

A map of Bergen, Norway, showing the city and surrounding areas. The map is overlaid with several thick, colored lines (red, orange, yellow, green, blue) that represent different routes or zones. The city center is labeled 'Bergen' and 'Bergenshus'. Other labeled areas include Sandviken, Arstad, Kronstad, Landås, Minde, and Fyllingsdalen. There are also some red plus signs on the map. The text 'OpenStreetMap' is prominently displayed in the center of the map.

OpenStreetMap

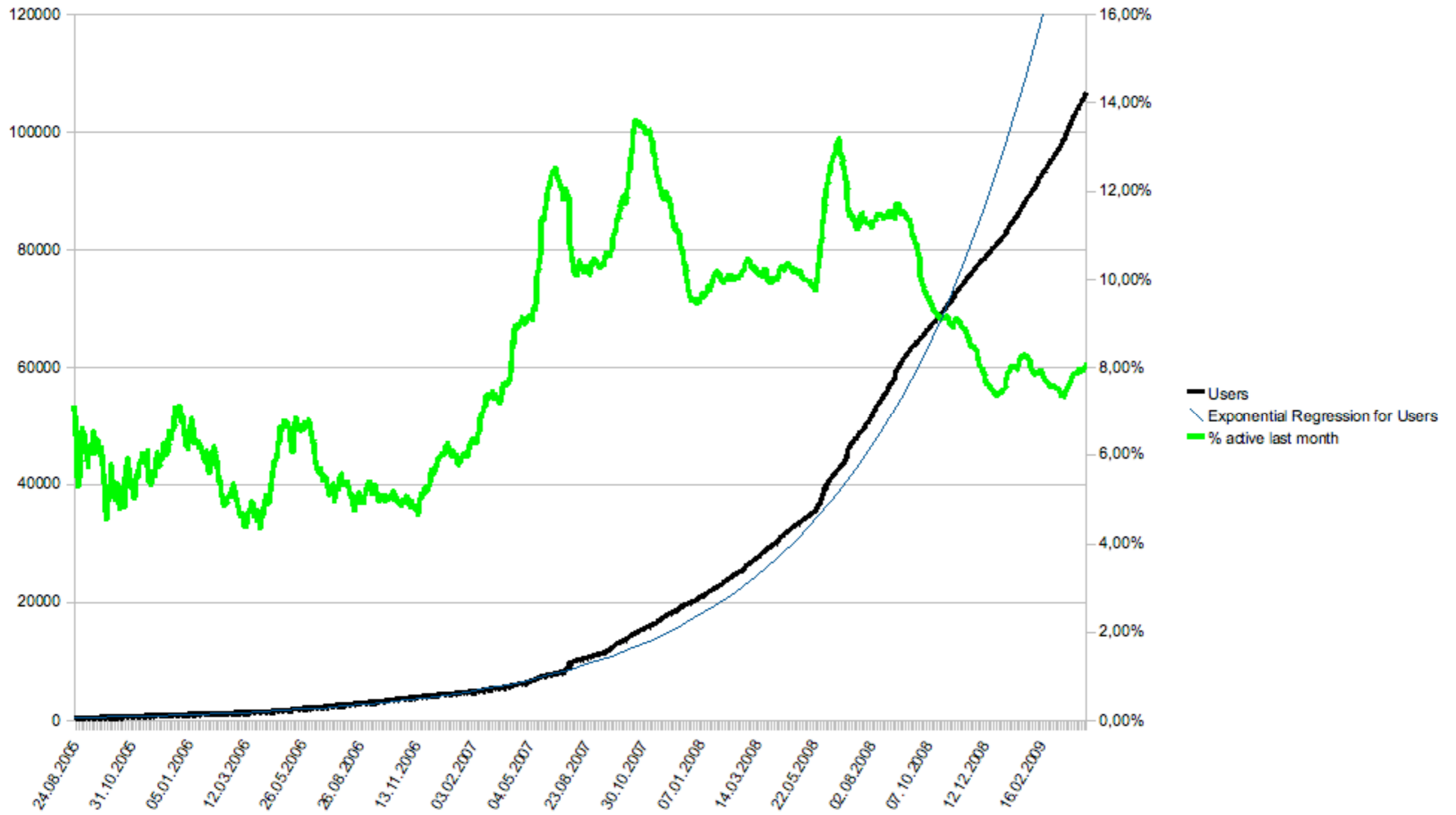
Hva, Hvorfor, Hvordan og med nåko attåt

Hva

1. Database med vektor kartdata

- “Wikipedia for kart”

