

GEMMA: A Geospatial Engine for Mass Mapping Applications

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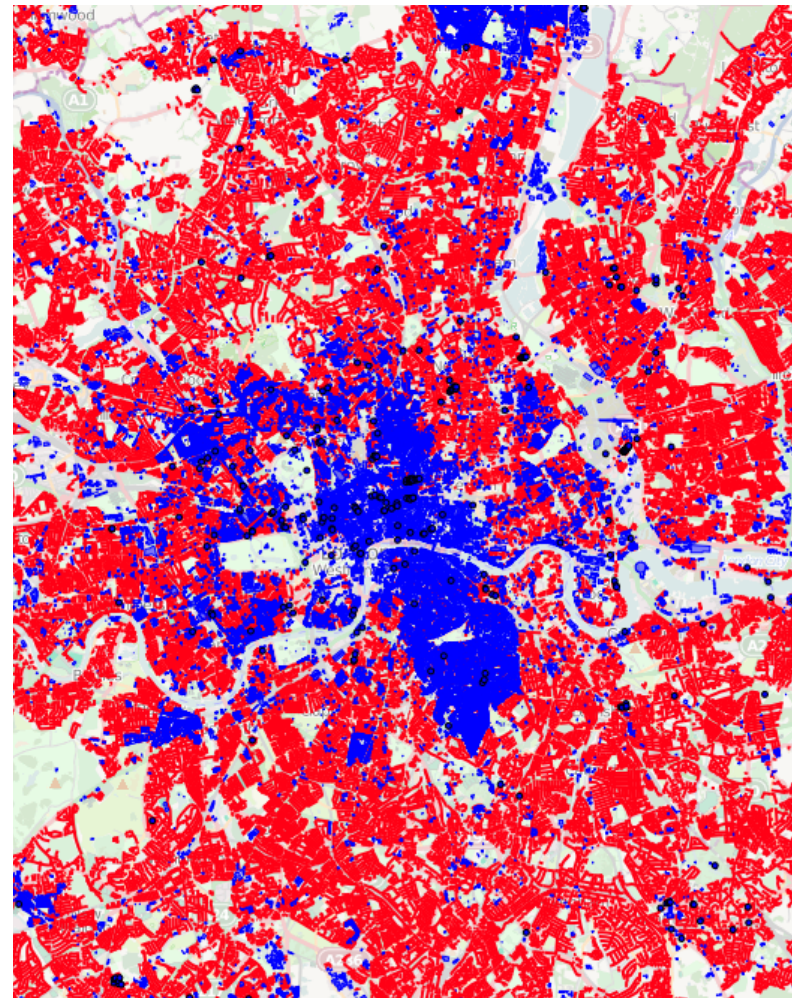
@frogo

Andy Hudson-Smith

@digitalurban

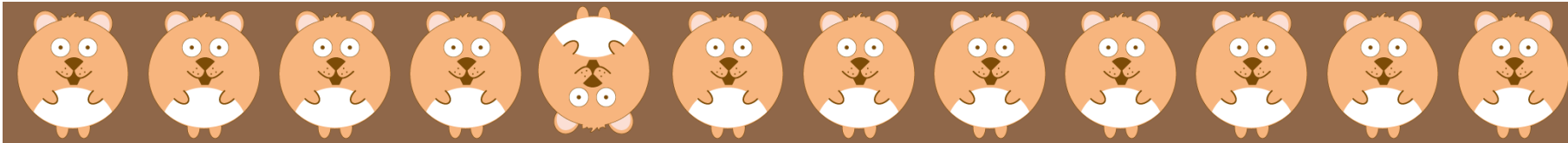


*State of the Map EU
Vienna, July 2011*



Contents

- The GEMMA Project
- GEMMA and OpenStreetMap
- GEMMA Inputs and Outputs
- The OSM Feature Highlighter in GEMMA
 - Examples
- Mashing it Up

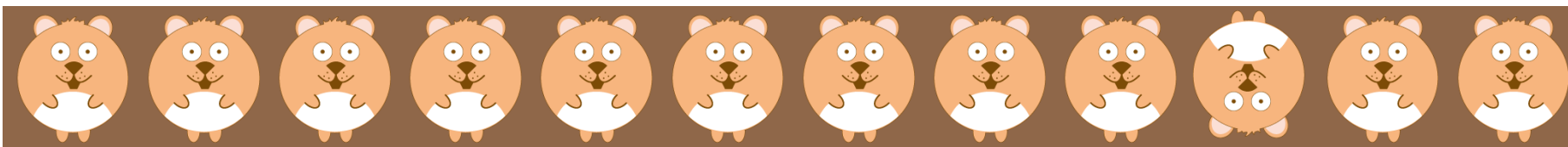


UCL CASA



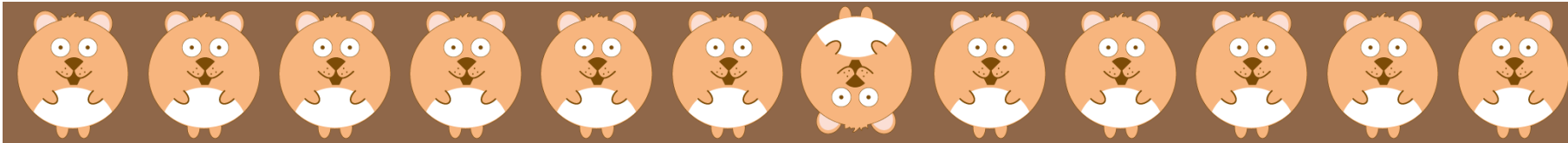
The GEMMA Project

- A small project to
 - Reengineer our applications to allow more input
 - “Web 2.0-ise” some of our older work
 - Take advantage of the increasing availability of Big Data
 - Create a portal that combines our application output
 - Think mobile



GEMMA and OpenStreetMap

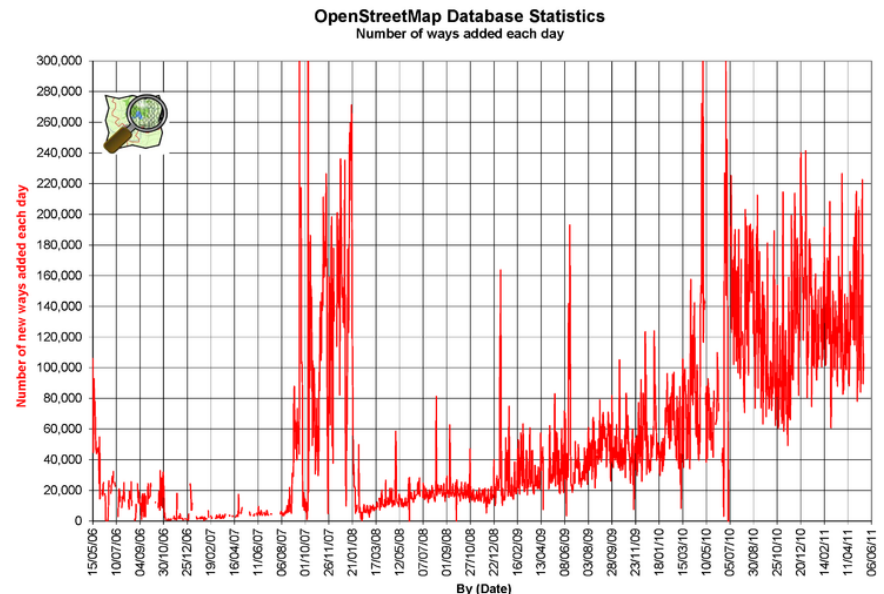
- You all already know that it is a:
 - An increasingly rich global source of spatial data
- It is still relatively untapped as a data source for academic and other research
- Academics have traditionally had “free” access to more expensive datasets but with conditions on their reuse



