





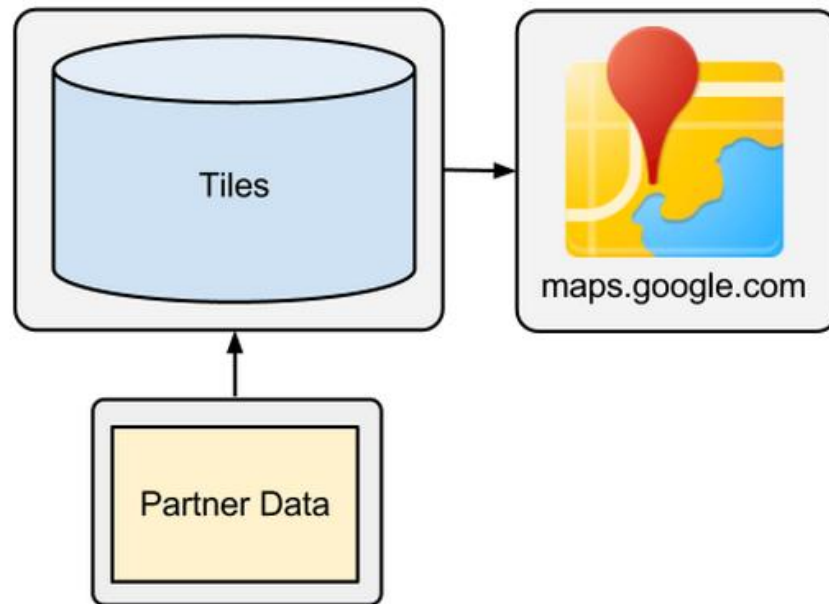
More Than Just a Map

Google Maps API

Josh Livni - Maps Developer Relations

Nabil Naghdy - Maps API Product Manager

Maps Architecture - 2005



The First Mashup

For Rent [For Sale](#) [Rooms](#) [Sublets](#)

City: *** Choose a city *** ▾

Price: \$1500 - \$2000 ▾

[Show Filters](#) ^{New} [Refresh](#)





Powered by [craigslist](#) and [Google Maps](#)
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Drag the map with your mouse, or double-click to center.

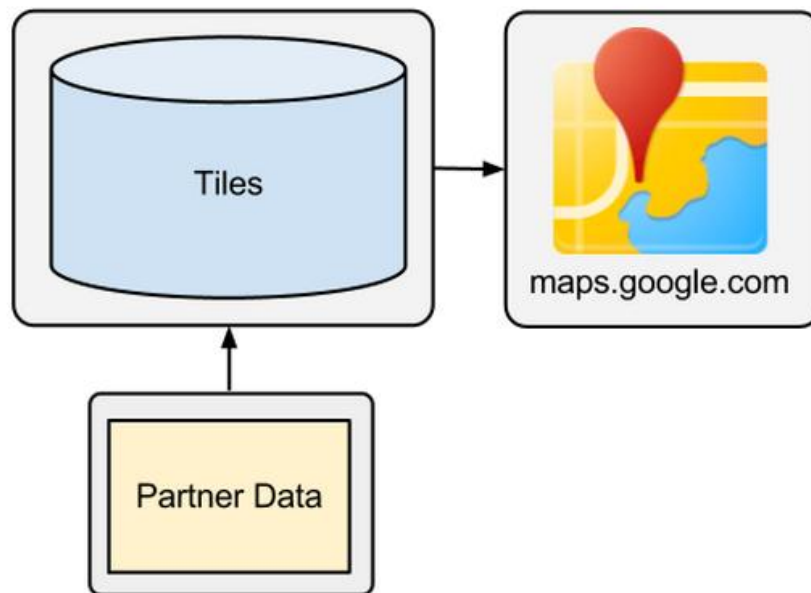
Click on an  icon to select a city.

In each city, click on the  and  icons to see listings.
You can also click the  and  icons next to each listing.

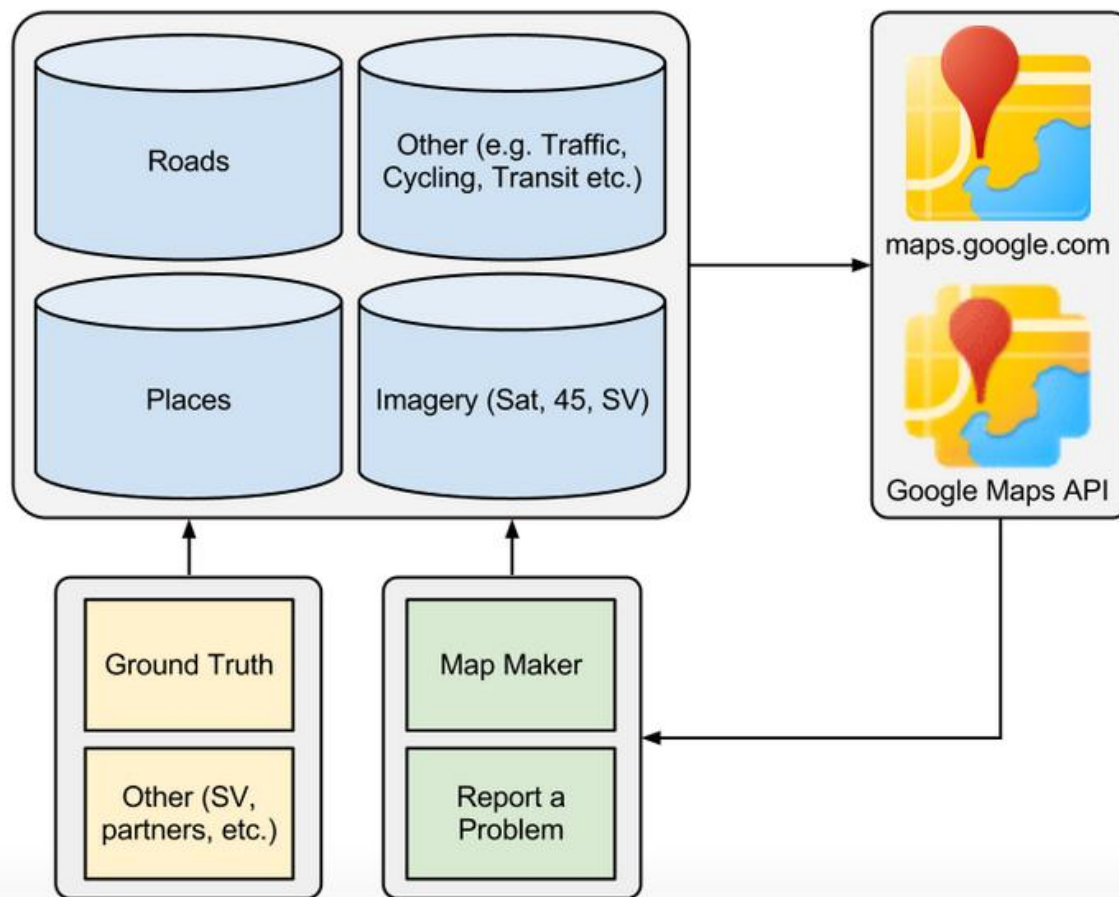
Yellow icons have pictures.

