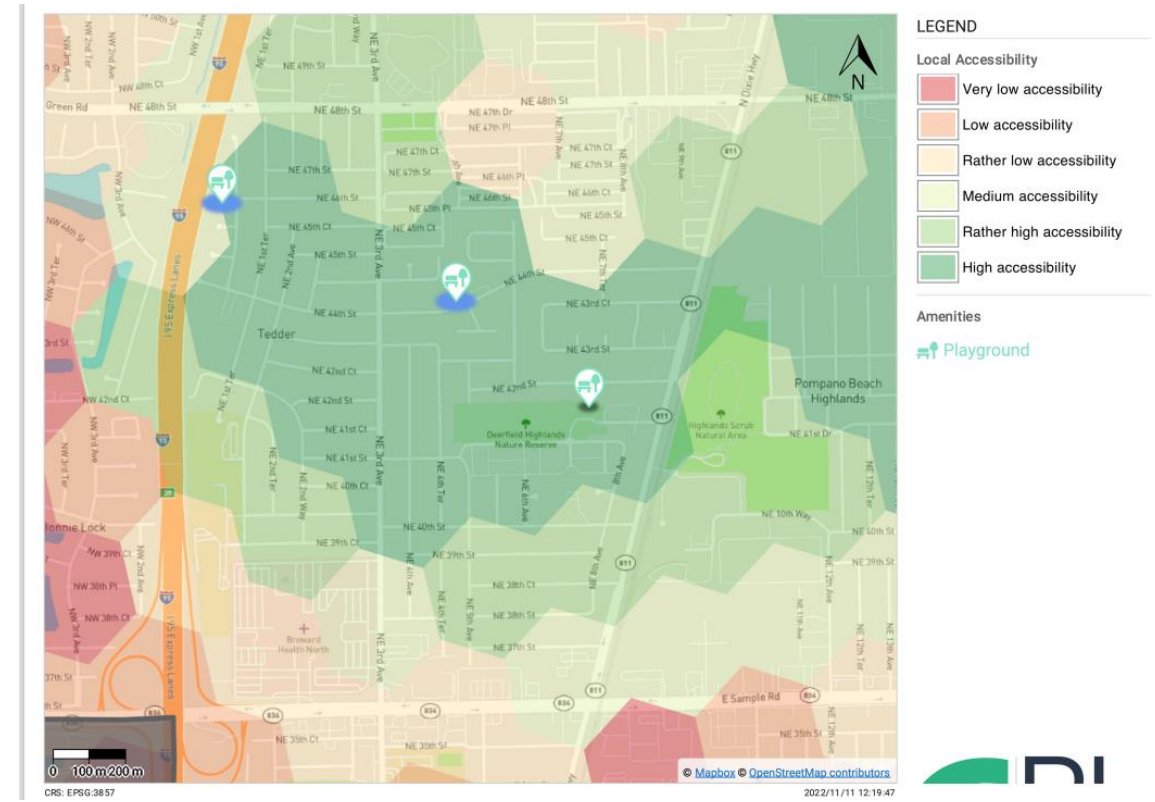