GEMMA and OpenStreetMap

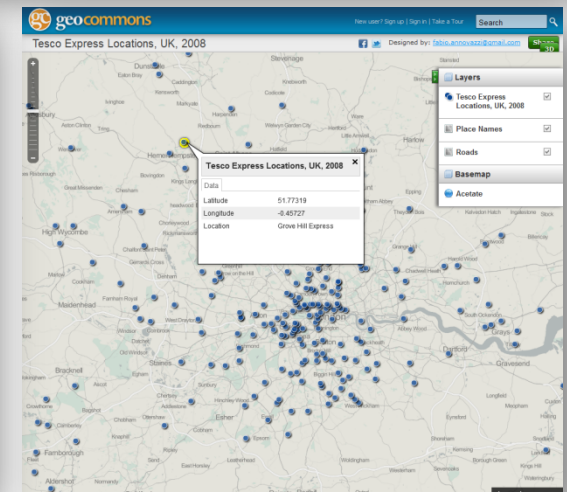
- Goal is to have a near-live replicated copy of the OpenStreetMap database
 - Tricky to do these days
- Compromise
 - Near-live for UK (or EU)
 - Regularly updated for World

Graph by Blackadder on the OSM Wiki stats page



GEMMA Thinking

- Simple UI – Less is More?
 - Really hard to do right
 - We are programmers not UXers*
- No separate login
 - Use Twitter, Facebook or Google
 - Possibly controversial? OpenID?**
- No data storage
 - User retains control & responsibility for the data
- No pins on a map – try and cure Red Dot Fever?
- No competing with full-featured online GIS apps



GEMMA In & Out

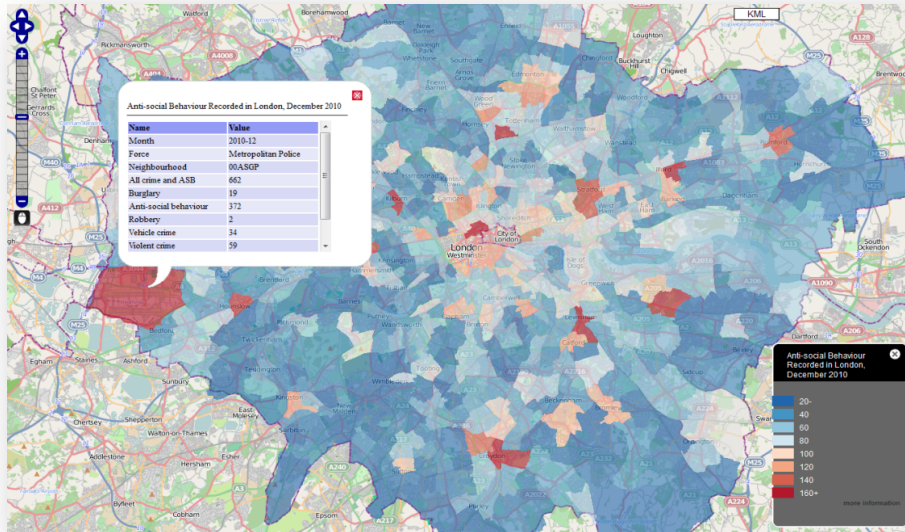


- Data sources
 - CASA MapTube
 - CASA SurveyMapper
 - OpenStreetMap
 - Google Fusion Tables
 - Google Spreadsheets
 - Government Data Stores
 - GEMMA Data Collector
 - HTML Table Grabber?

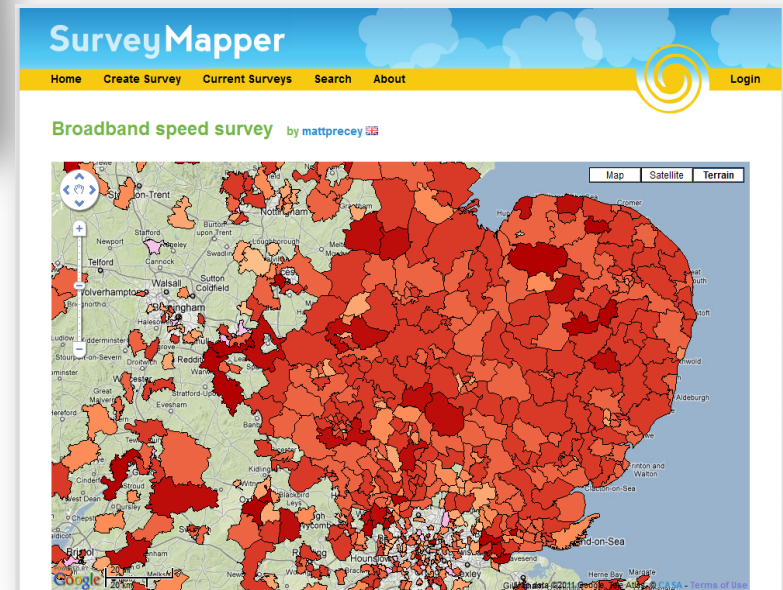


- Outputs
 - WMS Image
 - Mapnik or MapTubeD
 - Embeddable Slippy Map
 - OpenLayers or Google Maps API
 - PDF
 - Mapnik (Cairo)
 - GEMMA Viewer Website
 - GEMMA Mobile Viewer

GEMMA In & Out



Below: Broadband Speed Survey – Steven Gray’s SurveyMapper



Above: “ASB” Incidents – Richard Milton’s MapTube

OSM Feature Highlighter

I fully appreciate this alpha UI is rather ugly – working on it



Geospatial Engine for Mass Mapping Applications

[About](#) [Tools](#) [Login](#)

