



Miami-Dade
Transportation Planning Organization

FIRST MILE - LAST MILE OPTIONS

with

HIGH TRIP GENERATOR EMPLOYERS

May 11, 2018



What is First Mile – Last Mile (FLM)

Purpose
Modal Groups
Lessons Learned
Tool Kit
Case Studies

Movement of People between Transportation Hub and Final Origin or Destination

First Mile

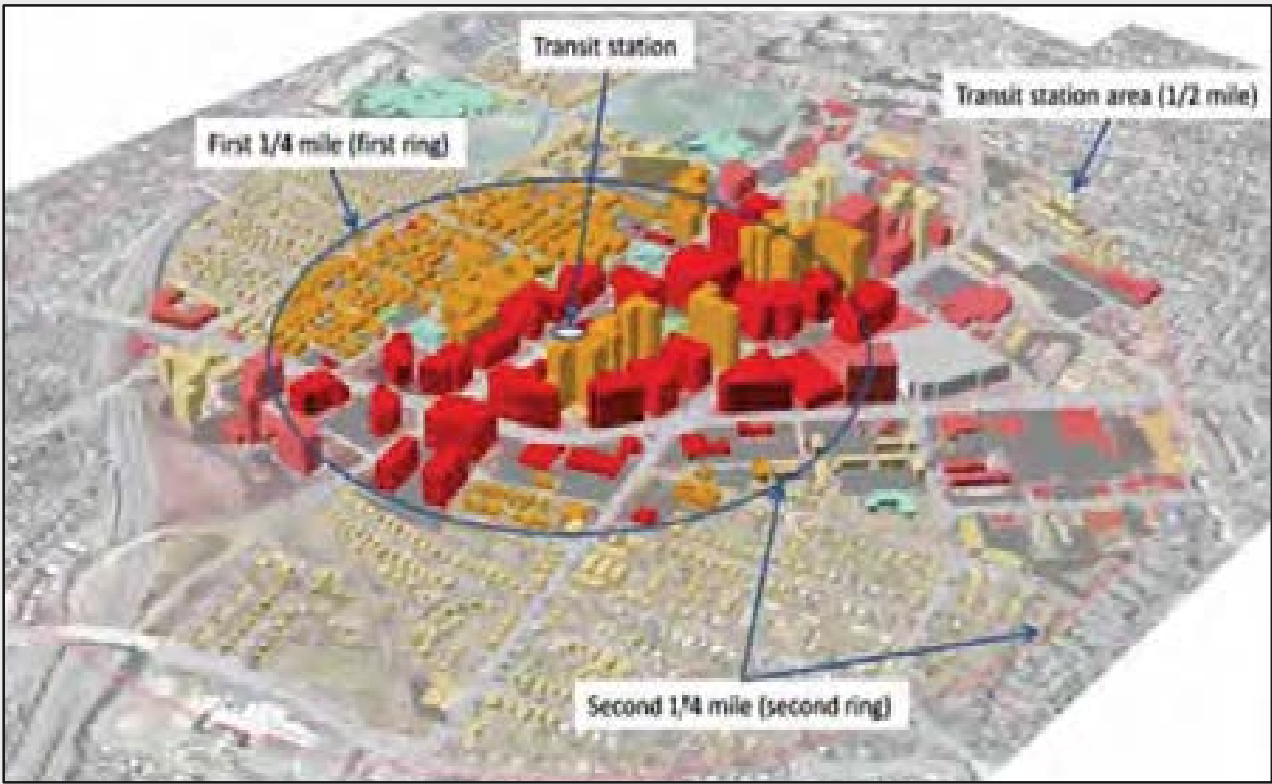
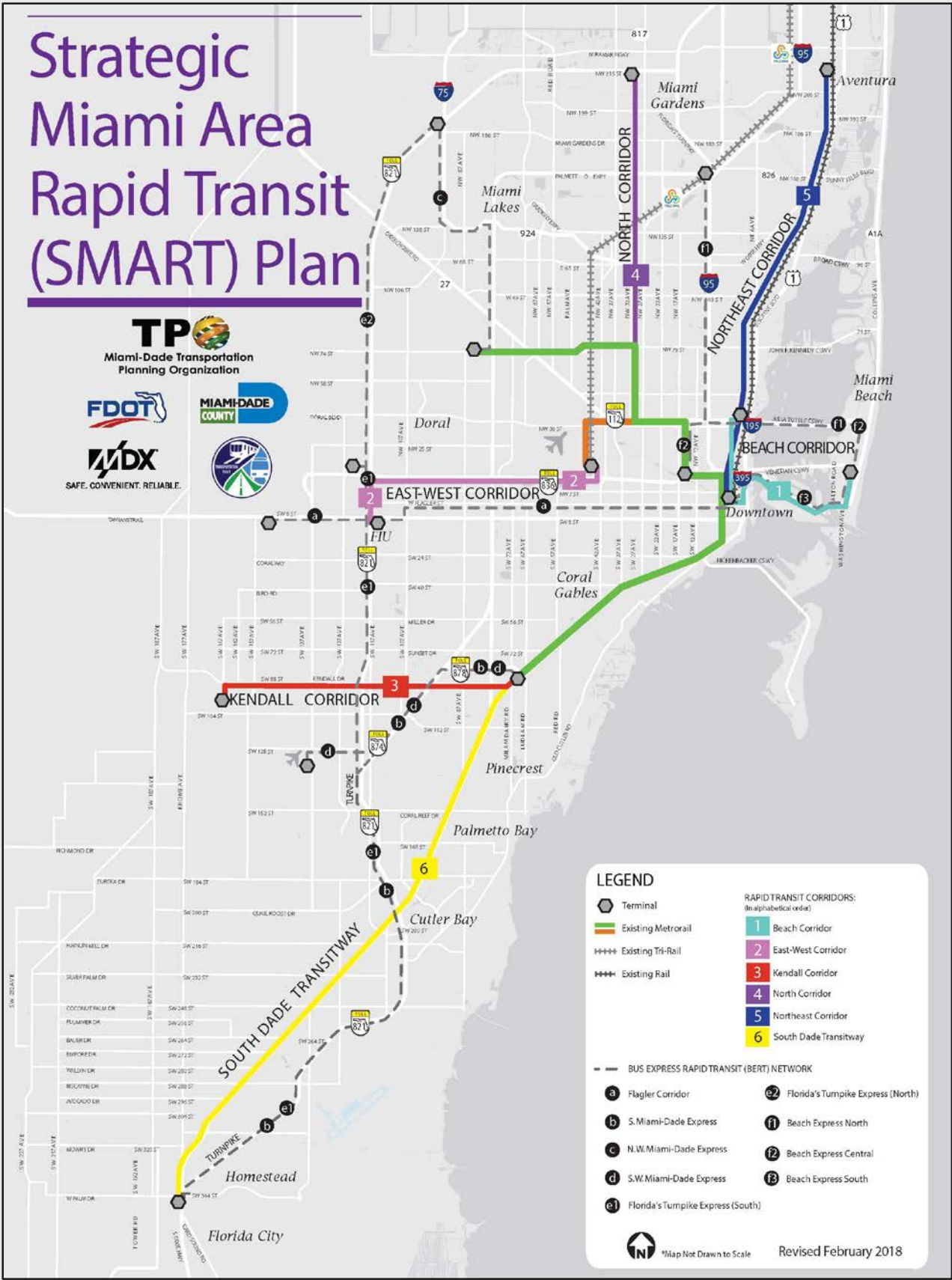
Last Mile



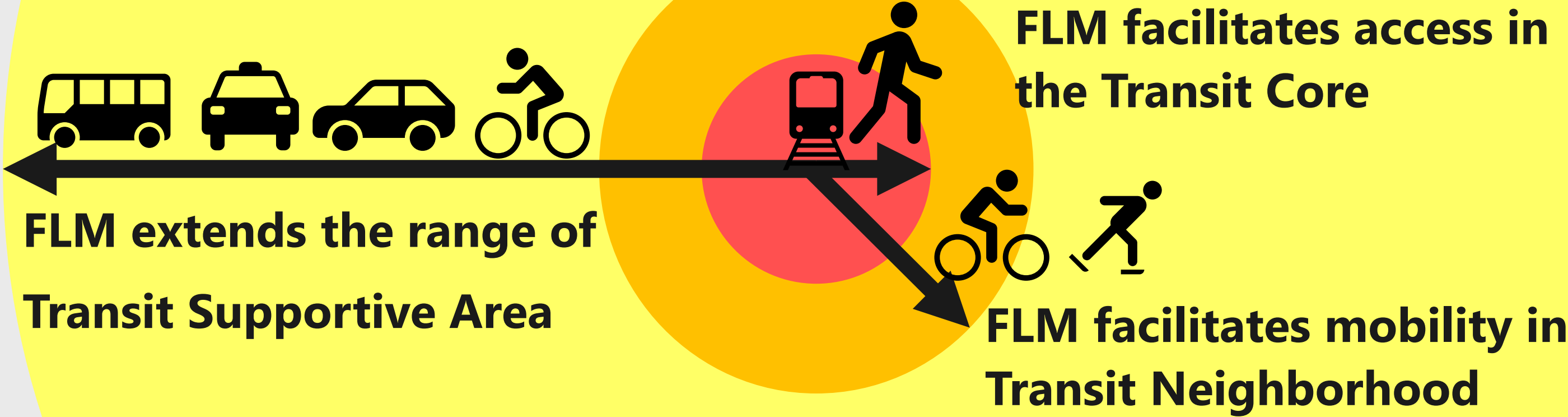
What is

Purpose

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Ballston Station, Arlington VA



What is

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Access

ability to meet a person's daily needs:

minimum of travel and cost,

stronger relationship to urban design and land use,

satisfying needs with minimization of travel.

Mobility

the ability to get around by a variety of means:

need to travel is assumed,

not minimization of travel,

but to lower the time and cost of it, and

convenient, safe, secure and enjoyable as possible.



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Pathway

infrastructure to:

- reduce time,
- direct from origin or destination to station,
- traveler has high control of schedule,
- individualized or small groups,
- highly demand responsive,
- improved user experience,
- varies by context:
 - primary mode
 - station characteristics
 - regional context
 - distance from station (demand decay)



Ultimate goal is to expand the transit user access shed.