2. Kart på web



Hvorfor

- Kartdata er dyrt
- og/eller dårlig
- og/eller vanskelig tilgjengelig

Hvordan: Kilder

- gps
- flyfoto

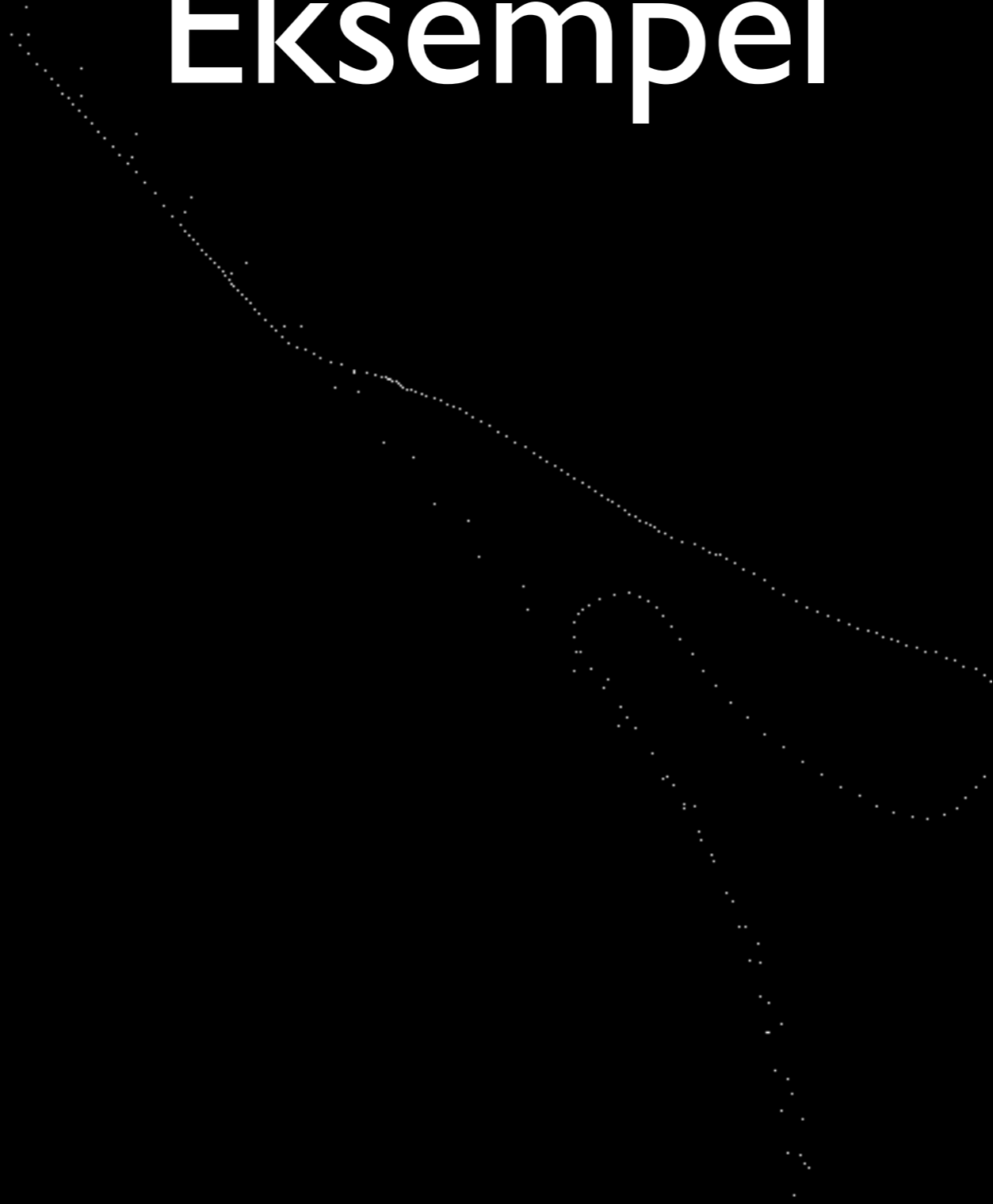
Hvordan: Notater

- audio
- foto

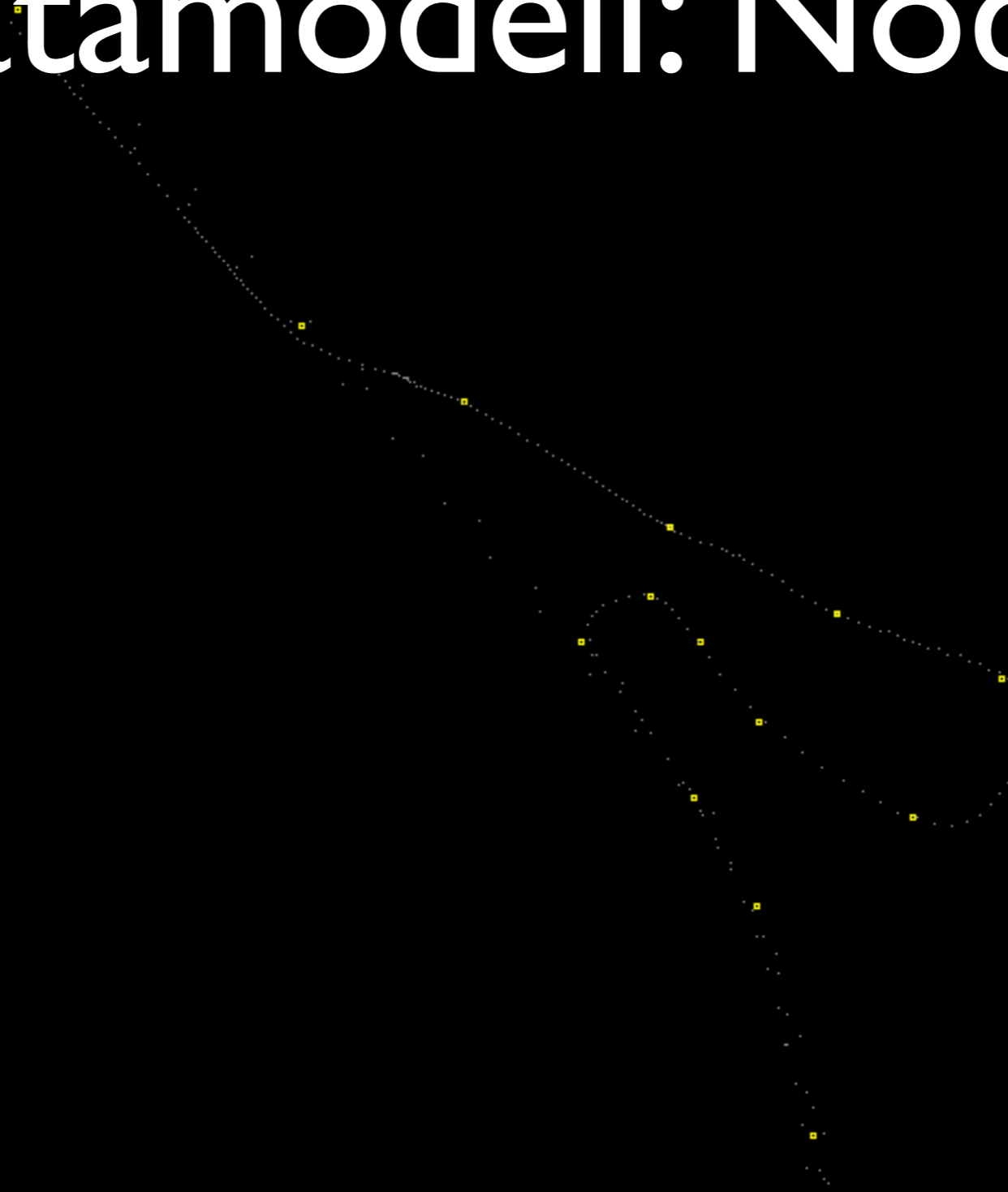
Hvordan: Lage data

- “tracking”

