

# EXPLORE THE WORLD IN PHOTOS



**Mapillary**

*Dubai, UAE (Captured by seb1204)*

# THE STREET VIEW PROBLEM

## Google Street View

- License restrictions for GIS, asset management, and integration with third party maps
- No control over what, when, or how often areas are covered

## Mapping and Survey Vendors (HERE, Cyclomedia, Bayanat)

- High-end equipment and vehicle fleets => expensive
- Long collection and processing time (6 – 9 months)

# A NEW APPROACH TO STREET VIEW

Mapillary creates street level imagery by using computer vision to stitch together overlapping photos taken with any camera.



# CROWDSOURCING MEETS MOBILE MAPPING

Mapillary's mission is to create a photo representation of the world – anyone with a mobile phone or camera can contribute.



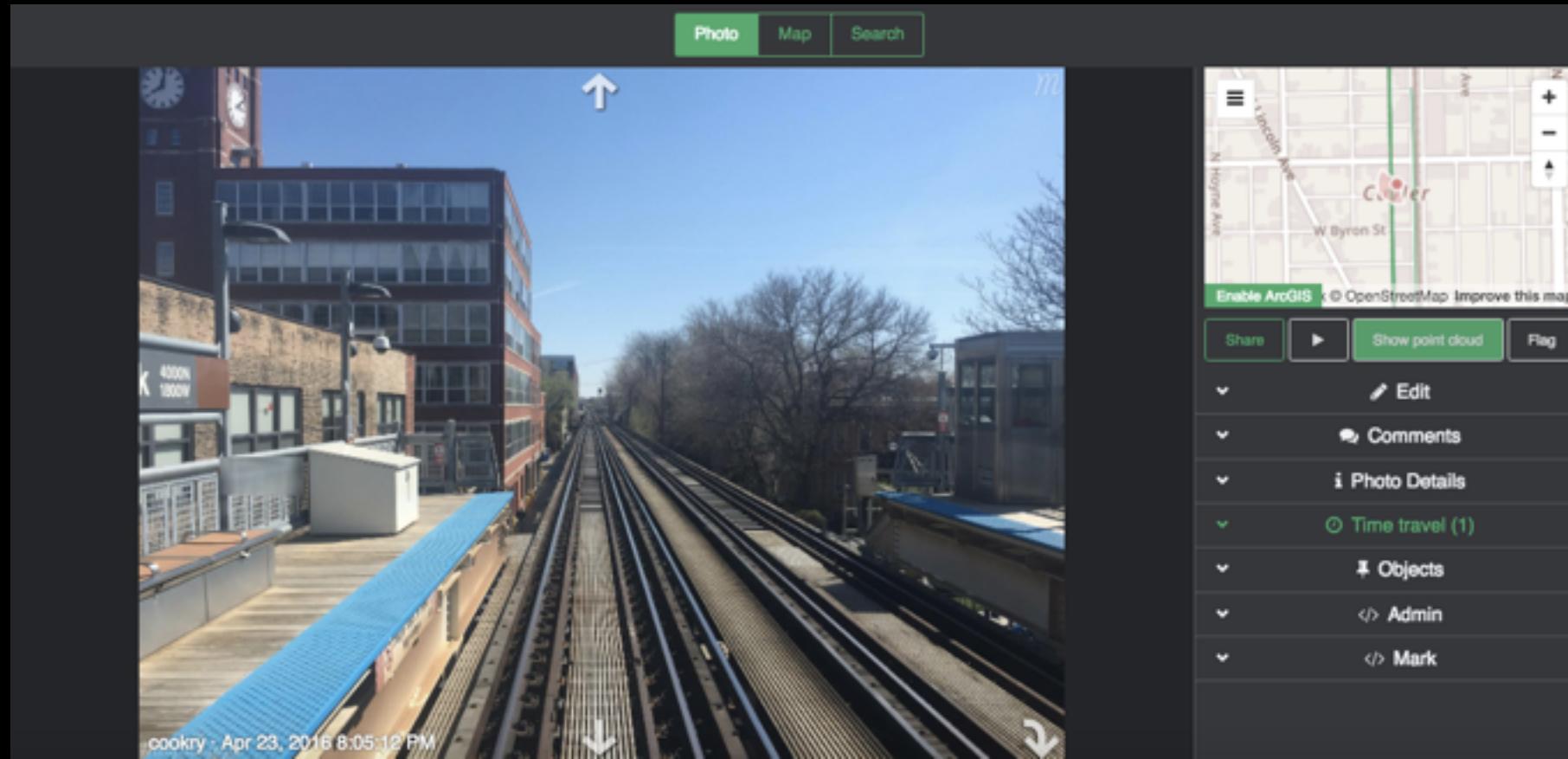
60 MILLION PHOTOS, 1.5 MILLION KM GLOBALLY