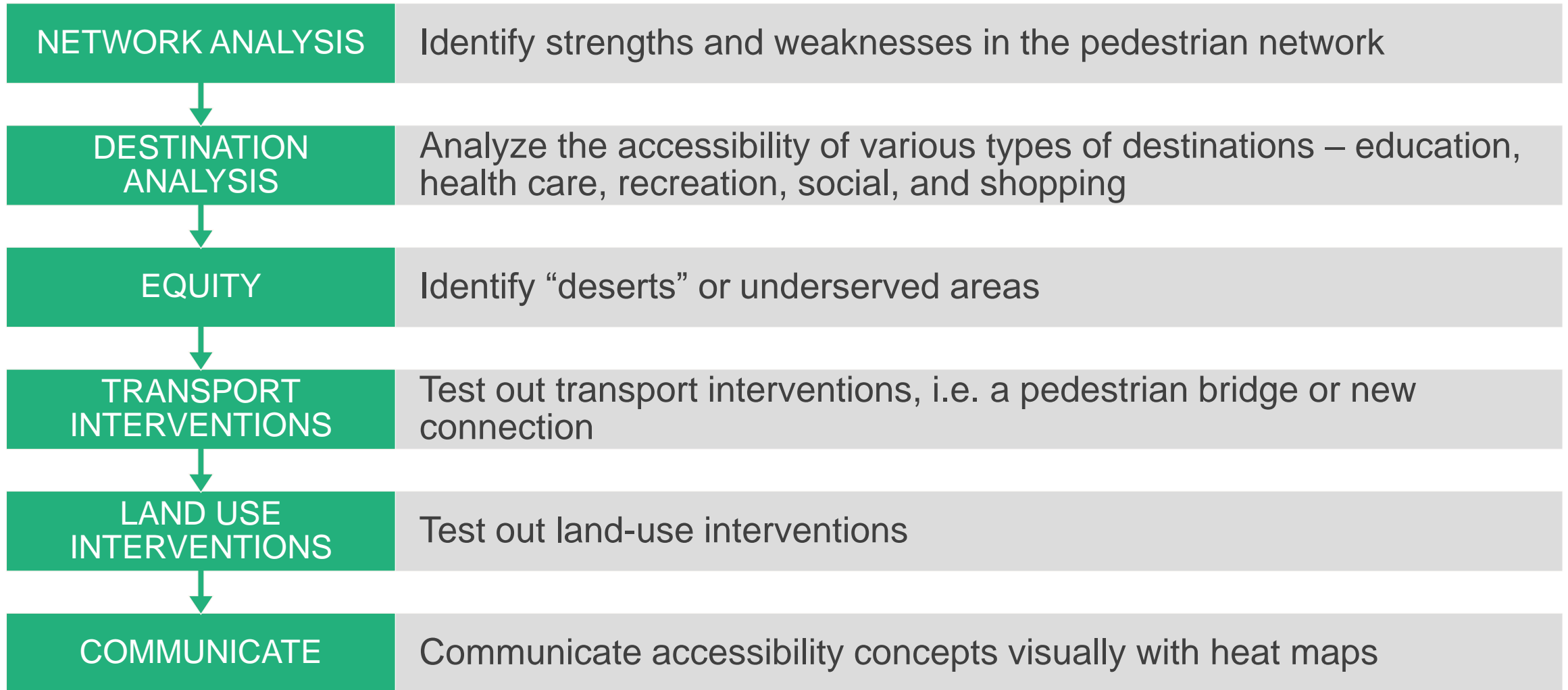