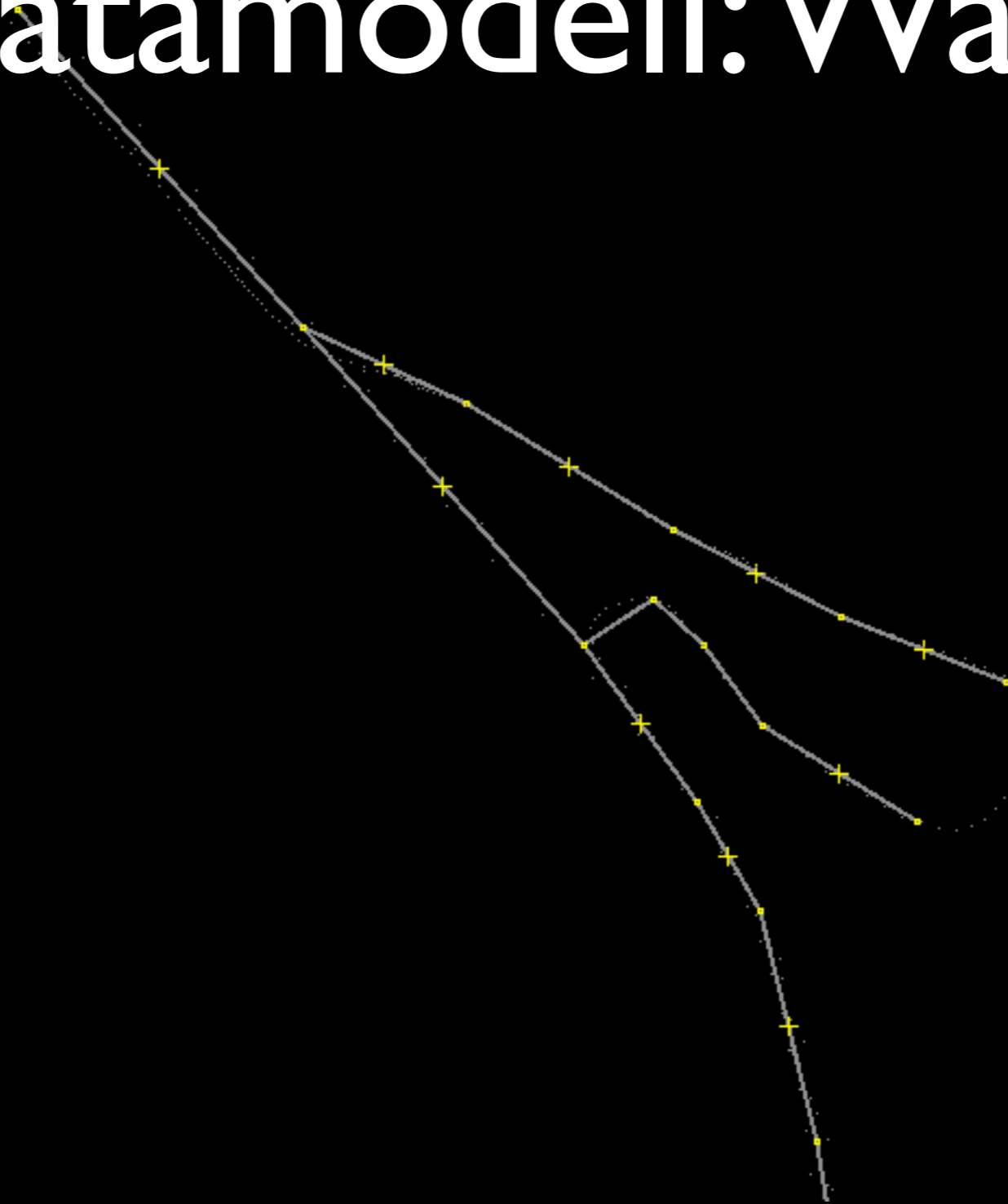
Eksempel



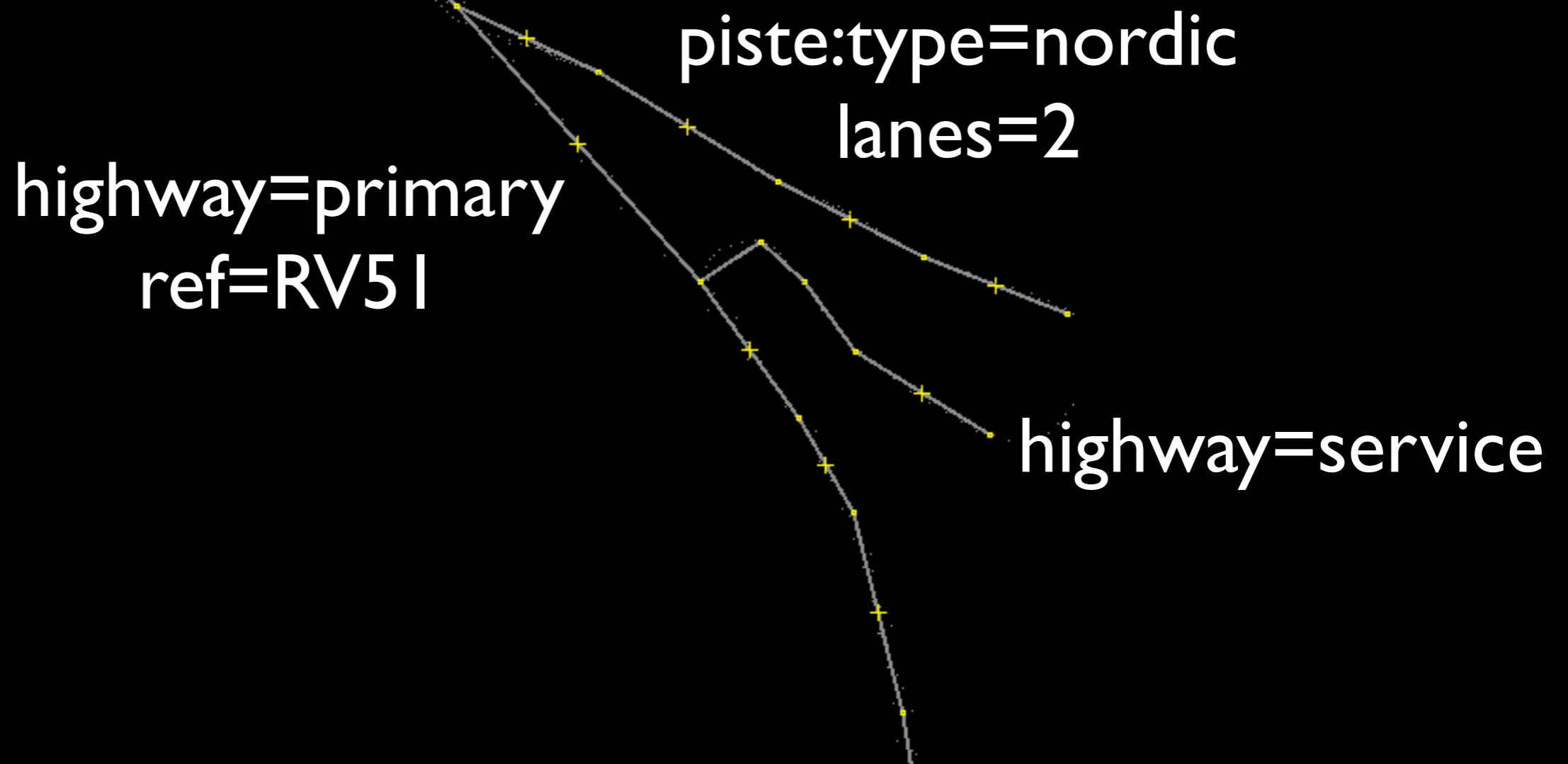
Datamodel: Noder



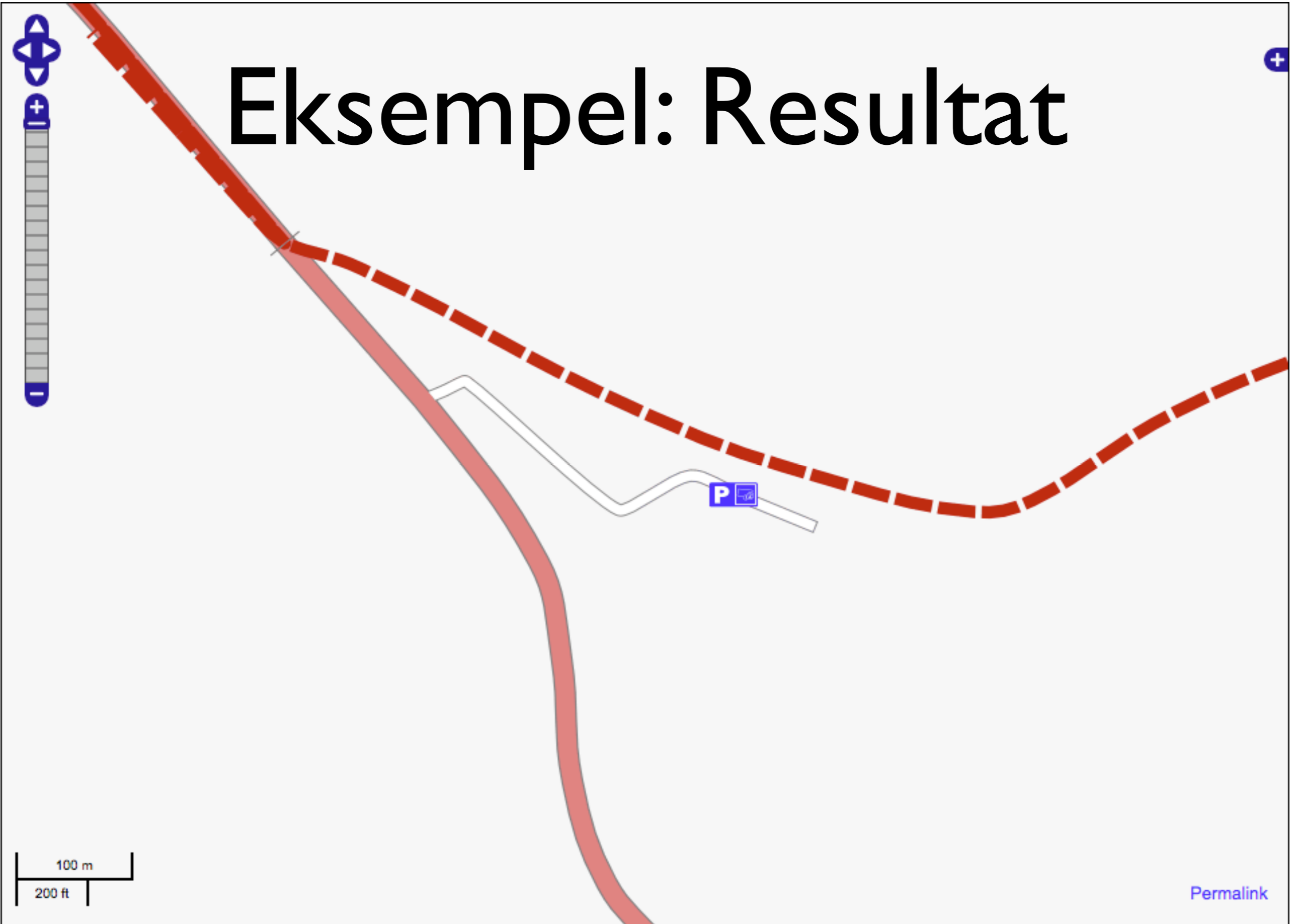
Datamodel: Ways



Datamodel: Tags



Eksempel: Resultat



Datamodel: Relations

- Ruter
- Svingforbud
- ...

```
<relation id='9468'  
timestamp='2008-04-05T21:47:47Z' user='Bobkare'  
visible='true' version='2'>  
  <member type='way' ref='23626646' role='' />  
  <member type='way' ref='23626647' role='' />  
  <member type='way' ref='23626650' role='' />  
  <member type='way' ref='33343192' role='' />  
  <tag k='type' v='route' />  
  <tag k='route' v='ski' />  
  <tag k='name' v='Rød 1' />  
  <tag k='created_by' v='JOSM' />  
</relation>
```