OpenStreetMap Feature Highlighter



☒


highway

is

footway

☐ Show as points only

☒


highway

is

path

☐ Show as points only

1. First adjust your settings and...

Update Preview

2. Then once you are happy...

A. Standalone:

Download PDF

View Large Image

Get Tile Link

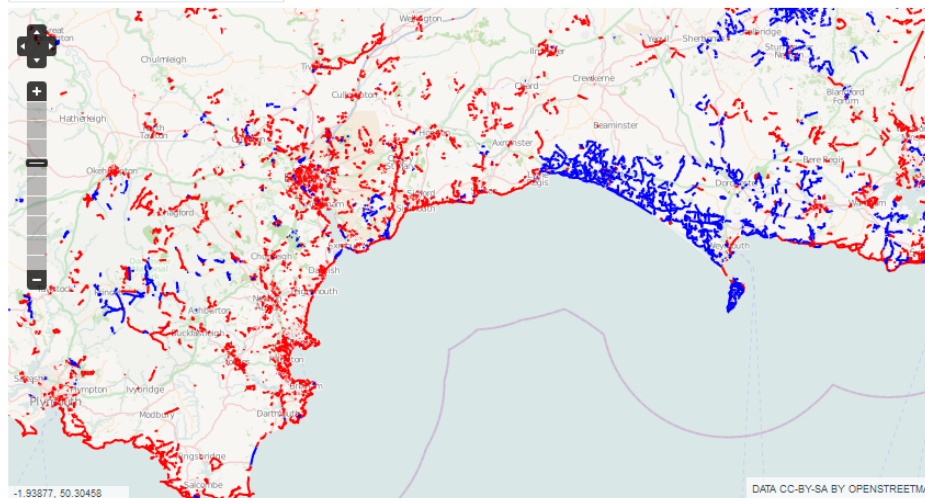
Download CSV

B. Or Mash it Up:

Use in GEMMA

Title of Map

Paper: A4 To Portrait



DATA CC-BY-SA BY OPENSTREETMAP

Powered by GEMMA. View online at <http://gemma.casa.ucl.ac.uk/999-title-of-map>
Map data CC-BY-SA OpenStreetMap and contributors 2011

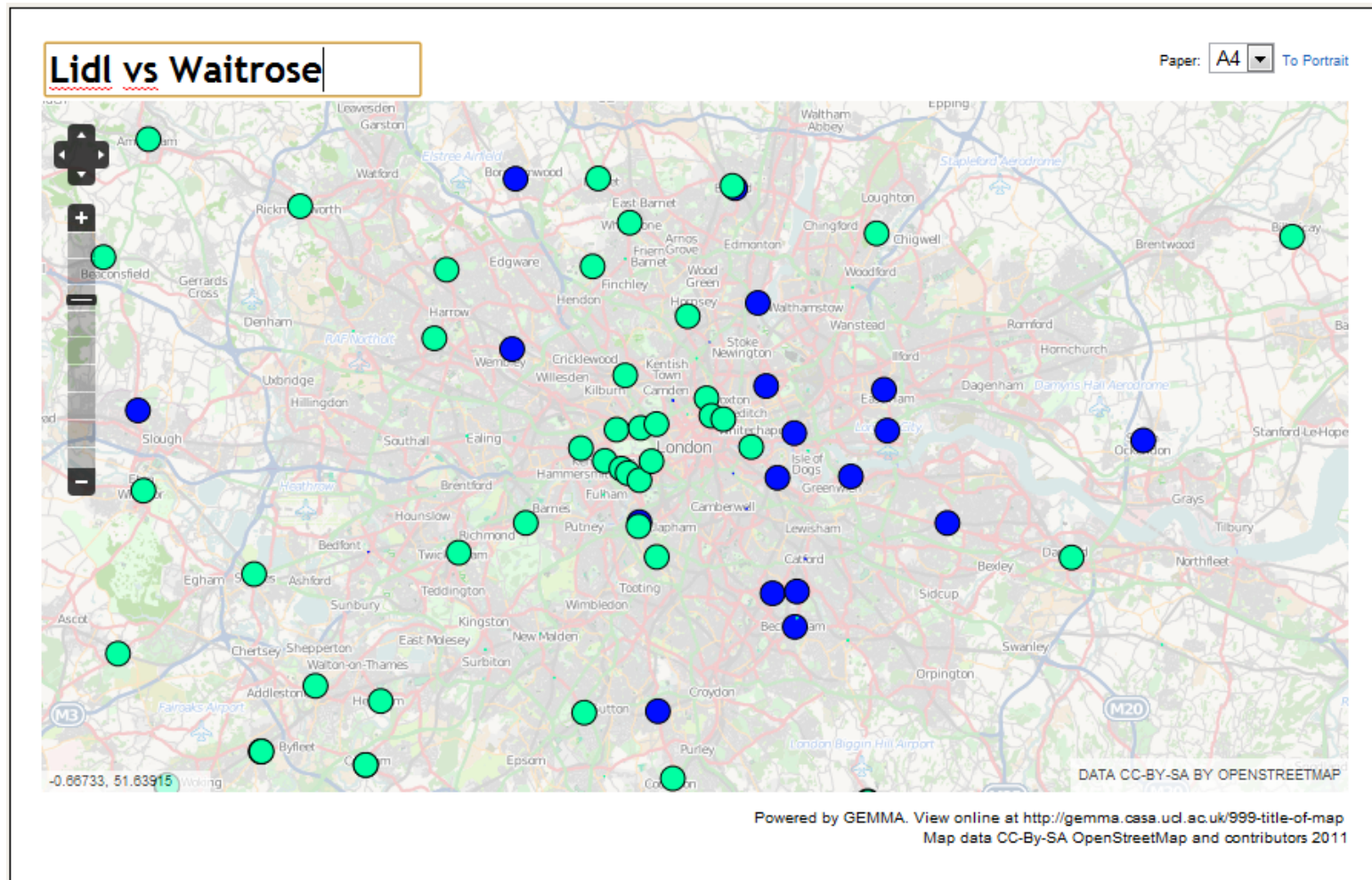
OSM Feature Highlighter - Tech

- Displayed with OpenLayers
- Using Mapnik 2
 - Taking advantage of more powerful symbolizers, such as MarkersSymbolizer's new options
 - A little patching required to expose new options in python
 - Tidier stylesheets
 - Metawriters look very interesting, will be part of it
- Base map (currently showing default OSM) will be customised using a light “context” stylesheet
- Using mod_python to drive on-the-fly image tiling

