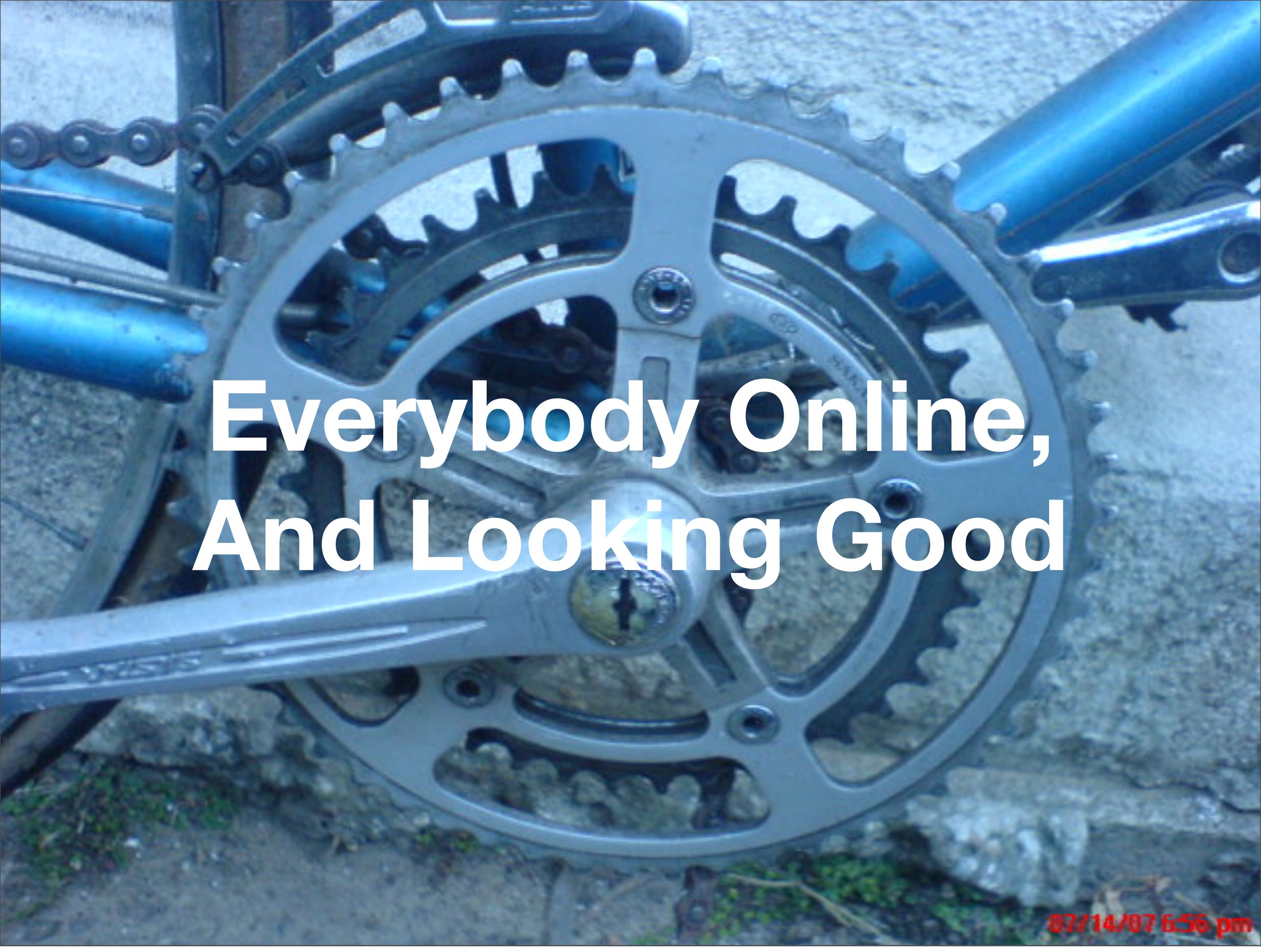

Everybody Online,
And Looking Good
07/14/07 6:56 pm

# Stamen Design

**Eric Rodenbeck**
**Michal Migurski (me)**
**Shawn Allen**
**Tom Carden**
**Geraldine Sarmiento**
**Deborah Monaghan**
**Sha Hwang**
**Ben Cerveny**

My name is Michal Migurski, I'm the technical director at Stamen Design,
a San Francisco data visualization studio.

# Maps, Generally

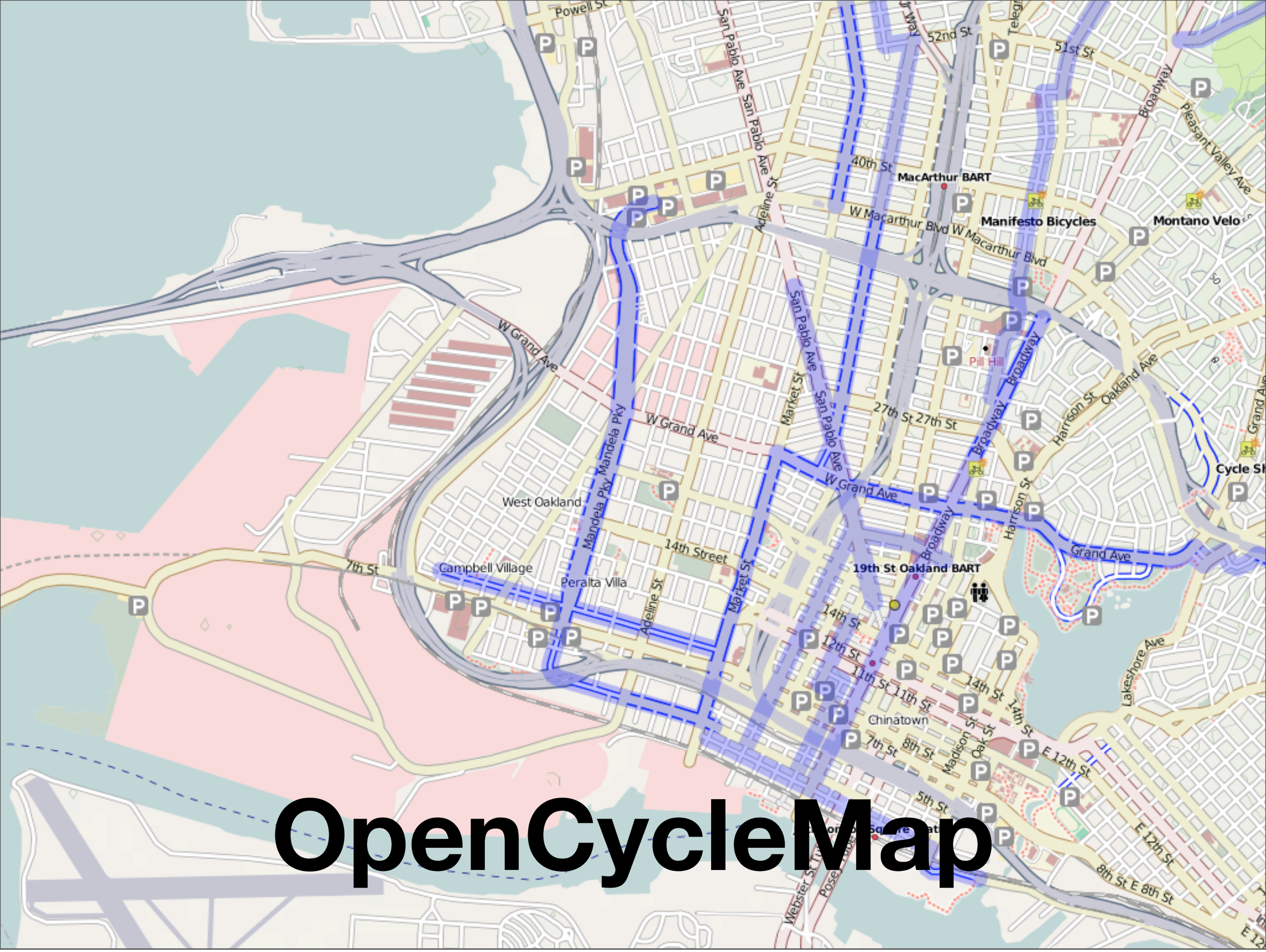
## Maps online are switfly becoming the focal point for new thinking about data

Broadly speaking, online geography and cartography are where the action is right now.

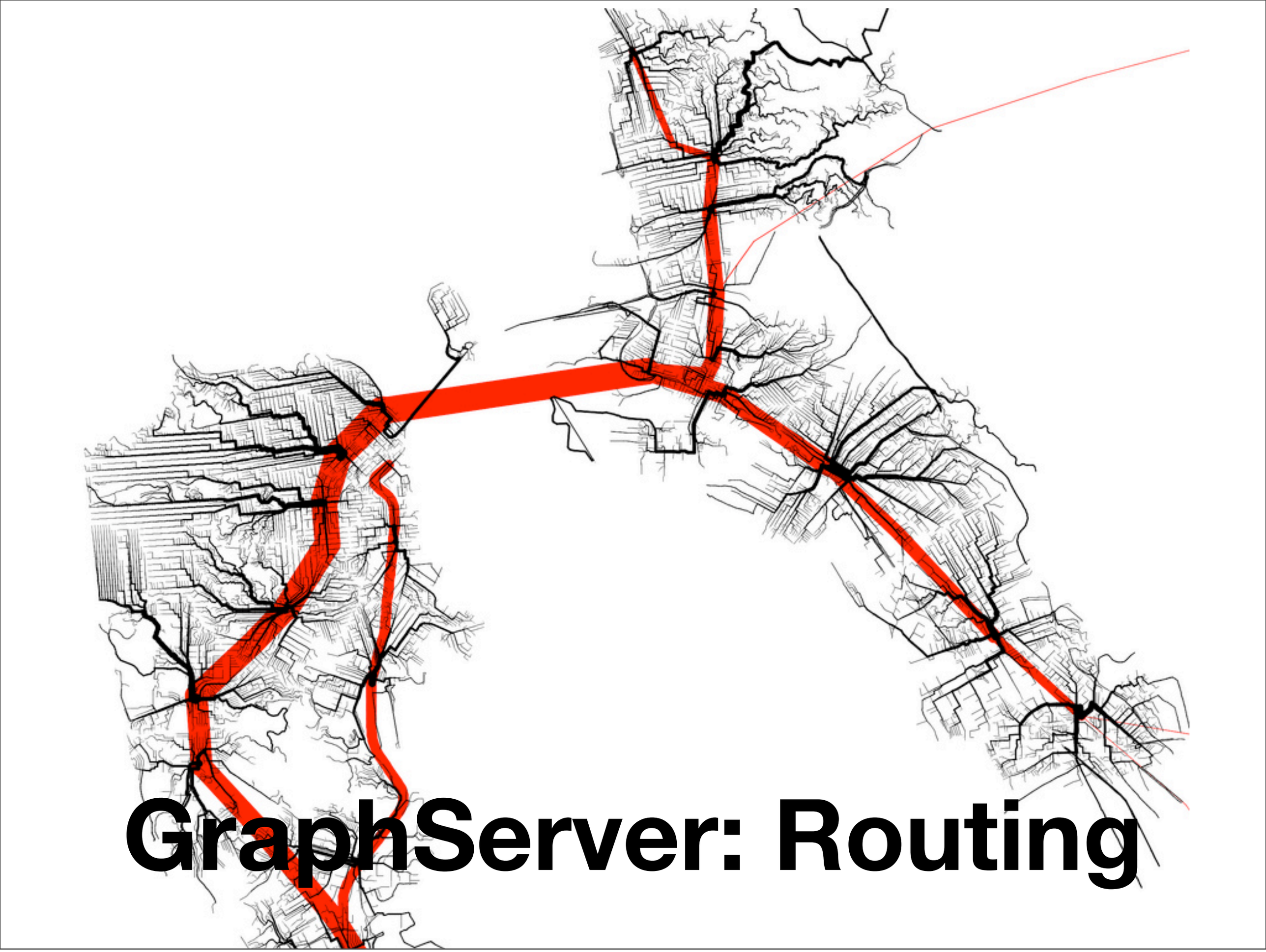
A few projects we've seen or done ourselves.

Tom Carden and Steve Coast:
An early rendering from OpenStreetMap, 2005 or 2006 showing GPS trails of couriers through London, and proving that dense street data could be extracted from crowdsourced GPS.

Made before Tom joined Stamen in 2006.




Andy Allan: Open Cycle Map
This is an award-winning custom render of OpenStreetMaps that illustrates why making your own maps from scratch is important: there are a lot of different kinds of geographic context out there, beyond just freeways and pizza places.




Brandon Martin-Anderson:
Shortest-path tree of San Francisco transit (red) and walking (black)
This is just transit, with an indication of walk + ride time, showing what's possible when governments, agencies, and authorities open up data.
"Data *is* the public good."

Shawn Allen, Stamen:
Shawn overlaid bike routes on contoured hill in SF, using data directly published by city government.

# Heat Maps, Underneath

Oakland Crimespotting heat maps
Meanwhile, this is a heat map of crime in West Oakland with a thin layer of street context from OpenStreetMap showing a better way to layer continuous data and local context.

# Black Box/Reach Through

**“…scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity. Thus, paradoxically, the more science and technology succeed, the more opaque and obscure they become.”**

**—Bruno Latour, Pandora’s Hope**

What’s happening right now in online mapping is that the black box is being cracked open.

# Two Things

**Cartography: how maps look,**
**Delivery: how they get to you.**

# Cartography

## How To Ditch Google Maps

# Cloudmade

**New cartography for OpenStreetMap**
**http://maps.cloudmade.com**

This year, Stamen designed a set of base map styles for OpenStreetMap commercial offshoot Cloudmade.

