LEARN. COLLABORATE. SHARE. ENERGIZE.

Kimley»Horn

SMART CITIES TECHNOLOGY FORUM

GoldenKey® Blind Pedestrian Wayfinding System
October 2023

»KITS
A Kimley-Horn Software Solution

»Traction
A Kimley-Horn Software Solution

»Kadence
A Kimley-Horn Software Solution

»Smart Priority
A Kimley-Horn Software Solution

Download your GoldenKey® today to unlock your complete trip

All Access Transit Solutions

DWBE Disadvantaged Traveler Technology Developer

ALL ACCESS

Kimley»Horn

other

other

claudia

anthony

doug

Kimley»Horn

ITS + Smart Cities + Transit + Aviation Engineering Services

Smart Cities Software Developer

Kimley»Horn

darya

Seth?

doug

melissa

National Presence

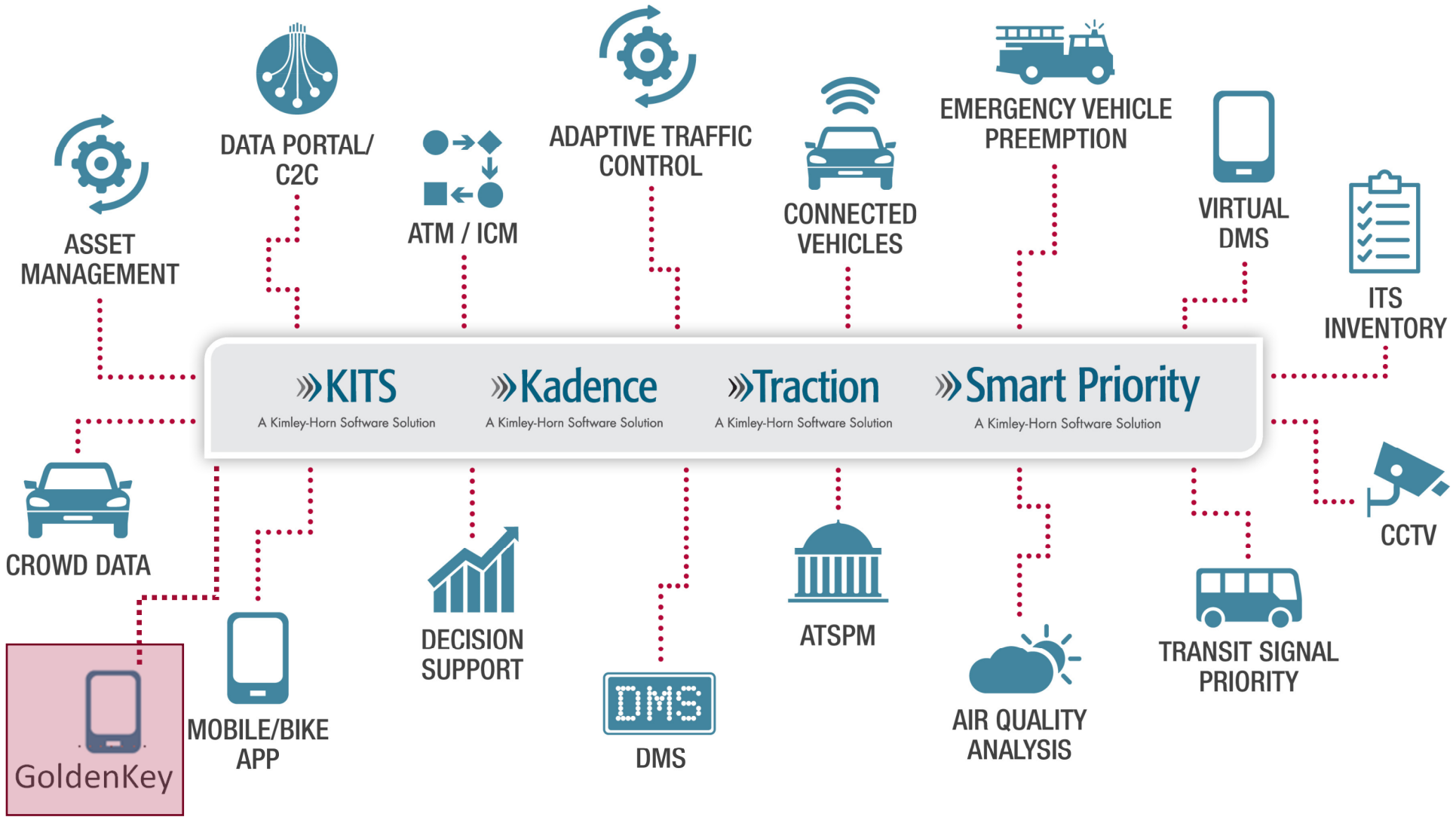
Hundreds of public agency software users

Hundreds of ADA compliance and planning projects

Tens of thousands of public agency clients (airports, transit, public works, etc.)

Hundreds of Nationwide private clients (food service, retail, consumer services, housing)

Kimley-Horn Smart Cities / IoT Platform



Motivation

3M+ functional blind
6M+ visually-impaired persons in the US

60M+ other eligible users in the US

Significant issue in quality of life for the disadvantaged:

Indoor/outdoor wayfinding in unfamiliar complex spaces

Technologies that assist the blind can assist everyone "Universal Design"

Graphic: ADATA

EXAMPLE:
STOP
FLAT FIX

ADA.gov
U.S. Department of Justice
Civil Rights Division

ADA Information Line
Talk to us at 800-514-0301 | 1-833-610-1264 (TTY)
- M, Tu, W, F: 9:30am - 12pm and 3pm - 5:30pm ET
- Th: 2:30pm - 5:30pm ET

Home | Featured Topics | Guidance & Resource Materials | Laws, Regulations & Standards | Enforcement | File a Complaint | Search

The Americans with Disabilities Act (ADA) protects people with disabilities from discrimination.

Disability rights are civil rights. From voting to parking, the ADA is a law that protects people with disabilities in many areas of public life.

What's on ADA.gov

If you broke your leg, and the ER nurse hands you two aspirin and a bandage, they've given you "medicine"

Would you be happy?

ADA compliance is not a "waivers and variances" issue

§36.403 Alterations: Path of travel

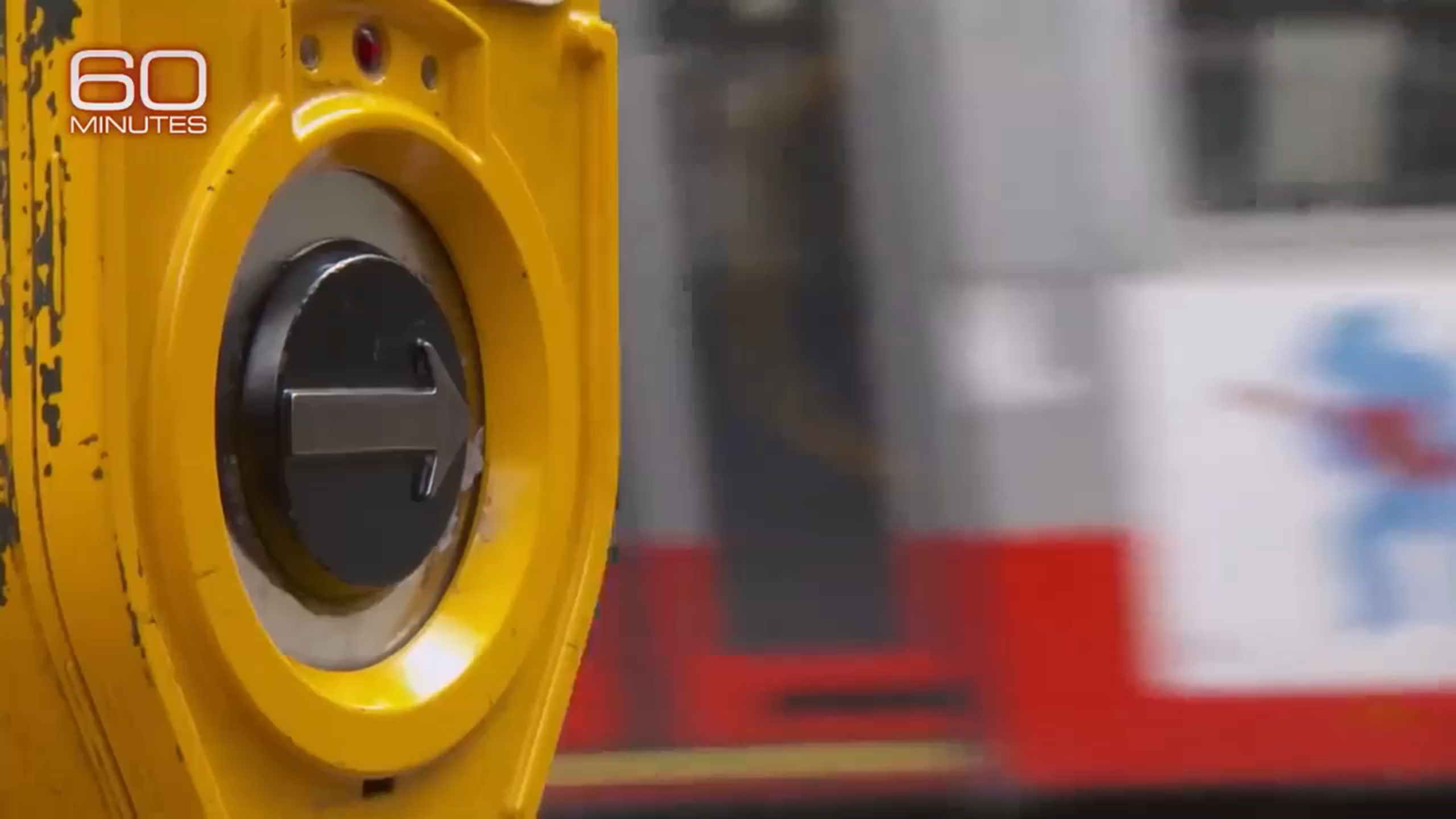
The language is obviously old,, since it mentions access to telephones. Now that I read this again, it isn't probably the right part o emphasize.

(a) General.

(1) An alteration that affects or could affect the usability of or access to a [illegible] contains a primary function shall be made so as to ensure that, to the maximum extent feasible, the path of travel to the altered area and the restrooms, telephones, and drinking fountains serving the altered area, are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless the cost and scope of such alterations is disproportionate to the cost of the overall alteration.

What does READILY ACCESSIBLE mean to you?

We posit that GoldenKey® technologies, now that they exist, could become considered a requirement under Section 36.403 of the ADA legislation


60
MINUTES

60
MINUTES
AC TRANSIT
1565

Indoor wayfinding apps are not new, but most existing apps require dense physical infrastructure in the space.

Expensive.

Time consuming.

Significant maintenance costs.

Remote human assistance (“be my eyes”) is intrusive and expensive (for users and for IOOs).

