

# OpenStreetMap

## What is that and how can I contribute?

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## 1 What is this?

- Motivation
- History
- Statistics
- Community

## 2 The data

- Node
- Way
- Relation
- Area
- Multipolygon

## 3 Applications

## 4 Contributing to OSM

- Trace aerial imagery
- Go outside
- Report errors

- free<sup>1</sup> project collecting **free accessible** geodata
- open database for geodata
- ODC-ODbL
  - ▶ OpenDataCommons Open Database License
  - ▶ Ersetzt CC BY-SA 2.0 (share alike & attribution)

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<sup>1</sup>free as in freedom

## Motivation

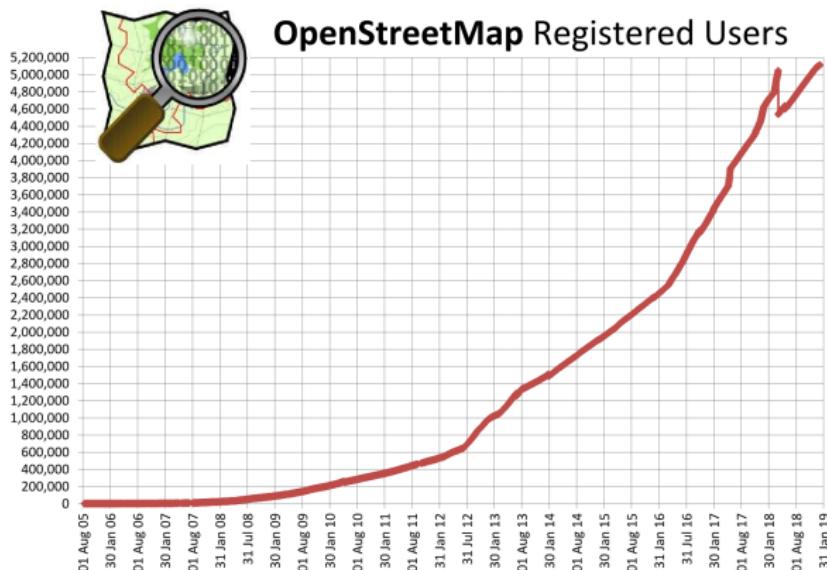
Why has OpenStreetMap been created?

- proprietary maps old and faulty
- focus on cars and traffic
- no access to raw data
  - ▶ error correction not possible
- Google Maps *not directly evil* – but **not free**
- license problems with (nearly) all map service providers

## History

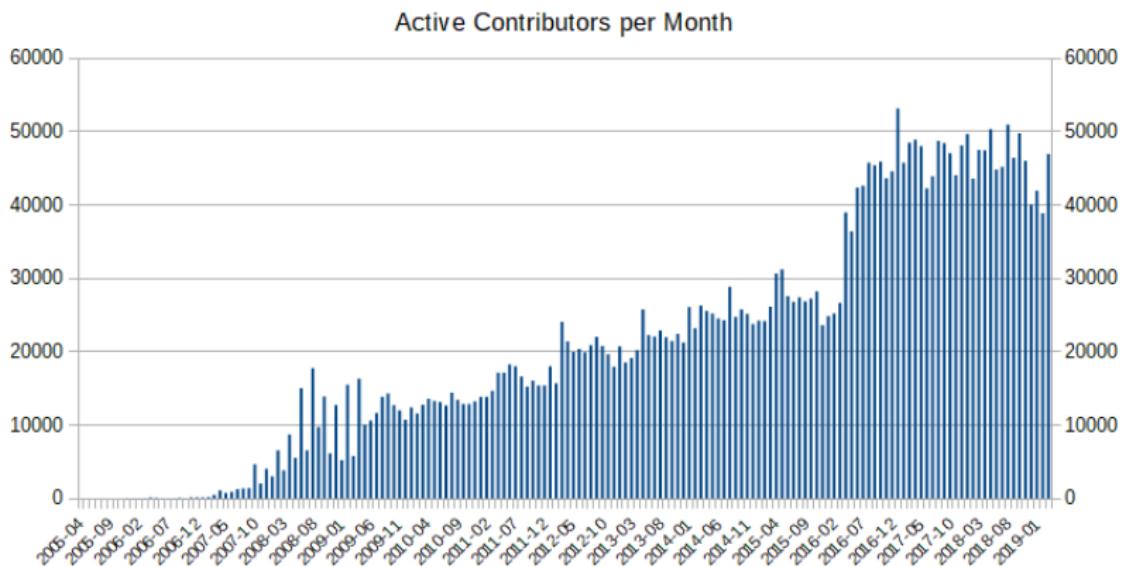
- 2004 – OSM founded
- 2006 – release JOSM-Editor
- 2006 – first map rendered with Mapnik
- 2007 – TIGER data import USA started
- 2008 – TIGER data import USA finished
- 2009 – API 0.6 (still latest version)
- 2009 – cooperation with Wikipedia
- 2010 – Bing Imagery allowed usage for OSM
- 2013 – 1 mio. registered users
- 2016 – Maps.me app enabled edits