What is Purpose

Modal Groups

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Pedestrian Modal Group



Vehicular



Modal Group



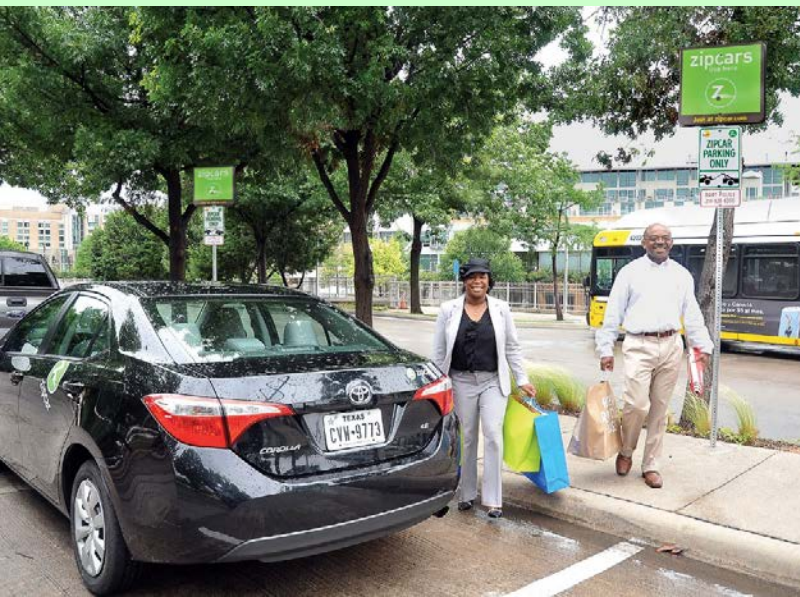
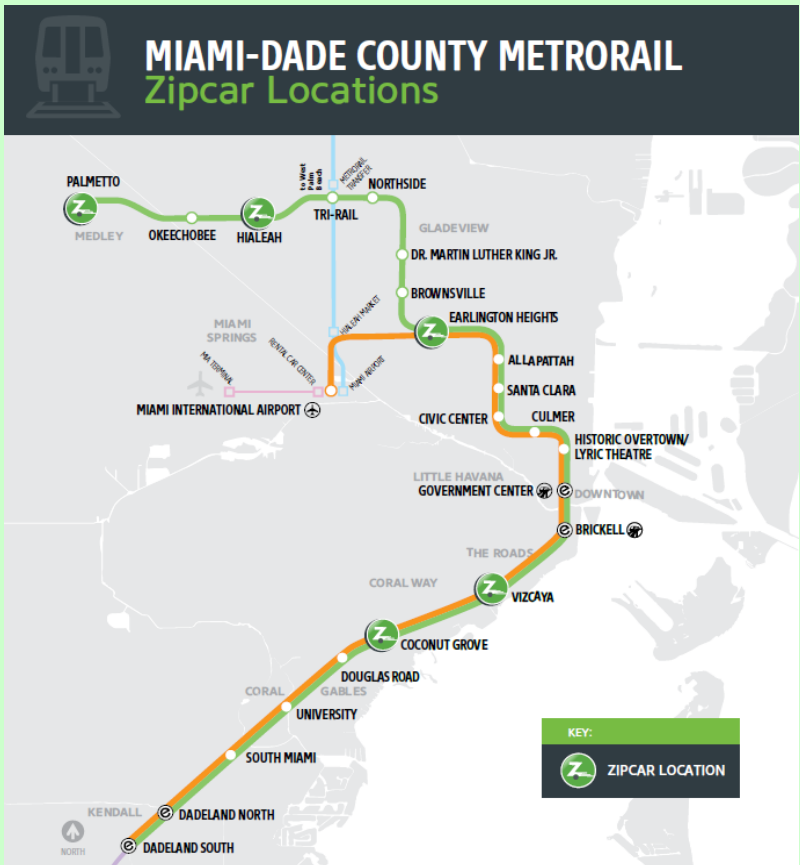
Transit



Modal Group



Bike, Board and Skate Modal Group

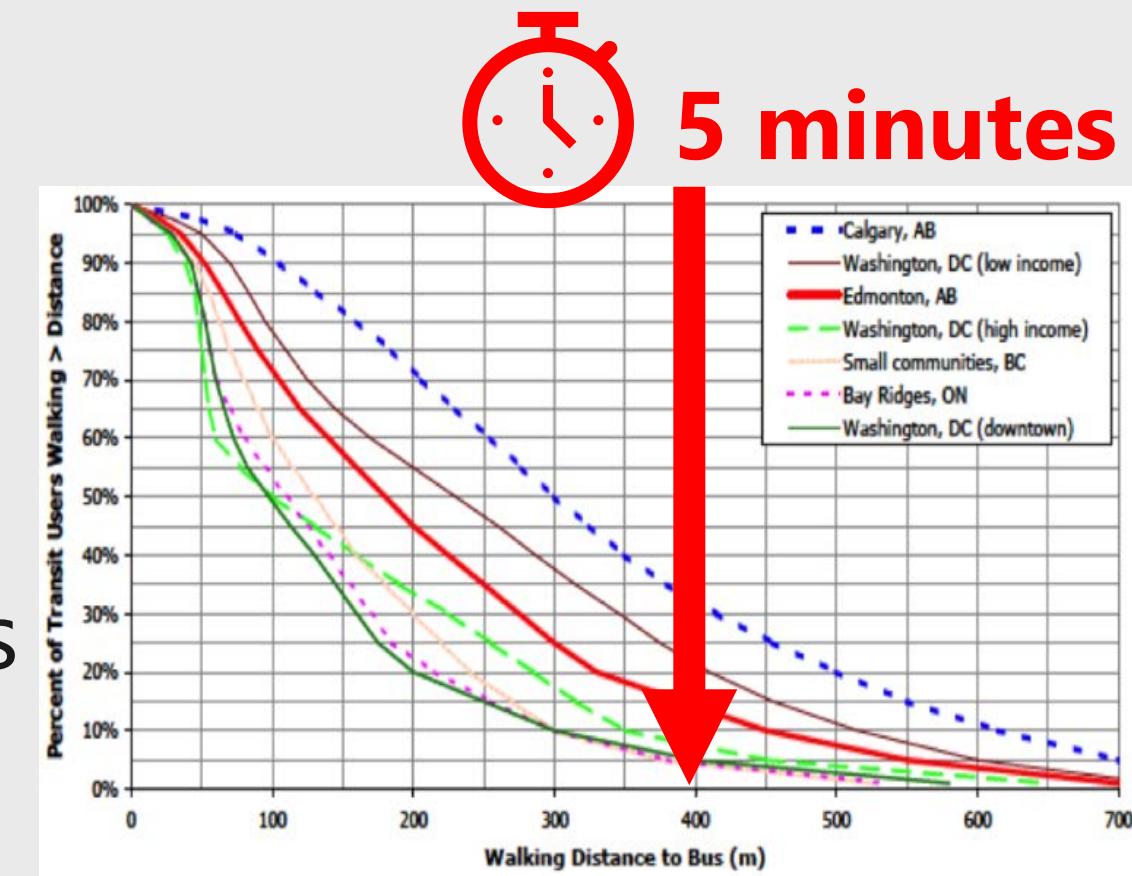


Lessons Learned



Primary consideration is **minimizing time**:

- emphasis on creating continuous, direct paths



The secondary considerations are traffic safety and security:

- emphasis on sidewalk adequacy, crosswalks;
- traffic signal operations that prioritize quick and safe access for pedestrians to cross streets.



Amenities and mixed-use points of interest are of tertiary importance:

- Station area TOD is long term;
- Focus first on time, safety, security.



More effort and time for seniors and wheelchair users go to a transit station:

- Universal design that provides equitable access to persons at all levels of mobility must be planned.



Lessons Learned



Primary transit mode affects the time that people are willing to go to a transit station, and the FLM modes that are likely to be used:

- bus being the shortest FLM time;
- commuter rail being the longest FLM time.