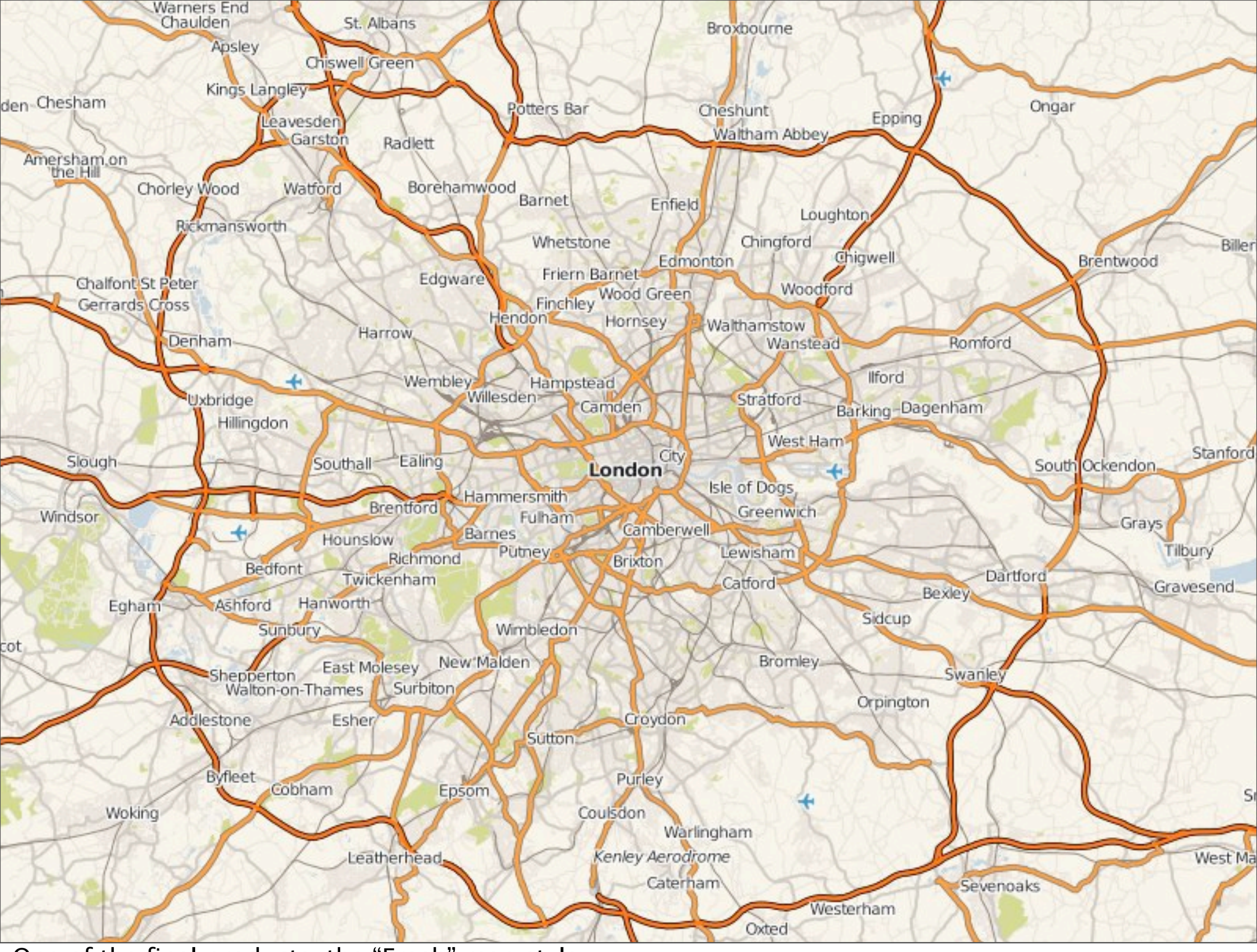
Manchester

In four years of work, the volume of data in OpenStreetMap has progressed enormously.

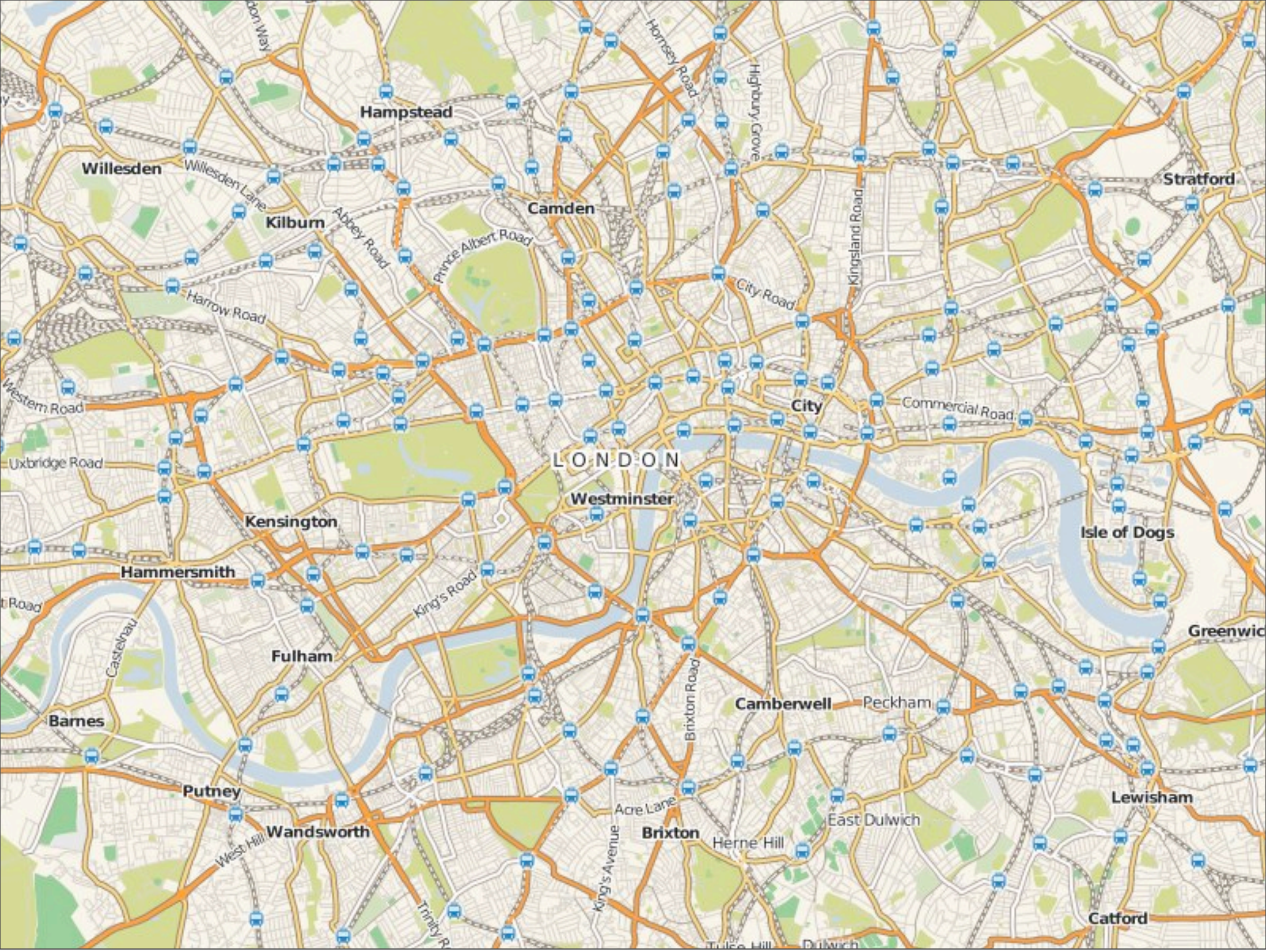
Some primitive early test rendering to test line weights, etc., using Mapnik + Cascadenik.

OSM has Baghdad.

OSM has London.




One of the final products: the “Fresh” map style.


Hampstead
Willesden
Willesden Lane
Kilburn
Abbey Road
Camden
Prince Albert Road
Hornsey Road
Highbury Grove
Kingsland Road
Stratford
Harrow Road
City Road
Western Road
Uxbridge Road
City
Commercial Road
LONDON
Westminster
Kensington
Hammersmith
King's Road
Isle of Dogs
Fulham
Barnes
Brixton Road
Camberwell
Peckham
Putney
West Hill
Wandsworth
Acre Lane
Brixton
Herne Hill
East Dulwich
King's Avenue
Lewisham
Catford

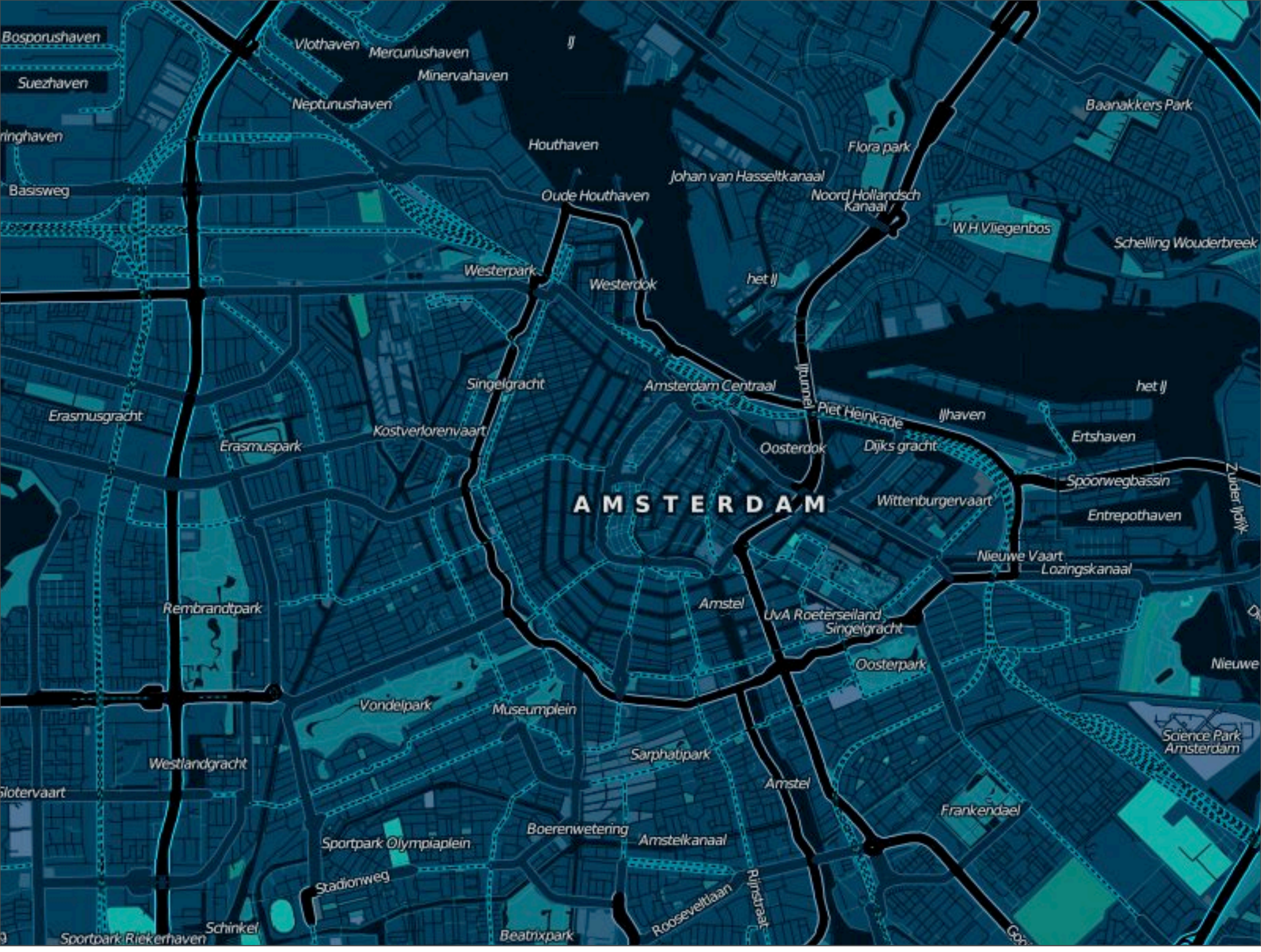
# Appearances Matter

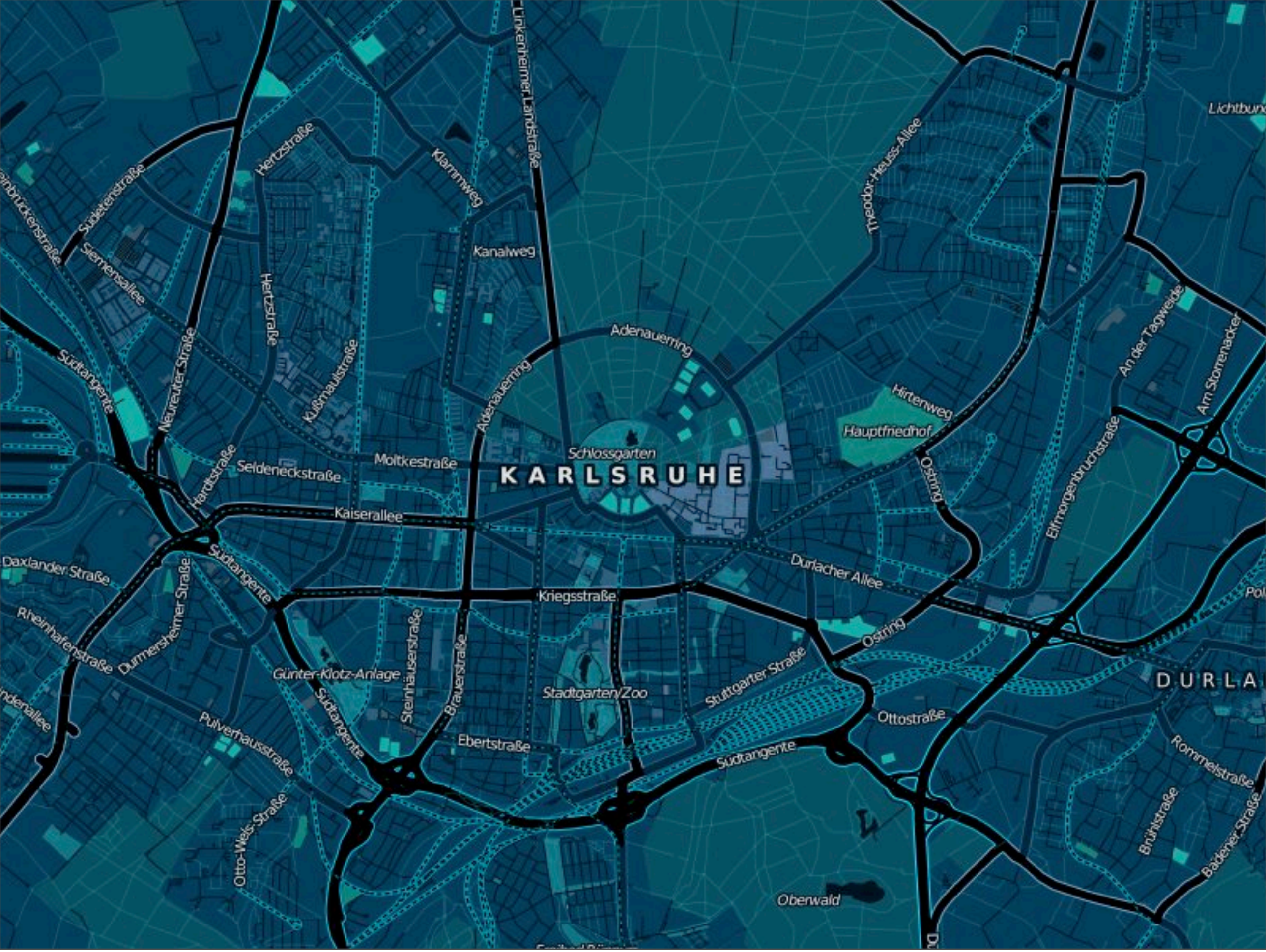
Another final product: the “Midnight Commander” map style, a.k.a what would Jason Bourne use to navigate a new city?