Datamodel: changesets

- Nytt i API 0.6
 - 2009-04-21
- Grupperer endringer
 - Kommentar-tag
- Ikke atomisk

Datamodel: XML

```
<?xml version='1.0' encoding='UTF-8'?>
<osm version='null' generator='JOSM'>
  <node id='-1' visible='true' version='1' lat='61.259513228727236' lon='8.860755834967456' />
  <node id='-2' visible='true' version='1' lat='61.259322682803194' lon='8.860437837829146' />
  <node id='-3' visible='true' version='1' lat='61.25585829476309' lon='8.846120833114494' />
  ...
  <node id='-84' timestamp='2008-04-05T21:47:28Z' visible='true' version='2' lat='61.25638969532916' lon='8.844672507758732'>
    <tag k='barrier' v='gate' />
    <tag k='created_by' v='JOSM' />
  </node>
  ...
  <node id='-94' visible='true' version='1' lat='61.255423194308705' lon='8.84825719722747'>
    <tag k='fee' v='yes' />
    <tag k='amenity' v='parking' />
  </node>
  ...
  <way id='-159' visible='true' version='1'>
    <nd ref='-84' />
    <nd ref='-96' />
  ...
    <tag k='ref' v='RV51' />
    <tag k='highway' v='primary' />
    <tag k='created_by' v='Potlatch 0.10b' />
  </way>
  <way id='-160' timestamp='2008-04-05T21:47:45Z' visible='true' version='2'>
    <nd ref='-131' />
    <nd ref='-63' />
  ...
    <tag k='lanes' v='2' />
    <tag k='piste:type' v='nordic' />
    <tag k='created_by' v='JOSM' />
  </way>
  <way id='-161' visible='true' version='1'>
    <nd ref='-34' />
    <nd ref='-29' />
  ...
    <tag k='ref' v='RV51' />
    <tag k='highway' v='primary' />
    <tag k='piste:type' v='nordic' />
    <tag k='created_by' v='Potlatch 0.10b' />
  </way>
  <way id='-162' visible='true' version='1'>
    <nd ref='-96' />
    <nd ref='-72' />
  ...
    <tag k='highway' v='service' />
  </way>
</osm>
```

Tagging

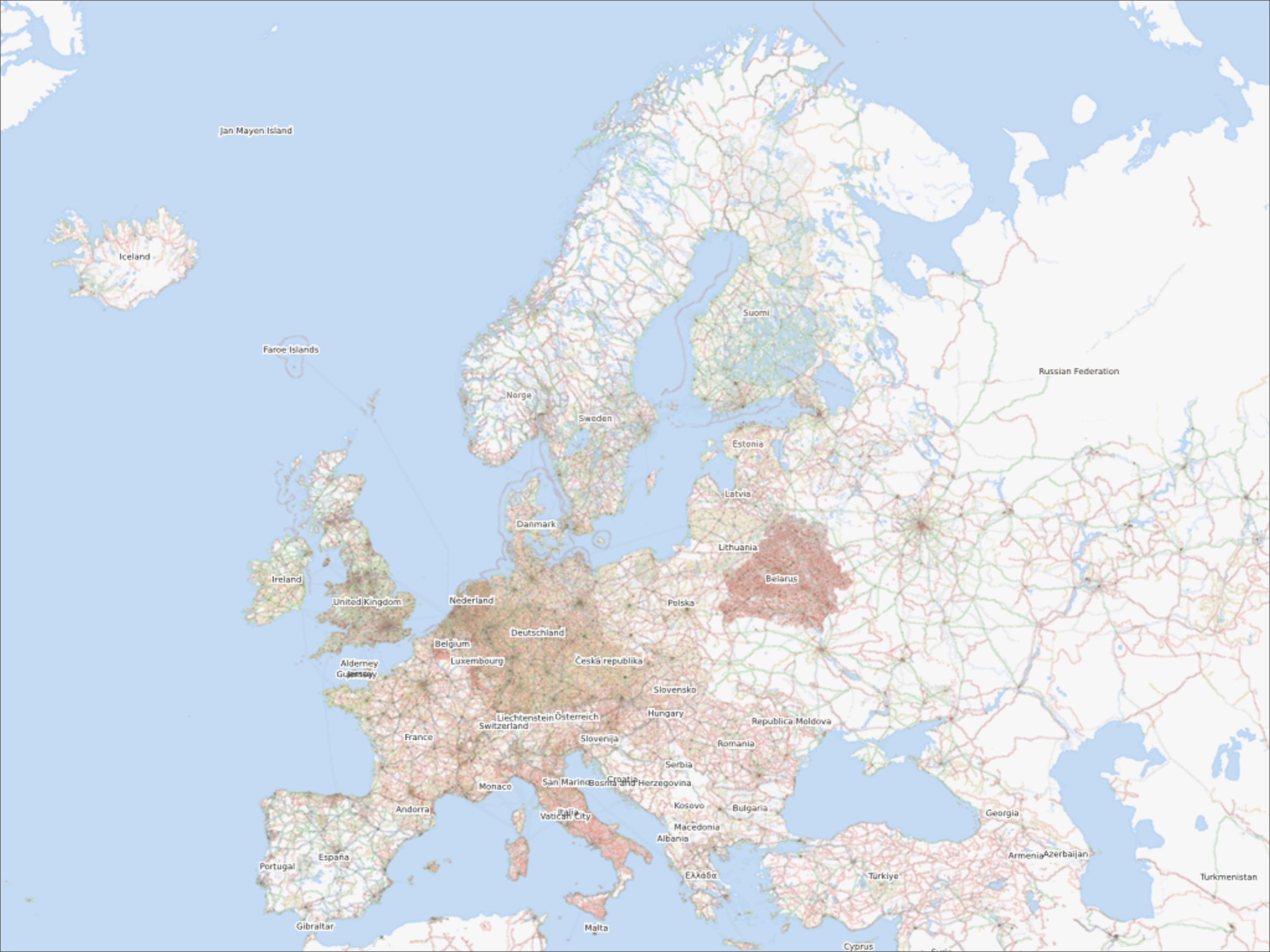
- key=value
 - UTF-8, maks 255 tegn
- Map Features
- Tagwatch

