Urban Resilience Project

Sponsor:
Laura Freeland
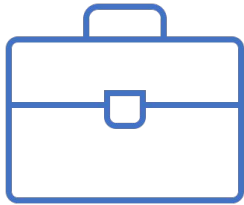
Dr. Kate Hyun

MD Ashraful Imran

Juana Perez

Troyee Saha

inlandport
FIND YOUR RIDE

Southern Dallas County Inland Port
Transportation Management Association

UNIVERSITY OF
TEXAS
ARLINGTON

Scope of Project

Collect and characterize jobs, work population, and public transportation options available for the City of Dallas and the surrounding area of Southern Dallas County Inland Port

Develop an interactive map showcasing job access using public transportation available within the Southern Dallas County Inland Port area

Southern Dallas Inland Port Transportation Management Association - IPTMA

👥 Nonprofit , membership organization

🚆 A transportation solution designed to connect both workers and businesses for the southern Dallas County Inland Port Area
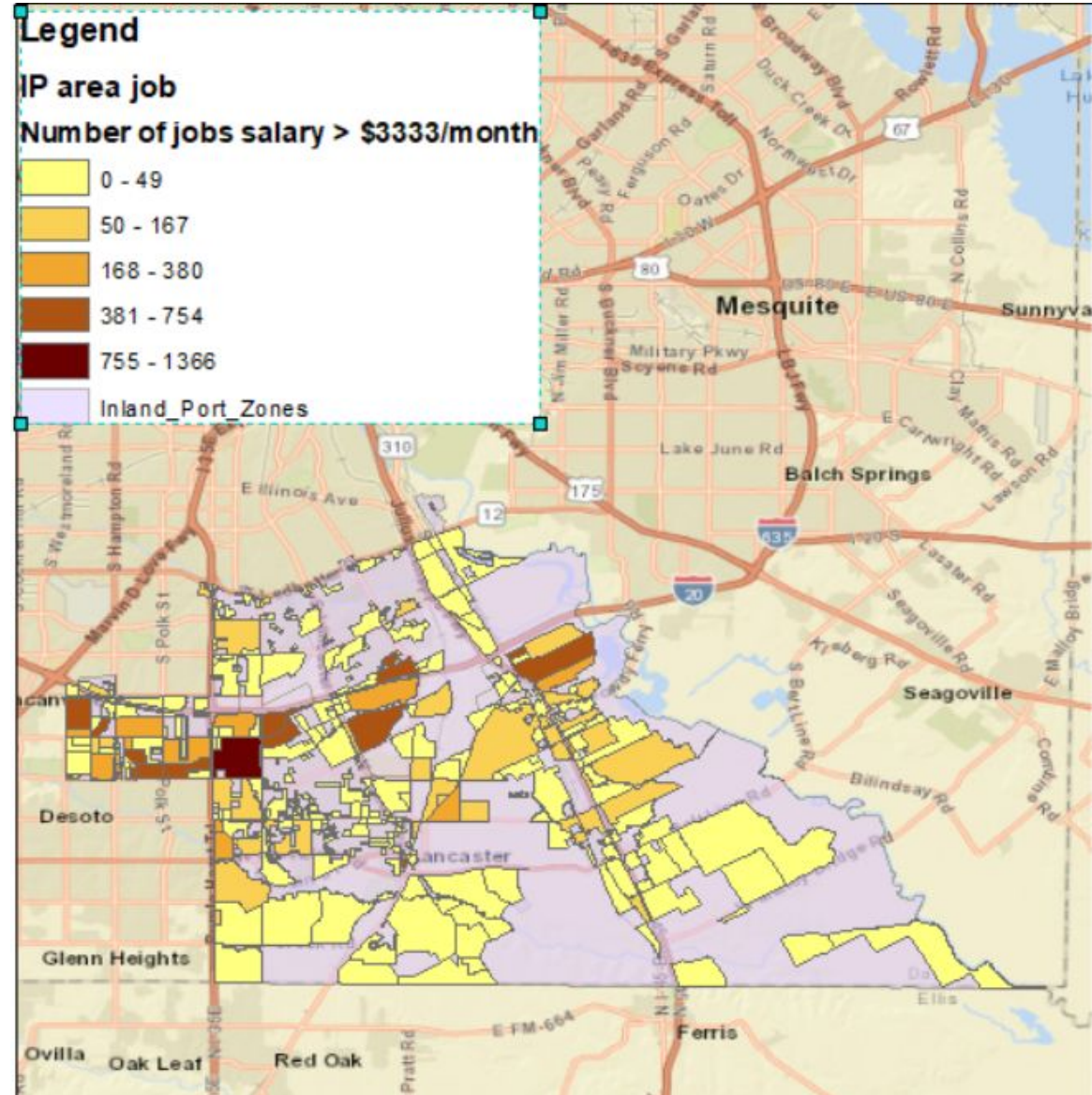
📍 Southern Dallas Inland Port Area