Set the price range using the drop-down menu above.

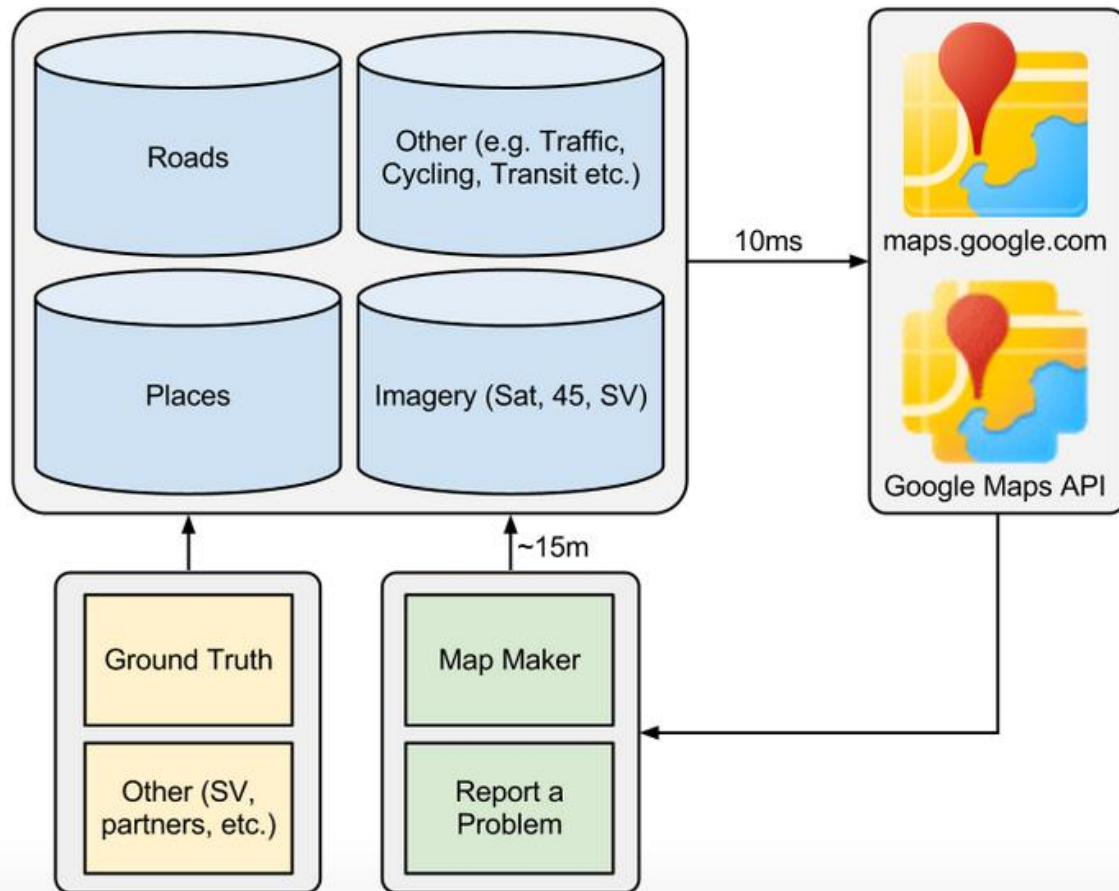
Maps Architecture - 2005



Maps Architecture - 2012



Maps Architecture - 2012



Store Locator Library for Maps API

This library enables developers to easily build store locator-type applications using the Google Maps API.

The library provides the following features:

- Pluggable data source – display stores from a data source of your choosing
- HTML5 Geolocation – determines a good initial viewport for the user
- Info window – shows details about a store
- Street View
- Extensible – customise your own markers, info windows, etc.
- Fully-featured side panel, providing:
 - Feature filtering
 - Autocomplete search
 - List of nearby stores
 - Directions

Examples/Demos

The best way to become acquainted with the library is to see some of the examples:

1. [panel.html](#) – A simple store locator, including panel. Data is fetched from a static CSV file.
2. [dynamic.html](#) – Same as above, except stores are fetched dynamically from a Google App Engine app.
3. [custom.html](#) – Various customisations to the default UI including custom markers and info window.
4. [places.html](#) – Places are searched using the Google Places API, and displayed as a store locator.

House Locator

Where are you?