Resultater

- Mapnik/Osmarender
- Cycle map
- Garminkart
- Piste map
- öpnvkarte

Dekning

- Film: 2008 A Year of Edits
 - CC-BY-SA fra itoworld.com
- Historisk



Jan Mayen Island

Iceland

Faroe Islands

Russian Federation

Norge

Sweden

Suomi

Estonia

Latvia

Danmark

Lithuania

Belarus

Ireland

United Kingdom

Nederland

Polska

Belgium

Deutschland

Česká republika

Alderney
Guernsey

Luxembourg

Slovensko

Liechtenstein Österreich

Hungary

France

Switzerland

Slovenija

Republica Moldova

Monaco

San Marino

Bosnia and Herzegovina

Romania

Andorra

Italy

Vatican City

Croatia

Serbia

Kosovo

Bulgaria

Georgia

Portugal

España

Gibraltar

Malta

Albania

Macedonia

Ελλάδα

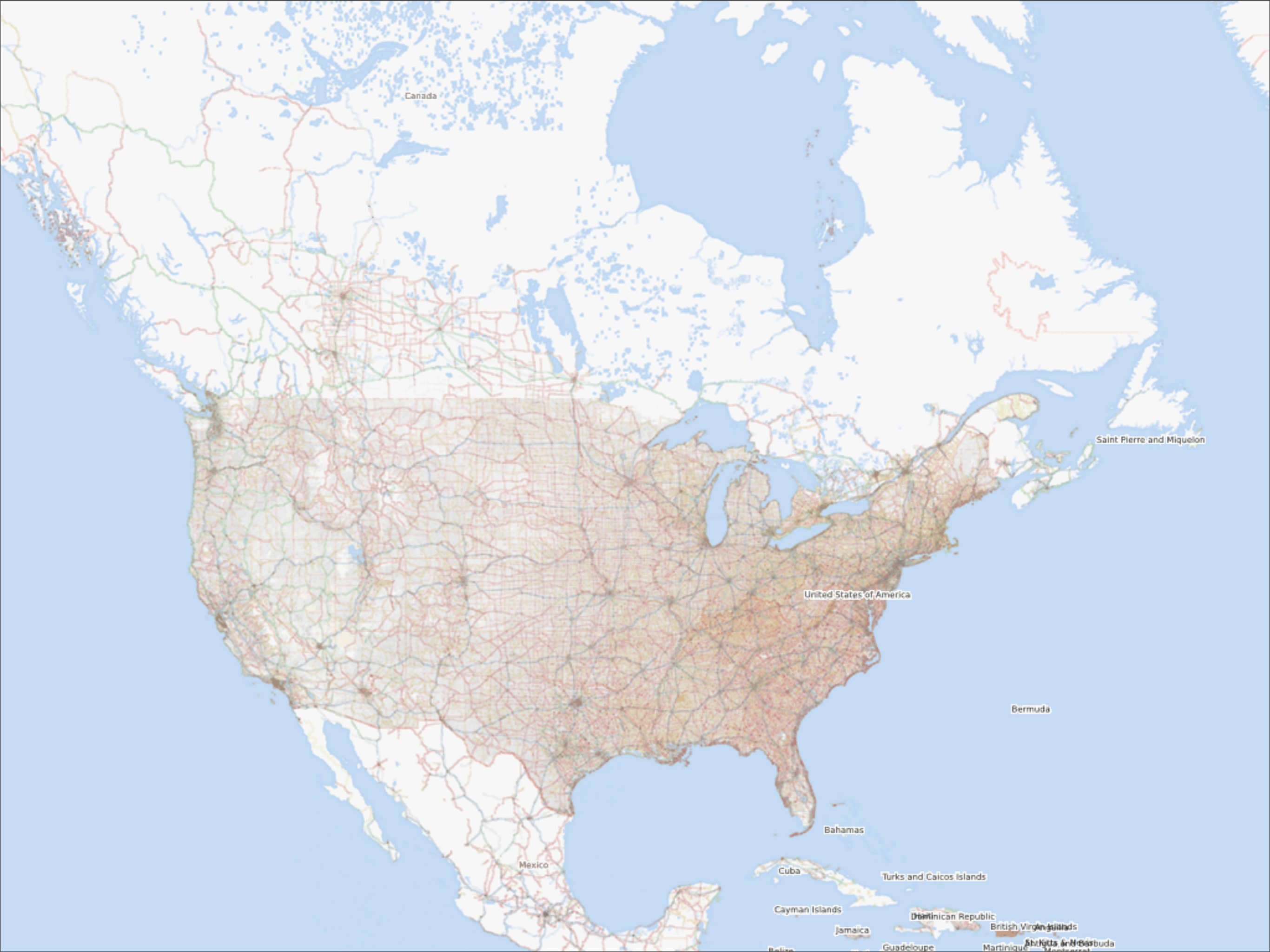
Türkiye

Armenia

Azerbaijan

Turkmenistan

Cyprus



Canada

Saint Pierre and Miquelon

United States of America

Bermuda

Bahamas

Mexico

Cuba

Turks and Caicos Islands

Cayman Islands

Dominican Republic

Jamaica

British Virgin Islands

Guadeloupe

Martinique

Montserrat



Gibraltar

Malta

Cyprus

Syria

Lebanon

Iraq

Iran

Afghanistan

Pakistan

Morocco

Tunisia

Algeria

Libya

Egypt

Saudi Arabia

Kuwait

البحرين

Qatar

United Arab Emirates

سلطنة عُمان (Oman)