Accessible Jobs

Job Opportunities in Inland Port

Legend

IP area job

Number of jobs salary > $3333/month

- 0 – 49
- 50 – 167
- 168 – 380
- 381 – 754
- 755 – 1366
- Inland_Port_Zones

Labor Force in Dallas and Inland Port
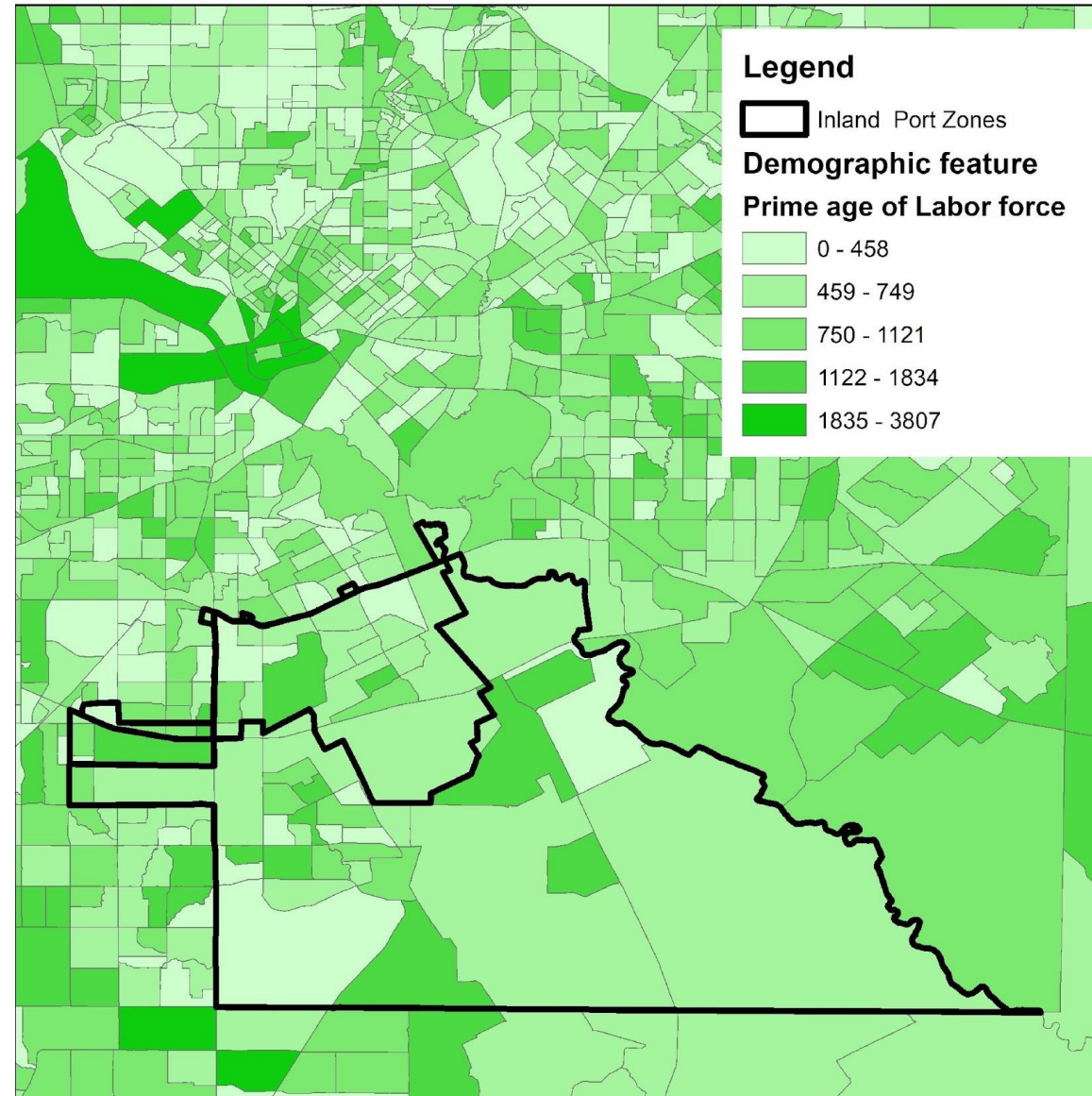
Source: US Census
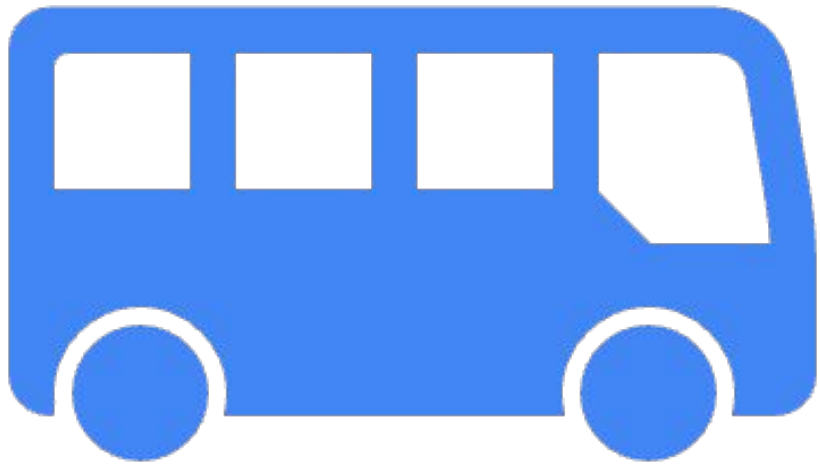
Transportation and Job Access

Transportation Services for Inland Port

1. Go Link
   - On-demand microtransit
   - Serving Inland Port area

2. DART
   - Blue Line and nine bus routes

DART Services

- DART_38
- DART_41
- DART_45
- DART_47
- DART_57
- DART_101
- DART_108
- DART_217
- DART_228
- DART Blue Line
- Inland Port Zones