Enter a location

☐ Fireplace

2029 W Mercer Way (\$375000)

210 35th Ave E (\$750000)

2440 61st Ave SE (\$773700)

311 33rd Ave E (\$581060)

1108 McGilvra Blvd E (\$330000)

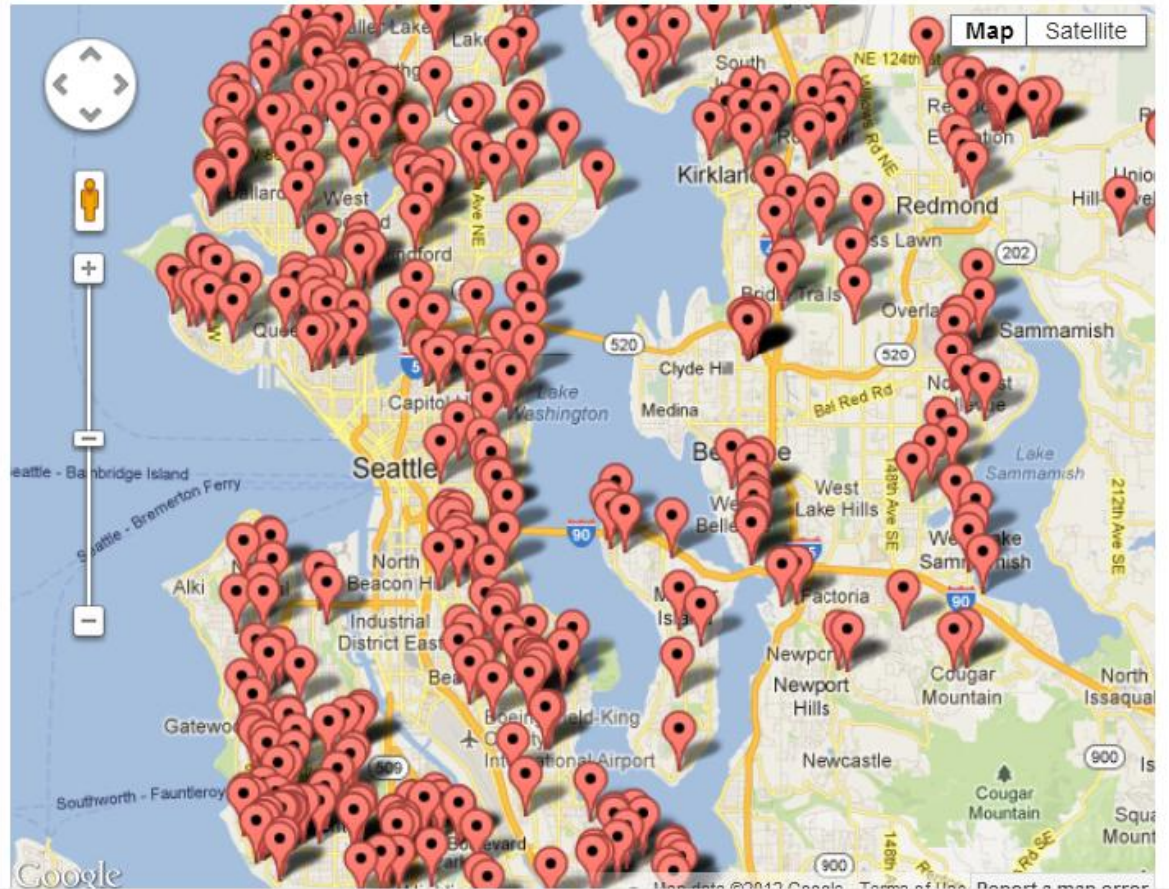
6204 SE 28th St (\$396550)

1422 27th Ave (\$397000)

315 29th Ave S (\$735000)

2517 E Alder St (\$350000)

7002 SE 29th St (\$370000)



Easy Setup - Code

JAVASCRIPT

```
var dataFeed = new storeLocator.StaticDataFeed();
jQuery.get('houses.json', function(houses) {
    //create list of StoreLocator.Store objects for each house
    dataFeed.setStores(houses);
});

var view = new storeLocator.View(map, dataFeed, {
    geolocation: false,
    features: data.getFeatures()
});

var panelDiv = document.getElementById('panel');
new storeLocator.Panel(panelDiv, {
    view: view
});
```

Custom Icons

Where are you?

Enter a location

☐ Fireplace

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2440 61st Ave SE (\$773700)

311 33rd Ave E (\$581060)

1108 McGilvra Blvd E (\$330000)

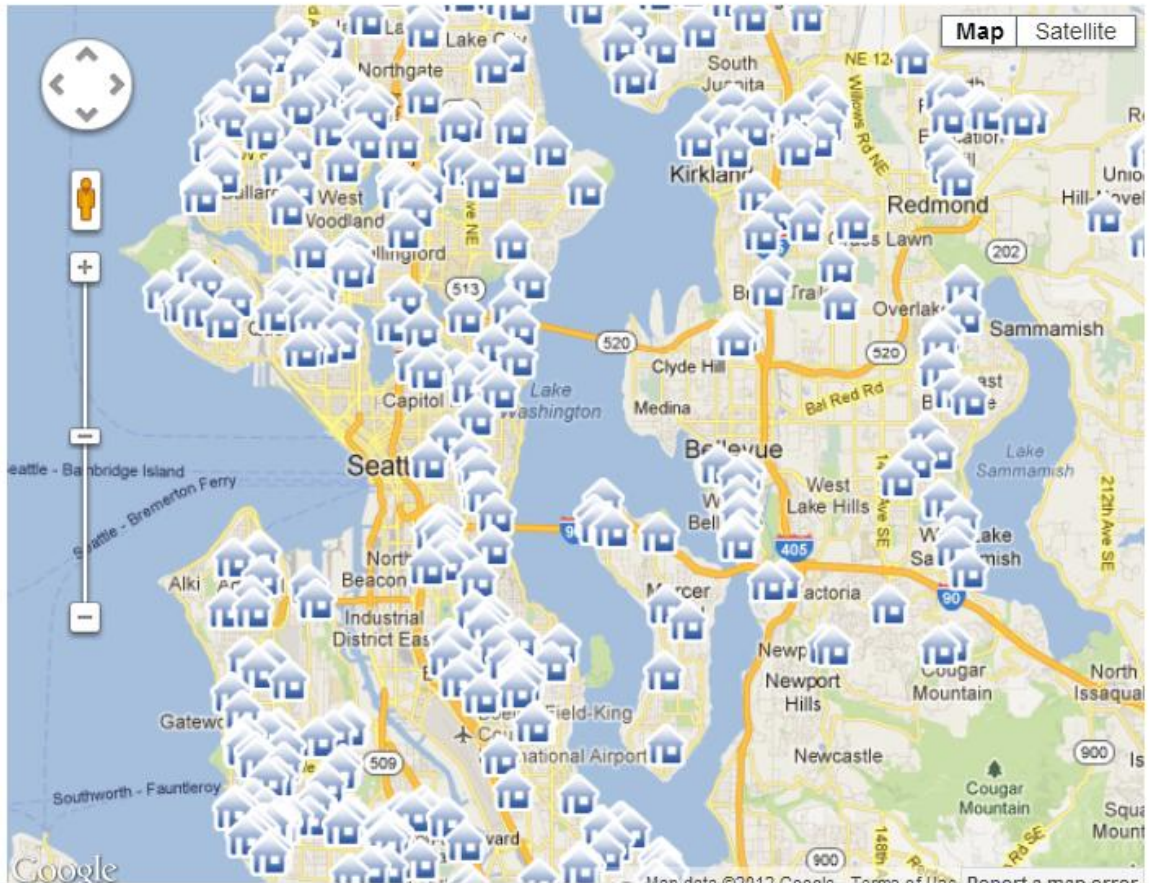
6204 SE 28th St (\$396550)

