

SPUR

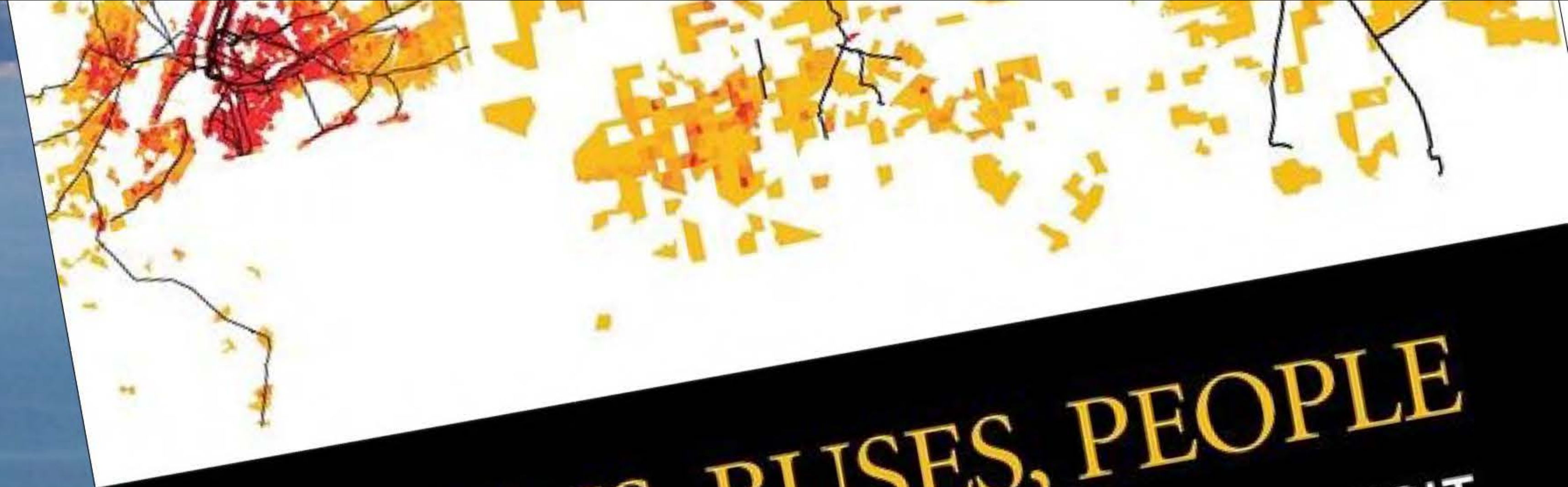
Ideas + Action for a Better City

learn more at SPUR.org

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@SPUR_Urbanist

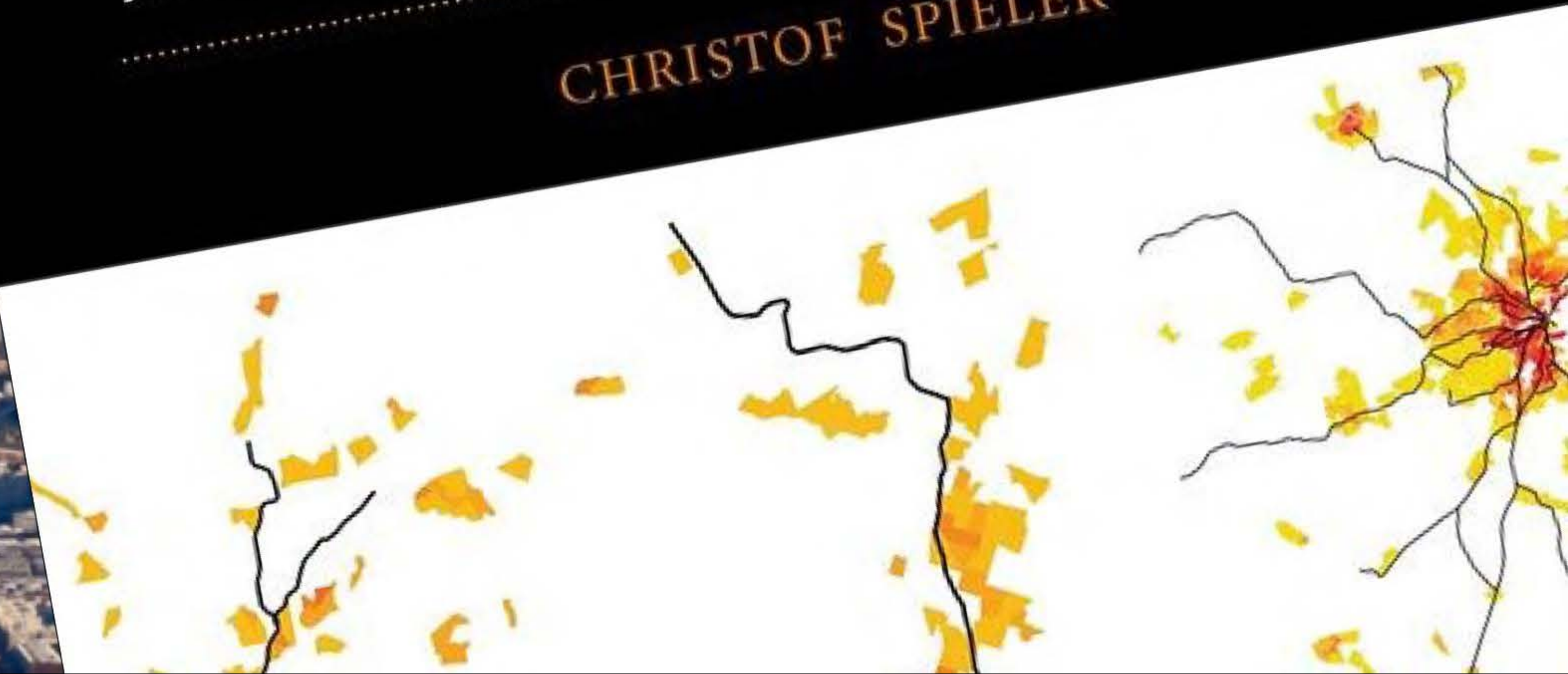
#TrainsBusesPeople



TRAINS, BUSES, PEOPLE

AN OPINIONATED ATLAS OF US TRANSIT

CHRISTOF SPIELER





Is this peak transit?



109

FANNIN SOUTH



TICKET OFFICE
FIVE HOTEL
ANNEX

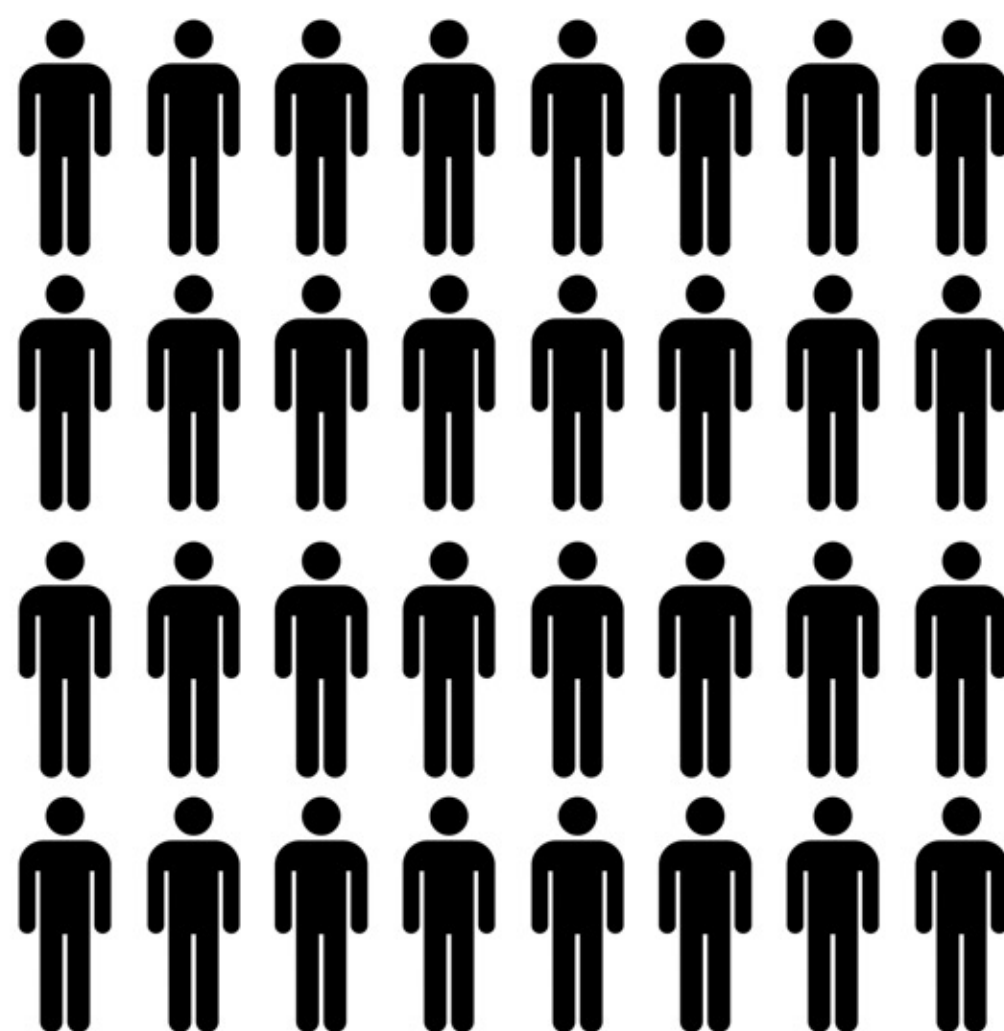
TK 1
UN2S

TK 2
UN4S

STOP
LOOK
LISTEN
BEFORE
CROSSING

NO STOPPING
OR PARKING
EXCEPT
ONLY AT
STOP MARK

SCACCHETTI WAREHOUSE



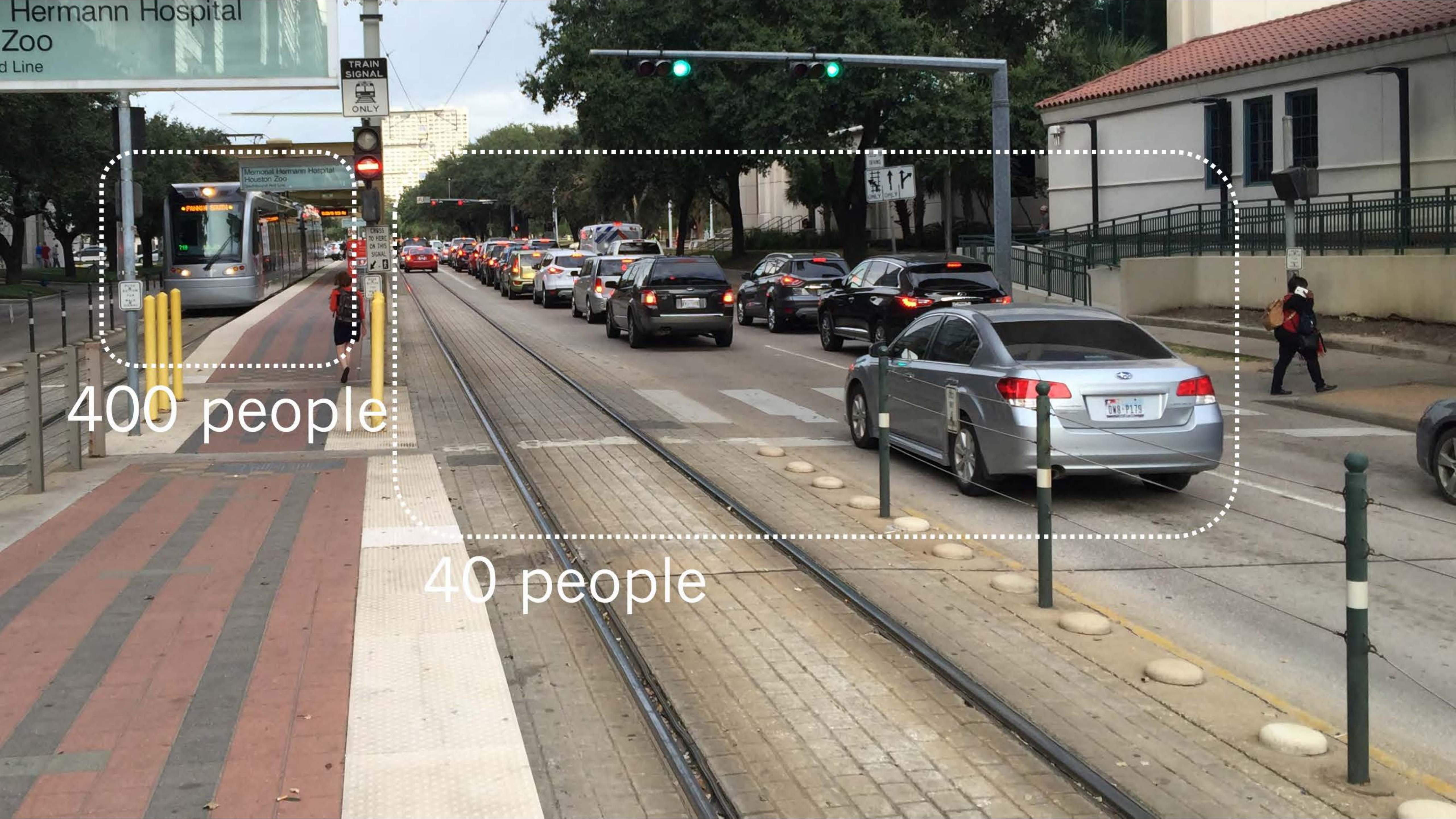
Hermann Hospital
Zoo
d Line

TRAIN
SIGNAL
ONLY

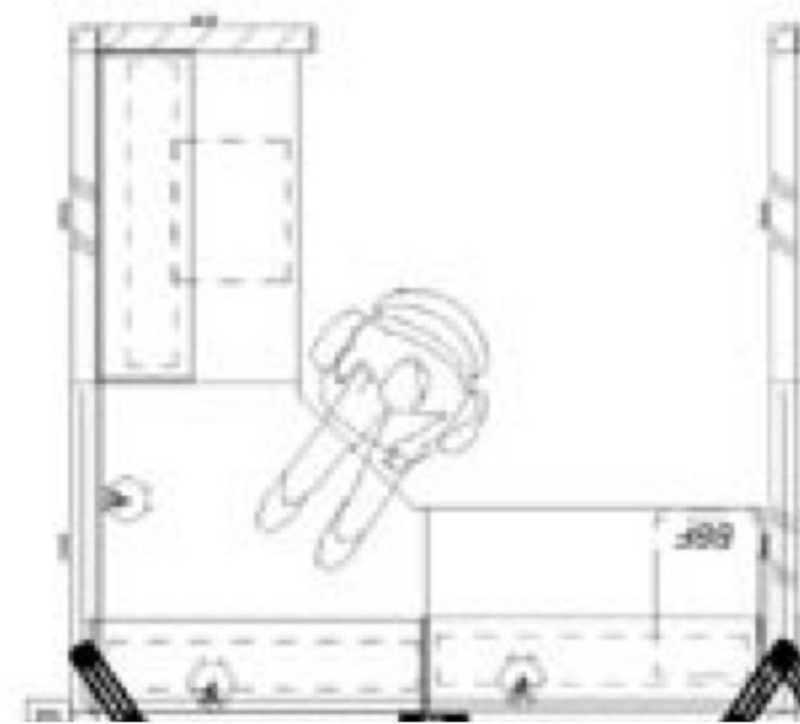
Memorial Hermann Hospital
Houston Zoo

400 people

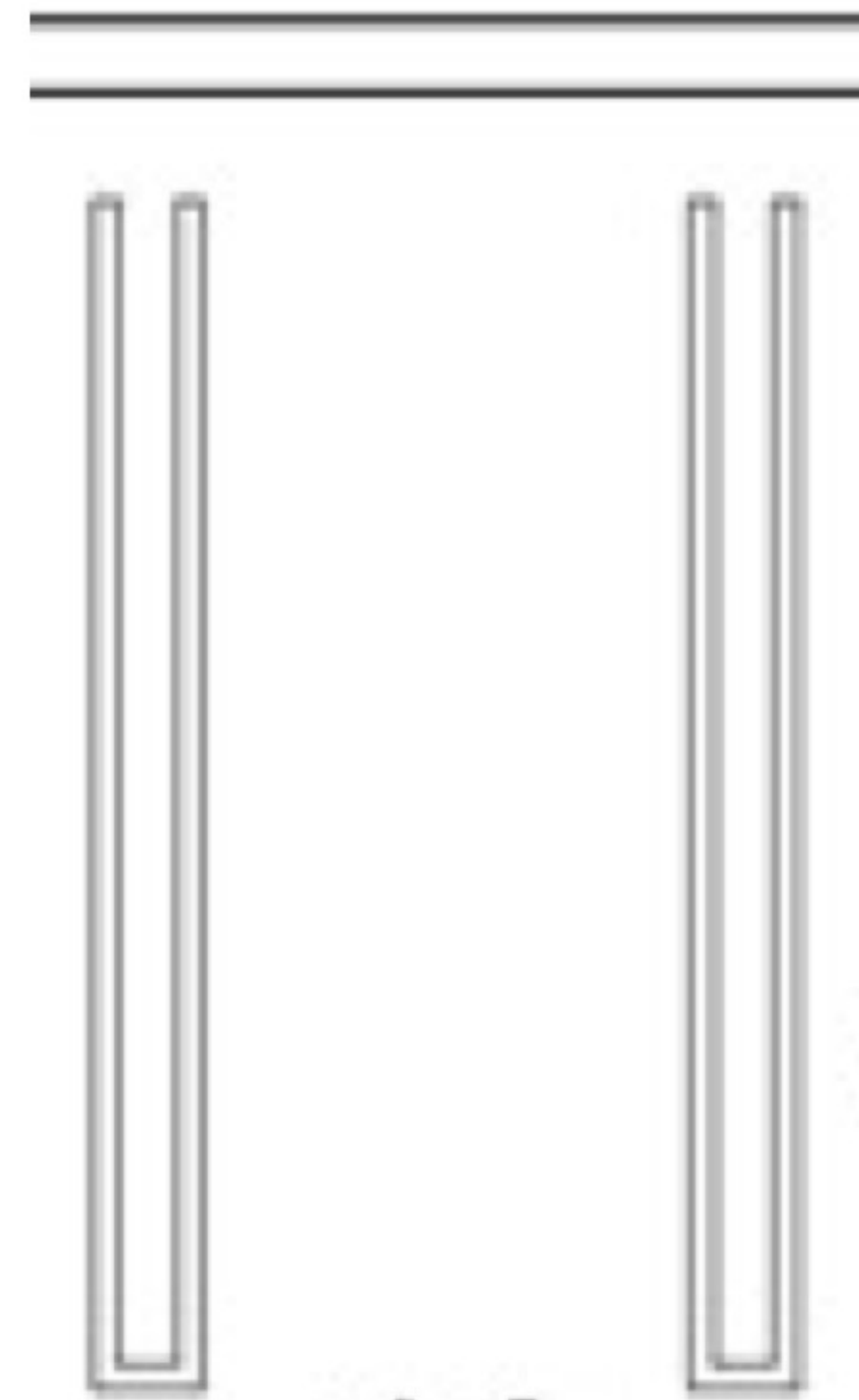
40 people



8'6" x 8' 6"



8'6" x 18' 0"







1 / 2 / 3

A / C / E

R / W

J / Z

4 / 5 / 6

Chambers St

City Hall

Chambers St

Brooklyn Bridge / City Hall

PATH

PATH

World Trade Center

1

Cortlandt St

R / W

4 / 5

J / Z

Fulton Street

Wall Street

2 / 3

Rector Street

Wall Street

Broad Street



**Toronto neighborhoods:
1/3 of households have no cars**



**Downtown Seattle:
+75% population
+26% jobs
-20% cars into Downtown**

FUNDING AND GOVERNANCE

Nothing—not physical geography, not population density, not existing service—does as much to determine where transit is built as the invisible structures of governance and funding.

The structure of modern American transit was largely set in the 1960s and 1970s. Transit had been operated by private, for-profit companies. Confronted with increasing public ownership and competition from publicly subsidized car ownership and operating from publicly subsidized roads, these companies began losing money. Facing the loss of existing transit, governments stepped in, first subsidizing private operations and then acquiring them. At the same time, public demand for alternatives to congested freeways led to plans for new rail-transit lines. Sometimes new agencies tasked with preserving existing systems were also directed to build new transit. Several major organizational structures emerged from this era of crisis and restructuring.



Funding and Governance 15

Cities were the first public entities to operate transit. San Francisco's Muni pioneered the idea in 1912. But city agencies have drawbacks, and most cities have moved away from them. City agencies report to elected mayors and city council members, who have many other things to be concerned about. They generally compete for general tax funds with police, fire, roadways, and other city services. Generally, they are confined to the boundaries of their cities, which can lead to disconnected systems and forced transfers of small cities, but have been and are common in small cities, but have been and are common in small cities, but have been and are common in small cities.

Most metropolitan regions have multiple transit agencies. Sometimes they are divided geographically. Sometimes, they are divided by mode: one agency may operate only commuter rail. Frequently they overlap. This can be done in an orderly and coordinated fashion. In the Seattle area, Sound Transit operates local bus service, light rail, and commuter-rail service. However, the system is seamless to passengers: fare card applies. But overlap can also be chaotic. In the San Francisco area, there are three different agencies operating local bus service, with no coordination of schedules and completely different fare structures.

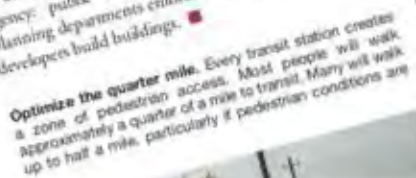
Funding structures are equally confusing. Most transit funding, especially for operating costs, is local. This can come from sales tax, property tax, or a variety of other taxes and fees. In some cases, transit agencies are combined with agencies that operate toll bridges, allowing toll funds to be used to support transit. Many states provide additional funds; in some states, like Pennsylvania, government has been funding transit since the 1960s. These funds are largely for building projects, not operating them, and they always require a local match, usually 50%.

A few private transit operations remain. These are usually toll-based, like the Las Vegas Monorail or airport express buses. In Florida and Texas, private companies have taken on intercity rail projects. In Detroit, private foundations and donors subsidize roadways. It is unlikely as long as governments subsidize roadways, it is unlikely that private companies can fund significant urban transit. Private companies are a big part of operating transit, though; many cities use public funds to contract operations governed by boards, usually appointed by local elected officials, but sometimes elected. Generally, they have

WALKABILITY

Nearly every transit trip begins or ends on foot or on a bike. Across the country, most local bus passengers walk to the bus stop. Passengers have been walking to the heavy rail systems in Boston, New York, Philadelphia, and Chicago for a century. Even rail networks that serve suburban areas and provide lots of parking get many of their riders on foot. San Francisco's BART has a total of 45,000 parking spaces at 34 of its 45 stations, but only half of passengers arriving in a car don't have a second car waiting on the other end of their trip: once they arrive, they can become pedestrians. Making walking convenient, comfortable, and safe builds

Walkability requires partnership. Only some pieces of the pedestrian experience are shaped by the transit agency: public works departments build sidewalks, planning departments enforce building regulations, and developers build buildings.



Pedestrian connections are critical. When Houston's light rail was struggling in 2017, it was underutilized and not even experience getting into it. Retooling new sidewalks into

good. That walkable zone is the key to successful transit: wherever it is, it is within the reach of a transit ride, whether it is outside it, putting stations in the right place, where there are as many destinations as possible, maximizing the usefulness of transit and thus transit ridership. More development around that station adds more destinations.

Passengers can walk only if there is a path for them to take. Traditional street grids do that very well by providing a closely spaced, interconnected network that never requires pedestrians to go out of their way. Suburban street patterns, with long blocks and cul-de-sacs, can force pedestrians into long, roundabout paths. Making transit effective in such areas can require alternative streets, pedestrian paths, and bridges. The same strategy can be useful in older neighborhoods, too, where over, railroad lines, and old industrial sites block

up the grid. Create a great pedestrian environment. Pedestrians walking is safe, comfortable, and enjoyable, especially those in wheelchairs, or with strollers, or with children. They need to be protected from cars, trucks, and other vehicles. They need to be protected from the sun, wind, and rain. They need to be protected from the sun, wind, and rain. They need to be protected from the sun, wind, and rain.

Turn front doors to the pedestrian. If the front door of a building is not open to the street, it is not a pedestrian-friendly building. If the front door of a building is not open to the street, it is not a pedestrian-friendly building. If the front door of a building is not open to the street, it is not a pedestrian-friendly building.

Optimize the quarter mile. Every transit station creates a zone of pedestrian access. Most people will walk approximately a quarter of a mile to transit. Many will walk up to half a mile, particularly if pedestrian conditions are

Optimize the quarter mile. Every transit station creates a zone of pedestrian access. Most people will walk approximately a quarter of a mile to transit. Many will walk up to half a mile, particularly if pedestrian conditions are



Walkability 23

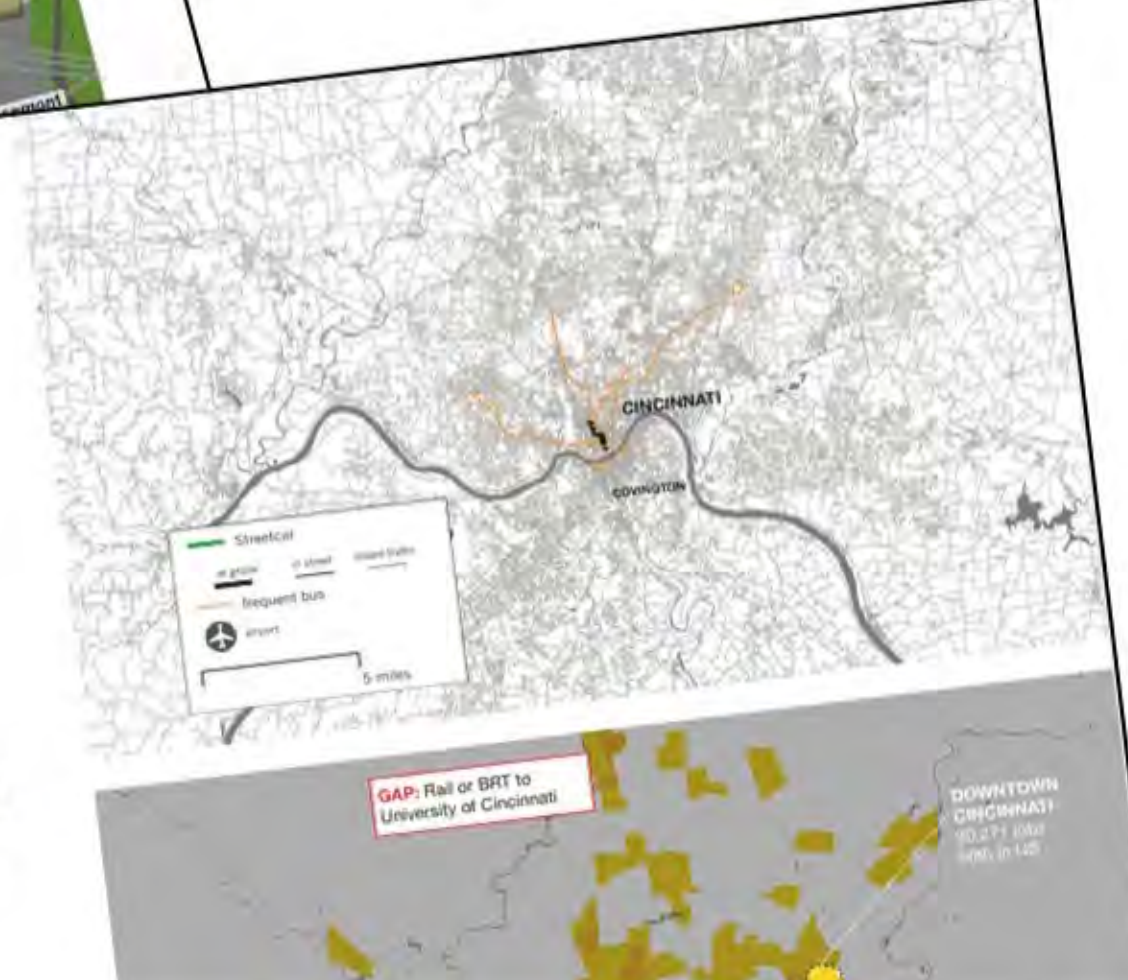
Central Station in Downtown Houston (left) is surrounded by buildings, nearly the entire circle is full of useful destinations. The street grid creates great access. The area actually within a half-mile walk (light covers nearly the entire half-mile circle).

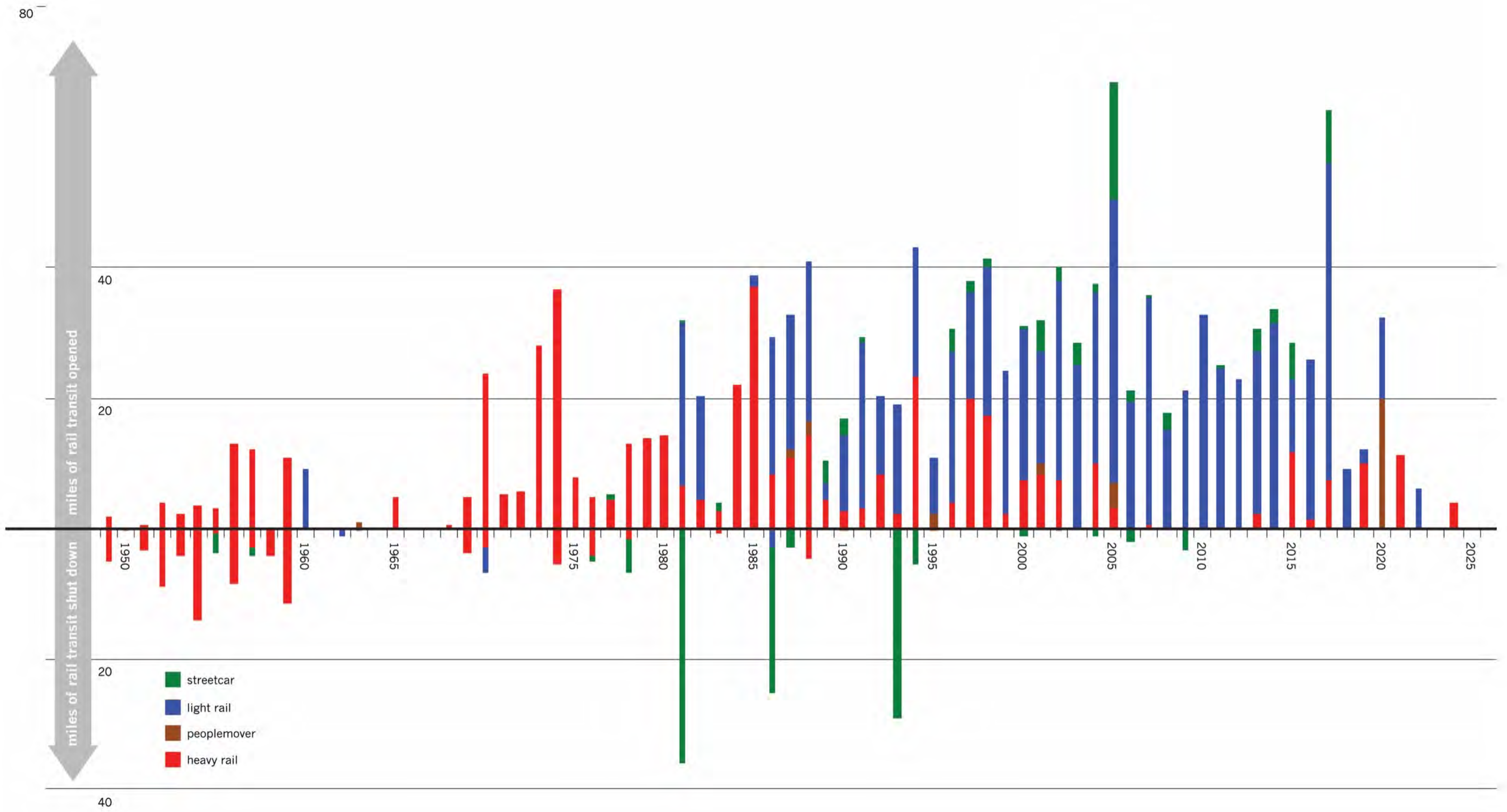
29. CINCINNATI

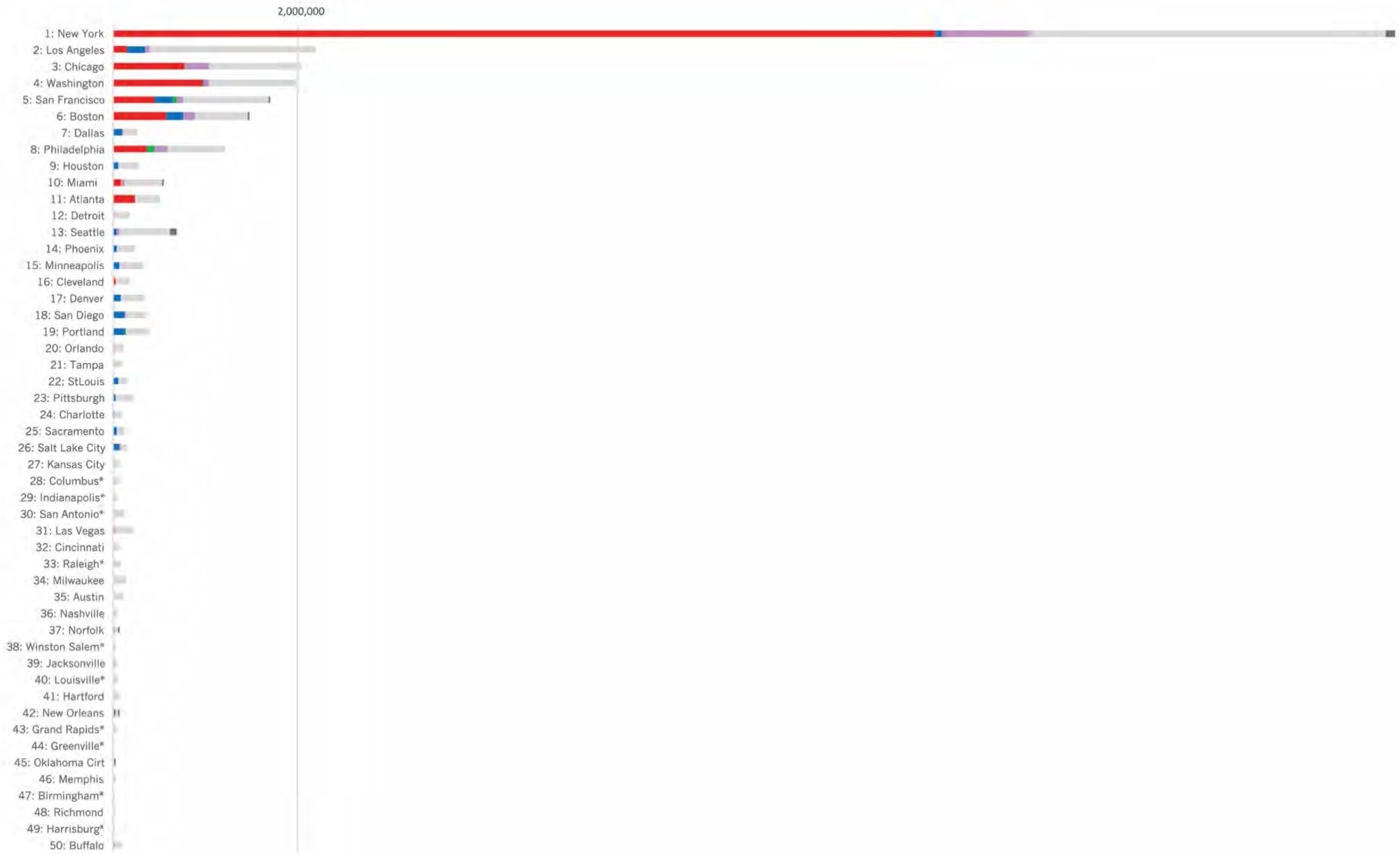
Cincinnati-Wilmington-Maysville, OH-KY-IN
population 2,208,450 (32nd) weekday trips per 1,000 31

Cincinnati has an obvious primary transit corridor: from Covington, Kentucky, across the river through Downtown, and then up the hill to Uptown, the University of Cincinnati, and its medical center. Unfortunately, it has built only a third of that.