# Statistics



[https://wiki.openstreetmap.org/wiki/File:Osmdbstats1\\_users.png](https://wiki.openstreetmap.org/wiki/File:Osmdbstats1_users.png), 2019-05-25

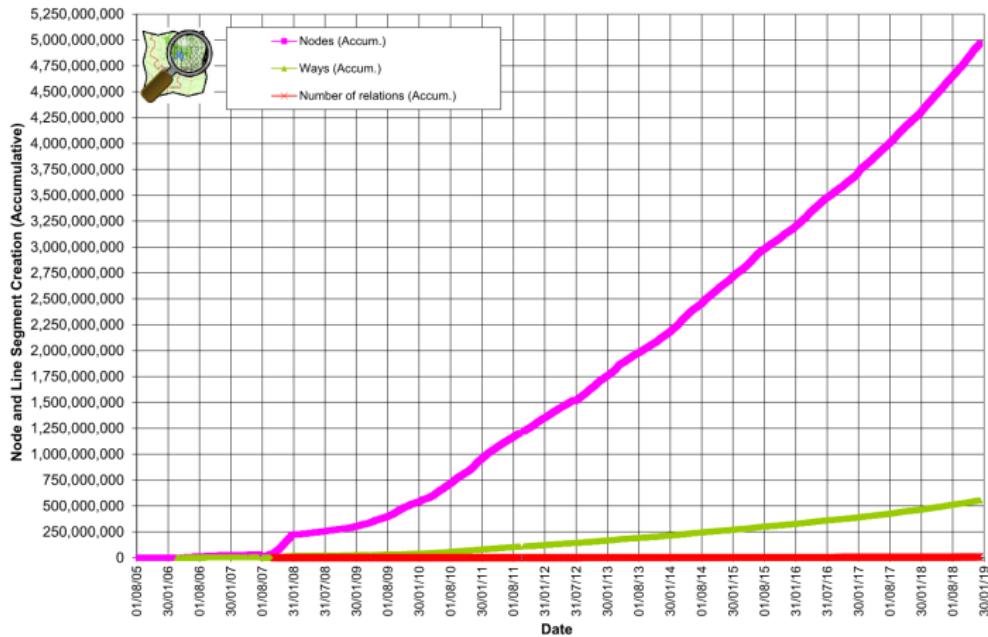
# Statistics



[https://wiki.openstreetmap.org/wiki/File:Active\\_contributors\\_month.png](https://wiki.openstreetmap.org/wiki/File:Active_contributors_month.png), 2019-05-25