1422 27th Ave (\$397000)

315 29th Ave S (\$735000)

2517 E Alder St (\$350000)

7002 SE 29th St (\$370000)



Custom Icons - Code

JAVASCRIPT

```
var ICON1 = 'images/house.png'
var ICON2 = new google.maps.MarkerImage(
    'house.png', null, null, new google.maps.Point(14, 13));

var ICON3 = {
  path: google.maps.SymbolPath.CIRCLE,
  scale: 10
};

view.createMarker = function(store) {
  var markerOptions = {
    position: store.getLocation(),
    icon: ICON1,
    title: store.getDetails().title
  };
  return new google.maps.Marker(markerOptions);
}
```


Base Map

Where are you?

Enter a location

☐ Fireplace

1428 1st Ave N (\$325000)

1522 Bigelow Ave N (\$346500)

312 W Lee St (\$695000)

511 W Lee St (\$715000)

2110 Bigelow Ave N (\$370000)

2222 1st Ave W (\$725000)

921 10th Ave E (\$330000)

921 10th Ave E (\$545000)

2441 Queen Anne Ave N (\$350000)

60 E Boston St (\$350000)



#io12

Base Map

Where are you?

Enter a location

☐ Fireplace

1428 1st Ave N (\$325000)

1522 Bigelow Ave N (\$346500)

312 W Lee St (\$695000)

511 W Lee St (\$715000)

2110 Bigelow Ave N (\$370000)

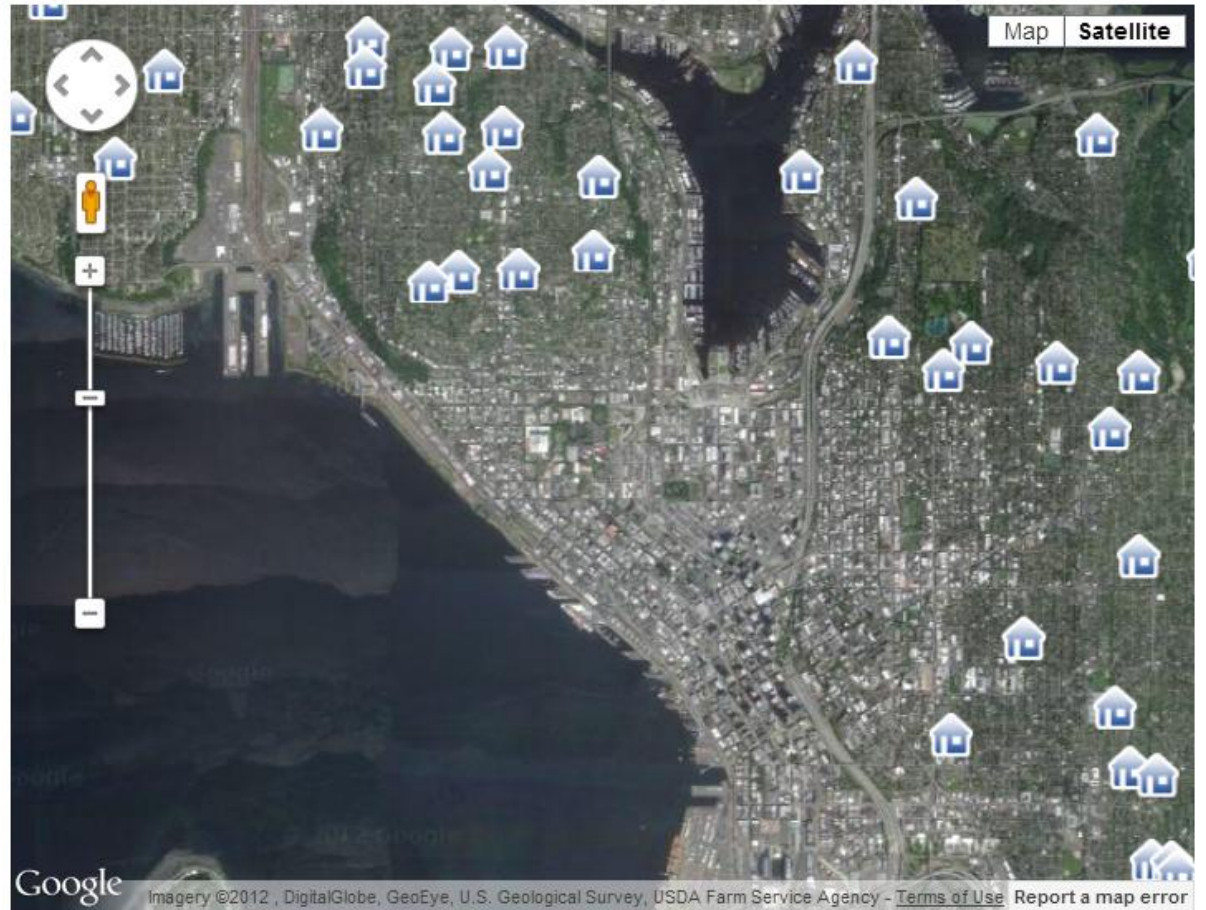
2222 1st Ave W (\$725000)