The Cincinnati streetcar, like many other recent streetcar systems, came out of a desire for economic development. The city's population peaked at 500,000 in 1950 and has been declining ever since, dropping below 300,000 by 2010. A 2013 presentation by the city manager identified "people," "business," and "development" as "what we need." A 2008 study concluded "the inadequate public transportation system puts Cincinnati and the region at a very serious competitive disadvantage" and recommended that "the City should aggressively pursue establishing a streetcar system, the first phase of which should link Downtown and Uptown, the city's two leading job-generation areas." A study forecast \$1.48 billion in new development over 10 years. In 2008, Cincinnati City Council voted to move forward. In 2010, a new Republican governor canceled \$52 million in state funds promised by his Democratic predecessor. In 2013, with construction underway, the city elected an anti-streetcar mayor. Somewhat, the streetcar project (right) survived and opened in 2016, but in much-reduced form. It extends a mile from the center of Downtown, stopping a mile and half—and a steep hill—short of Uptown, and it is on only 40 percent of the time, compared to 85 percent for local buses. This









COURT

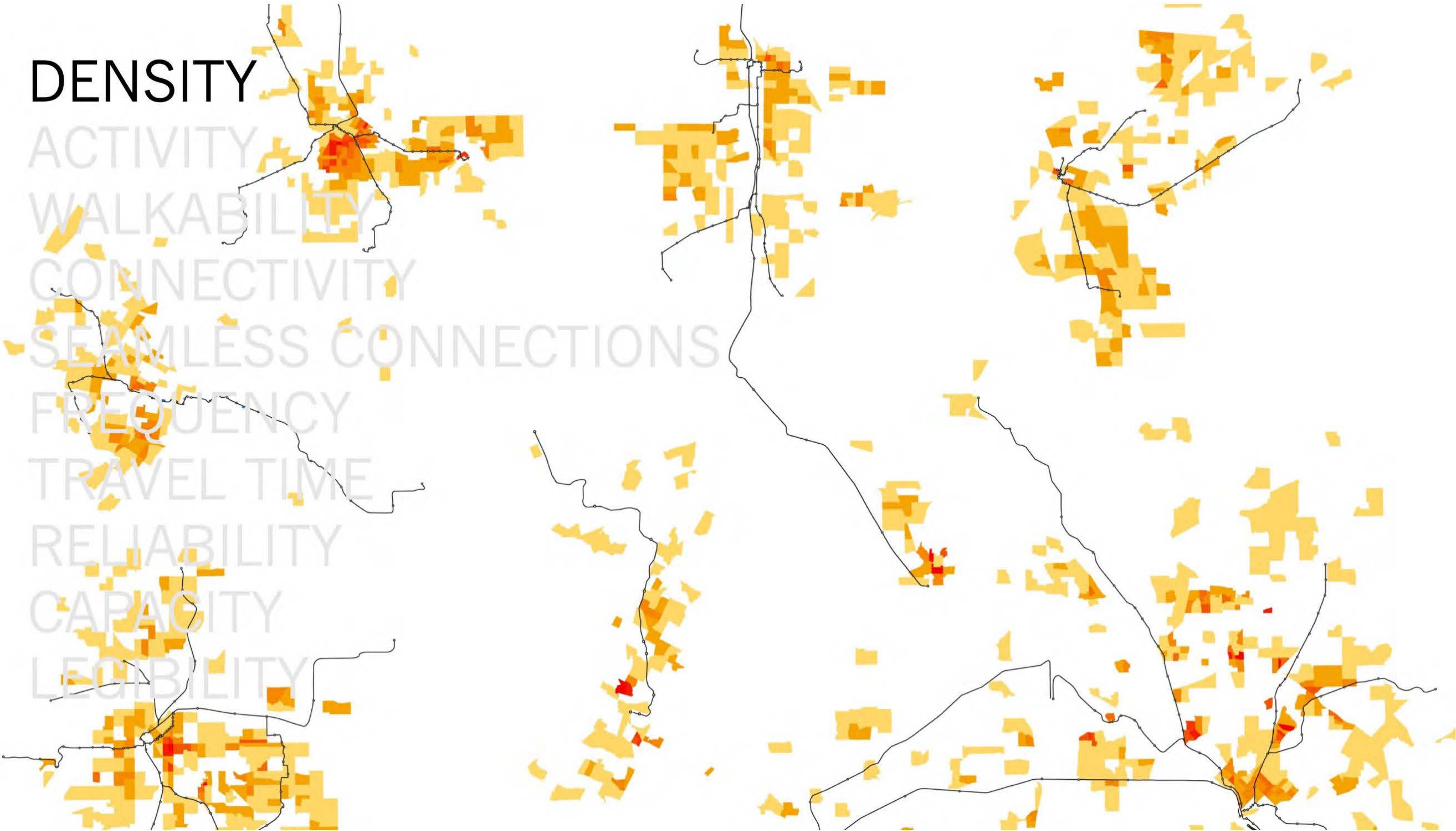
FREE MALLRIDE

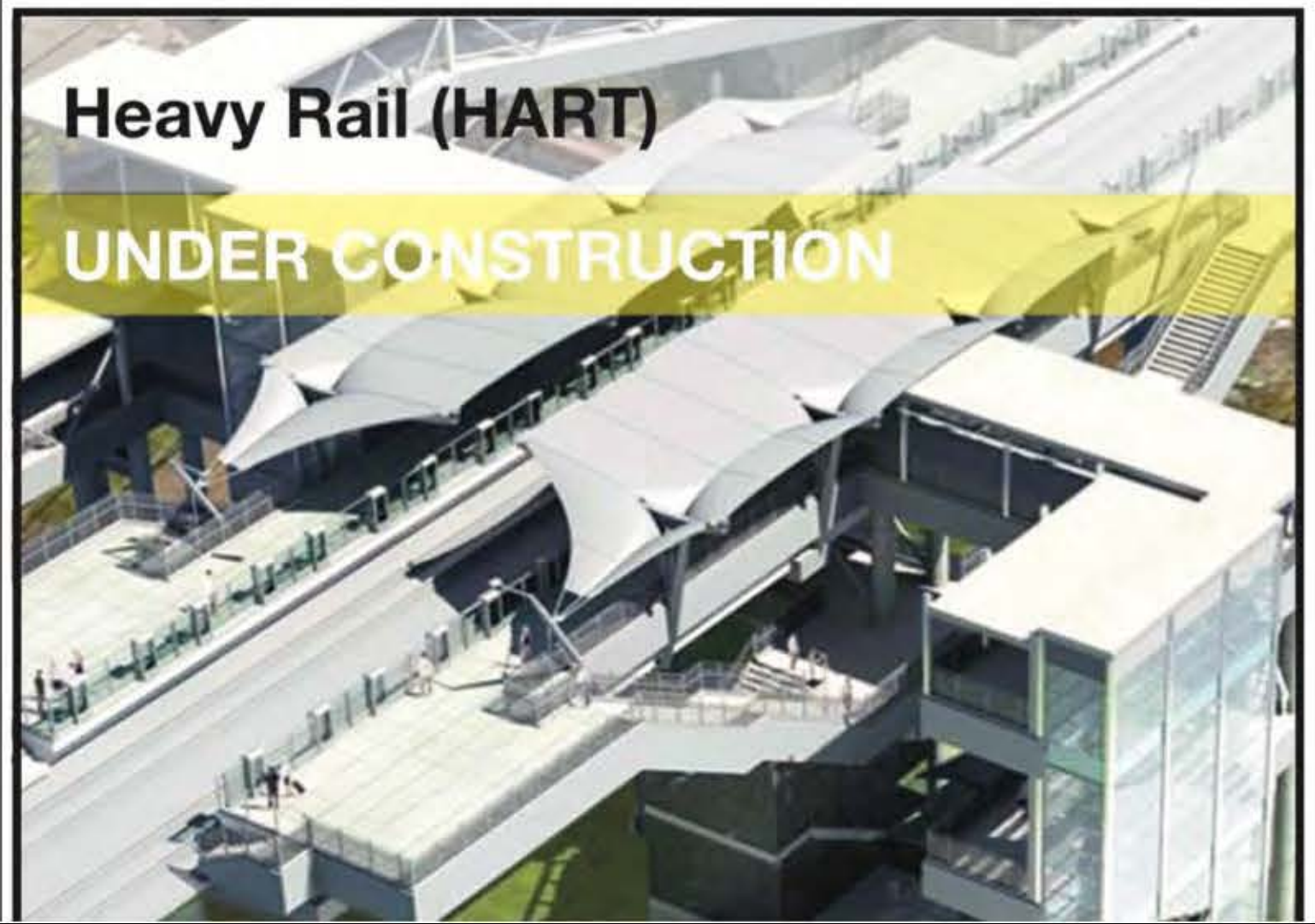
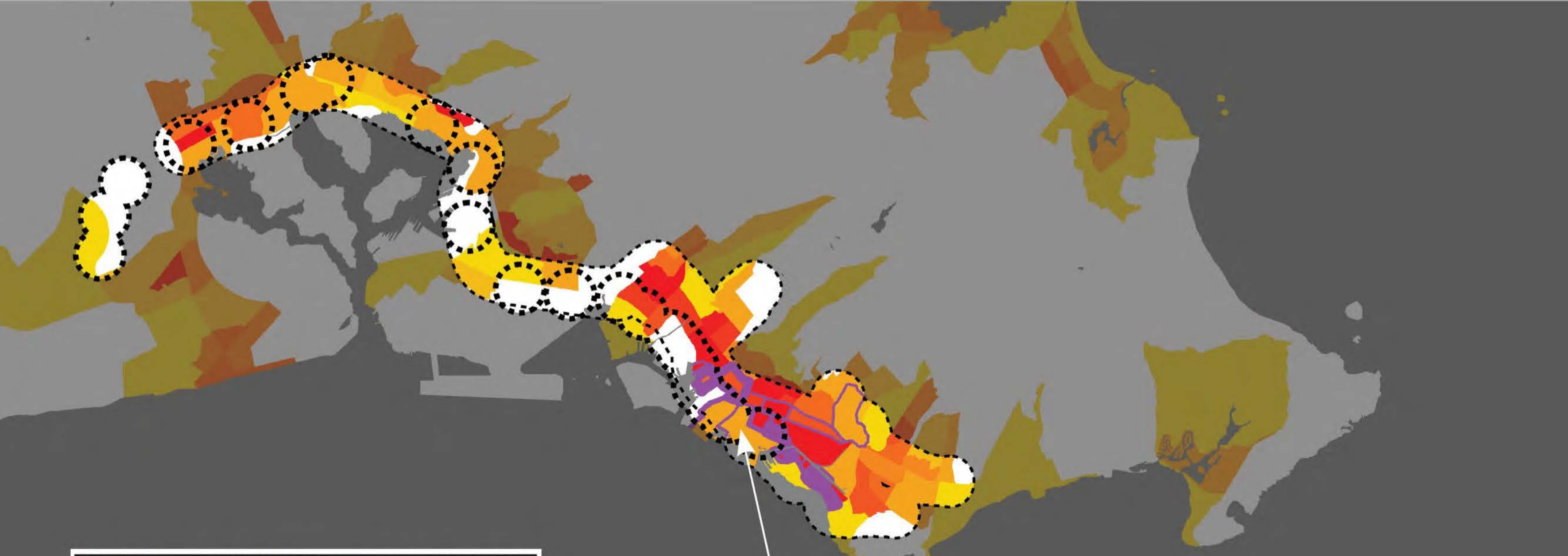


DENSITY
ACTIVITY
WALKABILITY
CONNECTIVITY
FREQUENCY
TRAVEL TIME
RELIABILITY
CAPACITY
LEGIBILITY

DENSITY

- ACTIVITY
- WALKABILITY
- CONNECTIVITY
- SEAMLESS CONNECTIONS
- FREQUENCY
- TRAVEL TIME
- RELIABILITY
- CAPACITY
- LEGIBILITY



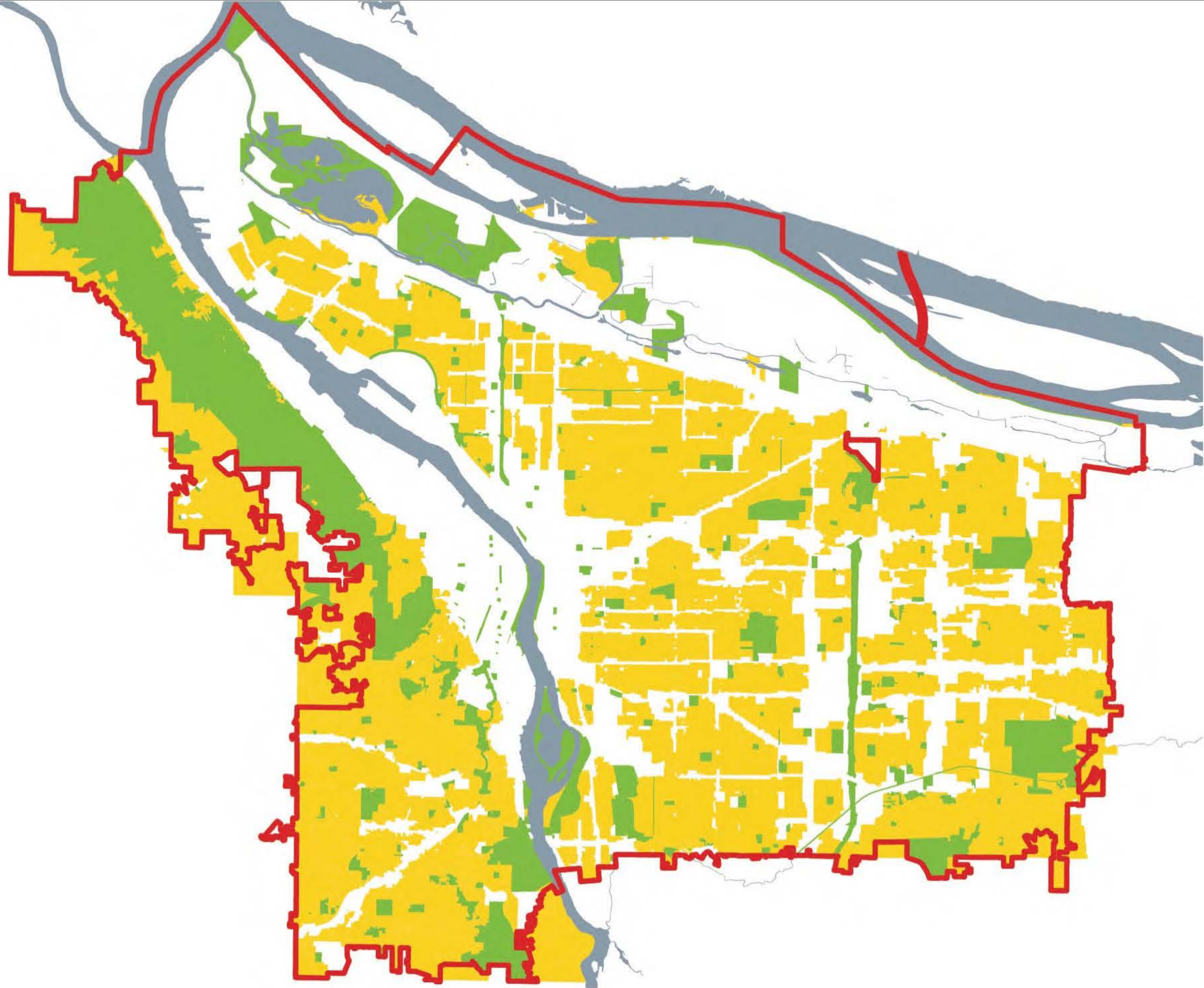


Heavy Rail (HART)

UNDER CONSTRUCTION

**DOWNTOWN
HONOLULU**

129,357 jobs
30th in US



- Institutional
- Office
- Residential
- Hotel
- Retail/Mixed Use



CityLine / Bush

Red Line / Orange Line

2013

open fields

1,517 avg weekday boardings

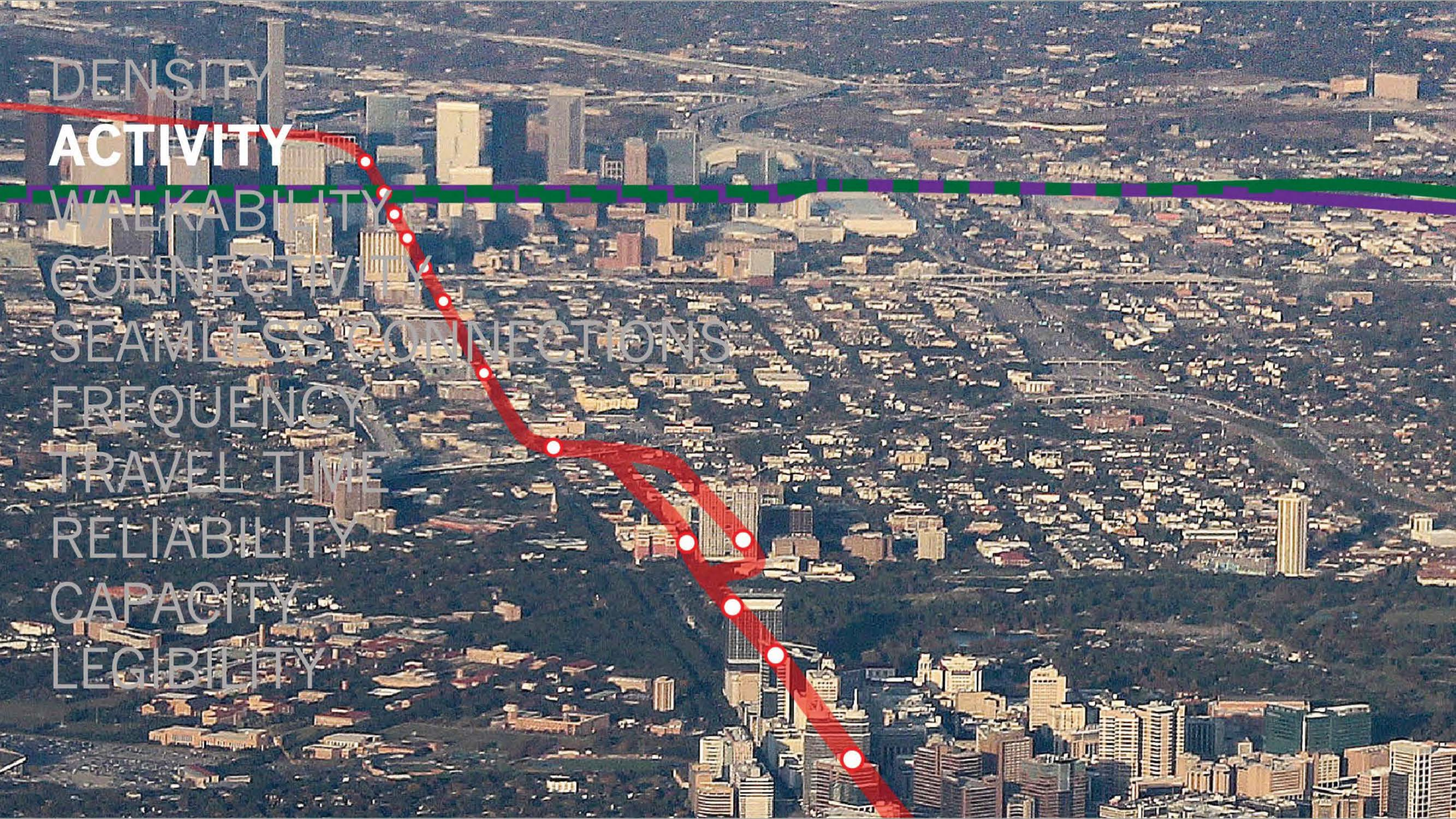
2016

2.6 million ft² office space,
3,925 residential units, hotel
230,000 ft² retail/restaurants

1,354 avg weekday boardings







DENSITY

ACTIVITY

WALKABILITY

CONNECTIVITY

SEAMLESS CONNECTIONS

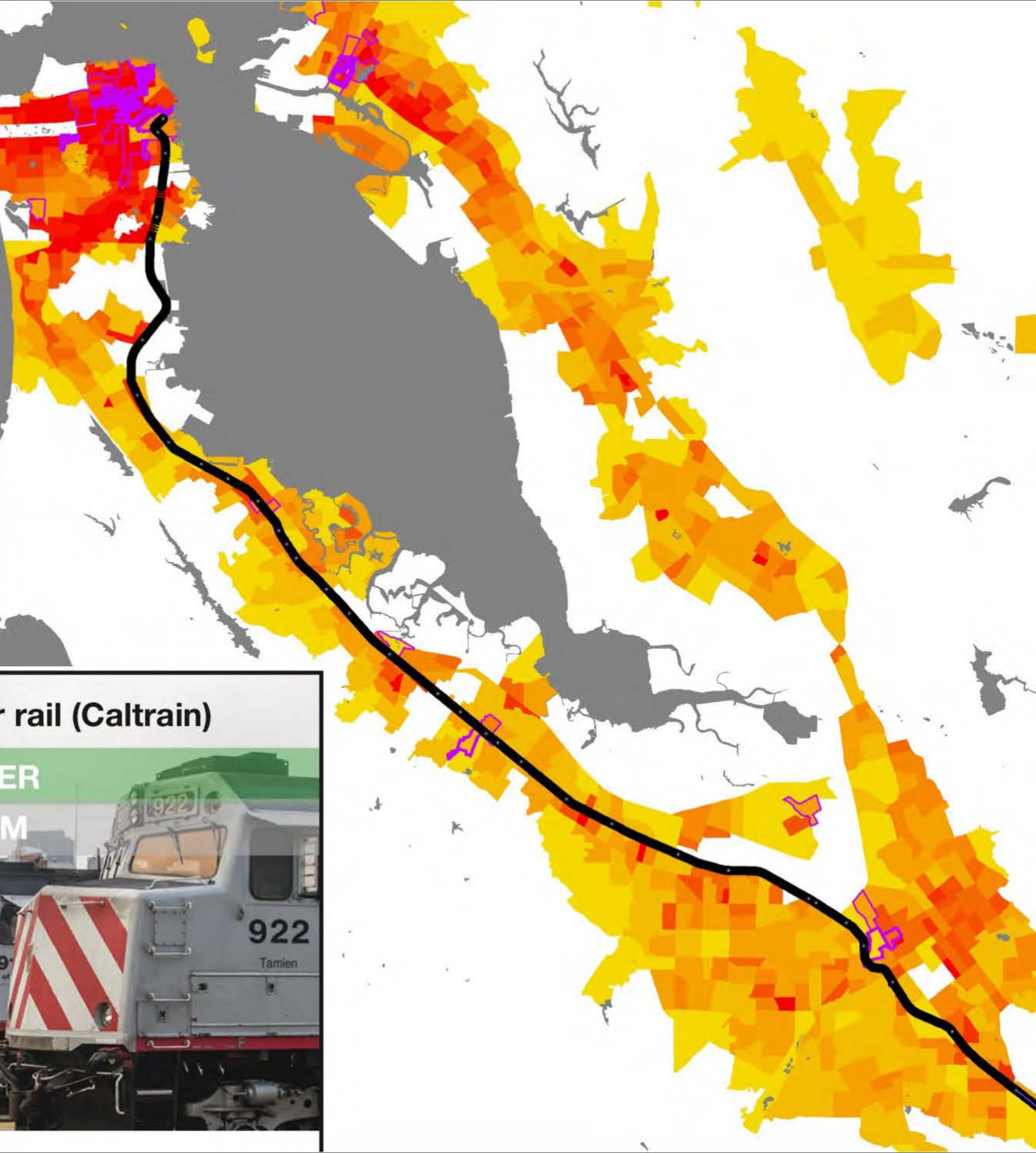
FREQUENCY

TRAVEL TIME

RELIABILITY

CAPACITY

LEGIBILITY

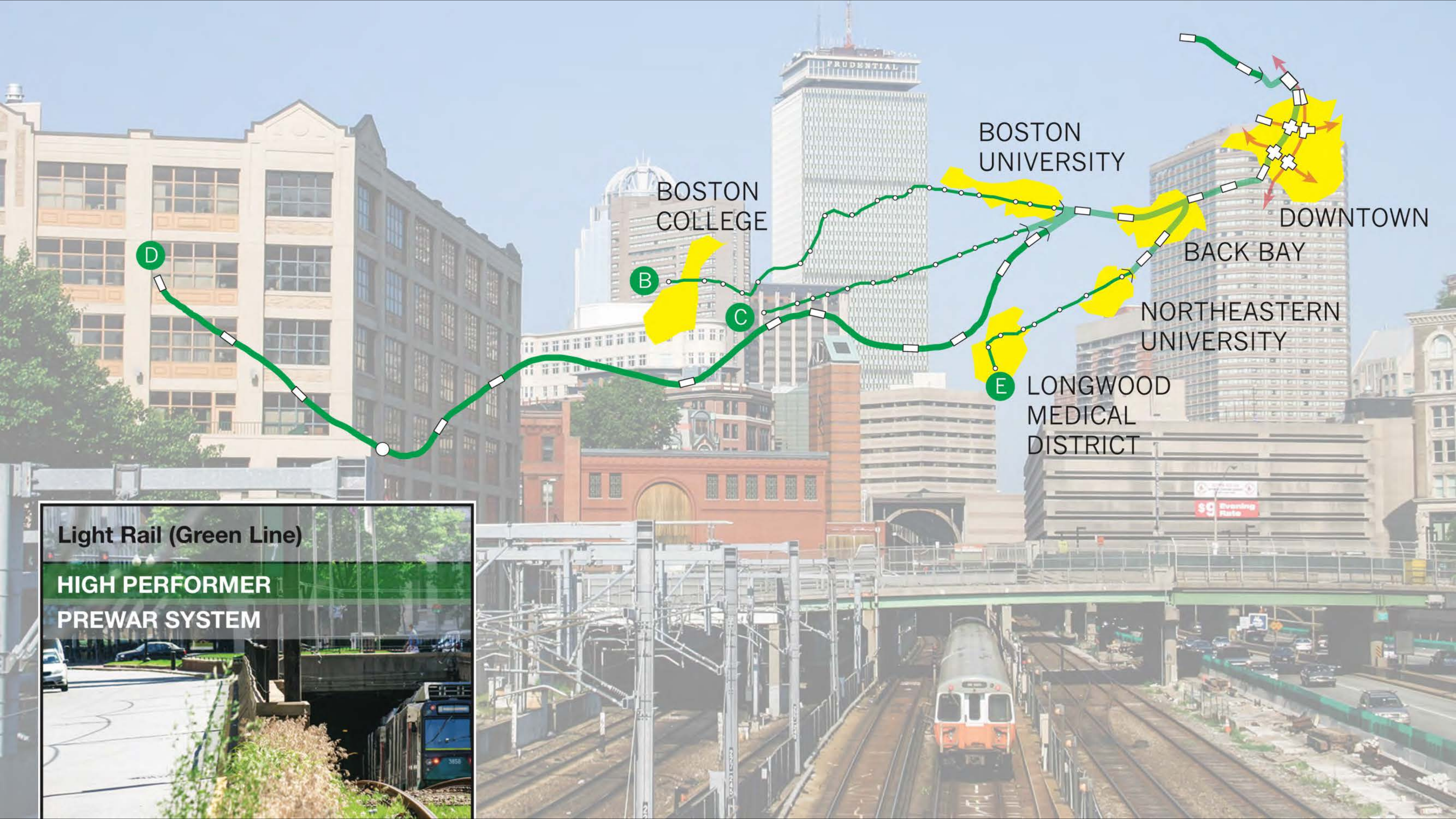


Diesel commuter rail (Caltrain)

HIGH PERFORMER

PREWAR SYSTEM

An inset photograph showing two Caltrain locomotives on tracks. The locomotive in the foreground is engine number 922, with the name 'Tamien' written on its side. The locomotive behind it is engine number 918. A freight car with the Caltrain logo is visible in the background.