GoLink
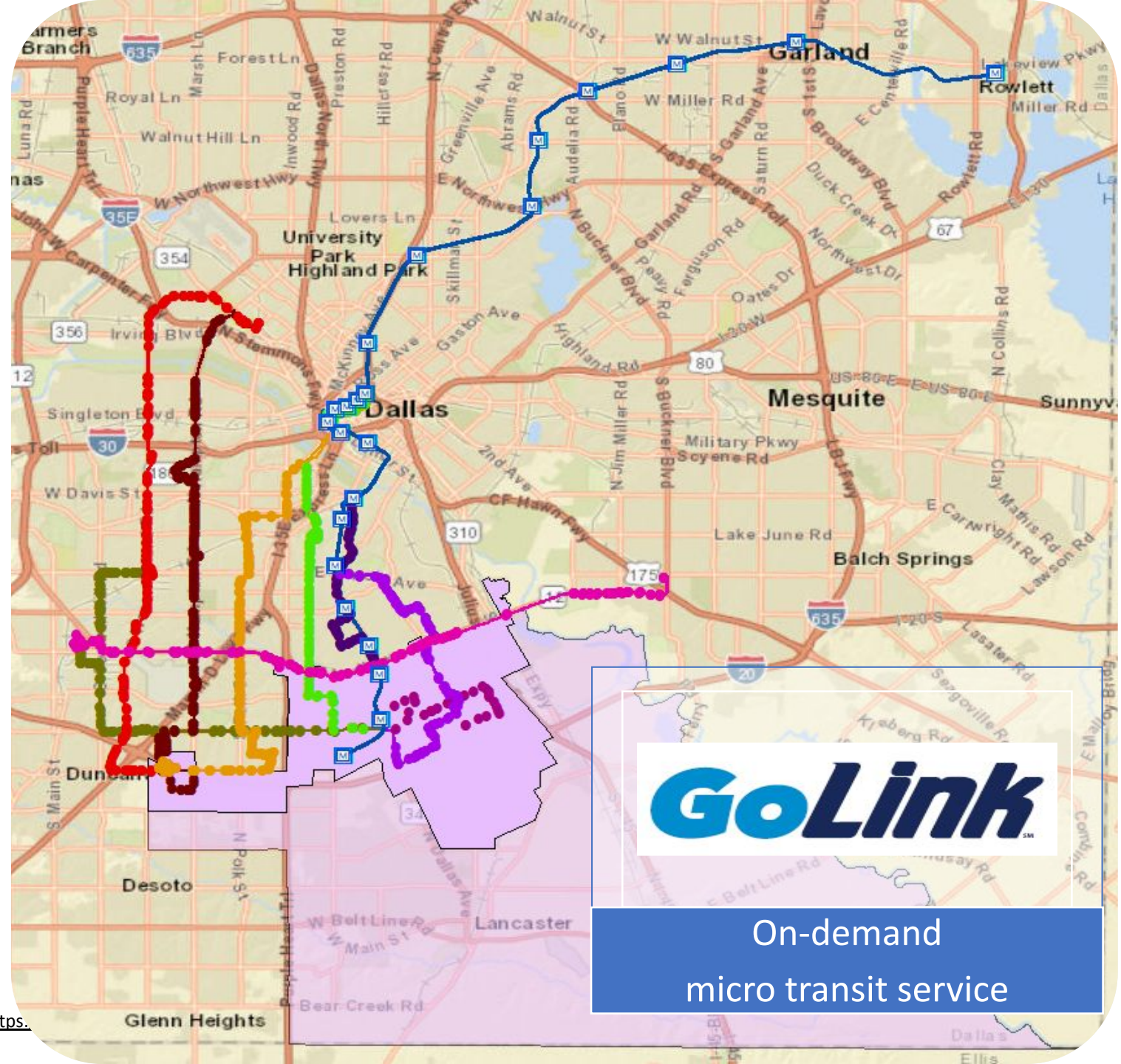
On-demand micro transit service

Source: DALLAS AREA RAPID TRANSIT. (2023, December 20). *DART GTFS*. OpenMobilityData. https. *DART*. DART. (n.d.). https://www.dart.org/