921 10th Ave E (\$330000)

921 10th Ave E (\$545000)

2441 Queen Anne Ave N (\$350000)

60 E Boston St (\$350000)



Base Map - Code

JAVASCRIPT

```
map.set('mapTypeId', google.maps.MapTypeId.SATELLITE)
      //ROADMAP
      //TERRAIN
      //SATELLITE
      //HYBRID

//valid when in satellite mode, and if map.getTilt() == 45;
map.setHeading(90);
```


Layers

Where are you?

Enter a location

☐ Fireplace

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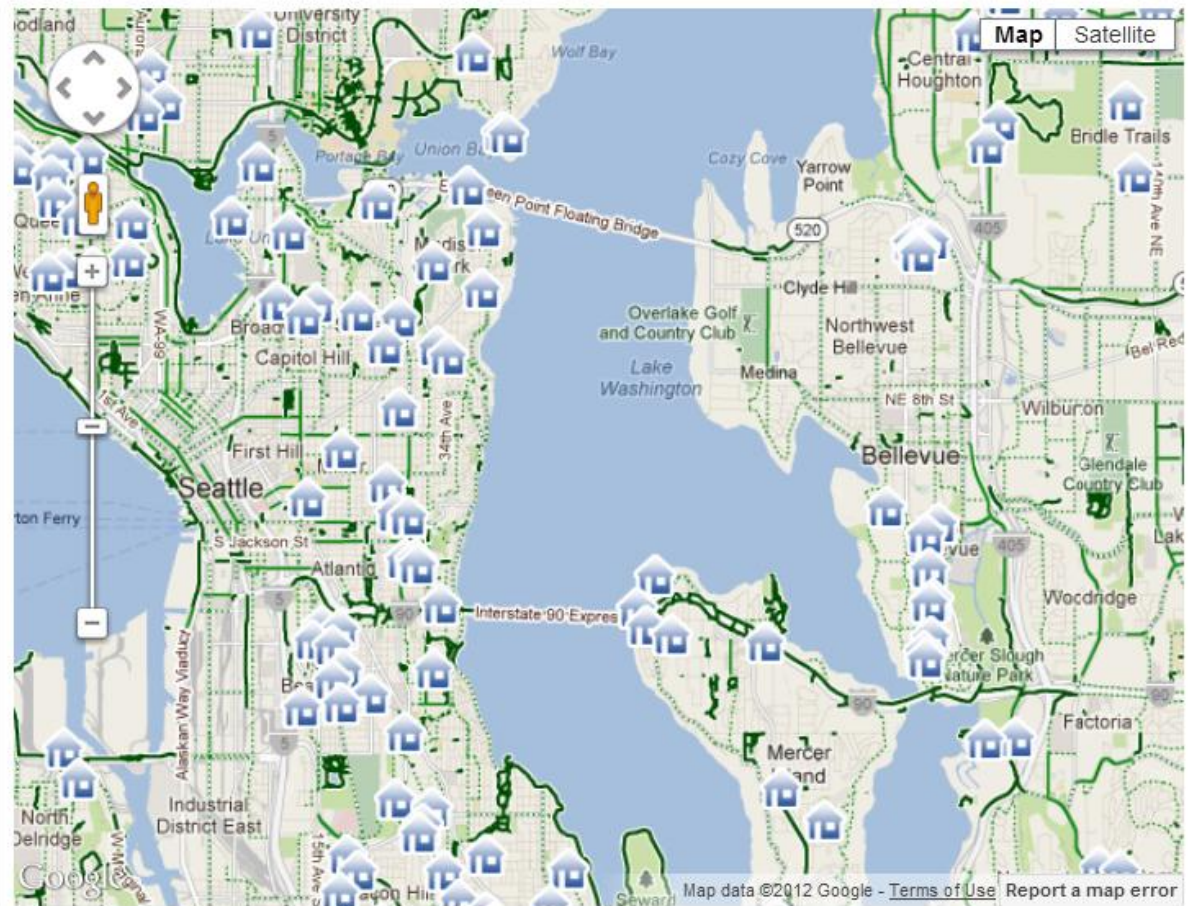
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1422 27th Ave (\$397000)

315 29th Ave S (\$735000)

2517 E Alder St (\$350000)

7002 SE 29th St (\$370000)



Layers - Code

JAVASCRIPT

```
var bikeLayer = new google.maps.BicyclingLayer();  
bikeLayer.setMap(map);  
  
//TransitLayer();  
//TrafficLayer();  
//WeatherLayer();  
  
var panoramioLayer = new google.maps.PanoramioLayer();  
panoramioLayer.setTag('bridges');
```


Custom Styles

Where are you?