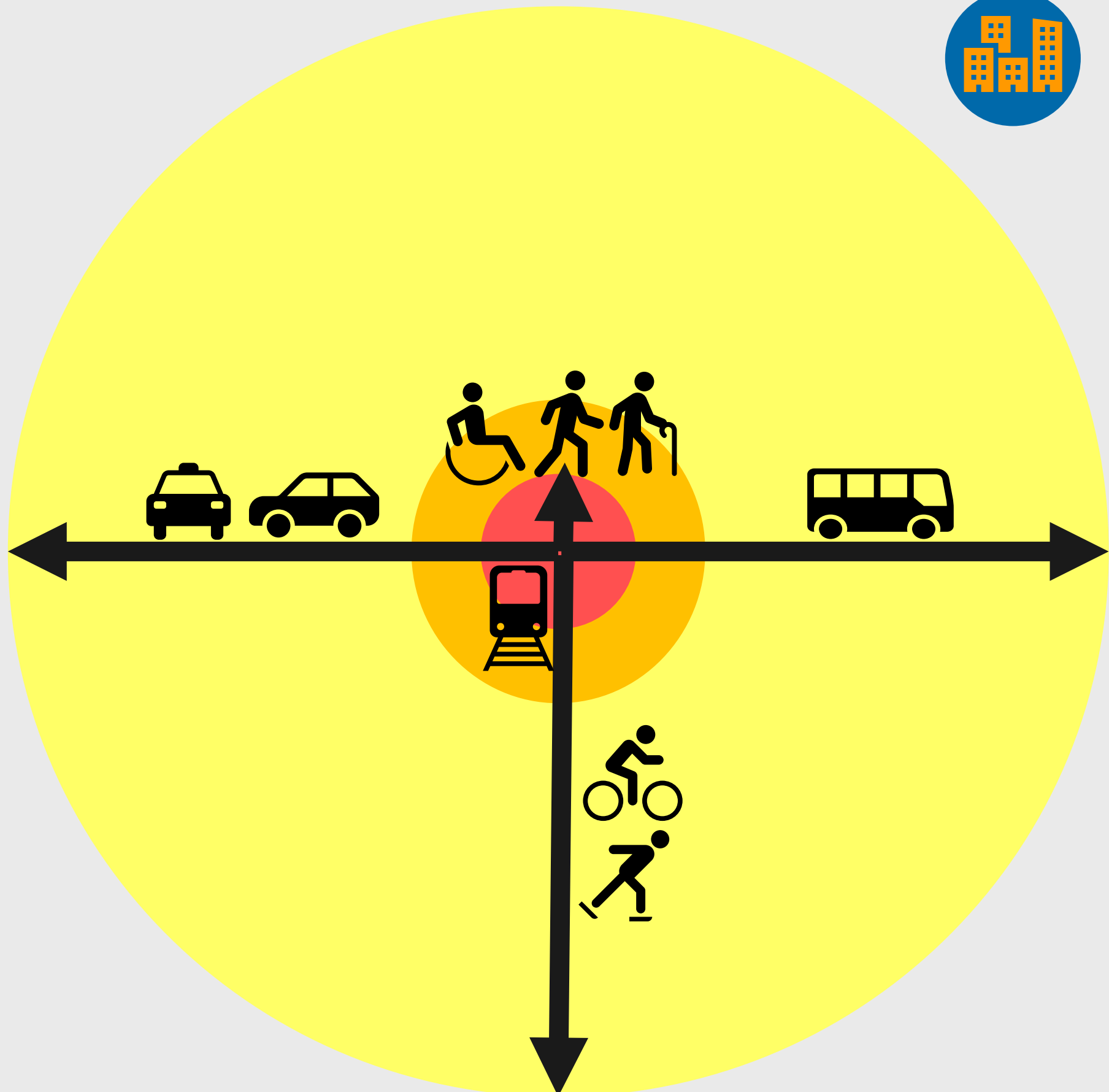


The origin or destination type by which a transit station is accessed has a relationship to distance and time:

- Home origin FLM trips are generally longer than the employment destination end:
 - as high as a 1 to 2 relationship,
 - destination having ½ the distance/time as the home trip.

FLM modes enhance 5 – 10 minute transit shed distance variously:

- Walk ¼ to ½ mile
- Bike, Board and Skate 1 to 2 miles
- E-Bike, E-Skate 2 miles
- Vehicular ½ to more than 2 miles *(varies with network and modes)*
- Regular Transit ½ to 1 mile
- Micro Transit ½ to more than 2 miles *(varies with network and modes)*



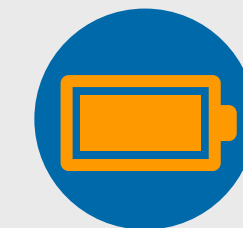
Lessons Learned



Transit and Vehicular FLM enhanced by autonomous technology

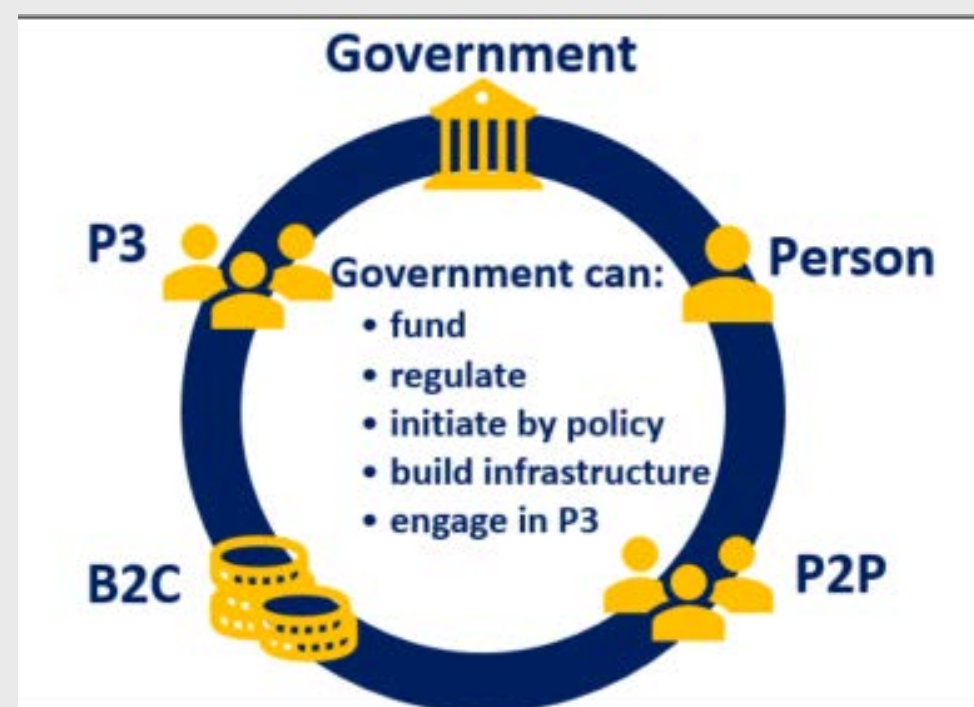


- Advanced Group Transit (AGT)
- Personal Rapid Transit (PRT)
- Station Cars
- Benefits: shorter travel time, greater capacity, demand response

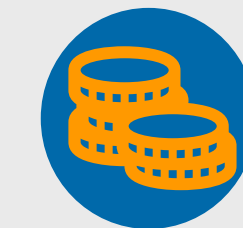


FLM capabilities enhanced by battery-electric technology

- Carbon footprint and community health are benefits.
- Range, time at station, parking/storage are important.
- Affects all modal groups: bicycle, board, vehicles, transit, pedestrian.

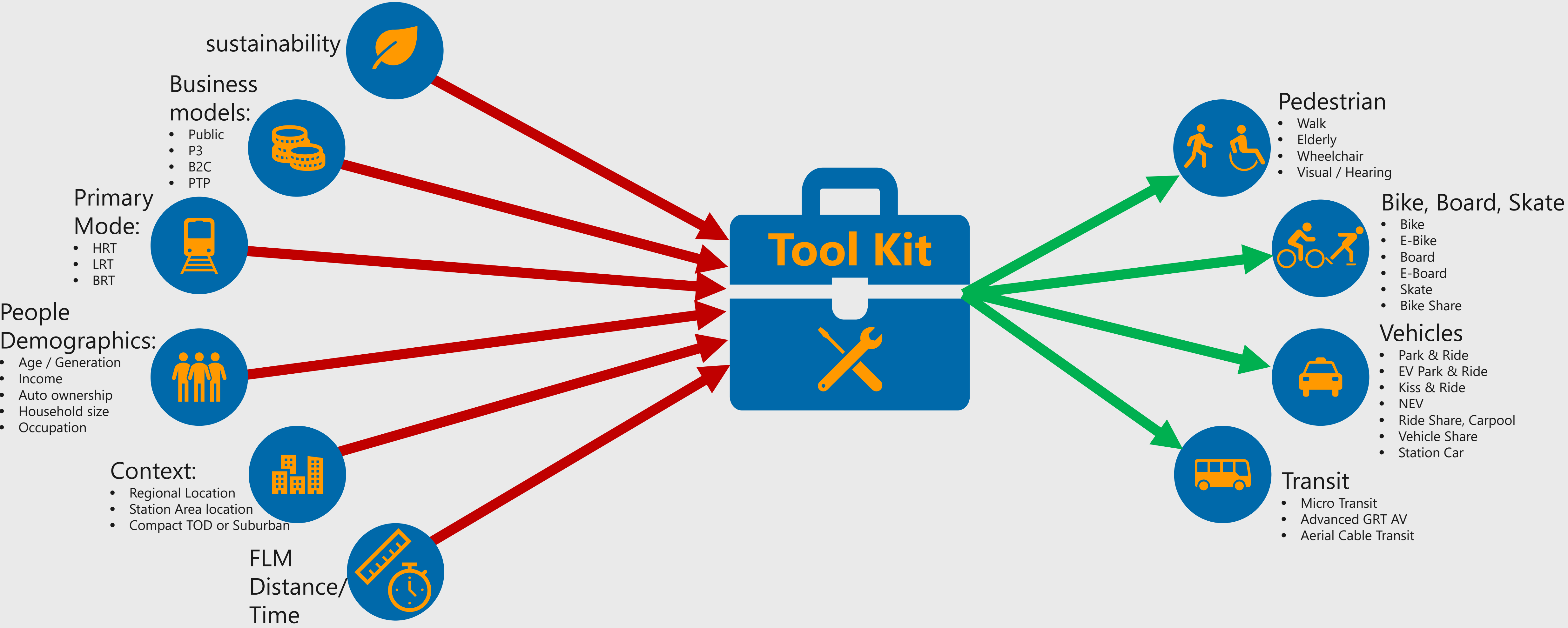


FLM deployment enhanced by delivery model innovation



- Shared vehicles and bicycles
- Private transit
- P3 (TOD, transit, shared mobility)

System Approach to FLM Tool Kit



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TOD Station Area FLM Tool Kit

P1. Land Use Planning

D2. Land Development Regulations

D3. Re-Platting Decisions

- *Walk-Throughs where needed*



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Pedestrian



Pedestrian Mode FLM Tool Kit

- P1. Transit Access Pedestrian Survey** - *user preferences in Miami Dade*
- P2. Transit Access Pedestrian Audit** - *existing infrastructure in station area*
- P3. Adequate Sidewalks**
- P4. Enhanced Crosswalks**
- P5. Diagonal Crossings**
- P6. Midblock Crosswalks**
- P7. Signal Operations**
- P8. Pedestrian Lighting**
- P9. Pedestrian Path Network**
- P10. Barrier Bridges** - *including station pedestrian access to both sides of corridor*
- P11. Pedestrian Amenities**
- P12. Way Finding**





Bike, Skate,& Board Mode FLM Tool Kit

- B1. Transit Access Bike & Skate Survey** - *user preferences in Miami Dade*
- B2. Bike & Skate Transit Access Audit** - *existing infrastructure in station area*
- B3. Bike, Board & Skate Continuous Path**
- B4. Vehicular Travel Lane Width**
- B5. Bicycle & Rolling Lanes**
- B6. Shared ROW & Bicycle Boulevards**
- B7. Signal Operations**
- B8. Barrier Overpasses & Underpasses**
- B9. Carriage on Transit Vehicles – Bikes**
- B10. Transit Station Bicycle Storage**
- B11. Transit Station Bicycle Sharing**
- B12. Transit Station Bicycle Station**
- B13. Station Area Short-Term Bicycle Parking**
- B14. Board & Skate Access** - *seating and smooth ramp*