GOLDENKEY IS DESIGNED BY AND FOR PEOPLE WITH DISABILITIES

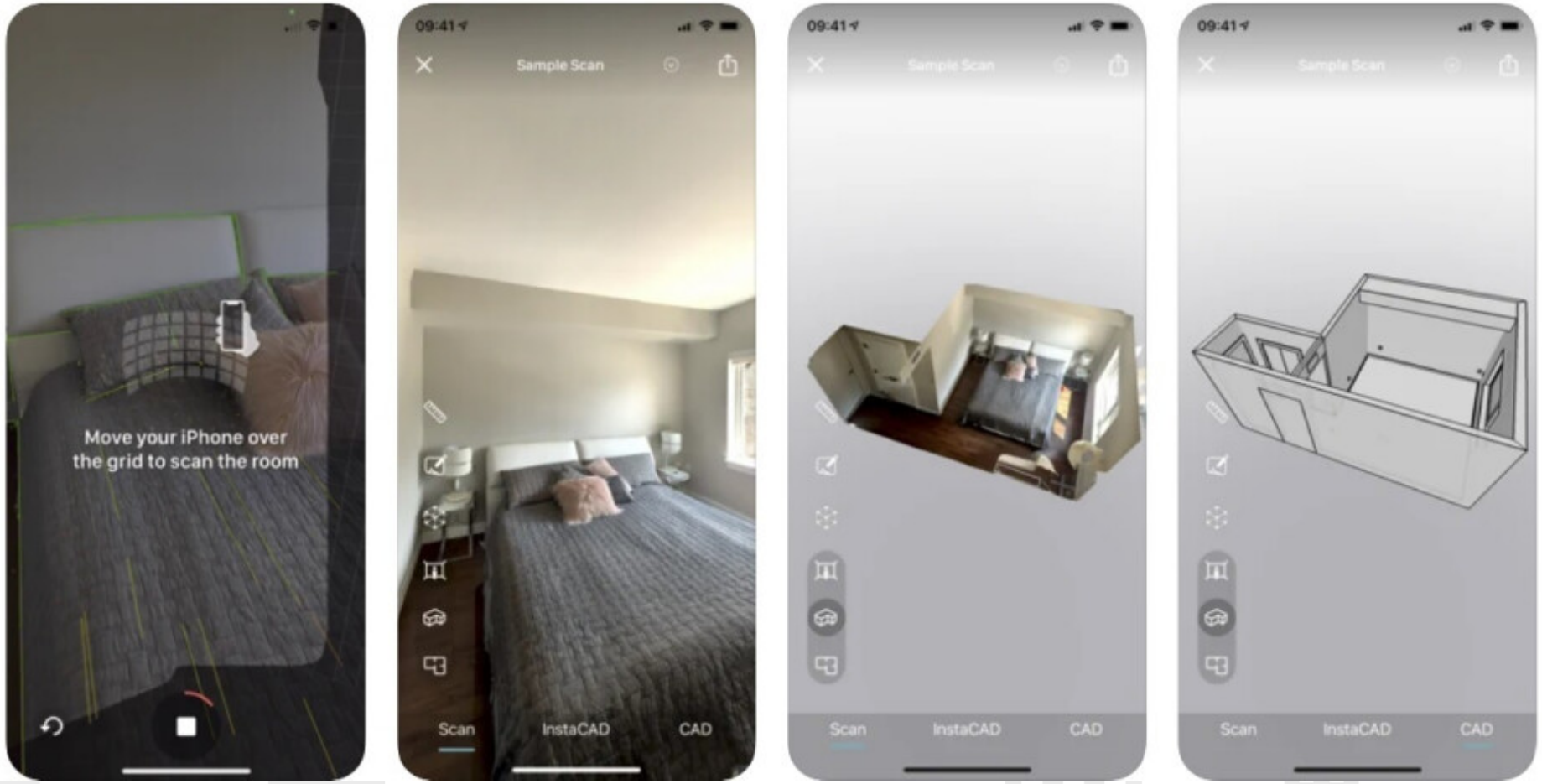
New Smartphone technology unlocks GoldenKey

Source: Adobe Stock

Smartphone LiDAR

Sub-centimeter distance accuracy

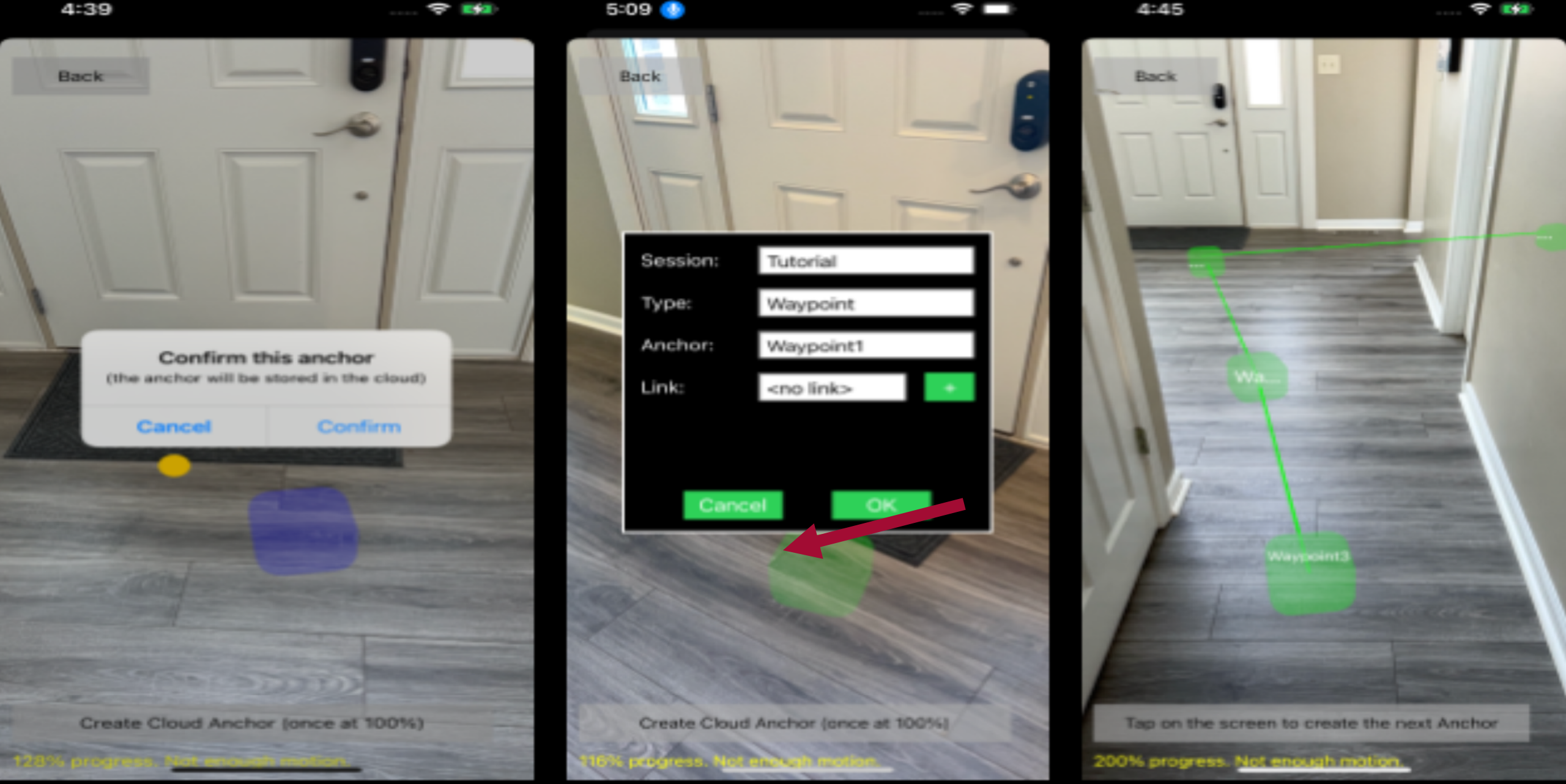
Smartphone LiDAR



Source: instaCAD

Sub-centimeter distance accuracy

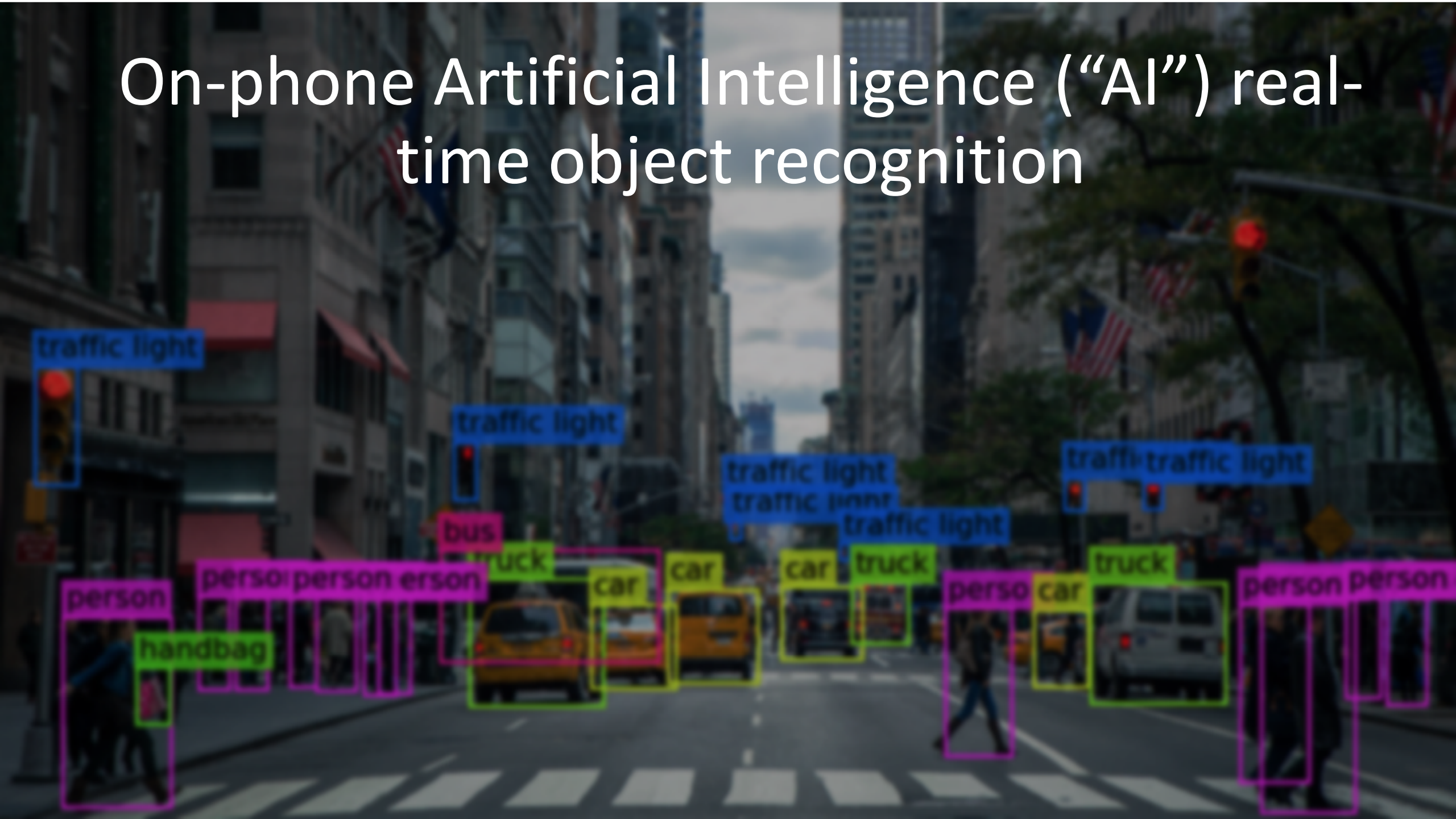
Note: GoldenKey® does not require CAD models