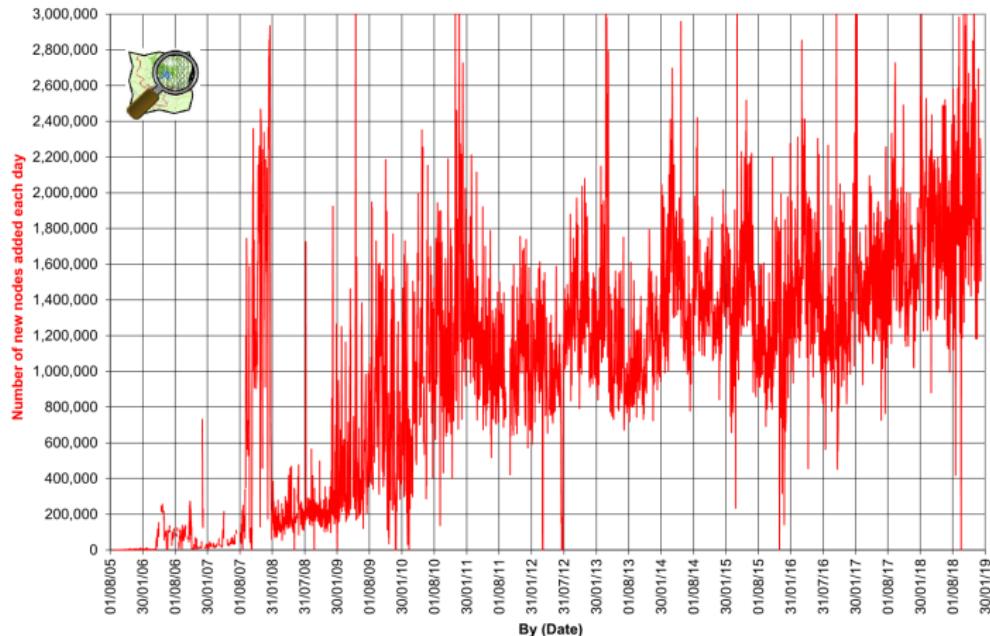
# Statistics

**OpenStreetMap Database Statistics**  
Node, Way and Relation Creation



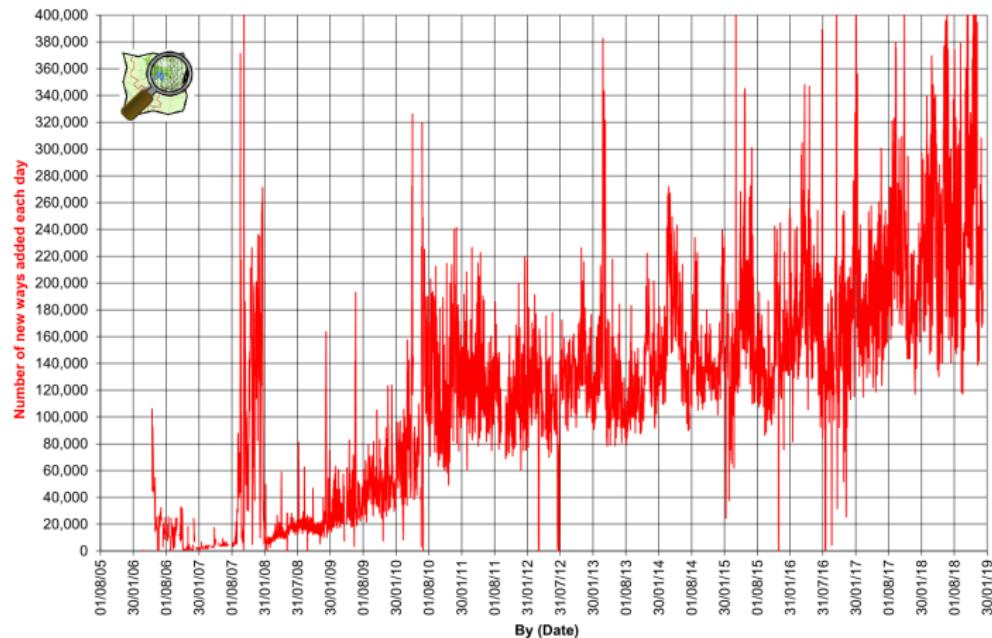
# Statistics

**OpenStreetMap Database Statistics**  
Number of nodes added each day



# Statistics

**OpenStreetMap Database Statistics**  
Number of ways added each day



## Community

### What is done?

- developing software and tools
- actual mapping
- creating and maintaining documentation
- doing public relations activities