Enter a location

☐ Fireplace

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2440 61st Ave SE (\$773700)

311 33rd Ave E (\$581060)

1108 McGilvra Blvd E (\$330000)

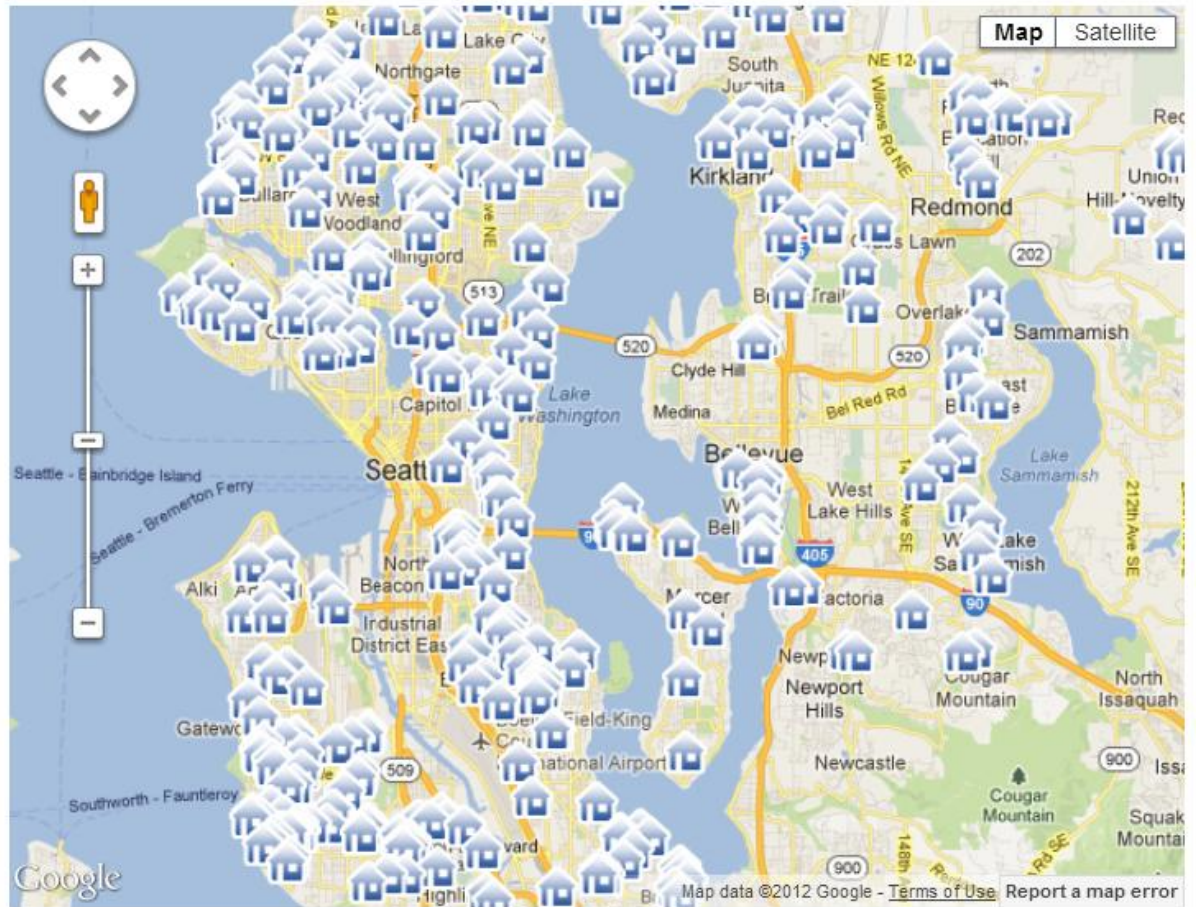
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315 29th Ave S (\$735000)

2517 E Alder St (\$350000)

7002 SE 29th St (\$370000)



Custom Styles - Code

JAVASCRIPT

```
var fadedStyles = [  
  {  
    featureType: "all",  
    stylers: [  
      { saturation: -80 }  
    ]  
  }  
];  
  
map.setOptions({styles: fadedStyles});
```

Direction - Code

JAVASCRIPT

```
var request = {  
  origin:start,  
  destination:end,  
  travelMode: google.maps.DirectionsTravelMode.TRANSIT  
};  
  
directionsService.route(request, function(response, status) {  
  if (status == google.maps.DirectionsStatus.OK) {  
    directionsDisplay.setDirections(response);  
  }  
});
```