Vehicular Modal Group FLM Tool Kit

V1. Person Trip Capacity Methodology

V2. Transit Station Pick-Up & Drop Off Area

V3. Station Area Pick-Up & Drop-Off Spaces

V4. Station Cars

V5. Plug-In Electric Station Cars

V6. Neighborhood Electric Vehicle (NEV) Station Cars

V7. Car Share Parking Policies & Fees

V8. NEV Prioritization

V9. AV Infrastructure

V10. Station Parking Capacity, Design, and Convertibility in TOD



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Transit FLM Tool Kit

T1. Transit Signal Priority

T2. Queue Jumps and Bottleneck By-Passes

T3. Exclusive Bus Lanes

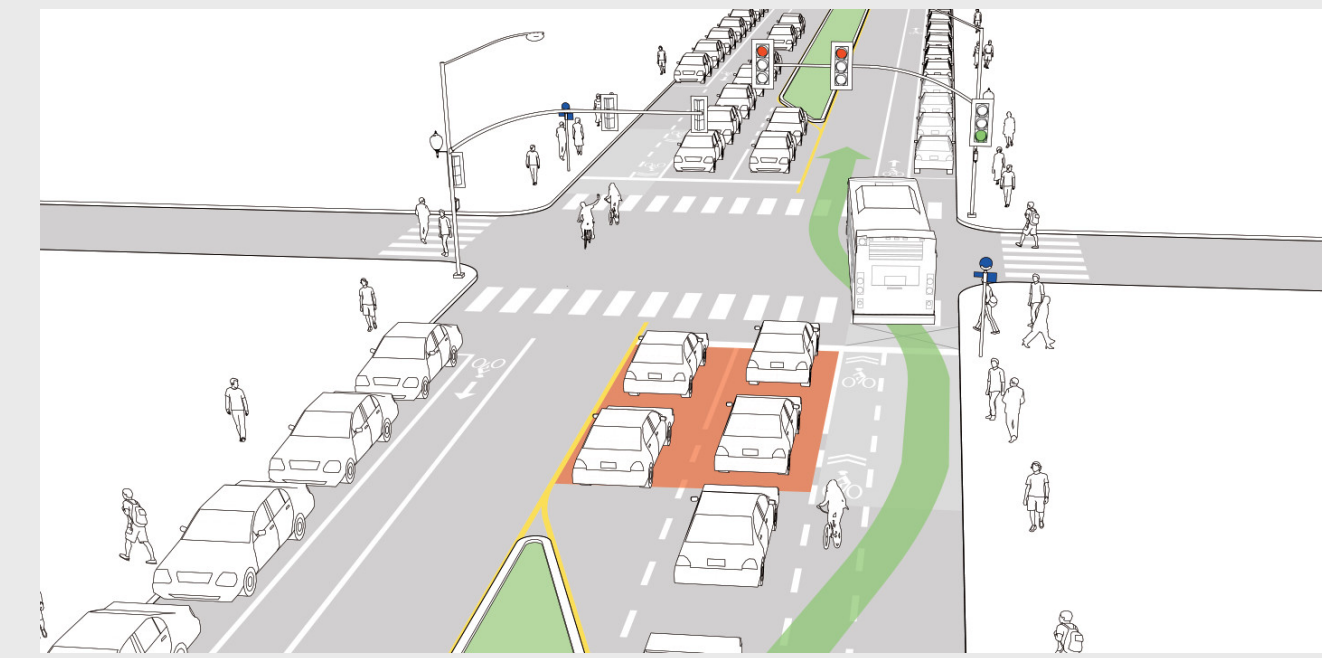
T4. Level Boarding Transit Area Stops

T5. Level Boarding Transit Station Bus Stops

T6. Micro Transit - *partnering with provider companies*

T7. Advanced Group Transit –*infrastructure, vehicles*

T8. Aerial Cable Transit (ACT)



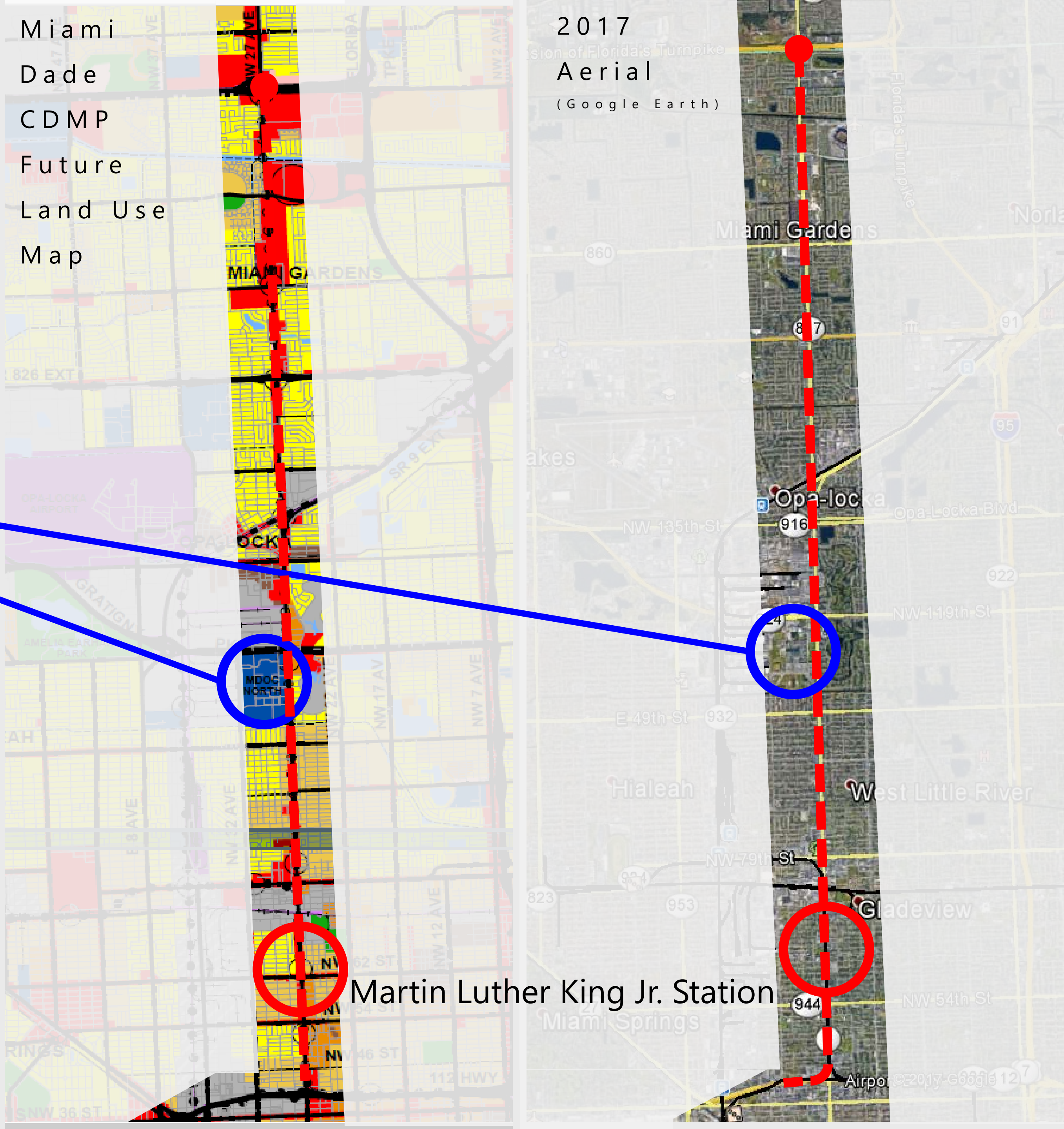
Case Studies: North Corridor, Miami Dade College

Miami Dade College

- NW 27th Avenue & NW 113th Street
- 245 acres, 41,000 students
- ¼to½-mile from possible future station
- 2¾ miles from existing Martin Luther King Jr. Station

Method: FLM findings criteria:

- Distance
- Market analysis – transit and station area
- Existing connections – comparative time
- Demographics – comparative cost



