A photograph of a long freight train on tracks next to a two-lane road in a rural landscape. The train consists of several blue and white locomotives followed by a long line of flatcars. The road is paved and has a yellow dashed center line. The landscape is flat with green grass and a clear sky. A small airplane is visible in the upper left corner of the sky.

OSM US Camera Lending Program

Toby Murray (OSM US)
Martijn van Exel (Telenav)

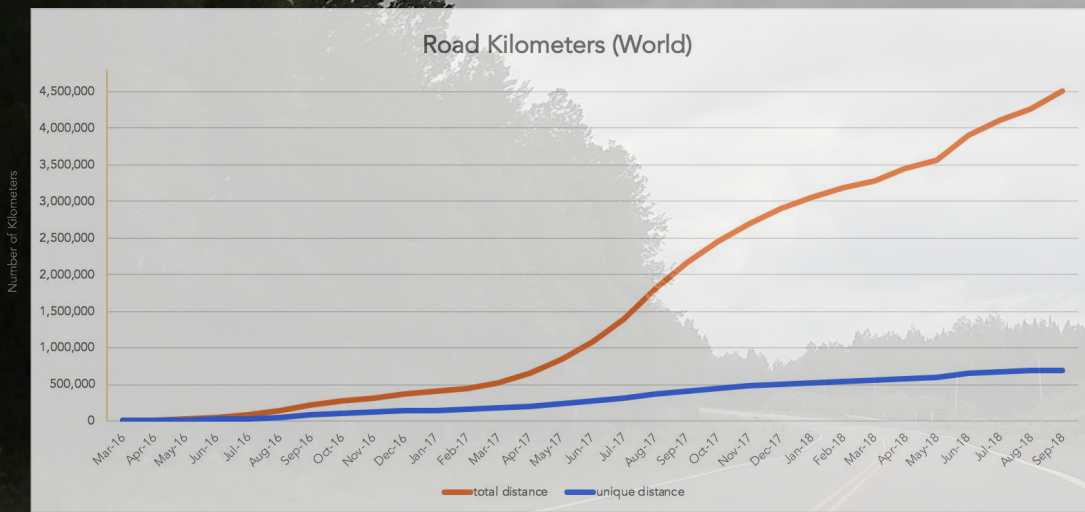
Menu

- OpenStreetCam
- The Waylens camera, benefits
- The Lending Program
- Results: pretty images and honest opinions
- Actual users (not actors)
- And what's next?