*Rothera Research Center, Antarctica (Captured by edyoung)*

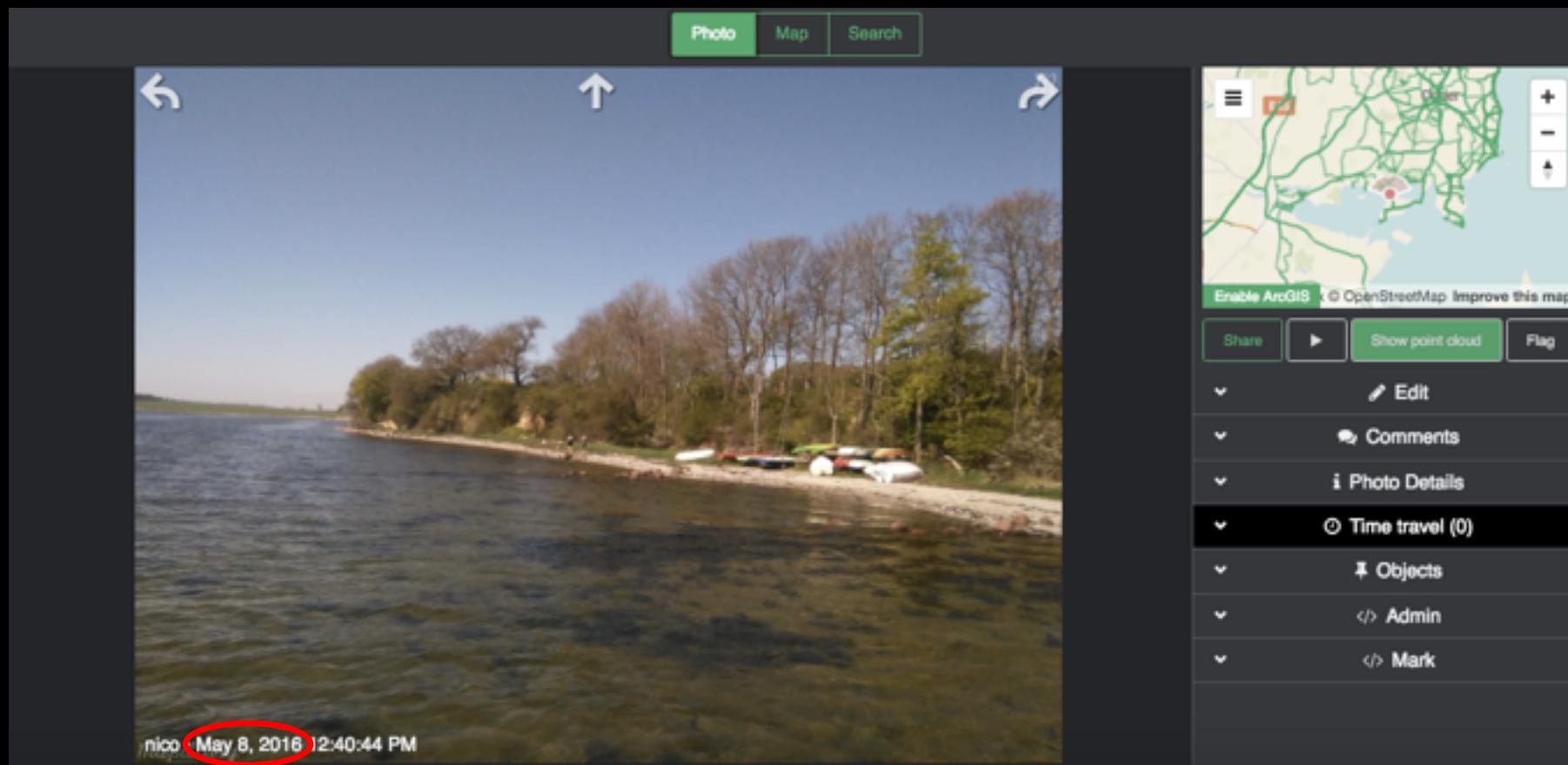
# ADVANTAGE #1: GREATER REACH

People can go where Street View cars cannot – foot trails, bike paths, train tracks, waterways, and remote locations.



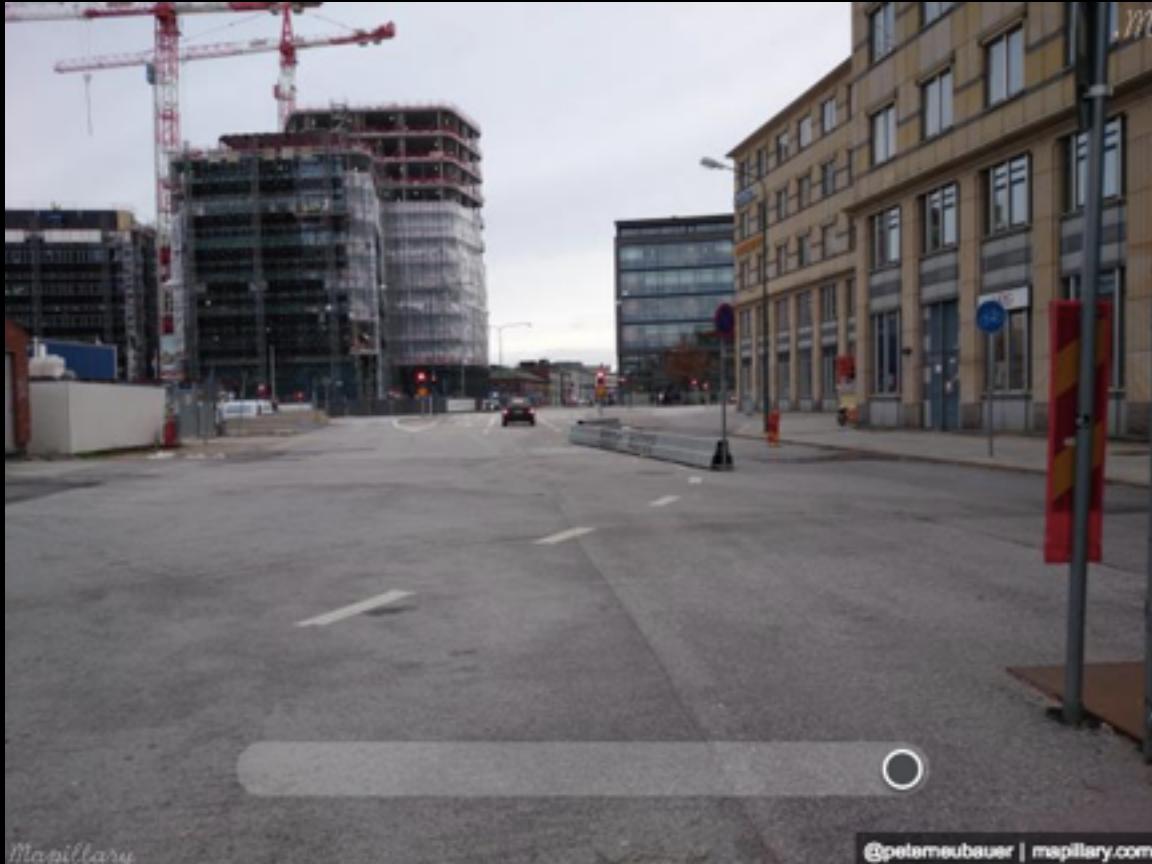
## ADVANTAGE #2: QUICK TURNAROUND

New photos are available on the map and stitched together with existing photos within hours – not months – of upload



# ADVANTAGE #3: FRESHNESS AND FREQUENCY

Photos can be captured as recently and as often as needed to track changes at a location.