Job Access Maps

Flowchart of Job Access Map Development
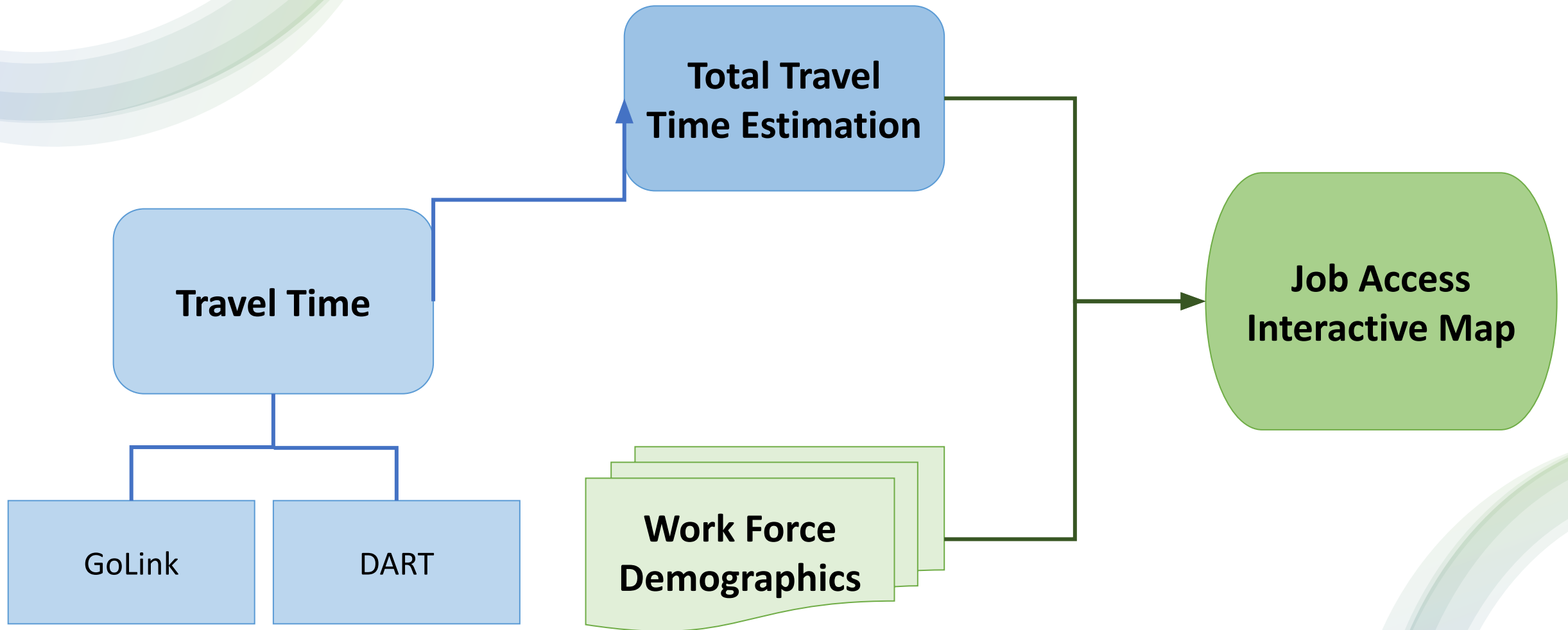
Total Travel Time Estimations

GoLink Travel Time

+

DART's Wait Time

+

DART Travel Time

Walk Time

=

Total Travel Time
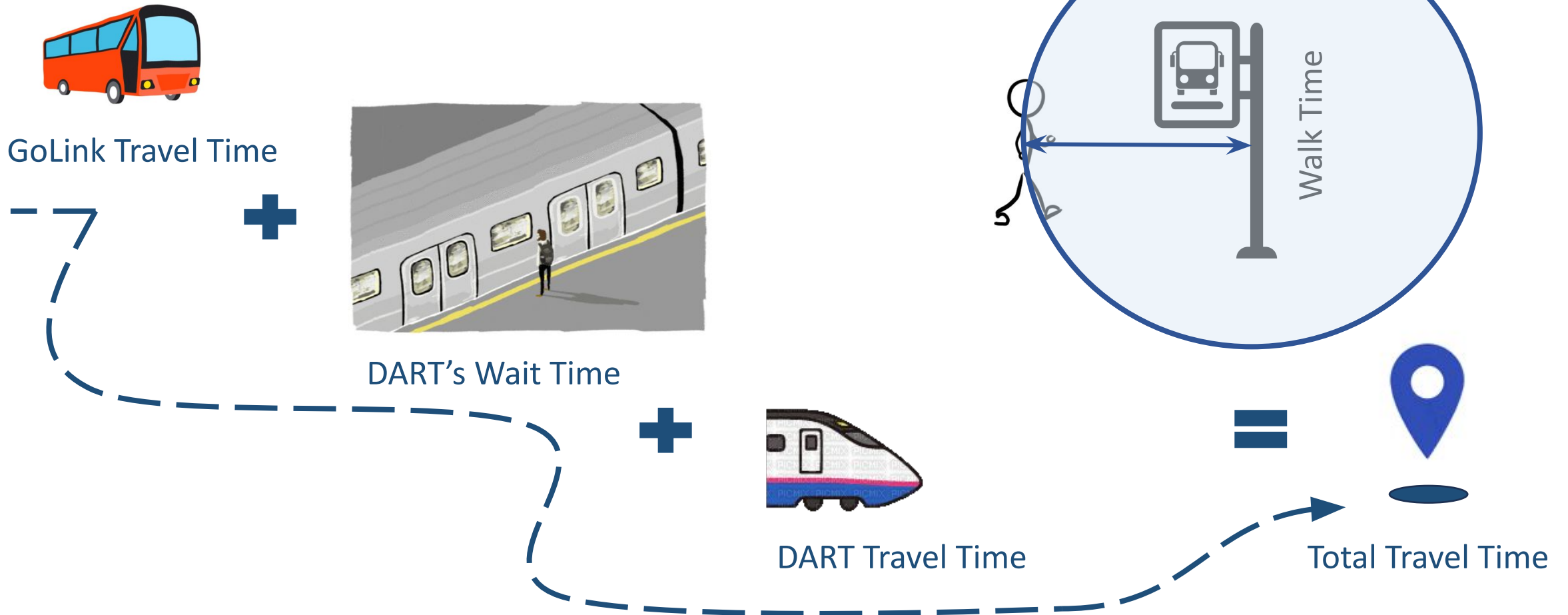
GoLink Travel Time Estimation

Calculated distance from UNT station* to the center of blocks within Inland port boundary.