Gaußstraße
Keplerstraße
Schwarzer Weg
Goslarer Ufer
Neues Ufer
Huttenstraße
Turmstraße
Kaiserin-Augusta-Allee
Zwinglistraße
Alt Moabit
Essener Straße
Stromstraße
Kleiner Tiergarten
Krankenhaus Moabit
Fritz-Schloß-Park
Seydlitzstraße
Invalidenstraße
Nordhauser Straße
Sömmeringstraße
Quedlinburger Straße
Jagowstraße
Elberfelder Straße
Bundesratufer
Holsteiner Ufer
Kirchstraße
Calvinstraße
Spenerstraße
Paulstraße
Lüneburger Straße
Kanzlerpark
Am Spreebord
Iburger Ufer
Helmholtzstraße
Levetzowstraße
Agricolastraße
Lessingstraße
Bartningallee
Salzufer
Frankstraße
Cauerstraße
Guerickestraße
Gutenbergstraße
Einsteinufer
Salzufer
Altonaer Straße
Englischer Garten
John-Foster-Dulles-Allee
Tiergarten
Otto-Suhr-Allee
Wilmersdorfer Straße
Richard-Wagner-Straße
Gierkezeile
Zillestraße
TU Berlin - Mathecampus
Bachstraße
Klopstockstraße
Händelallee
Tiergarten
Straße des 17. Juni
Spreeweg
Straße des 17. Juni
Straße des 17. Juni
Bismarckstraße
Hofjägerallee
Tiergarten
Tiergarten
Tiergartenstraße
Schillerstraße
TU Berlin
Hardenbergstraße
Fasanenstraße
Stülerstraße
Goethestraße
Goethestraße
Pestalozzistraße
Leibnizstraße
Schlüterstraße
Budapester Straße
Keithstraße
Lützowufer
Reichpietschufer
Kantstraße
Kantstraße
Niebuhrstraße
Mommsenstraße
Leibnizstraße
Wielandstraße
Bleibtreustraße
Dahlmannstraße
Tauentzienstraße
Kurfürstenstraße
Lützowstraße
Kurfürstendamm
Kurfürstendamm
Augsburger Straße
Bayreuther Straße
Kurfürstenstraße
Potsdamer Straße
Lützowstraße
Olivaer Platz
Lietzenburger Straße
Lietzenburger Straße
Kleiststraße
Pohlstraße
Fuggerstraße
Pariser Straße

Jungfernheidepark
Heckerdamm
Heckerdamm
Plötzensee
Technische Fachhochschule Berlin
Siemensdamm
Friedrich-Krause-Ufer
Quitzowstraße
Siemensstraße
Sickingenstraße
Perleberger Straße
Heidestraße
Bundeswehrkrankenhaus Berlin
Friedhof II der Sophiengemeinde Berlin
Berliner Straße
Mauerpark
Krankenhaus Moabit
Turmstraße
Kleiner Tiergarten
Bundesministerium für Wirtschaft und Technologie
Torstraße
Alt Moabit
Paulstraße
Tiergartentunnel
Luisenstraße
Kanzlerpark
Monbijoupark
Englischer Garten
Tiergarten
BERLIN
Unter den Linden
Straße des 17. Juni
Otto-Suhr-Allee
TU Berlin - Mathecampus
Schloßstraße
Kaiser-Friedrich-Straße
Bismarckstraße
Tiergarten
Tiergarten
Ebertstraße
Leipziger Straße
Kaiserdamm
TU Berlin
Hardenbergstraße
Tiergartenstraße
Lietzensee-Park
Lietzensee
Kantstraße
Kantstraße
Reichpietschufer
Zimmerstraße
Sommergarten
Lietzensee-Park
Lützowstraße
Stresemannstraße
Wilhelmstraße
Lindenstraße
Messedamm
Kurfürstendamm
Lietzenburger Straße
Schöneberger Ufer
Landwehrkanal
Kurfürstendamm
Martin-Luther-Straße
Westfälische Straße
Preußenpark
Hohenzollerndamm
Bundesallee
Uhlandstraße
Halensee
Hubertusallee
Kleistpark
Friedhöfe am Mehringdamm
Gneisenaustraße
Alter St.-Matthäus-Kirchhof
Grunewaldstraße
Viktoriapark
Berliner Straße
Badensche Straße
Friedhof Wilmersdorf
Dudenstraße
Volkspark Wilmersdorf

Streitstraße
Berliner Straße
Saatwinkler Damm
Rohrdamm
Am Juliusturm
Nonnendammallee
Motardstraße
Freiheit
Spandauer Damm
Reichsstraße
Heerstraße
Bismarckstraße
Kantstraße
Ollenhauer
Arosar Allee
Müllerstraße
Seestraße
Provinzstraße
Mühlenstraße
BERLIN
Torstraße
Köpenicker Straße
Hasenheide
Columbiadamm
Sonnenallee
Hermannstraße
Wexstraße
Hagenstraße
Königsallee
Hüttenweg
Clayallee
Paoellialiee
Schloßstraße
Grazer Damm
Gradestraße


Bosporushaven
Suezhaven
Vlothaven
Mercuriushaven
Minervahaven
Neptunushaven
IJ
Houthaven
Oude Houthaven
Johan van Hasseltkanaal
Noord Hollandsch Kanaal
Flora park
Baanakkers Park
W H Vliegenbos
Schelling Wouderbreek
Basisweg
Westerpark
Westerdok
het IJ
IJtunnel
Singelgracht
Amsterdam Centraal
Piet Heinkade
IJhaven
het IJ
Erasmusgracht
Kostverlorenvaart
Erasmuspark
Oosterdok
Dijks gracht
Ertshaven
Spoorwegbassin
Zuider IJdijk
AMSTERDAM
Wittenburgervaart
Entrepothaven
Nieuwe Vaart
Lozingskanaal
Rembrandtpark
Amstel
UvA Roeterseiland
Singelgracht
Oosterpark
Nieuwe
Vondelpark
Museumplein
Science Park Amsterdam
Westlandgracht
Sarphatipark
Amstel
Frankendael
Boerenwetering
Amstelkanaal
Sportpark Olympiaplein
Stadionweg
Roosevelttlaan
Rijnstraat
Schinkel
Sportpark Riekerhaven
Beatrixpark


Linkenheimer Landstraße
Hertzstraße
Klammweg
Kanalweg
Theodor-Heuss-Allee
Lichtburg
Sudetenstraße
Siemensallee
Hertzstraße
Neureuter Straße
Kußmaulstraße
Adenauerring
Adenauerring
Hirtenweg
Hauptfriedhof
An der Tagweide
Am Storrenacker
Südtangente
Schlossgarten
KARLSRUHE
Moltkestraße
Seldeneckstraße
Hardtstraße
Kaiserallee
Ostring
Ettlinger Straße
Daxlander Straße
Südtangente
Durlacher Allee
Kriegsstraße
Rheinhafenstraße
Dürrenheimer Straße
Steinhäuserstraße
Brauerstraße
Günter-Klotz-Anlage
Südtangente
Stadtgarten/Zoo
Stuttgarter Straße
Ostring
Ottostraße
Pulverhausstraße
Ebertstraße
Südtangente
Otto-Wels-Straße
Oberwald
Brühlstraße
Rommelstraße
Badener Straße

# Trulia Hindsight

## Historical views of home construction

## http://hindsight.trulia.com

Our work with San Fracisco-based Real Estate information aggregator Trulia demonstrates the potential vastness of data online.

Trulia collects data about residential properties for the entire country, from government and private sources. They wanted to demonstrate the massive scale of this information collection by creating something that could be relevant and interesting to people who weren't necessarily in the market for a home.

trulia Hindsight

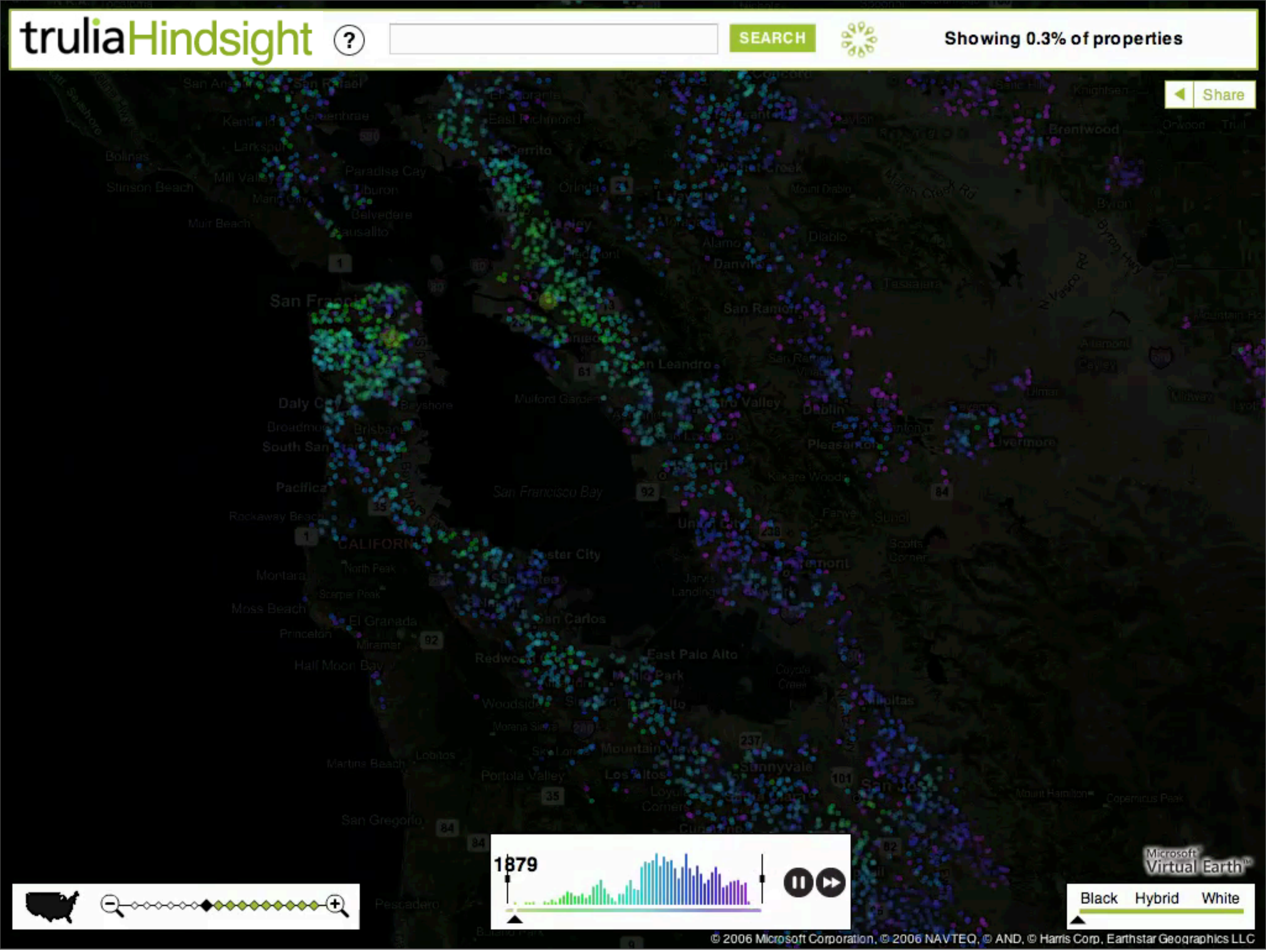
Blog: Maps of Properties Through Time

Trulia Hindsight maps properties by the year they were built in the entire United States. Search for specific properties or neighborhoods through the search box. Slider controls allow you to view specific time frames and scrub through the timeline. Or just play and watch. View the map.