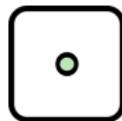
## Community

### How is it done?

- going outside collecting information
- using imagery services
- meet other mappers
- participating in a mapathon

# Node

- single location on map



(1)

amenity=telephone  
covered=booth



(1) [https://wiki.openstreetmap.org/wiki/File:Red\\_telephone\\_box\\_-\\_geograph.org.uk\\_-\\_919348.jpg](https://wiki.openstreetmap.org/wiki/File:Red_telephone_box_-_geograph.org.uk_-_919348.jpg),

2019-05-25

# Way

- line on map
- 2-2000 points per way



highway=secondary

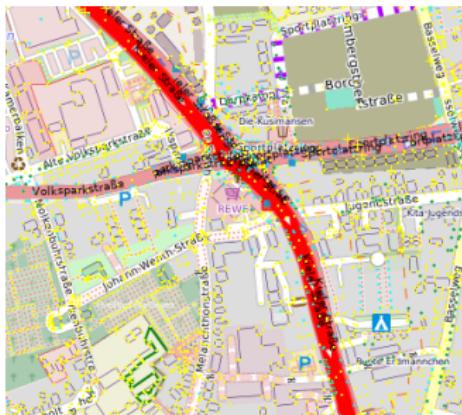


(1)

(1) <https://wiki.openstreetmap.org/wiki/File:Meyenburg-L134.jpg>, 2019-05-25

# Relation

- combination of ways (e.g. to a bus route)



`type=route  
route=bus  
name=MetroBus 4  
ref=4  
from=Wildacker  
to=Brandstwiete`

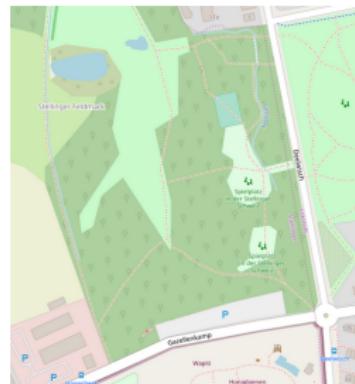
# Area

- basically a closed way with special tags



(1)

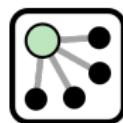
landuse=forest  
leaf\_type=broadleaved



(1) [https://commons.wikimedia.org/wiki/File:Stellinger\\_Feldmark\\_ESE\\_01.JPG](https://commons.wikimedia.org/wiki/File:Stellinger_Feldmark_ESE_01.JPG), 2019-05-25

# Multipolygon

- basically a polygon with polygons inside
- role inner and outer



landuse=farmland



Merkmale: 1 / Mitgliedschaften: 1

Geografie/Landnutzung/Ackerland ...

Schlüssel	Wert	
landuse	farmland	
Element von	Rolle	Posit...
multipolygon ("Staatsforst Rosen...")	Inner	14

Hinzufügen Bearbeiten Entfernen

(2)

(1) Microsoft©BingTM Maps Platform; (2) Microsoft©BingTM Maps Platform inside JOSM editor

# OpenStreetMap website

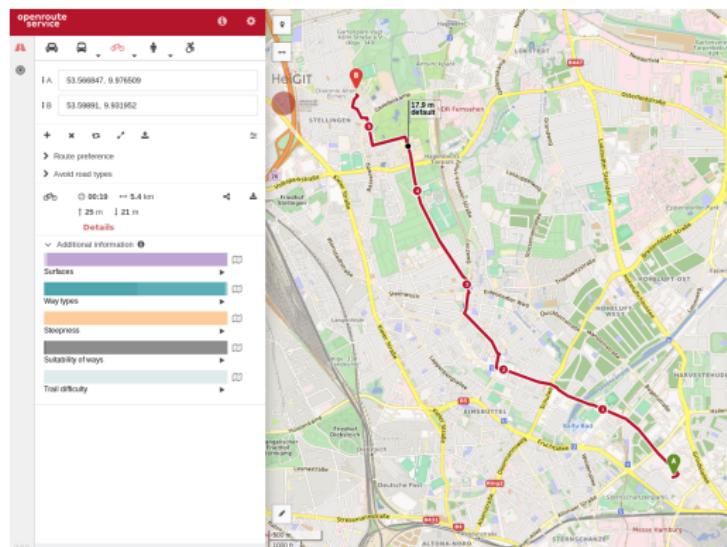
The screenshot shows the OpenStreetMap website interface. At the top, there is a search bar with the query "informatikum". Below the search bar, the results are displayed under "Suchergebnisse" (Search results). The first result is "Universität Informatikum, 30, Vogt-Kölln-Straße, Stellingen, Eimsbüttel, Hamburg, 22527, Germany" with a yellow background, followed by "Bushaltestelle Informatikum, Würdemanns Weg, Stellingen, Eimsbüttel, Hamburg, 22527, Germany". There is a "Mehr Treffer" (More results) button. Below the search results, there is a section for "Suchergebnisse von GeoNames" (Search results from GeoNames) which says "Keine Ergebnisse gefunden" (No results found).