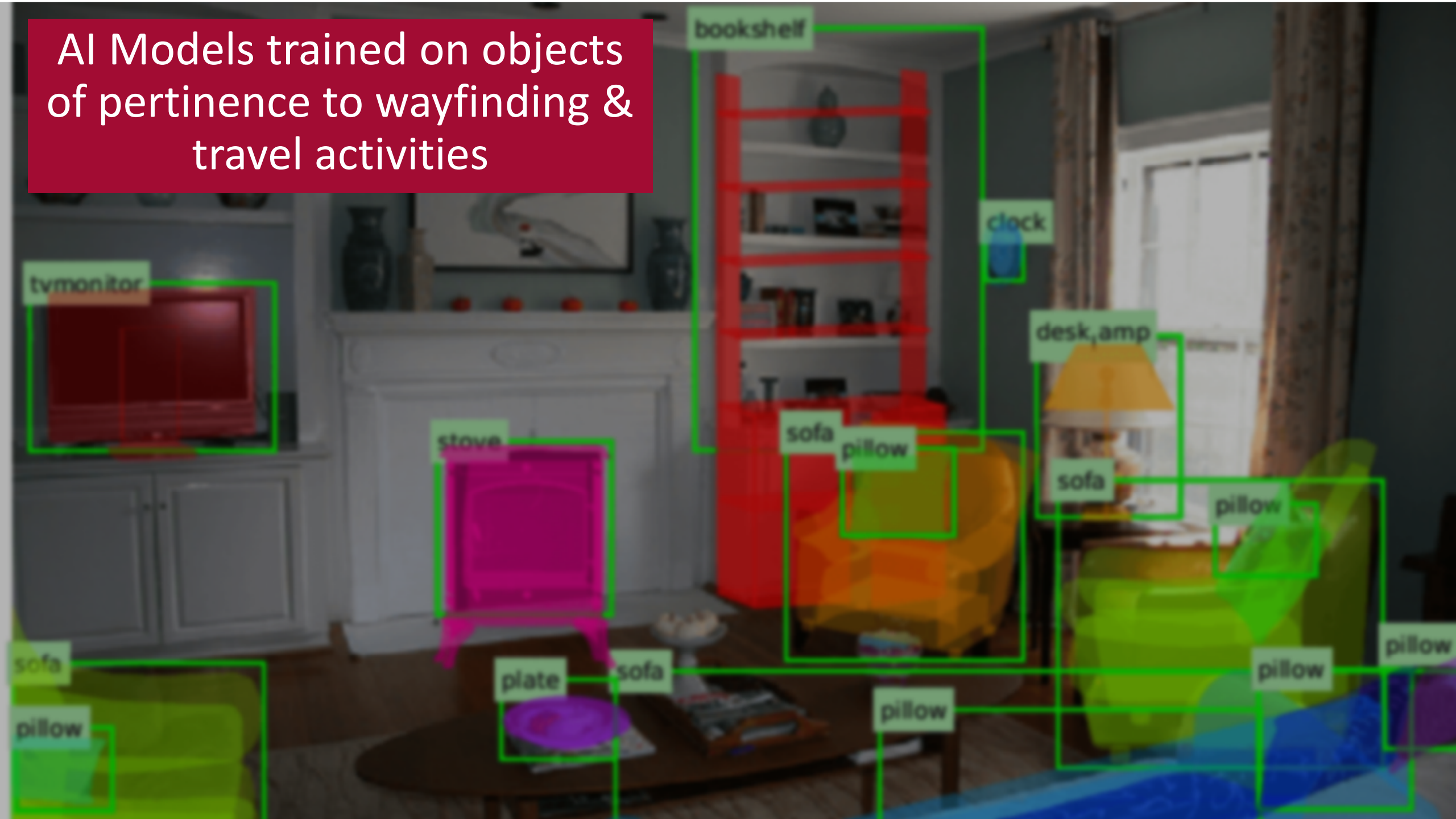
Source: AATS

Augmented reality - Virtual waypoint “anchors”

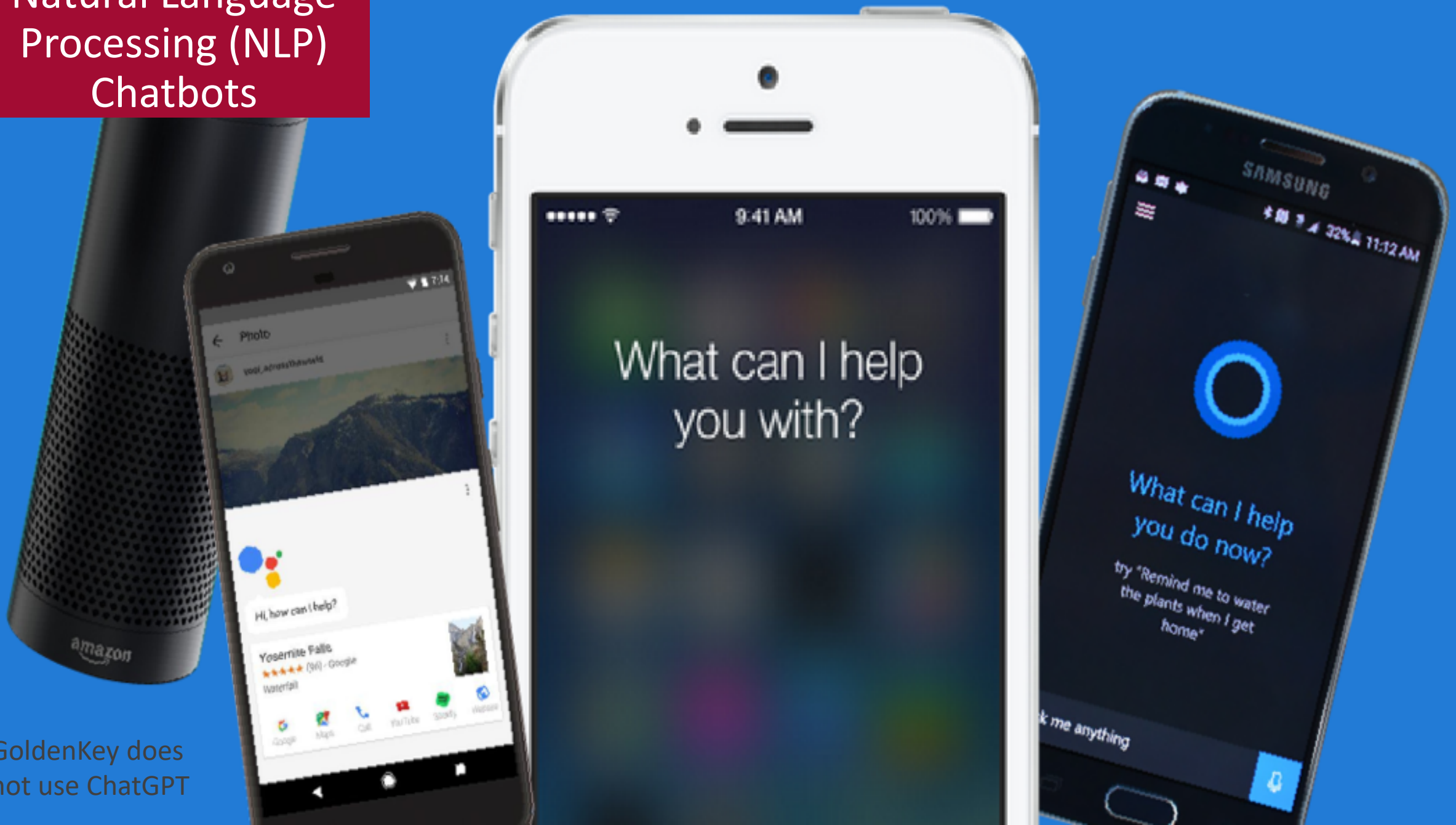
On-phone Artificial Intelligence (“AI”) real-time object recognition



AI Models trained on objects of pertinence to wayfinding & travel activities



Natural Language Processing (NLP) Chatbots

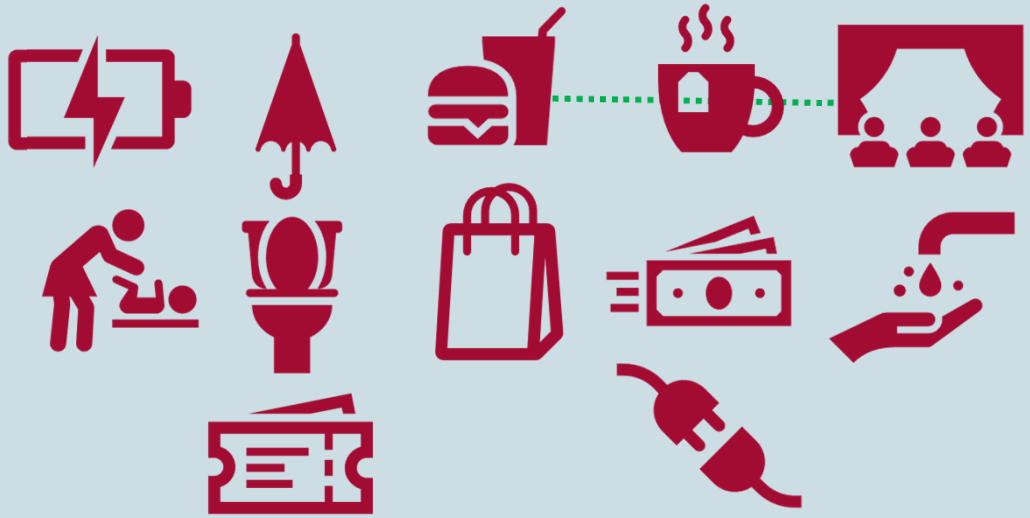


GoldenKey does not use ChatGPT

Smart Pathfinding (Context-sensitive AI)