**Pages**

- » About Trulia Hindsight
- » FAQ
- » Suggest a Link

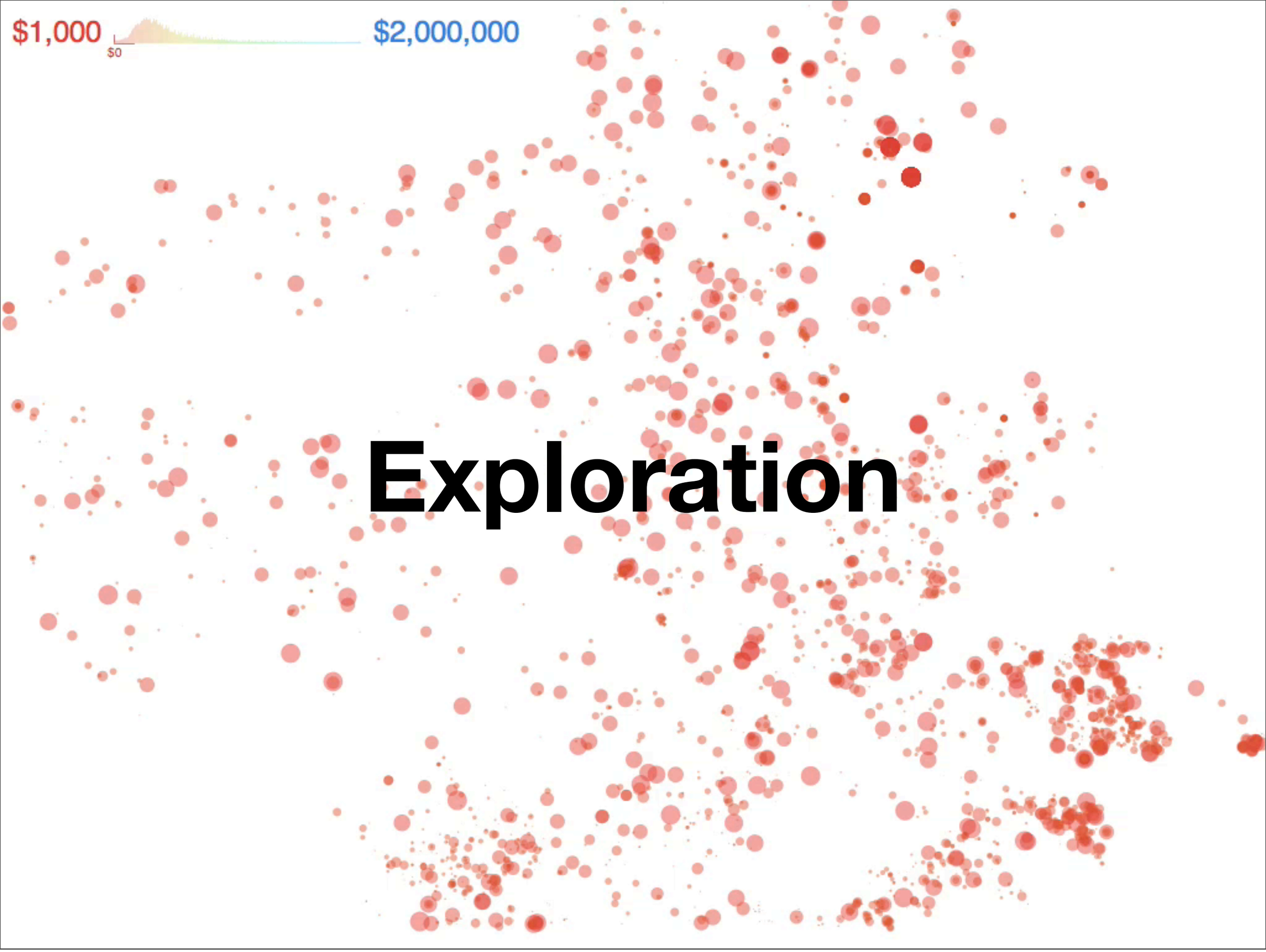
Hindsight is initially presented in the form of a blog, with posts about a variety of communities nationwide.




The interface shows colored dots for each home. You can immediately see construction patterns resulting from tract home development, where whole swaths of similar homes are laid down at once.

We used the standard slippy map interface, so it's possible to move around the country and see construction for different zoom levels. Even when you look up your childhood home in an out-of-the-way town, you can see historical information, link to it, and share it.

This is the SF Bay Area, you can see how people started off living in SF and Oakland in the North in the late 19th century, and then slowly moved down the Bay filling in former farmland with homes. There is a massive bump immediately after World War II.

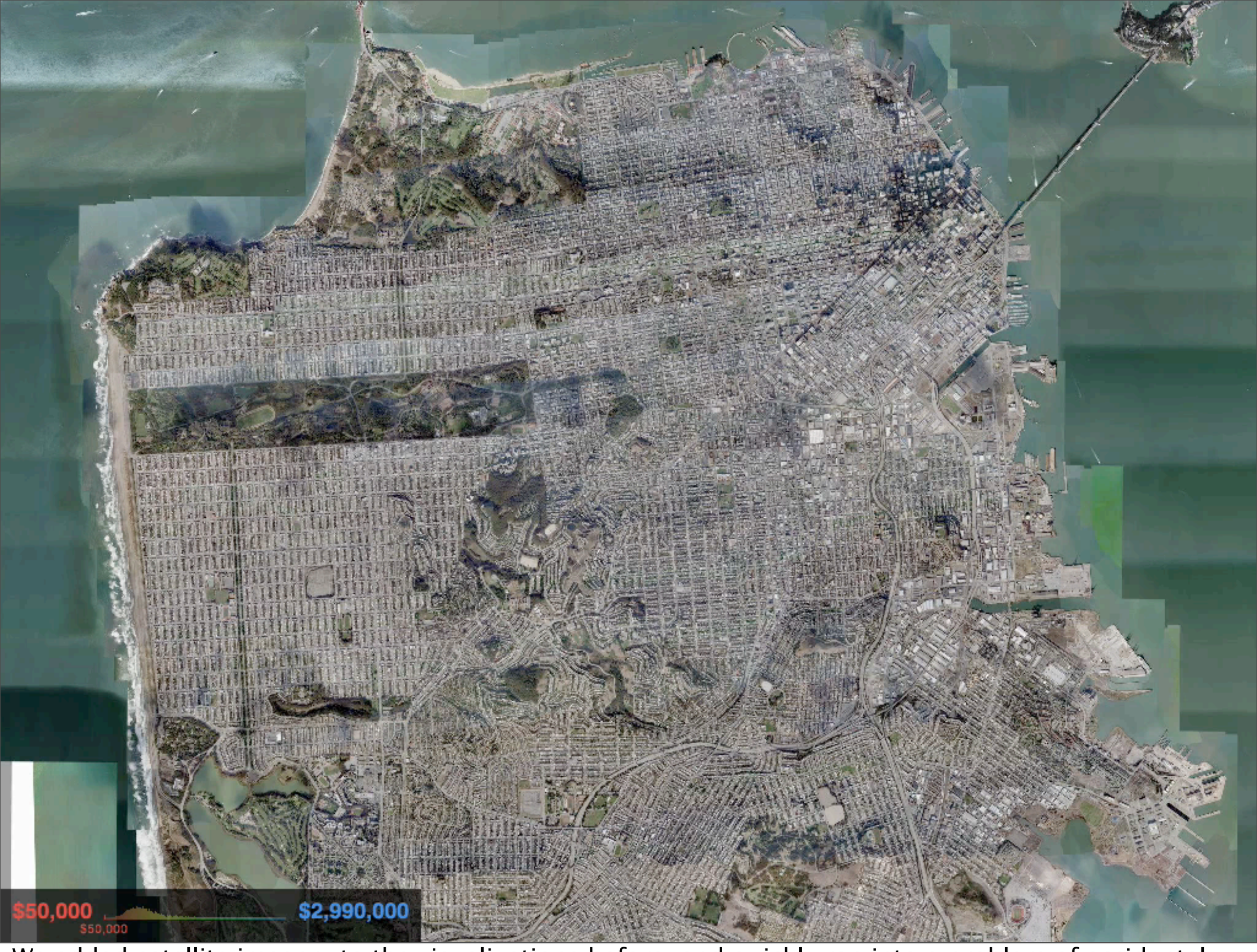



# Exploration

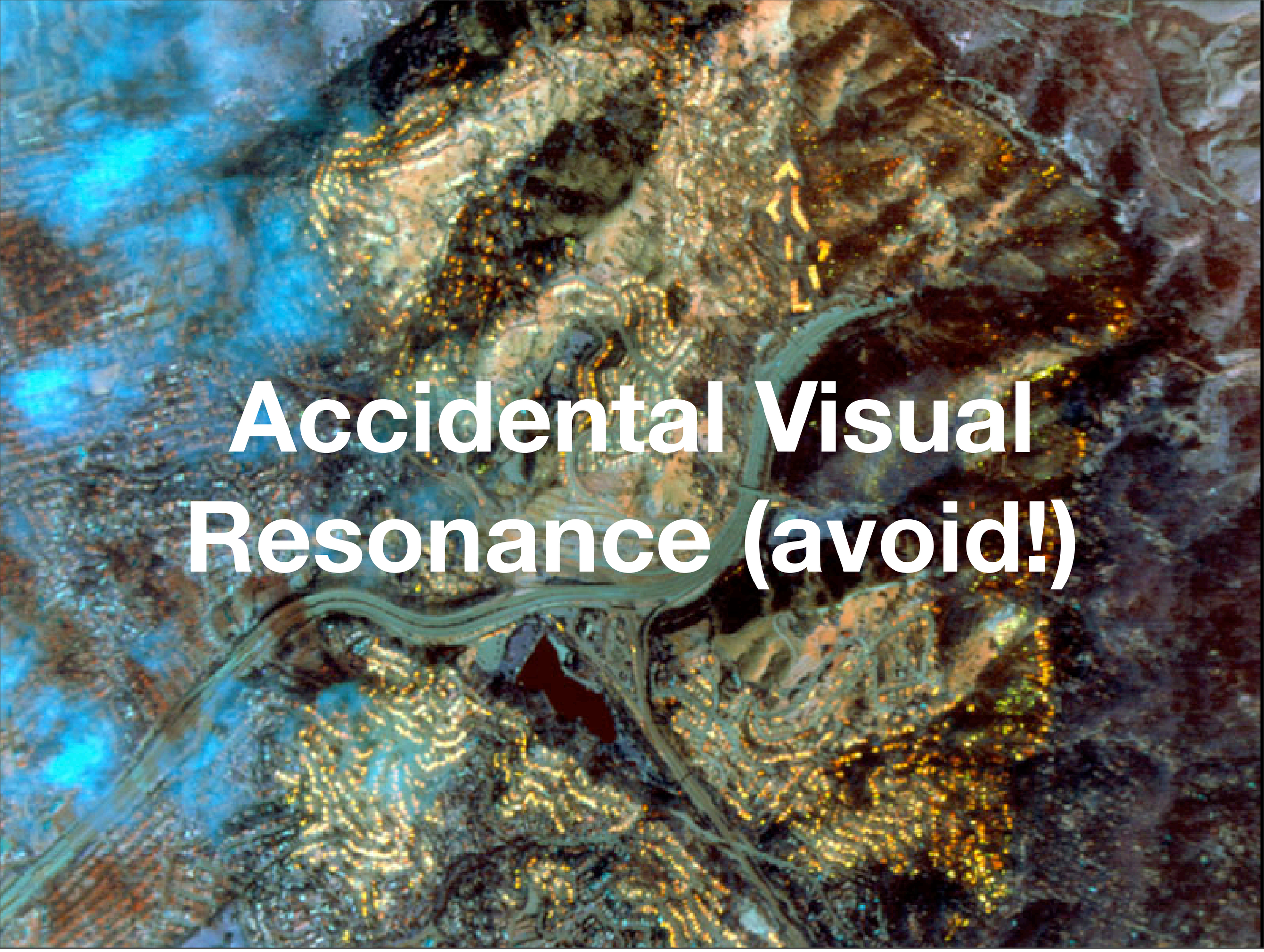
It’s important to note that these don’t spring forth fully-formed, there’s a lot of exploratory work and dead-ends that contribute to the final piece.

This was an early sketch we did in Processing, showing data animated by house price, from cheapest to most expensive. It beautifully demonstrated animated sweeps, but home prices as a metric seemed insufficiently “real” for a final piece.

This is the same visualization style, also with just properties in San Francisco, now animated by construction date. This was a more satisfying visualization, the information presented is more directly relevant to people, because it’s possible to use it to tell a story about the city.




We added satellite imagery to the visualizations before, and quickly ran into a problem of accidental visual resonance. Prior to the last five or so years, the place most people encounter data visualization is through science, through the military, and through disaster response.




Hindsight looked too much like this NASA image of the fires in the Oakland Hills in 1991. You can pick out each home, and neighbourhood, clearly. “Accidental Visual Resonance.” In response, we removed red, orange, and yellow colors to keep it from looking like a fire.

This shows Plano, Texas - an example of suburban housing development.

At the bottom you can see a timeline of development - it's quite short, because these homes were all built around the same time, quite rapidly.