Figure 12 Heat Map for Proposed Parks Locations

Source: Deerfield Beach Tedder and Tallman Pines Neighborhood Connectivity Study, FAU Planning Workshop, 2022



# GOAT FOR PLANNING THE 15-MINUTE CITY





Deerfield Beach  
Florida

*In partnership with Florida Atlantic University*



## Tedder and Tallman Pines Neighborhood Connectivity Study

**2022**

## **NEXT UP: STEVE POSTMA** THE TEDDER/TALLMAN PINES NEIGHBORHOOD STUDY

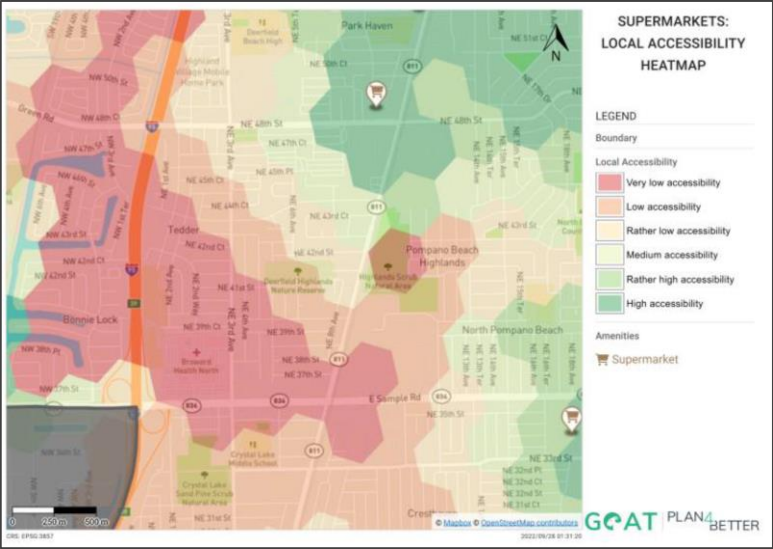
How did a group of FAU Master of Urban and Regional Planning students learn GOAT and use in for pedestrian analysis during a 3.5-month neighborhood connectivity study?