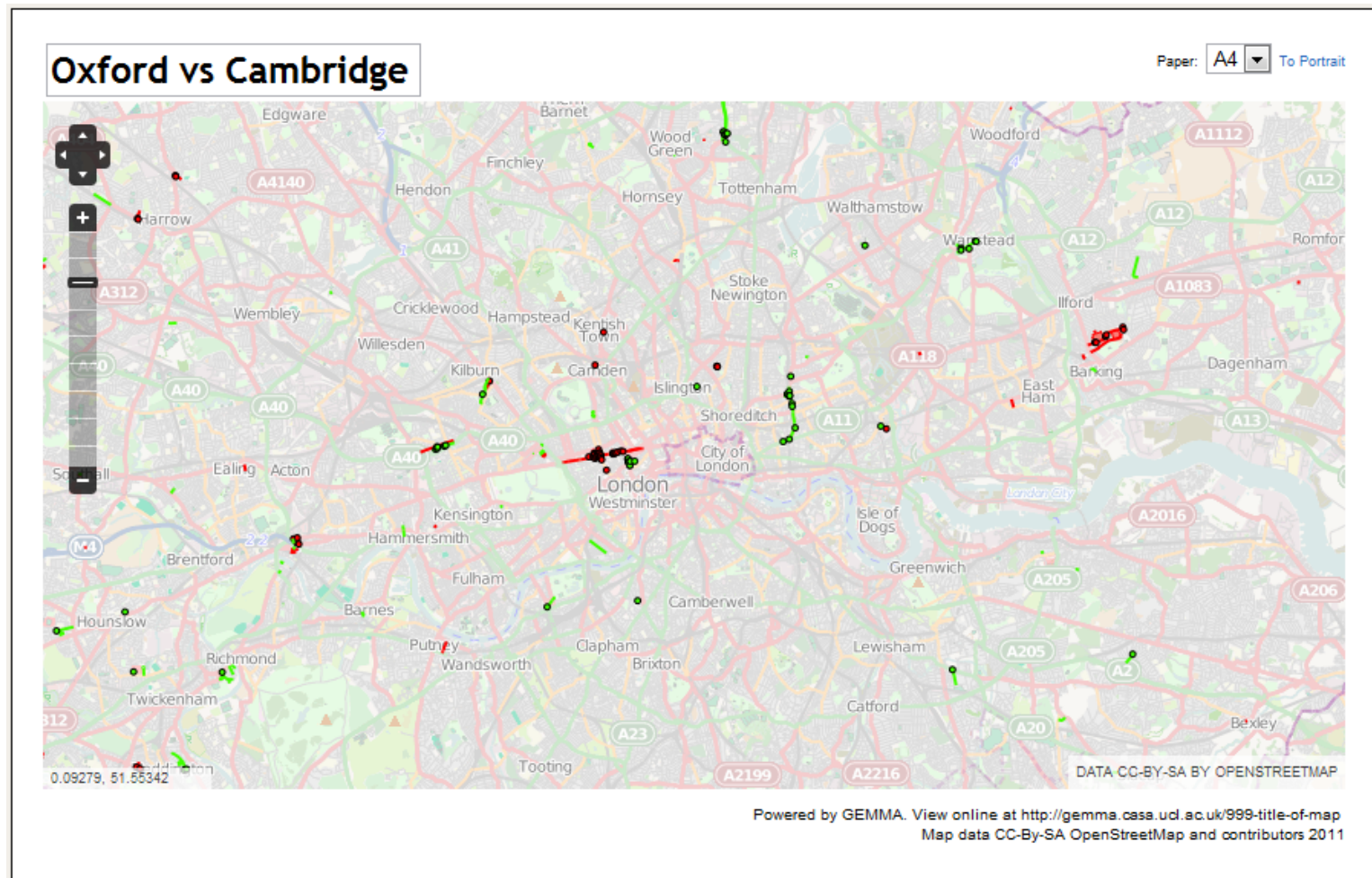
OSM Feature Highlighter



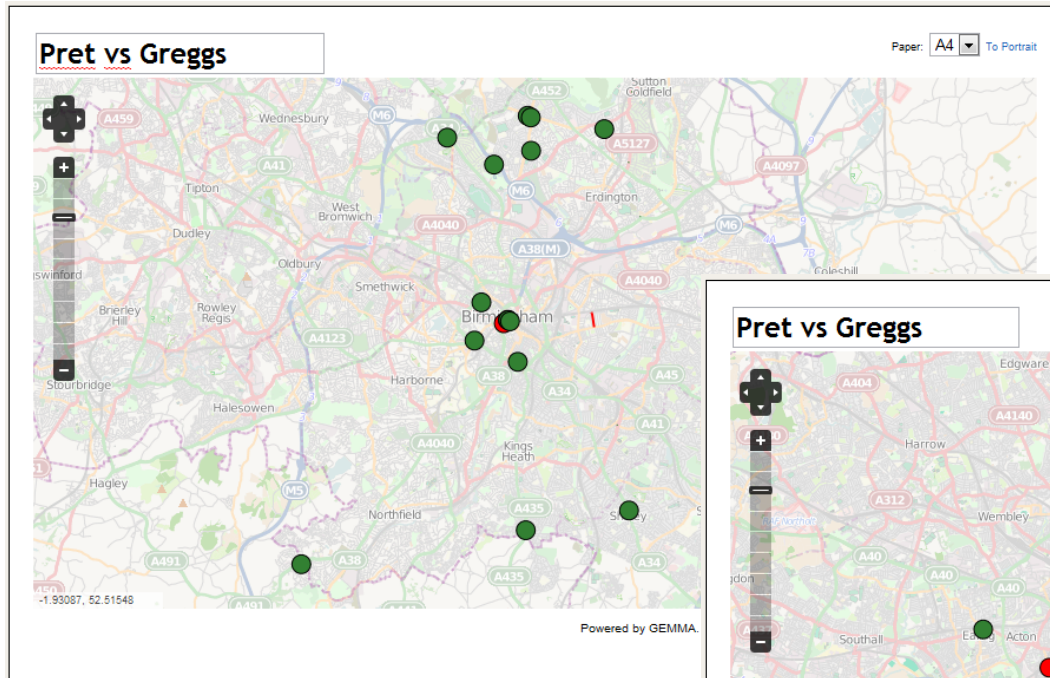
OSM Feature Highlighter



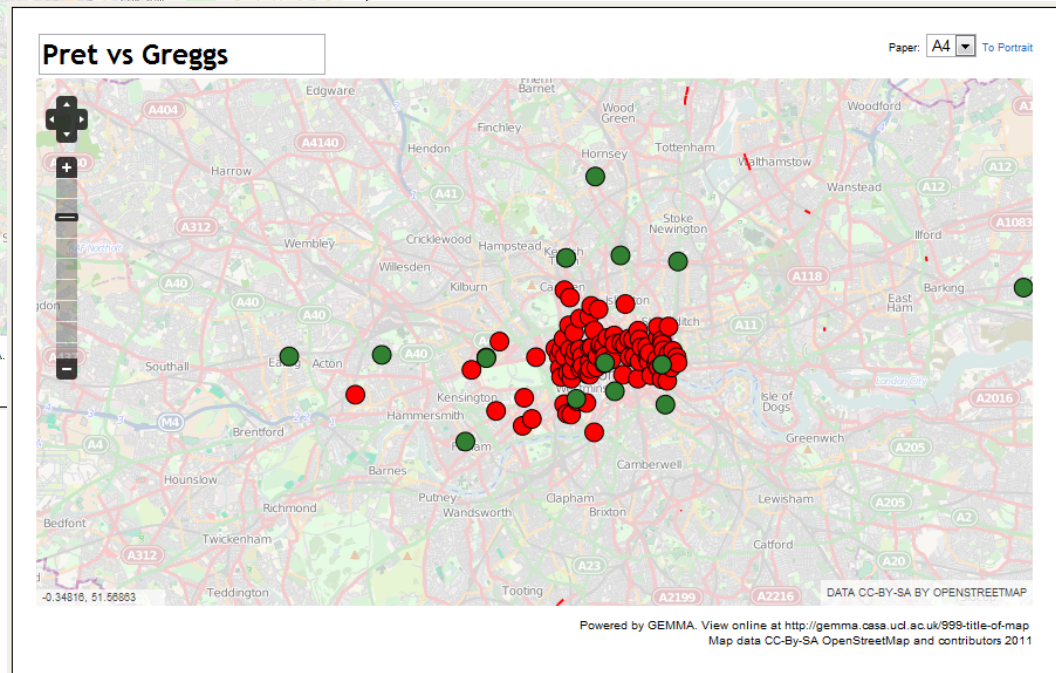
OSM Feature Highlighter



OSM Feature Highlighter