# Delivery

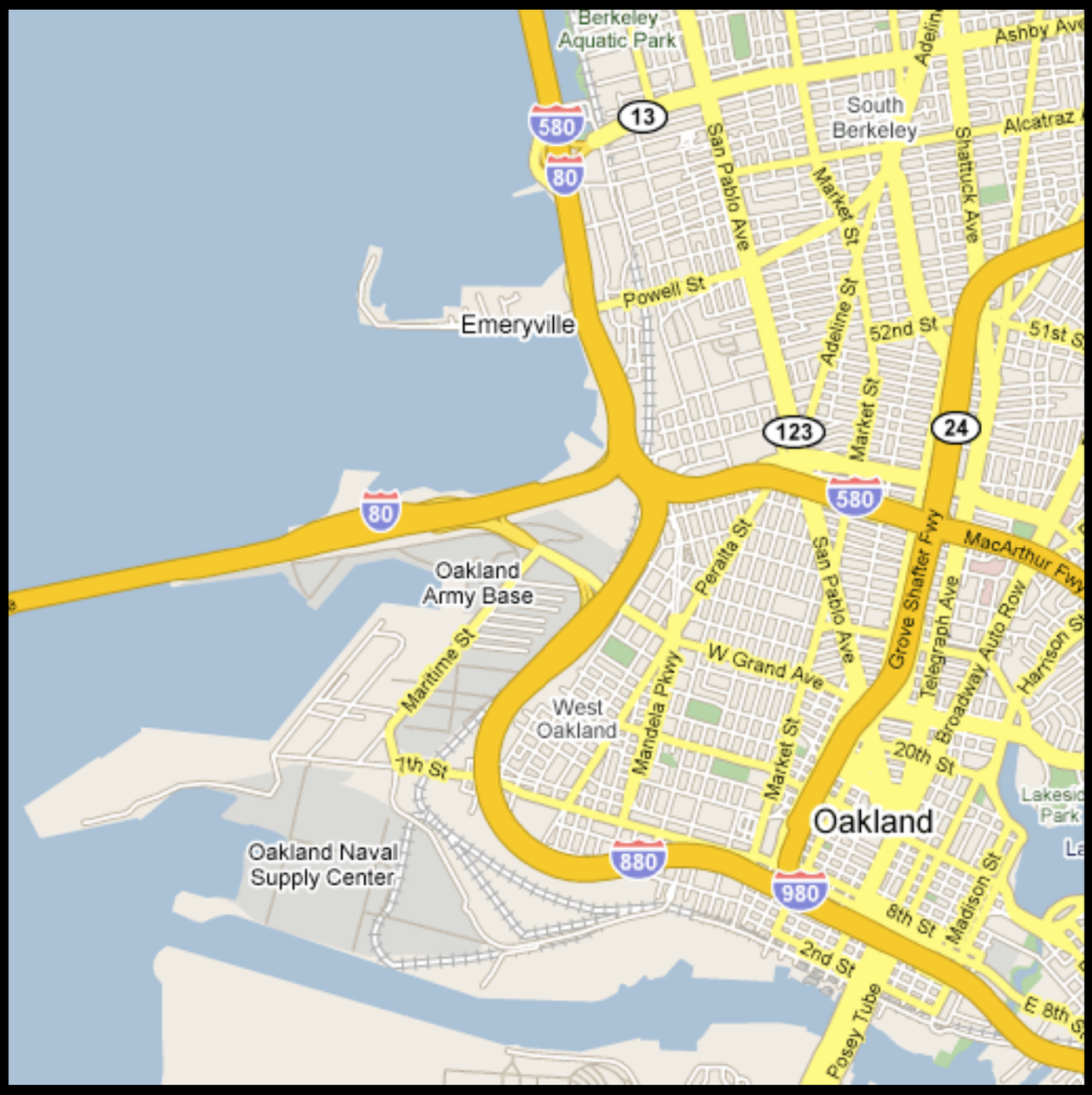
## Putting Maps Online

SFMOMA ArtScope.

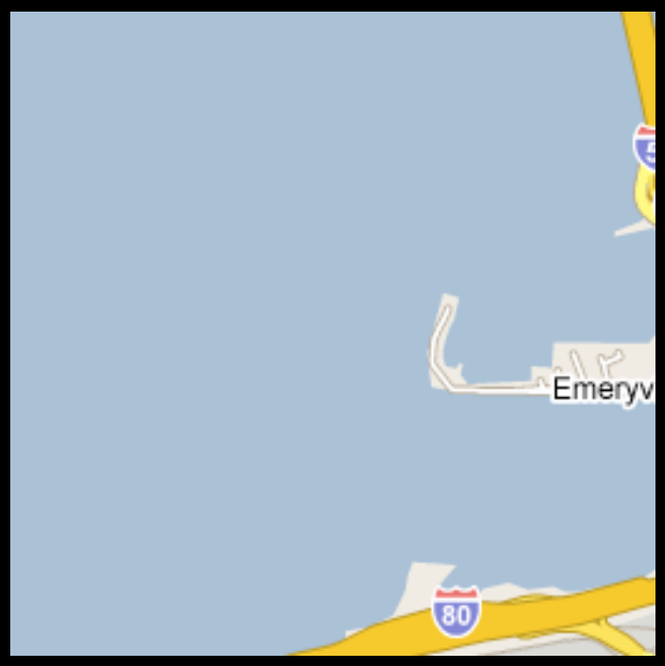
This is a deep dive into the Museum Of Modern Art's collection, most of which is not on display in the museum.

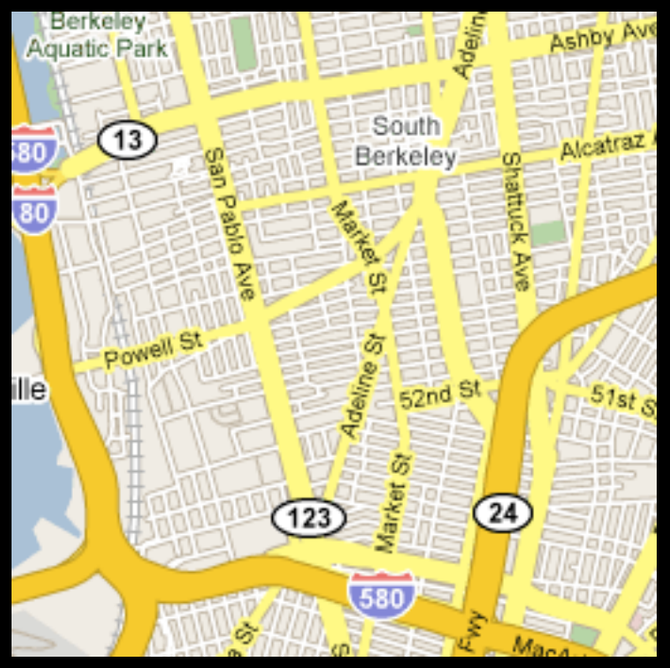
It doesn't look like a map, but we've been exploring the use of development and publishing ideas from online maps and satellite images for other purposes.

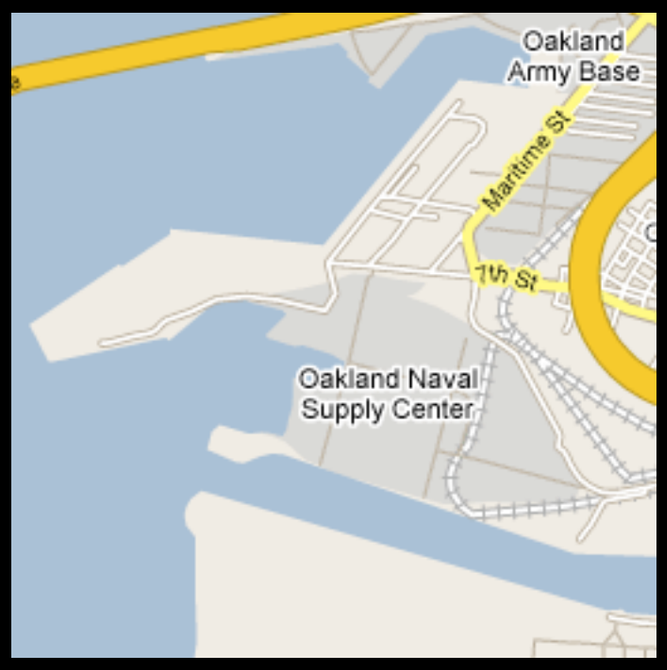
This is an image from Microsoft's Terraserver, from 2004. Prior to the release of Google Maps in 2005, this and MapQuest were the only good ways to get geographical information online. Interactions were slow, form-based, and limited. Imagery and map content was limited and poorly-designed.

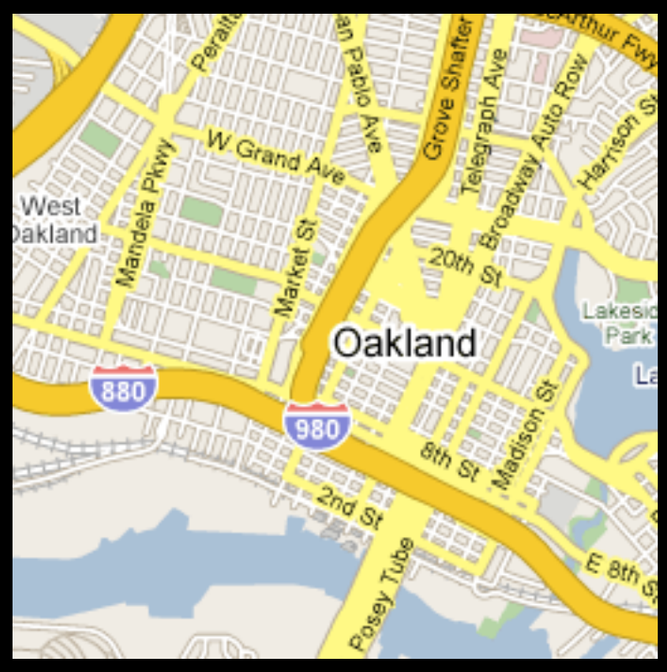



Google’s maps were a massive step forward, because they allowed you to move the map in the page, zooming freely from one place to another.