# STUDY AREA

## NEIGHBORHOODS OF TEDDER AND TALLMAN PINES



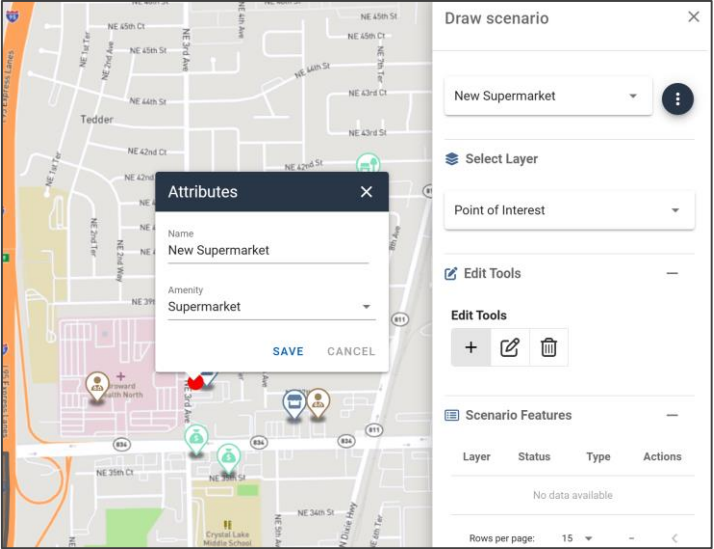
# GOAT APPLICATIONS FOR NEIGHBORHOOD STUDY



**HEATMAPS**  
visualize



