



# Chicago Accessible Intersection Navigation (CAIN)

USDOT SMART Grant Stage I Prototype | ITS America Conference & Expo 2026



STATE:  
**Illinois**



ORGANIZATION:  
Chicago Department  
of Transportation (CDOT)



PARTNERS:  
CAI Inc  
Chicago Mayor's Office for  
People with Disabilities  
The Chicago Lighthouse  
University of Minnesota Center  
for Transportation Studies



AWARD AMOUNT:  
**\$1,490,000**

## 1 PROJECT OVERVIEW



- Smartphone accessibility app to replace and/or complement Accessible Pedestrian Signal (APS)
- Uses GPS and live SPaT data
- Improves safety and faster deployment

## 2 WHY IT MATTERS



- ~2,850 signalized intersections in Chicago
- Only about 2% have APS
- Traditional APS deployment is costly and slow
- CAIN is scalable and low-cost

## 3 HOW CAIN WORKS



Connected  
Signal



Live SPaT  
API



CAIN Cloud /  
App Logic



Smartphone  
+ GPS+Audio  
+ Haptic  
Messages



Safer  
Crossing

## STAGE I RESULTS

- Tested at 10 signalized intersections
- About 250 total crossing tests
- Near-real-time latency under 1 second
- Strong user satisfaction
- High scores across safety, reliability, latency, and usability

EVALUATION SCORES (OUT OF 5.0)

|                   |            |
|-------------------|------------|
| Safety            | <b>4.9</b> |
| Reliability       | <b>4.8</b> |
| Latency           | <b>4.8</b> |
| User Satisfaction | <b>4.8</b> |
| APS Comparison    | <b>5.0</b> |



## LESSONS LEARNED

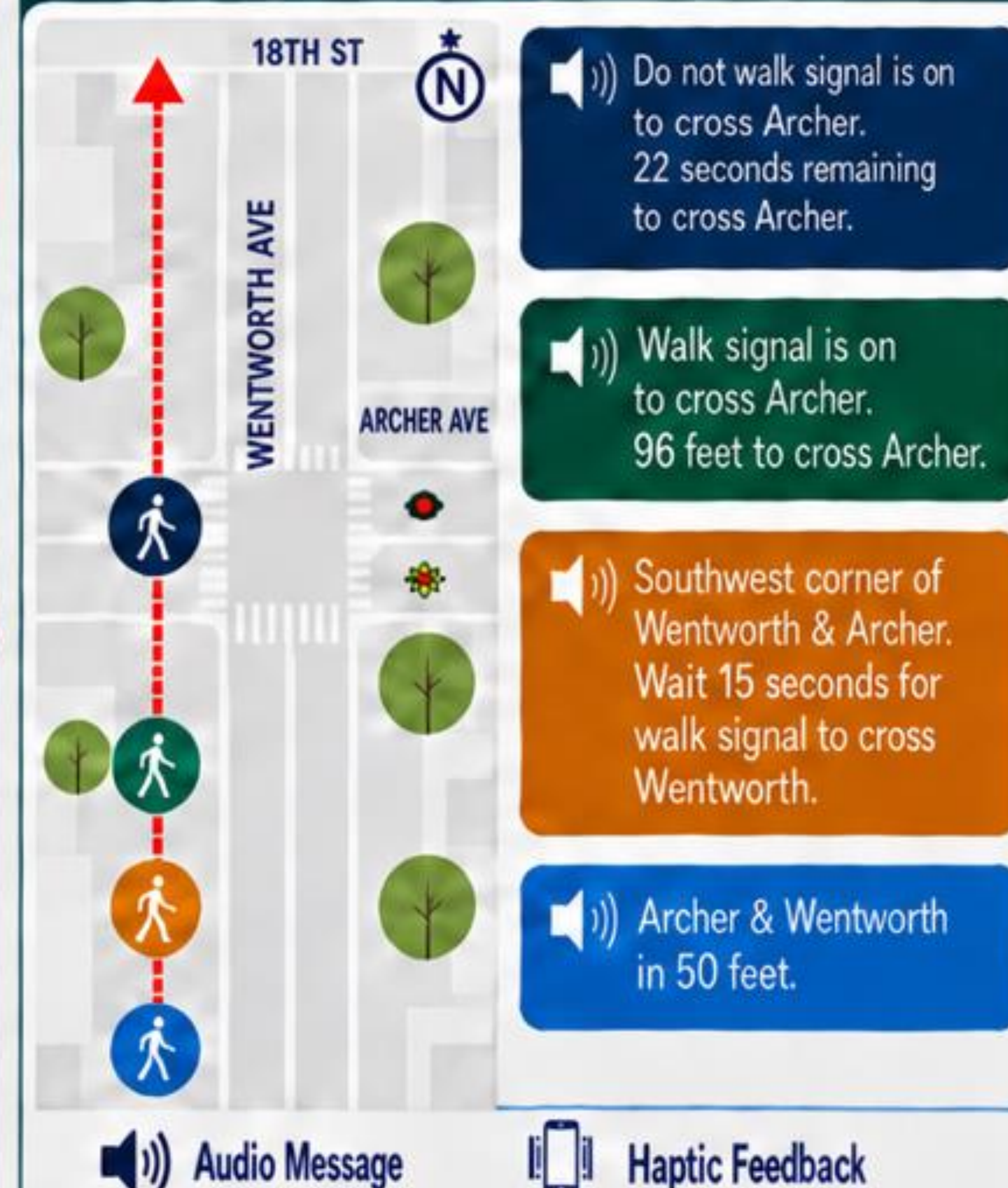
- Early vendor coordination matters
- GPS can be challenging in dense urban areas
- Bluetooth beacons may improve positional accuracy
- Cybersecurity and uptime monitoring are essential
- Co-design with blind and low-vision users is key



## BENEFITS & NEXT STEPS

- Expand accessible crossing coverage quickly
- Leverage ~550 connected intersections
- Supports multilingual, updatable software
- Future improvements: Bluetooth beacons, time-remaining alerts, and directional warnings

## SAMPLE APP FUNCTIONALITY



Building a more accessible, smarter,  
and connected Chicago.

Information. Independence.  
Mobility for All.

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