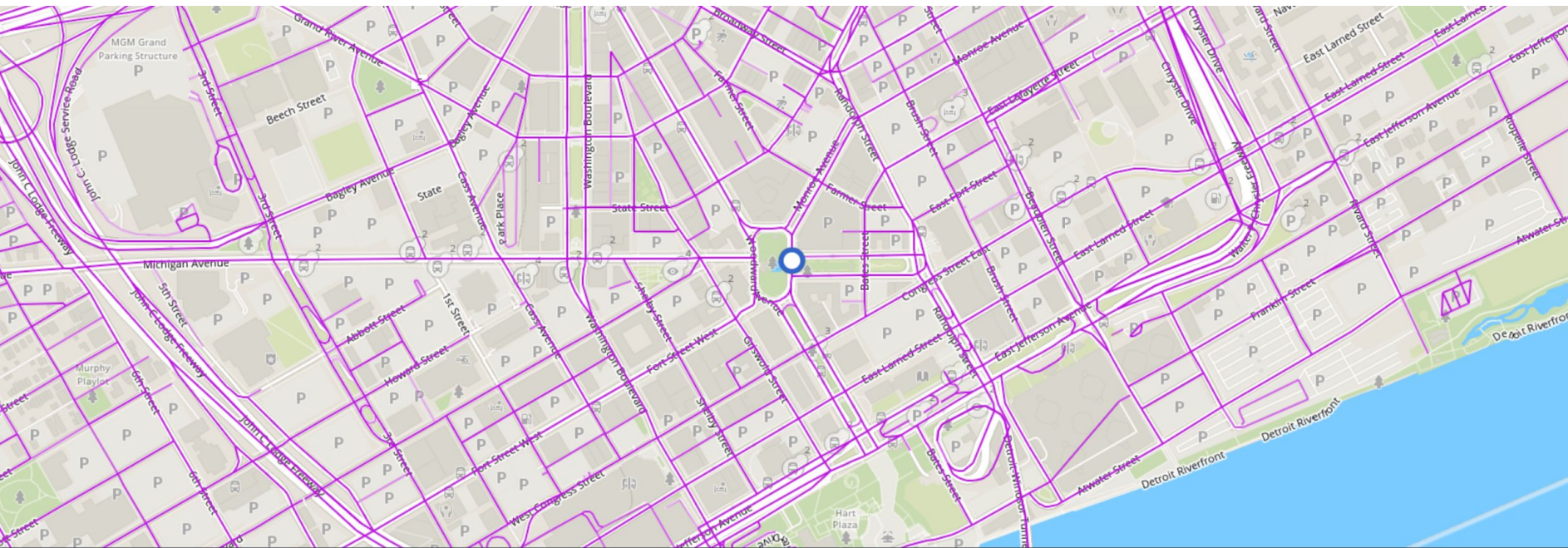
OpenStreetCam

- Launched at SOTM US Seattle, 2 years ago
- Designed 100% for OSM, for mappers, for drivers
- Images freely available under CC-BY-SA, **also outside OSM**
 - iOS and Android apps, **open source**



Unique Kilometers
697,050 (15% of total)

375 km



Nearby tracks

Greenwood Street, MI, United States of America, US
 1199 IMG 33.41 KM



Bates Street, Detroit, MI, United States of America, US
 3532 IMG 70.32 KM



Atwater Street, Detroit, MI, United States of America, US
 3500 IMG 56.40 KM



Eastland Drive, Harper Woods, MI, United States of America, US
 2523 IMG 67.44 KM



Eastland Drive, Harper Woods, MI, United States of America, US
 1105 IMG 27.05 KM



Merriman Road, Romulus, MI, United States of America, US
 4427 IMG 102.98 KM



Merriman Road, Romulus, MI, United States of America, US
 2308 IMG 47.68 KM



Woodward Avenue, I States of America, L
 2250 IMG 40.1



Now at 170+ million images, 4.5 million+ kilometers coverage

Coverage map

Edit feature

Building

All fields

Name
Cobo Arena

Building
yes

Levels
2

Height (Meters)
18

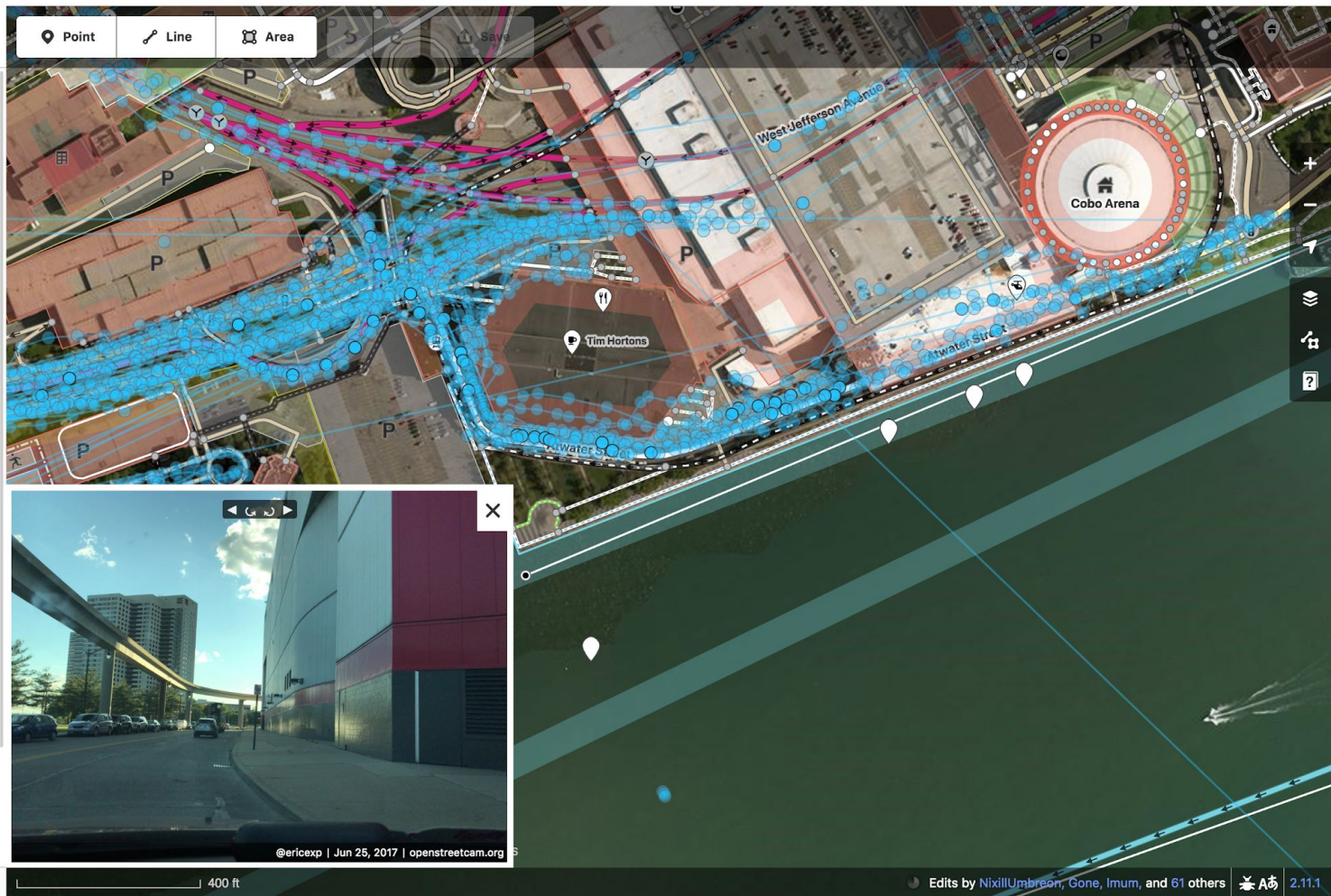
Address
1 Washington Boulev... Unit
Detroit MI 48226