Used Speed limit = 30 mph **

Travel time= distance/speed

Inland Port
Travel time to UNT station (min)

	0.318557 - 4.894502
	4.894503 - 8.123067
	8.123068 - 12.445348
	12.445349 - 18.999370
	18.999371 - 31.899411
●	UNT station
●	DART Blue line stations
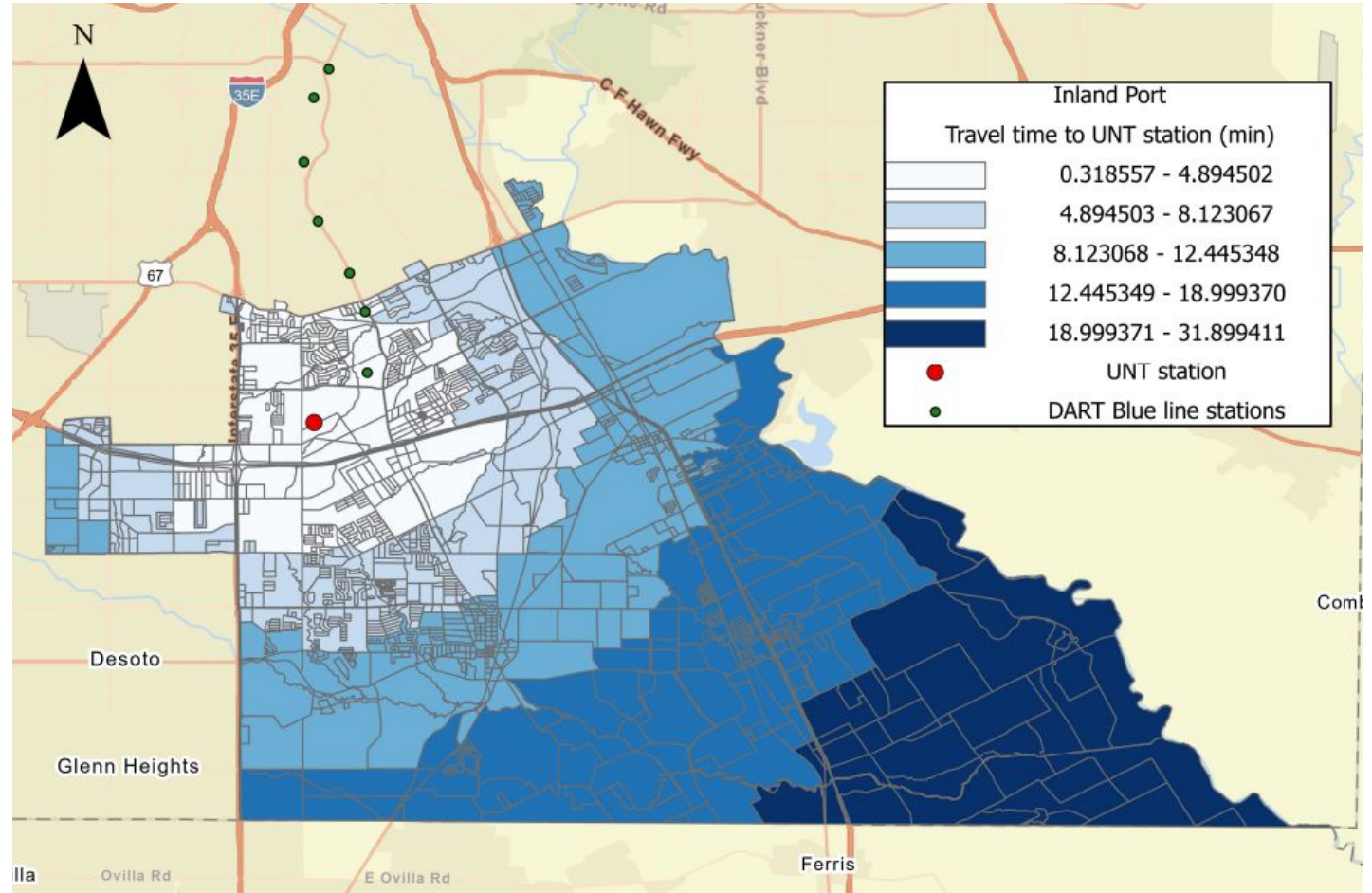
*For bus routes, use the 'last' stops located southernmost in Inland Port area
**Source: https://www.tml.org/DocumentCenter/View/456/Speed-Limits-PDF
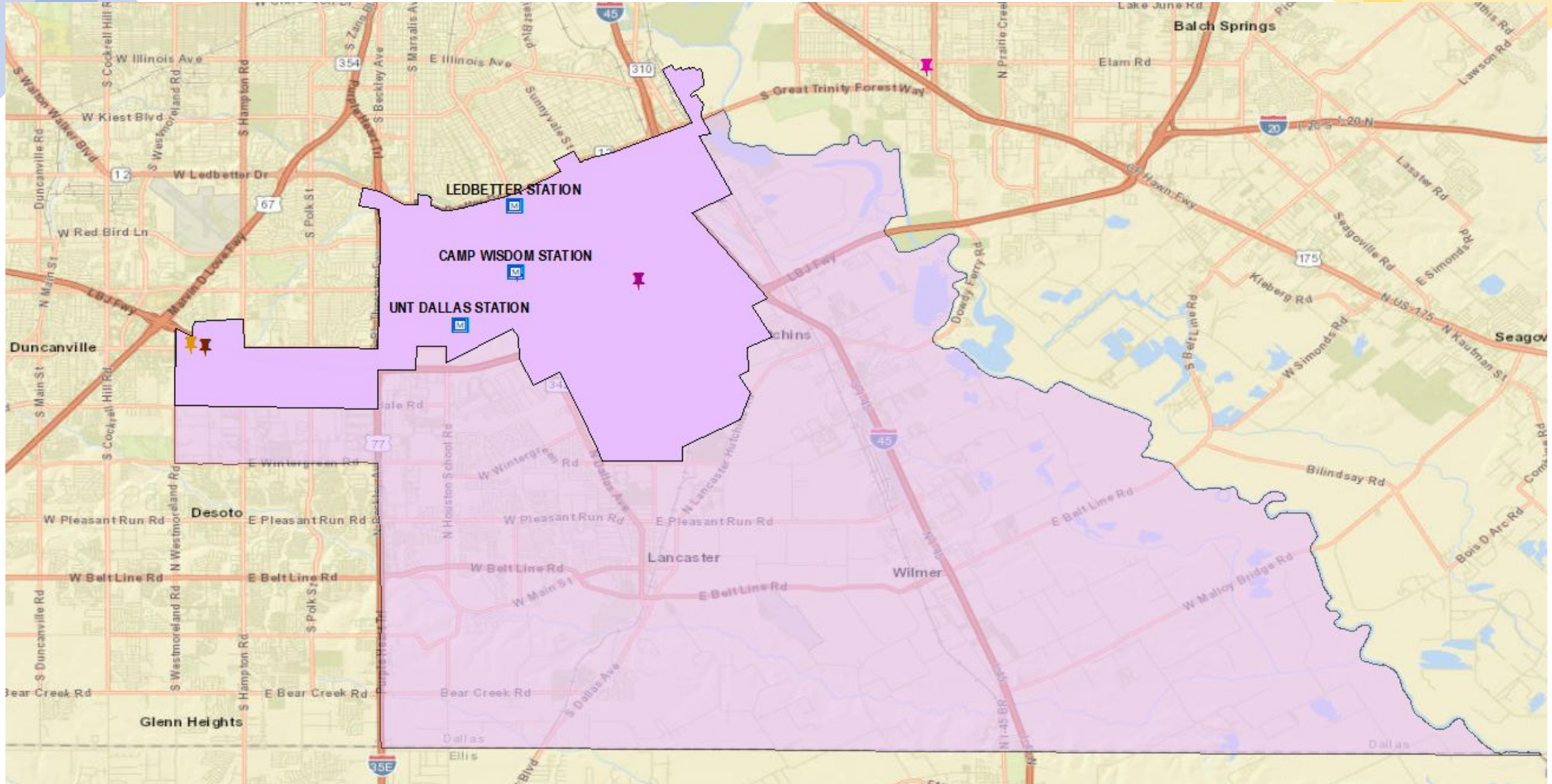
Transit Wait Time