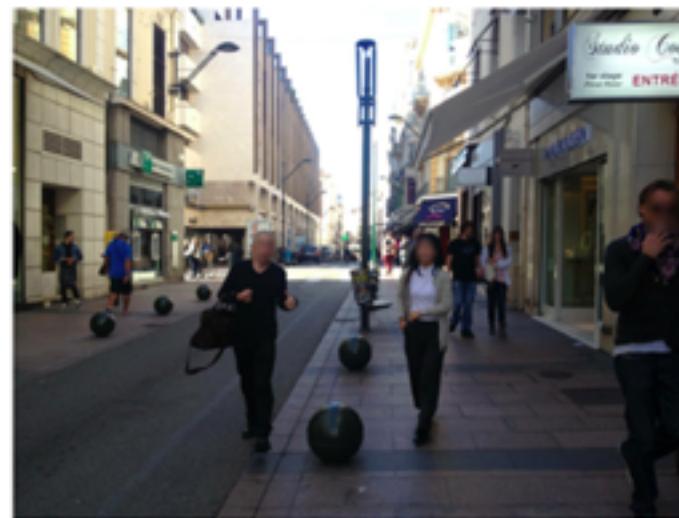
# BEHIND THE SCENES



*Malmö, Sweden (Captured by peterneubauer)*

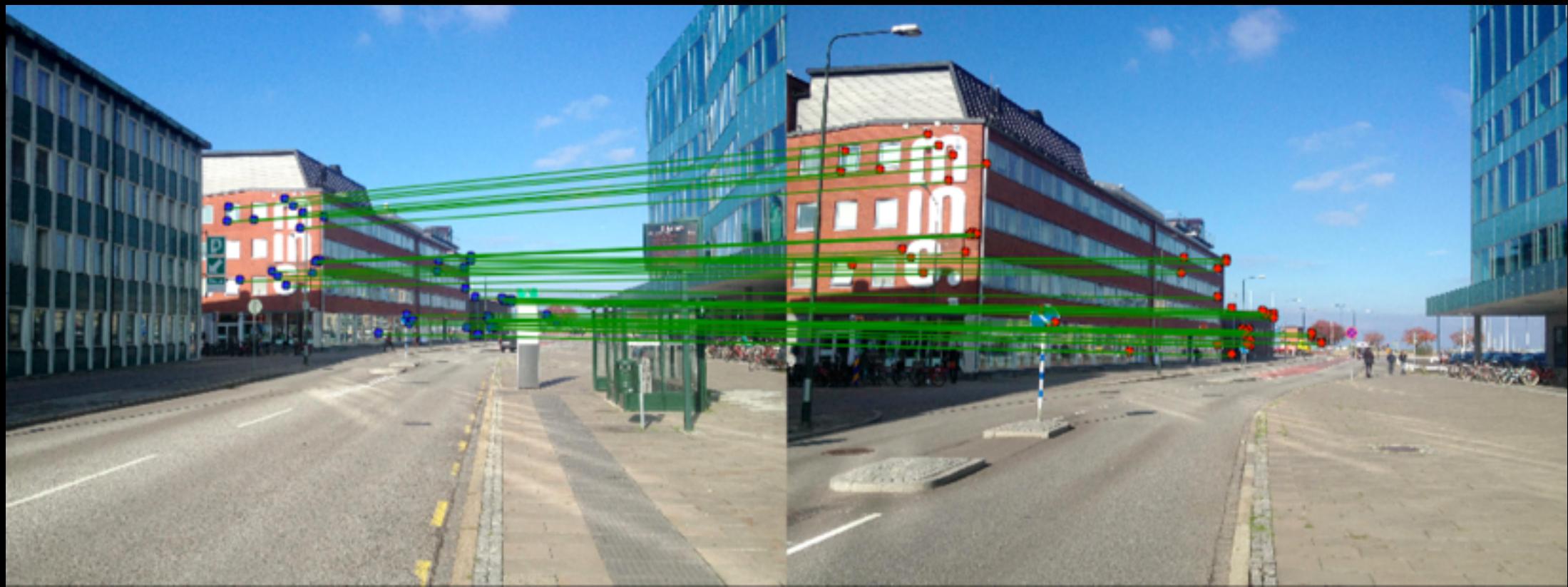
# IMAGE PROCESSING

Upon upload, photos are processed immediately to blur faces and license plates, and to detect features.



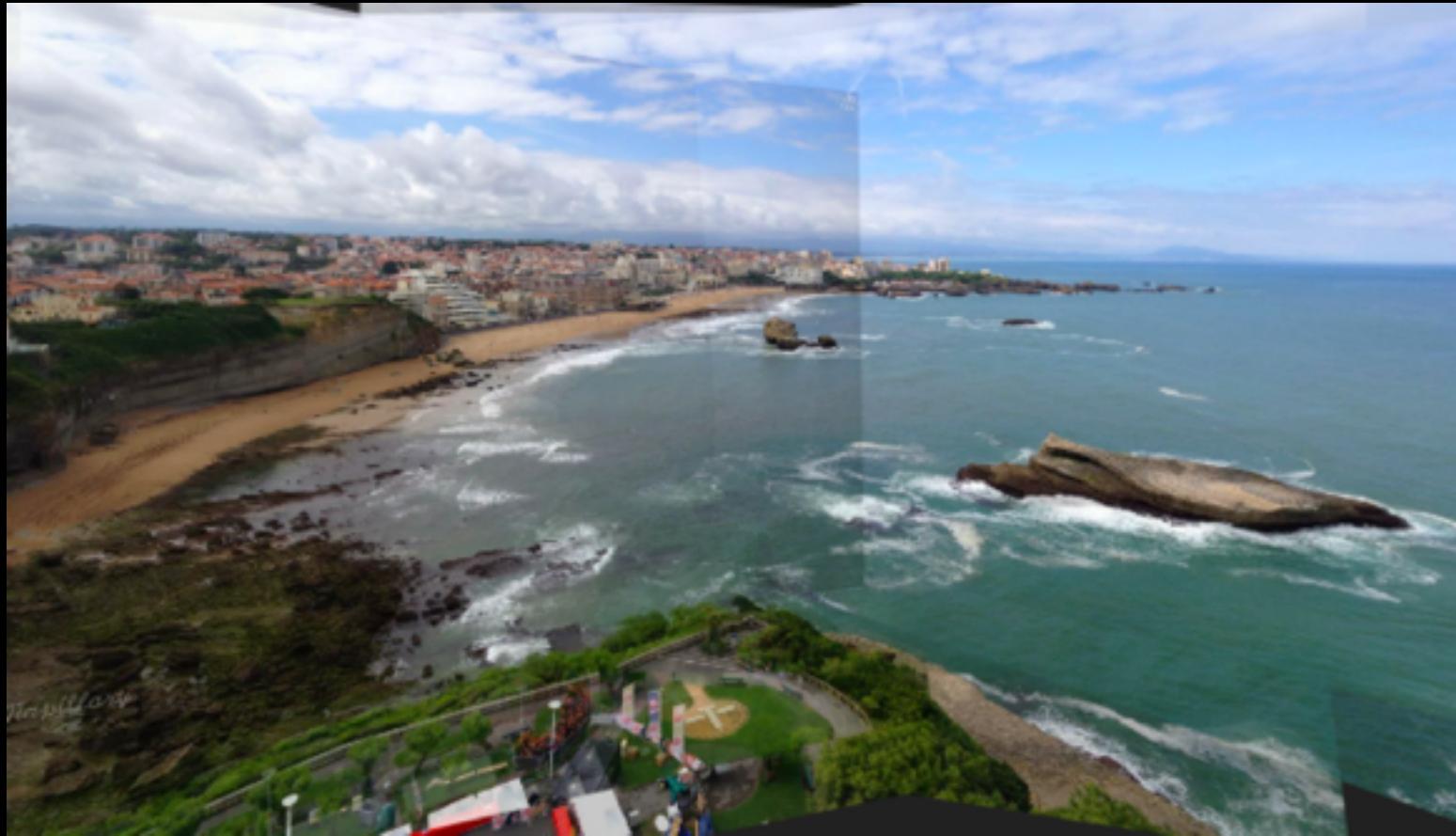
# IMAGE MATCHING

Photos are positioned based on their GPS information and match common points across photos.



# IMAGE STITCHING

Photos taken in a sequence are connected to each other, and to other sequences in the same location.



# POINT CLOUDS

The resulting 3D models enable viewers to walk through virtual scenes and extract geospatial data