Wikipedia
English
Cobo Center

Add field: Description, Elevation, Email...

All tags (11)

View on openstreetmap.org



The screenshot displays the Java OpenStreetMap Editor interface. The main map area shows a residential street with a green highlighted path and a red highlighted path. The map includes various road features like turn restrictions, traffic flow directions, and missing roads. The interface includes a toolbar on the left with icons for navigation, editing, and viewing. The top right shows the 'Layers' panel with a list of layers: Data Layer 2, Data Layer 1, OpenStreetCam, Turn Restriction, Traffic Flow Direction, MissingRoads, and Bing aerial imagery. The bottom right shows the 'Tags' panel with a list of tags: Highways/Streets/Tertiary..., Highways/Ways/Cycle Lane/Track..., and a table with keys and values.

Layers

- Data Layer 2
- Data Layer 1
- OpenStreetCam
- Turn Restriction
- Traffic Flow Direction
- MissingRoads
- Bing aerial imagery

Tags: 13 / Memberships: 1

- Highways/Streets/Tertiary ...
- Highways/Ways/Cycle Lane/Track ...

Key	Value
cycleway	lane
highway	tertiary
name	East Capitol Boulevard

OpenStreetCam

Created on 2018-01-21 20:27:43 by [mvexel](#)

The photograph shows a snowy residential street with a speed limit sign that reads 'SPEED LIMIT 30'. The street is lined with trees and houses, and the ground is covered in snow.

Background Terms of Use

40.7762873 -111.8872775 2.5 kbl (no object)

Sign detections

- Now 90+ US sign classes, working on more
- ML code is open source, including 50k+ manually annotated training images