D

B

C

E

BOSTON COLLEGE

BOSTON UNIVERSITY

DOWNTOWN BACK BAY

NORTHEASTERN UNIVERSITY

LONGWOOD MEDICAL DISTRICT

Light Rail (Green Line)

HIGH PERFORMER
PREWAR SYSTEM





Light Rail (METRORail)
HIGH PERFORMER

Opened: 2004
Last Expanded: 2016
Length: 22.3 miles
Stations: 39
**Frequency: 6–12 min peak/midday,
6–18 evenings/weekends**
Avg weekday ridership: 58,665
Ridership per mile: 2,631

Texas Medical Center, Houston
13,500 boardings

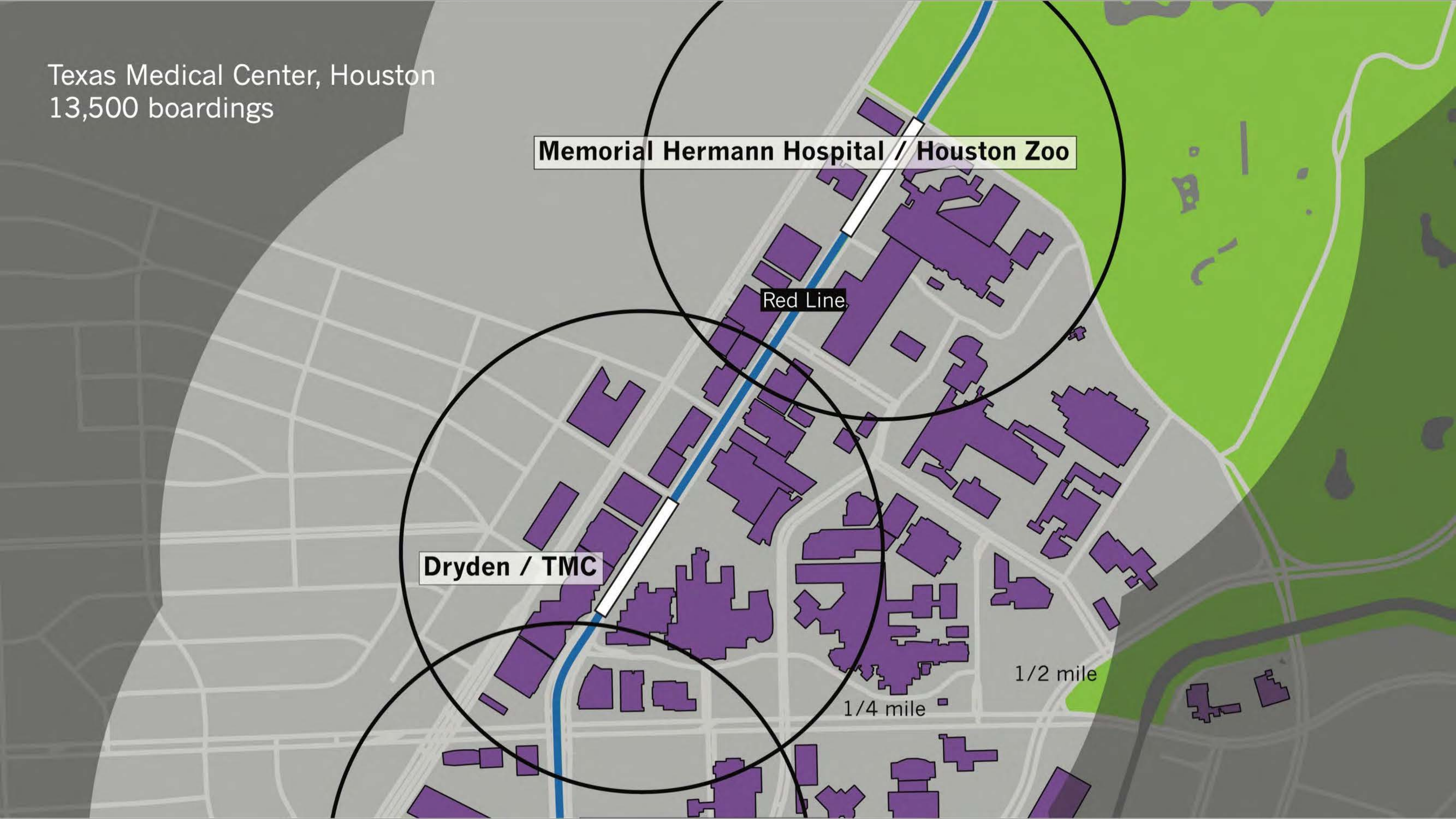
Memorial Hermann Hospital / Houston Zoo

Red Line

Dryden / TMC

1/2 mile

1/4 mile



Medical Center, Dallas
3,100 boardings

DART Orange / Green Lines

1/2 mile

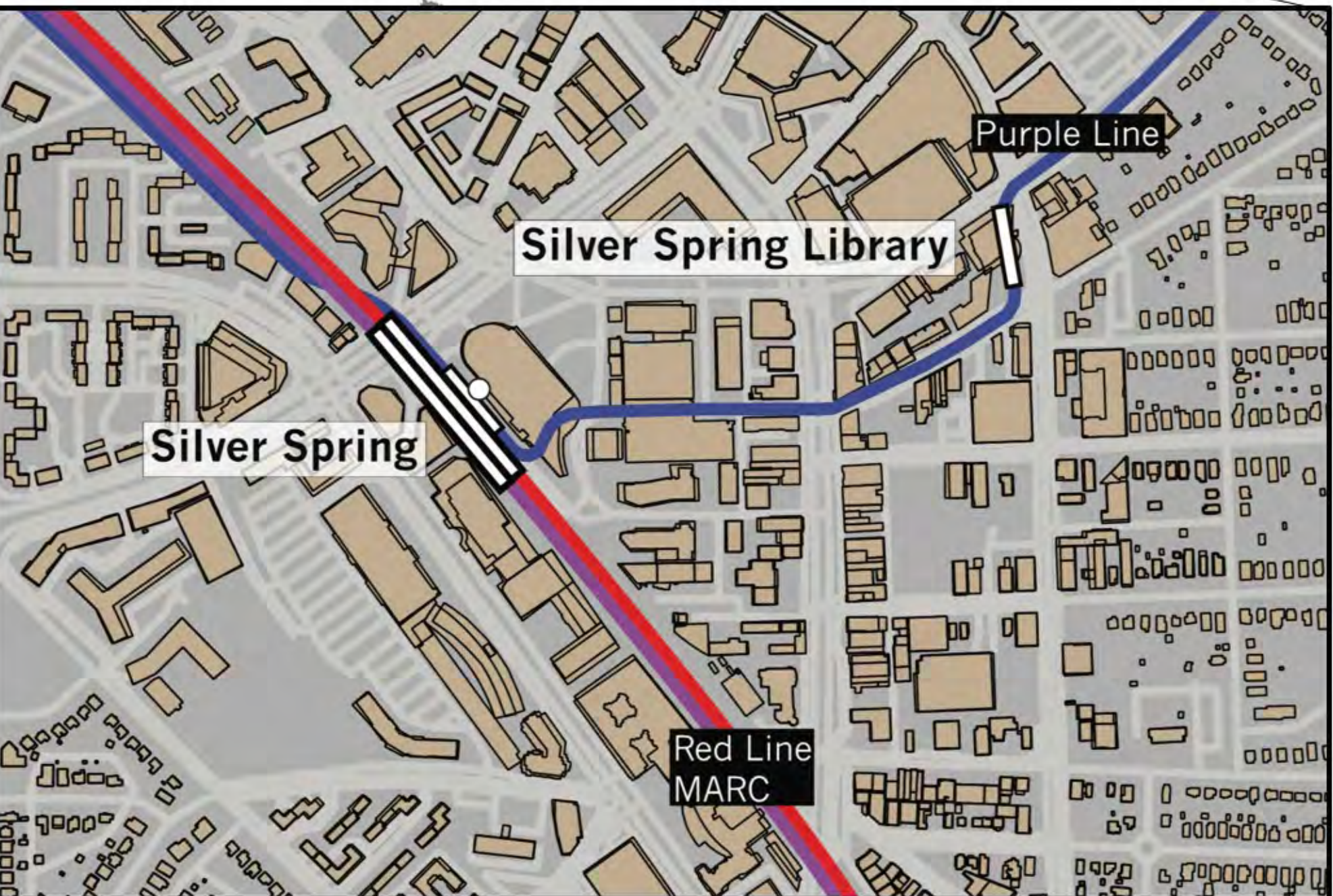
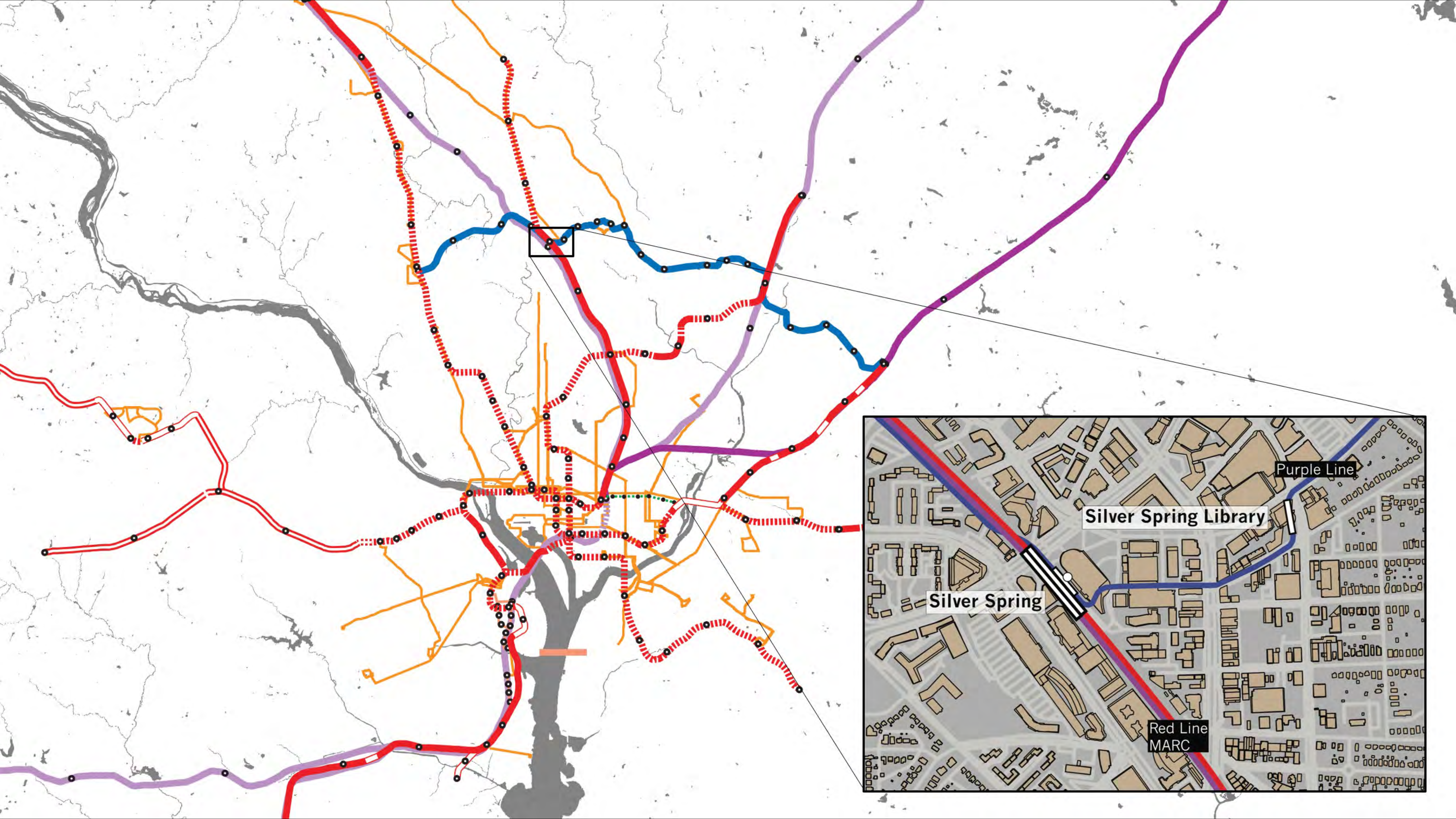
Southwestern Medical District / Parkland

1/4 mile

TRE

Medical / Market Center





Purple Line

Silver Spring Library

Silver Spring

Red Line
MARC



BEL-RED

DOWNTOWN BELLEVUE







VTA Light Rail

Borregas

Lockheed Martin

Crossman



DENSITY
ACTIVITY

WALKABILITY

CONNECTIVITY

SEAMLESS CONNECTIONS

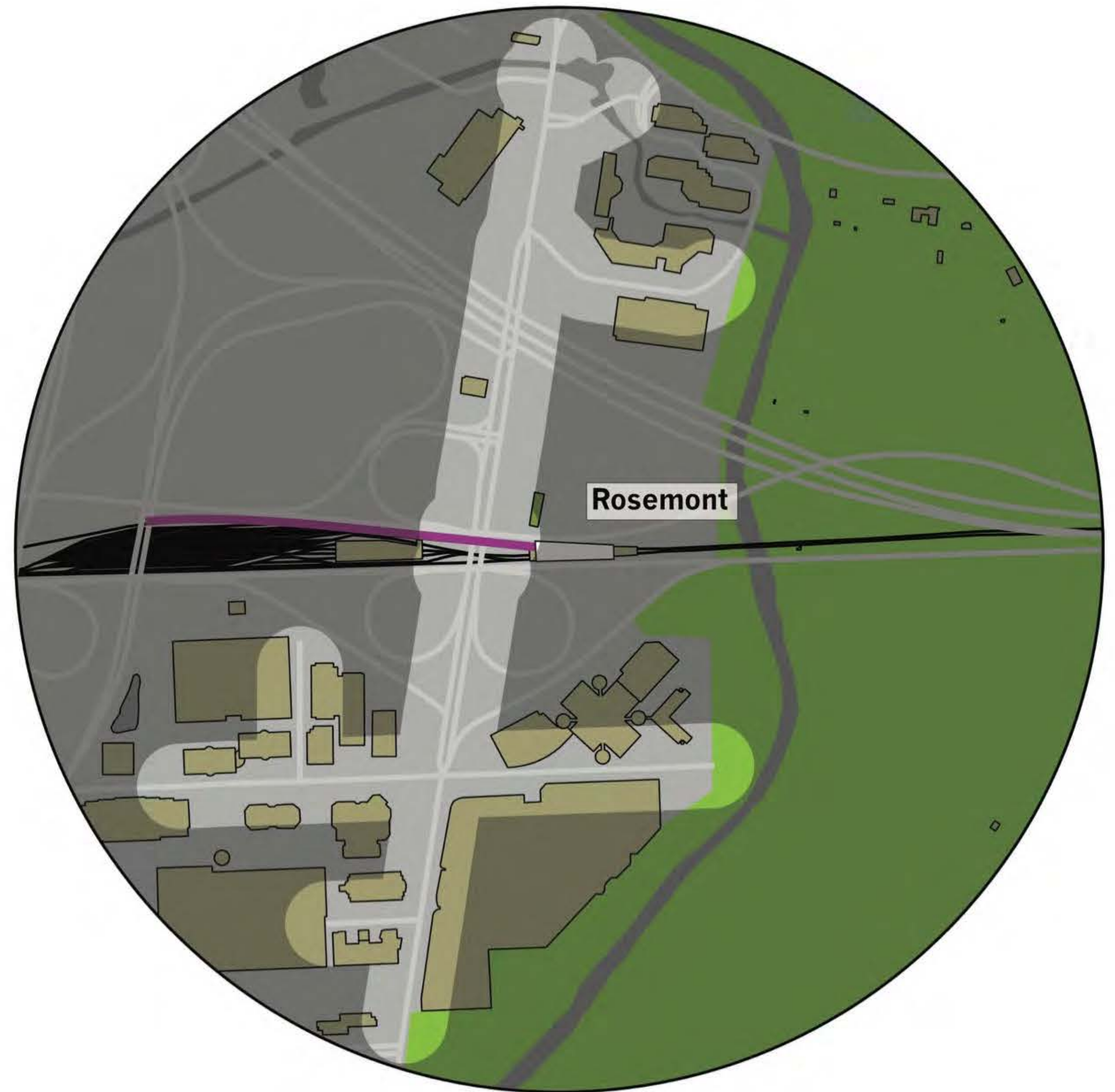
FREQUENCY

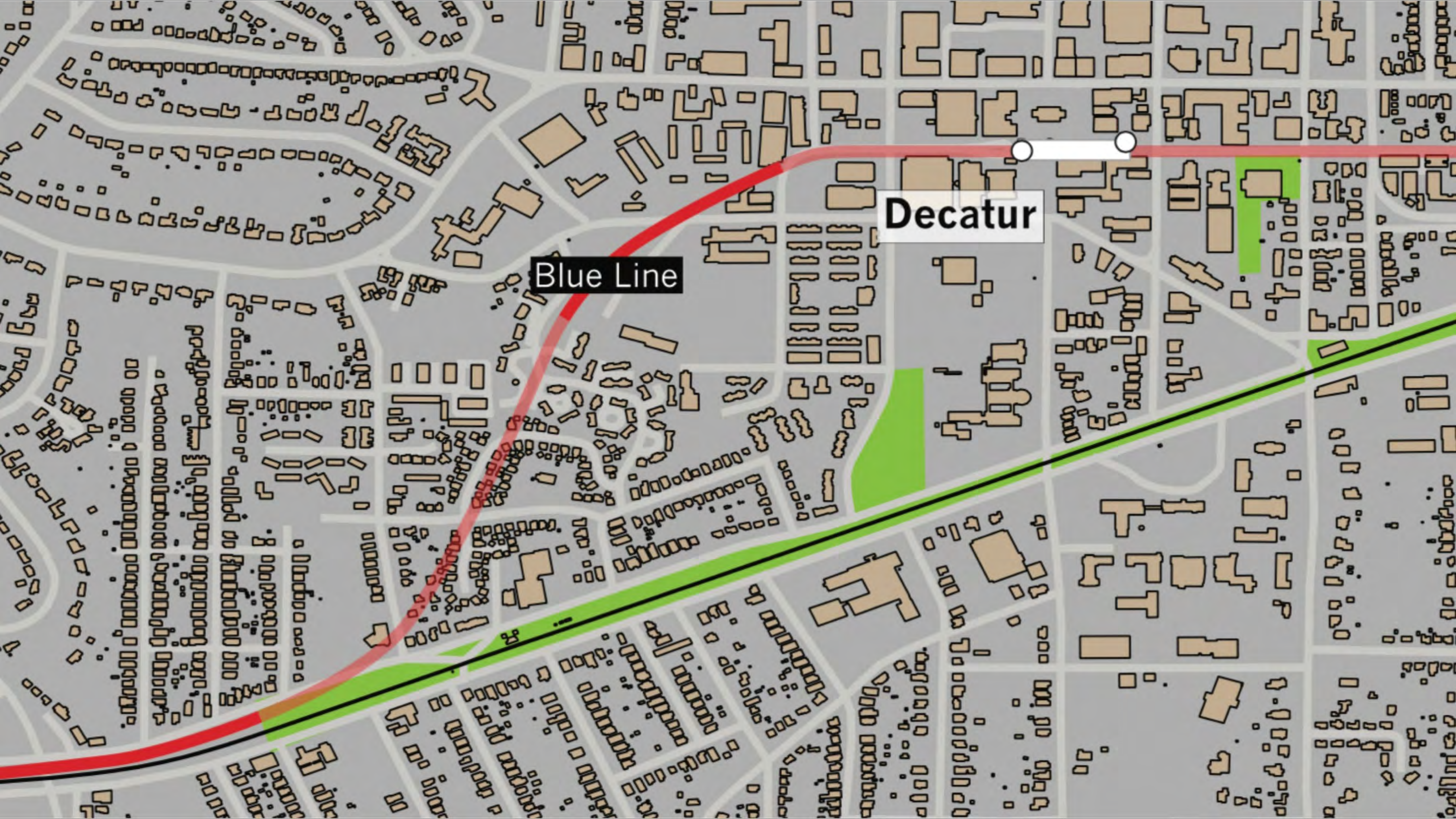
TRAVEL TIME

RELIABILITY

CAPACITY

LEGIBILITY



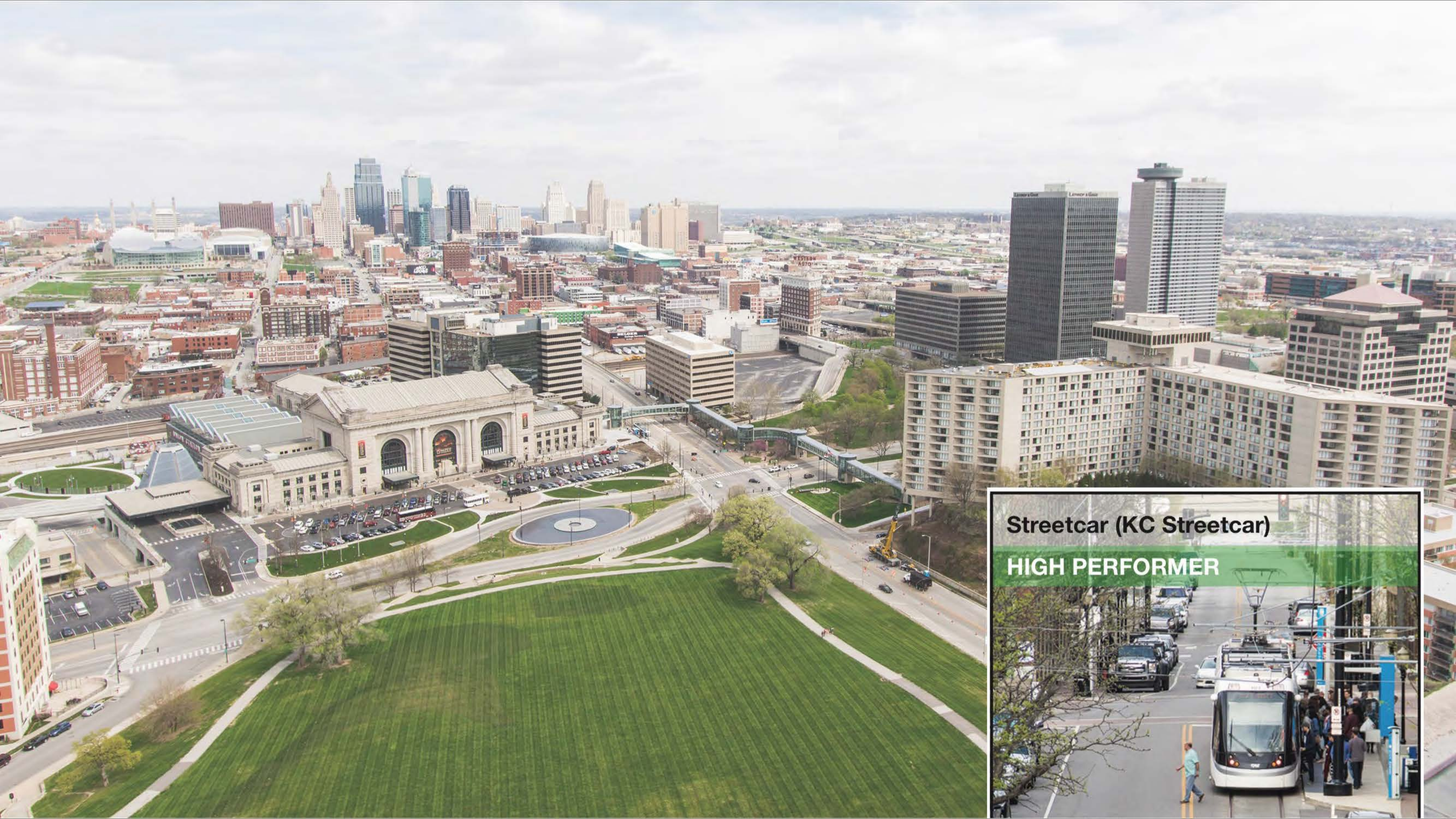


Decatur

Blue Line



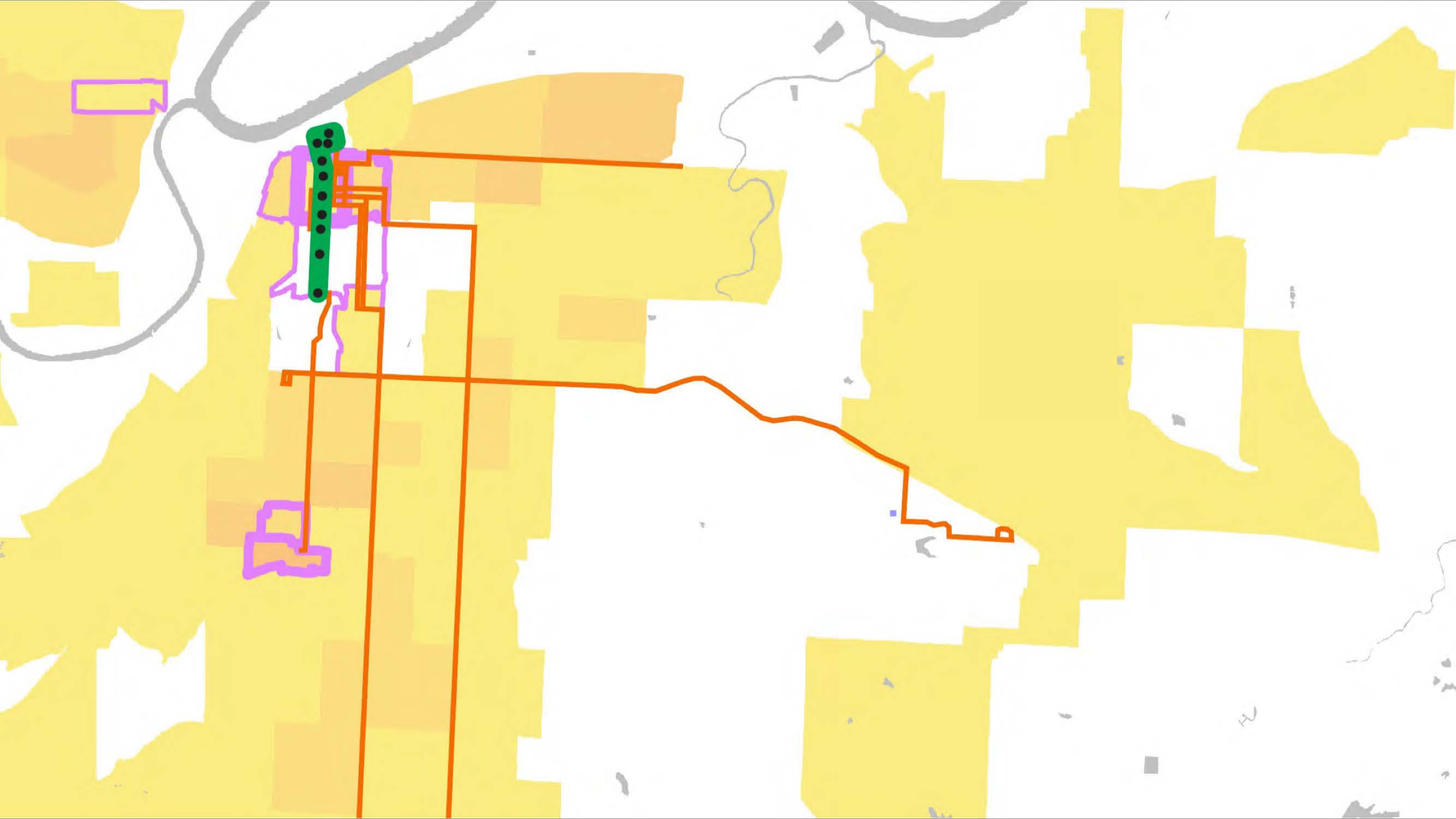
DENSITY
ACTIVITY
WALKABILITY
CONNECTIVITY
FREQUENCY
TRAVEL TIME
RELIABILITY
CAPACITY
LEGIBILITY



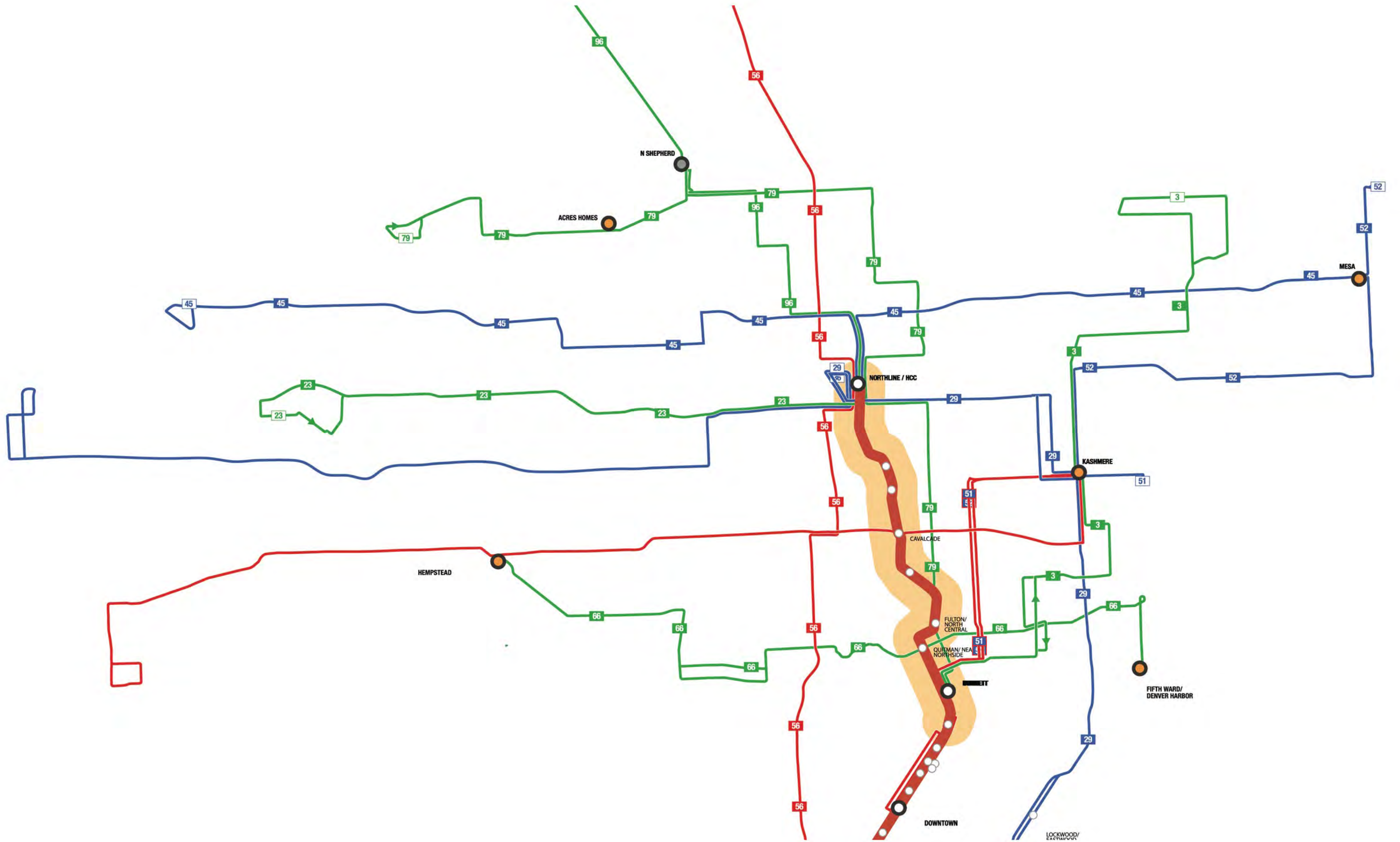
Streetcar (KC Streetcar)