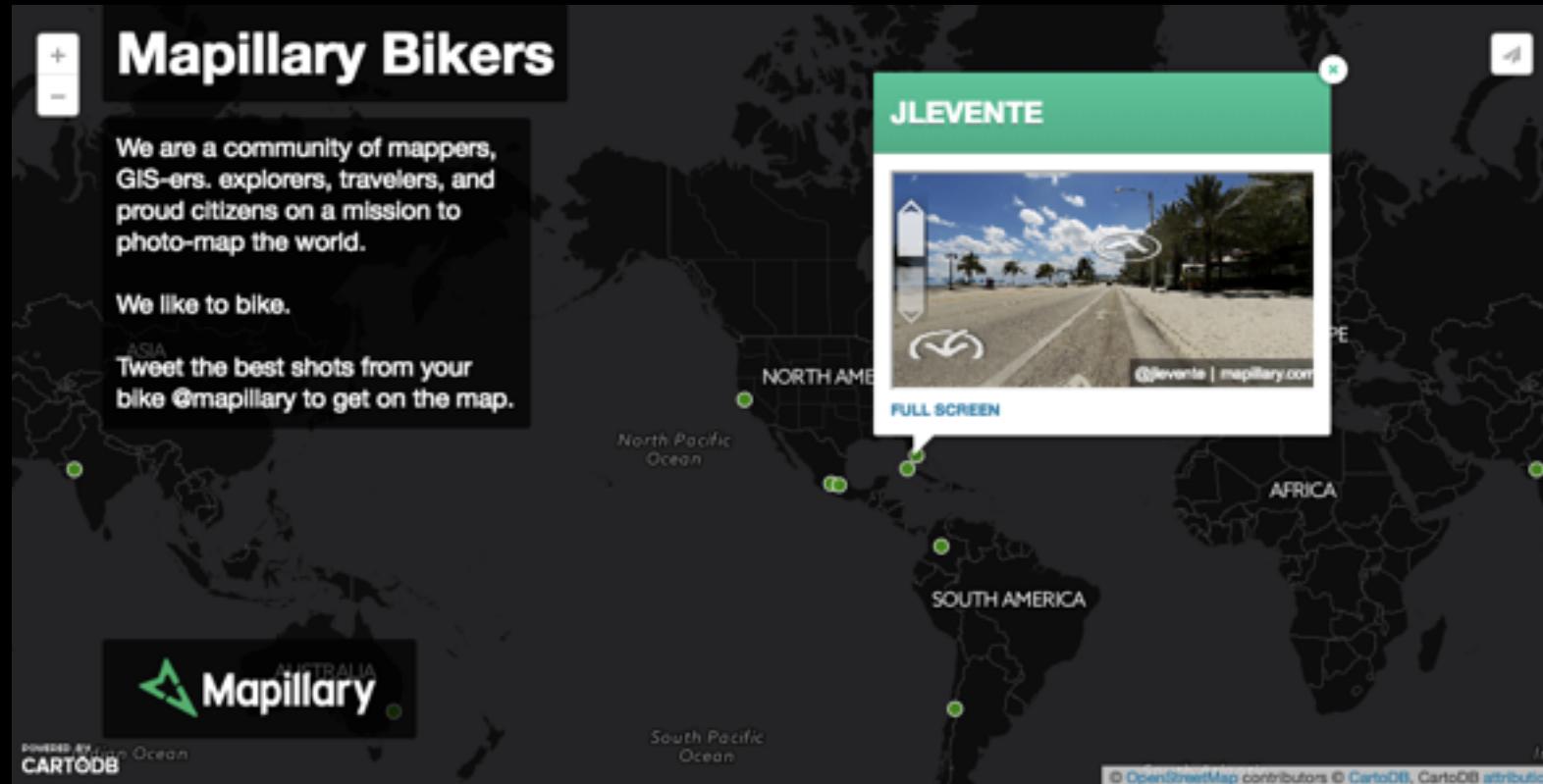
# NEW AND UNDER DEVELOPMENT



*Dubai, UAE (Captured by janine)*

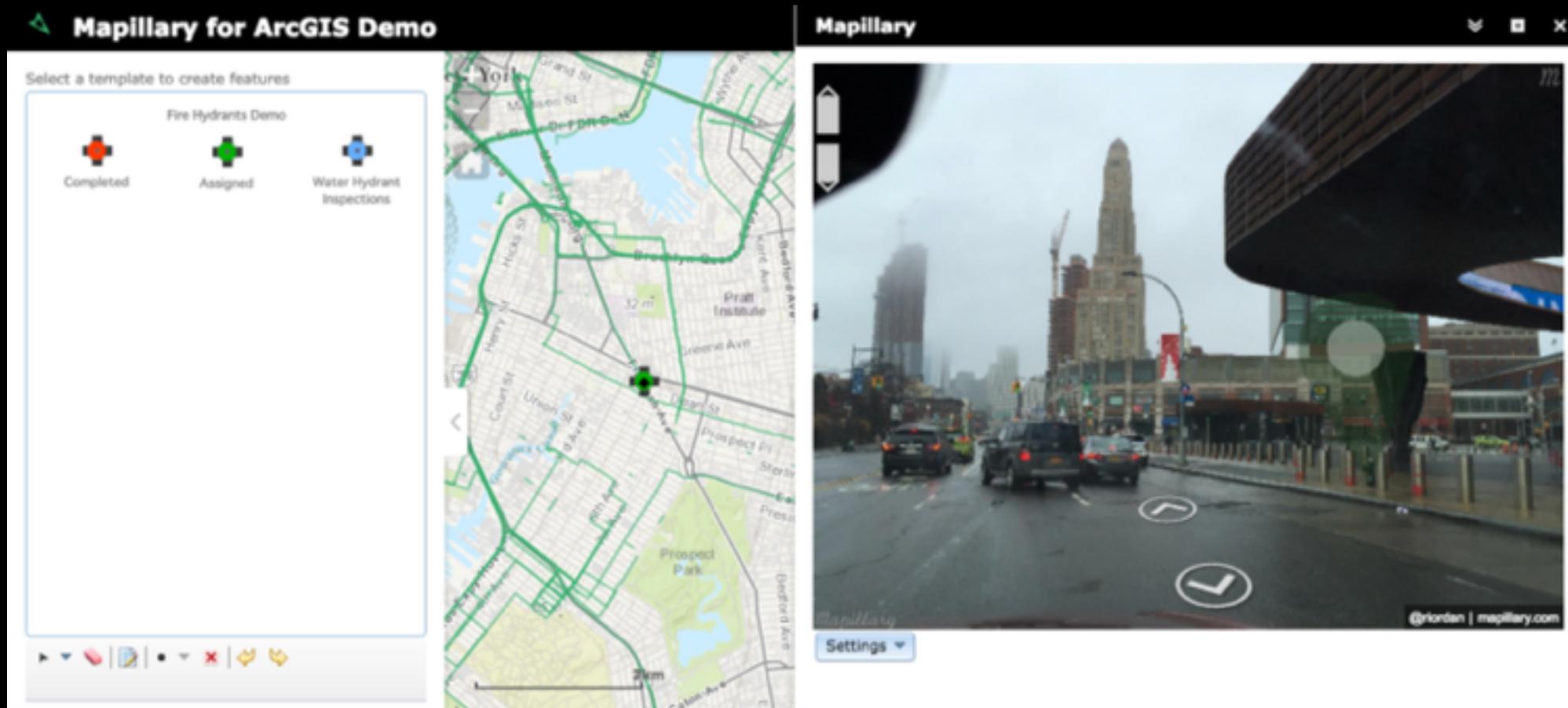
# MAPILLARY-JS STANDALONE VIEWER

Mapillary can now be embedded in any software or service using a simple JavaScript Library