Preferences

POI Announcements

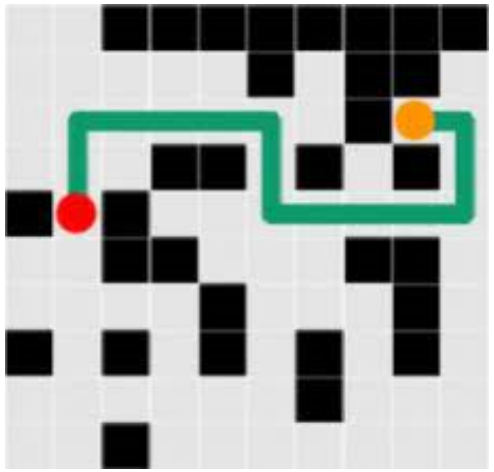


Relevancy

Real-time Environment

AATS GoldenKey® - Exclusive worldwide patent pending

Chatbot



Smart Pathfinding

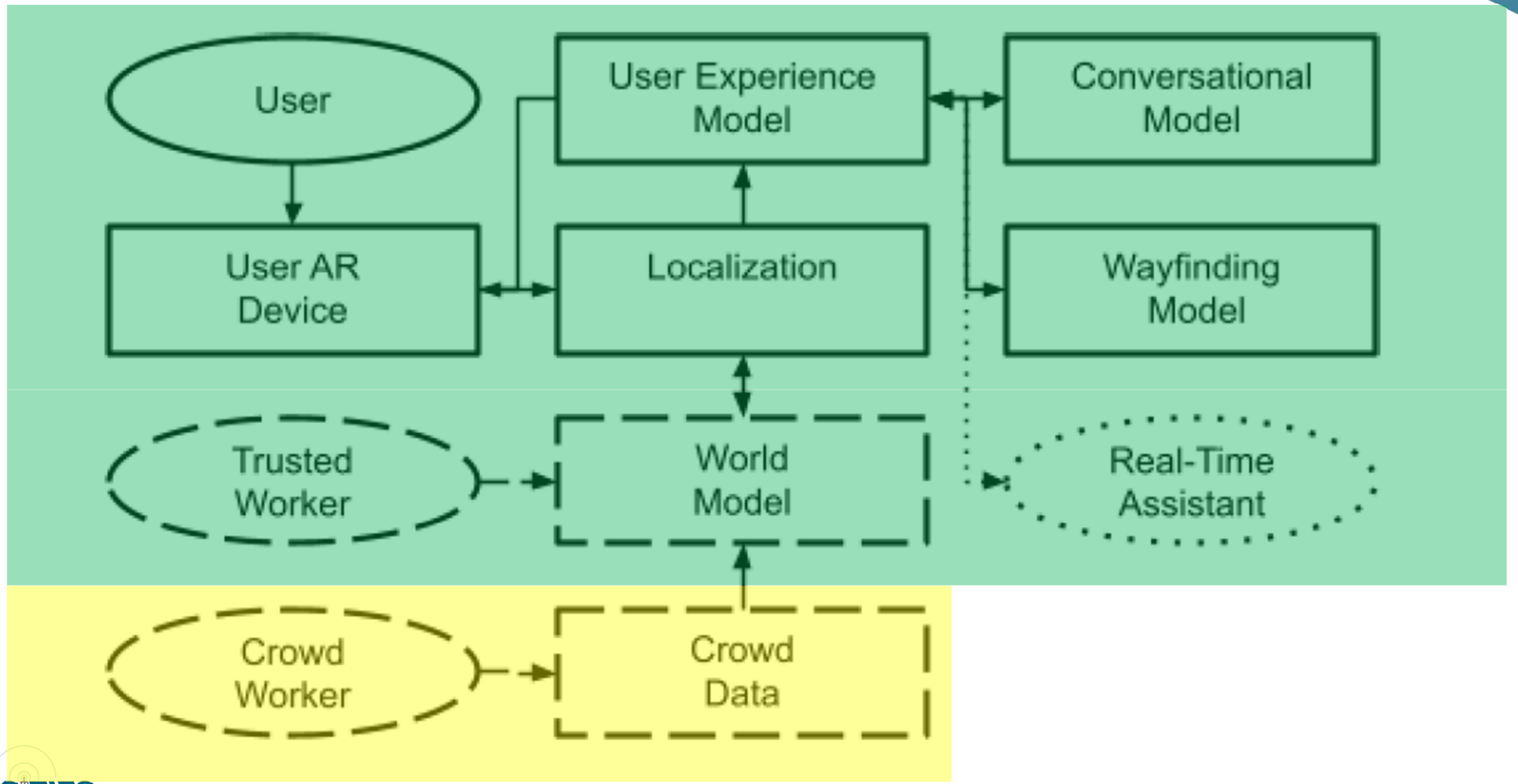
Augmented Reality

LiDAR

Accurate Distance detection

Object Recognition

Logical elements of the GoldenKey app

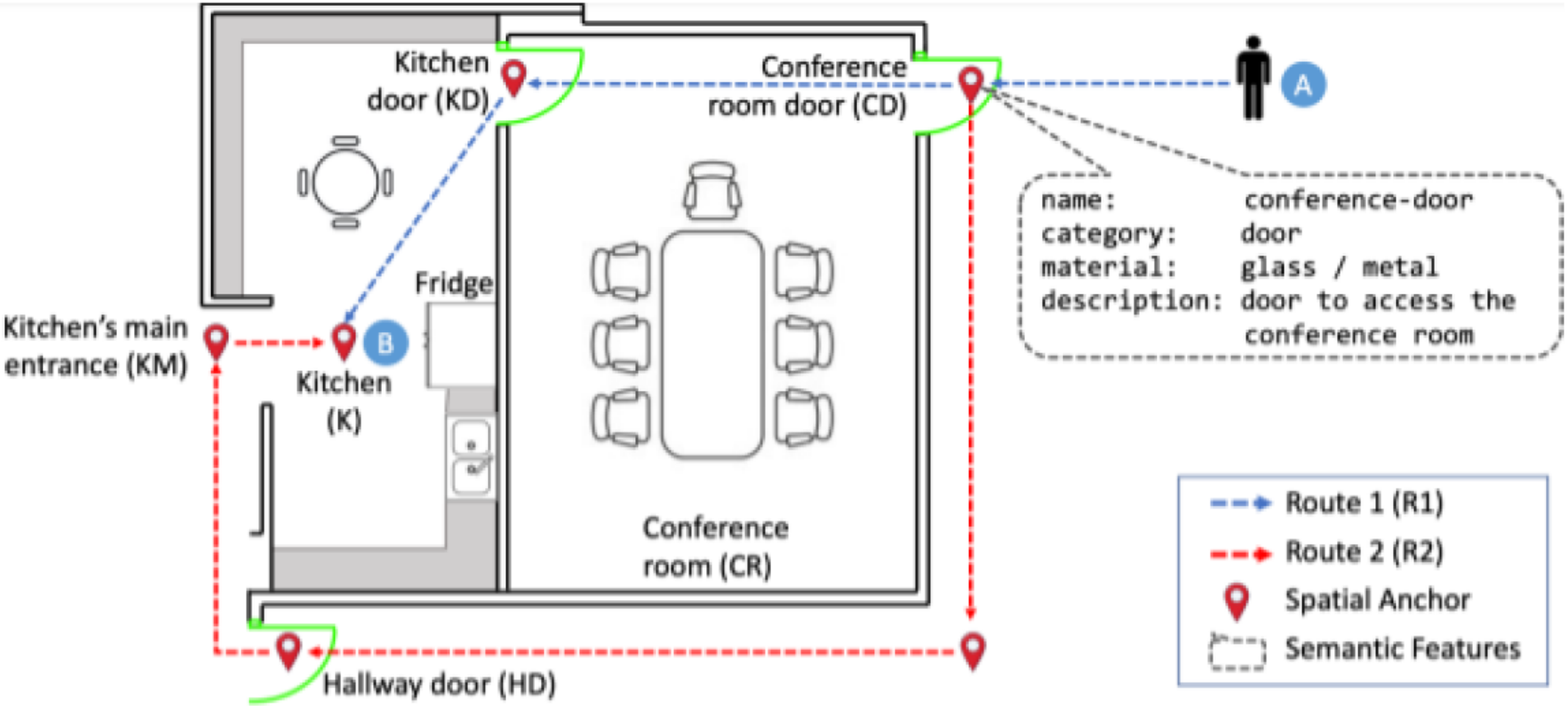


Logical elements of the GoldenKey system

“Experiment in Conversational Navigation and Discovery for the Blind”

Carnegie Mellon University
Oscar Romero, Anthony Tomasic, John Zimmerman, Aaron Steinfeld
Copyright © 2022

Basic concept of anchors and attributes



A13
A11
WEST
CONCOURSE A
A12
A10

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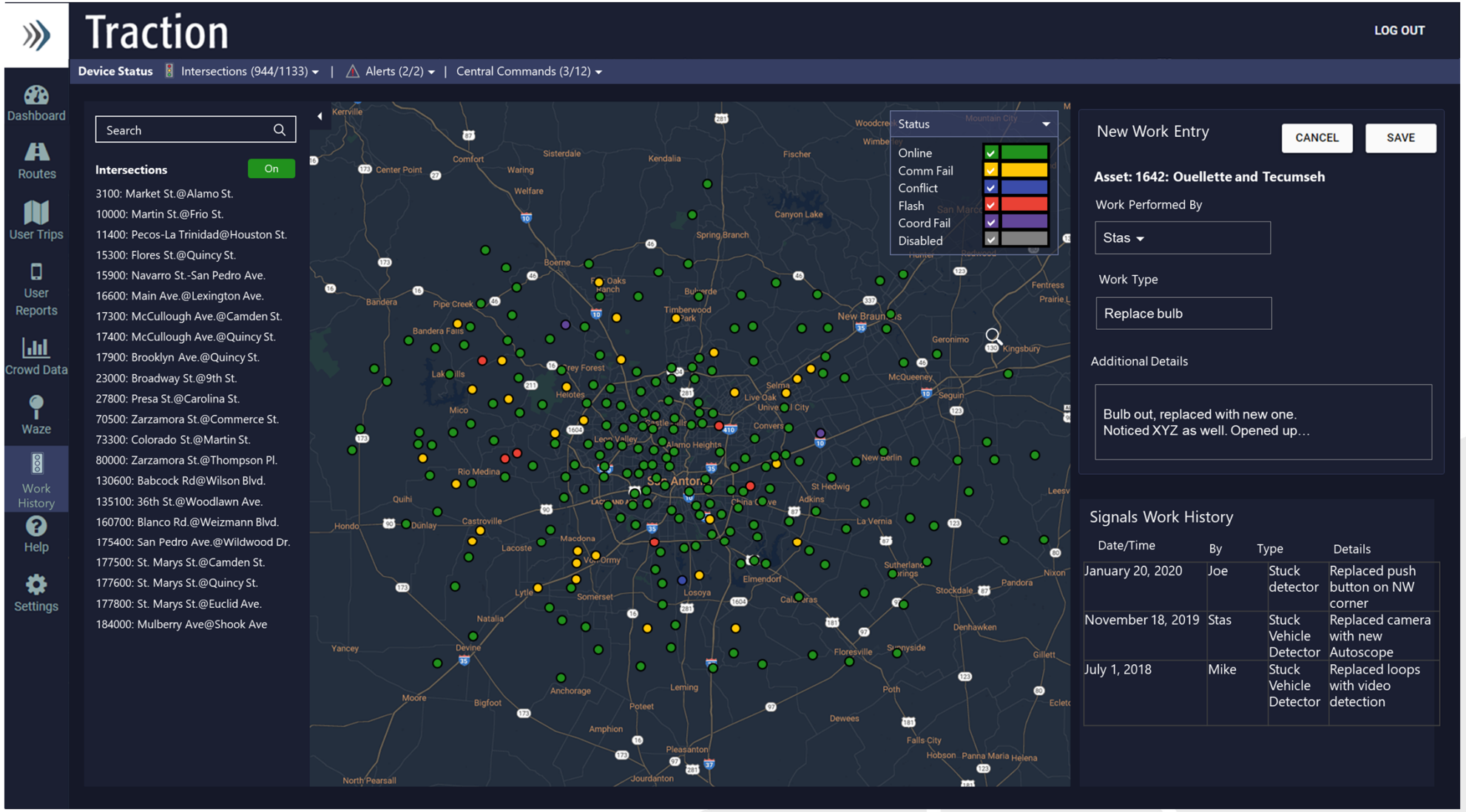
- Need something else here about object recognition linkage to wayfinding corrections, POI announcements, etc. from the previous overhead map of the kitchen and conference room.