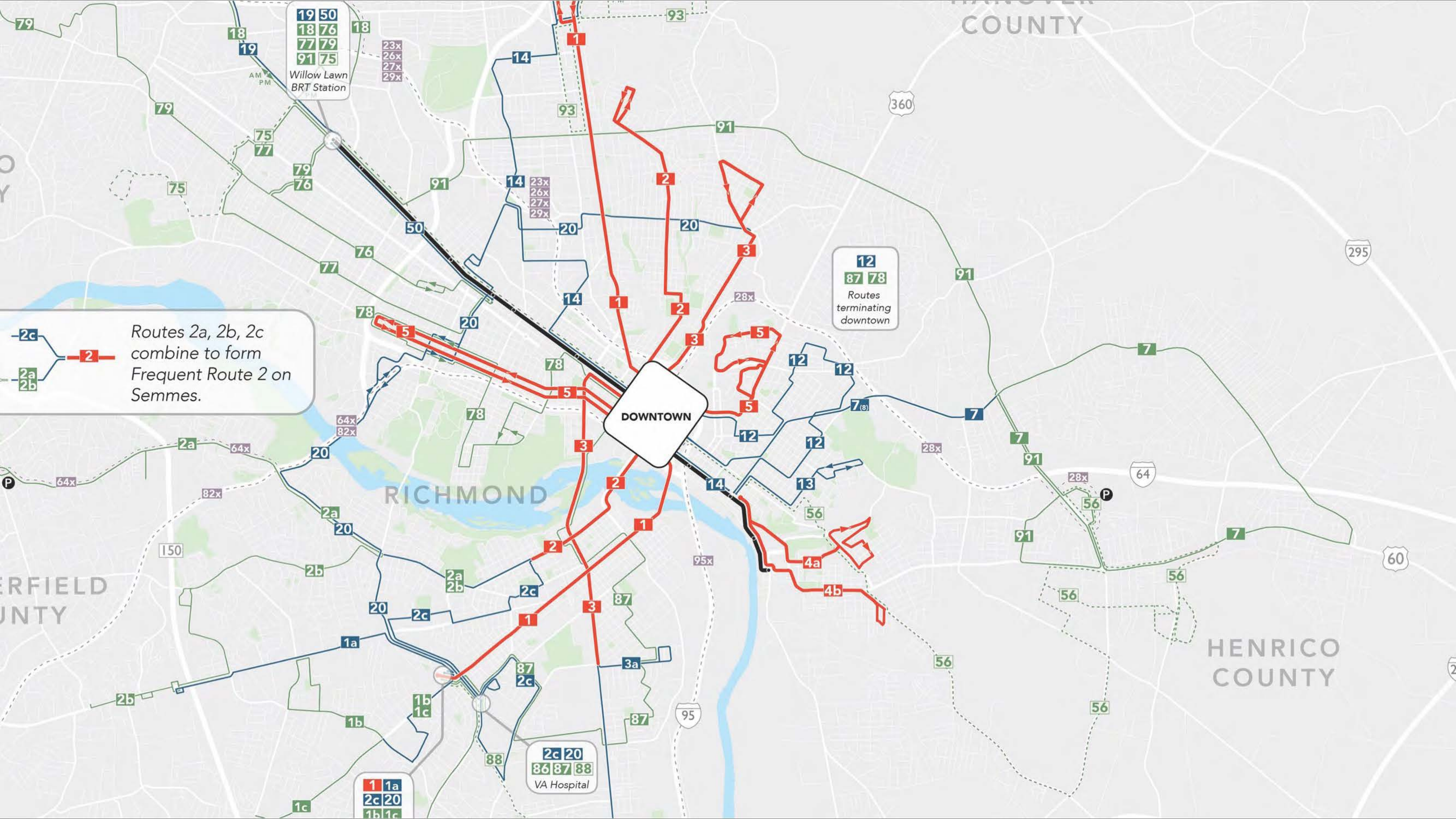
HIGH PERFORMER











| | |
|----|----|
| 19 | 50 |
| 18 | 76 |
| 77 | 79 |
| 91 | 75 |

Willow Lawn
BRT Station

| | |
|----|----|
| 12 | |
| 87 | 78 |

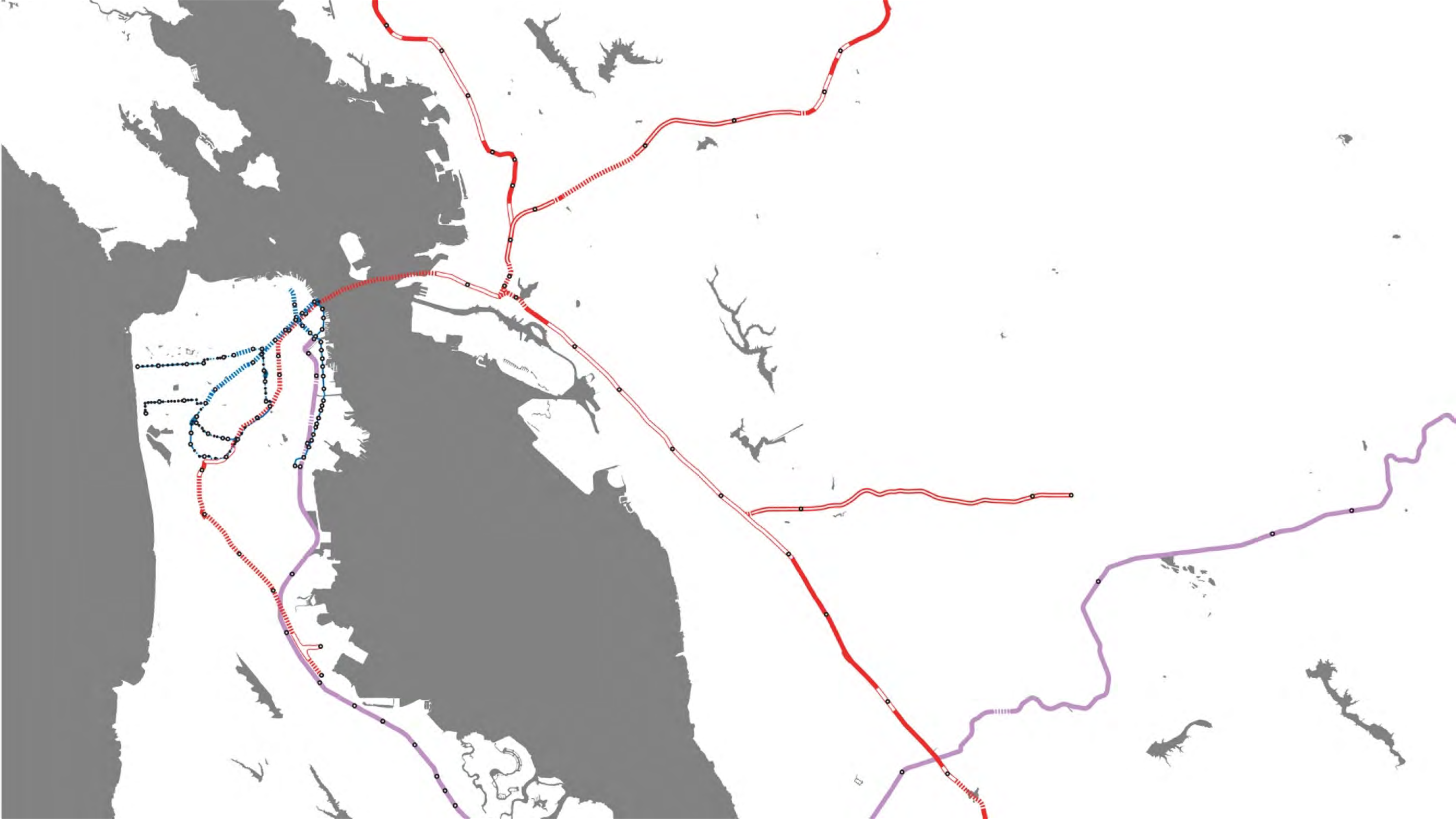
Routes
terminating
downtown

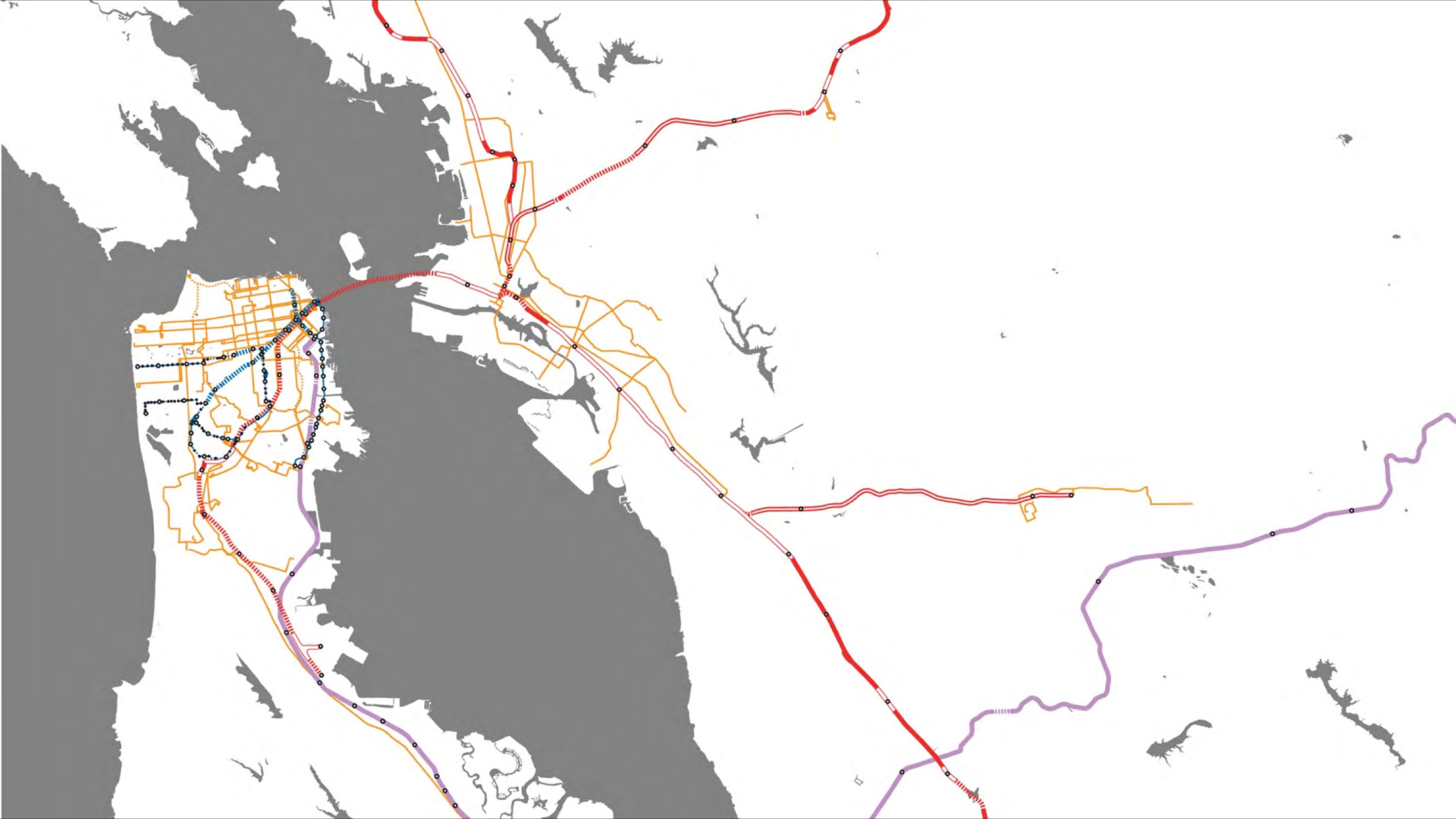
Routes 2a, 2b, 2c
combine to form
Frequent Route 2 on
Semmes.

| | | |
|----|----|----|
| 2c | 20 | |
| 86 | 87 | 88 |

VA Hospital

| | |
|----|----|
| 1 | 1a |
| 2c | 20 |
| 1b | 1c |







EAST METRO

LOTU



W T T T T

W T T T T



| NEW HAVEN LINE DEPARTURES | | | | NEW HAVEN LINE DEPARTURES | | | | INFORMATION | |
|---------------------------|-----|-------------|--------------------------------|---------------------------|-----|-------------|------------------------------------|-----------------------------|--|
| TIME | TRK | DESTINATION | REMARKS | TIME | TRK | DESTINATION | REMARKS | NEW HAVEN FROM THE CITY | |
| 12:07 | 105 | STAMFORD | MOUNT VERNON - 1ST STOP | 1:34 | 15 | NEW HAVEN | CONN. TO BRIDGE LINE ONLY | SEE NEW HAVEN FROM THE CITY | |
| 12:34 | 18 | NEW HAVEN | STAMFORD - 1ST STOP | 1:57 | 17 | STAMFORD | MOUNT VERNON - 1ST STOP | SEE ALL THE AHEAD TO THE | |
| 12:37 | 21 | STAMFORD | MOUNT VERNON - 1ST STOP | 2:04 | 100 | NEW HAVEN | CONNECTION TO NEW CANON - MOUNTAIN | SMALL BRANCH, CHECKS, PAPER | |
| 1:04 | 25 | NEW HAVEN | NEW CANON, GARDNER, S.E. CONN. | 2:07 | 23 | STAMFORD | MOUNT VERNON - 1ST STOP | SEE ALL THE AHEAD TO THE | |
| 1:07 | 106 | STAMFORD | MOUNT VERNON - 1ST STOP | 2:34 | 25 | NEW HAVEN | CONN. TO BRIDGE LINE ONLY | SEE ALL THE AHEAD TO THE | |

ENDING MACHINES

| LN | CAR | DEST | MIN |
|----|-----|----------|-----|
| RD | 6 | Glenmont | 3 |
| RD | 6 | Glenmont | 7 |
| RD | 6 | Glenmont | 9 |

| LN | CAR | DEST | MIN |
|----|-----|----------|-----|
| RD | 6 | Glenmont | 3 |
| RD | 6 | Glenmont | 7 |
| RD | 6 | Glenmont | 9 |

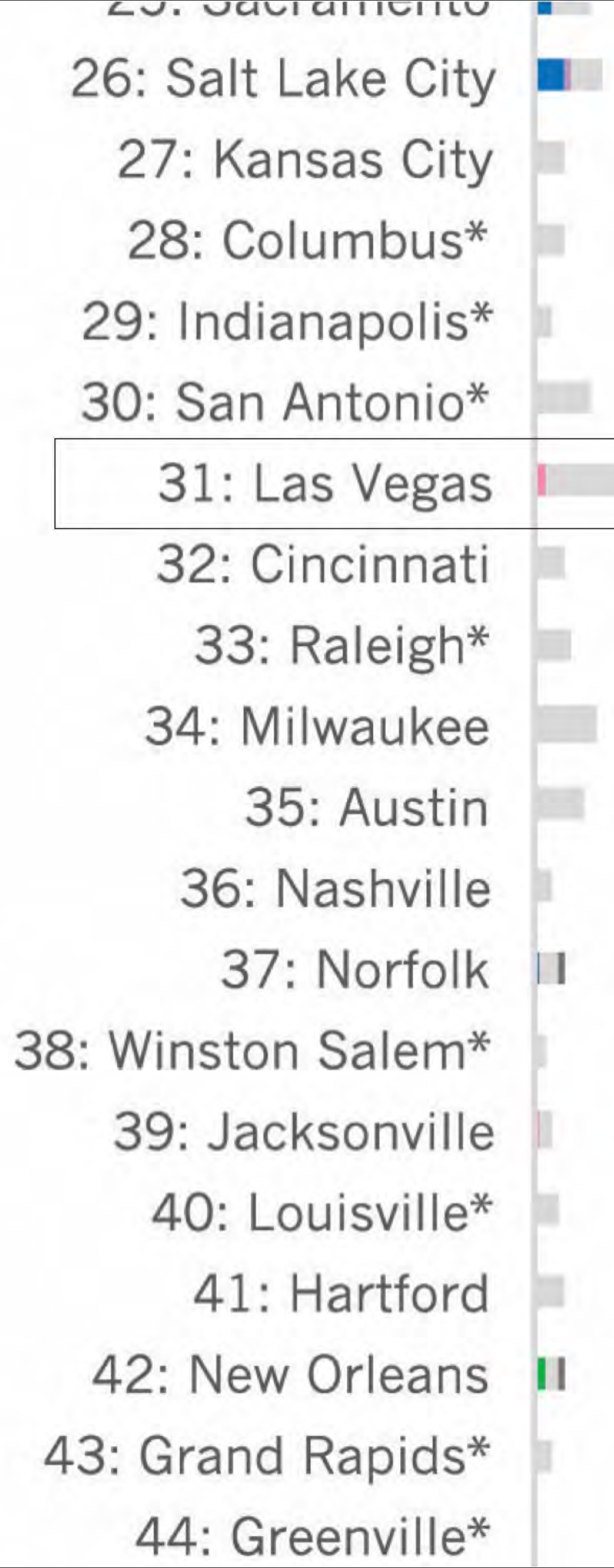
DENSITY
ACTIVITY
WALKABILITY
CONNECTIVITY
FREQUENCY
TRAVEL TIME
RELIABILITY
CAPACITY
LEGIBILITY





20 min to Downtown
Every 20-60 min
100 boardings/day

20 min to Downtown
Every 5-16 min
1,000 boardings/day

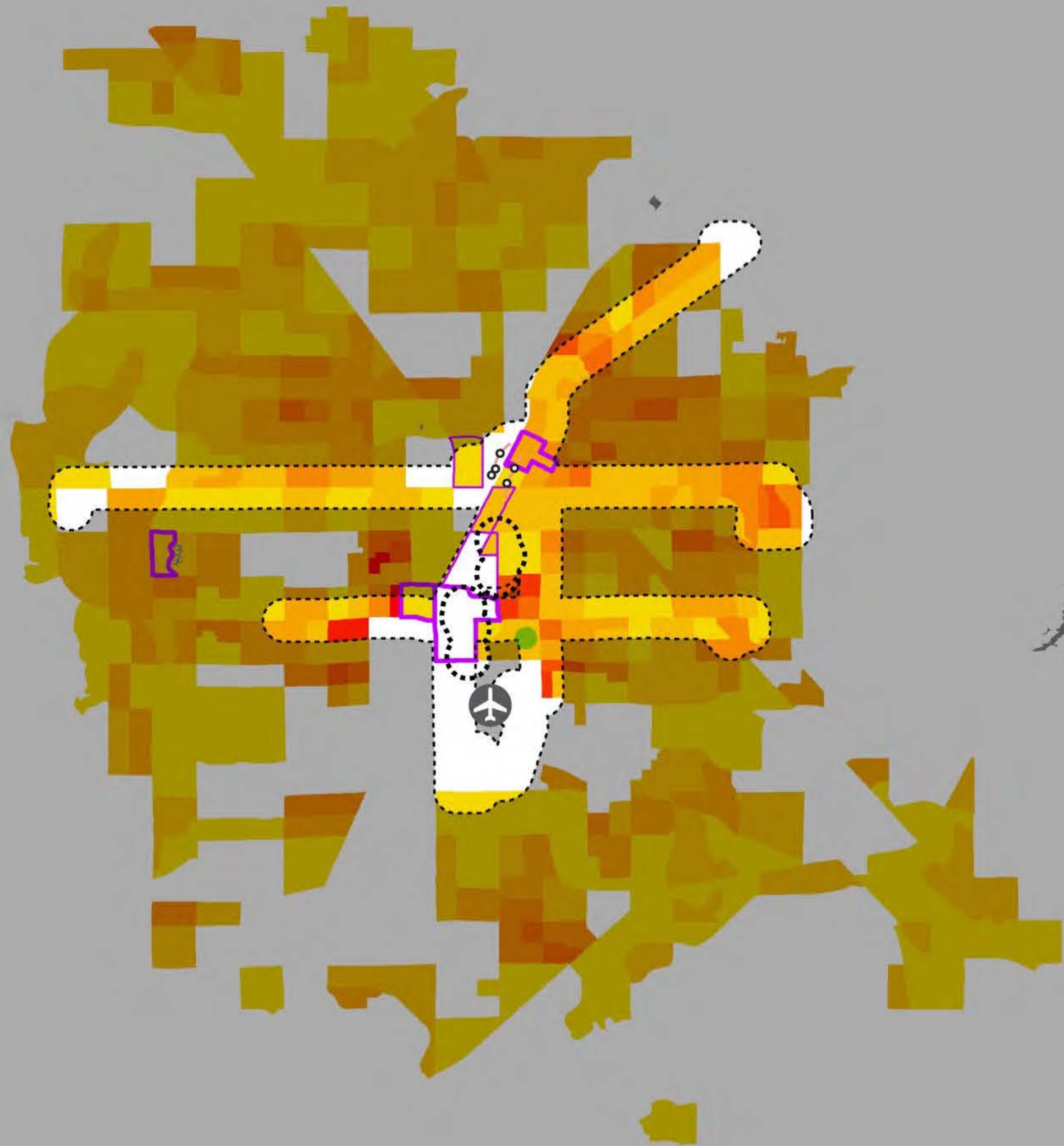




Wynn

Exit

Green traffic light



COMMUTER RAIL

- New York: MTA Metro-North Railroad
- New York: MTA Long Island Rail Road
- San Francisco: Caltrain
- New York: NJ Transit Rail
- Denver: A/B Lines
- Chicago: Metra
- San Diego: Sprinter
- Philadelphia: SEPTA Regional Rail
- Boston: MBTA Commuter Rail
- Philadelphia: River LINE
- Dallas: Trinity Railway Express
- Washington: VRE
- Salt Lake City: FrontRunner
- Miami: Tri-Rail
- Seattle: Sounder
- Washington: MARC Train
- San Diego: Coaster
- Chicago: South Shore Line
- Portland: Westside Express Service
- Orlando: SunRail
- Los Angeles: Metrolink
- Austin: Capital MetroRail
- Dallas: A-Train
- Minneapolis: Northstar
- San Francisco: ACE
- San Francisco: SMART
- Philadelphia: NJT Atlantic City
- Nashville: Music City Star
- Albuquerque: Rail Runner Express
- New York: Shore Line East







DENSITY
ACTIVITY
WALKABILITY
CONNECTIVITY
FREQUENCY
TRAVEL TIME
RELIABILITY
CAPACITY
LEGIBILITY



BASELINE: 23.5 min trip



THE RI ALTO

YOUR NEW DOWNTOWN OFFICE AWAITS

CONGRESS AV

N TOOLE AVE

ONE WAY

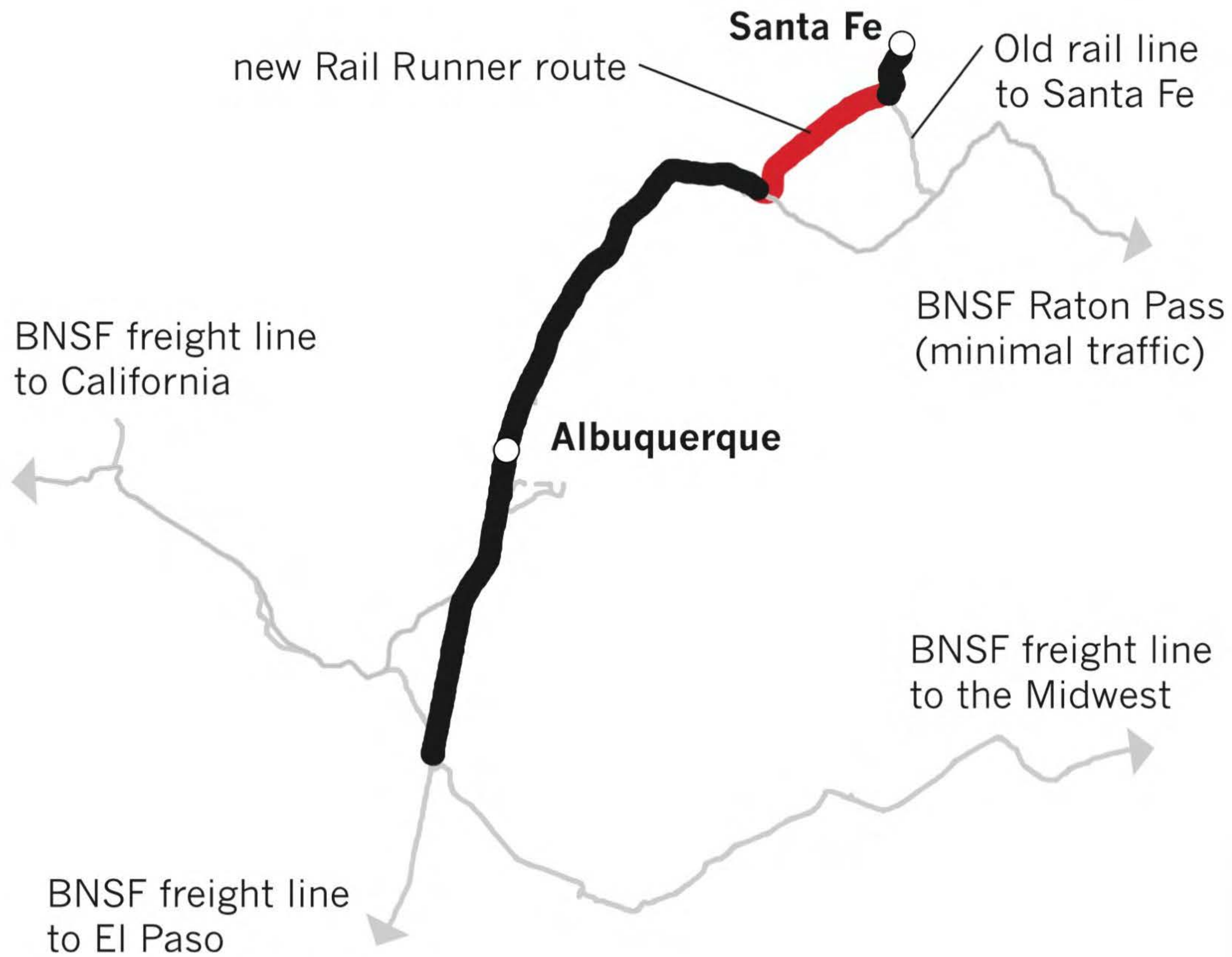
VISIT - The Beautiful HOTEL CONGRESS While in town VISIT TUCSON

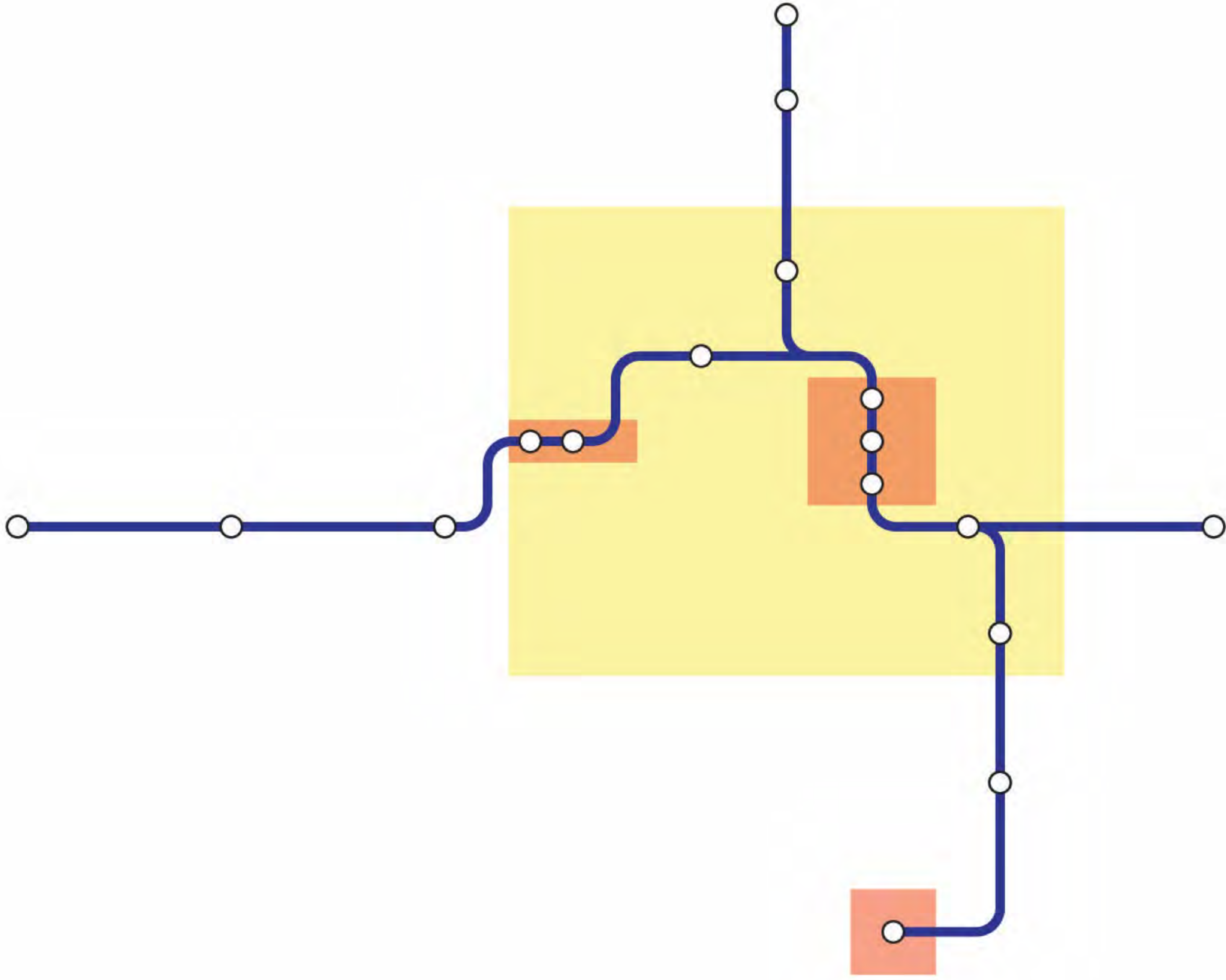
WEST BOUL
SKY
BROOKLYN
FOUR MAY 8
MAY 11
MAY 14