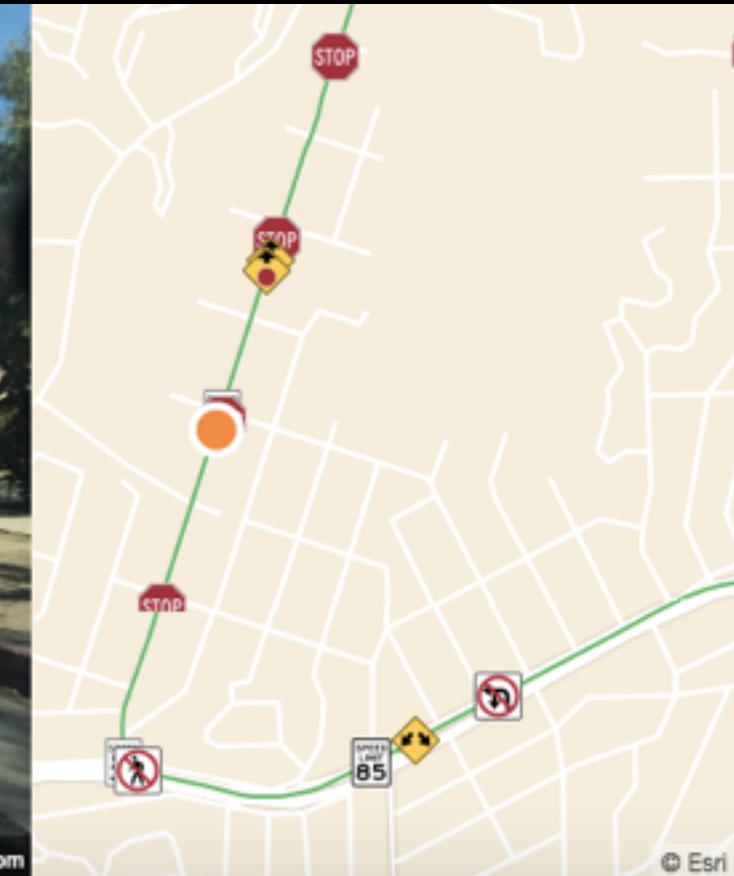
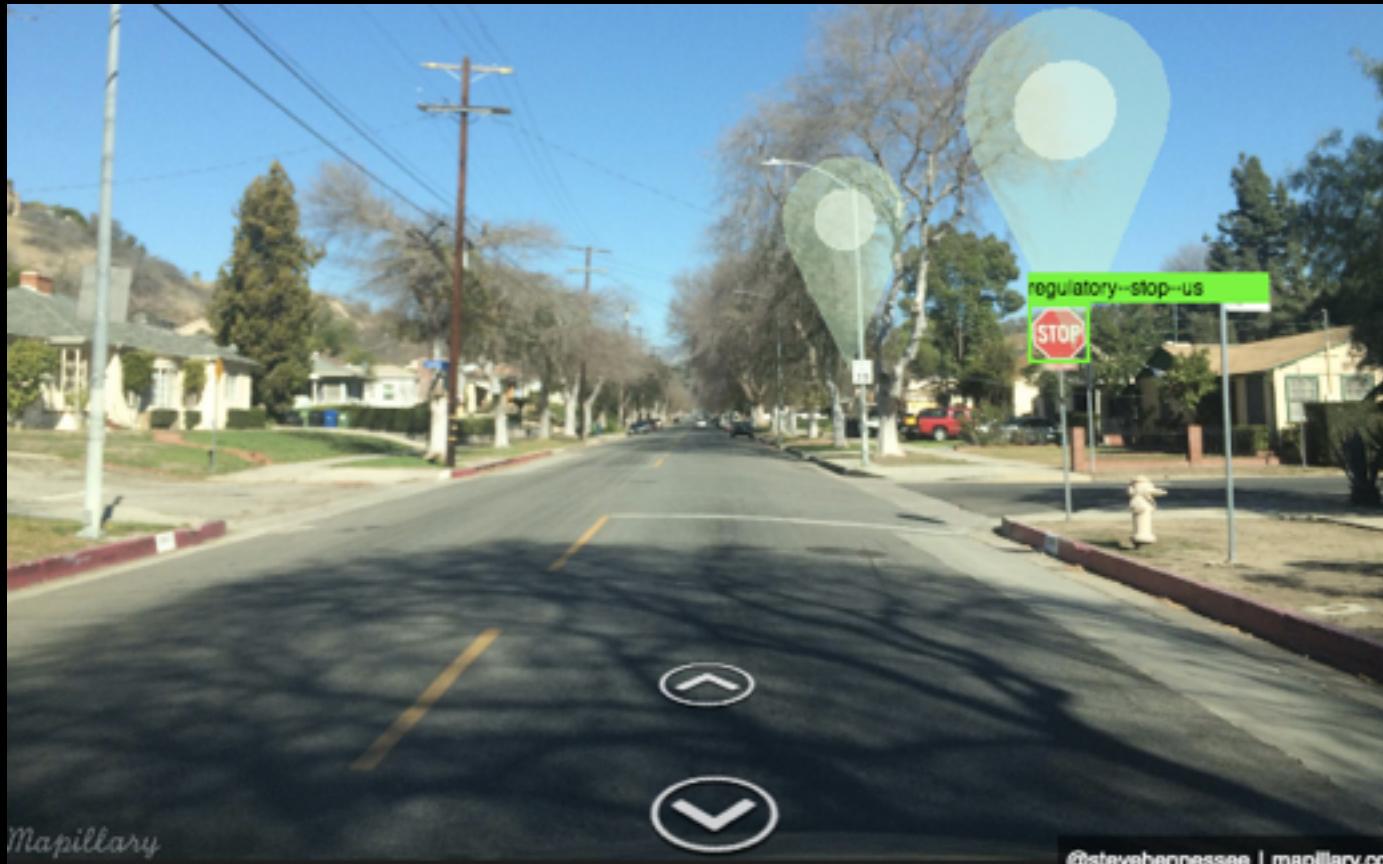
# ARCGIS INTEGRATION

The new Mapillary for ArcGIS web app syncs edits to map layers directly to ArcGIS Online.



# TRAFFIC SIGN DETECTION

Mapillary detects and recognizes traffic signs in the U.S. and Europe based on training data from the Mapillary community.



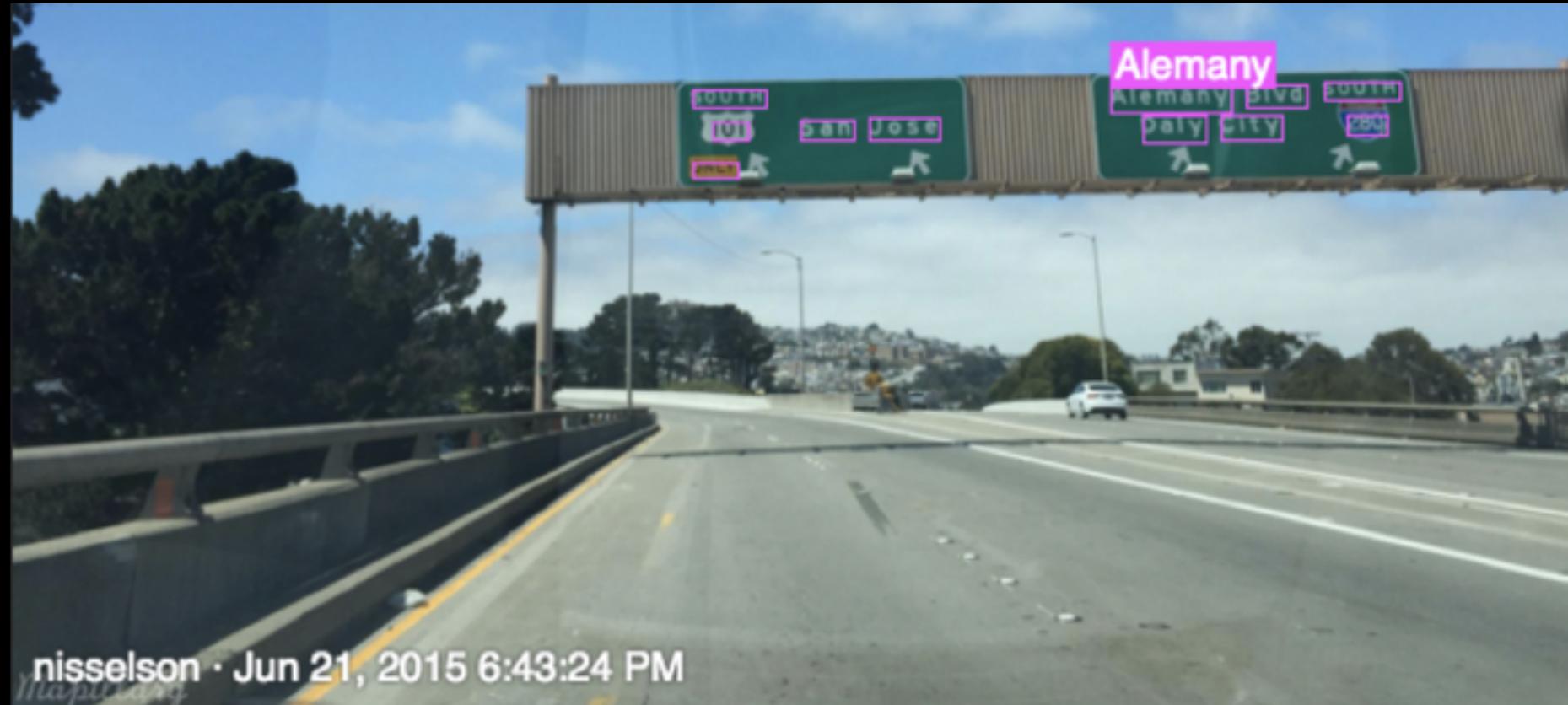
# AUTOMATED OBJECT DETECTION

Next on the roadmap is further investment in deep learning to detect more classes of objects.