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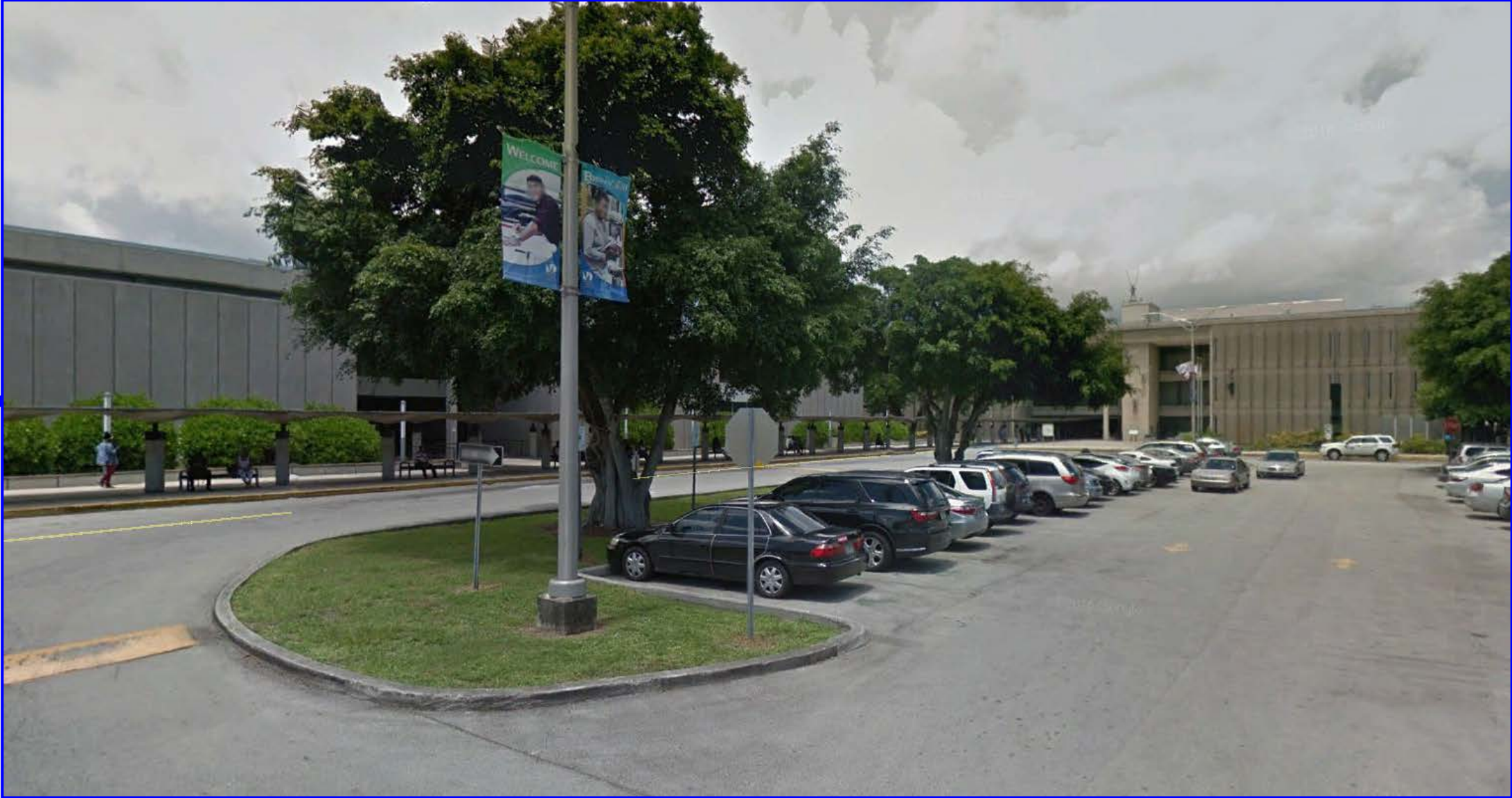
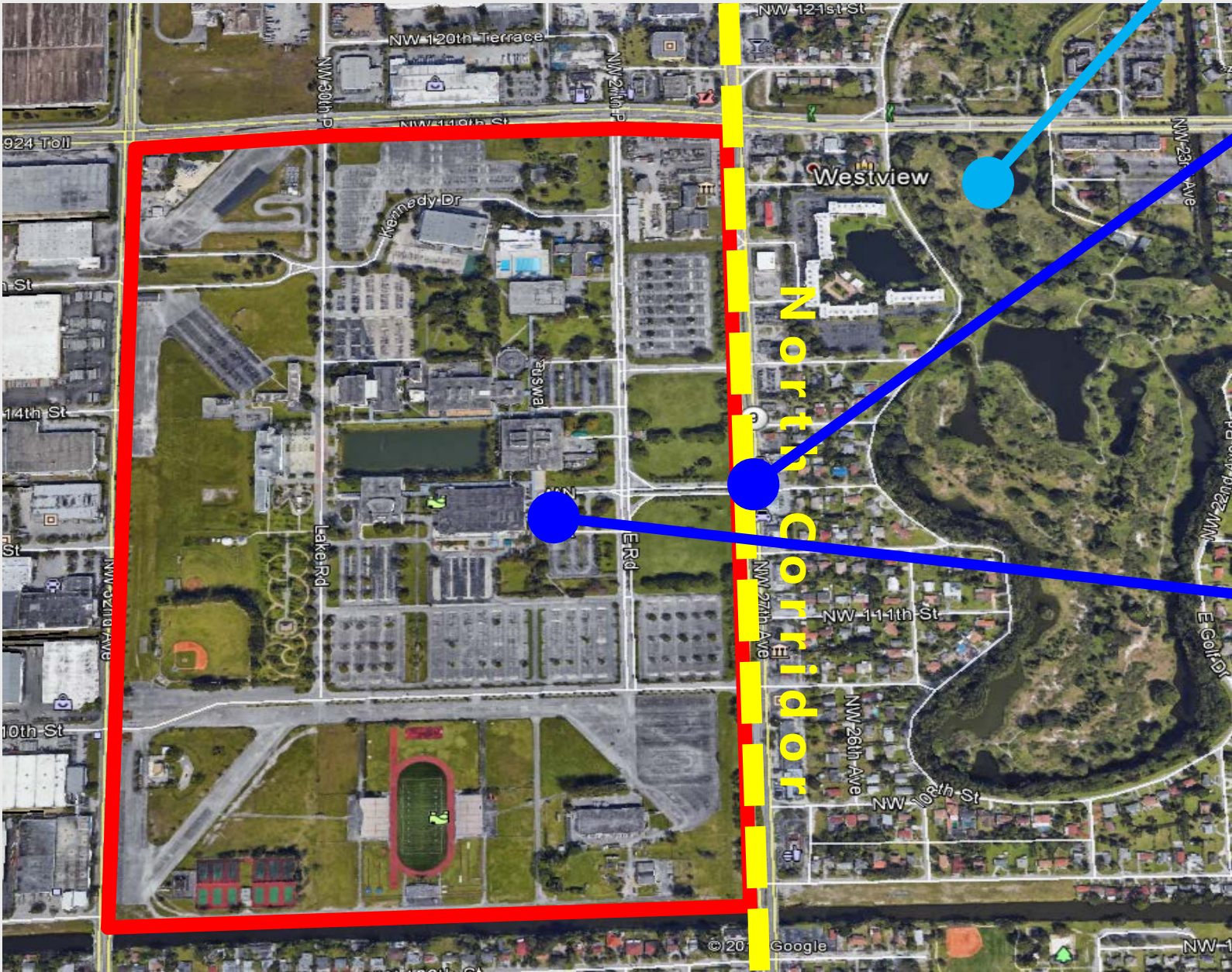
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Proposed (future) Westview Business Park
(400,000 s.f. retail, 1.6-million s.f. warehouse/distribution)



Miami Dade College North Campus



Case Studies: North Corridor Miami Dade College



Short Term FLM:

Distance = 2.75 miles

Tool Kit

B11. Small Station Based Bike Sharing Program with additional racks at MDC:

- County to work with private vendors
- Human-powered bike, about 14 minutes
- E-bike, about 8 minutes
- Bike sharing can benefit low-income community for other neighborhood bike-sharing trips

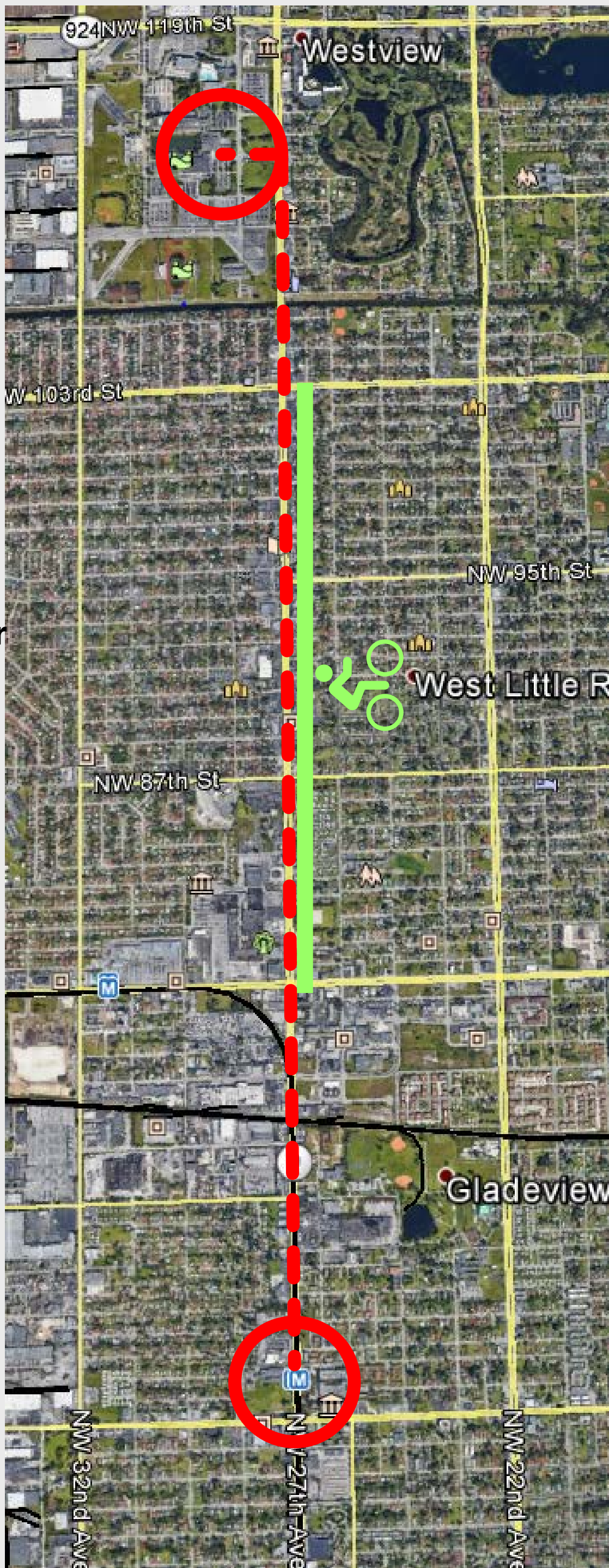
B5. Complete and improve bike lane along NW 27th Avenue from Dr. Martin Luther King Jr. Station to MDC, North Campus:

- Existing bike lane improved as buffered land to protect bikes from high speed traffic
- Space is limited in roadway and in MetroRail median; however, and protected underline path should be investigated further.
- From 103rd Street north to the campus, extend protected bike lane

B4. Reduce vehicular travel lane widths for additional width for buffered bike lanes where possible:

- NW 27th Avenue has posted 35 mph limit
- Bike lanes should be buffered
- North-bound lanes are 12' wide
- South-bound lanes are 11' wide in some places
- Under MetroRail, lanes are 11' wide

B7. Signal Operations at NW 27th Avenue and NW 113th Street improved to allow safe crossing of intersection from bike lane on north-bound lanes into campus



South Dade Civic Center

- Southland Mall, South Dade Library, Government Center, Performing Arts Ctr.
- Charette to develop mall as town center
- Along South Dade Busway
- Located adjacent to existing South Corridor stations
- US-1 and Turnpike are barriers to South Corridor