- Probably could use another more complicated diagram of a small section of an airport

- Prototype videos here, demonstrating that its working in a R&D mode

Ladders to Opportunity

- Map of spaces
  - Done – green
  - In process – yellow
  - Contracted / not started – red
  - Negotiations – on deck - grey



Seeking Agency Partners

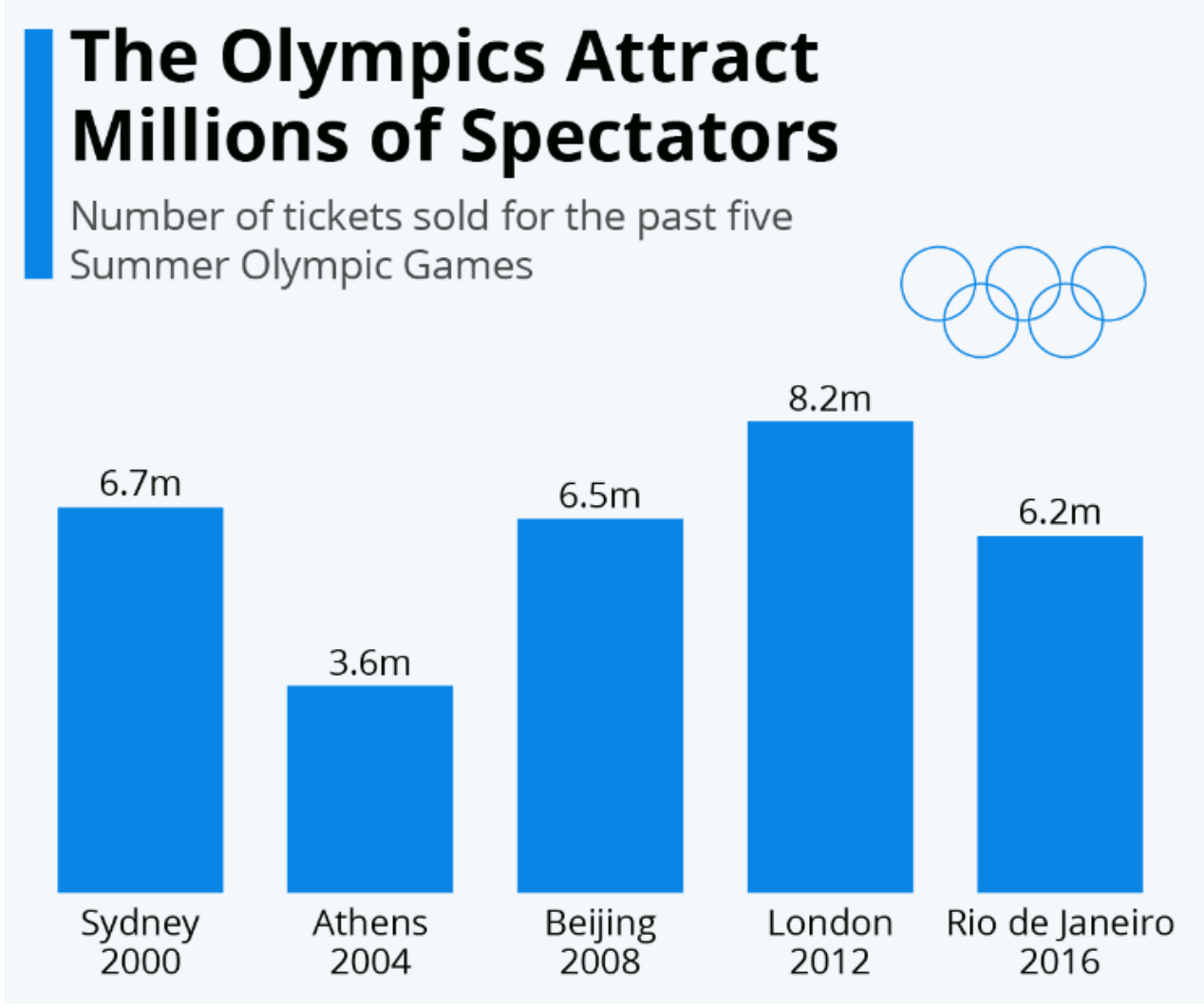
Alpha→Pilot→Scale

Public Trust and Privacy

Project Proposal

The Olympics are coming to LA

- Millions (hundreds of thousands?) of unfamiliar foreign and non-native visitors
- Paralympics competitors, families, friends, supporters, and spectators

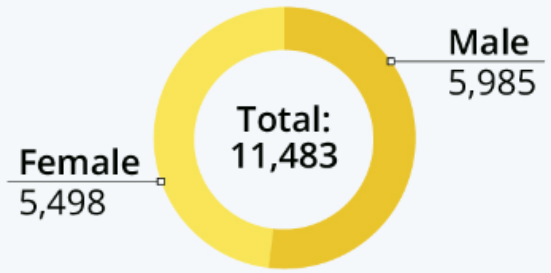


These are tickets, not persons? What does a ticket get you

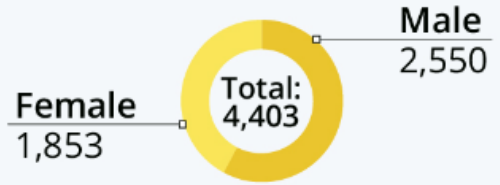
Where the Paralympics Beat the Olympics

Facts and figures on the Tokyo 2020/21 Olympics and Paralympics as well as World Athletics and Para Athletics records*

Number of participants

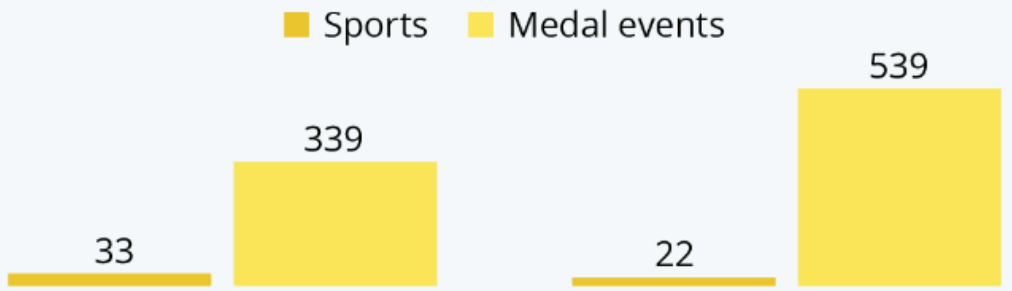


Tokyo 2020 Olympics



Tokyo 2020 Paralympics

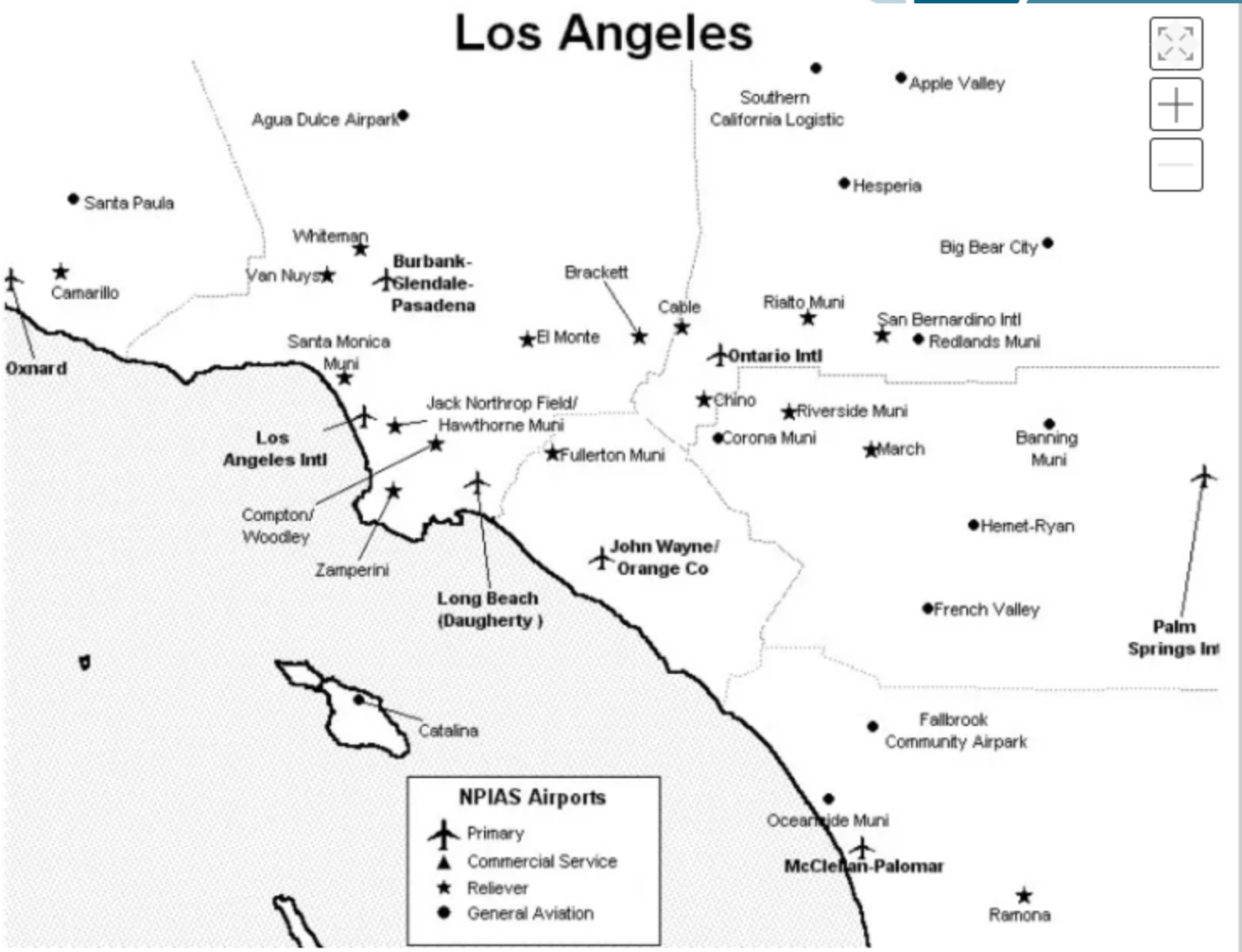
Number of competitions



Tokyo 2020 Olympics

Tokyo 2020 Paralympics

- Map of airports in LA basin



Phase One

- Validation at LAX (TERMINAL X / Partial Terminal) and METRO Union Station (some landings? All?)
  - User app
  - Configuration app
- User experience training
- Ribbon Cutting & public relations
- Dec 2024 completion target