The main part of the page is a map of the area around the University of Informatics (Informatikum) in Hamburg. The map shows streets, buildings, and green spaces like Tierpark Hagenbeck. A red pin marks the location of the University of Informatics. The map includes various overlays such as GPS-Tracks, User Blogs, Copyright, Help, and About. On the right side, there is a sidebar titled "Kartenebenen" (Map layers) with options for "Standard", "Radfahrerkarte" (Bicycle map), "Verkehrsmap" (Traffic map), and "Humanitarian". At the bottom of the map, there is a copyright notice: "© OpenStreetMap, Mitherausgeber, Spender, Website und API lizenziert".

<https://osm.org>



# OpenRouteService



<https://maps.openrouteservice.org>



## OpenTopoMap website



<https://opentopomap.org>

# OpenStreetMap Wiki



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**Other languages — Help us translate this wiki**

**Welcome to OpenStreetMap**, the project that creates and distributes free geographic data for the world. We started it because most maps you think of as free actually have legal or technical restrictions on their use, holding back people from using them in creative, productive, or unexpected ways.

**More about OpenStreetMap | How to contribute | Where to get help**



### Use OpenStreetMap



#### Using OpenStreetMap

- [Browse our world map](#)
- [Check the ready-to-use products for your mobile device, your desktop computer or the web services](#)
- [...more on using OpenStreetMap](#)

### Contribute free map data



#### Beginners' Guide

- [Browse the map feature documentation](#)
- [Browse the Mapping projects](#)
- [...more on contributing map data](#)

### Software Development



#### Develop and use the Platform

- [Use OpenStreetMap for your software](#)
- [Contribute to the OpenStreetMap software](#)

[Image of the week](#)

[Event Calendar](#)

[See also Past Events](#)