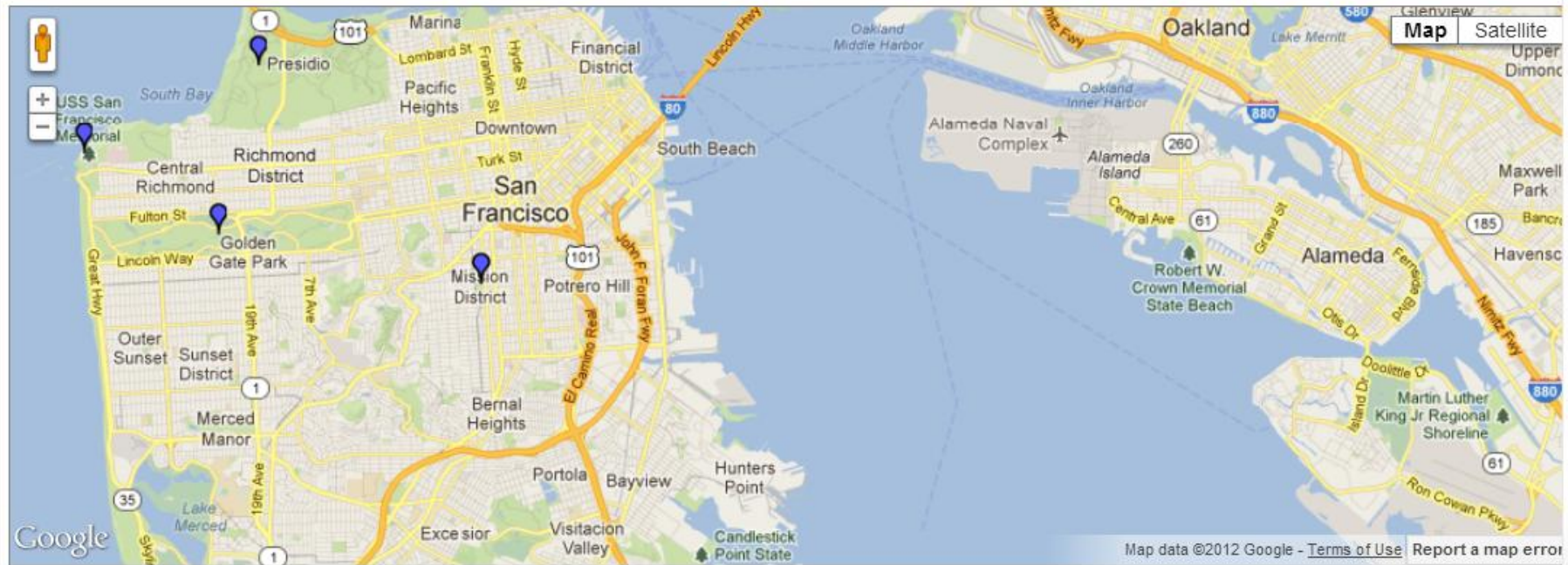
Direction - Web Service

JAVASCRIPT

```
//snip
"travel_mode" : "TRANSIT",
"html_instructions" : "Bus towards Ocean Beach",
"transit_details" : {
  "num_stops" : 32,
  //snip arrival stop
  "arrival_time" : {
    "text" : "1:26pm",
    "time_zone" : "America/Los_Angeles",
    "value" : 1340828810
  },
  "headsign" : "Ocean Beach",
  "line" : {
    "agencies" : //snip
    "name" : "Fulton",
    "short_name" : "5",
    "vehicle" : {
      "icon" : "http://maps.gstatic.com/mapfiles/transit/iw/6/bus.png",
      "name" : "Bus",
      "type" : "BUS"
    }
  }
}
```


Distance Matrix

driving ▼	Golden Gate Park	Dolores Park	San Bruno Mountain State Park	Presidio Park	Lincoln Park
Enter a location					
Enter a location					



Distance Matrix - Code

JAVASCRIPT

```
var workplace = 'Google Inc., San Francisco'
var house1 = 'Moscone Center, San Francisco'
var house2 = new google.maps.LatLng(37.5,-122.5)

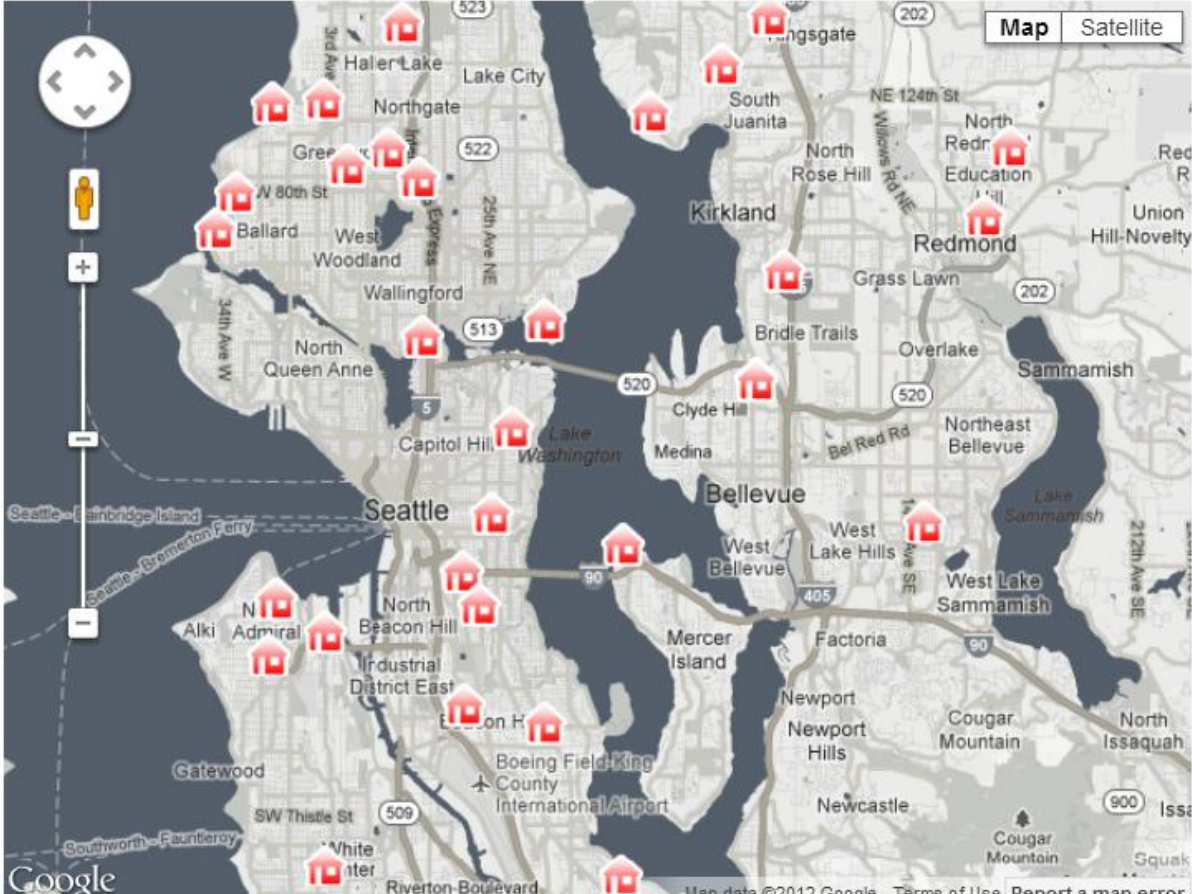
var service = new google.maps.DistanceMatrixService();
service.getDistanceMatrix( {
  origins: [workplace],
  destinations: [house1, house2],
  travelMode: google.maps.TravelMode.DRIVING,
}, callback);

function callback(response, status) {
  //all results in a single row
  distances = response.rows[0].elements;
  // ...
}
```

Optimized Directions

☐ Optimize ☐ Avoid Tolls

- ☐ 10402 Waters Ave S (\$530000)
- ☐ 13039 Corliss Ave N (\$385000)
- ☐ 2102 SW 104th St (\$505800)
- ☐ 6009 35th Ave NW (\$750000)
- ☐ 8075 171st Ave NE (\$620000)
- ☐ 2831 NW 73rd St (\$350000)
- ☐ 6100 114th Ave NE (\$818000)
- ☐ 354 N 82nd St (\$340000)
- ☐ 7802 NE 112th St (\$640000)
- ☐ 8803 Wallingford Ave N (\$392000)
- ☐ 17805 NE 104th Way (\$725000)