اليمن

Western Sahara

Mauritania

Niger

Chad

السودان

al-Sūdān

Senegal

Mali

Burkina Faso

Djibouti

Ethiopia

Somalia

Guinea-Bissau

Gambia

Guinea

Sierra Leone

Benin

نيجيريا

Nigeria

Eritrea

Côte d'Ivoire

Liberia

Cameroon

Central African Republic

Equatorial Guinea

Sao Tome and Principe

Republic of the Congo

Uganda

Rwanda

Kenya

Burundi

Tanzania

Maldives

Indonesia

Cook Islands

Seychelles

British Indian Ocean Territory

Democratic Republic of the Congo

Glorioso Islands

Comoros

Mayotte

Angola

Zambia

Mozambique

Juan de Nova Island

Madagascar

Tromelin Island

Mauritius

Saint Helena

Namibia

Botswana

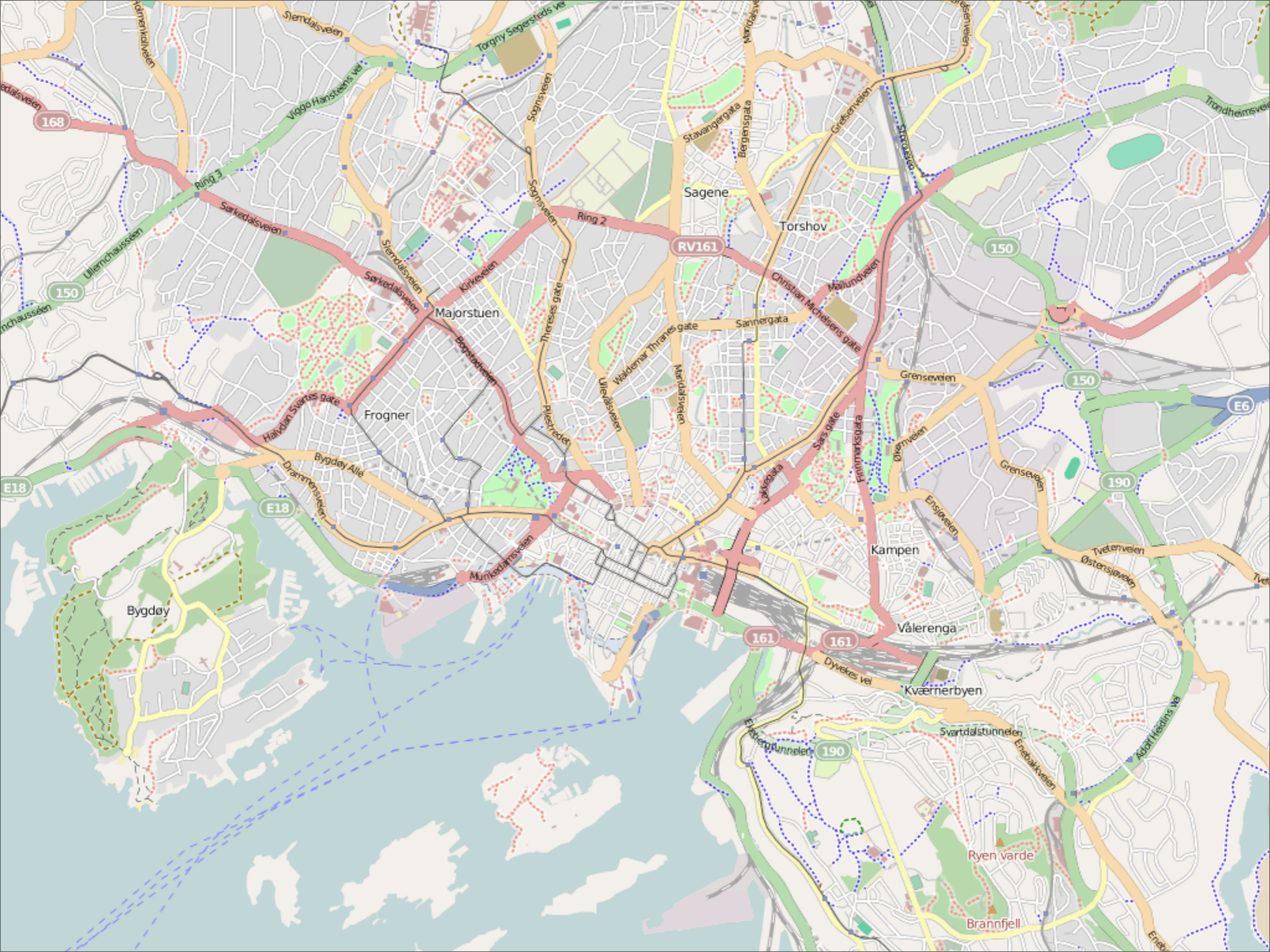
Swaziland

South Africa

Lesotho

Bassas da India

Europa Island





Asker

Vakås

Konglungen

Bleiker

Drengsrud

Vettre

Bondi

Borgen

Engelstad

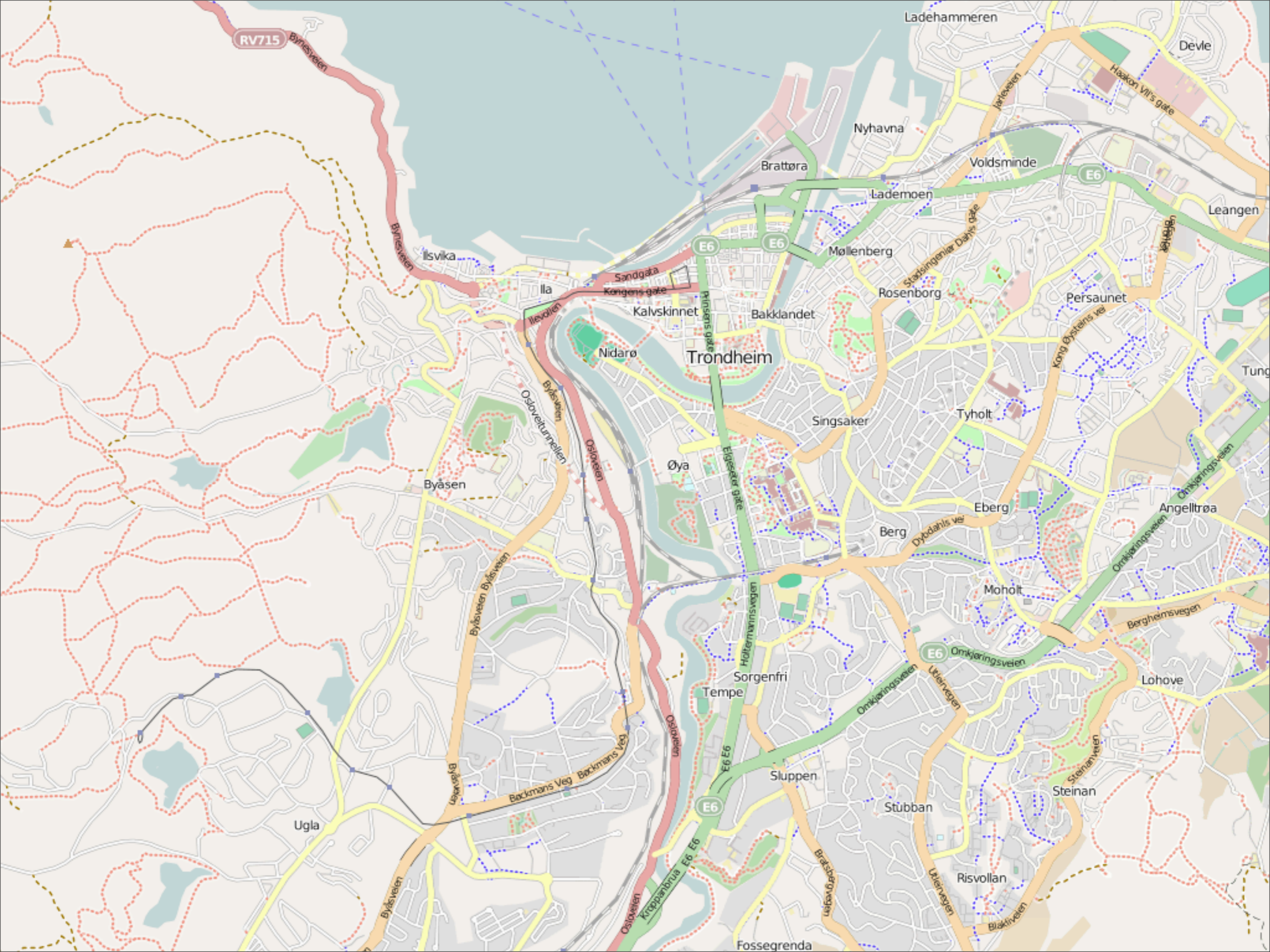
Vardåsen

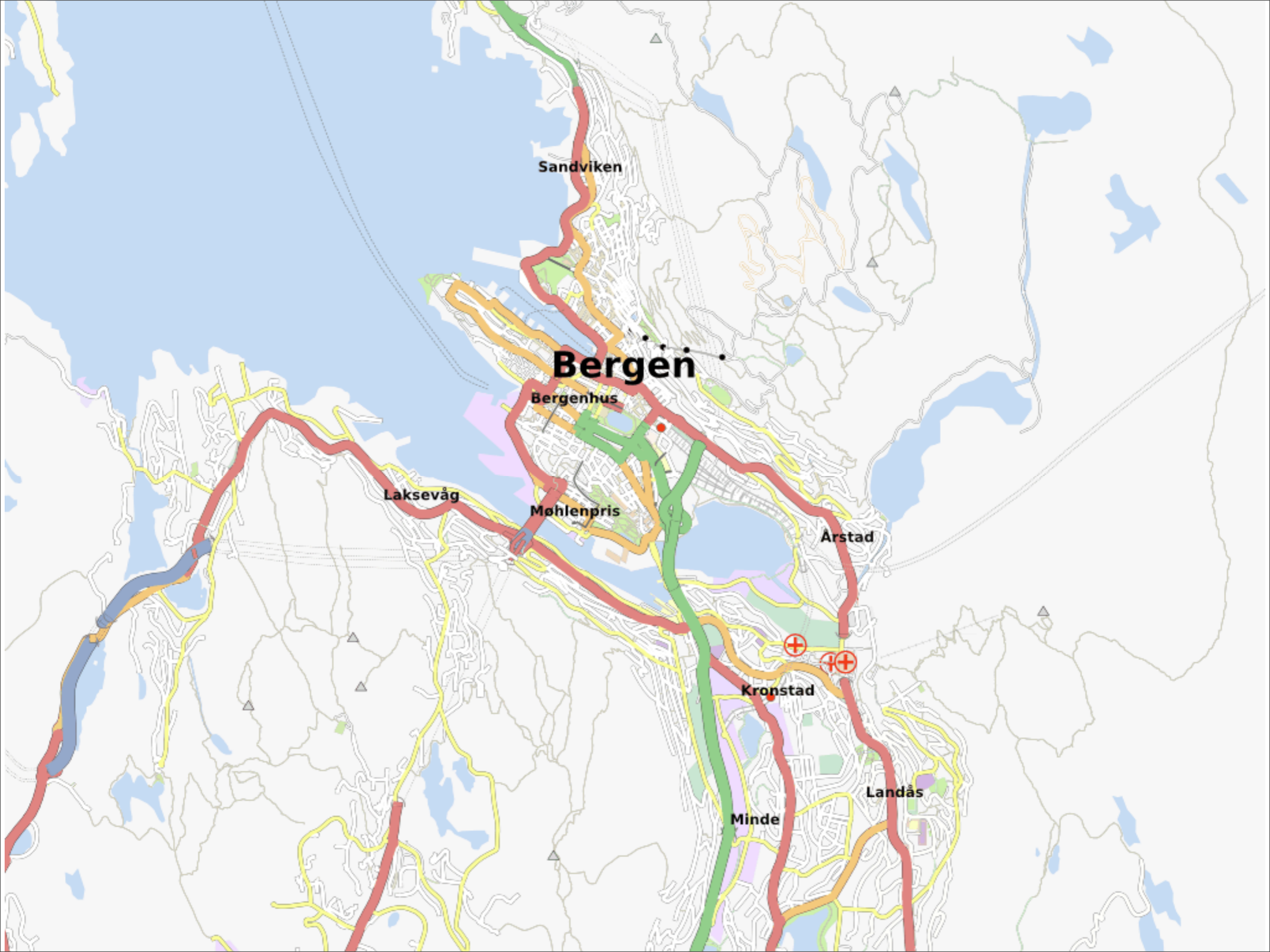
Dikemark

Gulhella

Vollen

Heggedal





Sandviken

Bergen

Bergenhus

Laksevåg

Møhlenpris

Arstad

Kronstad

Minde

Landås

Osmarender

- XSLT
- Fordeler
 - Browser
- or/p
- T@H