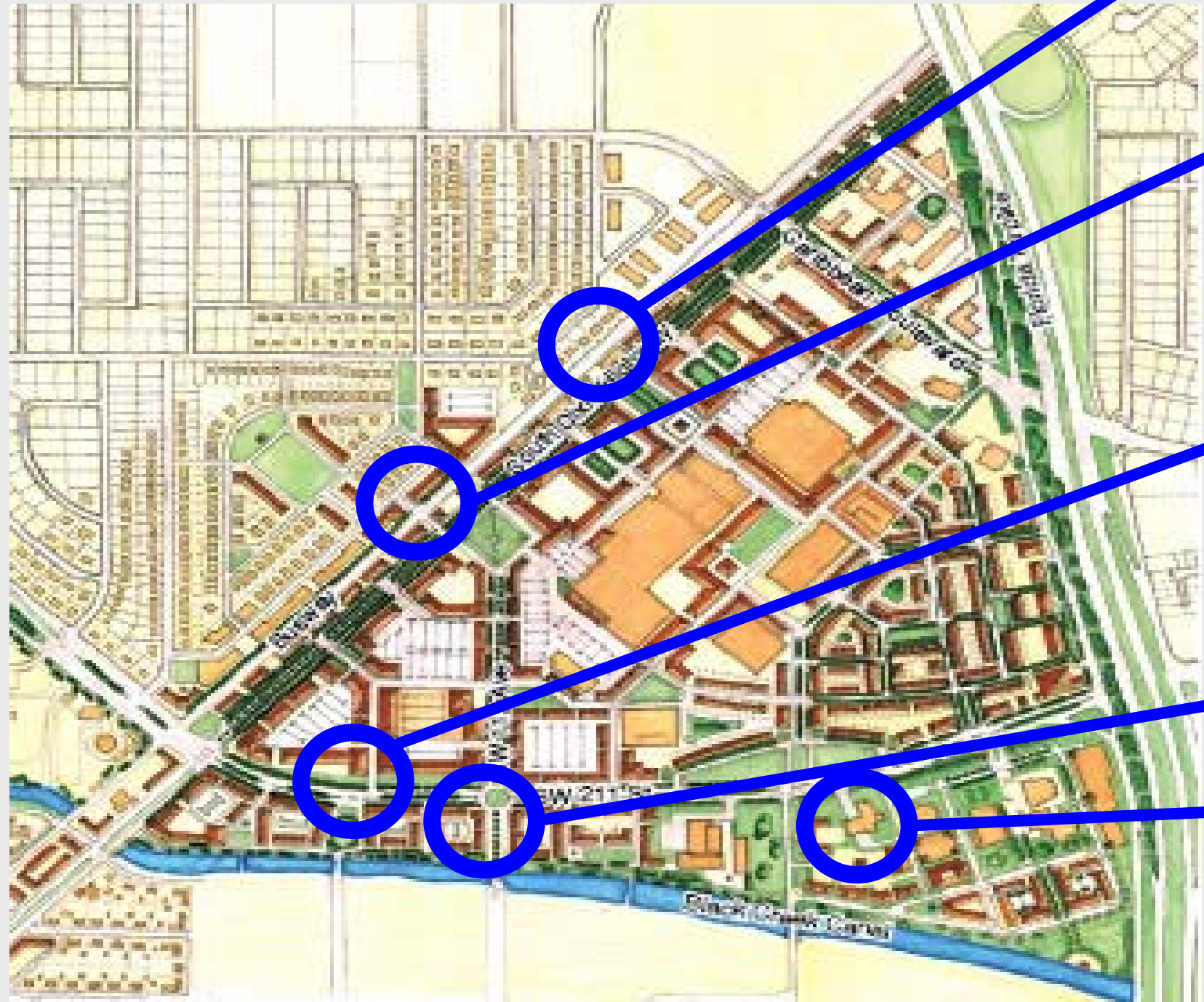
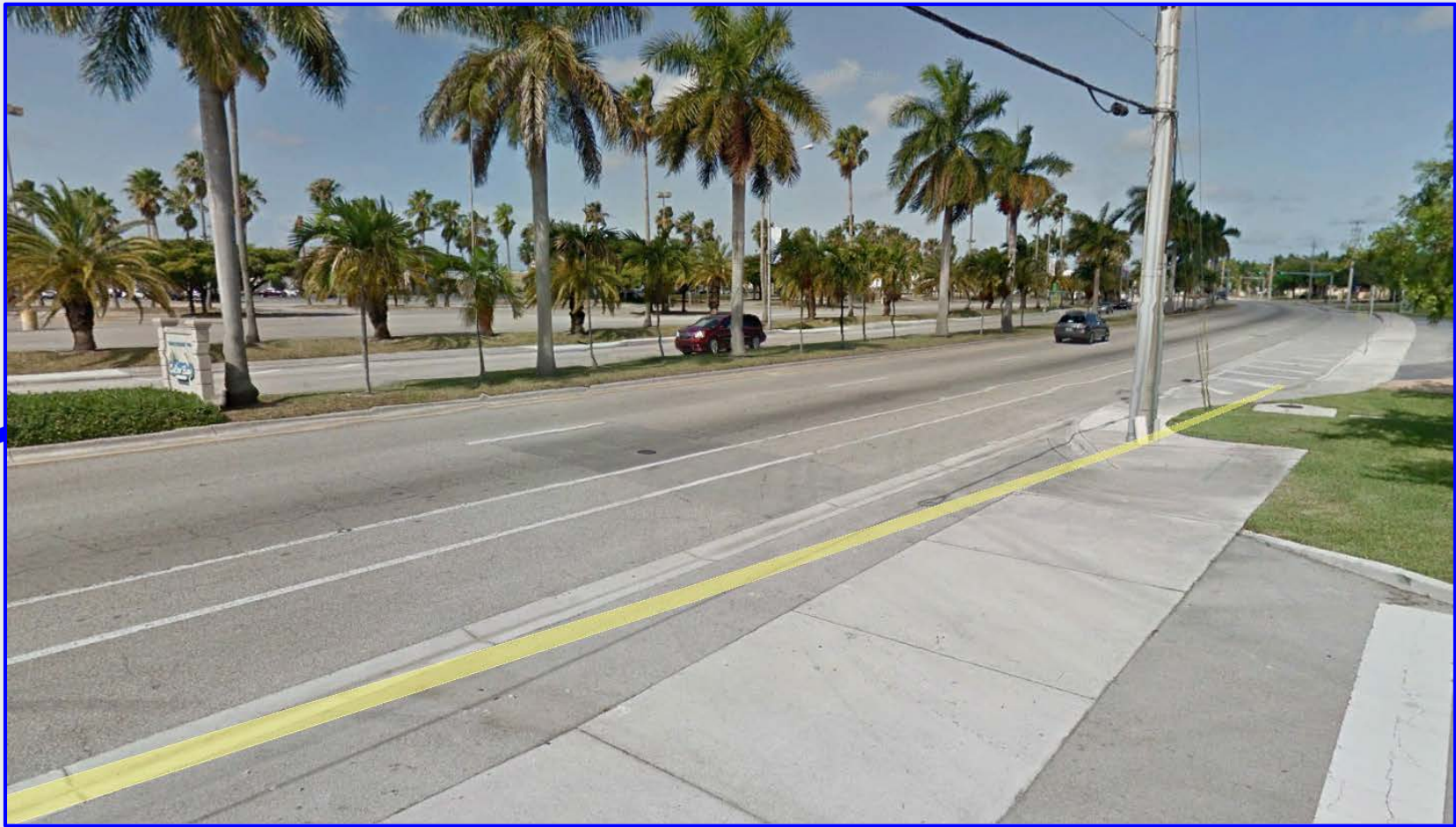
Method: Accessibility Score:

- Accessibility: distance, travel time and barriers
- Proxy modeled lack of facilities
- Focus on critical links for maximum benefit

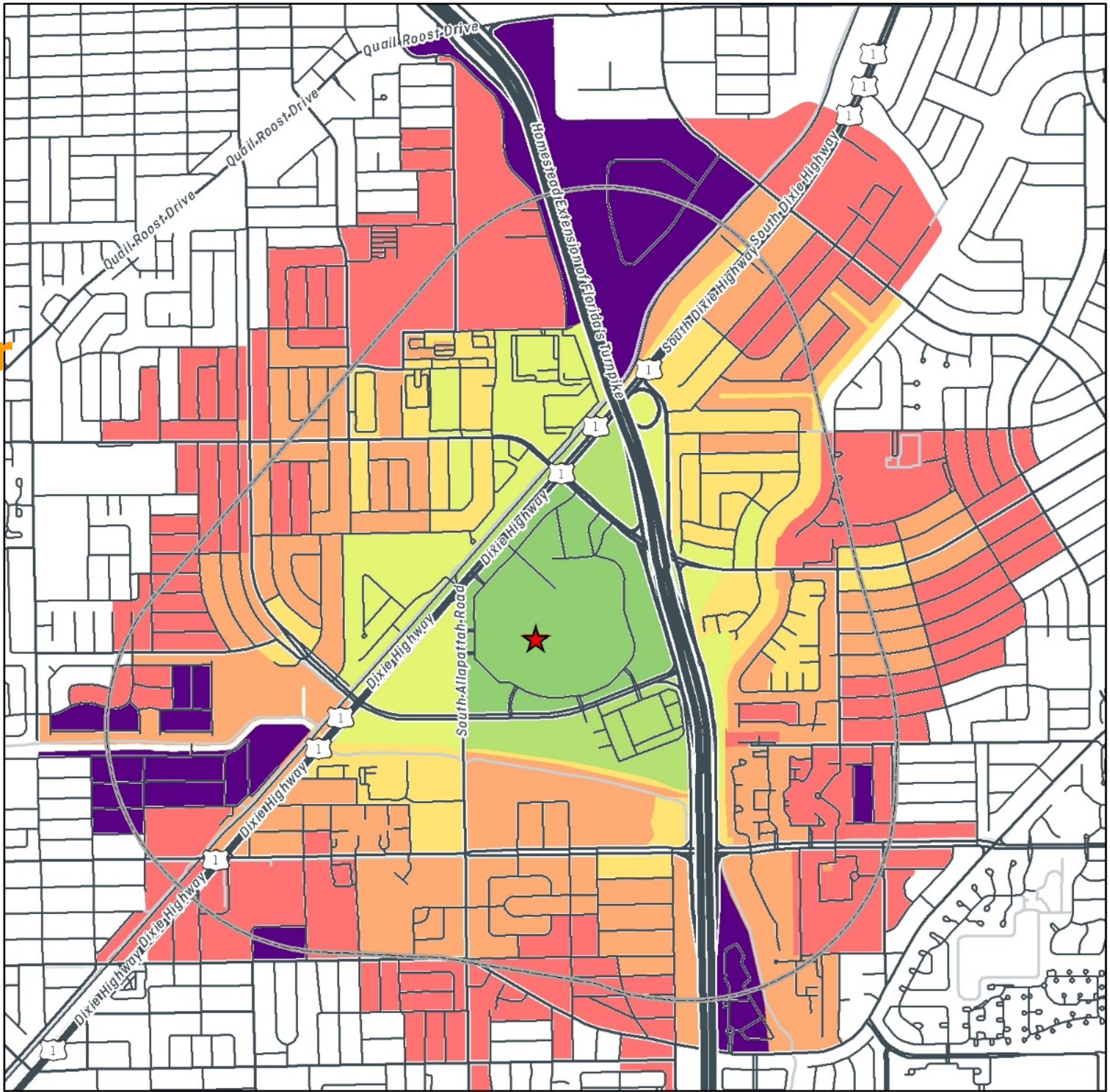
Miami
Dade
CDMP
Future
Land Use
Map

What is
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Modal Groups
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Case Studies: South Corridor South Dade Center