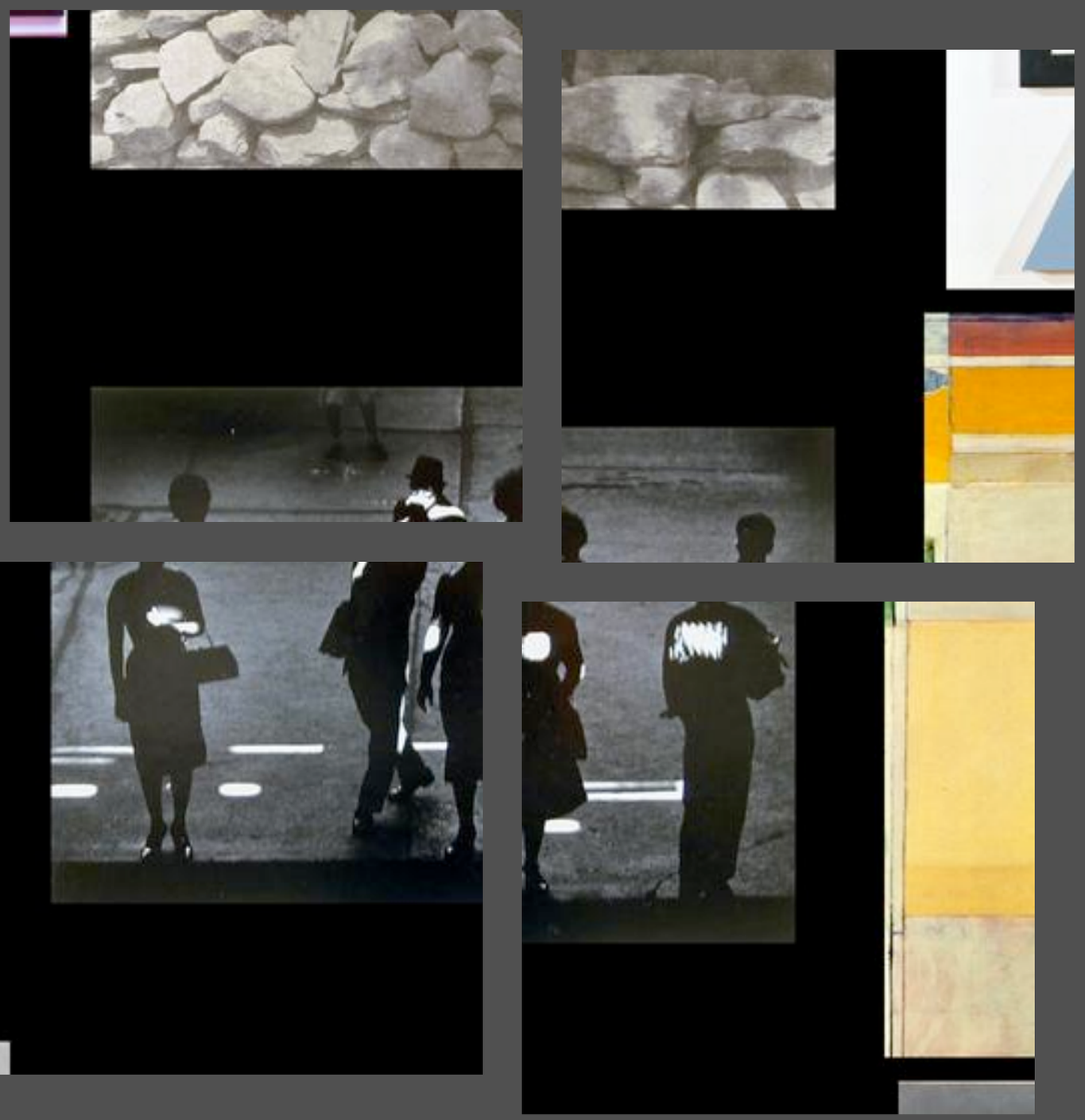


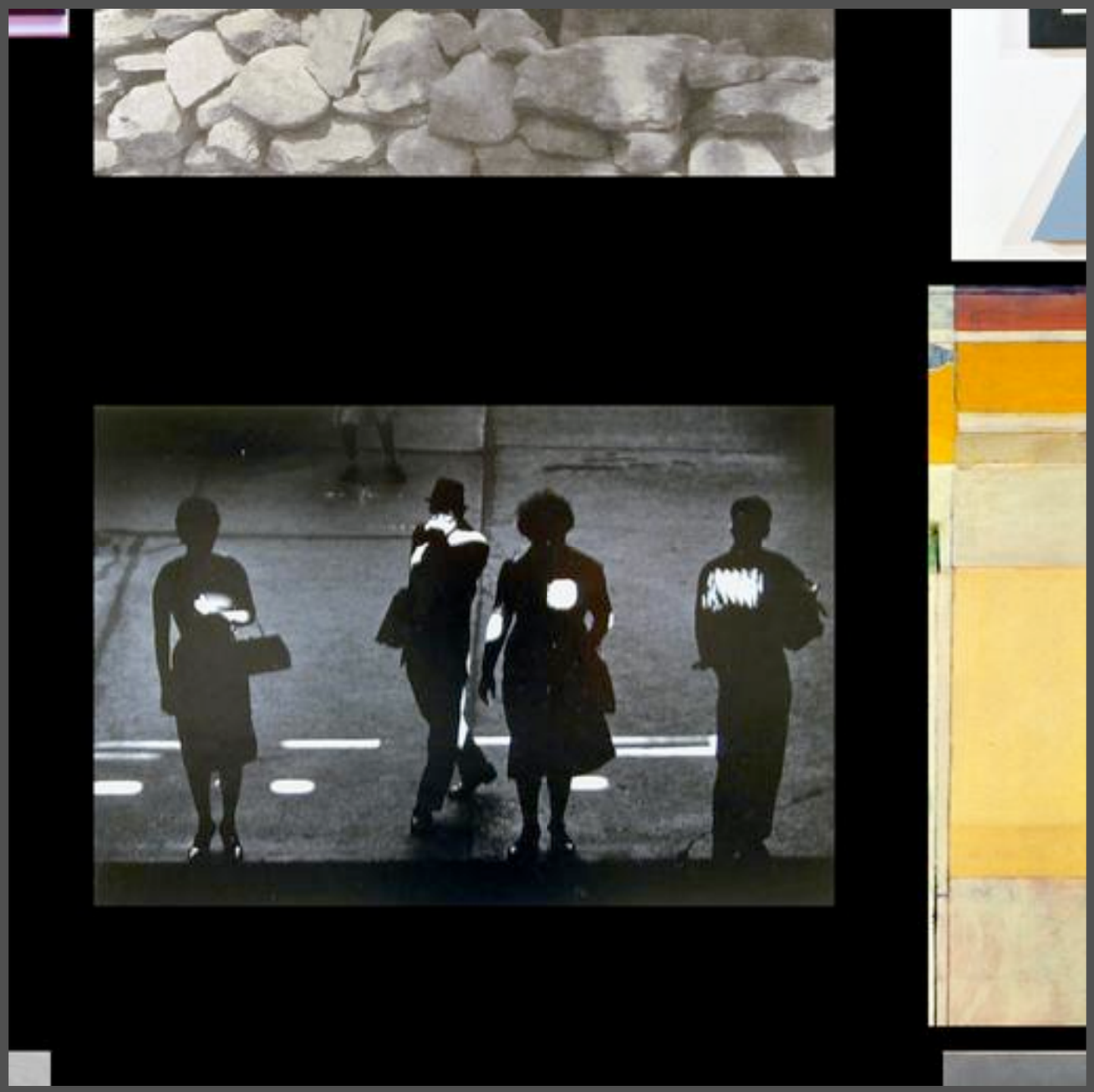



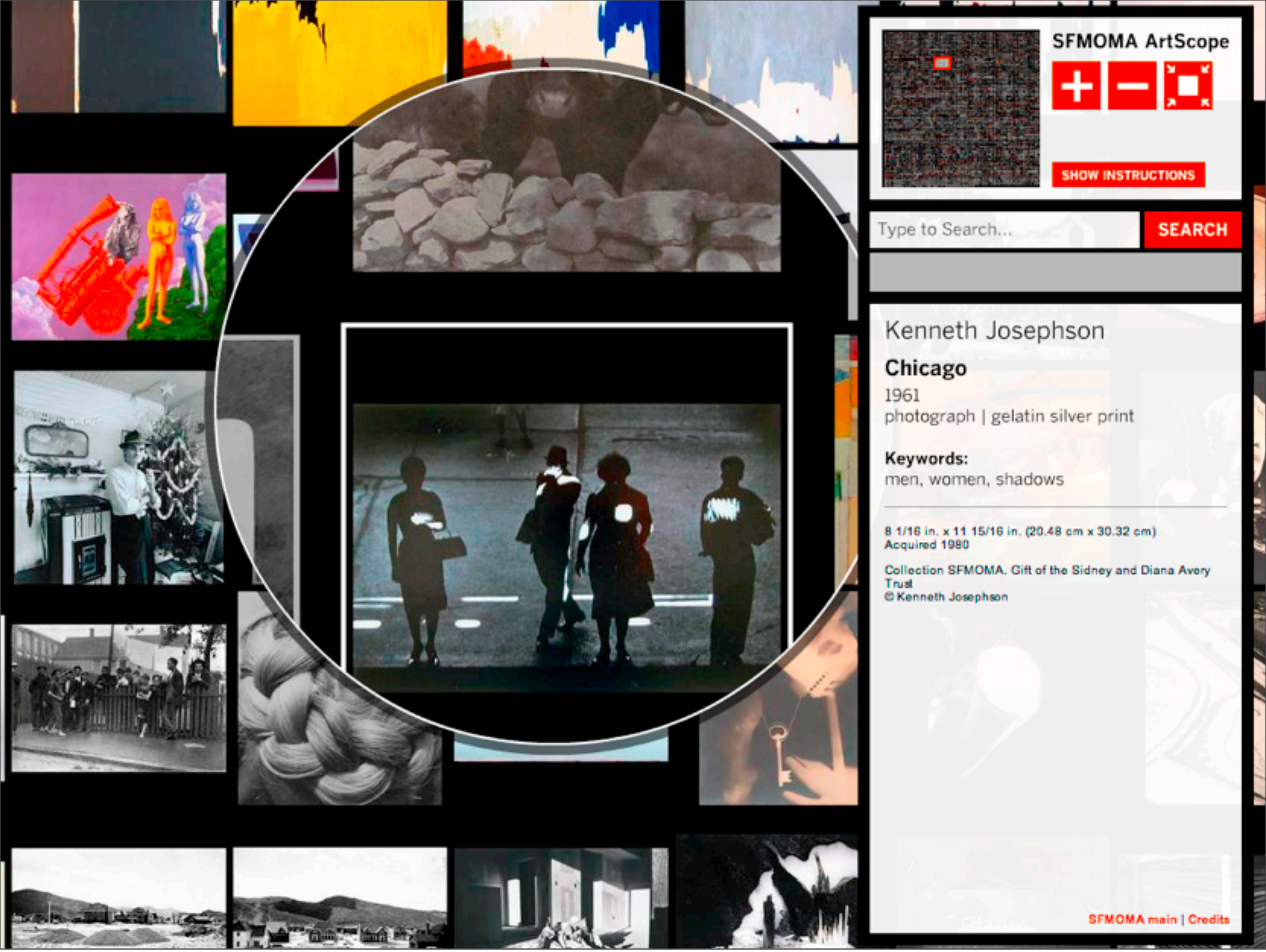




The infinite, continuous road maps and satellite imagery are available over a regular broadband connection because Google serves them to you as small square images

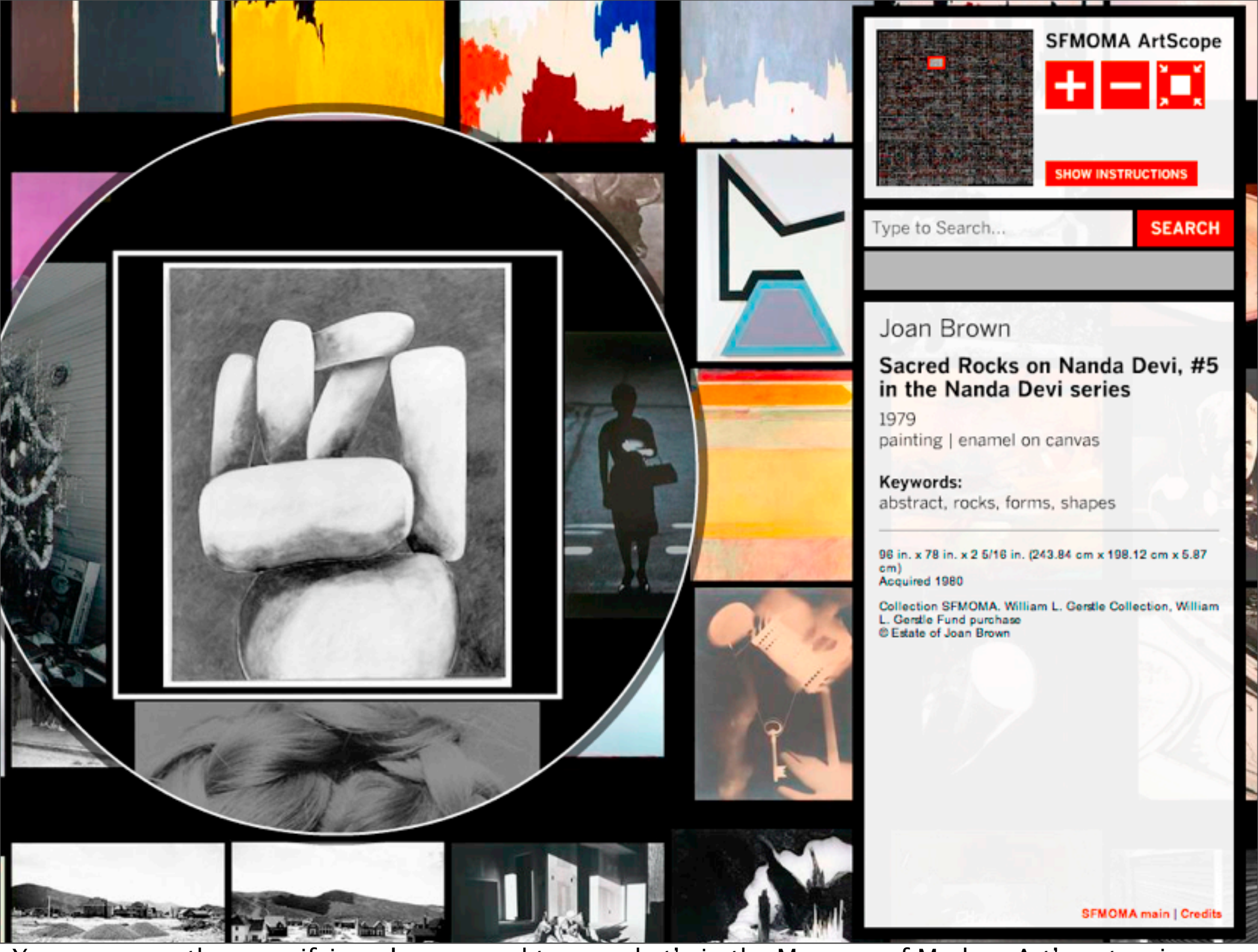


This idea can be applied to other kinds of deep navigation.

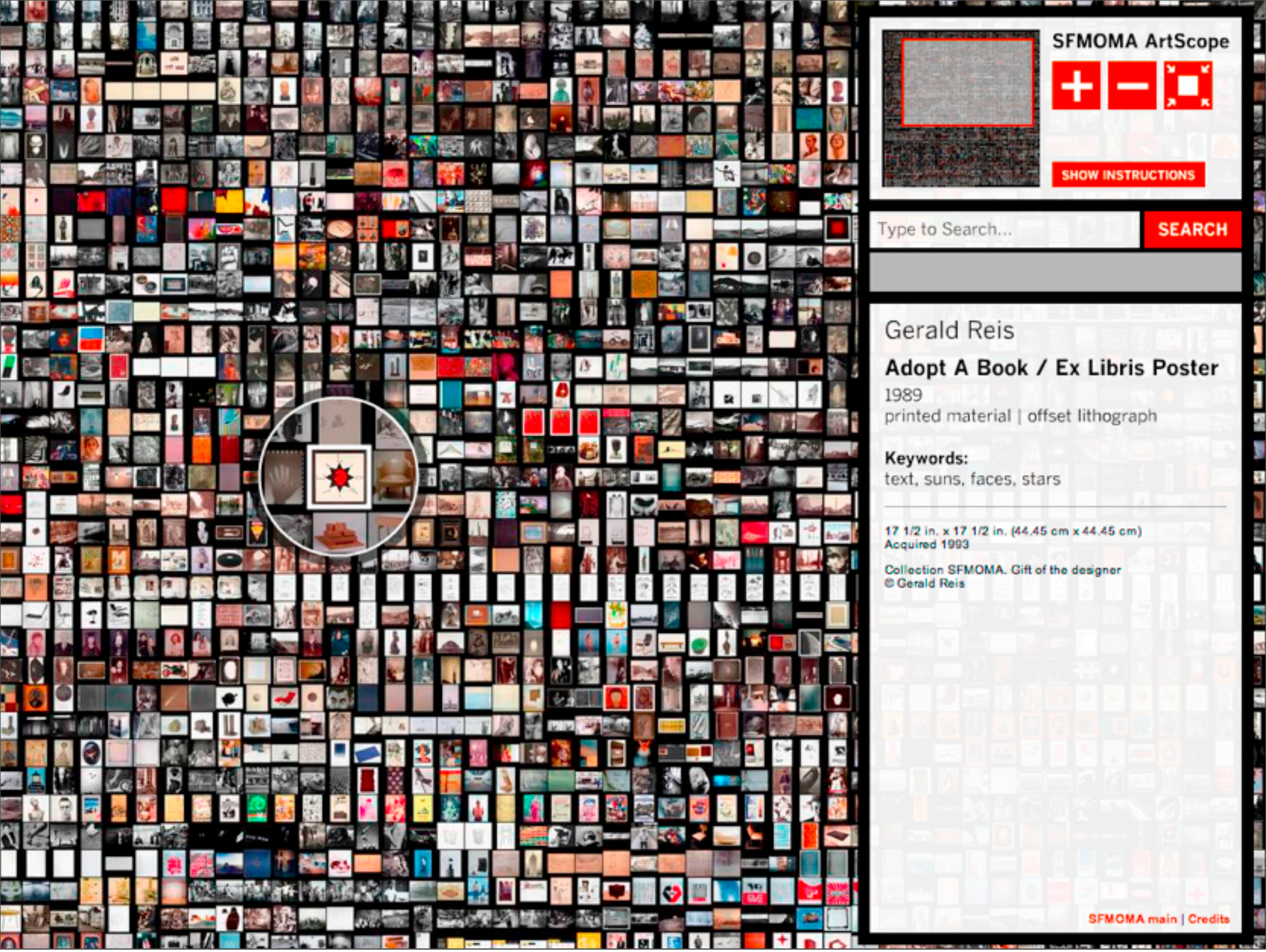





The actual ArtScope UI




You can move the magnifying glass around to see what's in the Museum of Modern Art's extensive collection, or use tags and text searches to the right if you know what artist you're looking for, or are interested in browsing artwork by medium or subject.




Really though, it's a kind of Google Maps for Modern Art.

All the familiar interaction metaphors – panning, zooming, small overview map – are there. There are certain interaction ideas popular on the web that are ripe for application to new contexts.

Part of what we do is to extract patterns from multiple projects, so we've been working on Modest Maps, the BSD-licensed Flash mapping library that we've used in a majority of projects since 2007 or so.