# OPTICAL CHARACTER RECOGNITION

Initial tests of OCR have shown promising results for reading exit signs and height / weight restrictions.



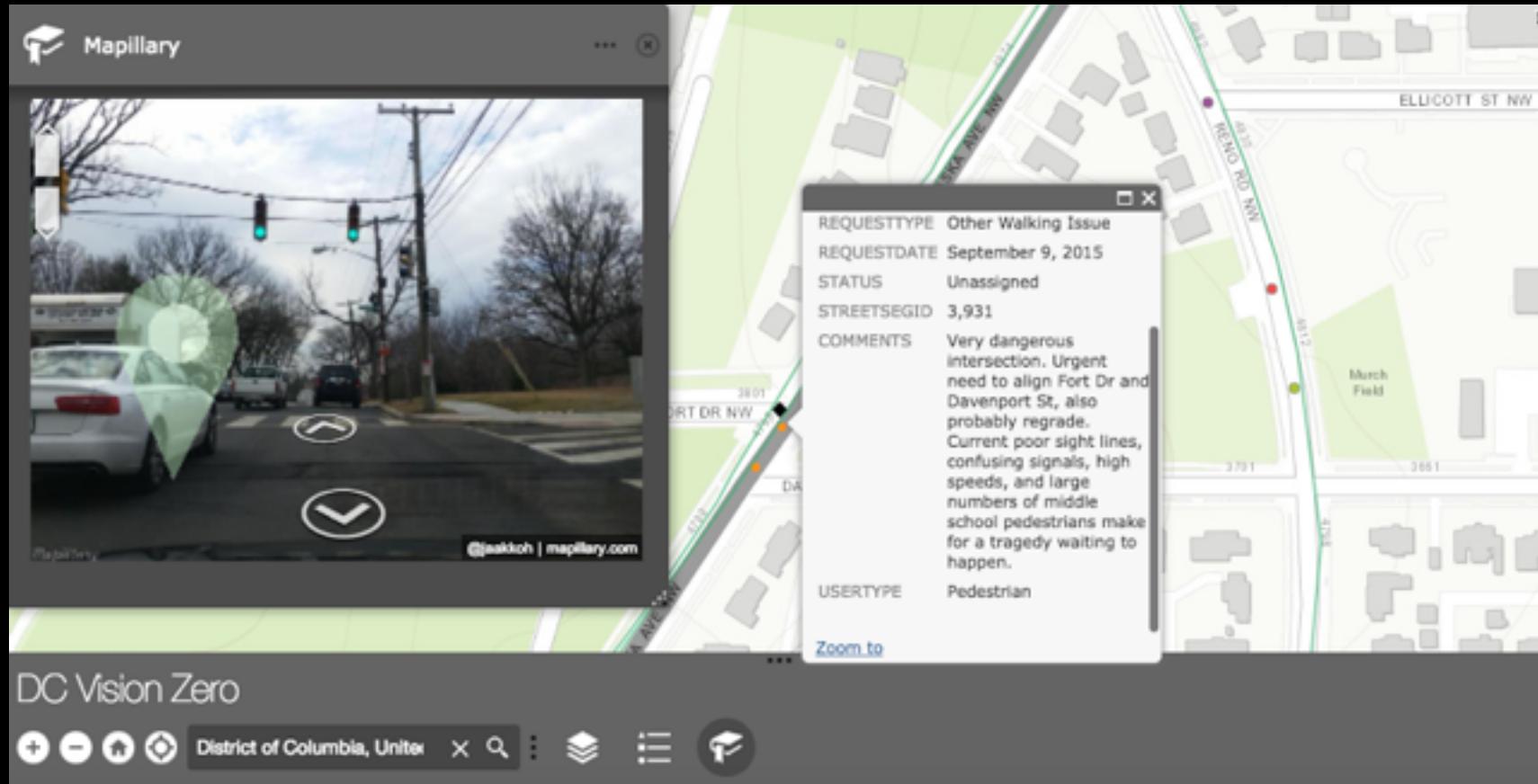
# MAPILLARY AND SMART CITIES



*Dubai, UAE (Captured by awais)*

# TRANSPORTATION SAFETY

Visualized road quality and traffic hazards in Washington D.C  
based on Vision Zero data



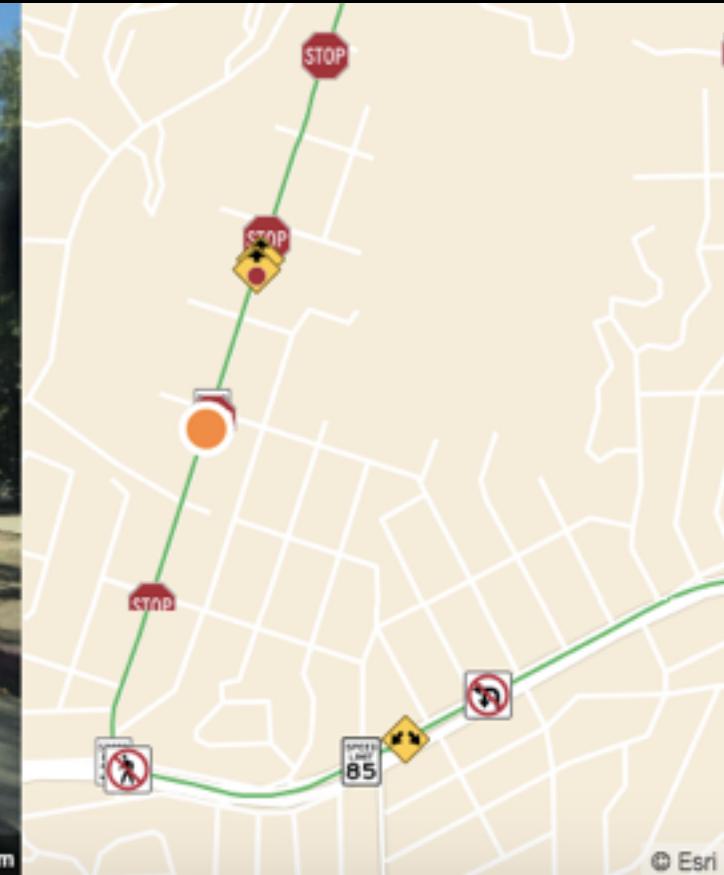
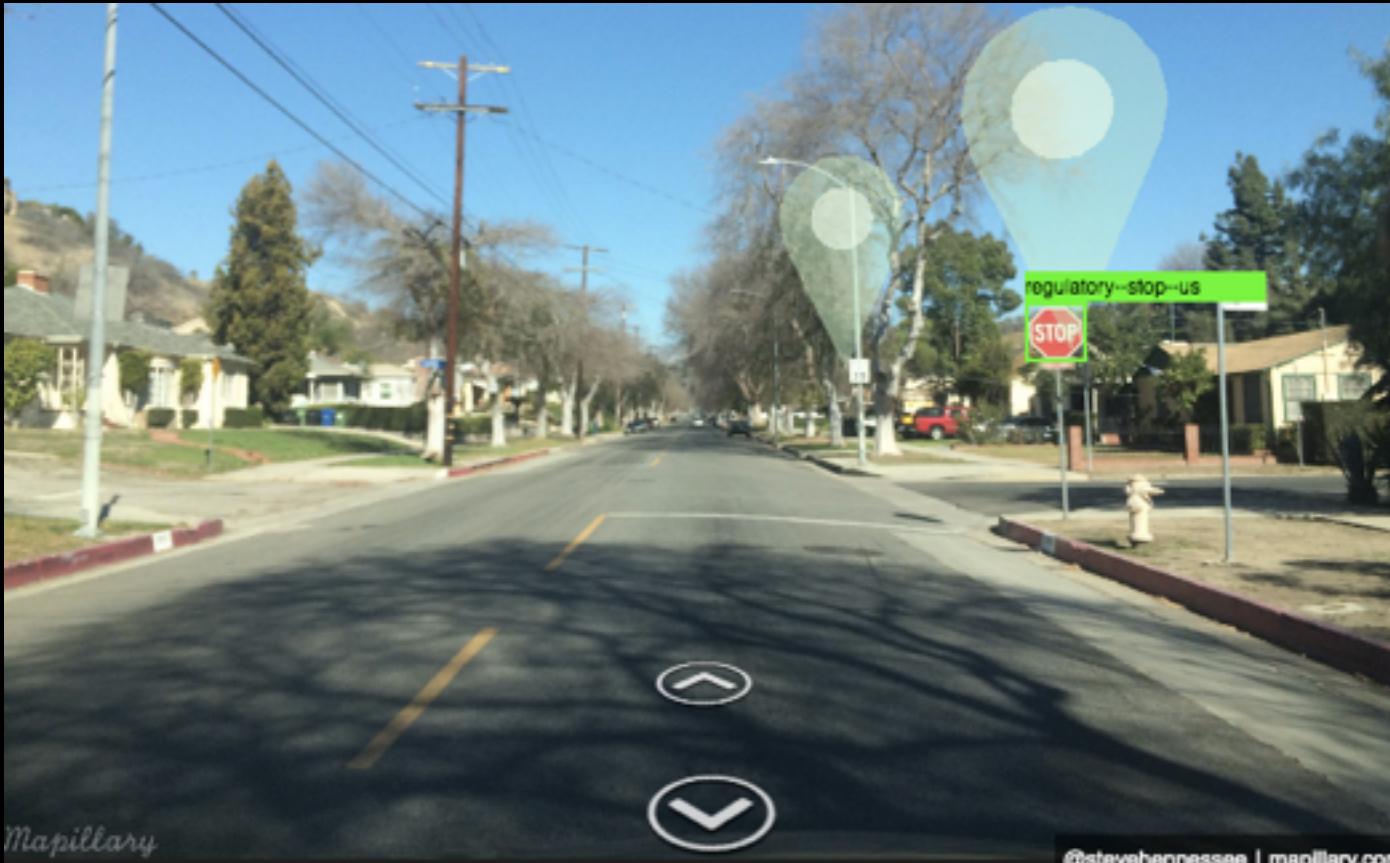
# MOBILITY SERVICES