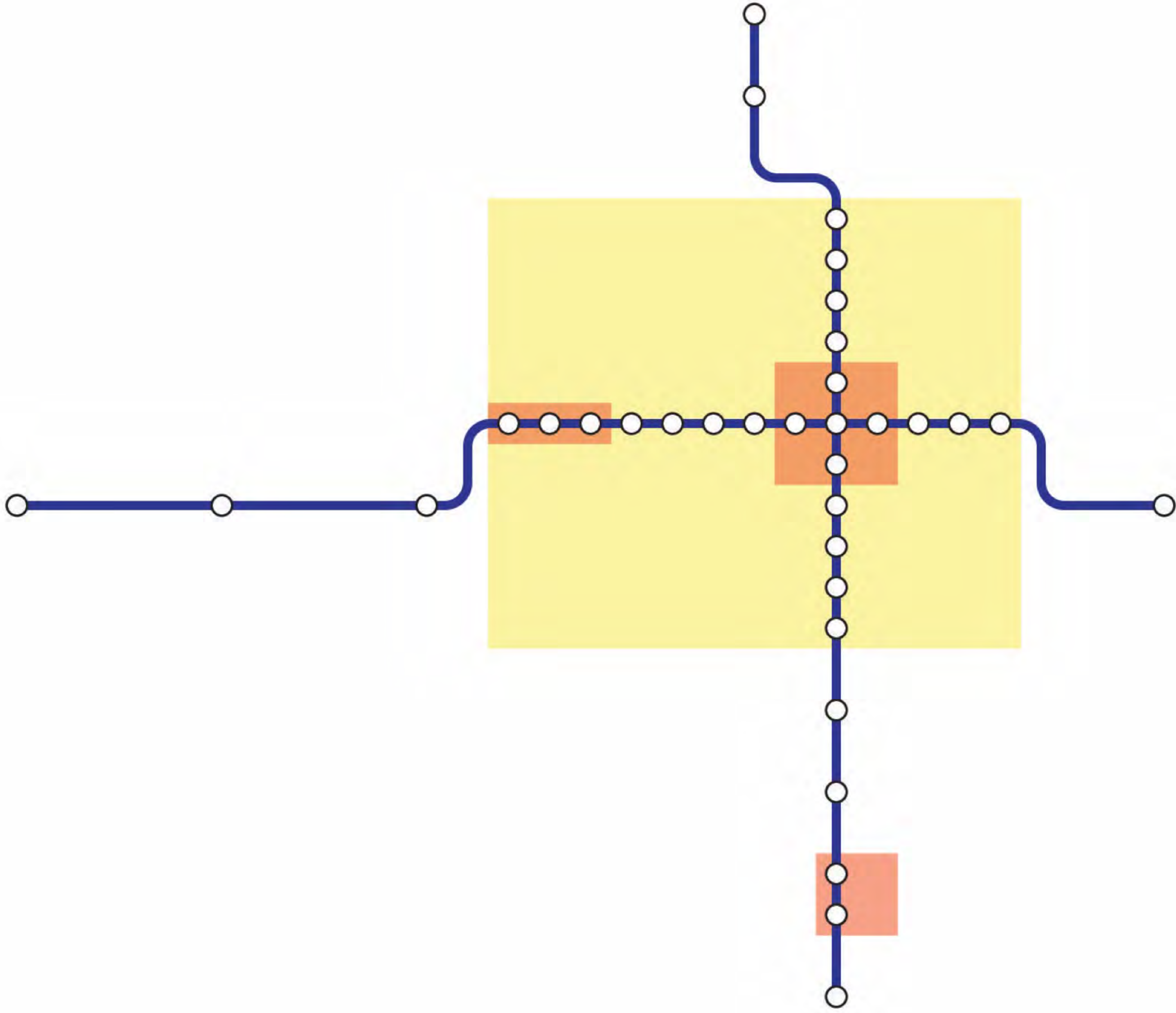
tucson

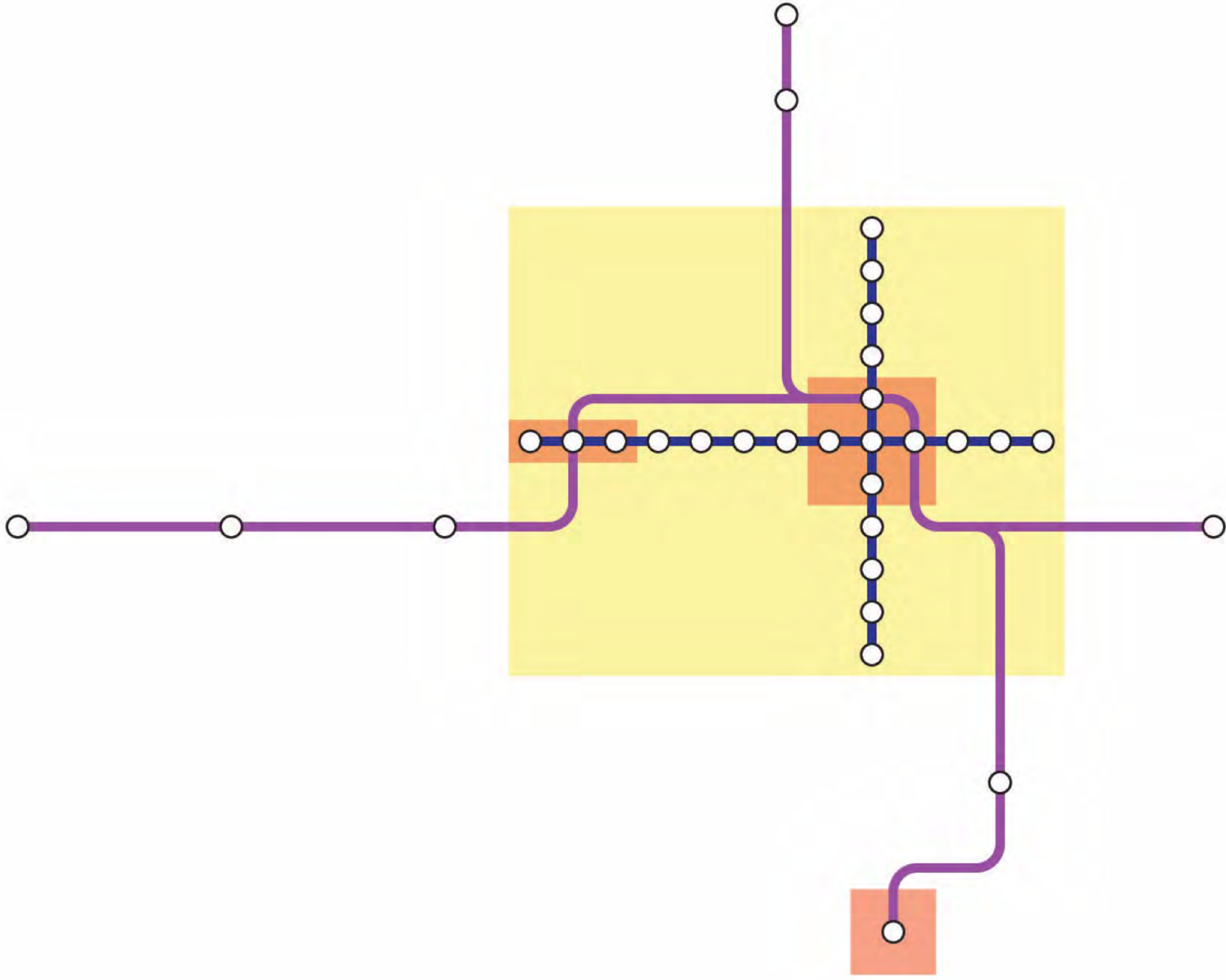
NO TURN ON RED

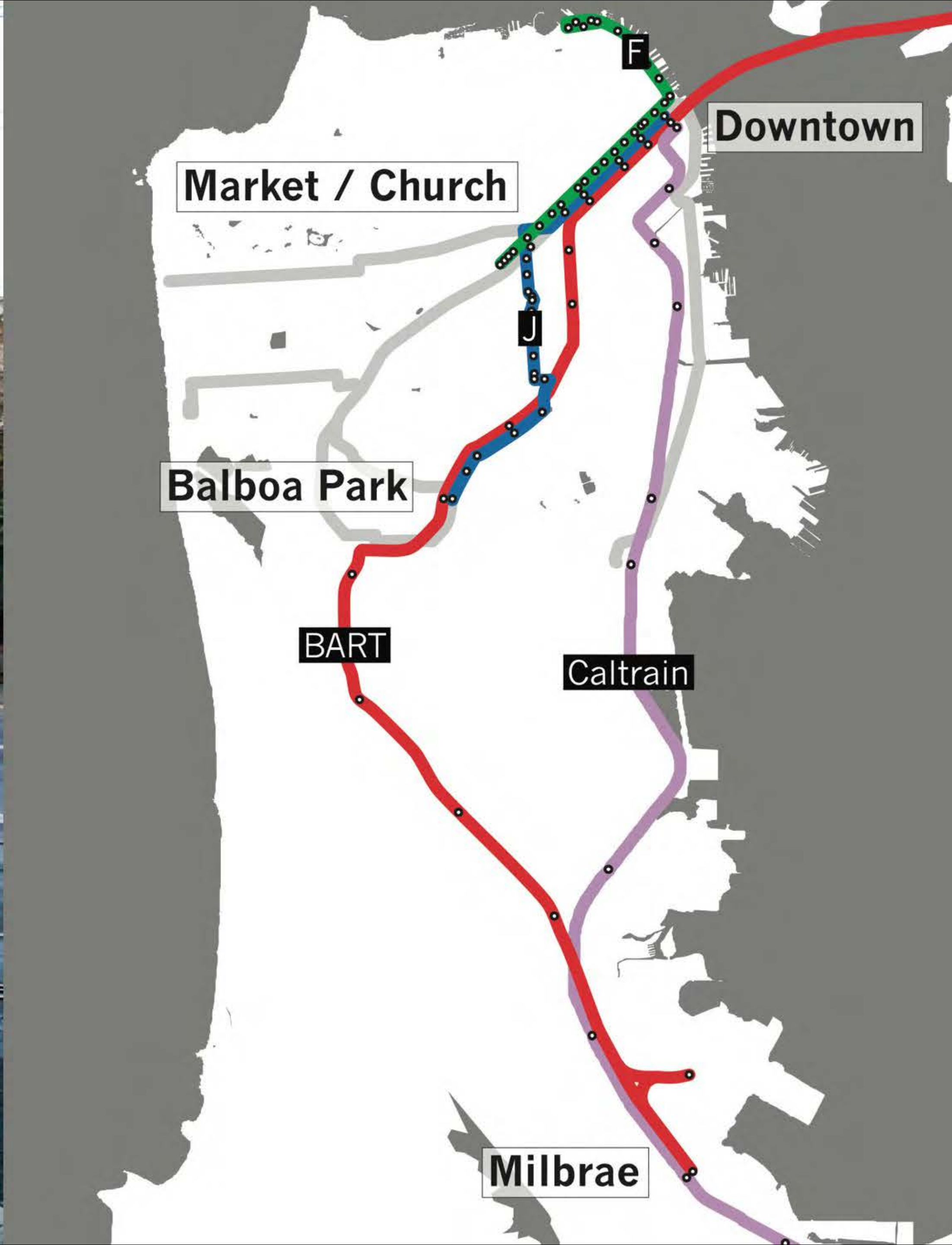
YIELD TO PEDESTRIANS













DENSITY
ACTIVITY
WALKABILITY
CONNECTIVITY
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CAPACITY
LEGIBILITY

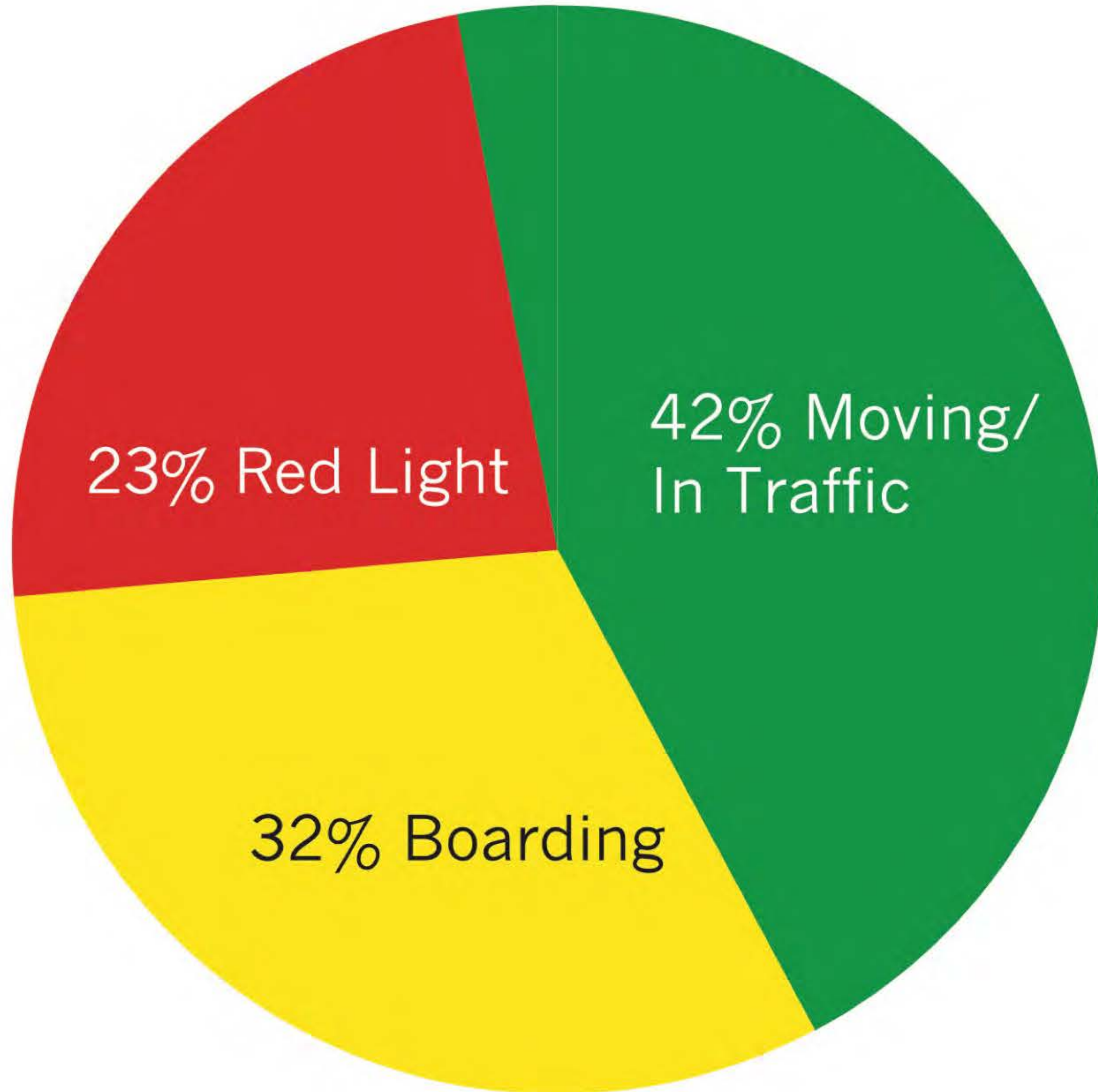
ONE WAY

RIGHT LANE
MUST
TURN RIGHT

STATE ST

HARRIS THEATER
MILLENNIUM PARK

American Ballet Theatre

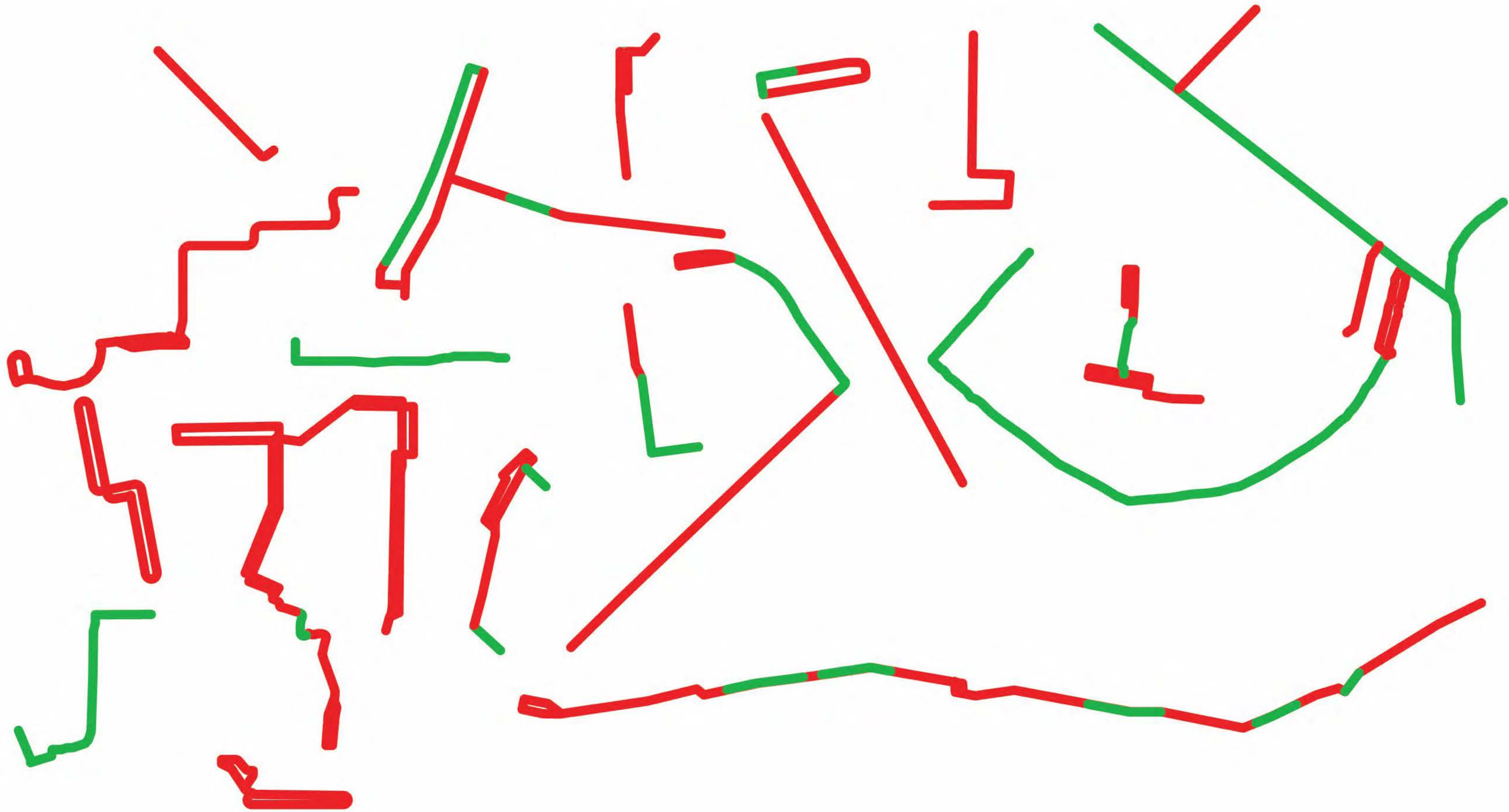




The Mission
Sally's
Pharmacy

60

CAJW 504





138

NO
TURN
ON
RED

OPEN SUNDAY
11-4

BUS
SIGNAL

Silver Line

LEFT
LANE
ALL
TURNS

RIGHT
LANE
BUS
ONLY





JIMMY CHOO
MAN

60 BLUE ISLAND/26TH

K933

339

YEAR OF THE
PUBLIC ARTS





4:36P METROLINK 322 SAN BERNARDINO TRACK 7B
4:50P METROLINK 688 LAGUNA NIGUEL TRACK 8B
5:25P METROLINK 326 SAN BERNARDINO TRACK 7B

↑ GATEWAY CENTER Patsaouras Plaza
MTA / Metrolink Services
Metro Red Line (Subway) TRACK 10B

Track
7
Platform B

Track
8
Platform B

Track
9

Track
10

Track
9

Track
10

Track
11

Track
12



DENSITY

ACTIVITY

WALKABILITY

CONNECTIVITY

FREQUENCY

TRAVEL TIME

RELIABILITY

CAPACITY

LEGIBILITY

| | local bus | BRT | light rail | heavy rail | commuter rail | |
|---------|-----------------------|----------------|----------------|-----------------|-----------------|-----------------|
| typical | people/vehicle | 80 | 120 | 225 | 200 | 162 |
| | train | 40 ft. (1 bus) | 95 ft. (1 bus) | 190 ft. (2 car) | 450 ft. (6 car) | 400 ft. (4 car) |
| | people/train | 80 | 120 | 450 | 1200 | 648 |
| | trains/hour | 4 | 6 | 6 | 6 | 2 |
| | hourly capacity | 320 | 720 | 2,700 | 7,200 | 1,296 |
| | daily capacity | 5,120 | 11,520 | 43,200 | 115,200 | 20,736 |

| | | | | | | |
|---------|-----------------------|-----------------------------------|--|---|-----------------------------|---|
| maximum | | bus only lane, multiple routes | full grade separation, passing lanes at stations | private right of way outside city streets, grade separation at major intersections | express and local tracks | full grade separation, multiple tracks at stations |
| | people/vehicle | 80 | 120 | 225 | 200 | 162 |
| | train | 40 ft. (1 bus) | 95 ft. (1 bus) | 380 ft. (4 car) | 750 ft. (10 car) | 910 ft. (10 car) |
| | people/train | 80 | 120 | 900 | 2000 | 1620 |
| | trains/hour | 120 | 120 | 24 | 48 | 24 |
| | hourly capacity | 9,600 | 14,400 | 21,600 | 96,000 | 38,880 |
| | daily capacity | 153,600 | 230,400 | 345,600 | 1,536,000 | 622,080 |



RAPID RAPID

CLEAR CHANNEL

REUTERS TV

OFF THE GRID.
IN THE LOOP.

Everything you need to know
by the time you get back online.



RAPID

25-30
7:30-9:00
11:00-12:00
1:30-3:00
4:30-6:00



PACIFIC BAY INN
"BEACH VIBES"
ON A STREET
620 JONES STREET
(ENTRANCE AROUND THE CORNER)
673-0234
WELCOME!

PRINTING

RESTAURANT



RED LINE
TO ALEWIFE VIA PARK

← WASHINGTON ST-SUMMER ST.
← HARLIECARD STORE

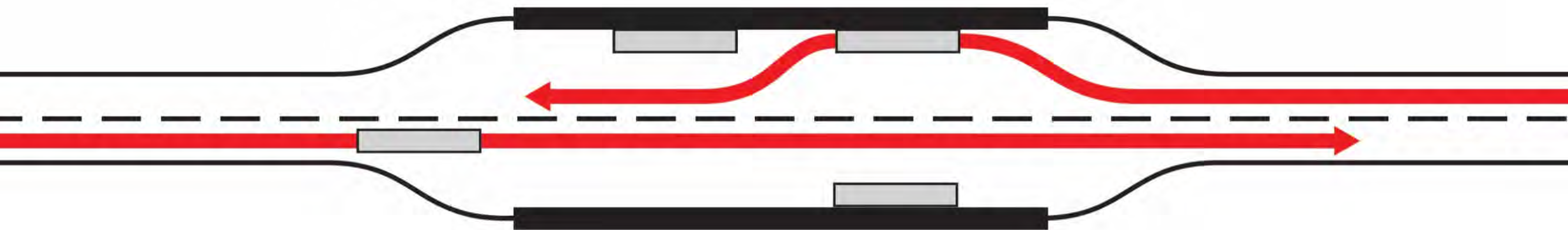
← TRAVEL ST

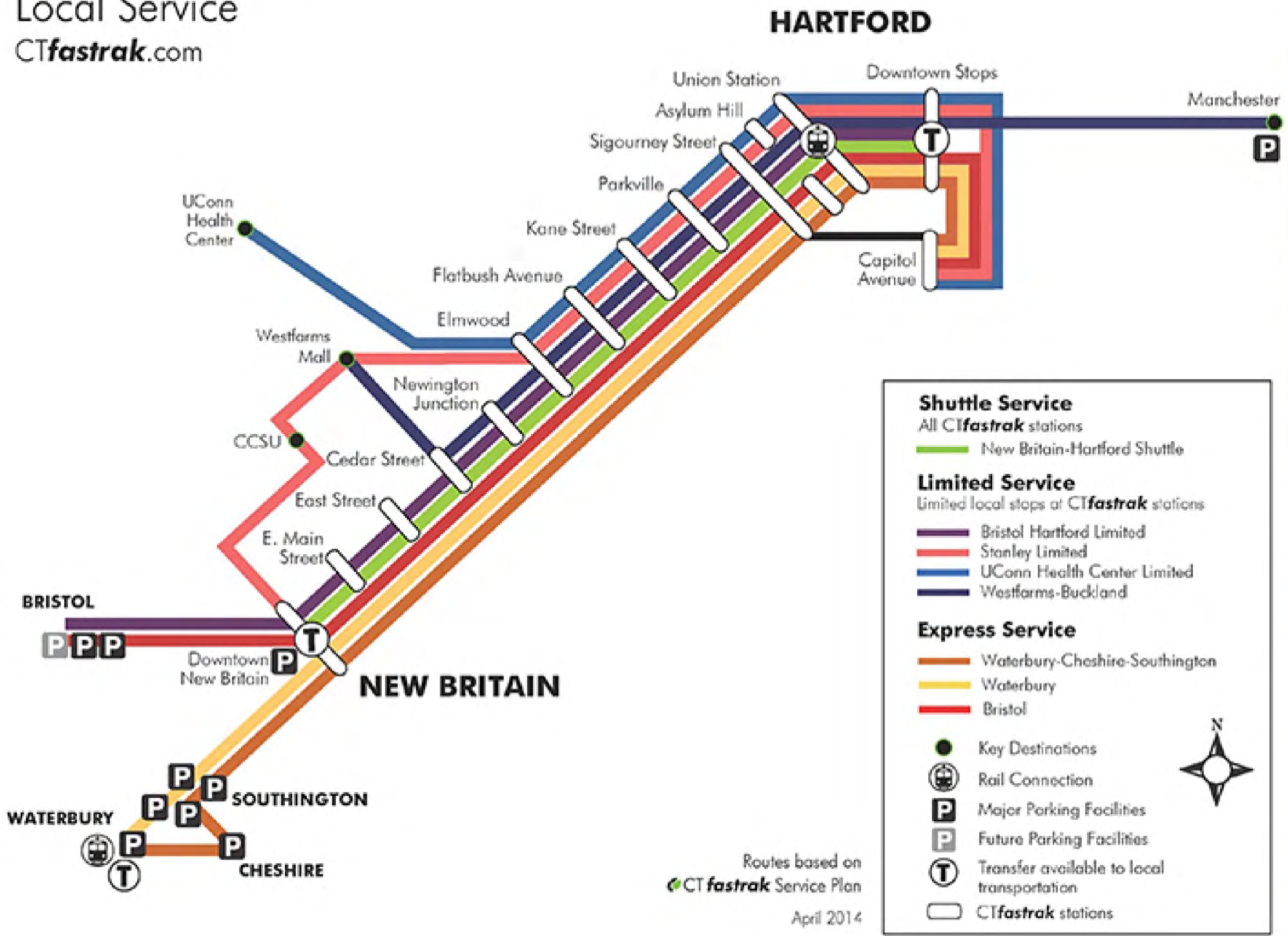
521

ALEWIFE





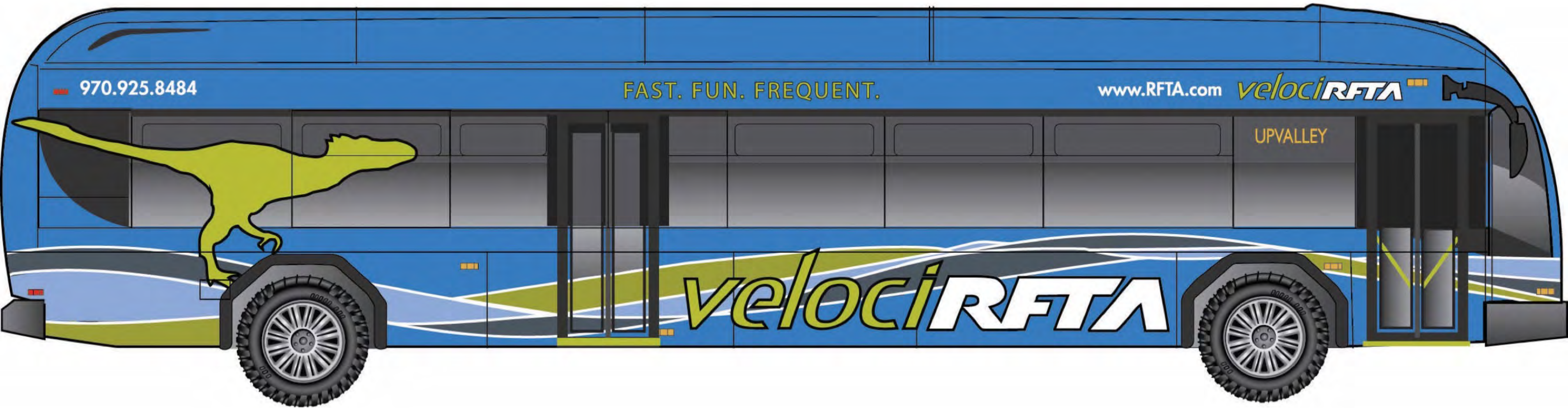




NO U-TURN
NO TRUCKS
DO NOT DRIVE ON TRACKS



DENSITY
ACTIVITY
WALKABILITY
CONNECTIVITY
FREQUENCY
TRAVEL TIME
RELIABILITY
CAPACITY
LEGIBILITY



970.925.8484

FAST. FUN. FREQUENT.

www.RFTA.com **velociRFTA**

UPVALLEY

velociRFTA

SNELLING & RANDOLPH
to Rosedale Transit Center



SNELLING & RANDOLPH
Going to an event?
Buy an All-Day Pass!

GAME DAY FOOTBALL SPECIALS

| | |
|----|----|
| 12 | 20 |
| 13 | 20 |
| 14 | 20 |
| 15 | 20 |
| 16 | 20 |
| 16 | 20 |
| 16 | 20 |
| 12 | 20 |
| 10 | 20 |



NORTH
51

↑
y door





DOWNTOWN 

| | | | |
|-----|-----|-----|-----|
| 6 | 11 | 32 | 44 |
| 51 | 52 | 54 | 82 |
| 85 | 102 | 108 | 137 |
| 160 | 161 | 162 | P&R |

WHEELER 

| | | |
|-----|-----|----|
| 5 | 25 | 65 |
| 152 | 153 | |

TEXAS MEDICAL CENTER 

| | | | | | | |
|----|----|----|----|----|-----|-----|
| 2 | 4 | 10 | 14 | 27 | 28 | 41 |
| 56 | 60 | 68 | 84 | 87 | 402 | P&R |

EASTWOOD 

| | | |
|----|-----|----|
| 4 | 9 | 25 |
| 40 | 41 | 50 |
| 80 | P&R | |

SOUTHEAST 

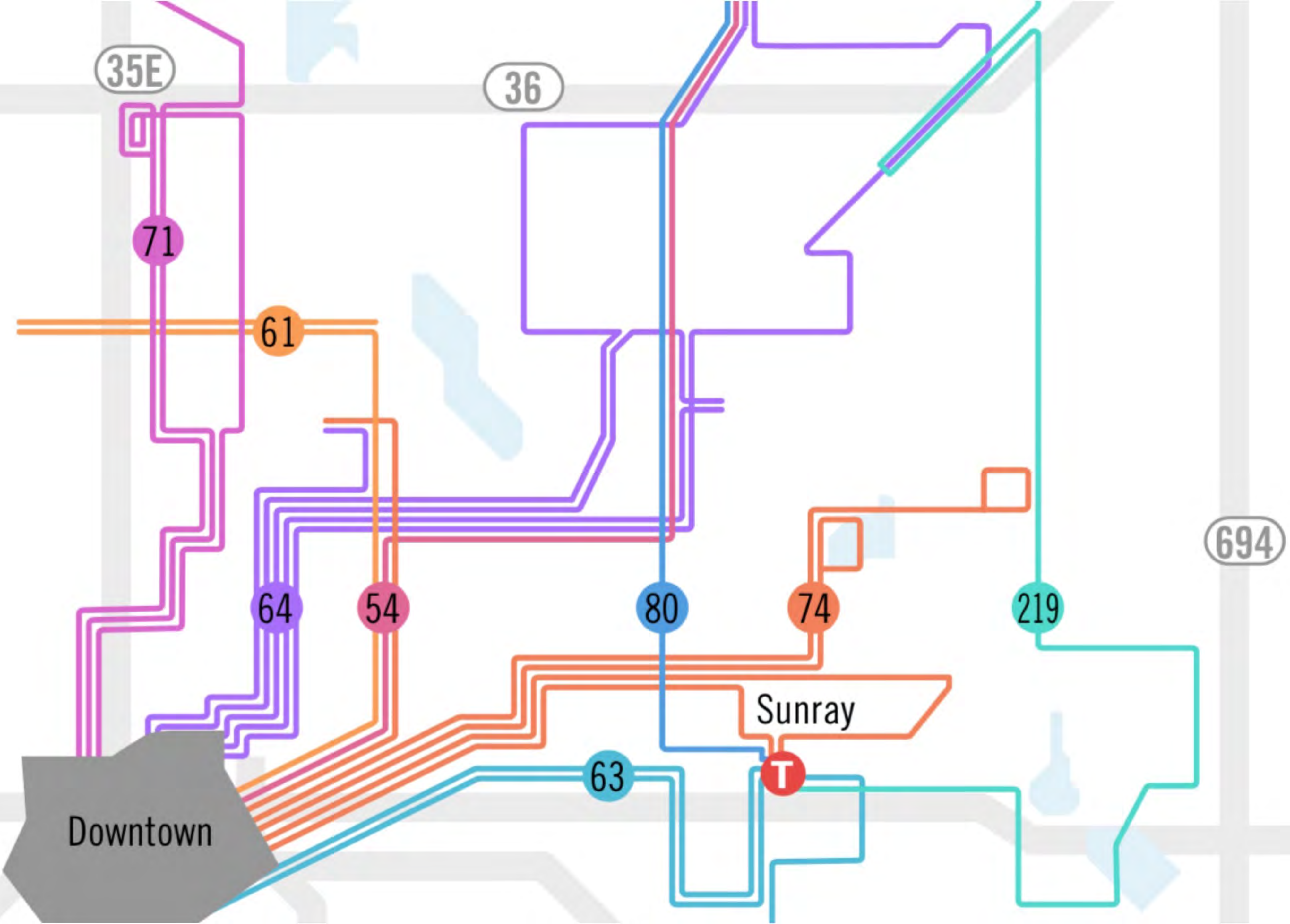
| | | |
|----|----|-----|
| 5 | 28 | 29 |
| 54 | 60 | 360 |

PALM CENTER 

| | |
|---|----|
| 5 | 87 |
|---|----|

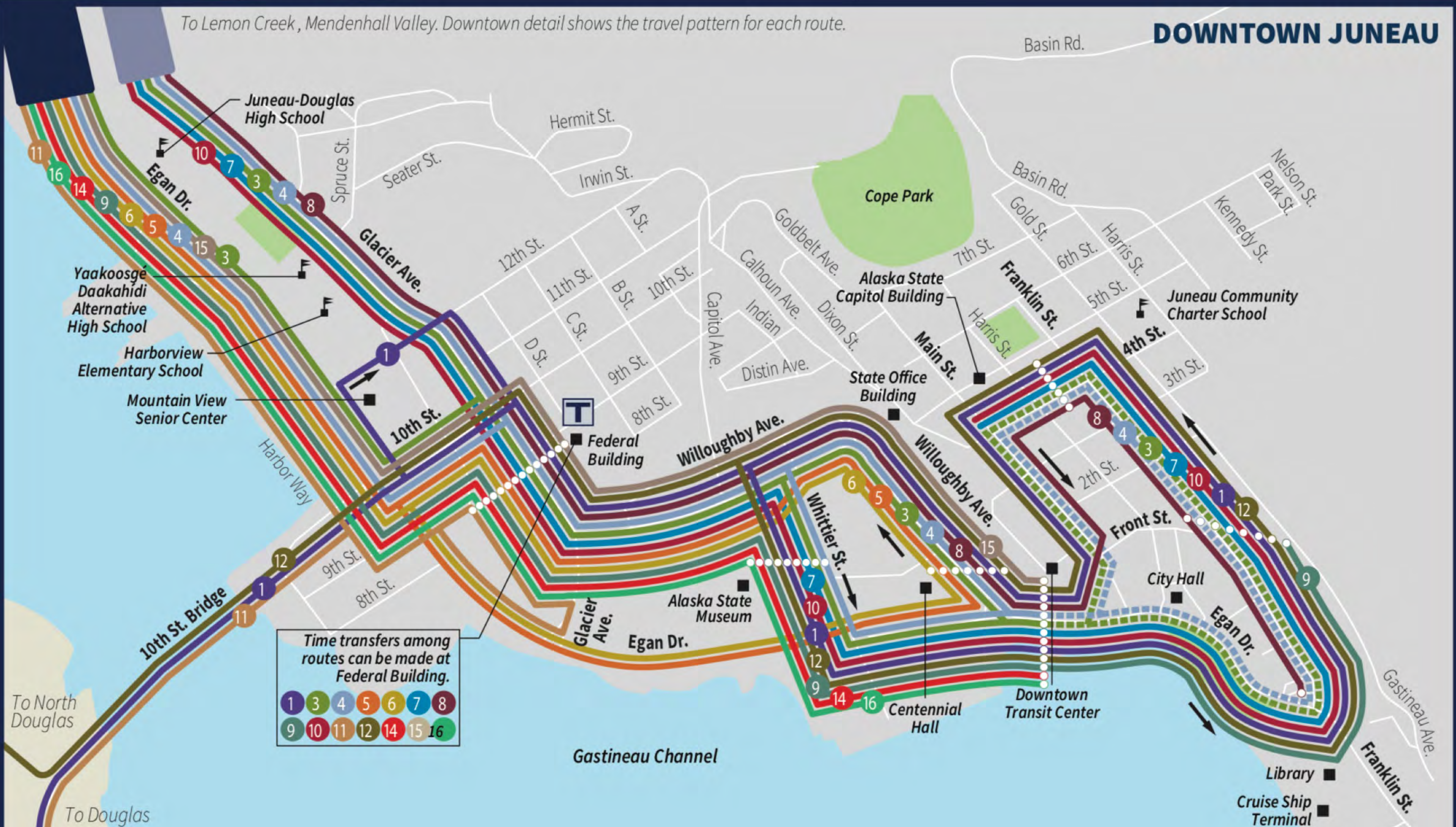
See Inset on Reverse

See Inset on Reverse



To Lemon Creek, Mendenhall Valley. Downtown detail shows the travel pattern for each route.

DOWNTOWN JUNEAU



Time transfers among routes can be made at Federal Building.