Modest Maps was pulled out of research project Oakland Crimespotting…

Oakland Crimespotting is another recent project that demonstrates depth of interpretation through a variety of views on information.

This is the state of the art in mapping crime information for cities in the US. Maps are designed by programmers and not fully resident on the web.

Generally speaking, it's hard to link to things and hard to explore information laterally.

# “Native To A Web Of Data”

Tom Coates, 2006

http://www.plasticbag.org/files/native/

Crimespotting is heavily influenced by ideas from Tom Coates’s Native to a Web of Data.

“A web of data sources, services for exploring and manipulating data, and ways users can connect them together”

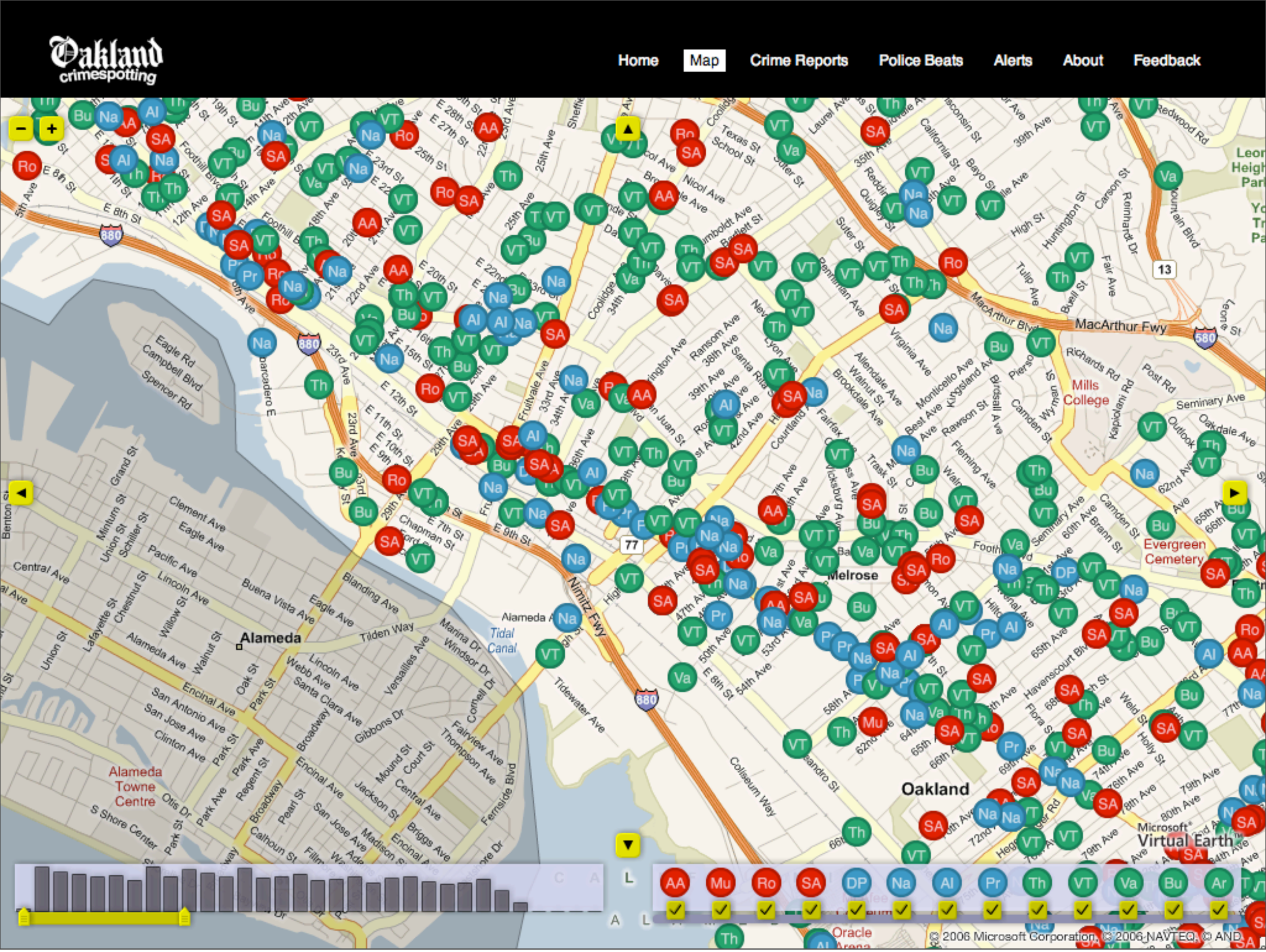
# “Designing Data For Reuse”

**Matt Biddulph, 2005**

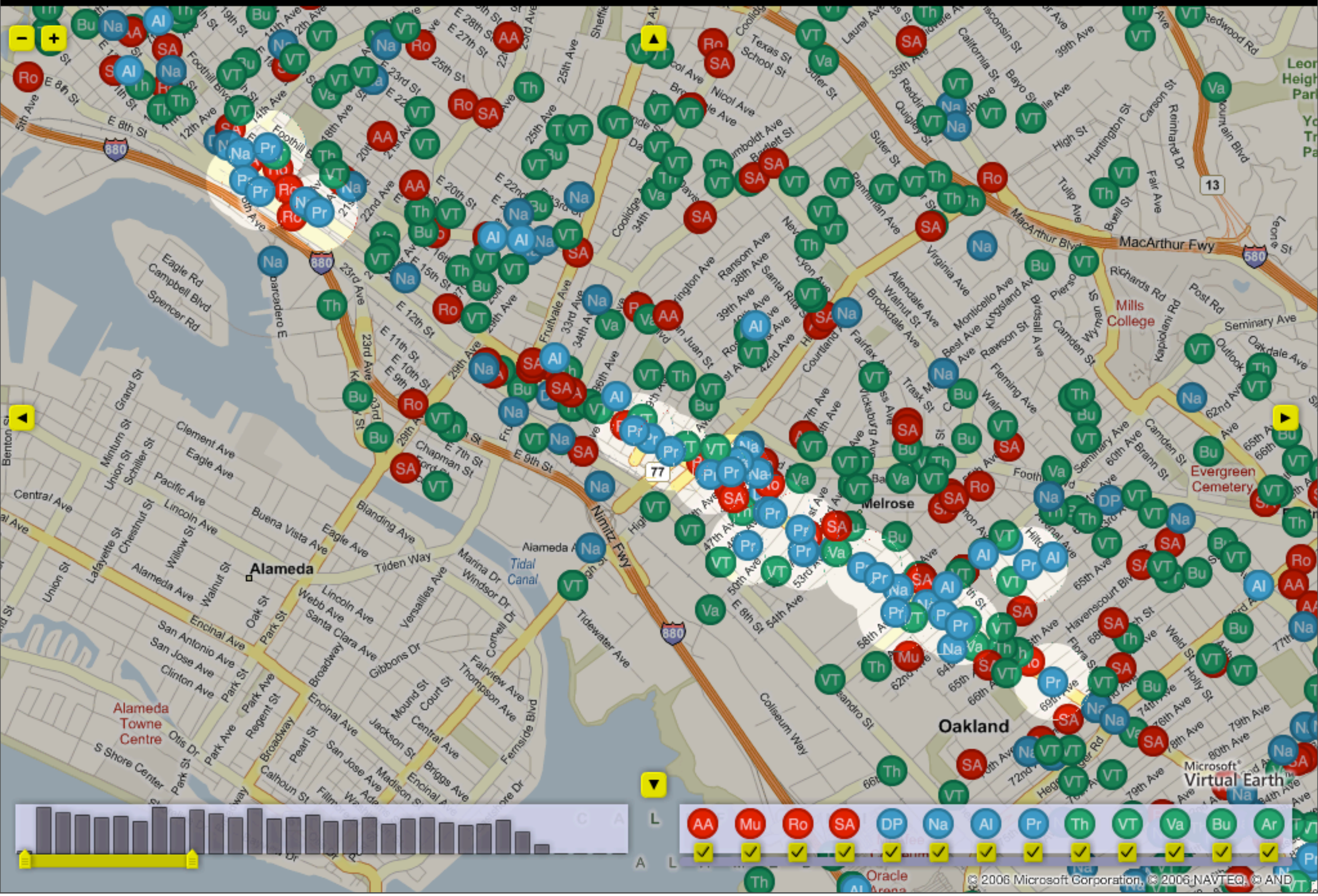
**http://www.hackdiary.com/slides/xtech2005/**

Another influential piece of writing in this space is from Dopplr CTO Matt Biddulph.

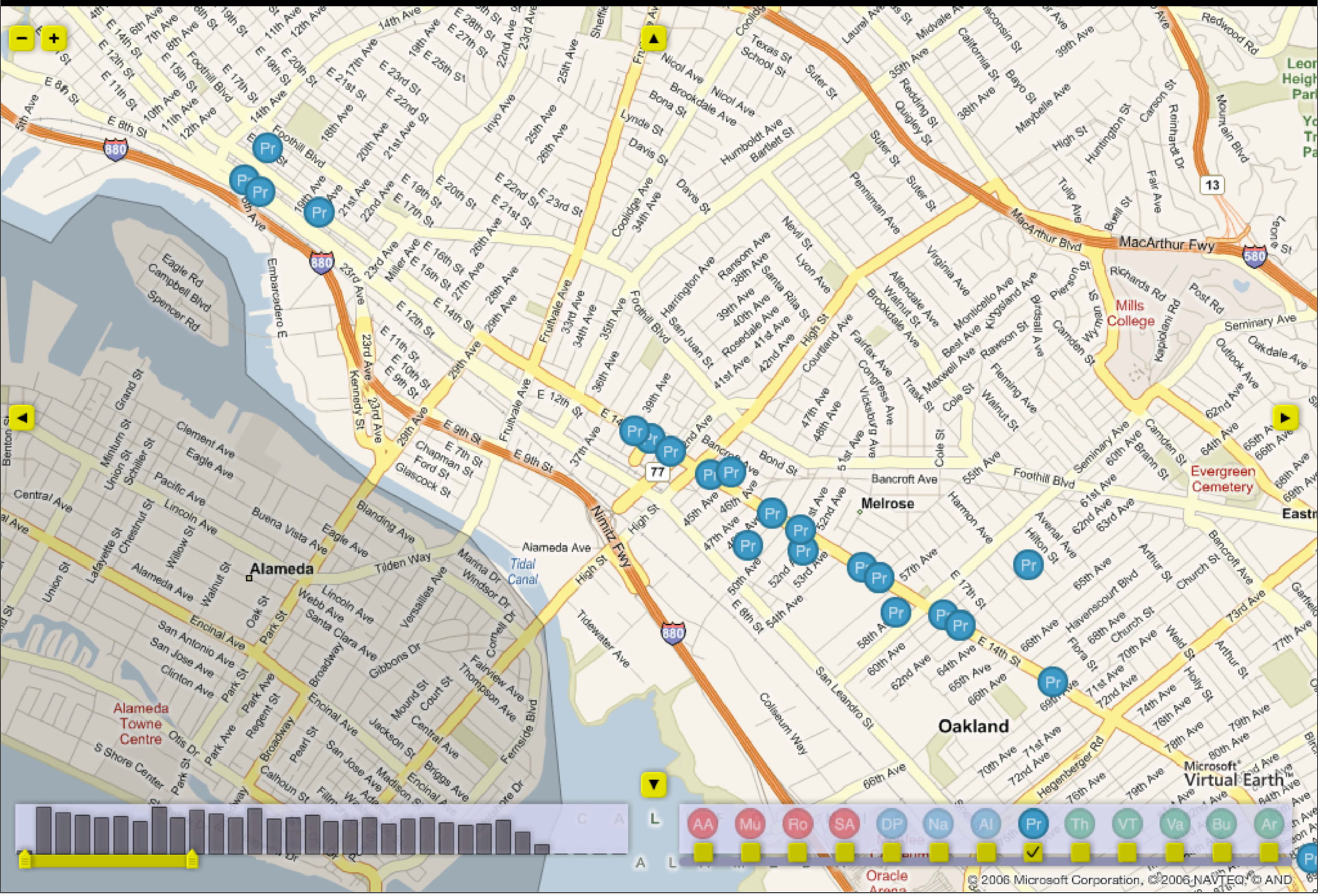
Matt describes a series of best practices around open data formats and permanent, guessable URL’s.




Crimespotting shows you a map *first* instead of faffing about with a wizard interface: “where are you, what crimes do you want to see,” etc.




Exploration of the data is direct: here we've moused over one prostitution report and shown how the remaining ones highlight.




Here we've hidden all the remaining reports.

These reports almost all happened on one day - prostitution in particular following this "sting" pattern.

# Murder

## Wednesday, Mar 5, 2008 5:48am

MURDER

Case Number 08-016924-003, Police Beat 06X.

3200 block of San Pablo Ave, Emeryville, CA 94608, USA

Scroll down to see related and nearby reports, or to leave a comment.

View an interactive map of this report.

### Related Reports

These reports are directly related to the one above, and may be part of the same incident

Aside from the map UI, Crimespotting helps push better geo data online in other ways.

First, there is a page for every individual crime report in the system.

This is the most basic building block of the site. Each one has a sensible URL that includes a map, connected reports, and nearby neighborhood information.

Oakland crimespotting

Report data last published by Oakland Police: **2 days ago**

Home | Map | Crime Reports | Police Beats | Alerts | About | Feedback

## 205 Reports Of Robbery

Showing 20 reports, **Thursday, Mar 13, 2008** through **Monday, Mar 17, 2008**.