<https://wiki.osm.org>

# Trace aerial imagery



(1) Microsoft©BingTM Maps Platform from JOSM editor

# Go outside

## Surveying



What is this?  
○○○○○○○○○○

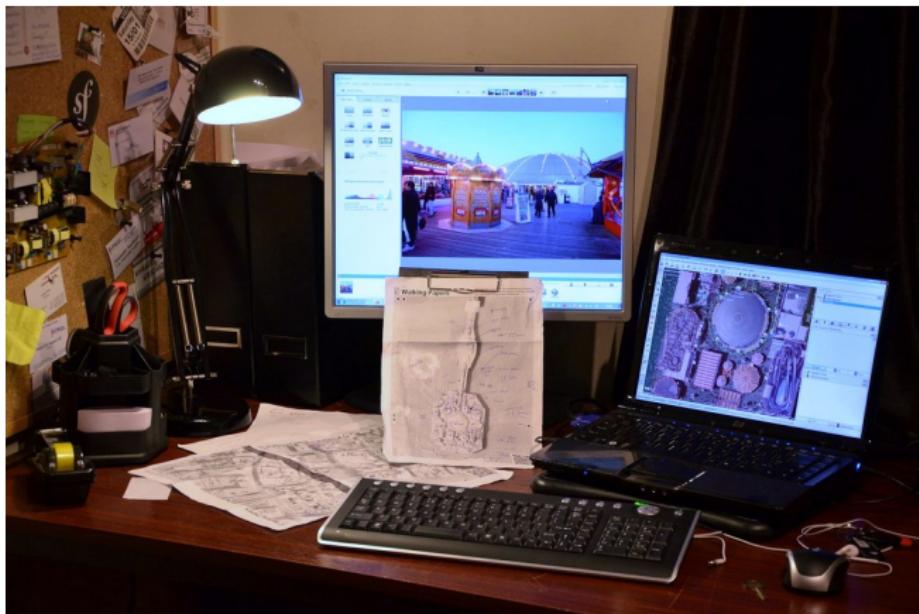
The data  
○○○○○

Applications  
○○○○

Contributing to OSM  
○○●○○○○○

## Go outside

## Mapping



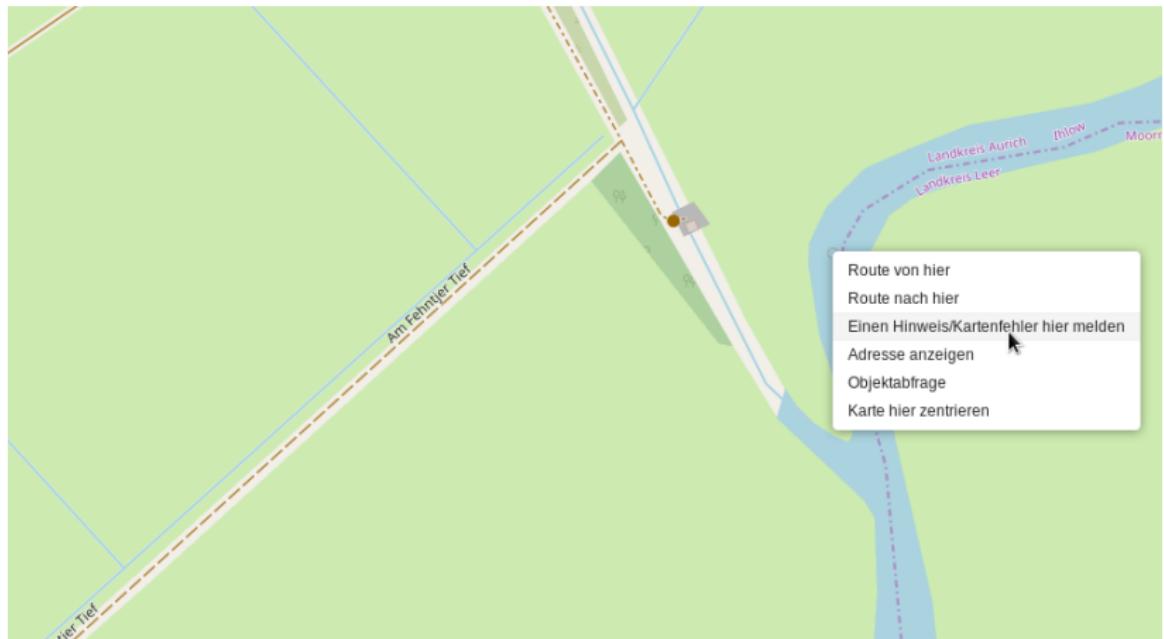
(1) [https://en.wikipedia.org/wiki/File:Adding\\_data\\_to\\_OSM\\_after\\_mapping\\_Brighton\\_Pier.jpg](https://en.wikipedia.org/wiki/File:Adding_data_to_OSM_after_mapping_Brighton_Pier.jpg)

Hauke Stieler [4stieler@informatik.uni-hamburg.de](mailto:4stieler@informatik.uni-hamburg.de)

OpenStreetMap



## Report errors



# Report errors

## Unerledigter Kartenfehler Nr. 1610297 ×

### Beschreibung

Pumpwerk im fahrrwasser?

Erstellt von Anonym vor 6 Monate

Dieser Hinweis enthält Kommentare von anonymen Benutzern, die unabhängig geprüft werden sollten.