1 3 4 5 6 7 8
9 10 11 12 14 15 16

To North Douglas
To Douglas

Library
Cruise Ship Terminal



COURT

FREE MALLRIDE

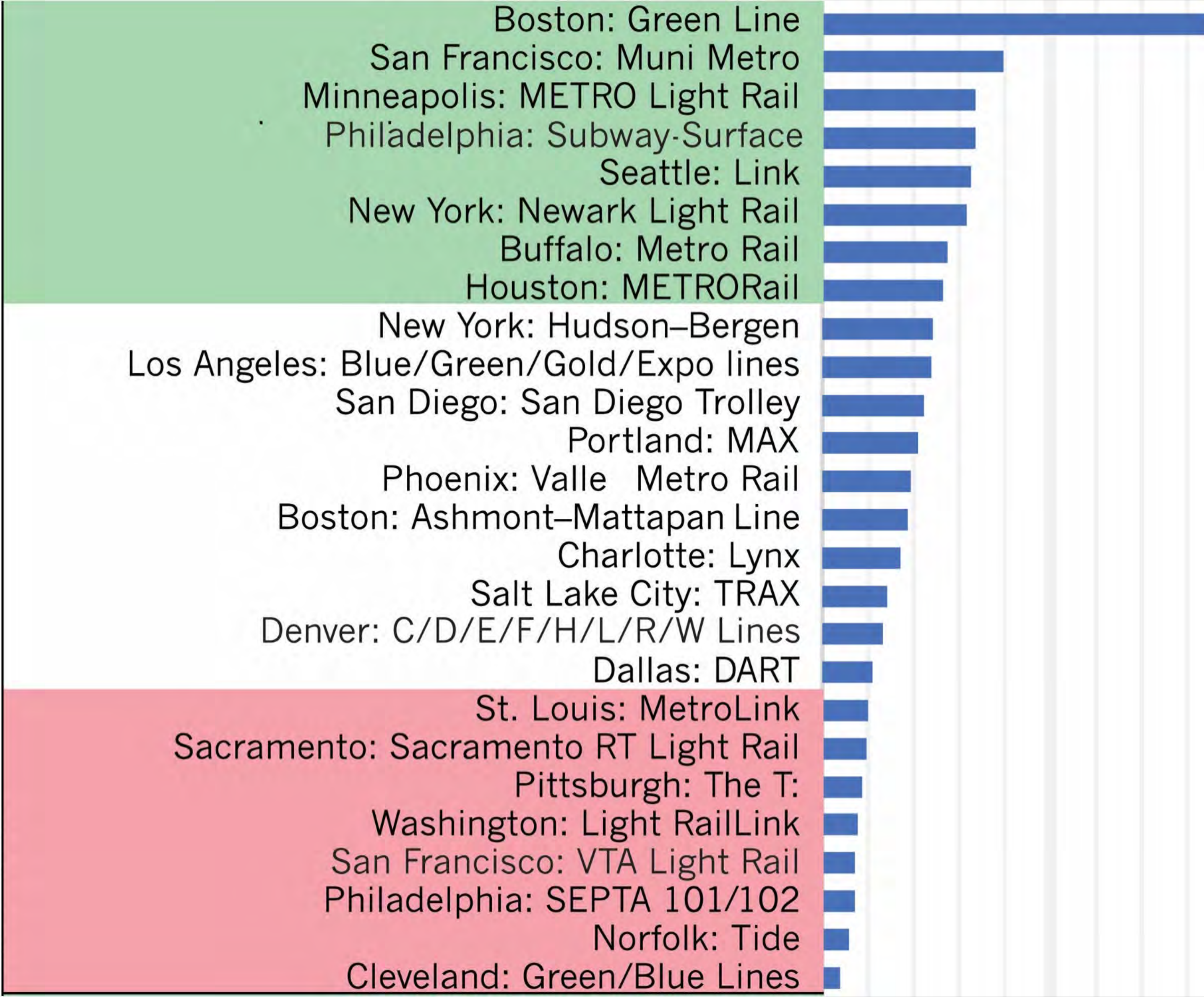


DENSITY
ACTIVITY
WALKABILITY
CONNECTIVITY
FREQUENCY
TRAVEL TIME
RELIABILITY
CAPACITY
LEGIBILITY

usbank

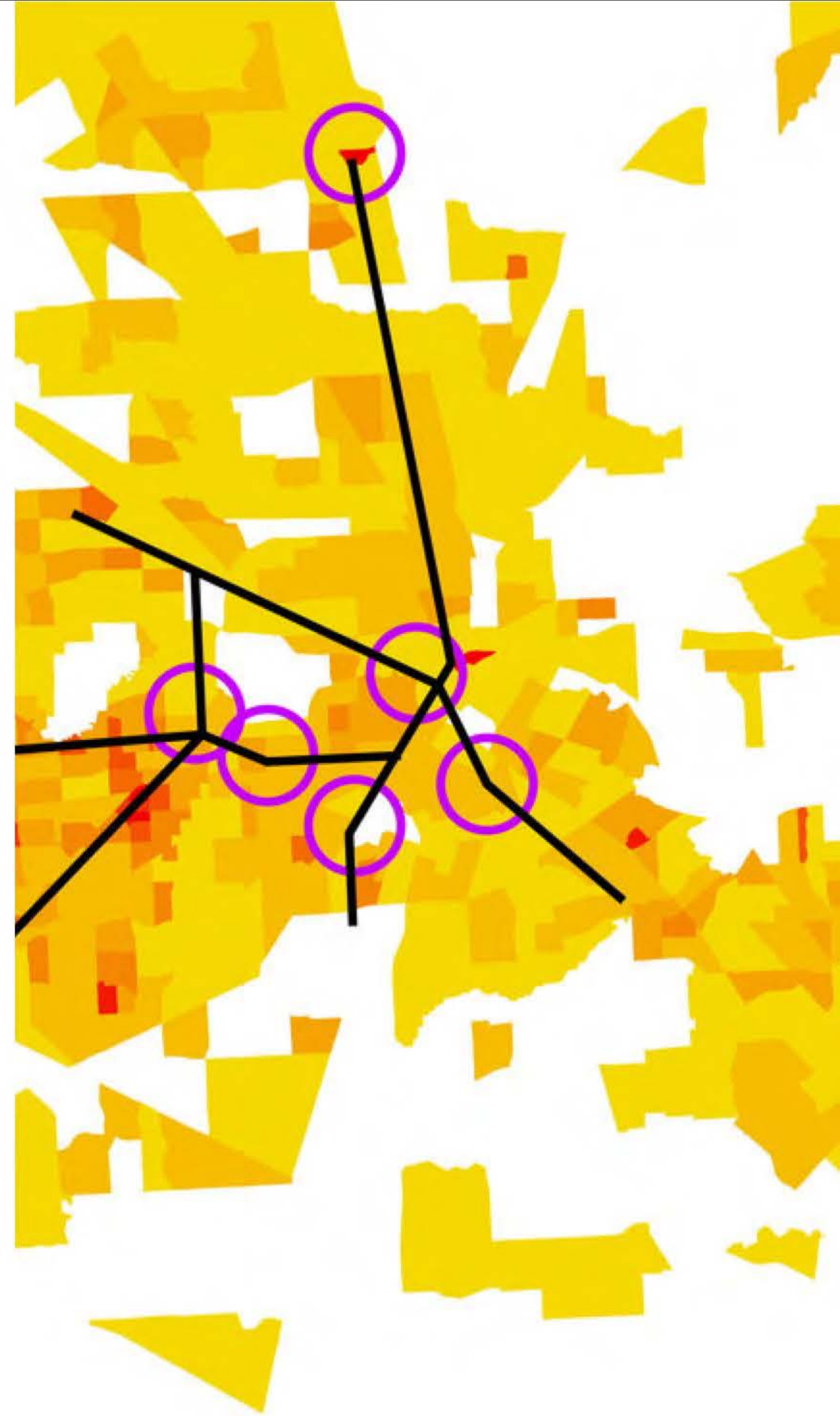
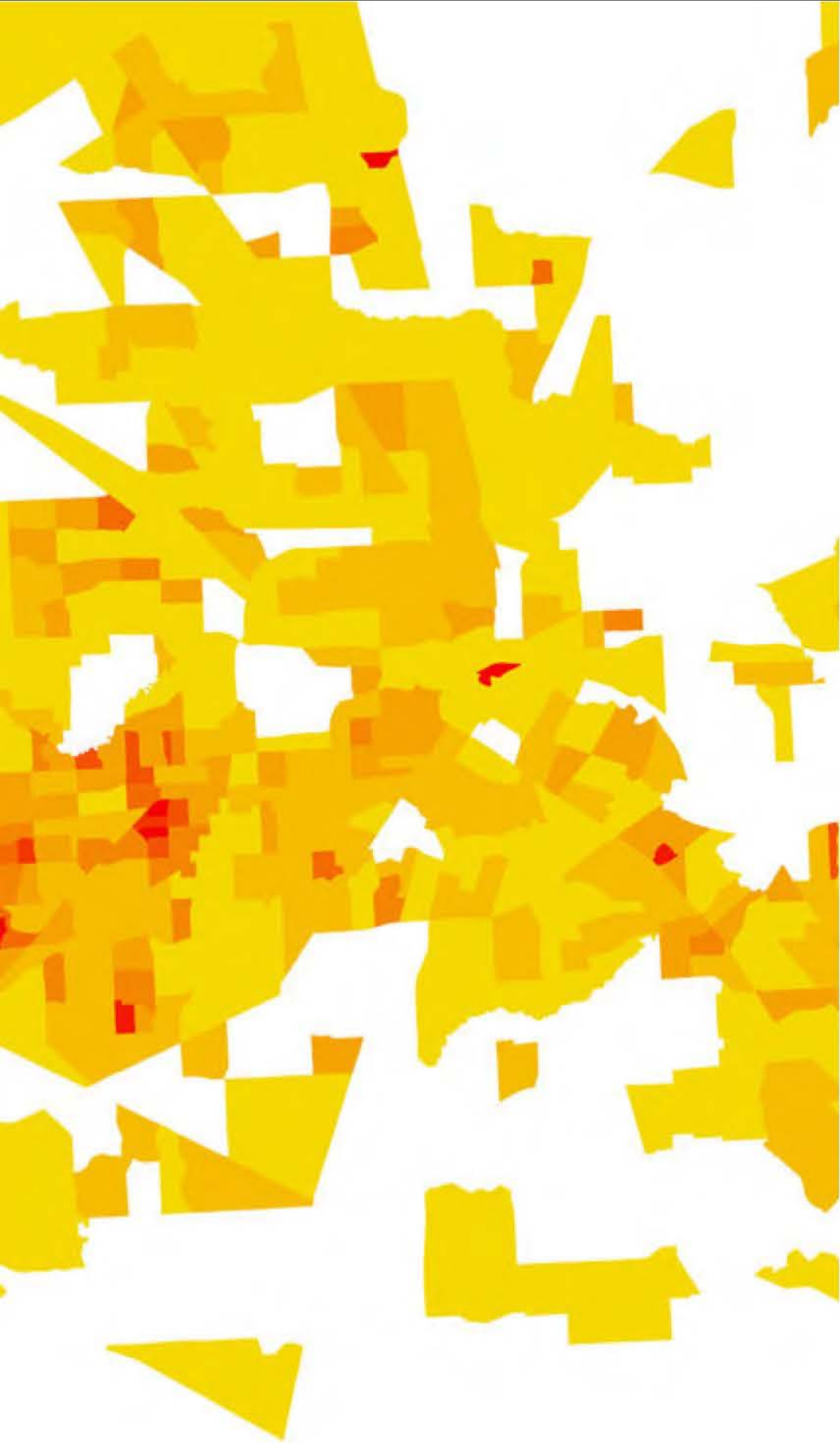
USA VS NZL
09.11.17
USA NATIONAL TEAM

LIGHT RAIL



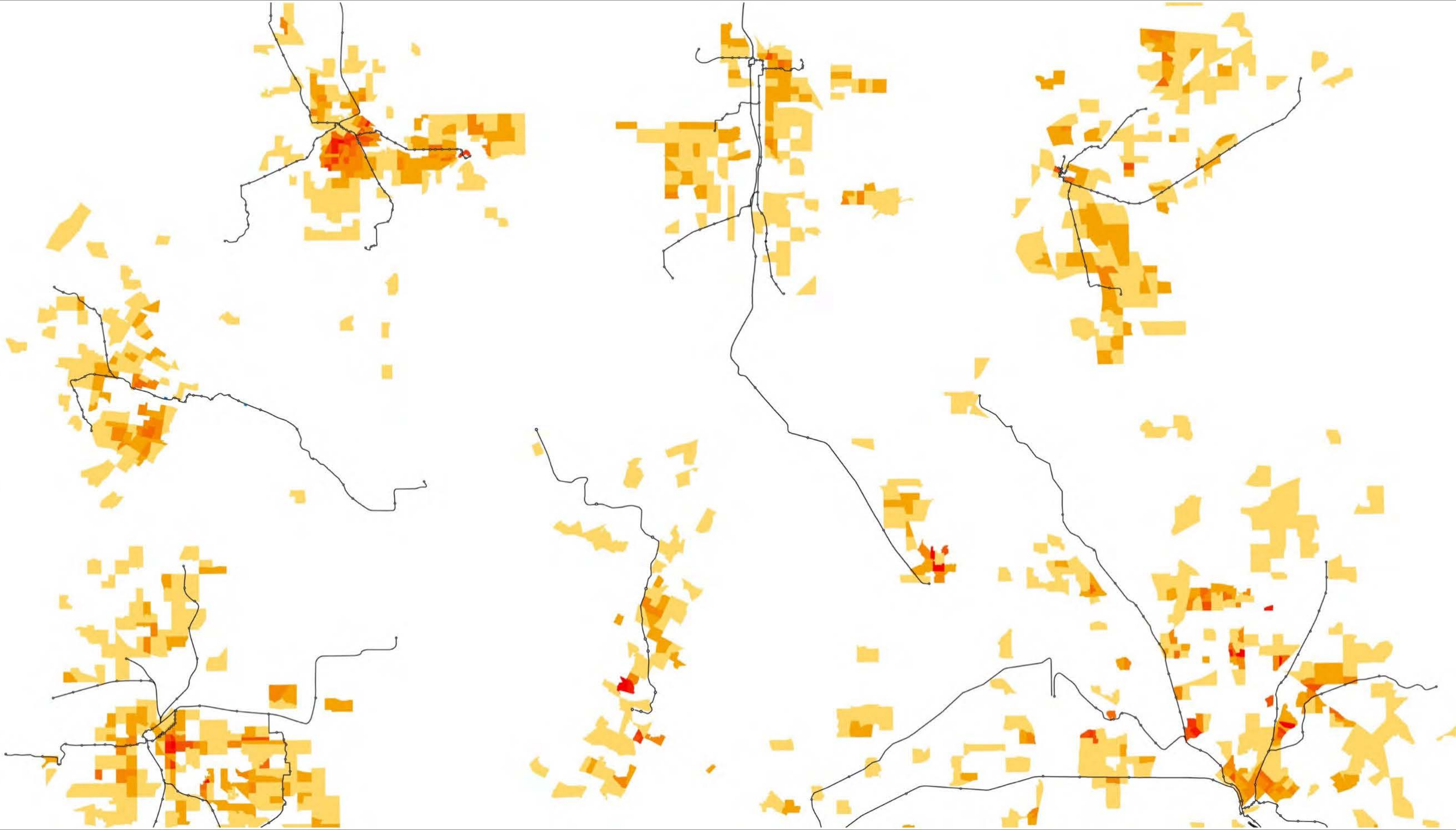
Transit planning is simple...







WE'RE NOT VERY GOOD AT THIS.





WE TALK TOO MUCH ABOUT MODES.

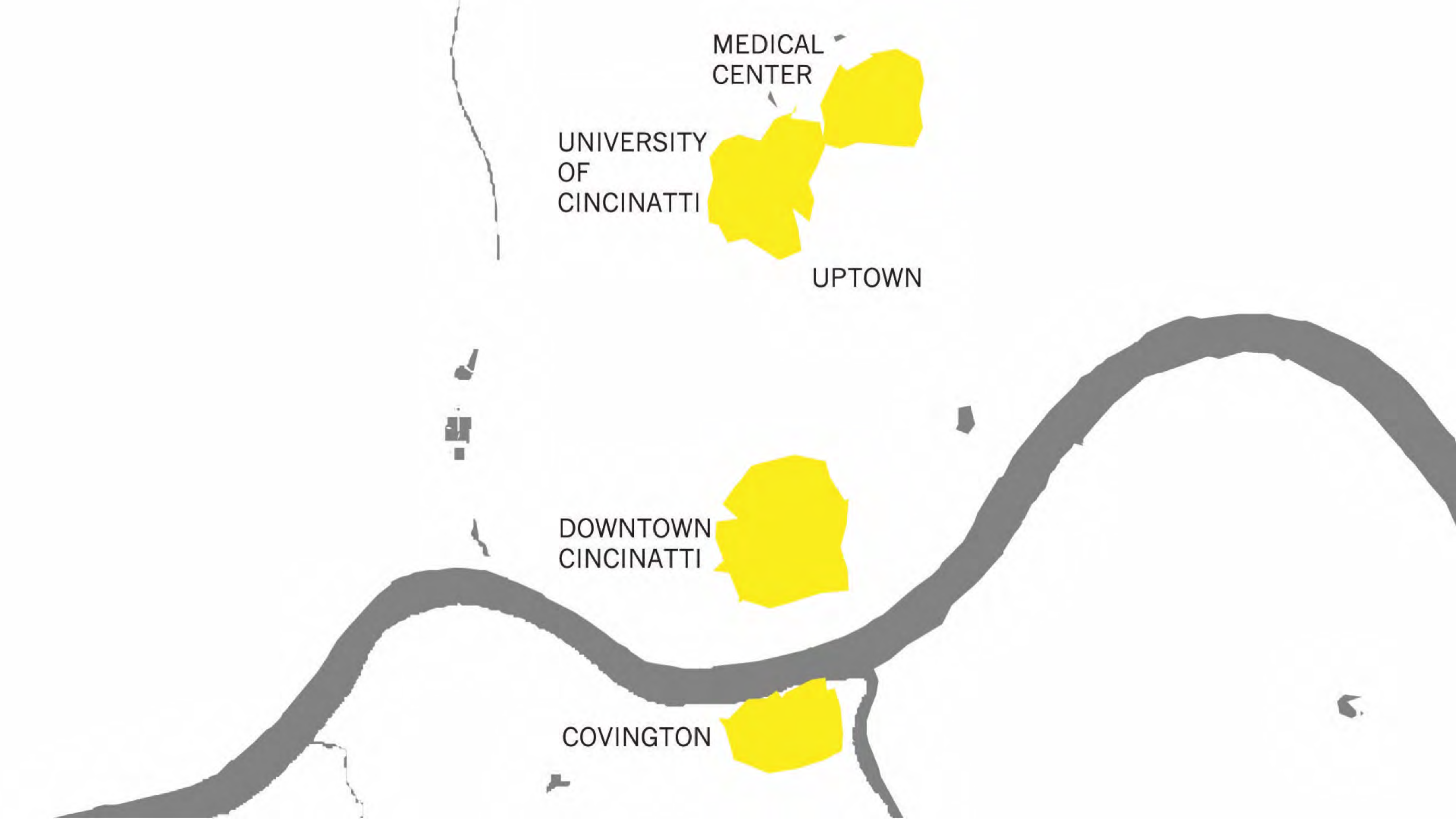
MEDICAL
CENTER

UNIVERSITY
OF
CINCINNATI

UPTOWN

DOWNTOWN
CINCINNATI

COVINGTON





“streetcars in other cities have been shown to bring new people to an area. Streetcars attract people who don’t ride buses. They are popular with young professionals, who tend to live in and near urban areas.”

MEDICAL CENTER
UNIVERSITY OF CINCINNATI
UPTOWN

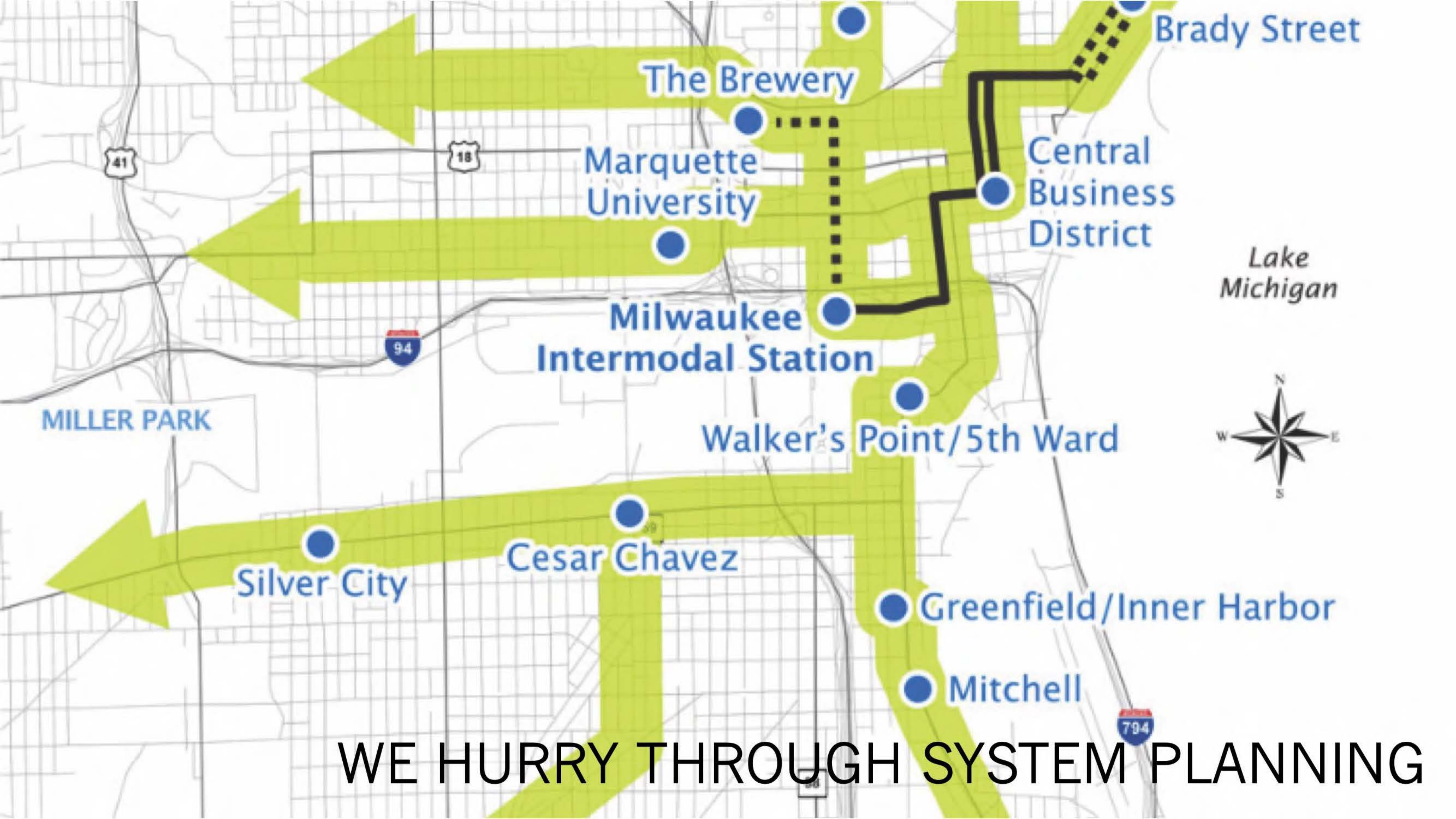
DOWNTOWN CINCINNATI

COVINGTON



Streetcar (Cincinnati Bell Connector)
SMALL SYSTEM
LOW PERFORMER

Opened: 2016
Last Expanded: N/A
Length: 2 miles
Stations: 9
Frequency: 12–15 min
Avg weekday ridership: 1,300
Ridership per mile: 650



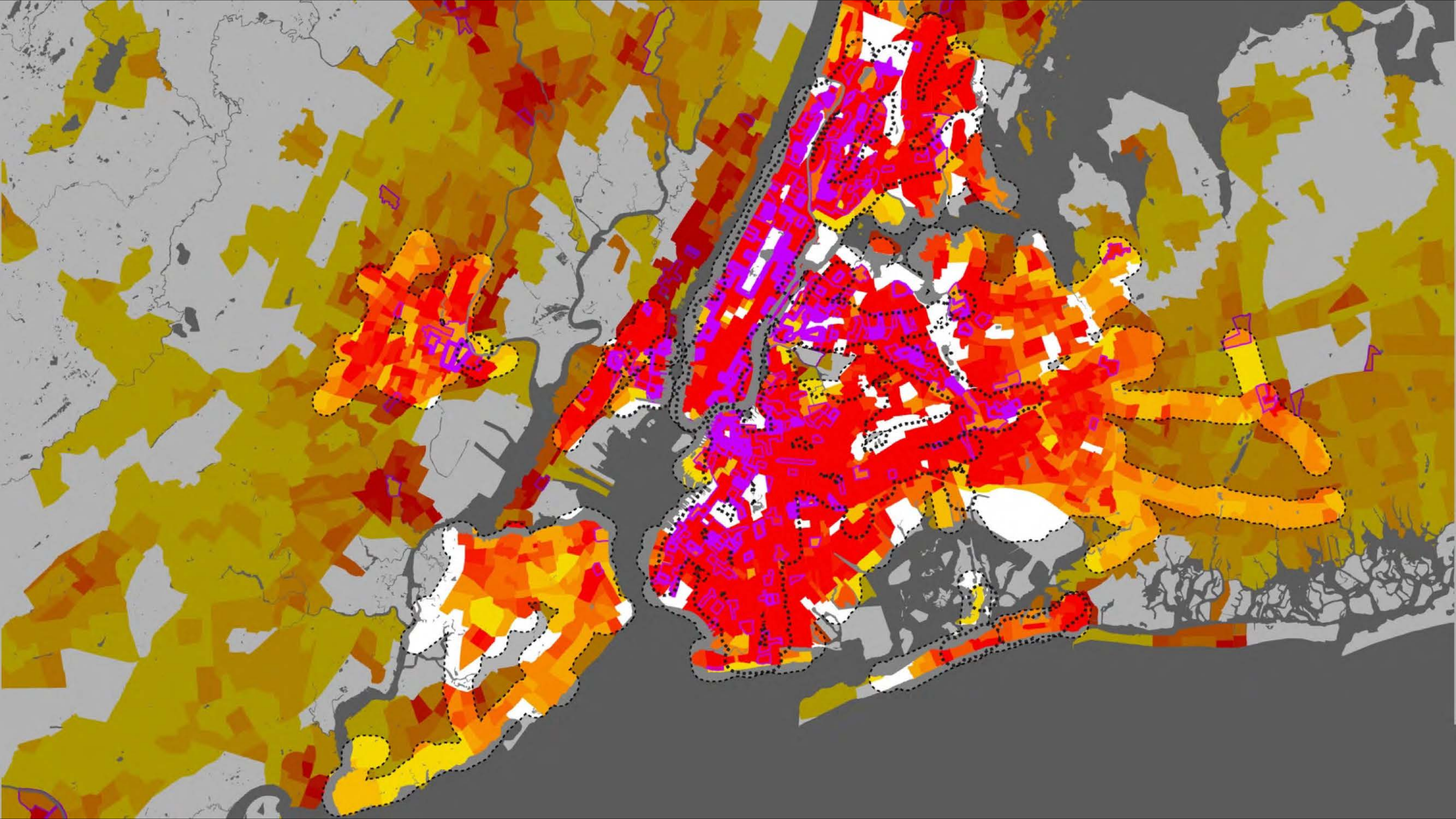
WE HURRY THROUGH SYSTEM PLANNING

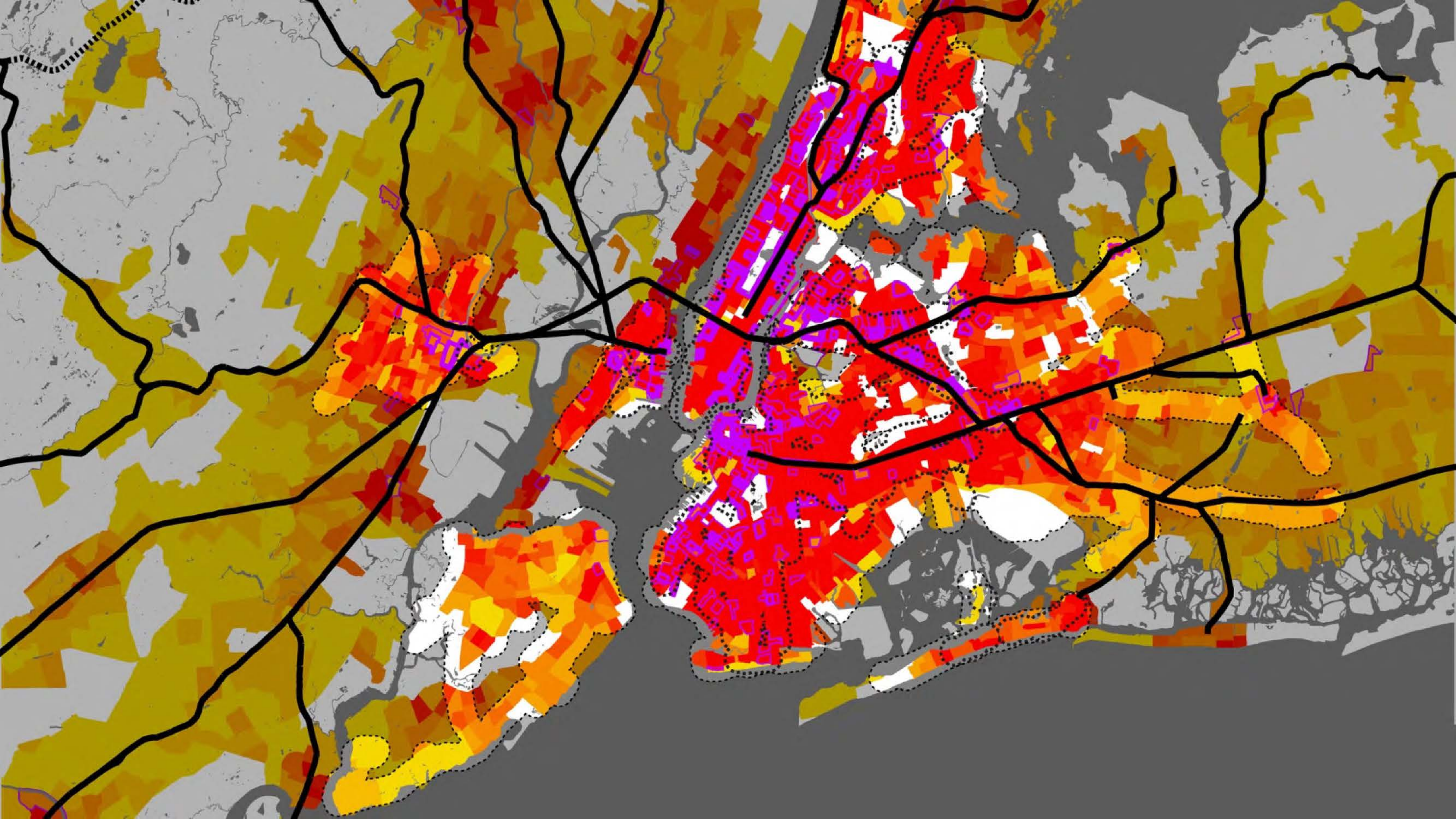


WE DON'T THINK ABOUT NETWORKS.