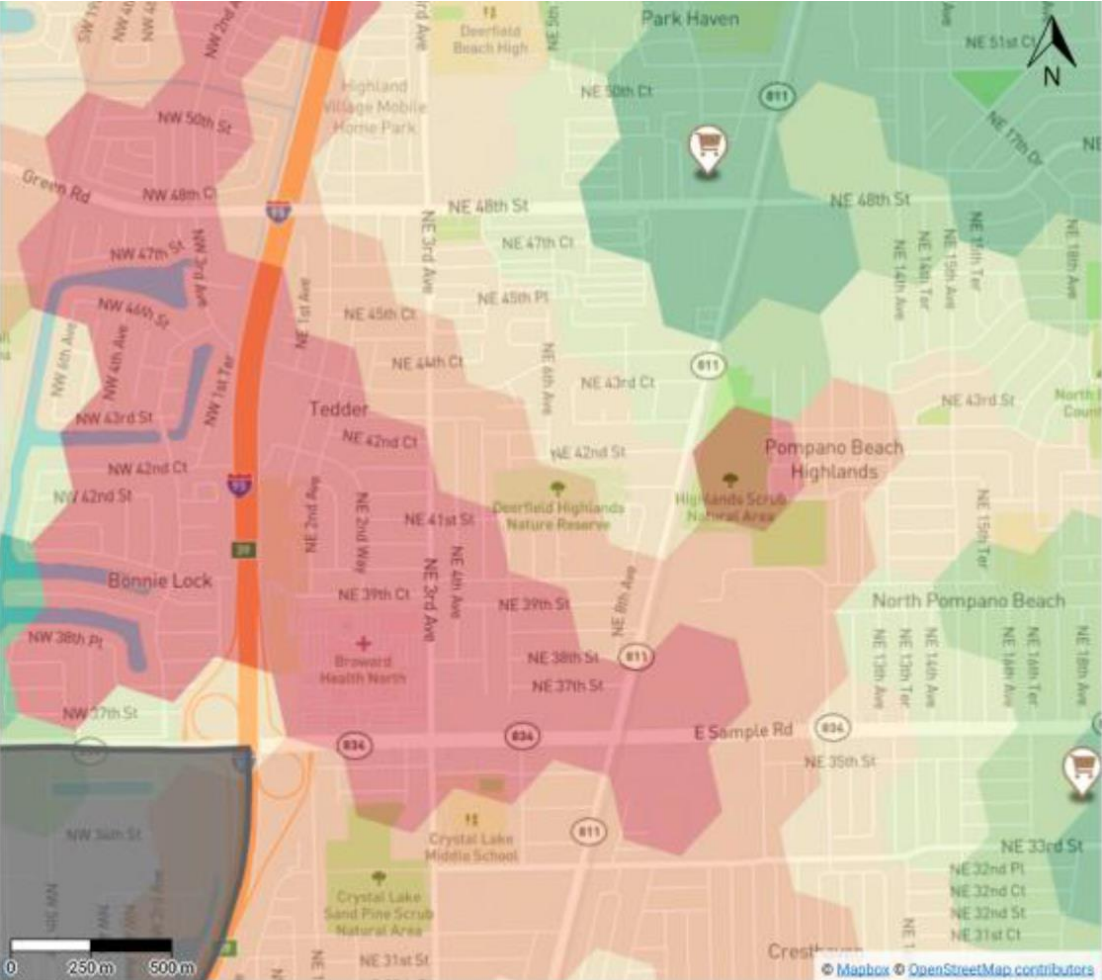
**MULTI-ISOCHRONES**  
quantify



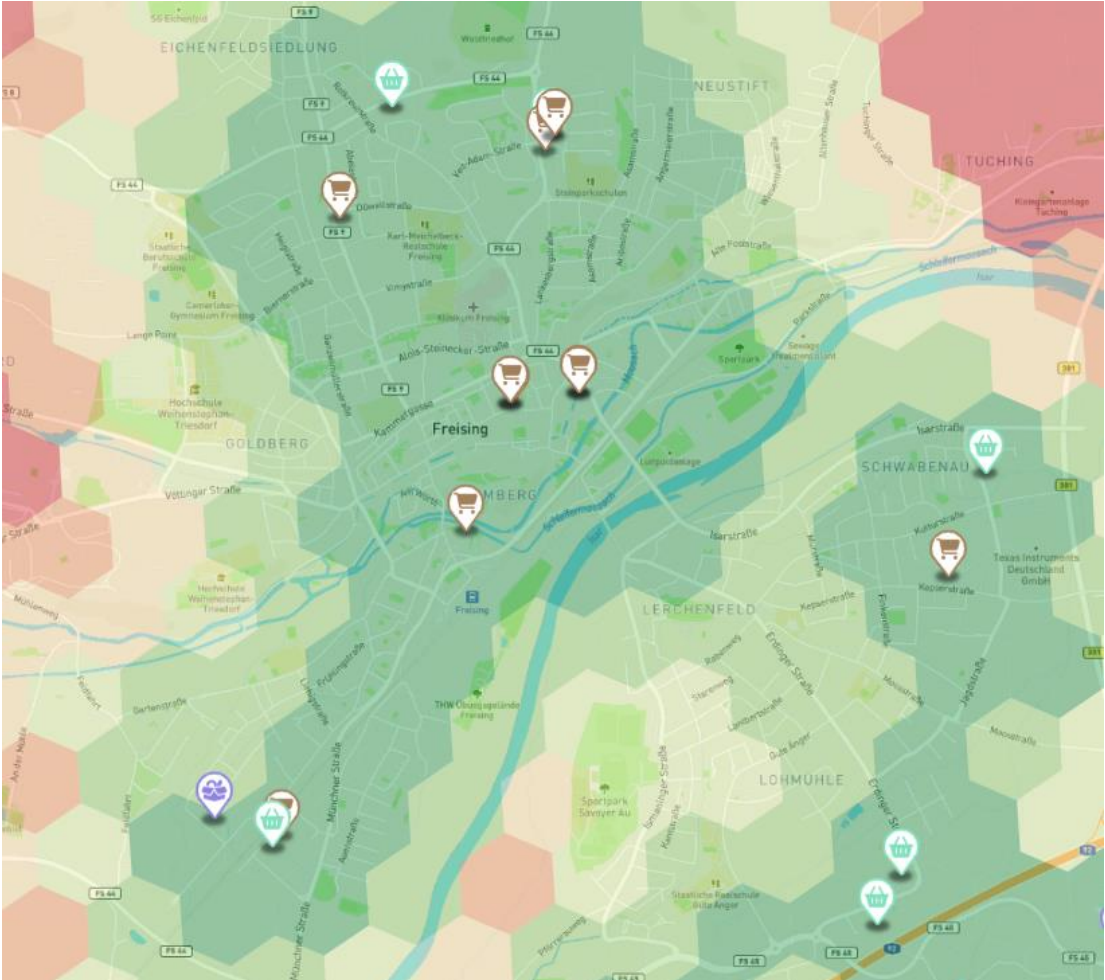
**SCENARIOS**  
explore