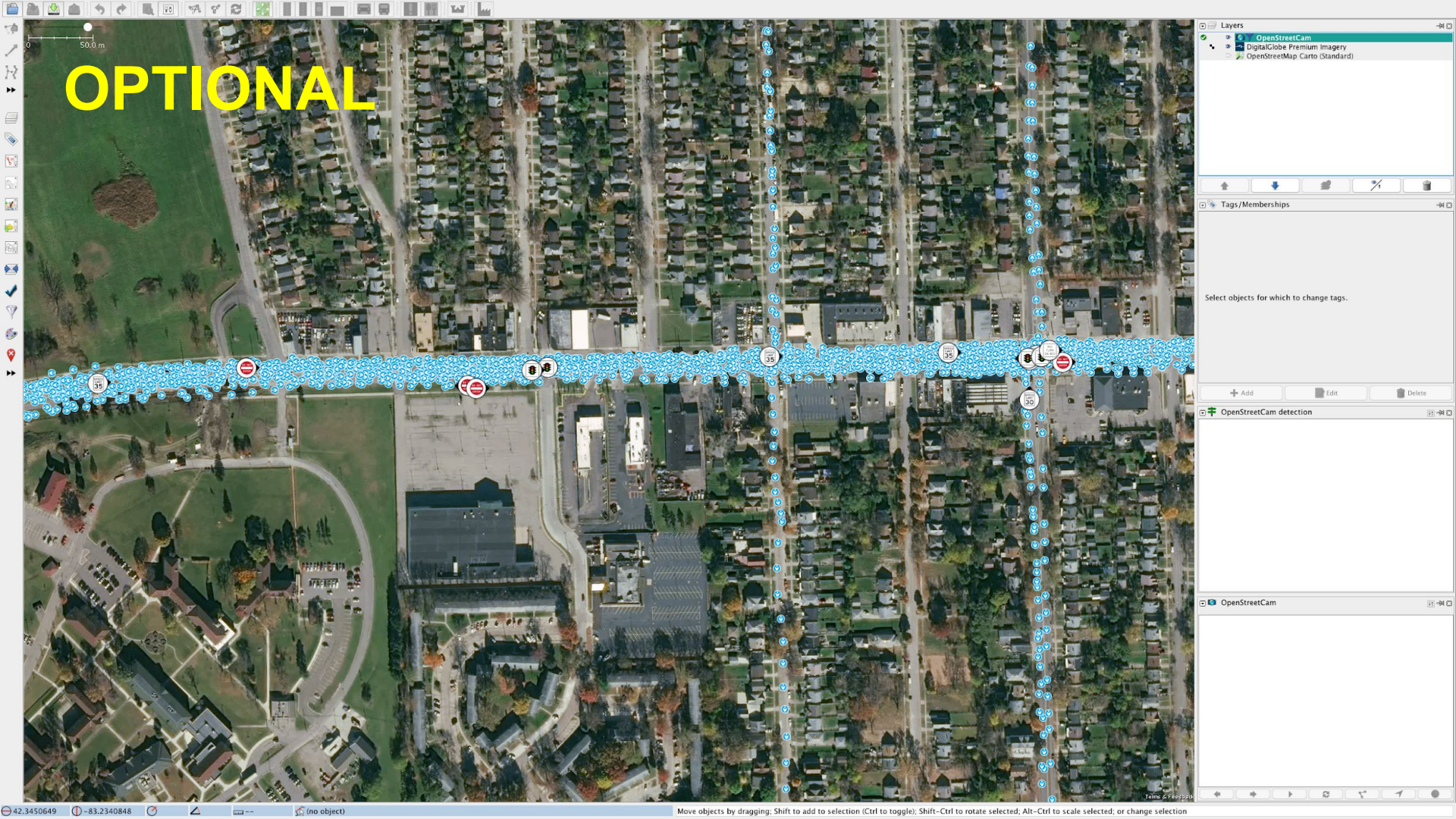
OpenStreetCam Is Now An Open Machine Learning Platform for OpenStreetMap