WE PLAN SINGLE-PURPOSE TRANSIT







○ Santa Rosa

34

SMART
2-3 hr midday
2-4 hr weekend

San Rafael ○

○ Stockton

San Francisco ○

8

ACE
no offpeak, Sat/Sun

92

CALTRAIN
1 hr offpeak,
weekend

San Jose ○

6

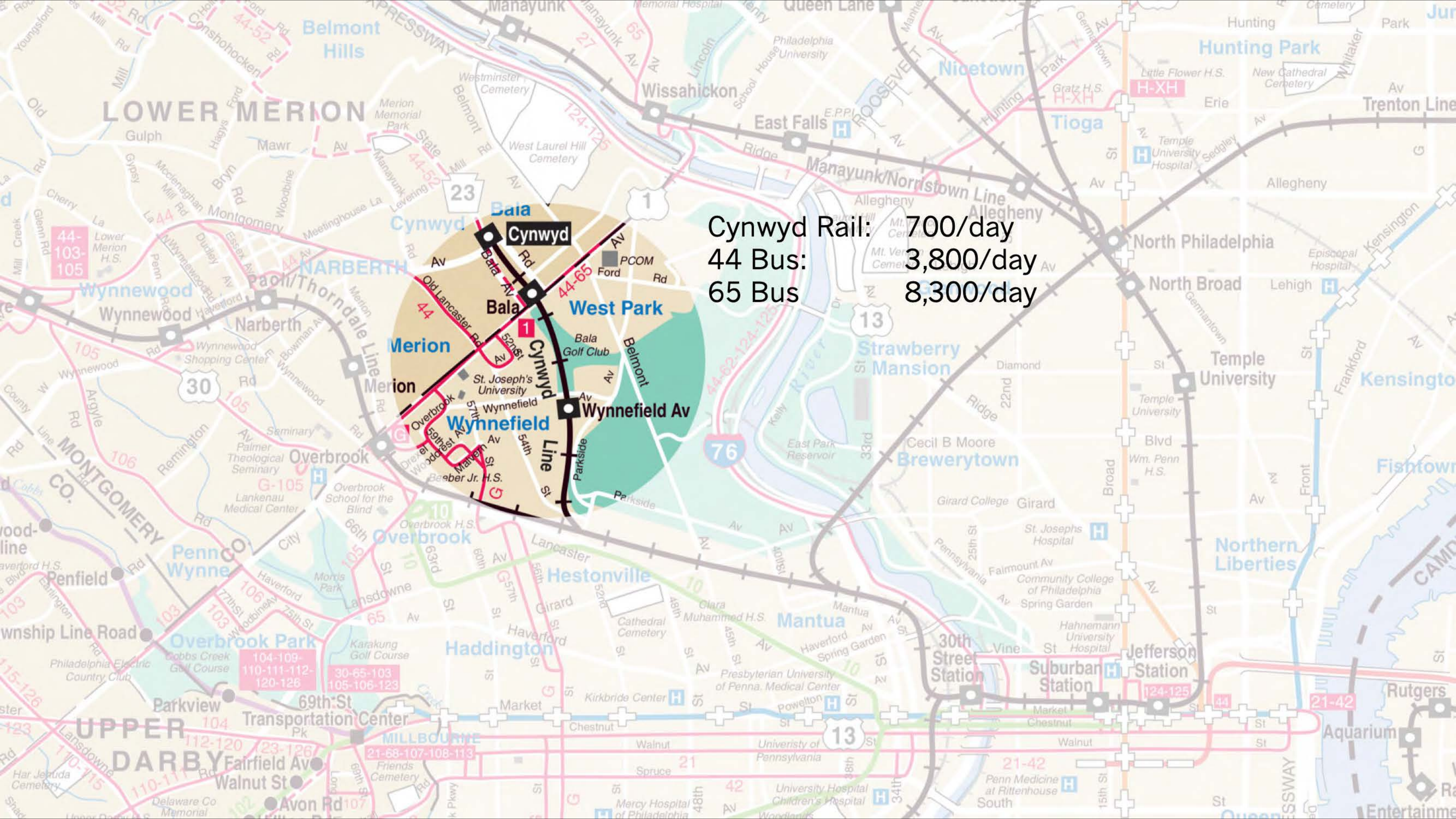


\$3.50
Cash
Token
Transpass

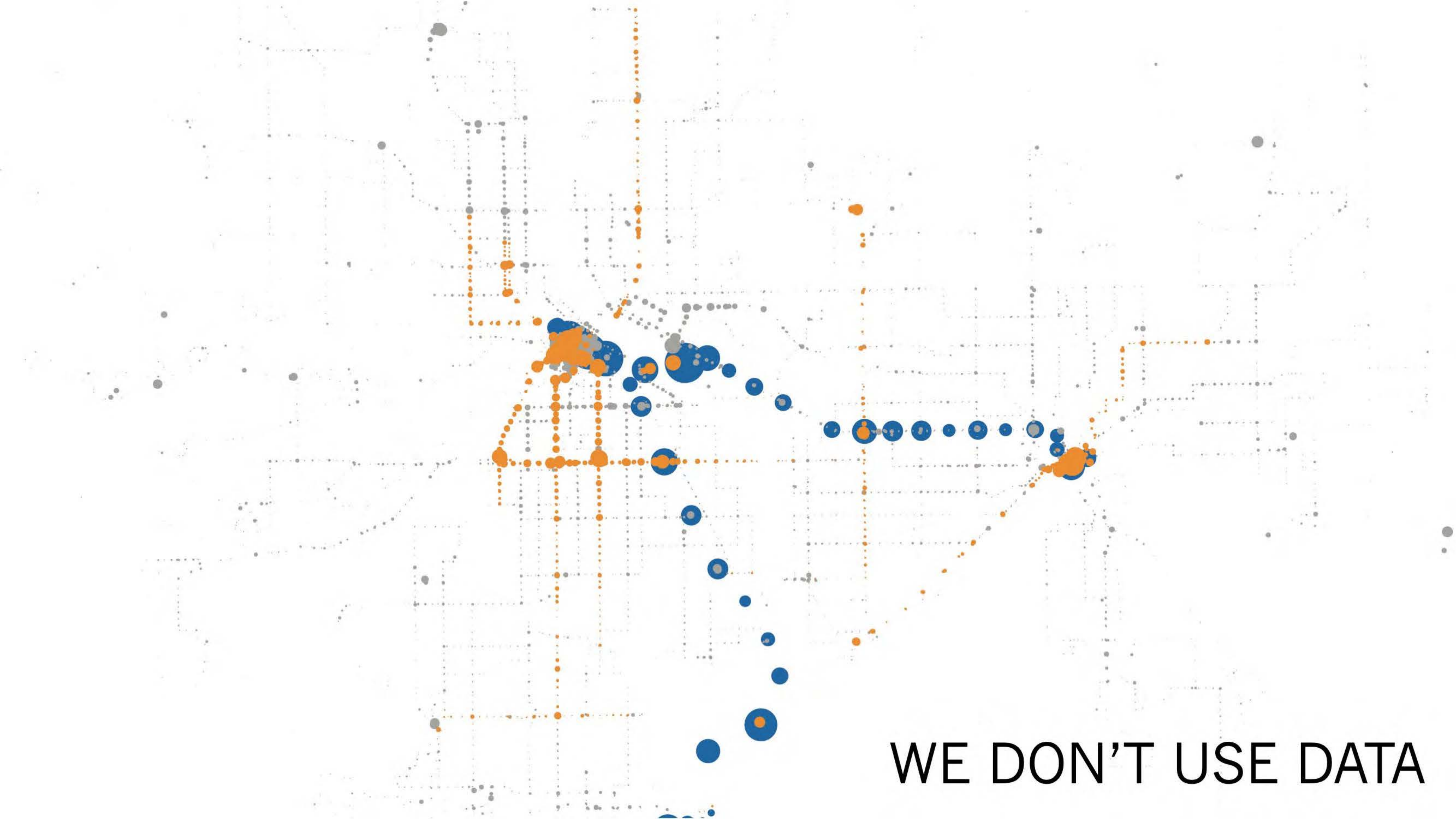


\$5.25-\$7.00
Cash
Trailpass

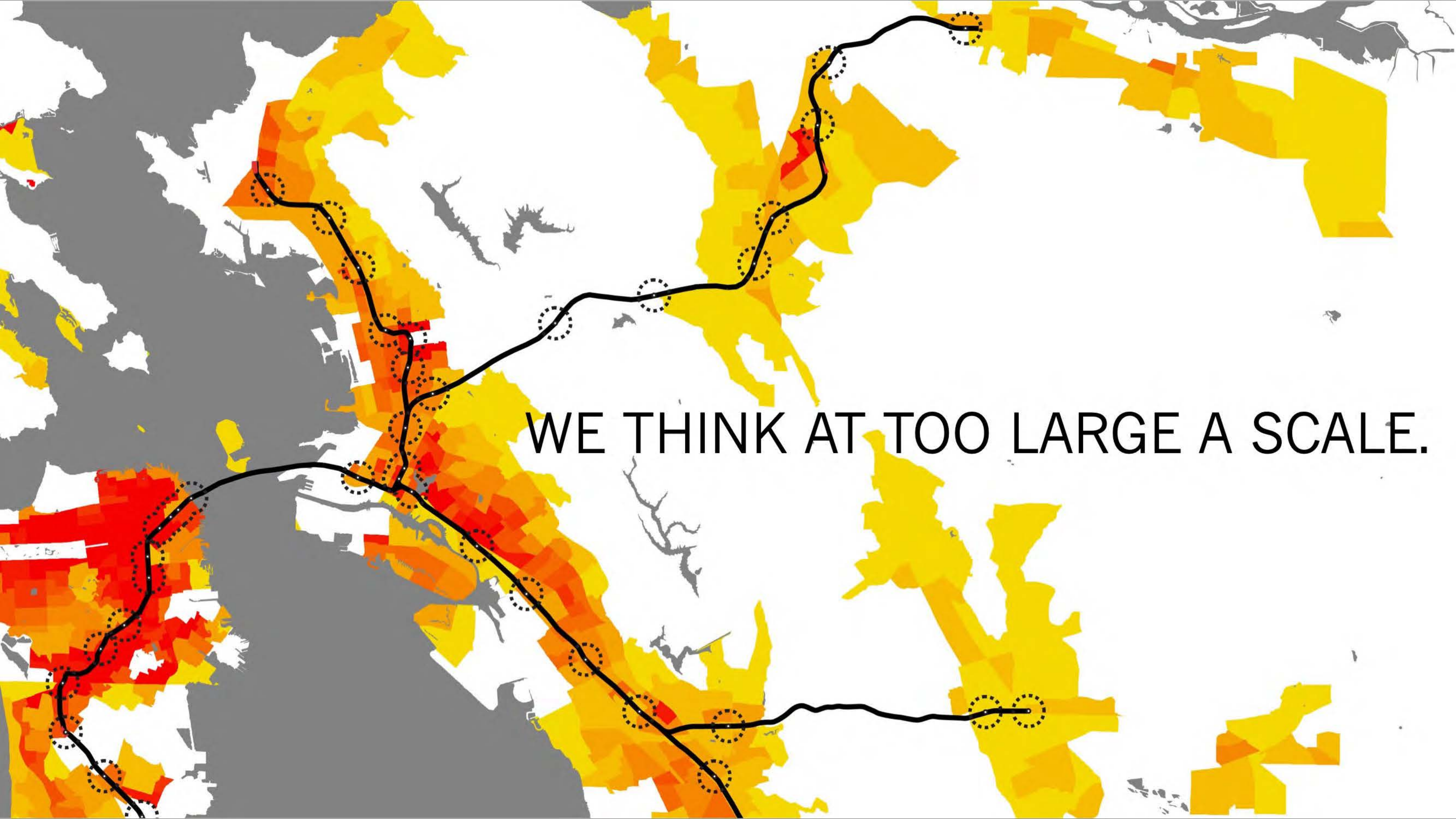




Cynwyd Rail: 700/day
44 Bus: 3,800/day
65 Bus: 8,300/day



WE DON'T USE DATA

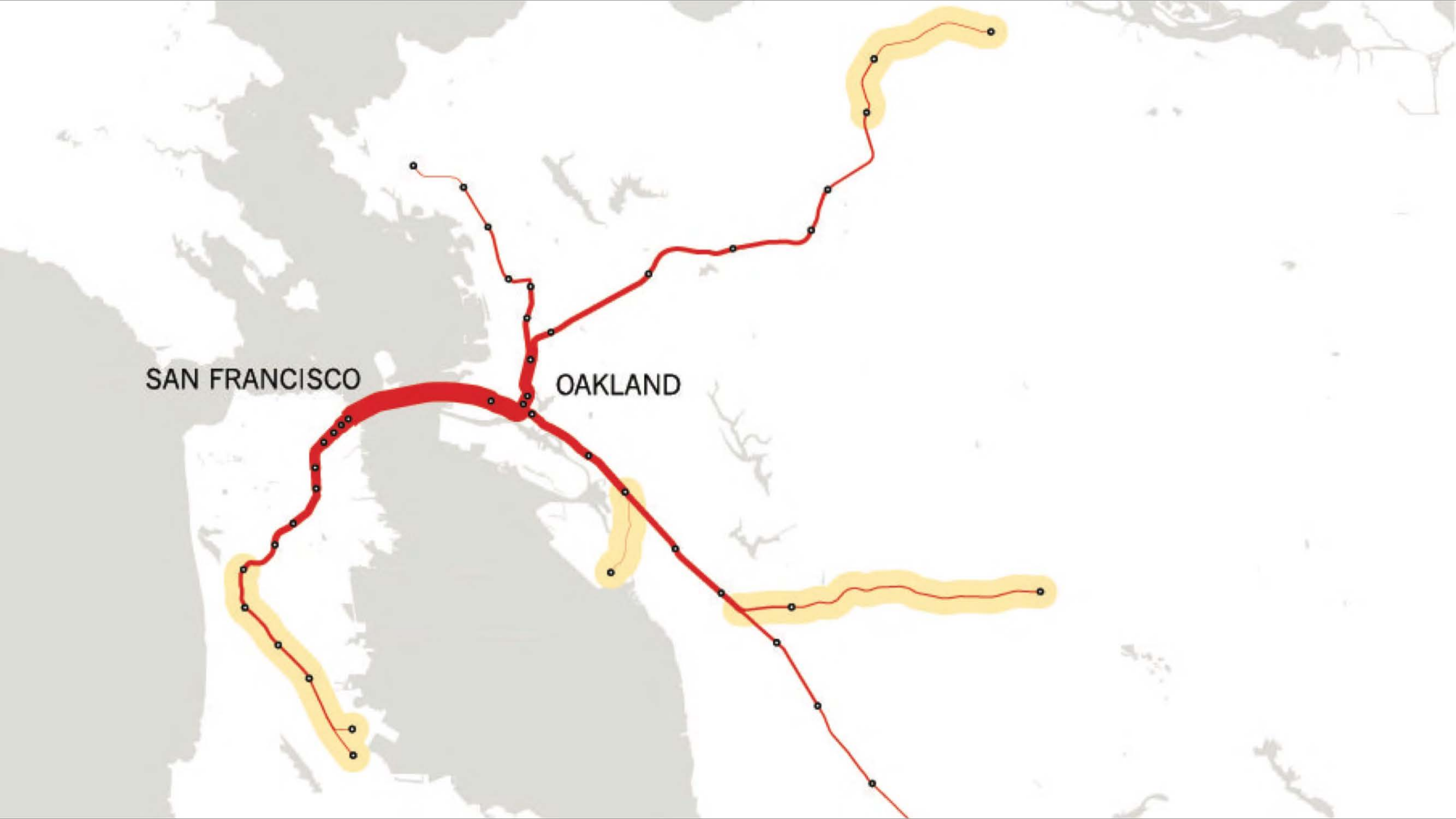


WE THINK AT TOO LARGE A SCALE.



SAN FRANCISCO

OAKLAND



BART board votes down extension to Livermore

By Michael Cabanatuan Updated 11:30 pm PDT, Thursday, May 24, 2018



Photo: Jessica Christian / The Chronicle

BART directors decided to not extend the line from this West Dublin/Pleasanton Station to Livermore.

[Buy Photo](#)

BART won't go to Livermore, the transit agency directors decided

after a nearly four-hour hearing in Oakland on Thursday

Screenshot

5. SAN FRANCISCO

San Jose–San Francisco–Oakland, CA
 population 8,607,423 (5th) weekday trips per 1,000 198

The San Francisco Bay Area, divided by water and hills and centered on three major cities (San Francisco, Oakland, and San Jose), is a place of contrasts. San Francisco itself, seven miles square, is the oldest city on the West Coast. Surrounded by water on three sides, it is dense, mixed-use, and walkable. At the south end of the bay, San Jose, which was still surrounded by orchards in the 1960s, is now a sprawl of low-rise, car-oriented office parks known as Silicon Valley. The more the Bay Area population grows, the more the prewar core cities densify, and the rest of the area grows outwards, pushing waves of stucco houses into the farmlands of the Central Valley.

The Bay Area's transit, split into many systems by geography and history, reflects these contrasts in land use. San Francisco has one of the most comprehensive transit networks in the country. Nearly all residents are within walking distance of all-day frequent service. As a result, 25 percent of trips in San Francisco are made on transit. The Geary local bus route alone serves 55,000 riders a day, more than half of the rail-transit systems in the United States. MUNI Metro ranks among the three top systems in the country by total ridership and ridership per mile. In San Jose, however, transit struggles. Its light-rail system is one of the worst performers in the country. With 42 miles, its light-rail system is longer than San Francisco's, but it carries only a quarter as many riders. San Jose has spent a lot of money on transit, but it has also spent a lot of money on roads and enforced land-use restrictions that limit density. Its tallest building is only 22 stories.

The transit network is tied together by BART, which, like the Bay Area, has a split personality. It was the first modern heavy-rail system in the United States, opened in 1972 as public opinion turned against new freeways. Its single line in San Francisco crosses the bay and then splits into four lines in the East Bay. In its core, it is a busy urban-rail system, tunneling under walkable places, fed by bus routes, and useful for short trips. At its extremities, it acts more like commuter rail, picking up suburbanites from vast parking lots. Pittsburg—the far eastern end of the system—is 40 miles, 55 minutes, and two mountain ranges away from Downtown San Francisco. BART has become essential: it carries 60 percent of peak-hour trips crossing the bay into San Francisco.

The Bay Area is politically disjointed, and the transit system reflects this. There are more than 30 separate transit operators. The region's complex politics also make it hard to make good decisions on capital projects. Ironically, the region's transit-friendly politics can make things worse by ensuring that any project, whether it makes sense or not, can be funded. The region's track record on investments is not good. BART's extensions since 1995 have increased system mileage by 45 percent, but only 20 percent

- + Dense and transit-intense core city with extensive frequent bus and successful light-rail and streetcar systems
- + Heavy-rail system acting as a regional spine and cross-bay conduit
- + Busy commuter rail with all-day service and employment at both ends
- Major investments in low-ridership suburban rail while neglecting urban areas
- Complex and often uncoordinated mix of agencies

BART
 BART
 independent agency
 Heavy Rail



MUNI
 municipal
 Frequent Bus
 Light Rail
 BRT
 Streetcar
 Cable Car



VTA
 independent agency
 Light Rail
 BRT
 Frequent Bus



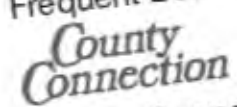
AC Transit
 independent agency
 Frequent Bus
 BRT



SamTrans
 independent agency
 Frequent Bus



Wheels
 independent agency
 Frequent Bus



County Connection
 independent agency
 Frequent Bus



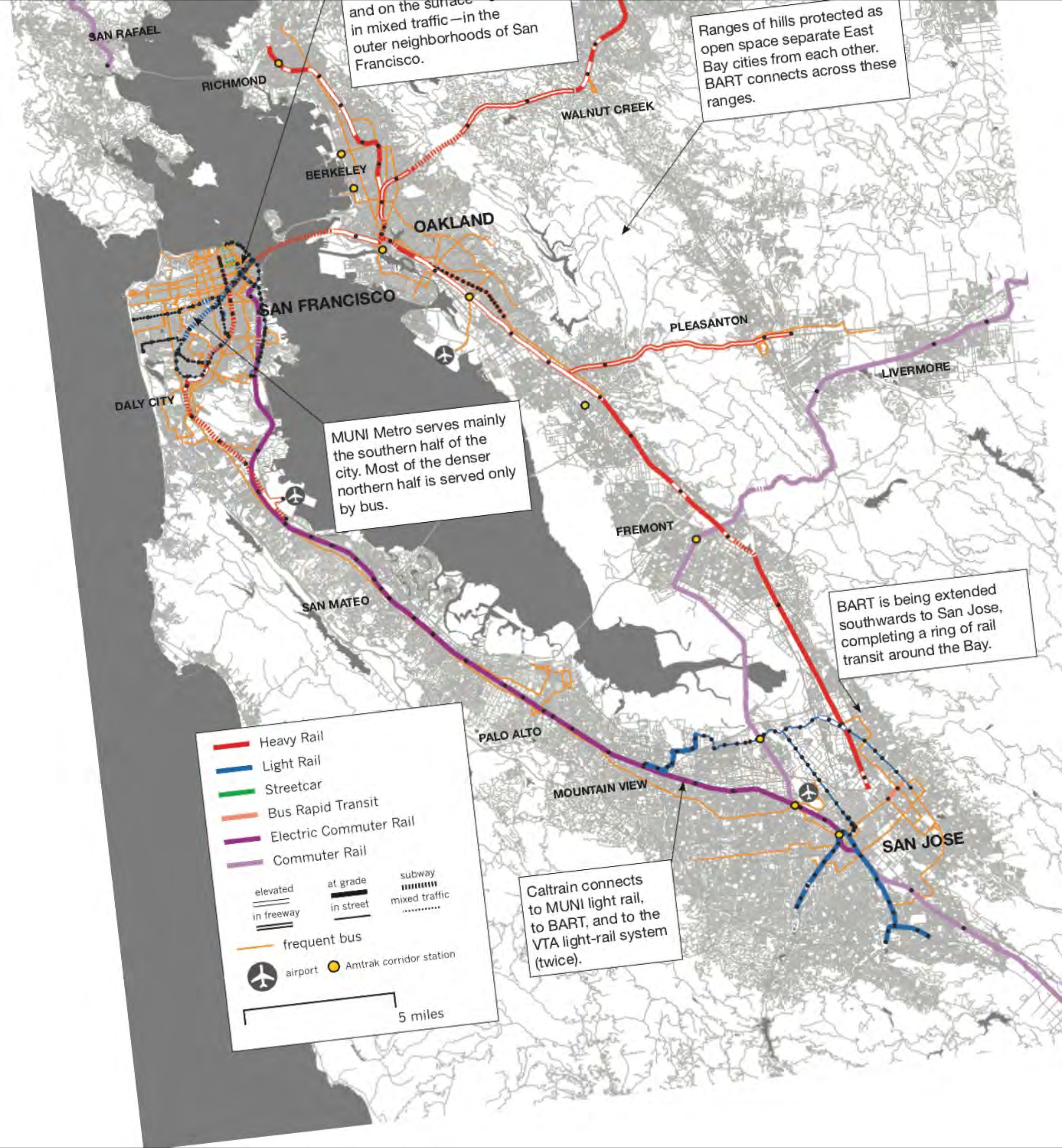
Caltrain
 independent agency
 Commuter Rail



Altamont Corridor Express
 independent agency
 Commuter Rail

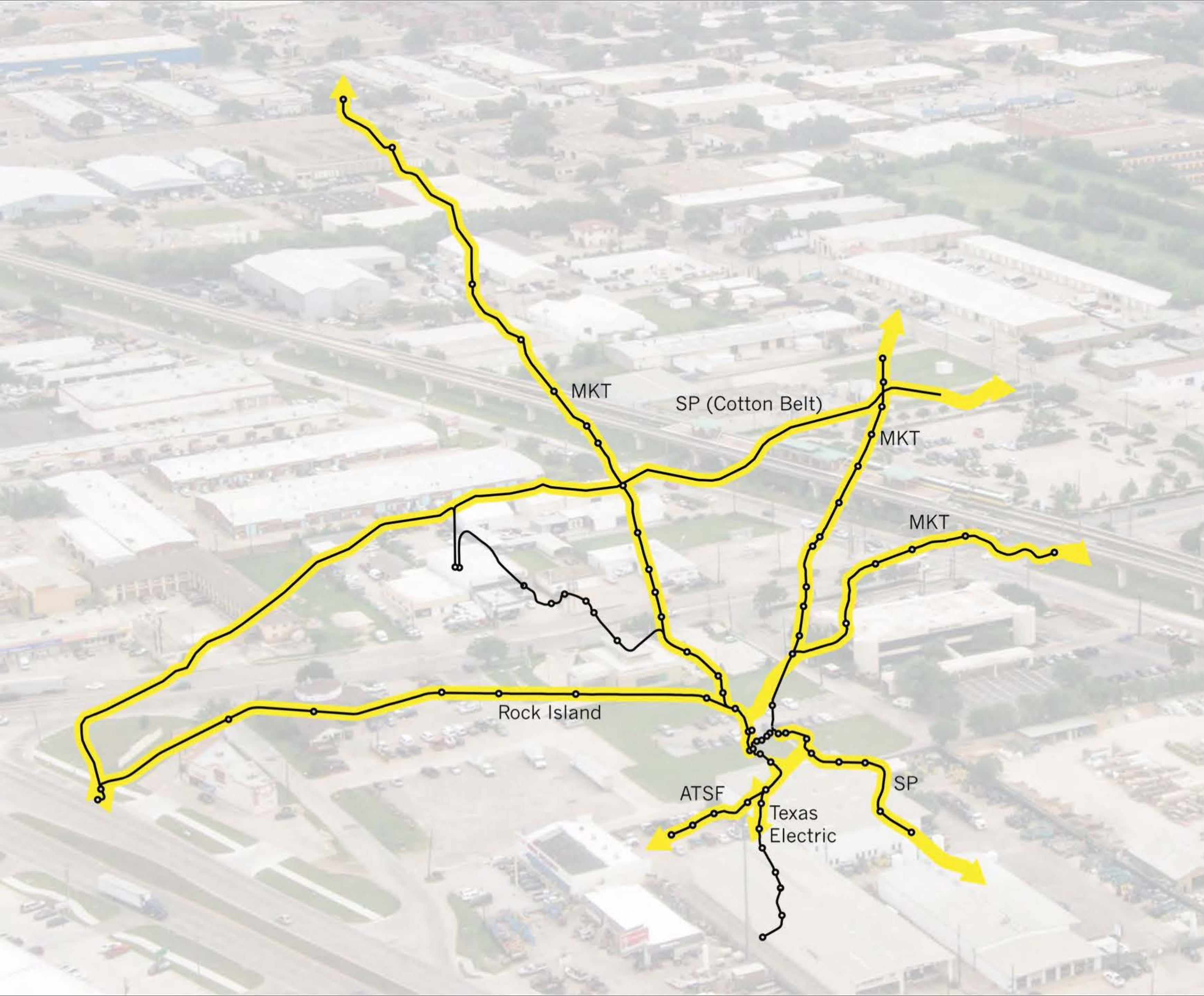


SMART
 independent agency
 Commuter Rail






WE THINK ABOUT PATH, NOT DESTINATIONS



Light Rail (DART)

LARGE SYSTEM



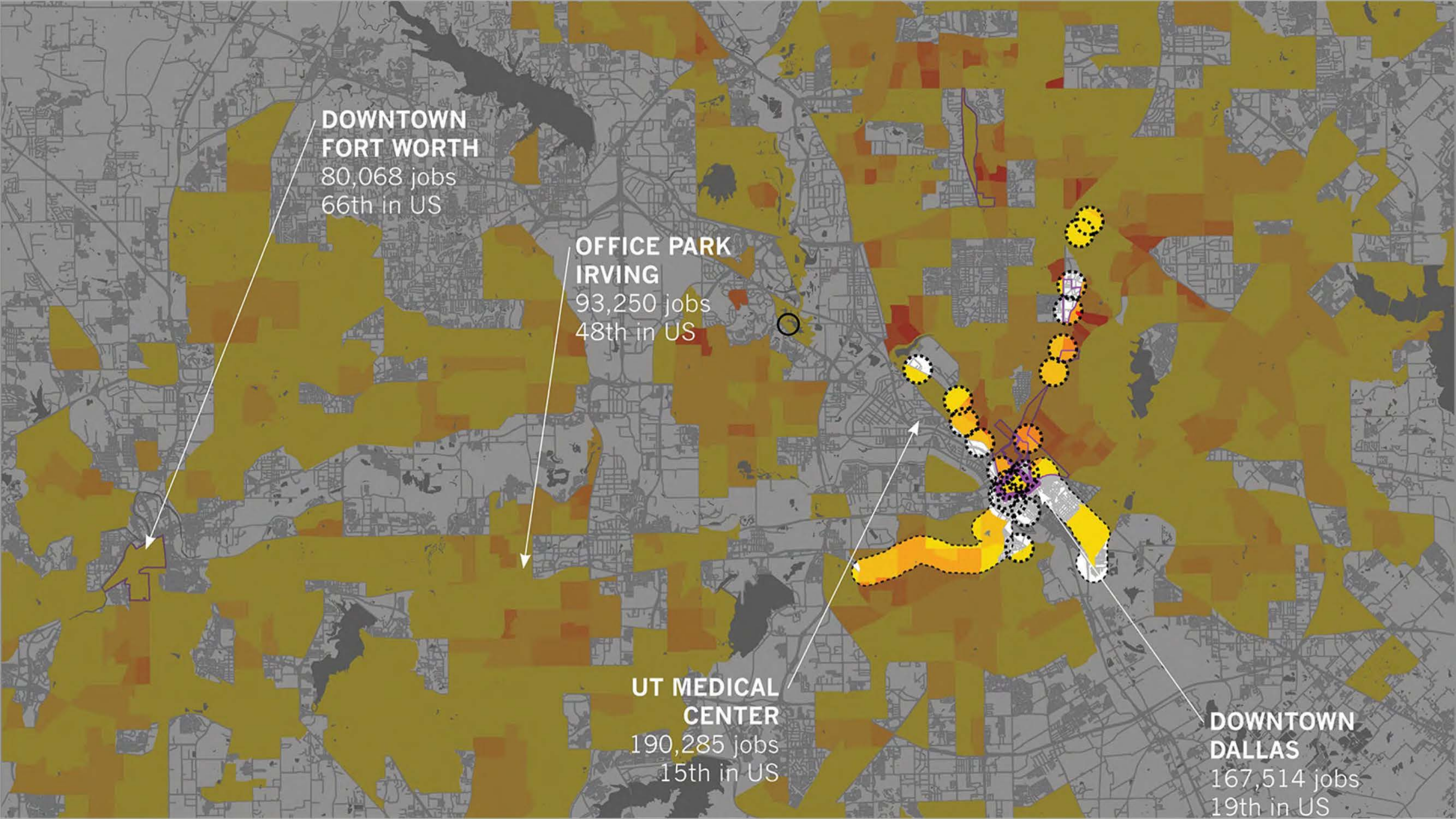
Opened: 1996
Last Expanded: 2016
Length: 92.6 miles
Stations: 64
Frequency: 8–15 min peak, 10–20 min midday/evening/weekend
Avg weekday ridership: 101,500
Ridership per mile: 1,096

**DOWNTOWN
FORT WORTH**
80,068 jobs
66th in US

**OFFICE PARK
IRVING**
93,250 jobs
48th in US

**UT MEDICAL
CENTER**
190,285 jobs
15th in US

**DOWNTOWN
DALLAS**
167,514 jobs
19th in US



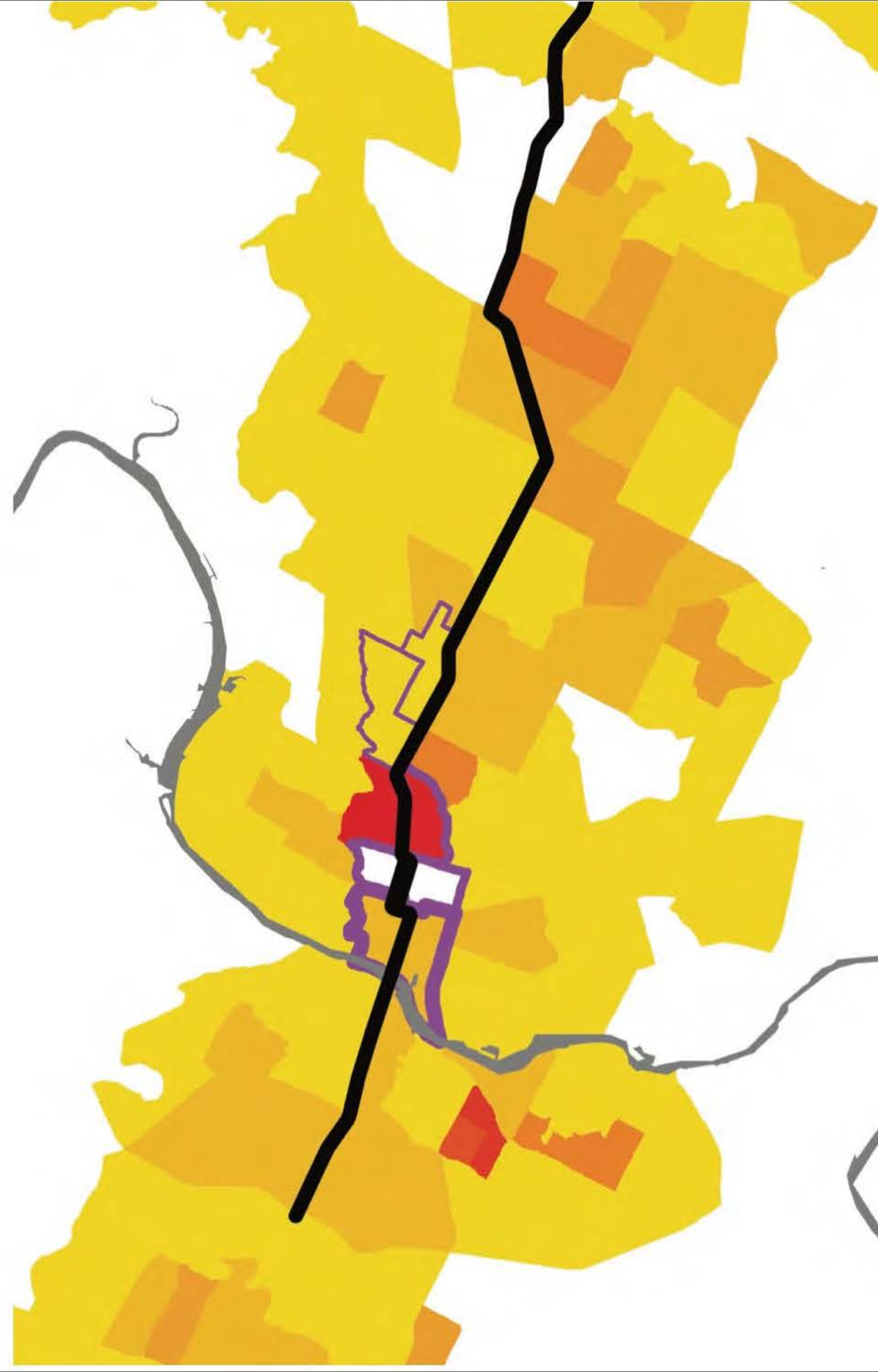
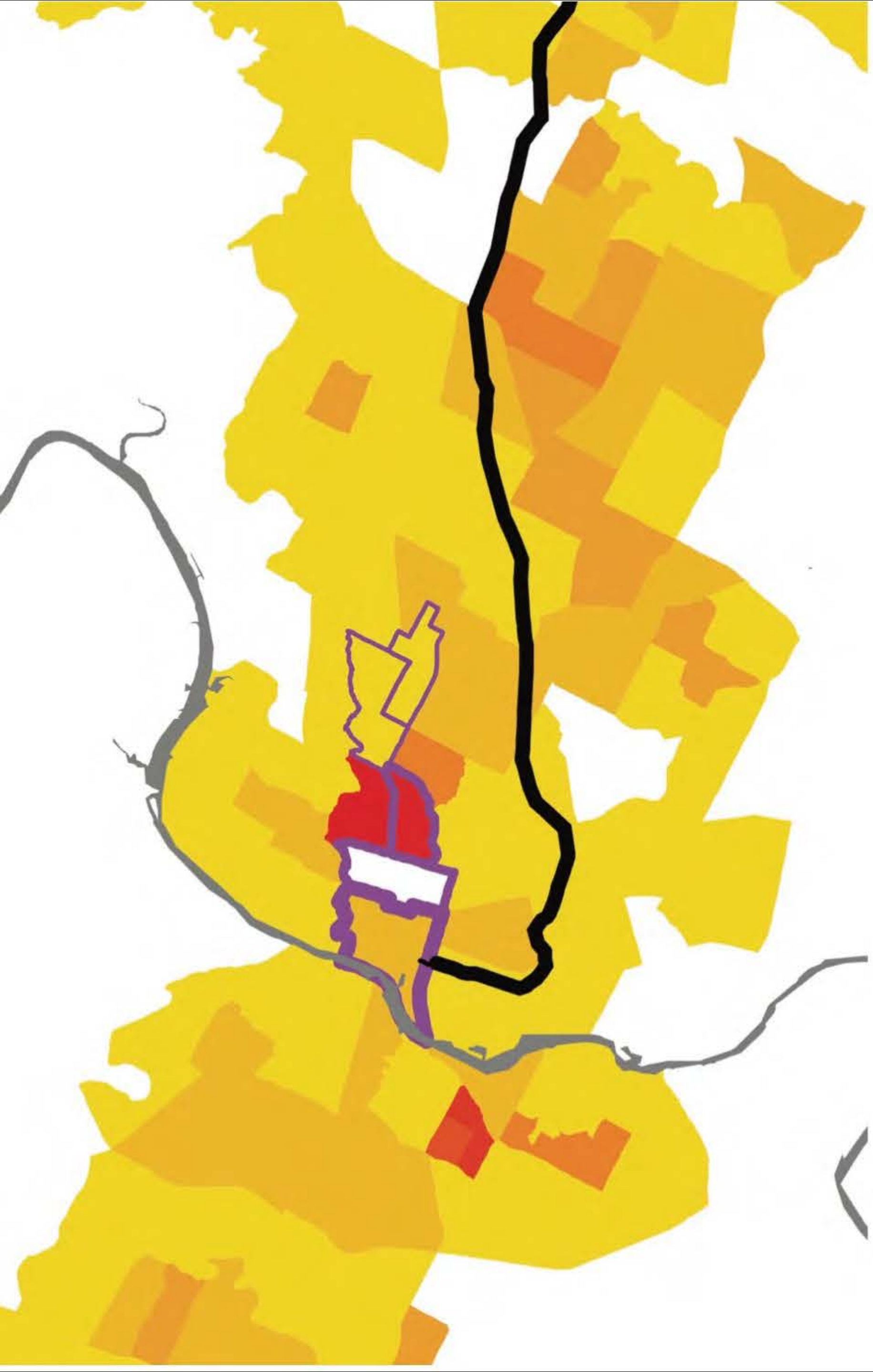
ammond
Better Way

NO Rail On RICHMOND
There Is A Better W

NO Rail On R

On R

WE AVOID OPPOSITION.