Earlier reports of robbery

**3:30am**
**Monday, Mar 17, 2008**

CARJACKING WITH FIREARM (08-020179)

**1:00am**
**Monday, Mar 17, 2008**

ATTEMPTED ROBBERY-OTHER DANGEROUS WEAPON (08-020164)

**10:30pm**
**Sunday, Mar 16, 2008**

ROBBERY - STRONG ARM (HANDS, FISTS, FEET, ETC.) (08-020155)

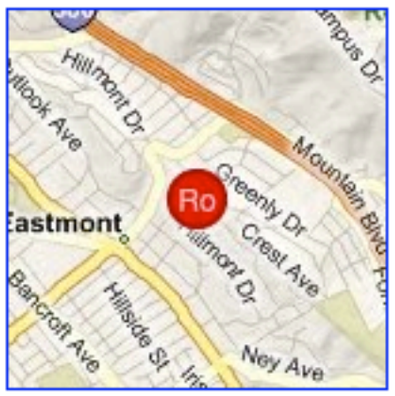
**12:00am**
**Sunday, Mar 16, 2008**

ROBBERY - STRONG ARM (HANDS, FISTS, FEET, ETC.) (08-020022)

**10:00pm**
**Saturday, Mar 15, 2008**

CARJACKING WITH FIREARM (08-019953-001)

**10:00pm**
**Saturday, Mar 15, 2008**

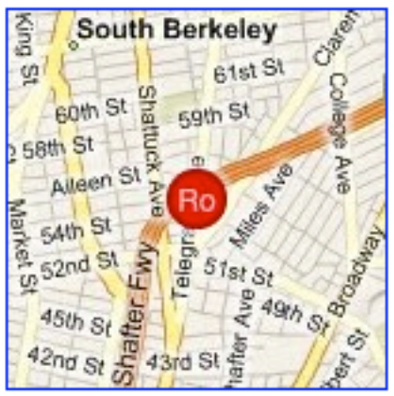



CARJACKING WITH FIREARM (08-019953)

**9:20pm**
**Saturday, Mar 15, 2008**

ROBBERY-FIREARM (08-019940)

**8:15pm**
**Saturday, Mar 15, 2008**




ROBBERY-FIREARM (08-019918)

Second, there are listing pages that show collections of reports: by day, by type of crime, by police beat.

crimespotting

# Police Beat 4X

Contact your officer for beat 4X.

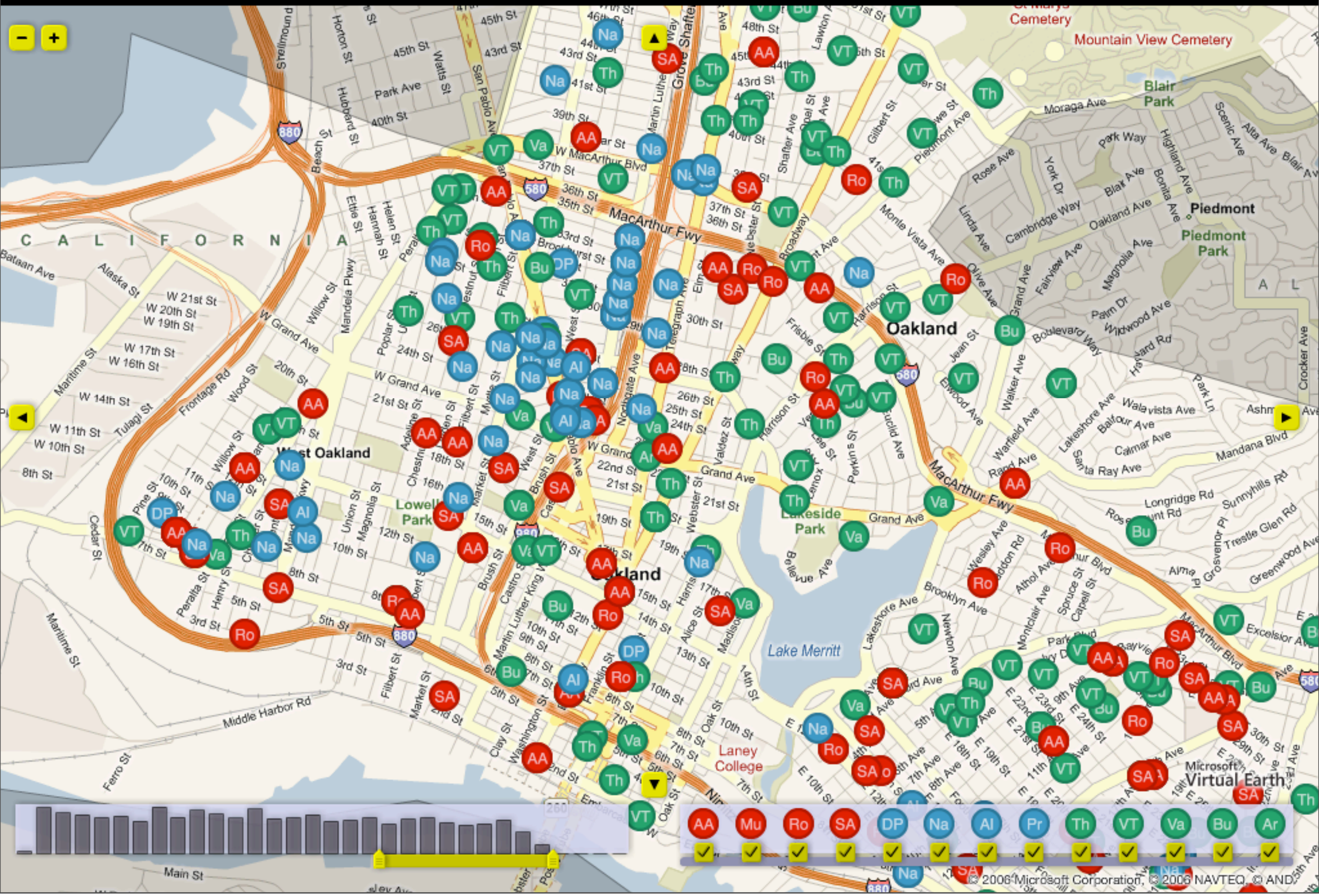
Downloadable spreadsheets and RSS feeds of reports from beat 4X are available below. Subscribe to feeds in your preferred feed reading software, or download spreadsheets for use in Microsoft Excel, OpenOffice Calc, Apple Numbers, and other spreadsheet programs.

News feed of reports in beat 4X

Spreadsheets of last week's reports / last month's reports in beat 4X.

## Reports in the Past Week

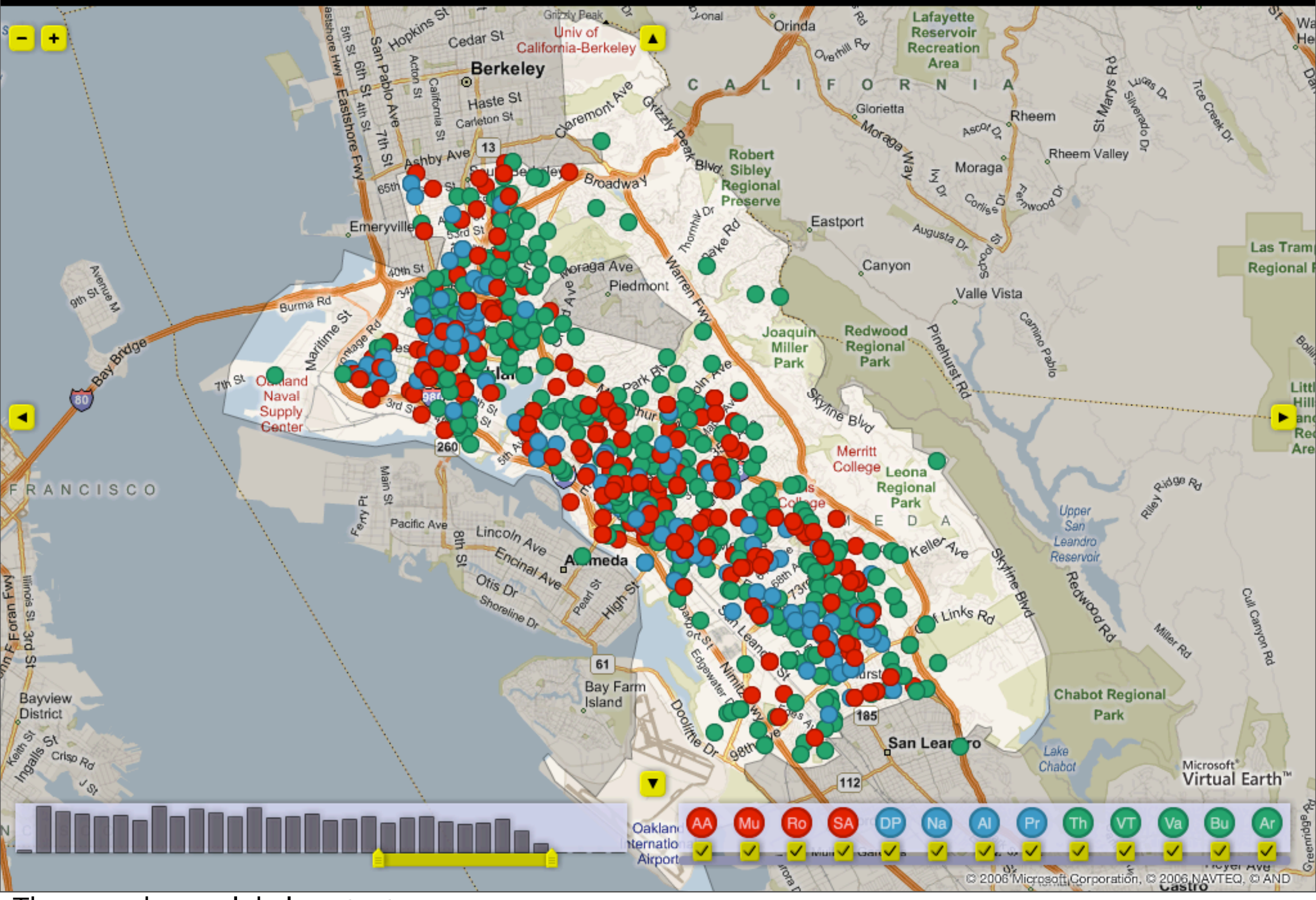
We're intentionally trying to stretch the definition of "API" here: the classic, Flickr-driven concept of an XML web service is definitely one Web 2.0 compliant way of looking at things, but Excel files and permanent URLs right there on the website is a broader concept that invites members of the non-geek public to join in. These have all been API-like "handles" that visitors can connect with.



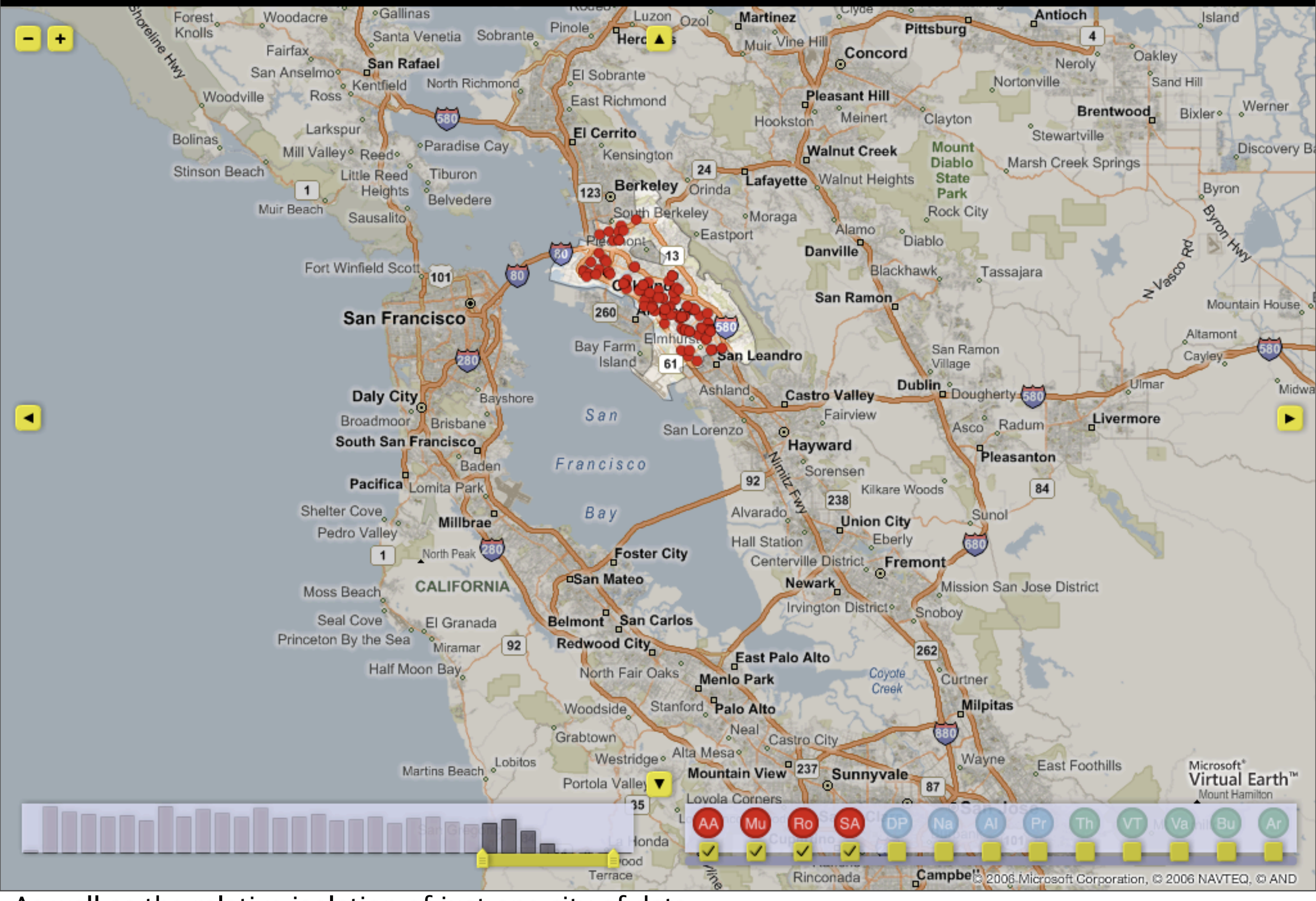

Third, everything is presented on a map.

Oakland crimespotting

Home | Map | Crime Reports | Police Beats | Alerts | About | Feedback




The map shows global context.




As well as the relative isolation of just one city of data.

# Two Directions

**Delivery is becoming standardized through basic techniques such as tiles, Cartography is seeing a rush of exploding diversity. This is normal.**

# Thank You

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