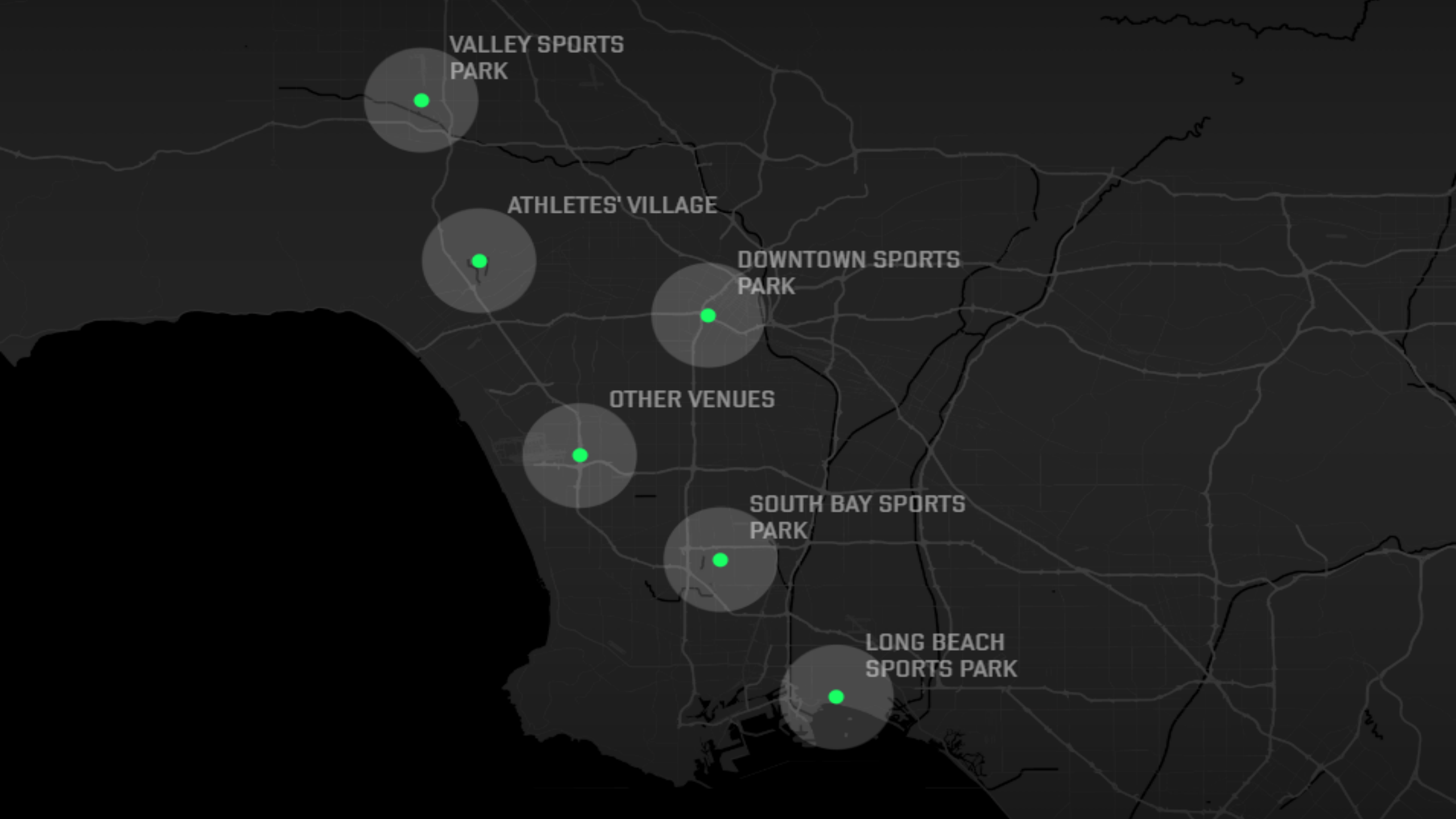
Phase Two

- Prioritized mapping of additional facilities (remainder of LAX / Union Station)
- Crowdsourcing strategy

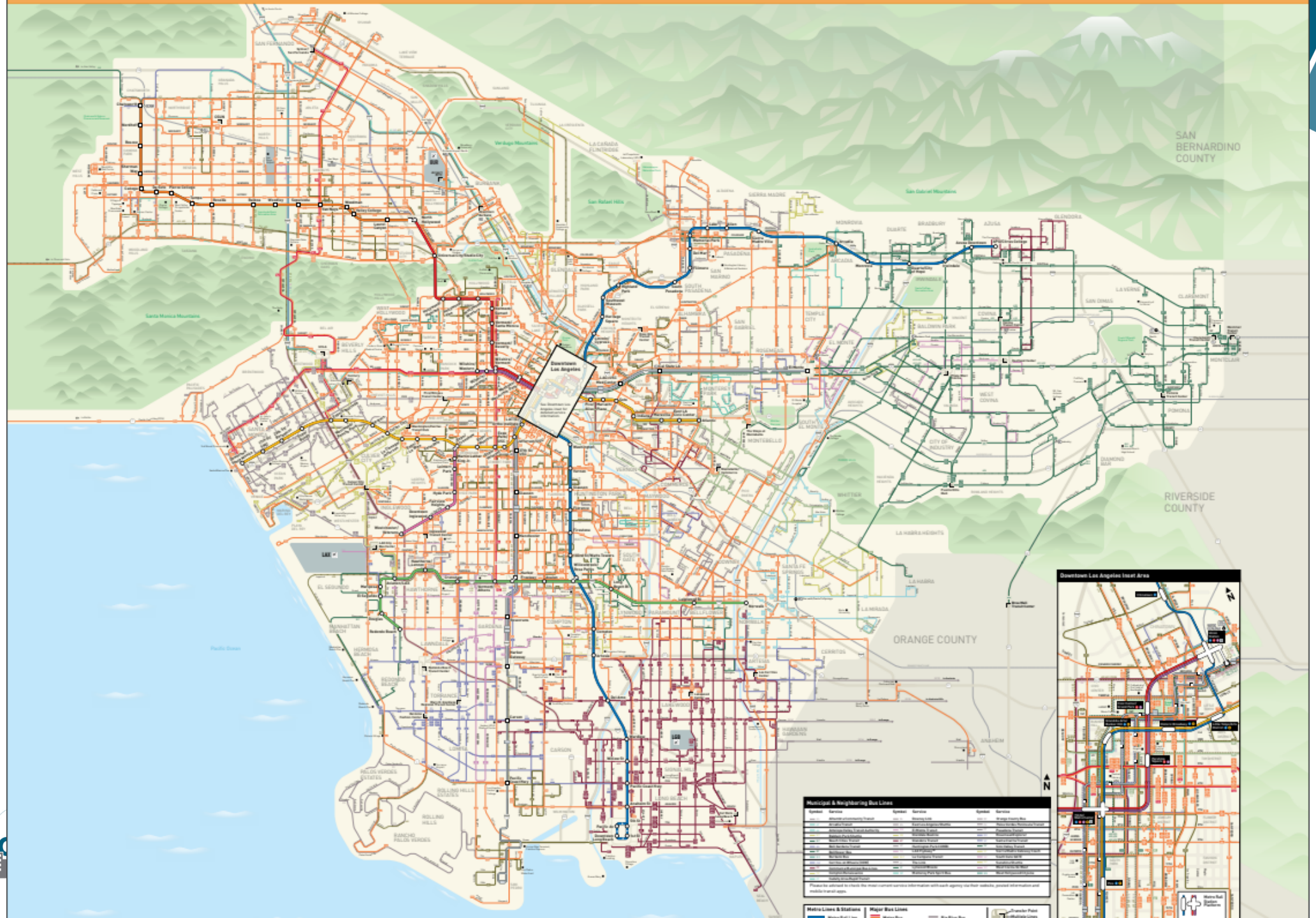
Phase Three

- Validation at LAX (TERMINAL X) and METRO Union Station
  - User app
  - Configuration app
- User experience training
- Ribbon Cutting & public relations

LAX


VALLEY SPORTS PARK
ATHLETES' VILLAGE
DOWNTOWN SPORTS PARK
OTHER VENUES
SOUTH BAY SPORTS PARK
LONG BEACH SPORTS PARK

DUTY FREE
LOS ANGELES
VINO VOLO
VICTORIA'S SECRET
iStore
EMPORIO ARMANI



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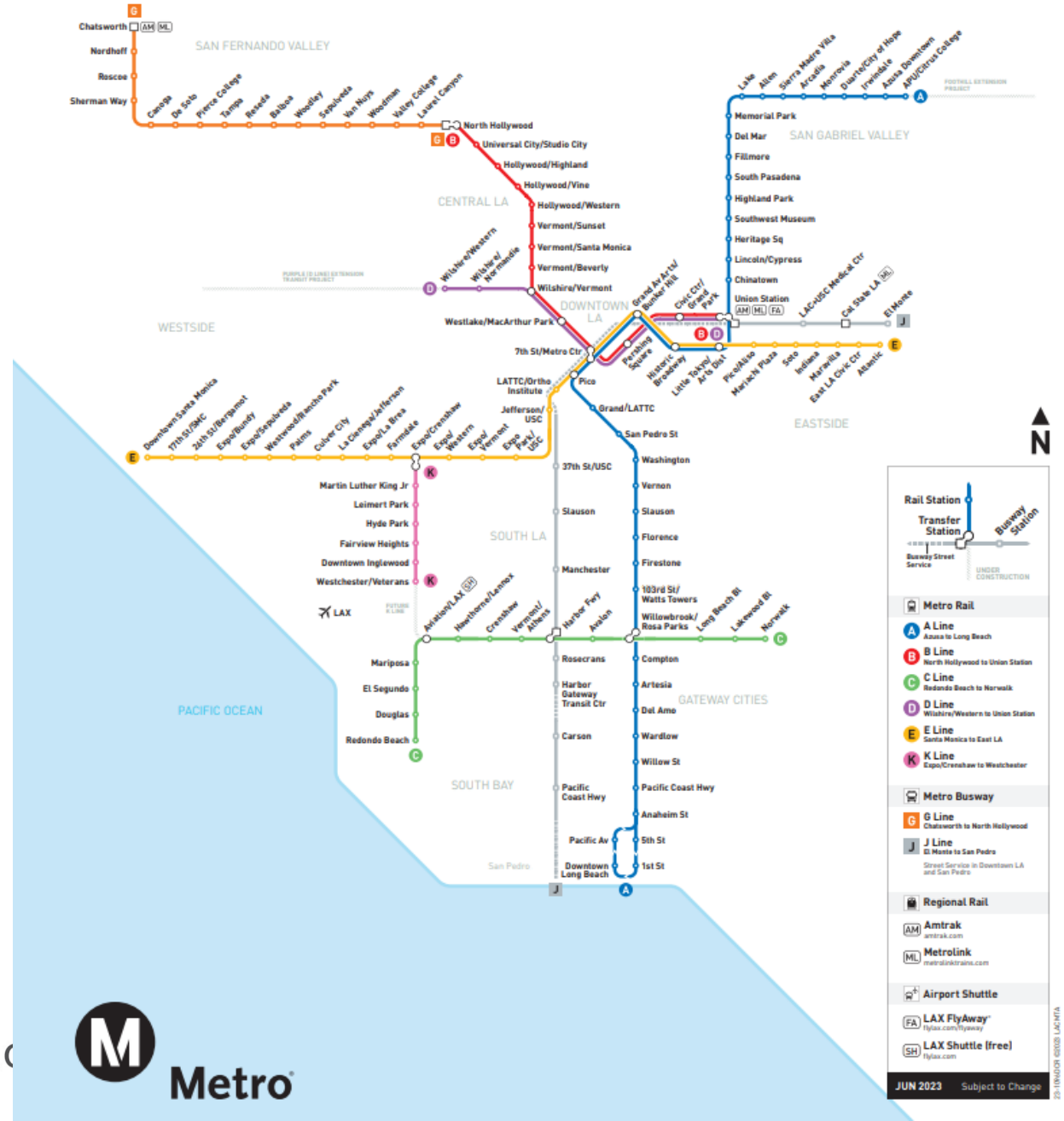
SMART



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SMART CITIES
TECHNOLO

BACK

LONG BEACH SPORTS PARK

The Long Beach Sports Park will include events at the Long Beach Arena and along the Long Beach waterfront – including handball, the triathlon, swimming and sailing off the coast. Temporary venues will be constructed in Long Beach for BMX and water polo competitions.