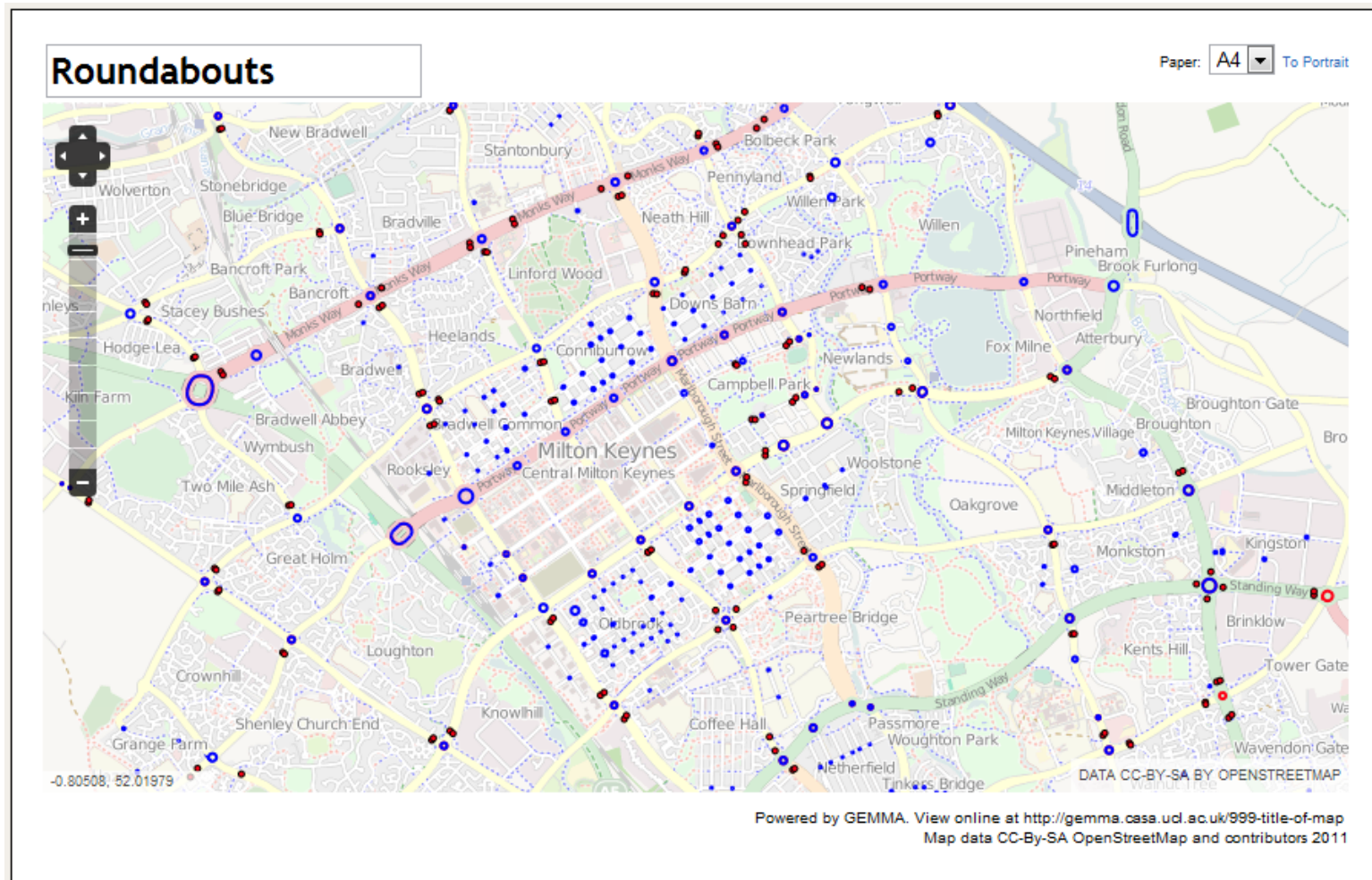
Left: Birmingham
Right: London



Green: Greggs
Red: Pret

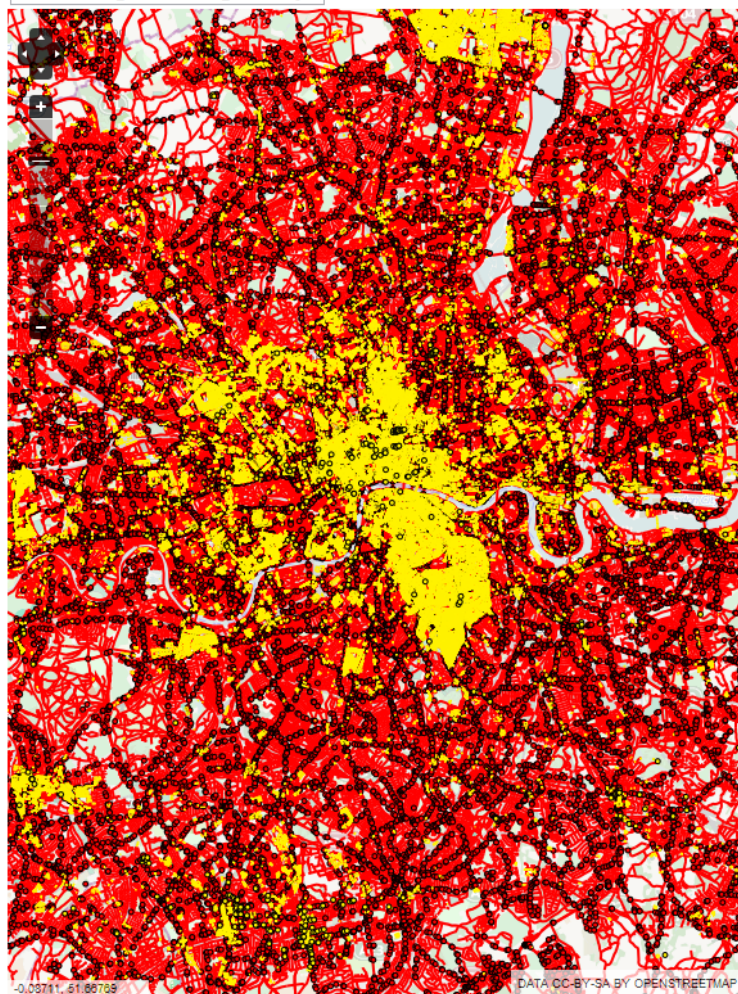
OSM Feature Highlighter

Blue: junction=roundabout
Red: name contains "roundabout"