- Use DART data (trip records) to identify the number of buses operating in a day

- Estimate headway based on the DART trip records

- Use AM Peak hour (6AM – 9AM) DART data

$$= \frac{\textit{Estimated Wait Time}}{\textit{Estimated Headway}} \Big/ 2$$

Route	Period	Estimated Headway
Blue	Early	15
	AM Peak	**7**
	Midday	9
	PM Peak	8
	Evening	10
	Late Night	6
38	Early	15
	AM Peak	**8**
	Midday	10
	PM Peak	8
	Evening	10
	Late Night	7
41	Early	15
	AM Peak	**8**
	Midday	10
	PM Peak	8
	Evening	11
	Late Night	8
45	Early	24
	AM Peak	**8**
	Midday	10
	PM Peak	8
	Evening	10
	Late Night	9

DART Travel Time

Pearl/Arts District

UNT Dallas Station

Travel Time ≈ 35 minutes

EXAMPLE
Illinois to Ledbetter is 9 minutes of travel time

BLUE LINE ▼																						
Rowlett																						
Downtown Garland	8																					
Forest / Jupiter	4	12																				
LBJ / Skillman	3	7	15																			
Lake Highlands	4	7	11	19																		
White Rock	3	7	10	14	22																	
SMU/Mockingbird	5	8	12	15	19	27																
Cityplace/Uptown	4	9	12	16	19	23	31															
Pearl/Arts District	4	8	13	16	19	22	26	34														
St. Paul	2	6	10	15	18	21	24	28	36													
Akard	2	4	8	12	17	20	23	26	30	38												
West End	2	4	6	10	14	19	22	25	28	32	40											
EBJ Union Station	3	5	7	9	12	16	21	24	28	31	35	43										
Convention Center	2	5	7	9	11	14	18	23	26	30	33	37	45									
Cedars	2	4	7	9	11	13	16	20	25	28	32	35	39	47								
8th & Corinth	4	6	8	10	12	14	16	20	24	29	32	35	38	42	50							
Morrell	2	6	8	10	12	14	16	18	22	26	31	34	37	40	44	52						
Illinois	3	5	8	10	12	15	17	19	21	24	28	33	36	40	43	47	55					
Kiest	3	6	8	11	13	15	18	20	22	24	27	31	36	39	43	46	50	58				
VA Medical Center	3	6	9	11	14	16	18	21	23	25	27	30	34	39	42	46	49	53	61			
Ledbetter	3	6	9	12	14	17	19	21	24	26	28	30	33	37	42	45	49	52	56	64		
Camp Wisdom	2	5	8	11	14	16	19	21	23	26	28	30	32	35	39	44	47	51	54	58	66	
UNT Dallas	3	5	8	11	14	17	19	22	24	26	29	31	33	**35**	38	42	47	50	54	57	61	69