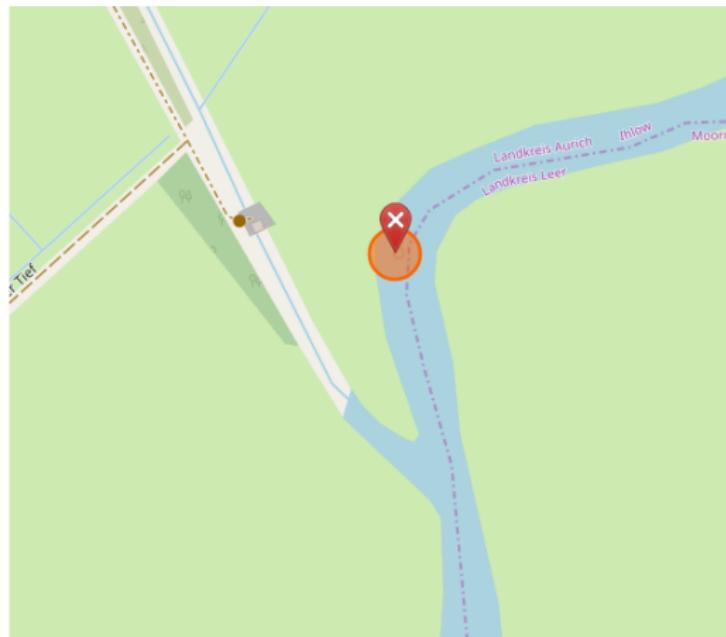
Diesen Hinweis melden

Kommentar von hauke-stieler vor 11 Tage

Kommt mir auch seltsam vor. Für mich sieht das nach Fehler aus und kann meinewegen gelöscht werden. Vielleicht war das eigentliche Pumpwerk daneben gemeint?

Erledigt

Kommentar



# Report errors



# Report errors

## Unerledigter Kartenfehler Nr. 1770846 ×

### Beschreibung

Diese Schule hat den Standort gewechselt, dieses Gebäude gehört zum Friedrich-Ebert Gymnasium

Erstellt von Anonym vor 17 Tage

Dieser Hinweis enthält Kommentare von anonymen Benutzern, die unabhängig geprüft werden sollten.

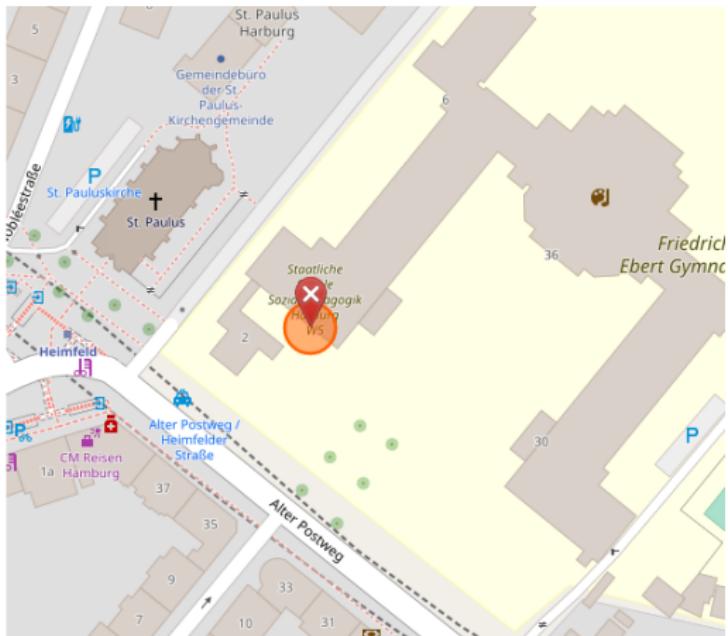
[Diesen Hinweis melden](#)

Kommentar von [ma-rt-in](#) vor 4 Tage

Weißt du auch wohin die sind?

[Erledigt](#)

[Kommentar](#)



# Socialize



(1)

(1) [https://wiki.openstreetmap.org/wiki/File:20110407\\_osm\\_stammtisch\\_hl.jpg](https://wiki.openstreetmap.org/wiki/File:20110407_osm_stammtisch_hl.jpg), 2019-05-25