Olympic **Paralympic**

04. Long Beach Waterfront **View venue**

CLOSE

04. Long Beach Waterfront

Long Beach, a coastal city and the second largest municipality in Los Angeles County, blends the urban sophistication of a big city with the relaxed atmosphere of a beach resort.

TRIATHLON

BACK

SOUTH BAY SPORTS PARK

South Bay Sports Park will host rugby, modern pentathlon, tennis, track cycling and field hockey. The South Bay will also be the home of the Paralympic wheelchair tennis, track cycling and football 5-a-side competitions.

Olympic **Paralympic**

01. Dignity Health Sports Park Fields

03. Dignity Health Tennis Center

04. VELO Sports Center **View venue**

CLOSE

03. Dignity Health Tennis Center

The Dignity HealthTennis Center, located in the Dignity Health Center, comprises the Dignity Health Tennis Stadium and 18 external courts. The Center has hosted world-class tennis, including the LA Women's Tennis Championships from 2003-2009.

BACK

ATHLETES' VILLAGE

The University of Los Angeles, California's campus will host the world's greatest athletes as the Olympic and Paralympic Village. Olympians and Paralympians will benefit from UCLA's world-class residence, dining facilities and operational staff and training, as well as its medical and competition infrastructure.

Olympic **Paralympic**

01. UCLA Campus

MTC OV

02. Pauley Pavillion **View venue**

CLOSE

02

Located in the picturesque Los Angeles neighborhood of Westwood, the University of California — Los Angeles (UCLA) is a renowned world-class academic institution with state-of-the-art sports, academic and housing facilities.

MTC MAIN TRAINING CENTER

OV OLYMPIC VILLAGE

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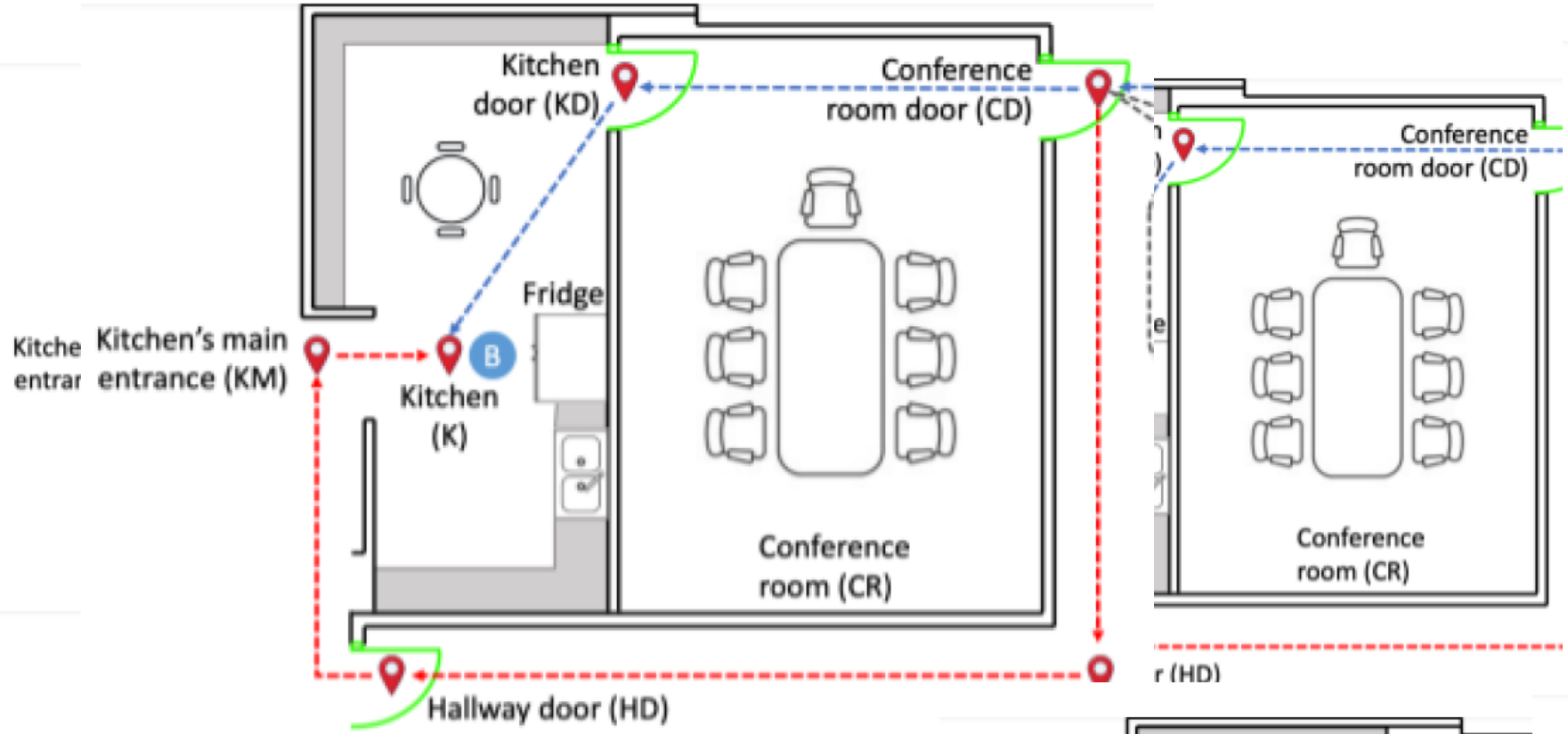
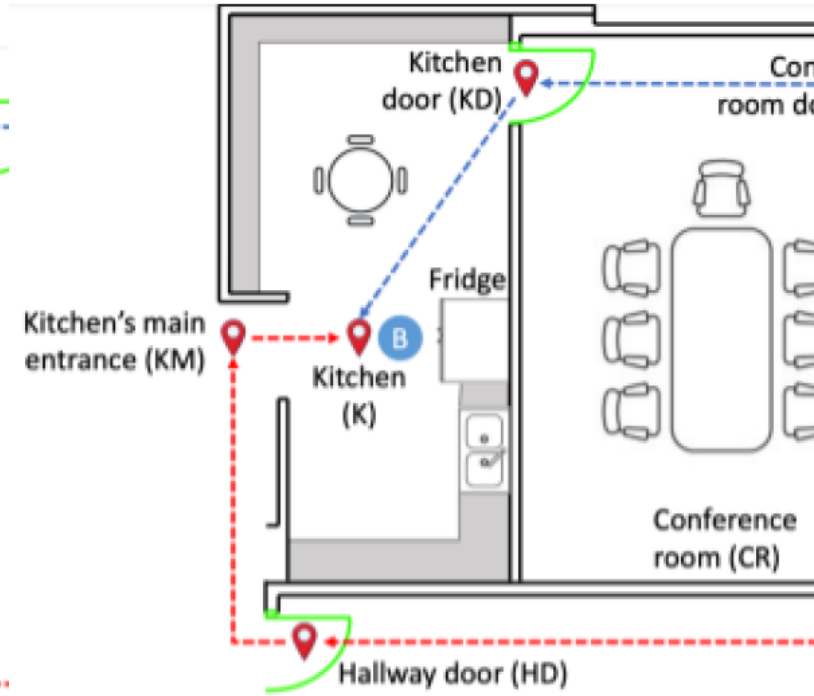
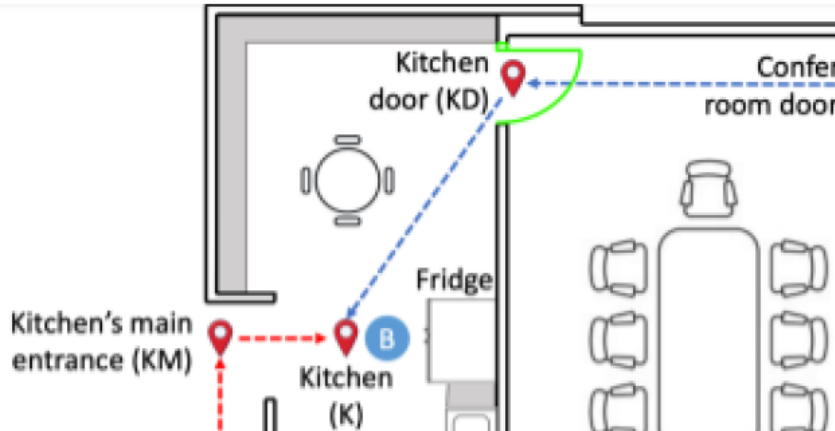
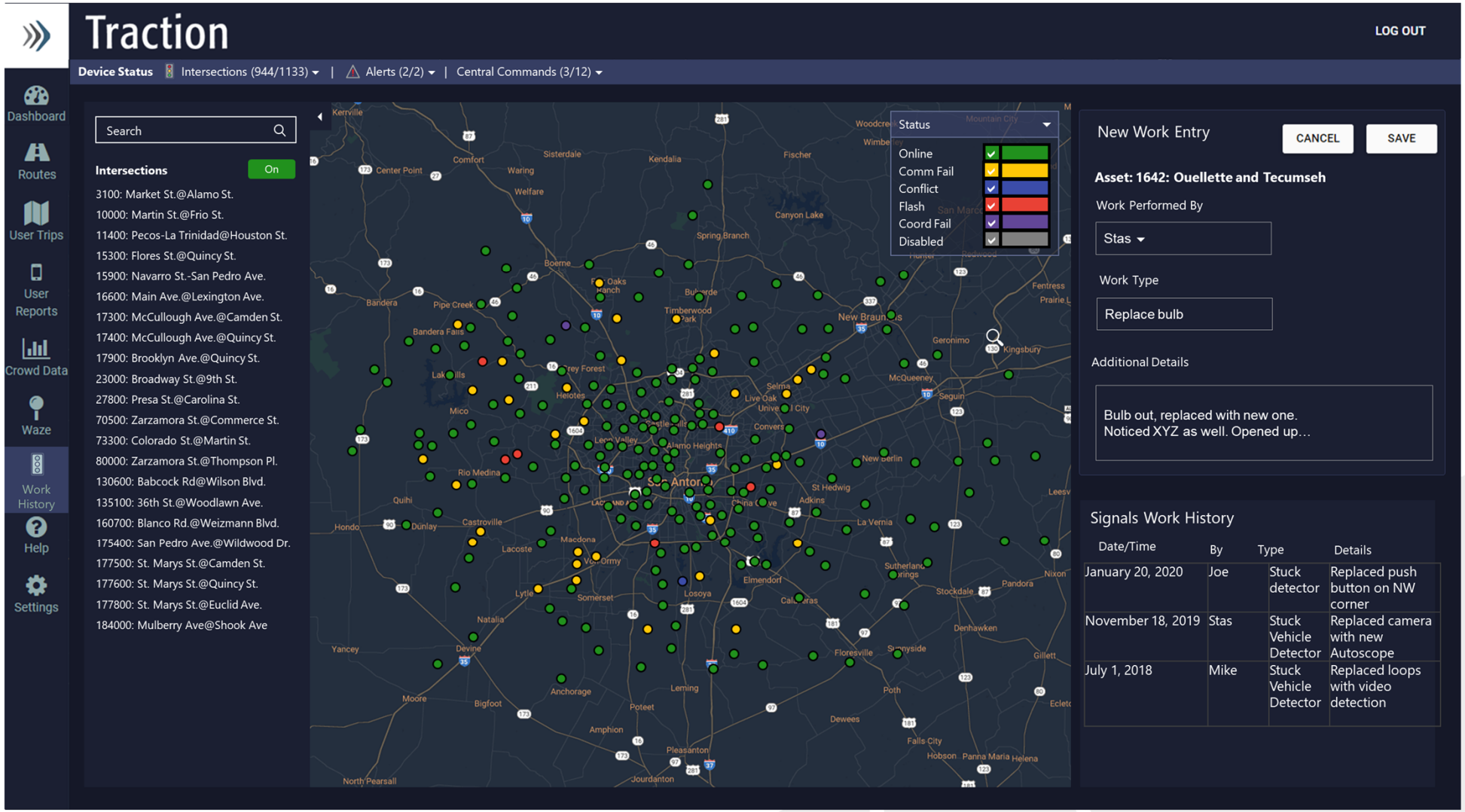
Space manager