# HEATMAPS

## VISUALIZE: SUPERMARKET ACCESSIBILITY



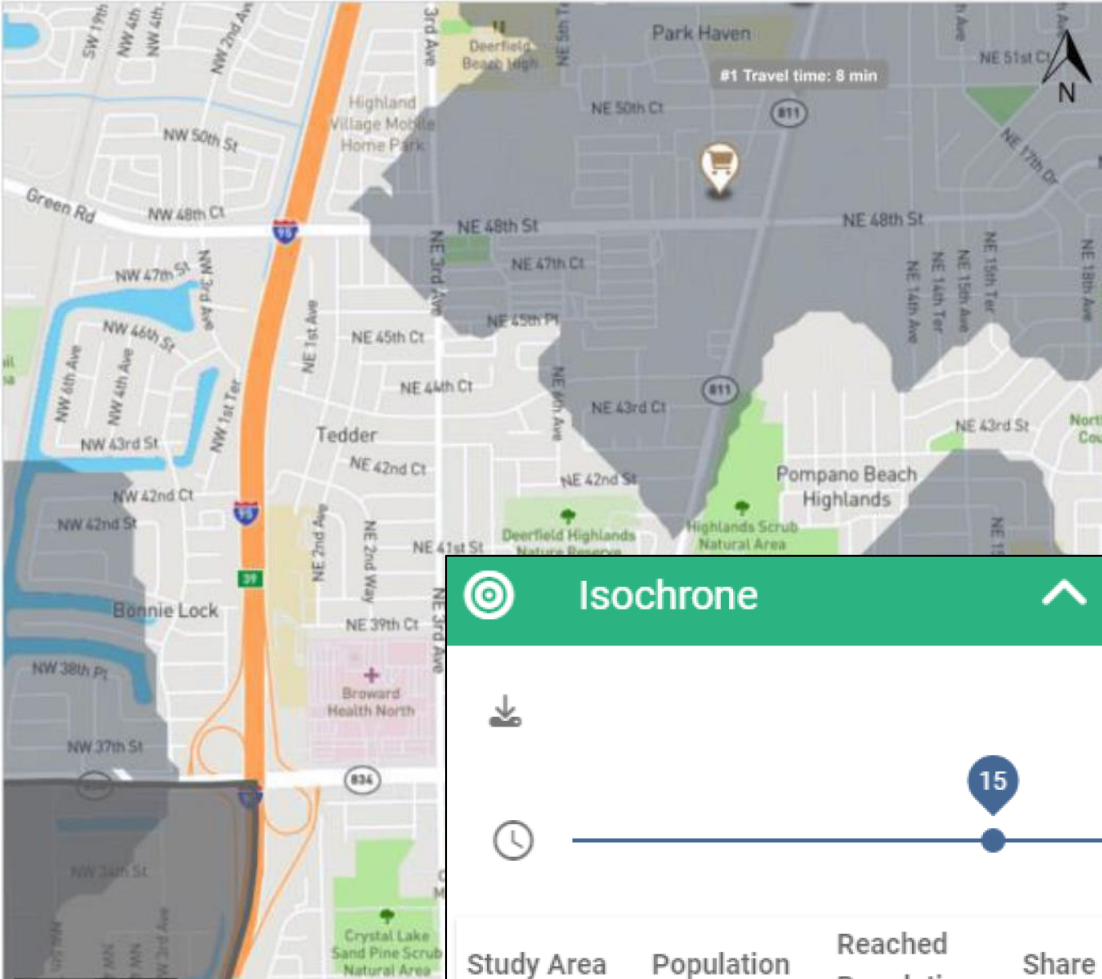
Tedder and Tallman Pines Neighborhoods (Deerfield Beach, FL, USA)