Supported efforts by bike activists to document high-traffic routes in Mexico City for transit and parking planning



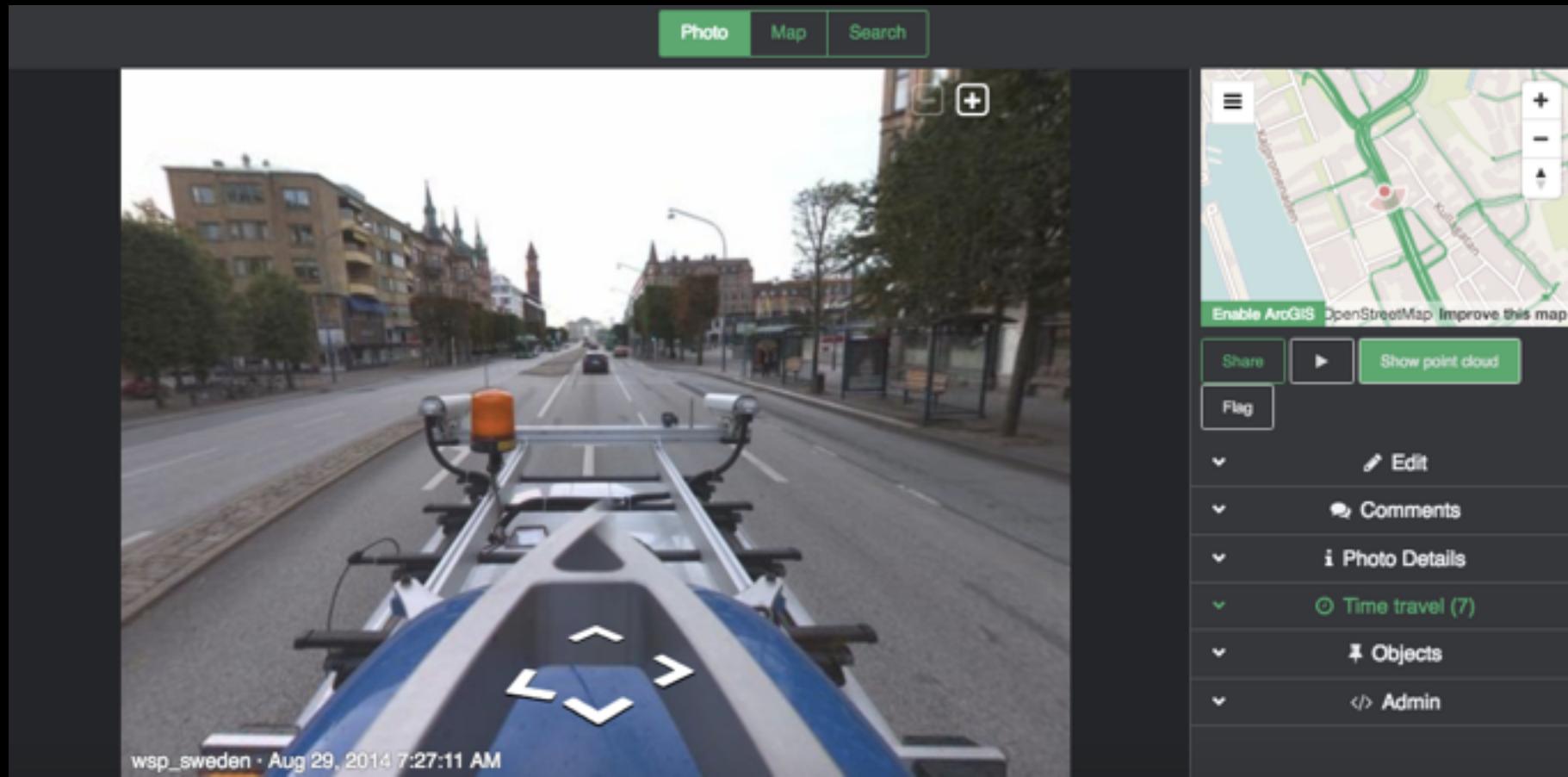
# ASSET INVENTORY

Automatically detected street signs for an asset inventory pilot in Los Angeles



# OPEN DATA

Imported professionally captured panoramic photos from the city of Helsingborg for public distribution as part of Open Helsingborg



# SURVEYING AND PLANNING

Provided tools for the region of Provence-Alpes-Côte d'Azur to map rail infrastructure as part of a community mapathon