Buildings vs Highways

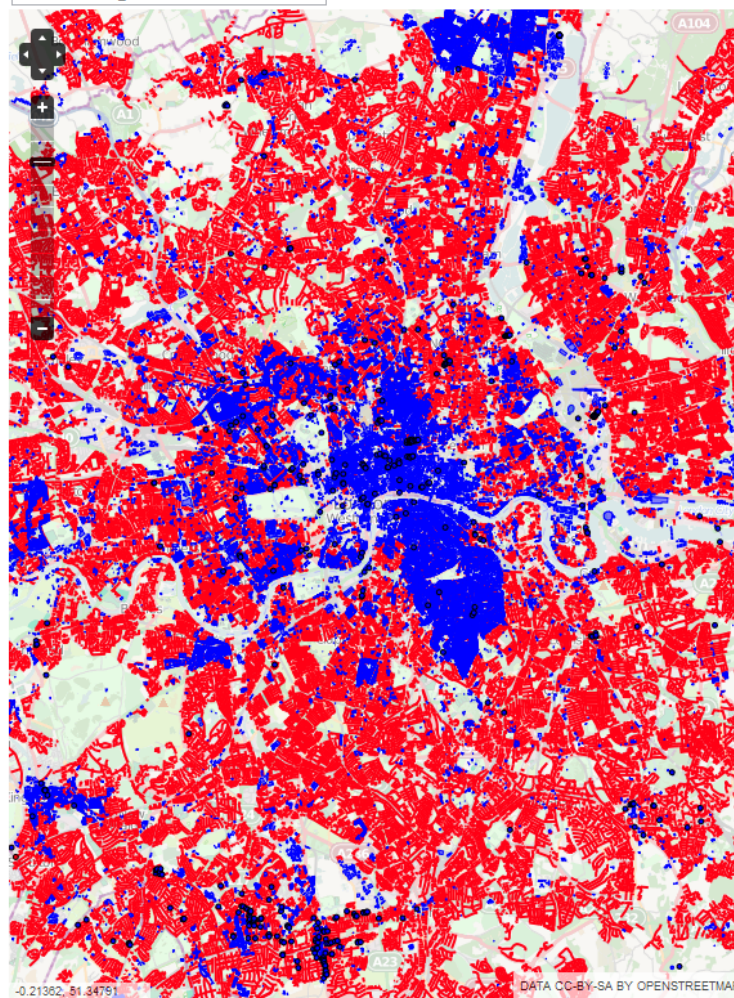
Paper:



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Map data CC-BY-SA OpenStreetMap and contributors 2011

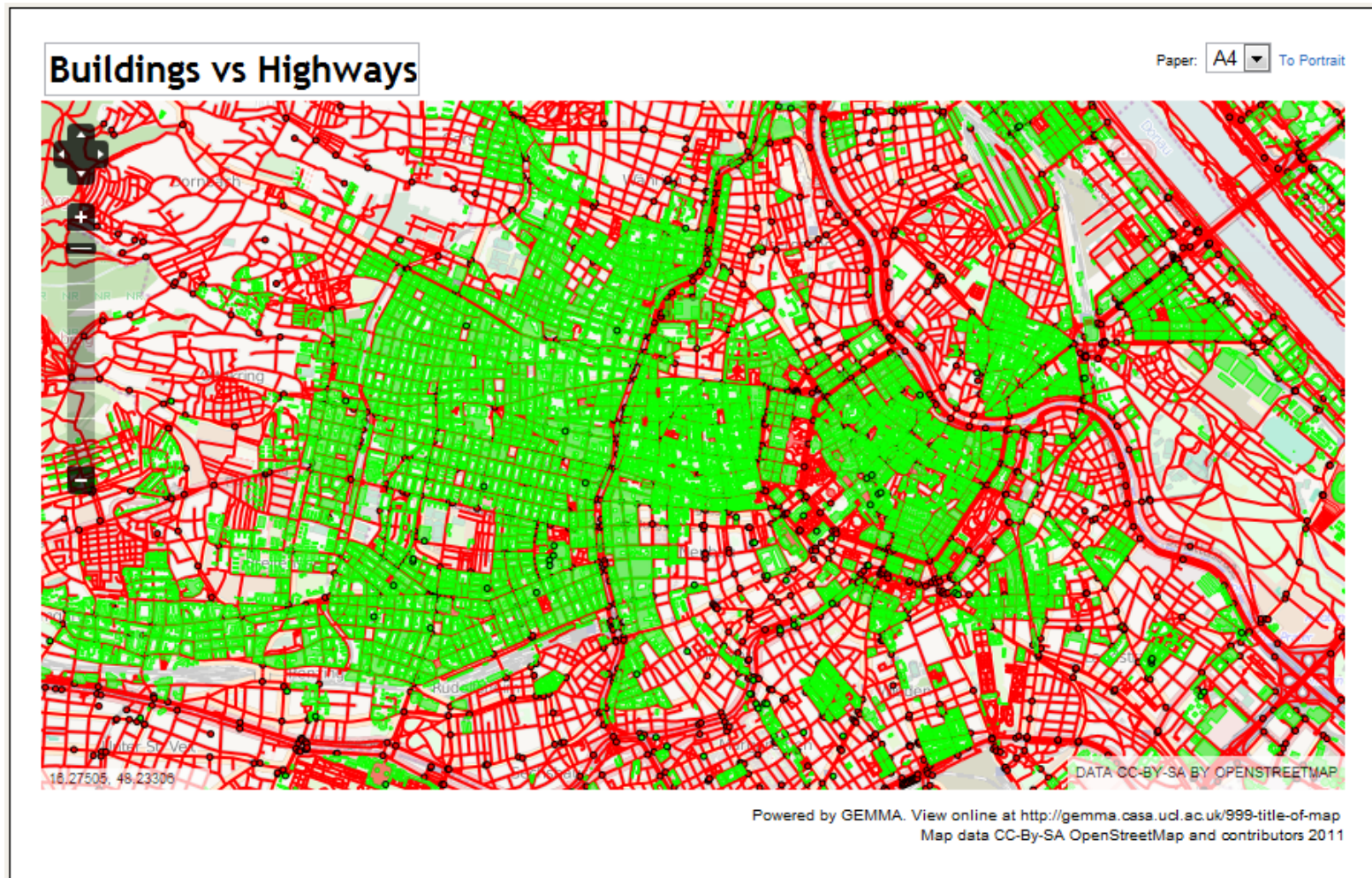
Buildings vs Res Road

Paper:

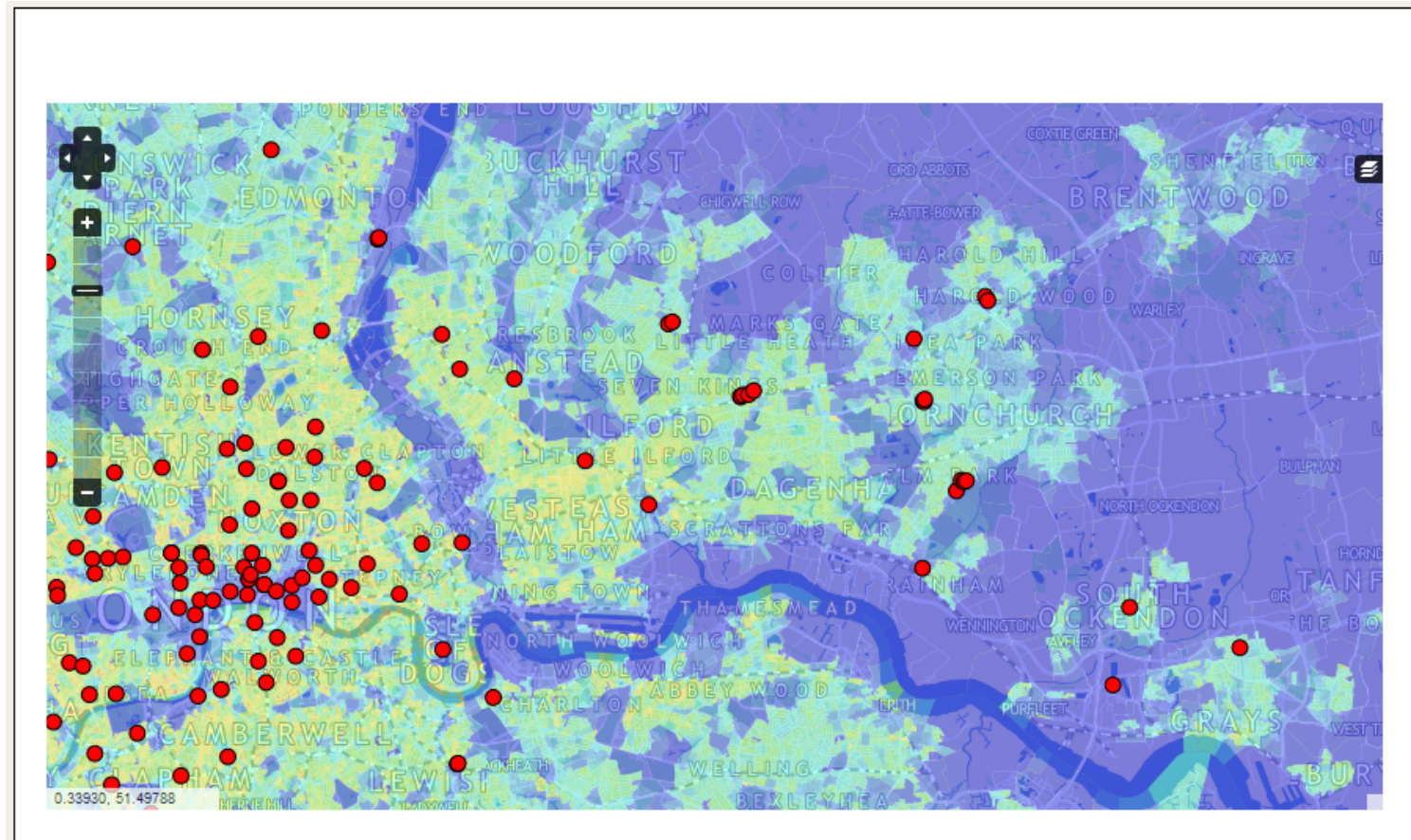


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OSM Feature Highlighter

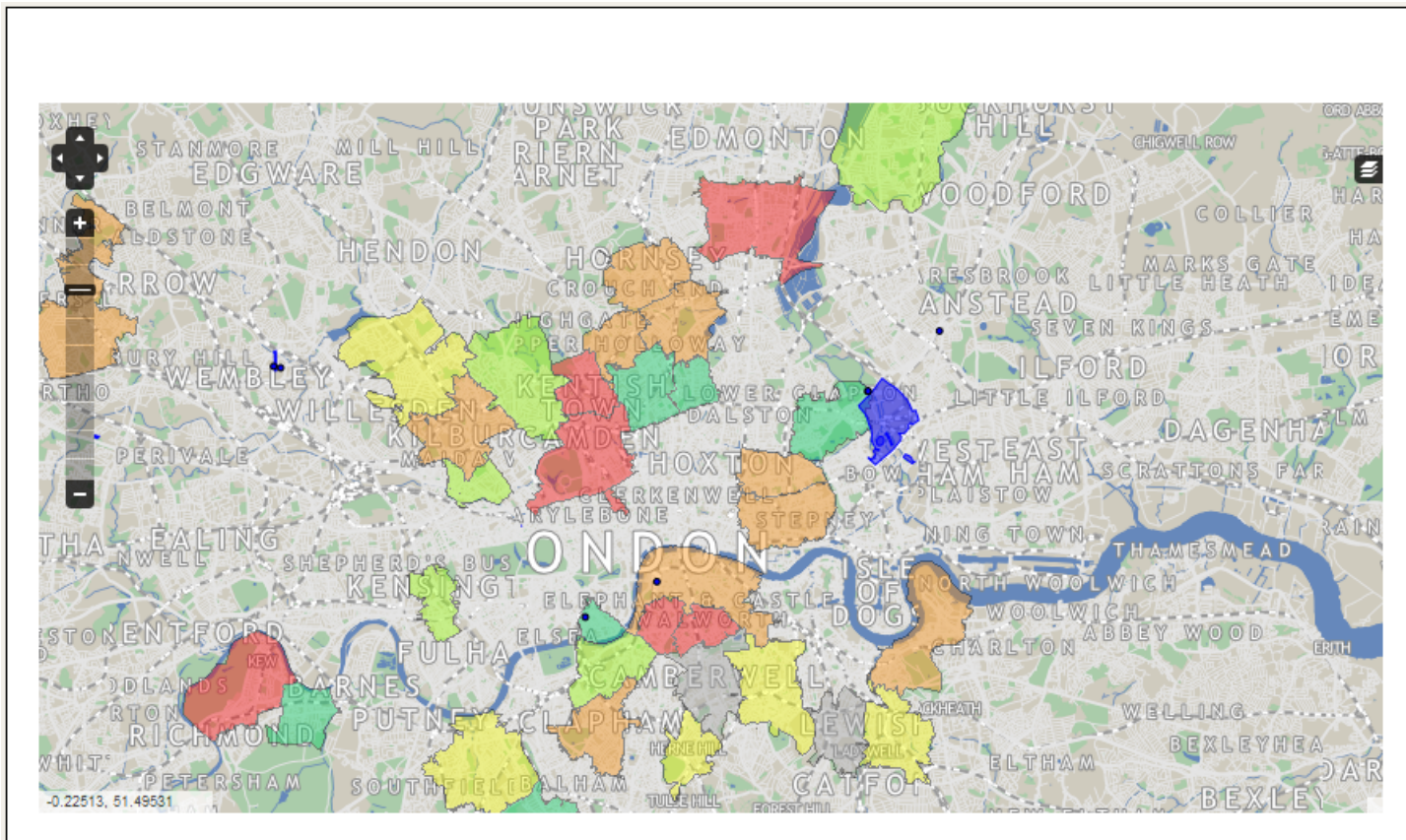


Mashing it Up I



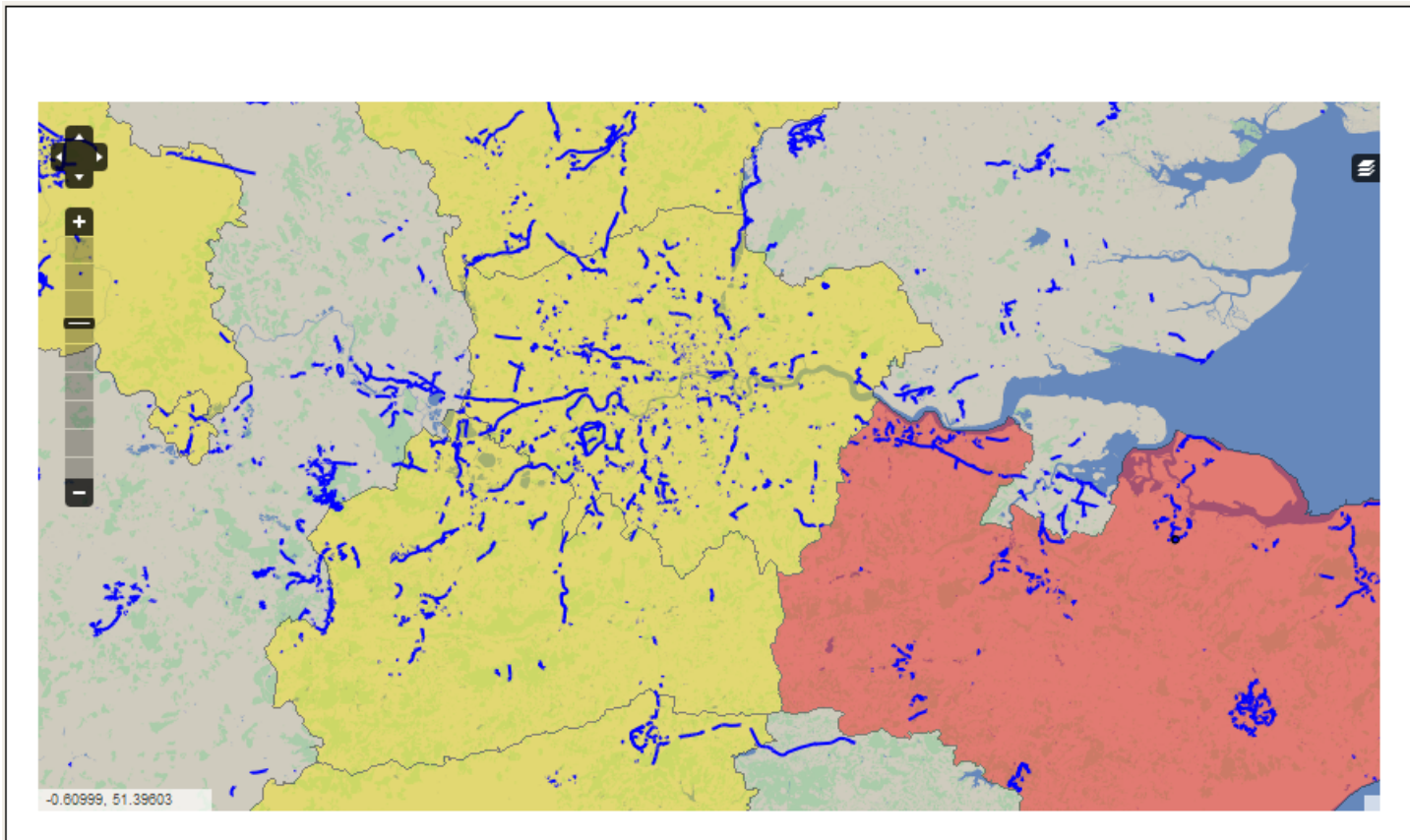
1. Population Density: Census (MapTube)
2. Tesco Stores: OpenStreetMap (FH)

Mashing it Up II



1. Buying Olympic Tickets: Survey (SurveyMapper) [red-green]
2. "Olympic" in name: OpenStreetMap (FH) [blue]

Mashing it Up III



1. Should Bike Helmets be Compulsory? Survey (SurveyMapper)
2. highway=cycleway: OpenStreetMap (FH) [blue]

Sneak Peak at more GEMMA



Potential Example: Cycling in London

Ranger can point to some notable successes, not least the fact that there have been fewer than 100 accidents and none of them serious. But a residual concern remains who is using the scheme: overwhelmingly white men aged between 25 and 44, many of whom earn more than £50,000 a year. For a scheme that has already cost £79m, with a further £45m for the extension to cover the Olympic Park next year, can we really justify this "posh-boy toy"? "If you look at the normal demographic for cycling, it's exactly the same," says Ranger. "But that will change as we move into year two or three and we see people getting comfortable with it."

So, is London in the midst of a "cycling revolution"? The mayor would say yes, but others are more sceptical. "It just isn't a cycle-friendly city," says

- Data Acquisition
- Visualisation
- Contextualisation



Potential Example: Cycling in London

- Debates currently in London on:
 - The “Boris Bike” demographic
 - Cycling levels in general
 - Prioritising car use over cycle use – are cyclists still a minority in key areas?
- An example use of GEMMA will be as a platform to collect, visualise and present data on cycling demographics and levels in London
 - Using OSM as a source of dock locations, cycleways
 - Using data collector to get investigation-specific data
 - Using other data sources (GLA Datastore, MapTube) to visualise area demographics and work types



<http://gemma.casa.ucl.ac.uk>

gemma



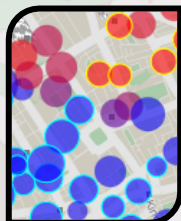
Geospatial Engine for Mass Mapping Applications

gemma will launch in Autumn 2011

private alpha

project blog

sign up for announcements



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Special thanks to Andrew
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