Case Studies: South Corridor South Dade Center



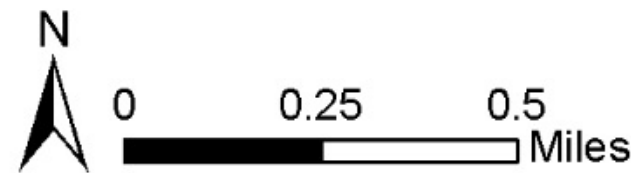
Half Mile Buffer

Southland Mall

Unconnected Blocks

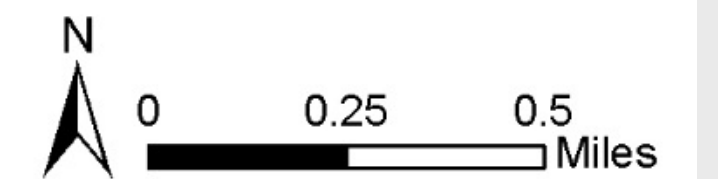
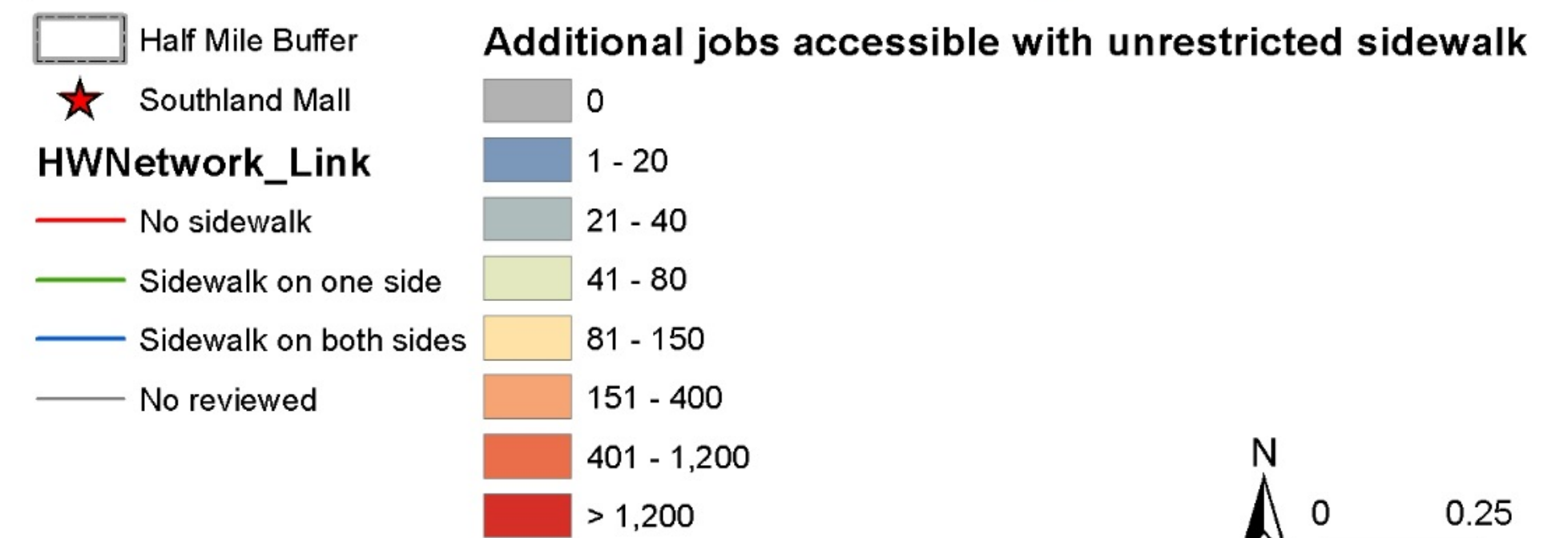
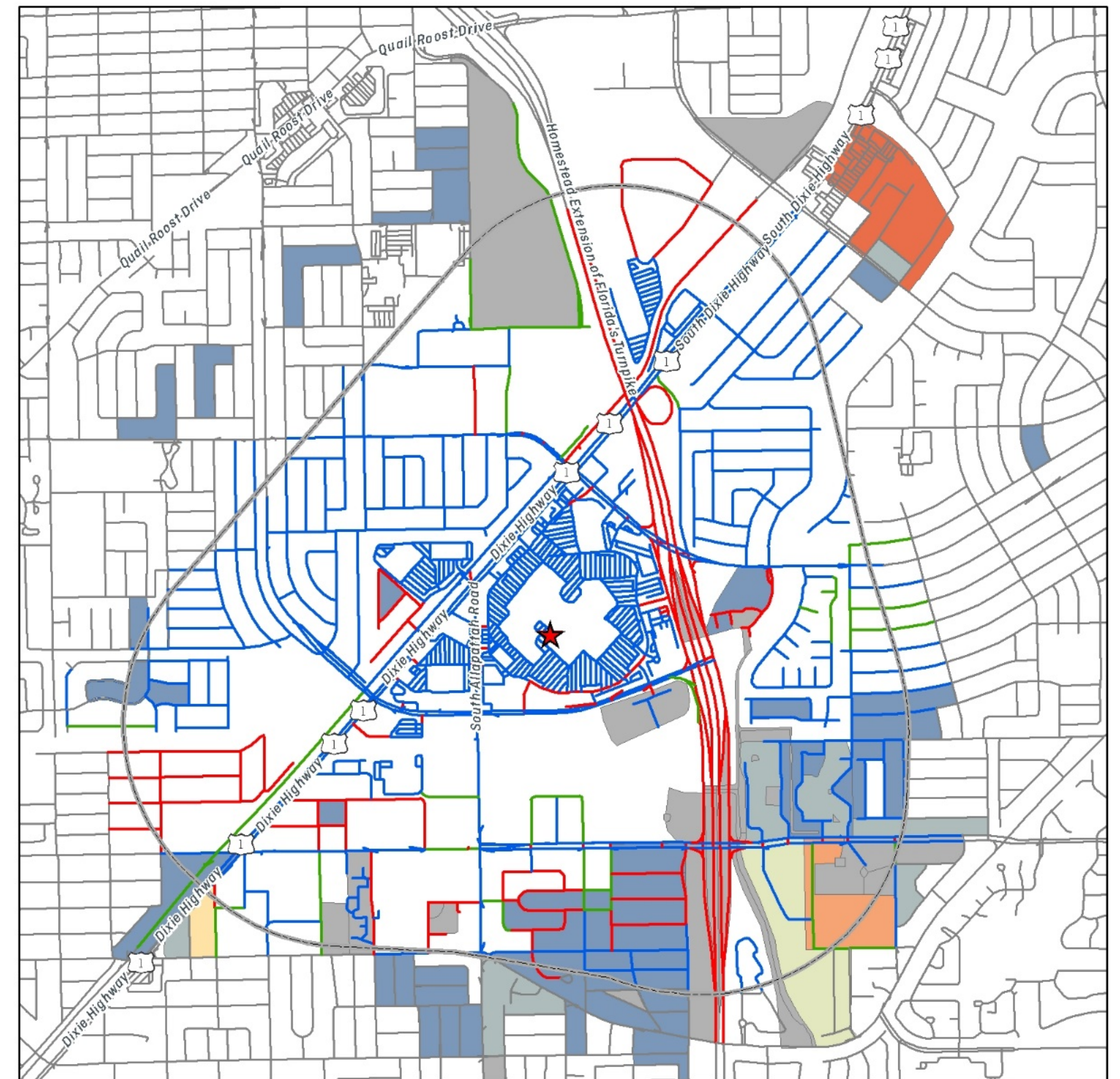
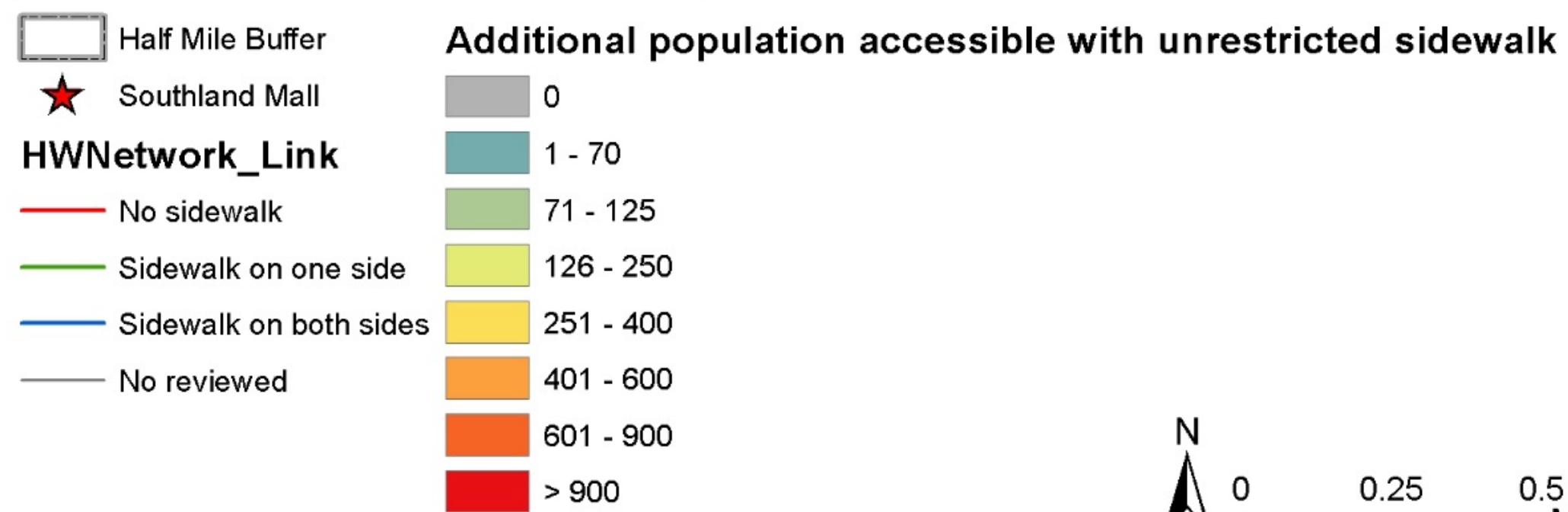
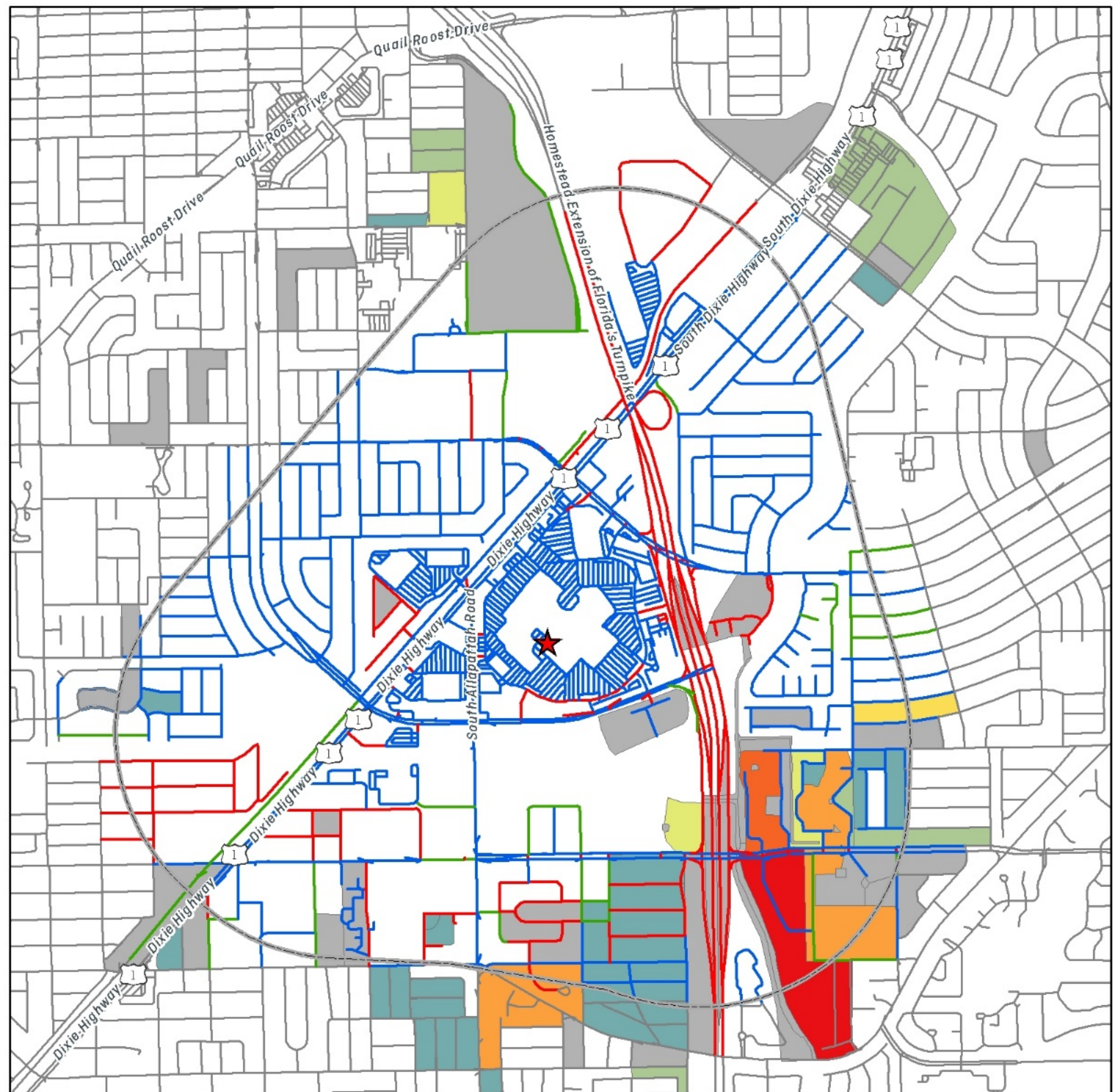
Walk time with sidewalk restrictions