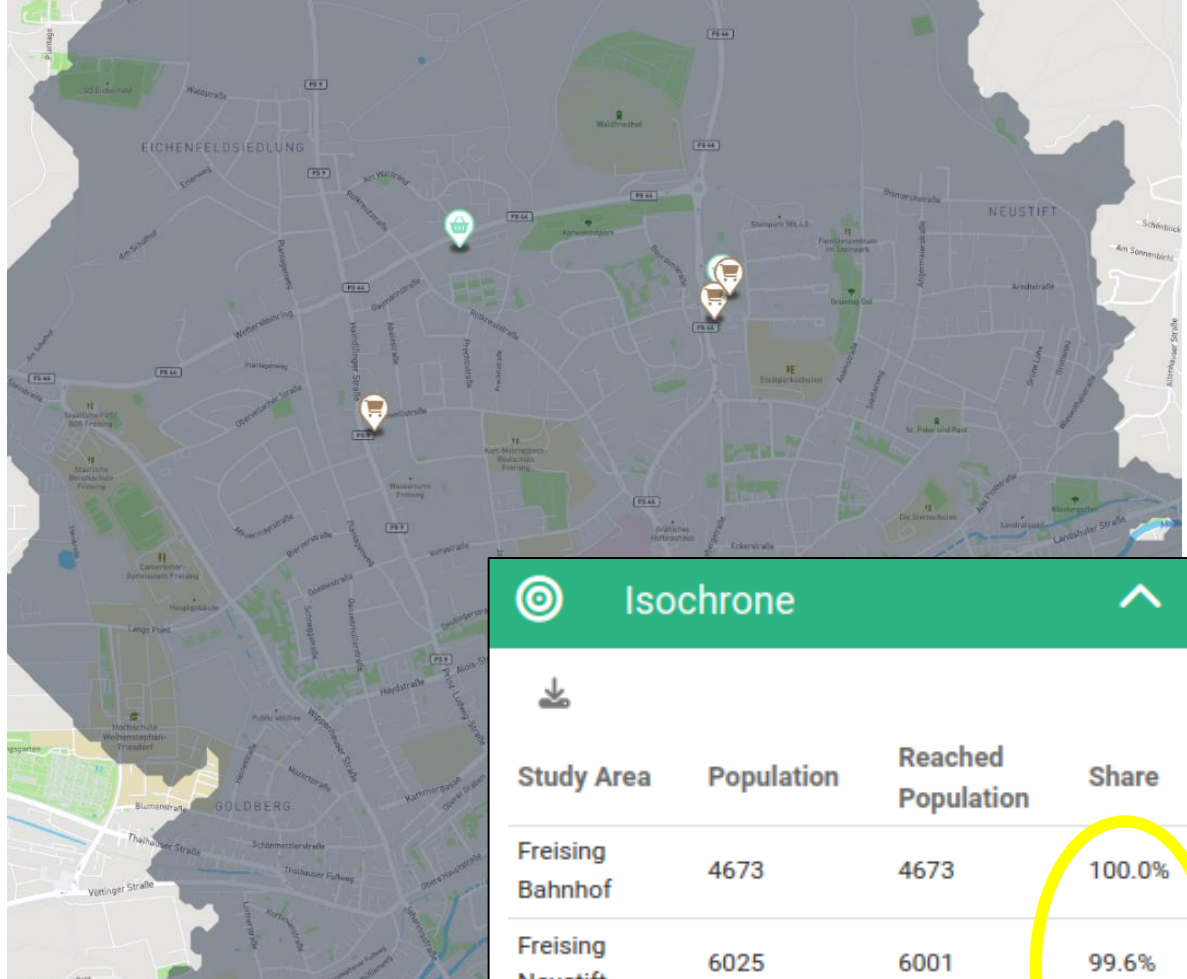
Town of Freising (Bavaria, Germany)