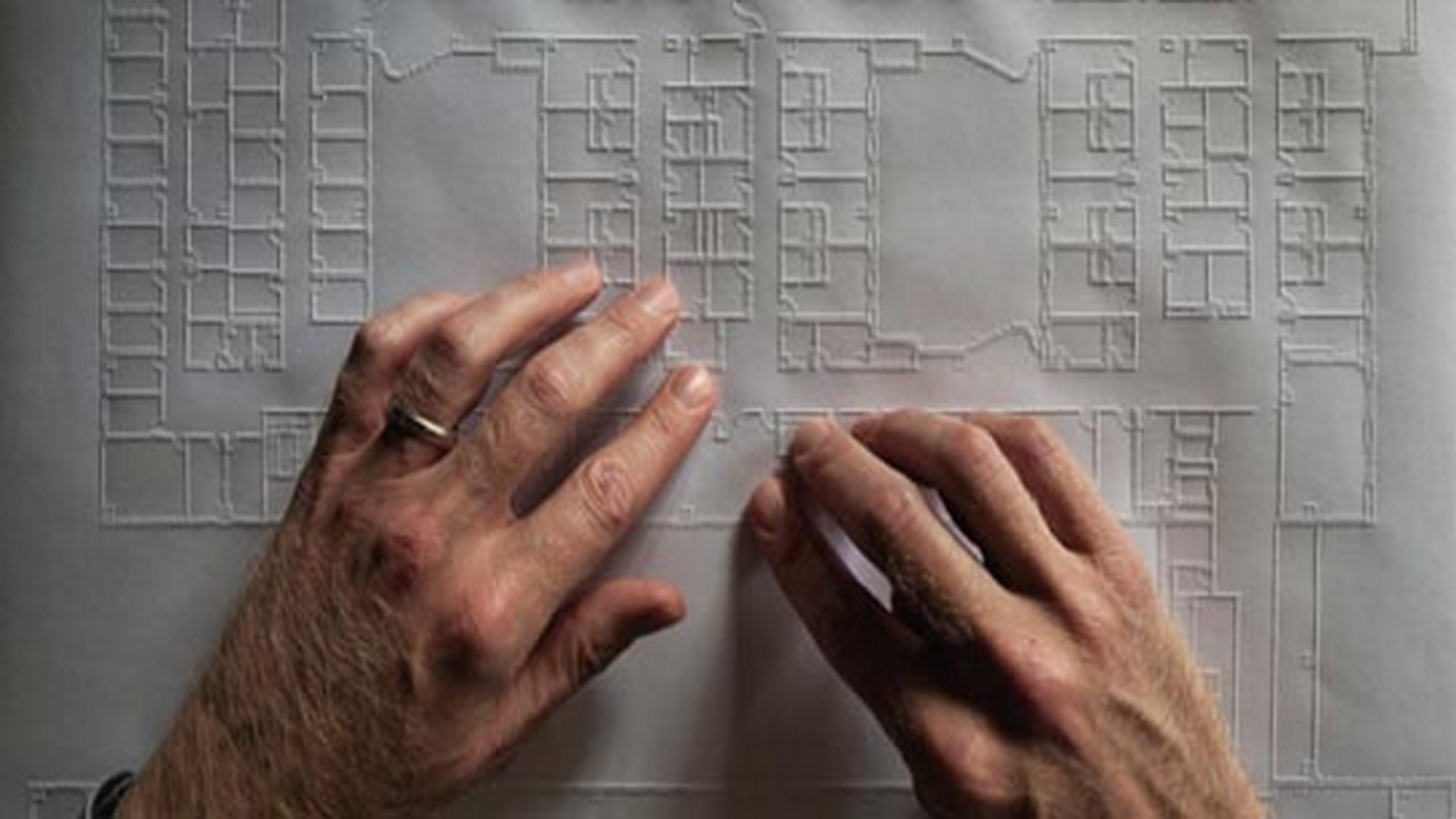

Traction
LOG OUT
Device Status
Intersections (944/1133)
Alerts (2/2)
Central Commands (3/12)
Dashboard
Routes
User Trips
User Reports
Crowd Data
Waze
Work History
Help
Settings
Search
Intersections
On
3100: Market St.@Alamo St.
10000: Martin St.@Frio St.
11400: Pecos-La Trinidad@Houston St.
15300: Flores St.@Quincy St.
15900: Navarro St.-San Pedro Ave.
16600: Main Ave.@Lexington Ave.
17300: McCullough Ave.@Camden St.
17400: McCullough Ave.@Quincy St.
17900: Brooklyn Ave.@Quincy St.
23000: Broadway St.@9th St.
27800: Presa St.@Carolina St.
70500: Zarzamora St.@Commerce St.
73300: Colorado St.@Martin St.
80000: Zarzamora St.@Thompson Pl.
130600: Babcock Rd@Wilson Blvd.
135100: 36th St.@Woodlawn Ave.
160700: Blanco Rd.@Weizmann Blvd.
175400: San Pedro Ave.@Wildwood Dr.
177500: St. Marys St.@Camden St.
177600: St. Marys St.@Quincy St.
177800: St. Marys St.@Euclid Ave.
184000: Mulberry Ave@Shook Ave
Status
Online
Comm Fail
Conflict
Flash
Coord Fail
Disabled
New Work Entry
CANCEL
SAVE
Asset: 1642: Ouellette and Tecumseh
Work Performed By
Stas
Work Type
Replace bulb
Additional Details
Bulb out, replaced with new one.
Noticed XYZ as well. Opened up…
Signals Work History
Date/Time
By
Type
Details
January 20, 2020
Joe
Stuck detector
Replaced push button on NW corner
November 18, 2019
Stas
Stuck Vehicle Detector
Replaced camera with new Autoscope
July 1, 2018
Mike
Stuck Vehicle Detector
Replaced loops with video detection

Thank you!

60
MINUTES

60
MINUTES

UNITED



extras

Did you know?

More than 80% of sight-impaired do NOT read Braille.

Not all (percentage?) sight-impaired have or want a guide dog.

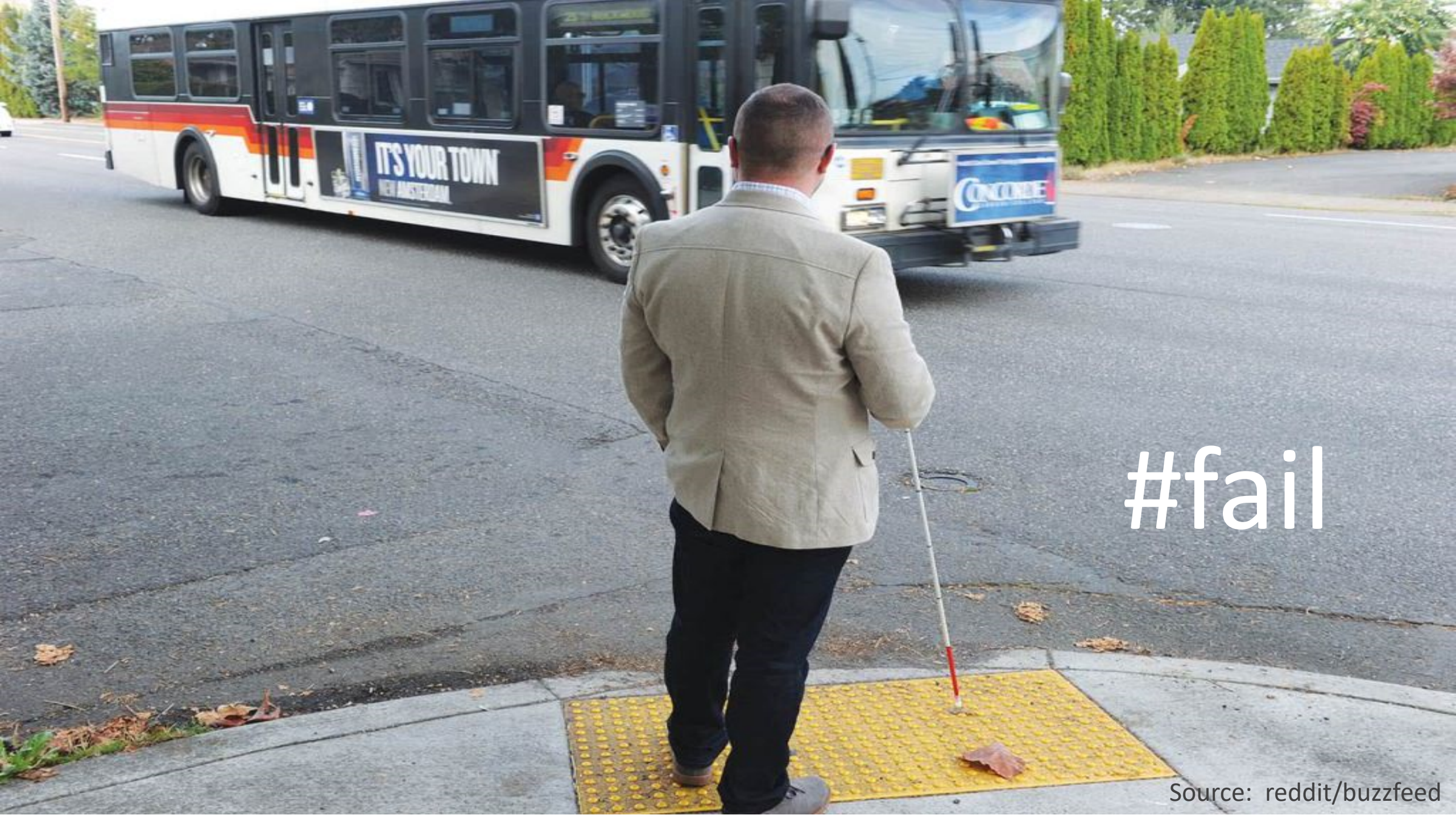
Sight-impaired and other disabled want independence, dignity, and privacy. Not assistance.

Sight-impaired generate mental maps similar to that of sighted persons, even when blind from birth.

XX% of blind were sighted at some time earlier in life.

#fail

Toilet Closed
Please use one
upstairs
Thank you.



Source: reddit/buzzfeed

309

NOTICE
To use the diabled lift, please
come upstairs to the buffet &
notify a member of staff so that
we can turn the power on.
Thank You

T Patent No 78368 © Exeloo Limited
VACANT
OCCUPIED
CLOSED
VACANT
OCCUPIED
ALARM
STOP

In case of fire
MUSTER STATION
ATTENZIONE ALLO SCALINO
WATCH YOUR STEP

İNŞAATA GİRMEK
TEHLİKELİ VE YASAKTIR.
D

AMBULANS