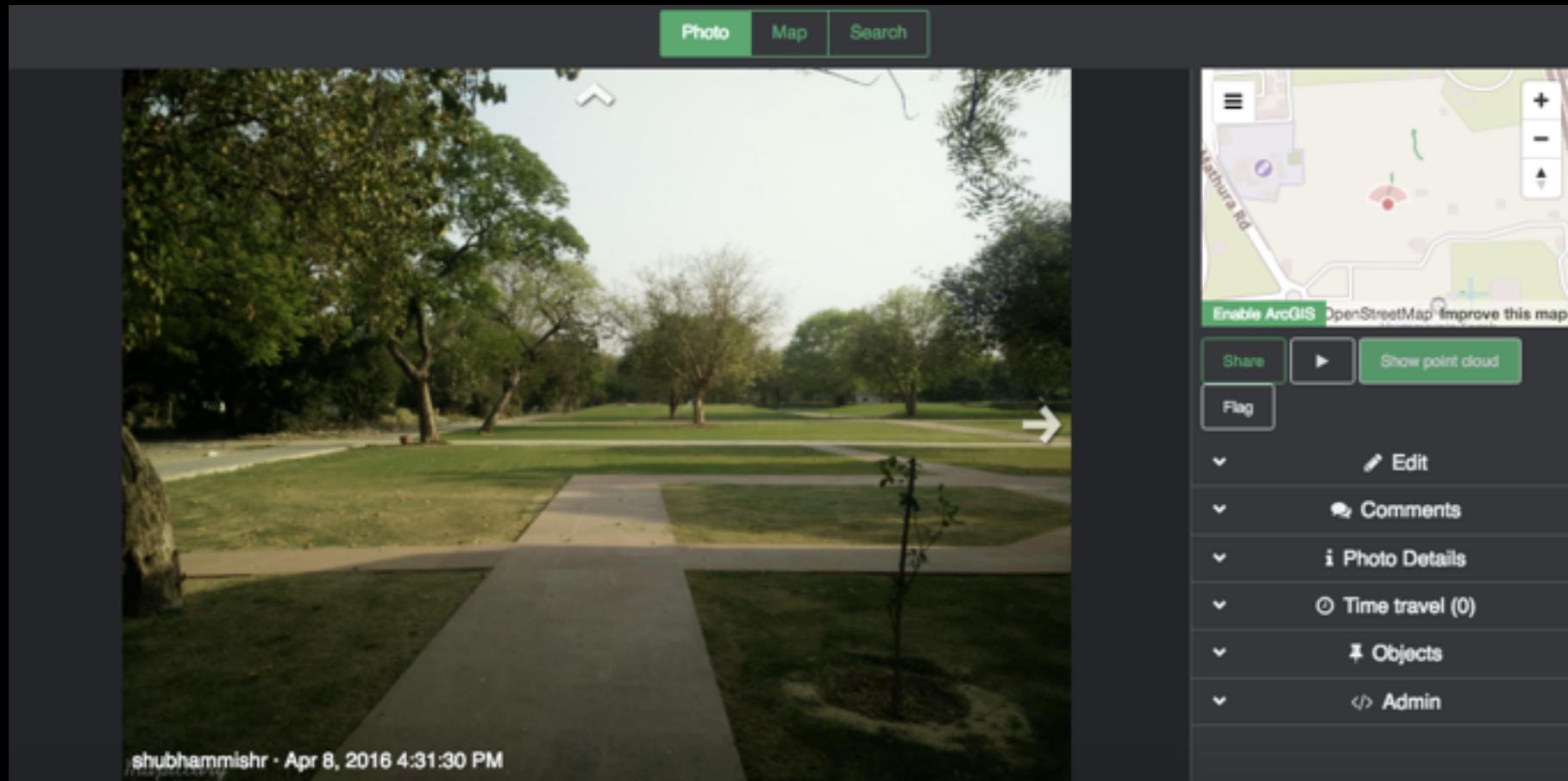
# CITIZEN ENGAGEMENT

Challenged citizens to identify disabled access issues through a Pedestrian Walk event in Mexico City



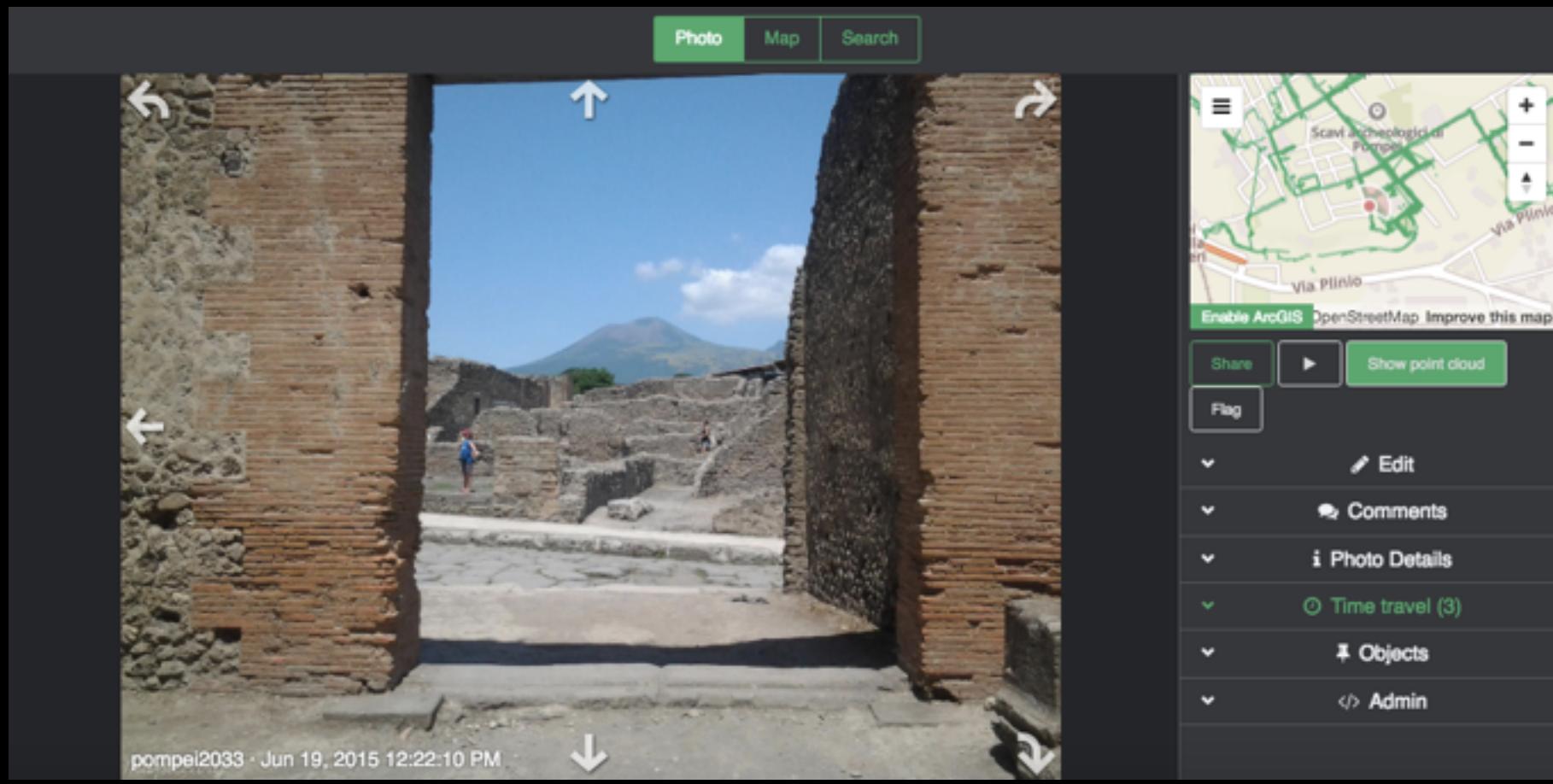
# GREEN CITIES

Showcased urban parks at the 70-acre Sundar Nursery in the middle of New Delhi



# CONSERVATION

Created a virtual tour from crowdsourced photos to celebrate the heritage site of the ancient city of Pompeii



# QUESTIONS?

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