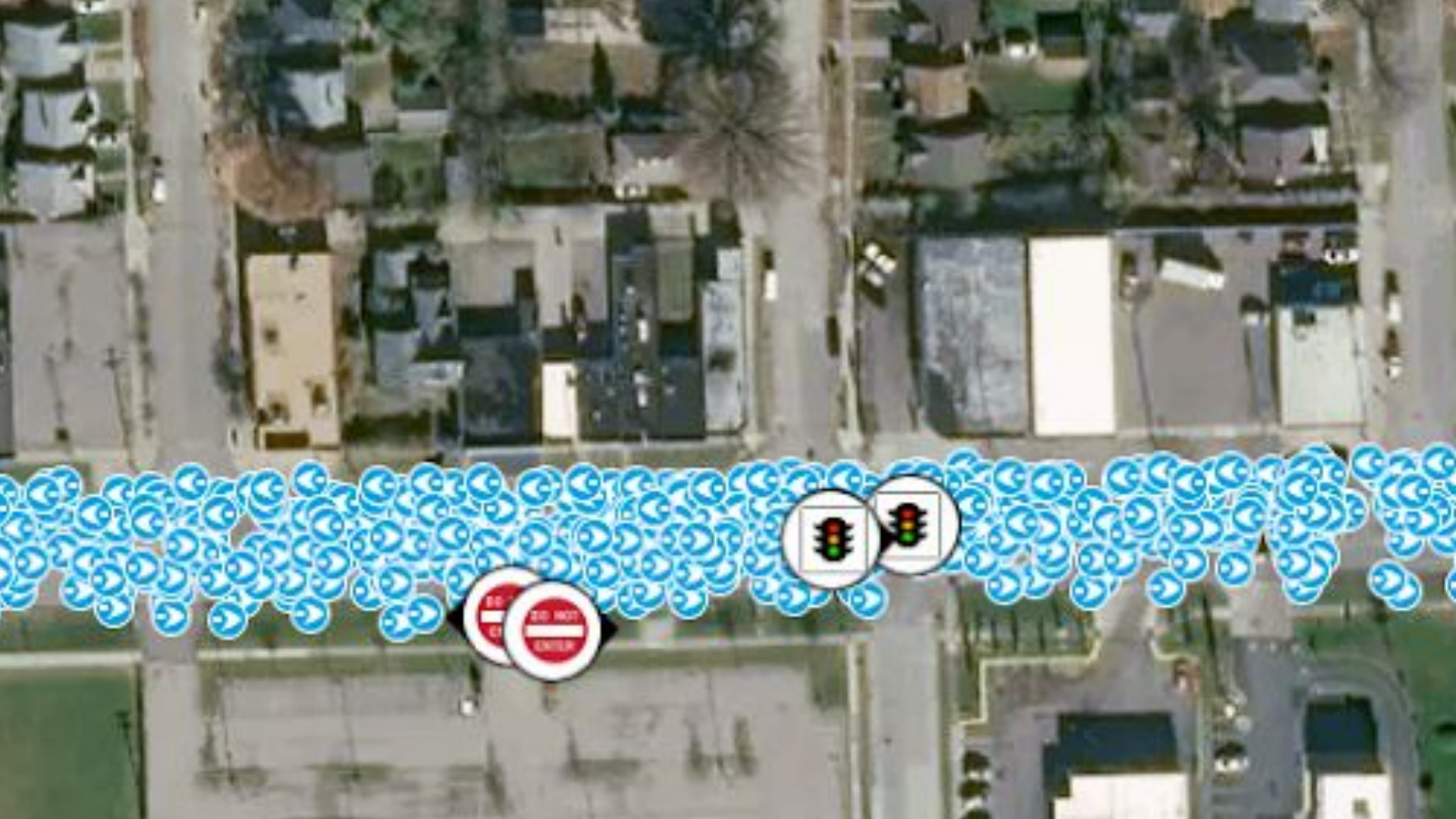
Room A
Saturday, 10:00 am – 20 min

Adrian Margin
Telenav

Go see this →








The Waylens Camera

- Modified version of Waylens Horizon, <https://www.waylens.com/horizon/>
- **Higher quality optics** for sharp still images, specifically designed with reliable ML based sign detections in mind
- **Custom firmware** includes still image mode, OSM account linking, OSC upload functionality



Benefits of a dedicated device

A photograph of a two-lane asphalt road winding through a desert landscape. In the background, a large, rugged, reddish-brown mountain rises against a clear blue sky. The road is flanked by dry grass, shrubs, and several tall saguaro cacti. On the right side of the road, there are two yellow road signs: a diamond-shaped sign that reads "NARROW WINDING ROAD" and a rectangular sign below it that reads "NEXT 1/2 MILE". A small yellow diamond sign is also visible further down the road on the right. The text "Does not overheat" is overlaid on the road surface in the center.