# MULTI-ISOCHRONES

## QUANTIFY: SUPERMARKET ACCESSIBILITY



Tedder and Tallman Pines Neighborhoods (Deerfield Beach, FL, USA)



Town of Freising (Bavaria, Germany)

# MULTI-ISOCHRONES

## QUANTIFY: PERCENT OF NEIGHBORHOOD POPULATION ACCESSIBILITY

### TEDDER & TALLMAN PINES NEIGHBORHOODS EXISTING POIs

*Total Population*

6058

POI	15-min Walk	
	Population Reached	% Reached
Tri-Rail	0	0%
Pharmacies	0	0%
Gyms/Health Clubs	0	0%
Dentists	105	2%
Supermarkets	1033	17%
Banks	3499	58%
Physicians' Offices	3527	58%
Schools	4525	75%
Playgrounds	4779	79%
Bus Stops	5636	93%
Convenience Stores	5873	97%
Restaurants, Fast-Food, Pubs	5889	97%
Kindergartens/Daycare	Unavailable	

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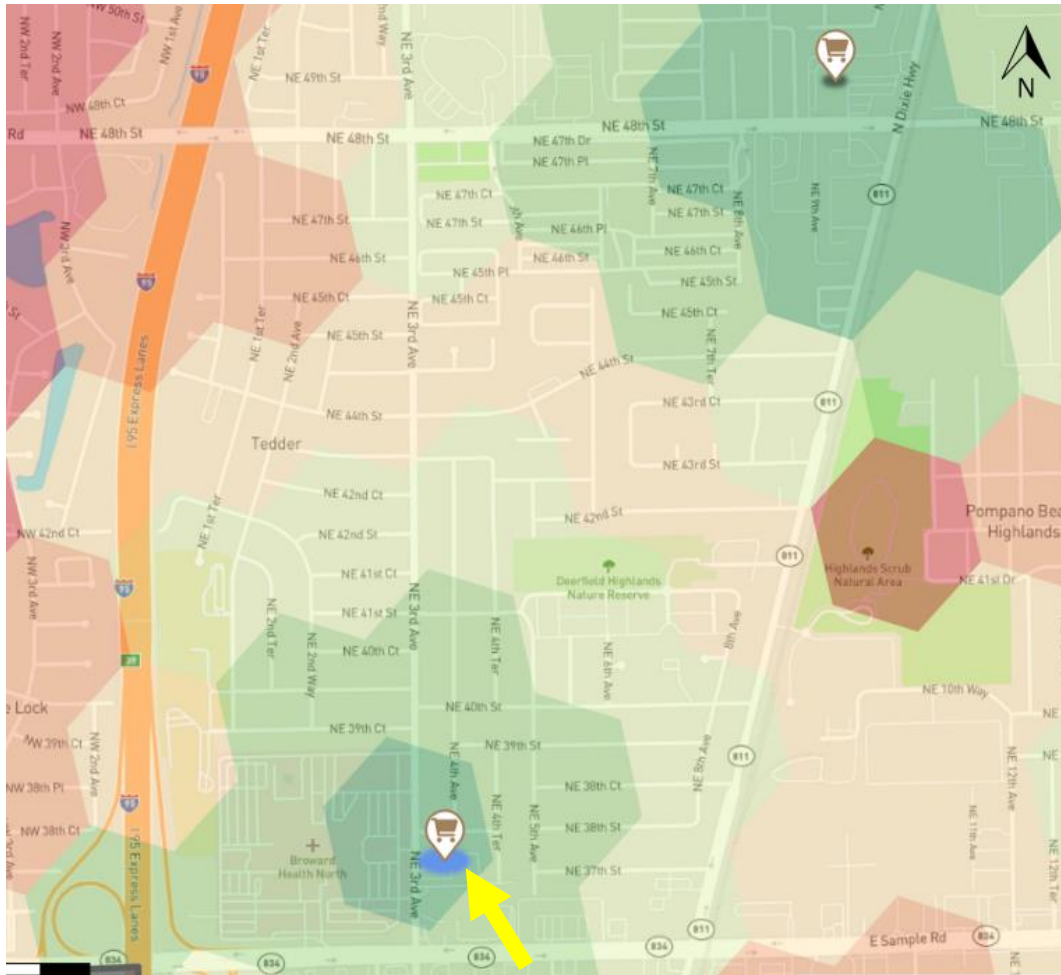
Roughly half of the study area was outside a 15-minute walk of many essential destinations

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Note: statistics do not depict variety of destination options/choices

# SCENARIOS

## EXPLORE: IMPROVED SUPERMARKET ACCESSIBILITY



### TEDDER & TALLMAN PINES NEIGHBORHOODS - EXISTING + PROPOSED POIS

**Total Population**

**6058**

POI	15-min Walk	
	Population Reached	% Reached
Tri-Rail	0	0%
Schools	4525	75%
Banks	4840	80%
Pharmacies	5018	83%
Dentists	5018	83%
<b>Supermarkets</b>	<b>5498</b>	<b>91%</b>
Bus Stops	5636	93%
Gyms/Health Clubs	5737	95%
Physicians' Offices	5855	97%
Convenience Stores	5873	97%
Restaurants, Fast-Food, Pubs	5889	97%
Parks	Unavailable	
Kindergartens/Daycare	Unavailable	

Source: Deerfield Beach Tedder and Tallman Pines Neighborhood Connectivity Study, FAU Planning Workshop, 2022



# FINDINGS

- Lack of connectivity imposed by interstate, private RV park, and strip malls
- Low density neighborhood makes even nearest destinations a long walk resulting in more vehicle trips
- General lack of destination variety or options within walking distance
- Safety concerns walking/cycling, particularly on arterials and collectors (observed)
- Poor connectivity to northbound Old Dixie Hwy bus stations (observed)

# RECOMMENDATIONS



**PRIORITIZE**  
**Pedestrians/Cyclists**



**INCREASE**  
**Density**



**DEVELOP**  
**Mixed-Use**



**THANK  
YOU**