- 3 - 5 minutes
- 6 - 10 minutes
- 11 - 15 minutes
- 16 - 20 minutes
- 21 - 25 minutes
- 26 - 30 minutes



Connectivity Impact

- Blocks lacking walk access to Southland Mall in both restricted and unrestricted scenarios are unconnected
- 1,370 population in inaccessible blocks within ½ mile radius
- 3,270 jobs in inaccessible blocks within ½ mile radius



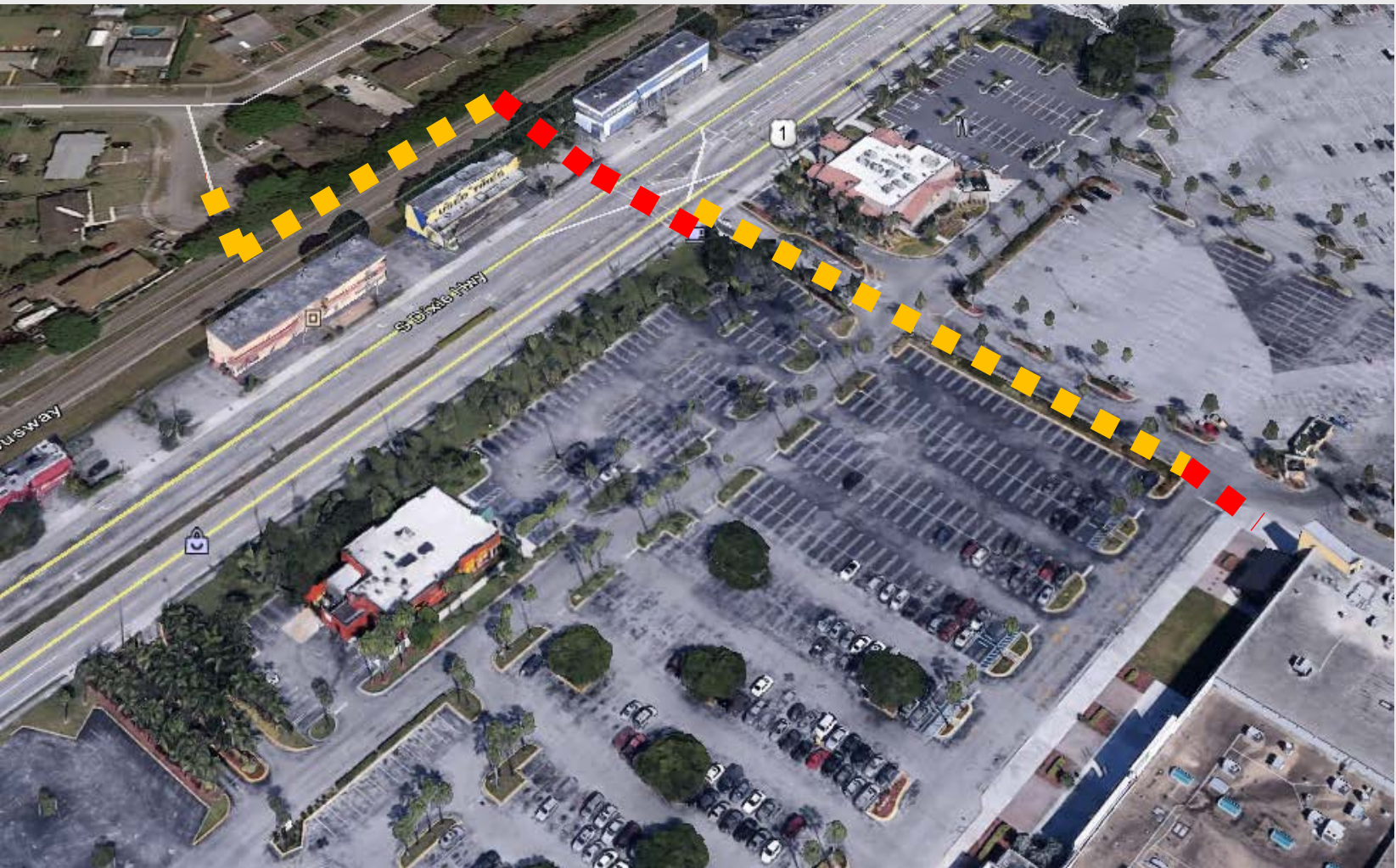
Case Studies: South Corridor South Dade Center

Short Term FLM:

Critical Paths 1st - Barriers

Tool Kit (Northwest Barrier)

- P7. Mid-Block Crosswalk (Busway) ■■■
- P5. Enhanced Crosswalk (US-1) ■■■■
- P8. Signal Operations
 - Enhanced crosswalk at the Mall entrance across US-1 with adequate protected pedestrian phase
 - Pedestrian actuated crosswalk linked to Busway times signals to cross Busway
 - Textured pavement or zebra stripe markings
 - Enhanced illumination and/or pavement illumination
- P4. Adequate Sidewalks ■■■■■■
 - Through parking lot drives in Mall property
 - Along Busway west side
 - Path through to SW 111th Avenue



Tool Kit (East Barrier)

- P11. Barrier Bridge ■■■■■■
 - Pedestrian path across canal, from Cutler Ridge Boulevard to SW 212th Street End, near water pipe.