Does not overheat
Phone remains free for other uses
Wider FOV than a phone will provide
Sharper images under poor conditions
Requires almost no effort after initial setup
Doesn't block windshield view nearly as much

Low Light Performance



GoPro Hero 5



Waylens

Low Light Performance



The Lending Program

- OSM US handles logistics, pays for shipping & SD cards. Telenav supplies cameras.
- Started April with 10 cameras, now 20
- Some simple rules:
 - You have to be an OSM US member & active mapper
 - You can borrow a camera for up to 3 months
 - If you capture 1 million points worth of imagery, **keep the camera!**
 - You have to have a car and drive a fair amount
- We have a Slack channel and email address for support
- Google Form that feeds a spreadsheet for tracking



What's in the box



- Camera
- Windshield mount
- Charging/upload mount
- Car power adapter
- Steering wheel remote
- OBDII dongle
- Cable guides
- USB cables

Set up & operation

- Connect camera to WiFi
- Log in to your OpenStreetCam account via the Waylens Android/iOS app
- Mount camera in car
- Drive!
- Camera automatically uploads when in range of a known WiFi network



Logistics

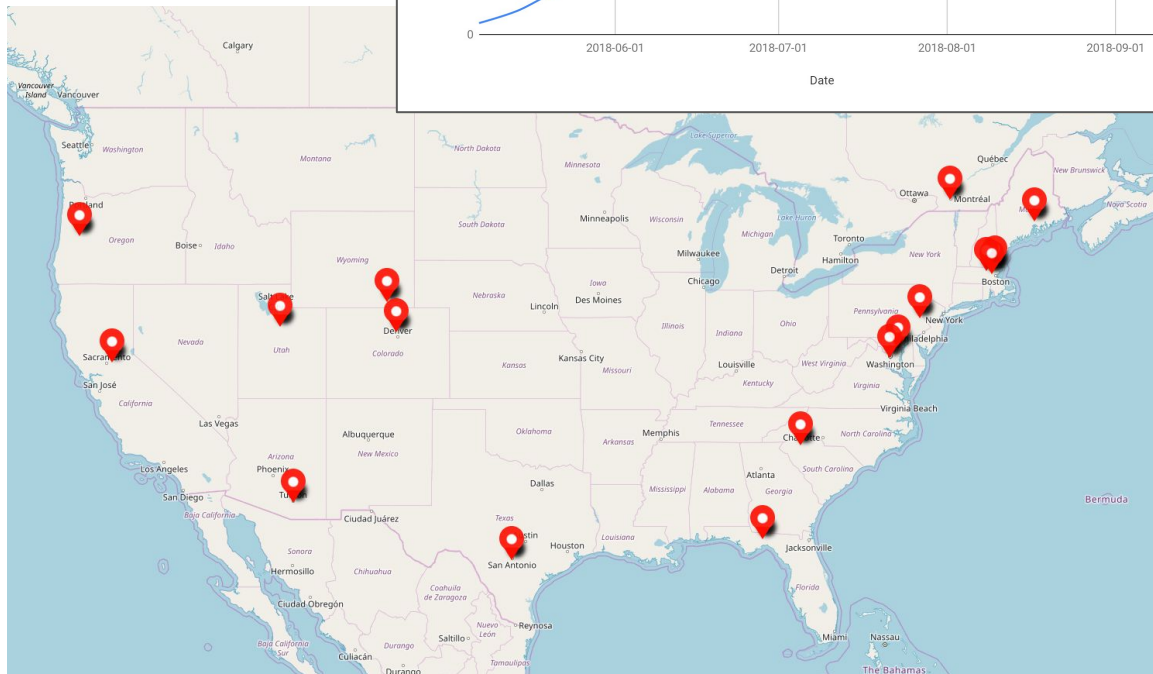
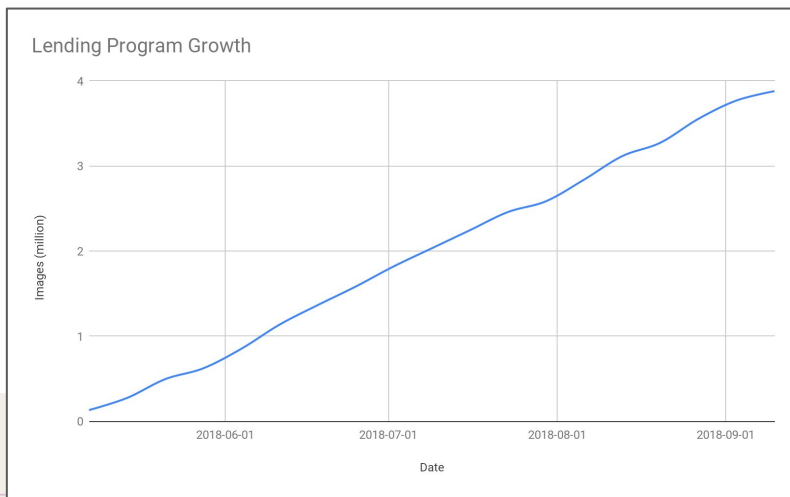
- Google Form that feeds a spreadsheet for tracking
- SD cards supplied by OSM US
- USPS flat rate boxes