Walking Buffer

- Walking speed varies between 4-5 ft/s. There are some variations regarding gender and age. [1]
- Considering the working age category (20-60 years), walking speed results in **4.5 ft/s.**

Age		Sex	Miles per hour (mph)
20–29		male	3.04
		female	3.0
30–39		male	3.2
		female	3.0
40–49		male	3.2
		female	3.11
50–59		male	3.2
		female	2.93
60–69		male	3.0
		female	2.77
70–79		male	2.82
		female	2.53
80–89		male	2.17
		female	2.10

20–29	male	3.04	
	female	3	
30–39	male	3.2	
	female	3	
40–49	male	3.2	
	female	3.11	
50–59	male	3.2	
	female	2.93	
		3.085	4.524677
		mph	ft/s

$$Distance\ (within\ 5\ \min) = \frac{(4.5 * (5\ min * 60))}{5280} = 0.26\ miles$$

$$Distance\ (within\ 10\ \min) = \frac{(4.5 * (10\ min * 60))}{5280} = 0.51\ miles$$

(MedicalNewsToday, 2022)[1]
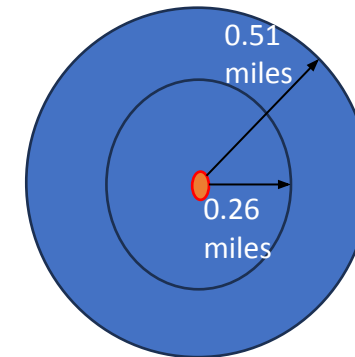
1. MedicalNewsToday. (2022). *What is the average walking speed?*
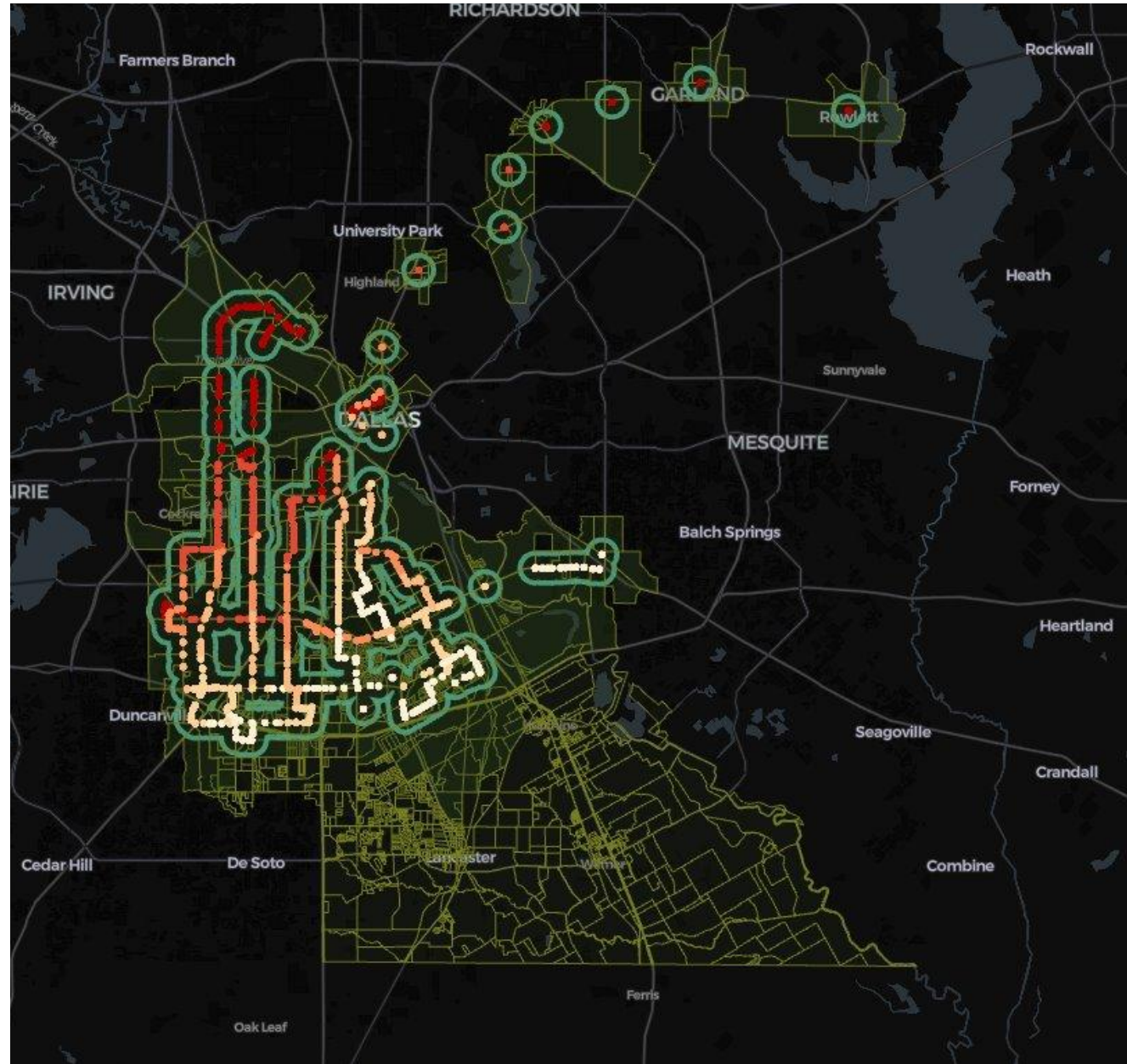https://www.medicalnewstoday.com/articles/brisk-walking