Irving Transit Bulb-Outs Downsized to Appease SFFD, Parking Complainers

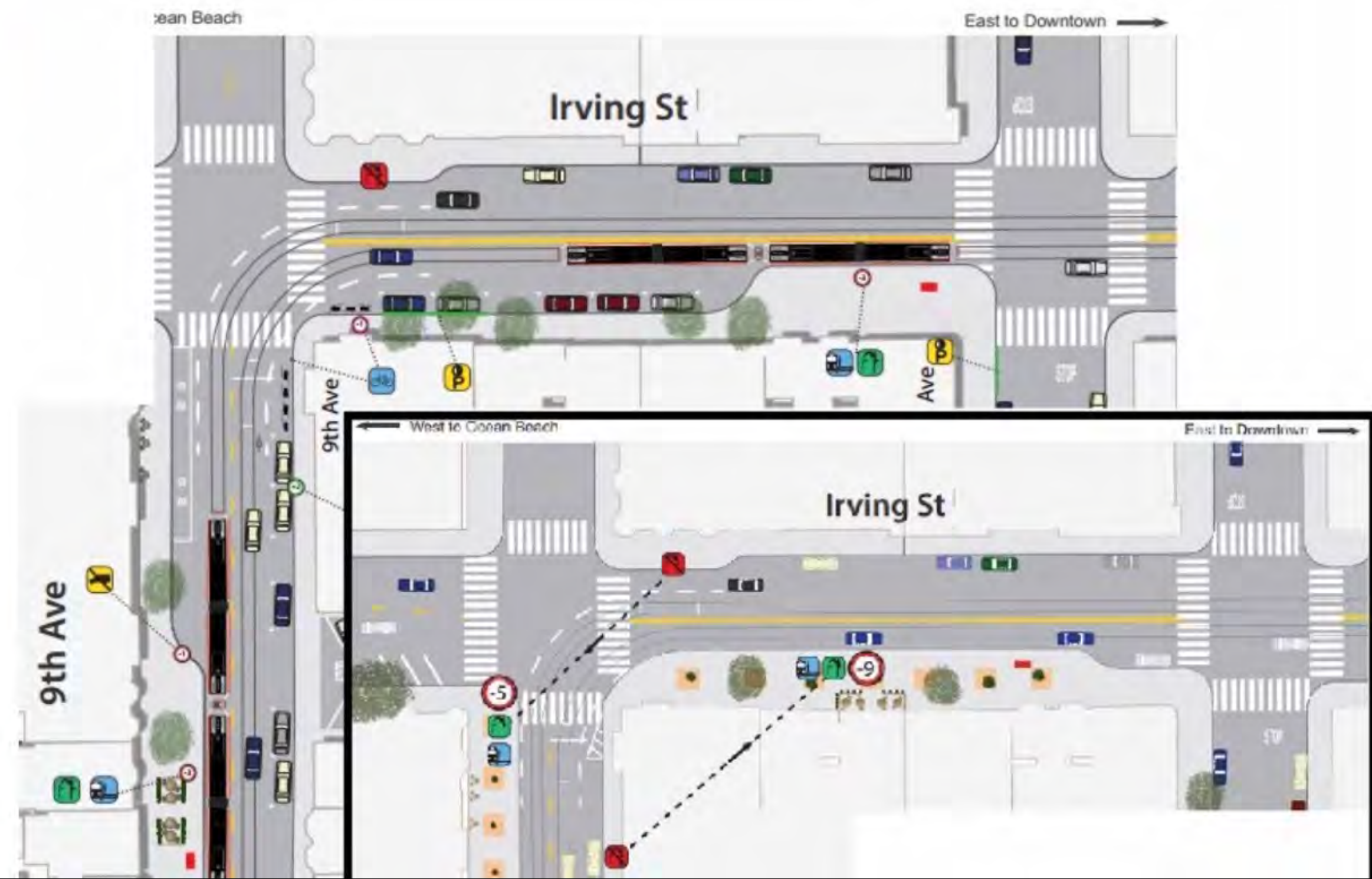
By Aaron Bialick | Mar 12, 2014 | 33

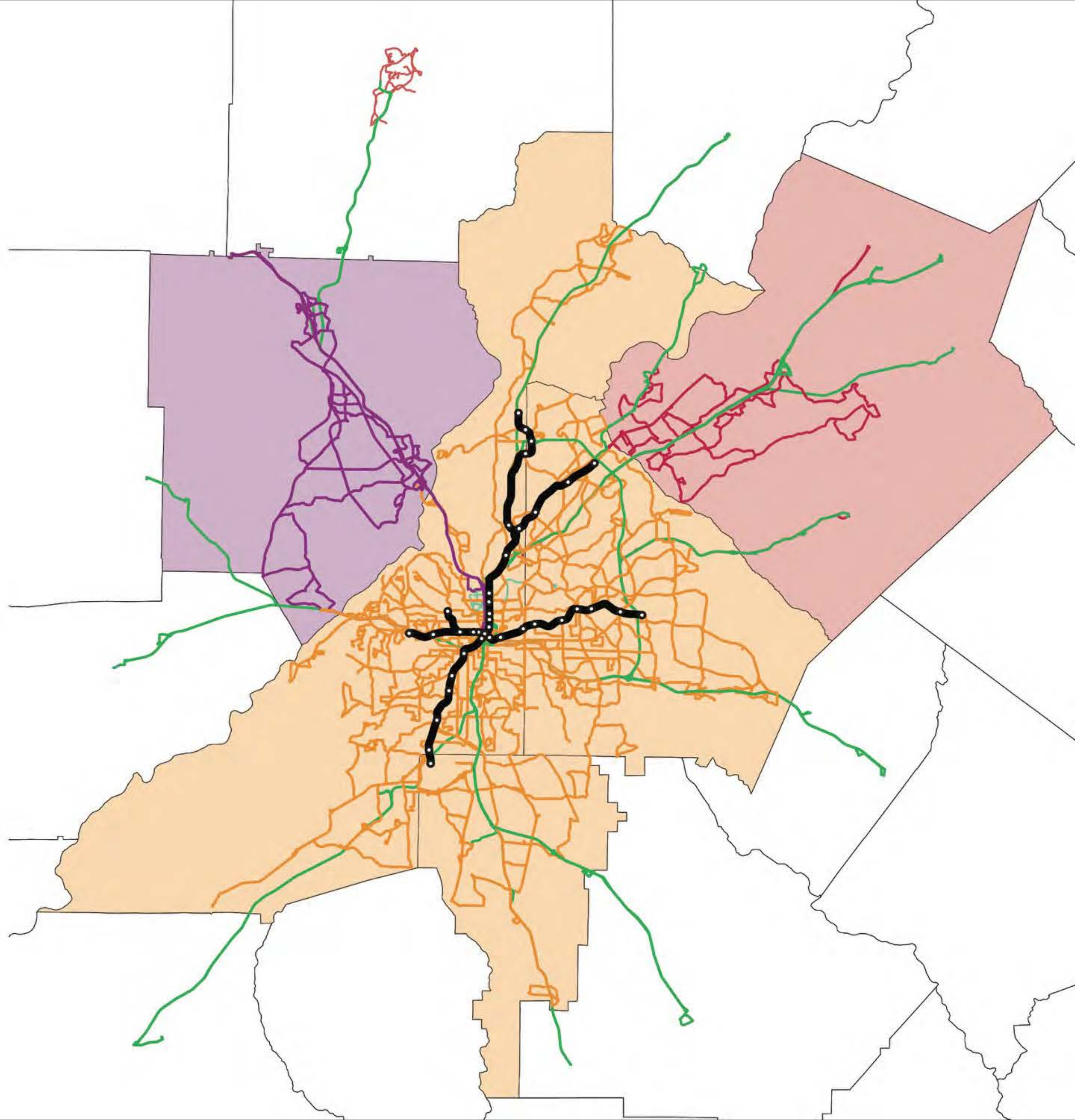
THIS POST IS SUPPORTED BY GJEL ACCIDENT ATTORNEYS



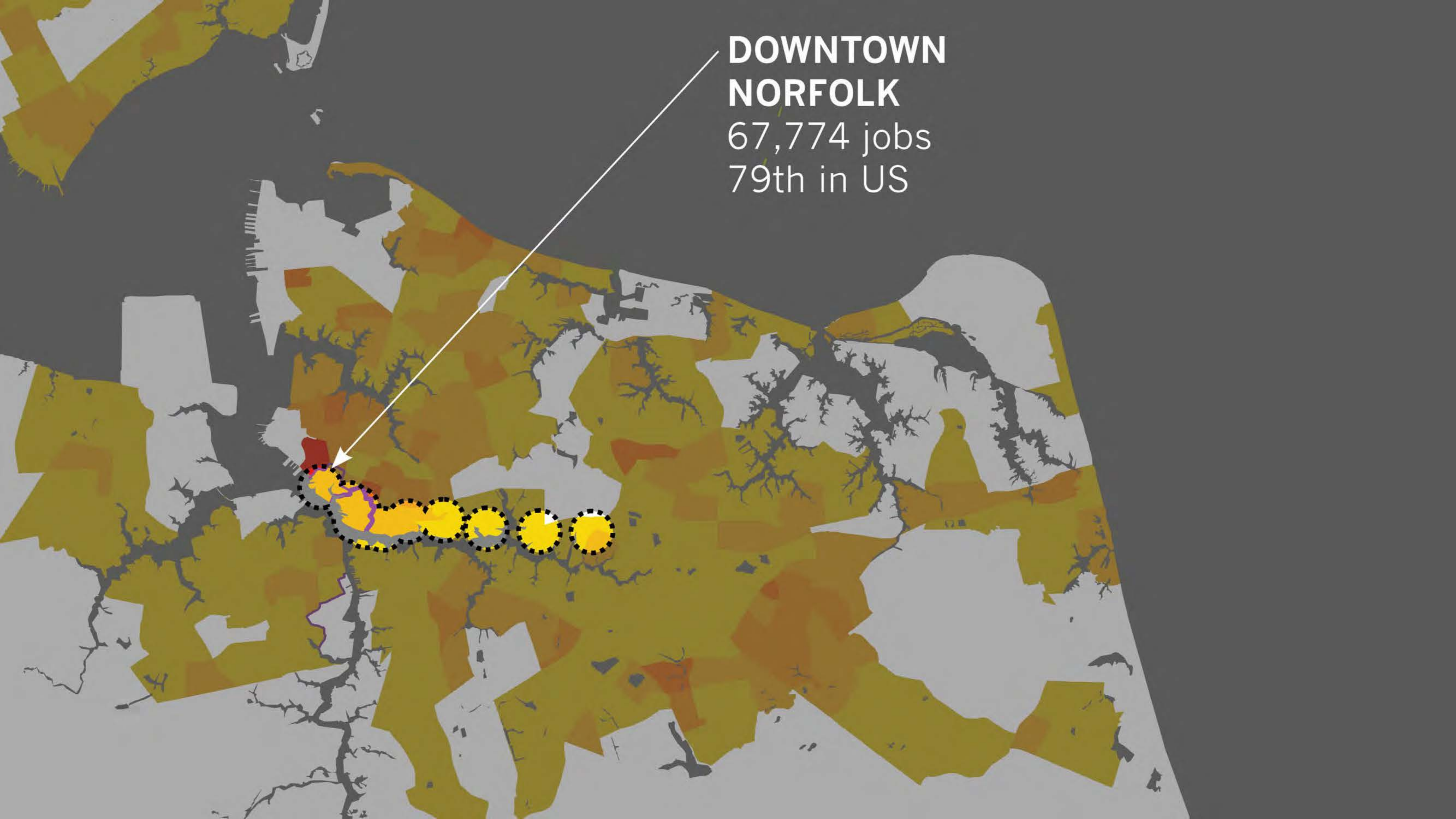
Irving and 9th

Proposed Changes





**DOWNTOWN
NORFOLK**
67,774 jobs
79th in US

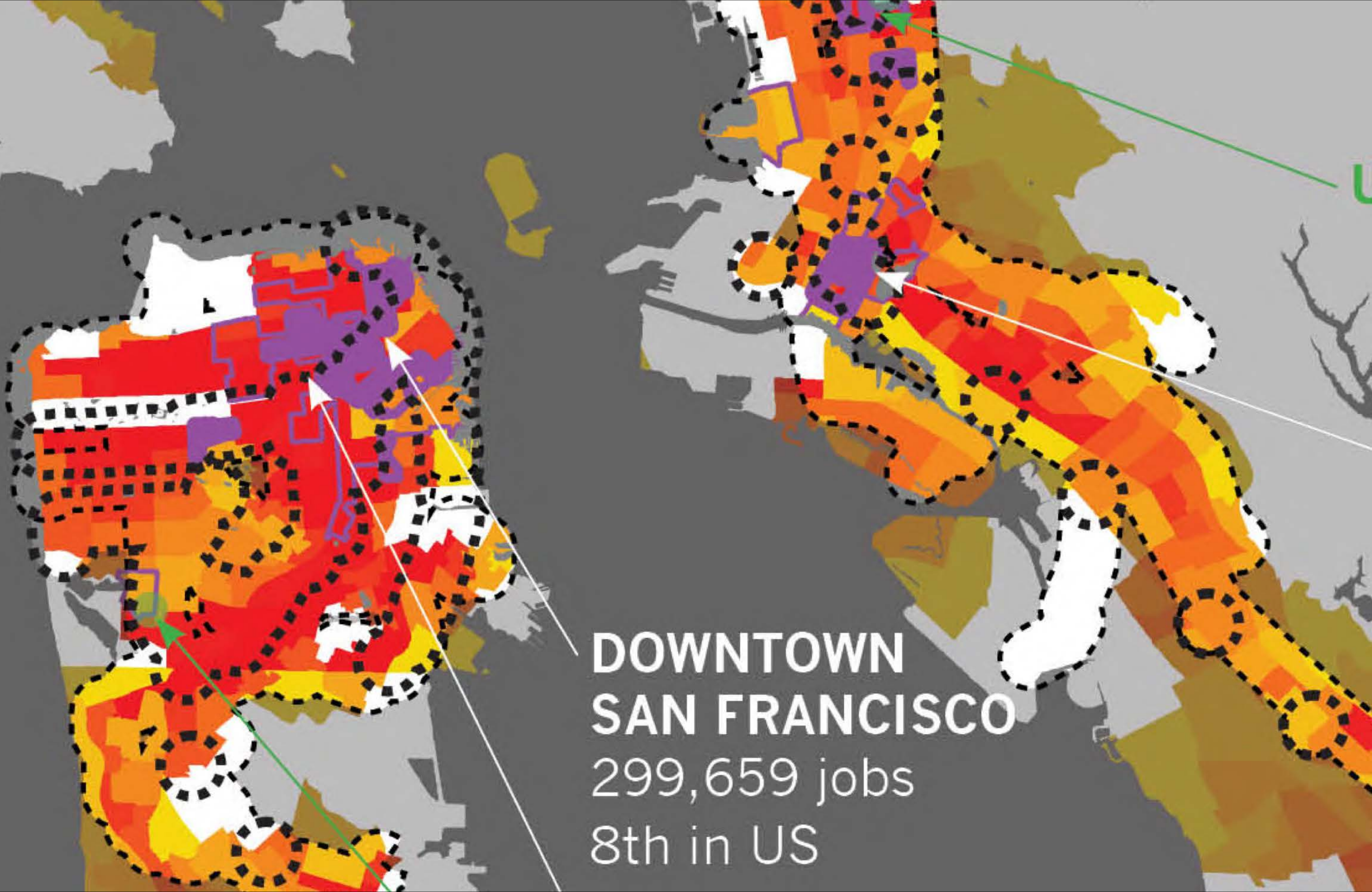




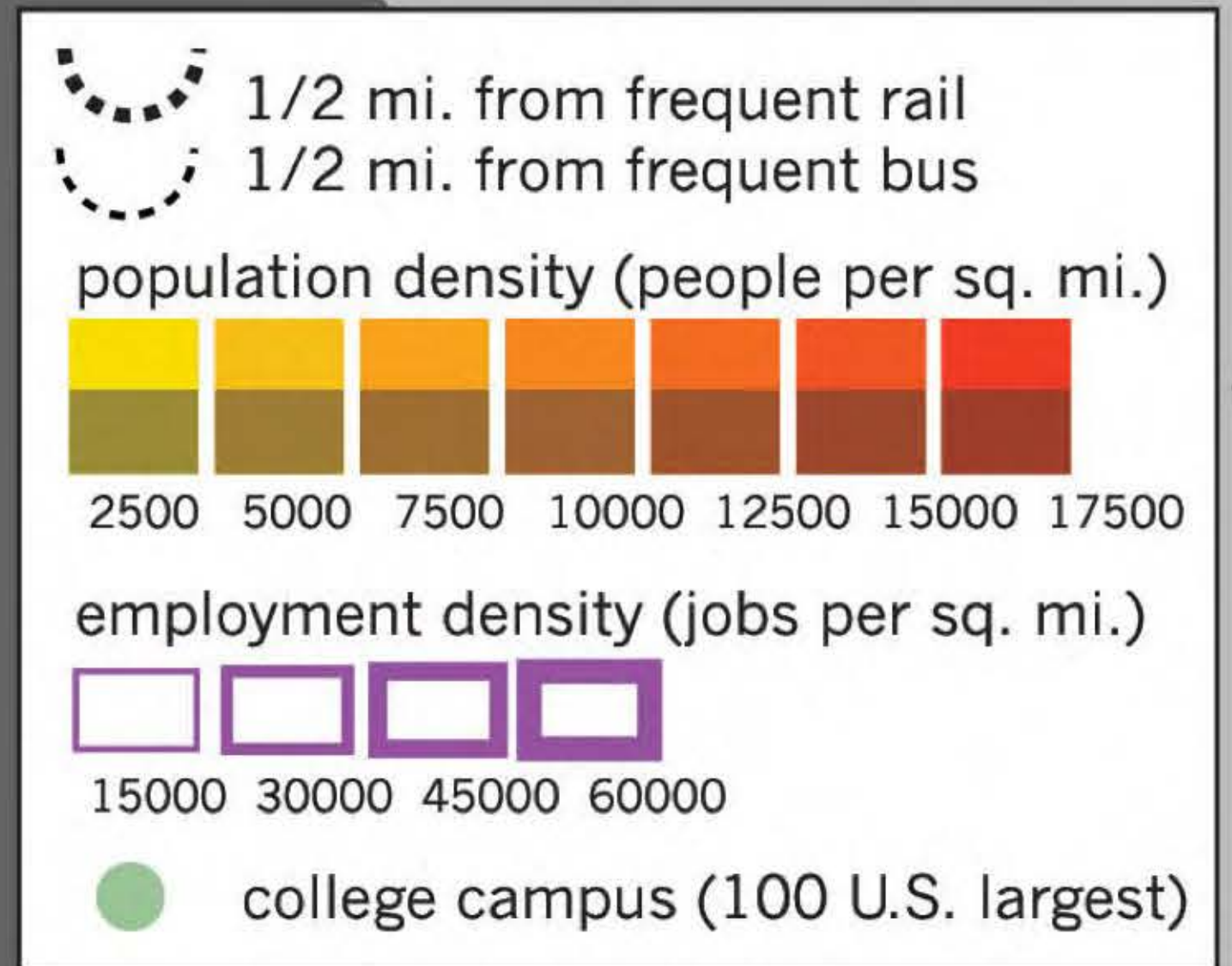


TRAINS BUSES

PEOPLE



**DOWNTOWN
SAN FRANCISCO**
299,659 jobs
8th in US

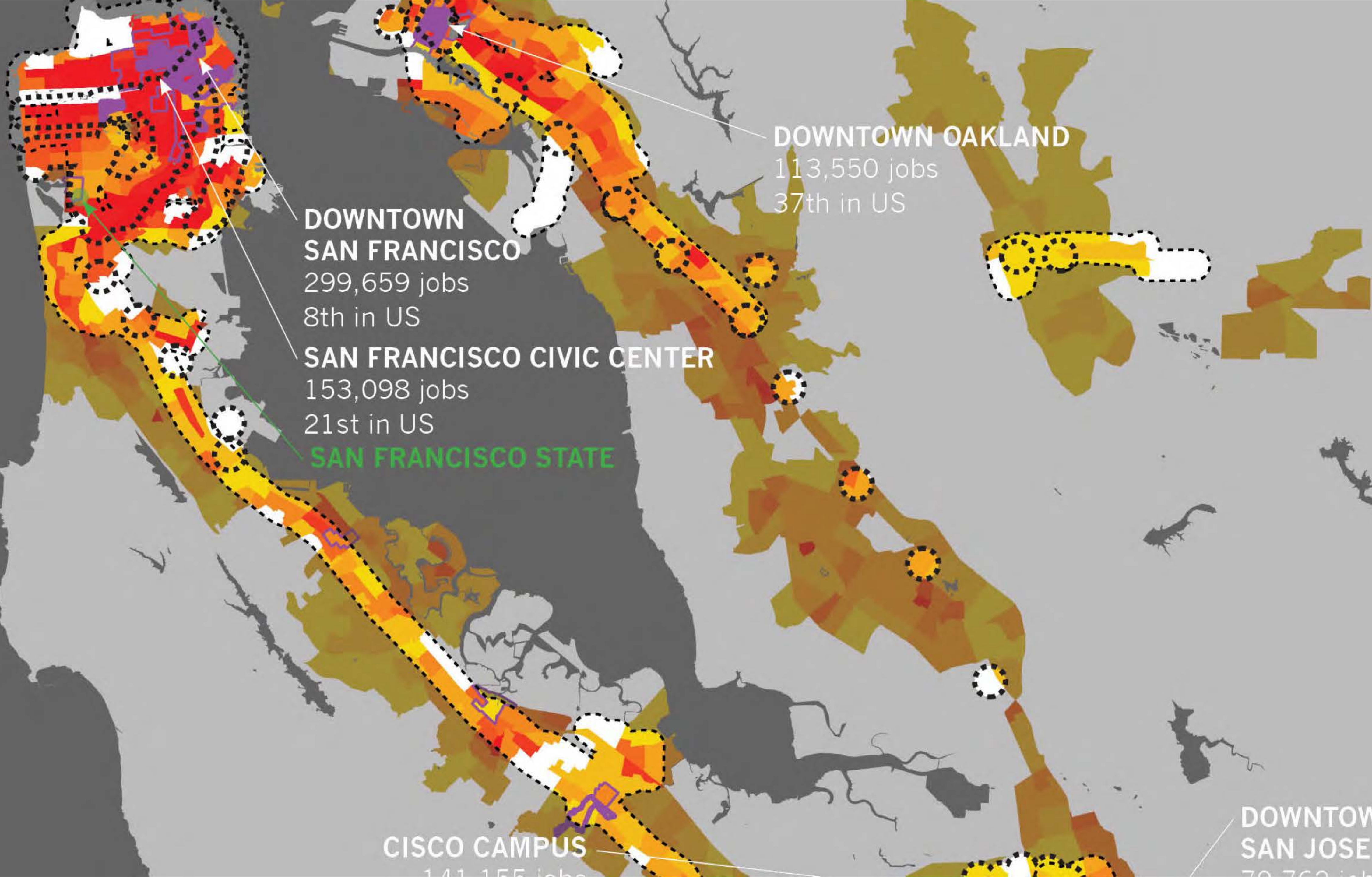


CISCO CAMPUS
 141,155 jobs
 25th in US

SANTA CLARA OFFICE PARKS
 72,233 jobs
 75th in US

DOWNTOWN SAN JOSE
 70,762 jobs
 79th in US

SAN JOSE STATE



DOWNTOWN OAKLAND

113,550 jobs
37th in US

**DOWNTOWN
SAN FRANCISCO**

299,659 jobs
8th in US

SAN FRANCISCO CIVIC CENTER

153,098 jobs
21st in US

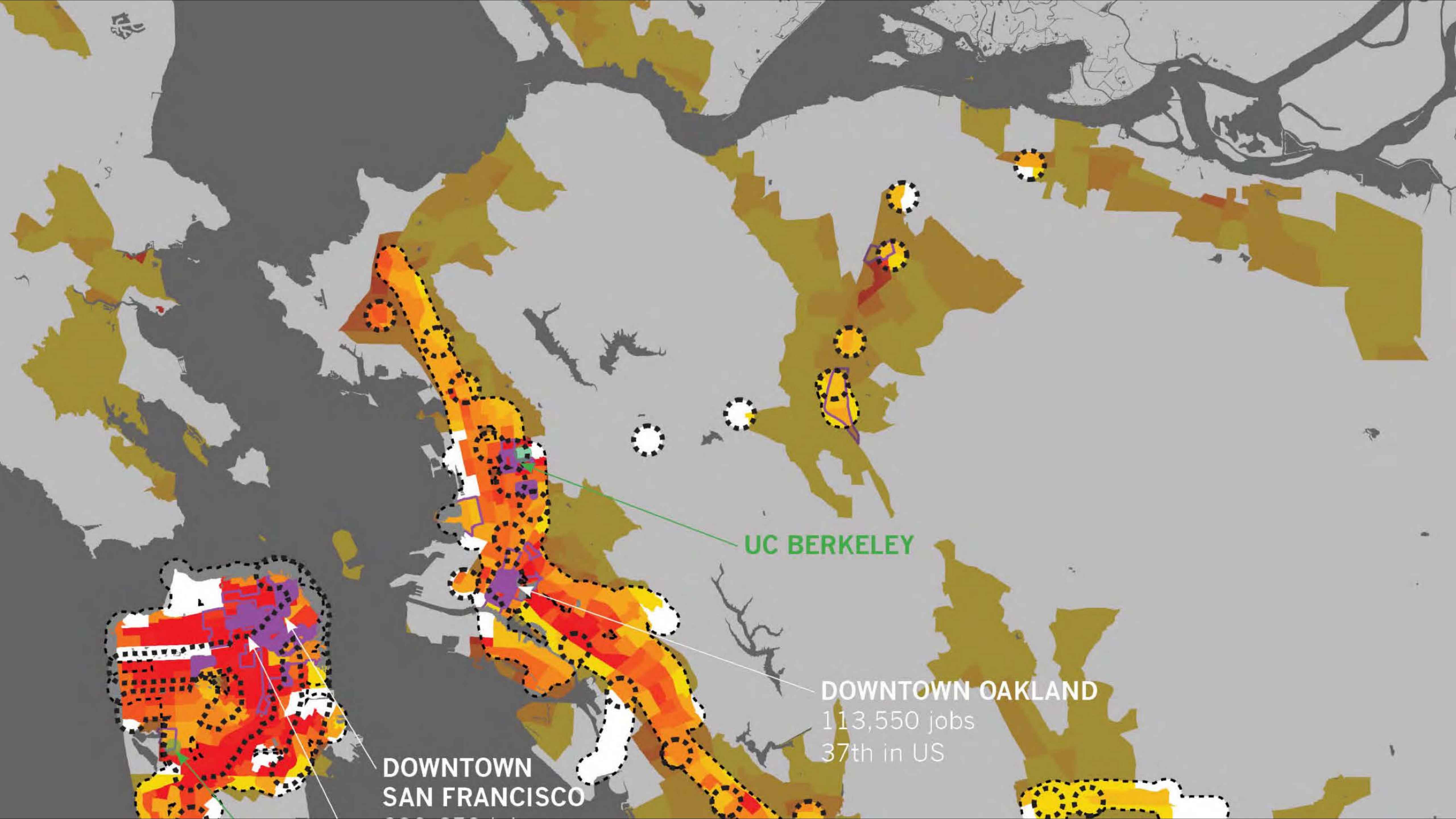
SAN FRANCISCO STATE

CISCO CAMPUS

141,155 jobs

**DOWNTOWN
SAN JOSE**

79,769 jobs



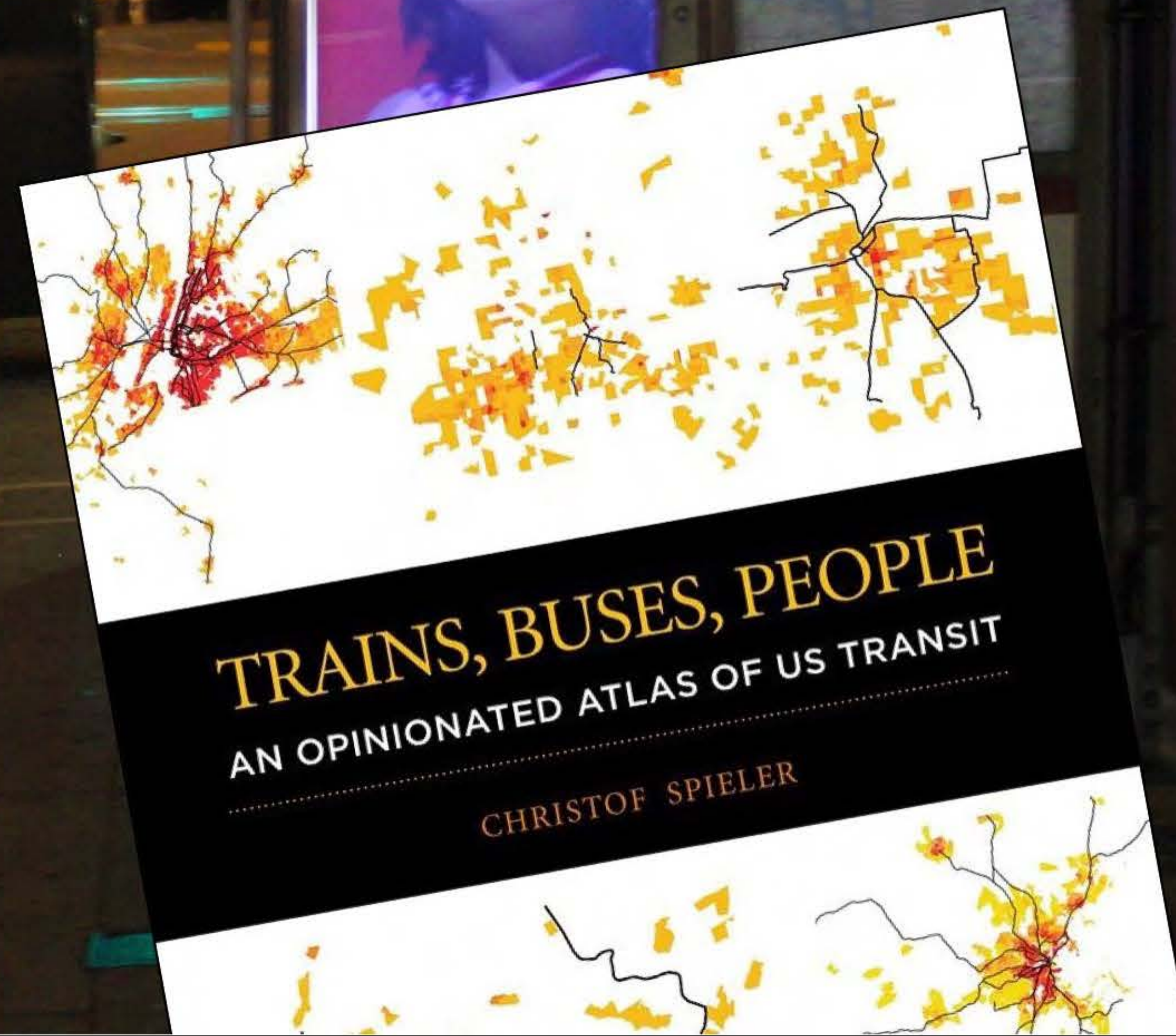
**DOWNTOWN
SAN FRANCISCO**

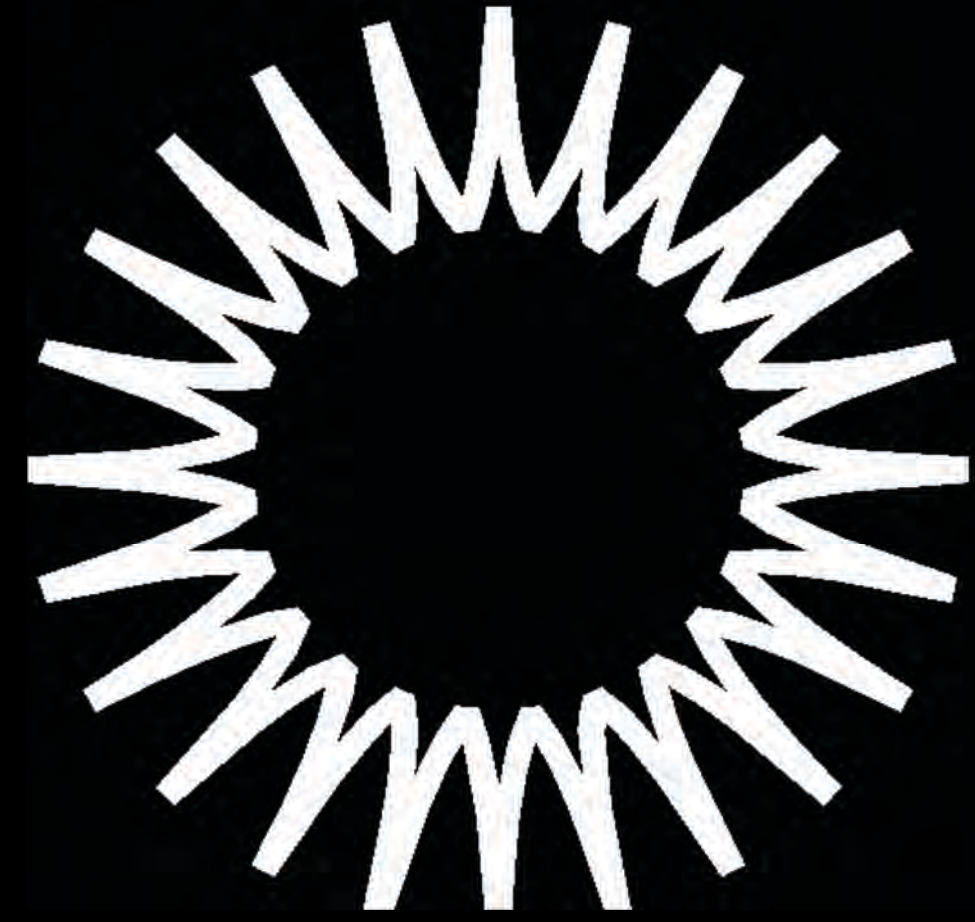
UC BERKELEY

DOWNTOWN OAKLAND
113,550 jobs
37th in US

Christof Spieler, PE, LEED AP
Director of Planning
Huitt-Zollars

cspieler@huitt-zollars.com
@christofspieler





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#TrainsBusesPeople