	F	G	H	I	J
	Date camera recieved	Date to return	distance km	Waylens Points	C
	5/24/2018	8/24/2018	678	789933	B
	5/29/2018	8/29/2018	1019	449457	B
	5/29/2018	8/29/2018	1,732	1,280,396	B
	5/29/2018	8/29/2018	1633	581910	B
	5/29/2018	8/29/2018	7222	2954640	B
	5/23/2018	8/23/2018	2156	437043	B
	5/29/2018	8/29/2018	3337	1382345	B
	06/01/2018	9/1/2018	3457	3434361	B
	5/29/2018	8/29/2018	115	125656	B
	2018-06-19	9/19/2018	1651	619392	B
	10/18	9/10/2018	1299	1228204	B
	14/18	9/14/2018	263	237327	B
	12/2018	9/13/2018	3043	1278535	B
	1/2018	9/21/2018	8030	4095852	B
	20/2018	9/20/2018	2340	1333338	B
	21/2018	9/21/2018	3092	1124902	B
	1/20/2018	9/20/2018	3740	1676007	B
	3/20/2018	9/20/2018	859	781316	B
	8/01/2018	11/1/2018			B

Results

- Users with uploads: 18
- Images uploaded: ~7.5 million
- Distance driven: 28,400 miles (45,666 km)
- OSC points earned: 23,029,298



Let's hear from real users (Not Actors!!)

“I like that I have a **purpose-built product** to capture imagery for OpenStreetMap. I dislike that it's *only a head-on view*, but understand that spherical cameras aren't quite economical yet.”

“I'd say my favorite thing about the waylens is definitely the ease of use (with the exception that the auto-record has caused a few weird one-picture sequences I had to delete later), and my least favorite is probably the *relative inflexibility*, but those are really just the two sides of the same coin -- **I wasn't really contributing meaningfully at all before it and now I've taken 95 thousand photos**, so the ease of use definitely seems to outweigh the limitations!

What's Next?

- Expand the US program → **We need HELP to run it!**
- Start program in Canada → John Marshall will run with 5 cameras to start
- Pilots in other places: we have 1 camera for OSM UK, 1 camera in Japan, a few cameras in Germany. We're starting a pilot with HOT, 5 cameras in Asia / Africa



Thank you! / FAQ

Where do I sign up? See this blog post: <https://www.openstreetmap.us/2018/05/camera-lending-program/>

When do I get my Waylens camera if I sign up today? There is currently a waitlist of about 10 people, but we're trying to fill requests as quickly as possible!

Can I use the Waylens camera without a car? No. Try a GoPro or other action camera for hike / bike use.

Can I purchase the OSC version of the Waylens camera? No, but you can sign up for the Lending Program if you're a community member, or email hello@openstreetcam.org if you have something else in mind.

Follow us on @osmus and @openstreetcam

**Stop by the Telenav booth for a chance
to win a Waylens camera!**

Toby




Martijn



SPARE IMAGES







Apple
Maps
Car!





375 km

Likes dislikes

I like that with my 2015 civic and the mount right below the right side of my mirror base it seems to not get any of the dash at all and still be 97% straight on with the middle of the car. (edited)

also minor annoyance is on bright days the red circle is hard to see to make sure you're recording. (although 1/3rd of that issue is my mirror covering a corner of the screen from my position in the driver's seat, which at least means it's definitely not blocking my vision itself)

Likes and dislikes: I like that I have a purpose-built product to capture imagery for OpenStreetMap. I dislike that it's only a head-on view, but understand that spherical cameras aren't quite economical yet.

I'd say my favorite thing about the waylens is definitely the ease of use (with the exception that the auto-record has caused a few weird one-picture sequences I had to delete later), and my least favorite is probably the relative inflexibility, but those are really just the two sides of the same coin -- I wasn't really contributing meaningfully at all before it and now I've taken 95 thousand photos, so the ease of use definitely seems to outweigh the limitations!