Interactive Map

MAP 1
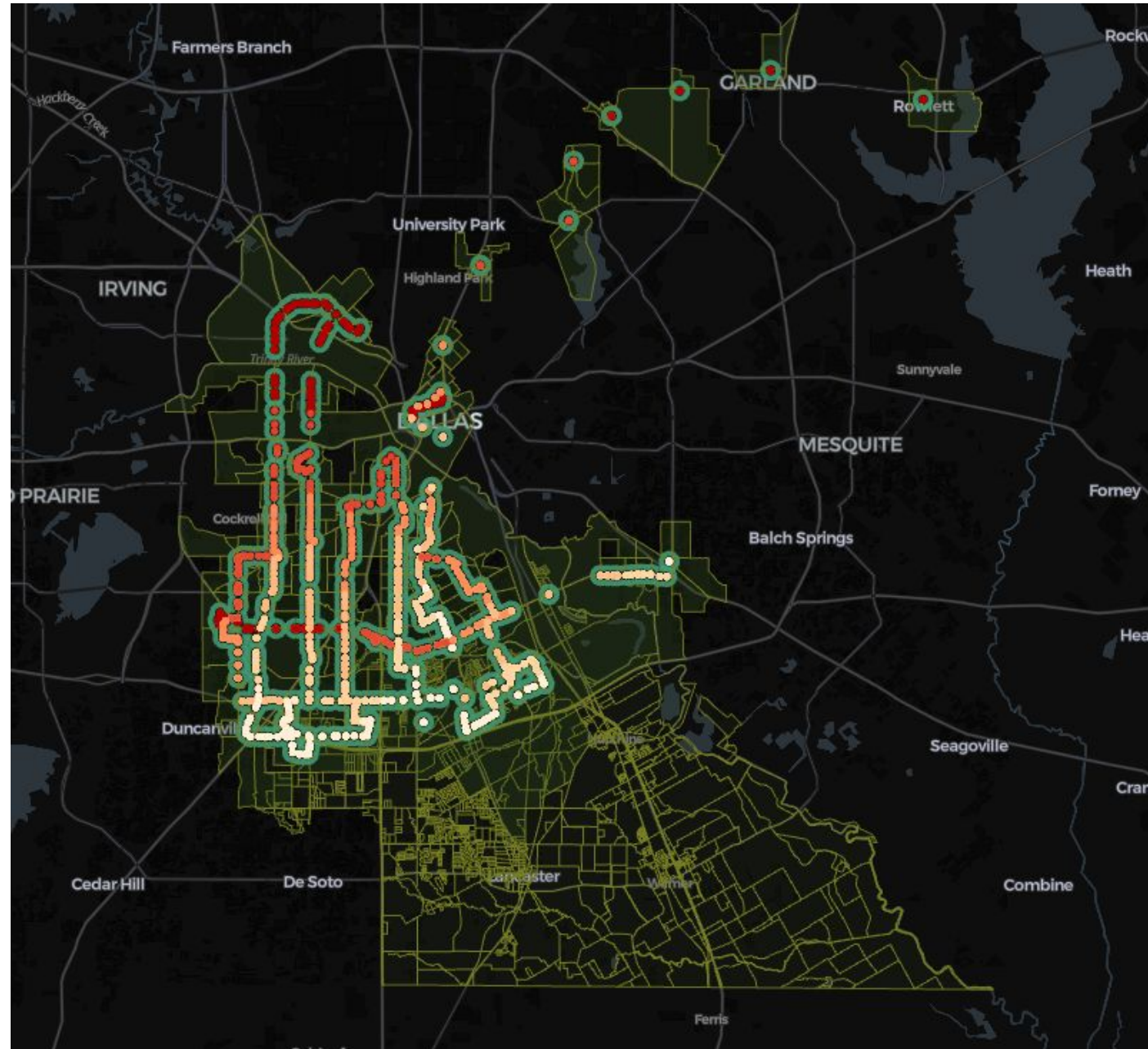
Walking buffer of 5 minutes

Map 2

Walking buffer of 10 minutes

Future Outcomes

Add — Transportation Service

- STAR

Incorporate — Transfer Points

- Multiple transfer points
- Travel Time combinations

Modify — Map

- Walking distance buffer
- User friendly / more accessible to all users

Thank you.