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Optimized Directions - Code

JAVASCRIPT

```
var directionsService = new google.maps.DirectionsService();
```

```
var start = 'Moscone Center, San Francisco';
```

```
var end = 'Google Inc, San Francisco';
```

```
function calcRoute() {
```

```
  var request = {
```

```
    origin: start,
```

```
    destination: end,
```

```
    travelMode: google.maps.TravelMode.DRIVING,
```

```
    optimizeWaypoints: true,
```

```
    avoidTolls: true
```

```
  };
```

```
  directionsService.route(request, function(result, status) {
```

```
    // ...
```

```
  });
```

```
}
```


Places

Walking ▾

☒ Schools ☐ Lawyer ☐ Gym ☐ Park
☐ Museum ☐ Vet ☐ Cafe ☐ Bar

10402 Waters Ave S (\$530000)

13039 Corliss Ave N (\$385000)

2102 SW 104th St (\$505800)

6009 35th Ave NW (\$750000)

8075 171st Ave NE (\$620000)

2831 NW 73rd St (\$350000)

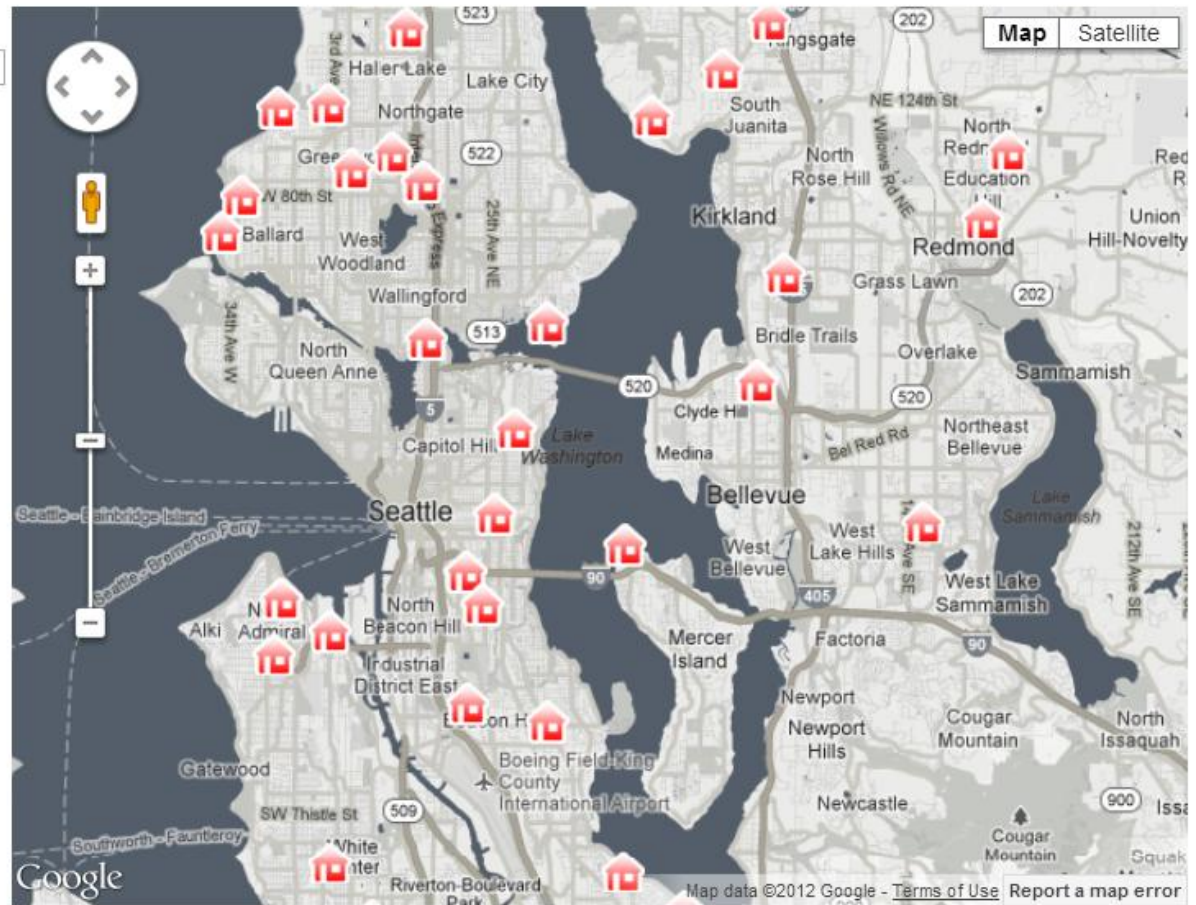
6100 114th Ave NE (\$818000)

354 N 82nd St (\$340000)

7802 NE 112th St (\$640000)

8803 Wallingford Ave N (\$392000)

17805 NE 104th Way (\$725000)



Places: Tips

- Quick check on local density
- Keyword filtering includes description, reviews
- Ordering by distance vs prominence
- Other services can combine to add value to places
- Don't miss the next session

Elevation

JAVASCRIPT

```
var elevator = new google.maps.ElevationService();  
// set up elevation req  
var pathRequest = {  
  'path': route.overview_path,  
  'samples': 500  
}  
// Initiate the path request.  
elevator.getElevationAlongPath(pathRequest, displayElevation);  
  
function displayElevation(results){  
  for (var i = 0; i < results.length; ++i) {  
    var height = results[i].elevation;  
    // create symbols along polyline  
  }  
}
```

Bring the 3D

☐ Optimize

Enter a location

☐ 10402 Waters Ave S (\$530000)

☐ 13039 Corliss Ave N (\$385000)

☐ 2102 SW 104th St (\$505800)

☐ 6009 35th Ave NW (\$750000)

☐ 8075 171st Ave NE (\$620000)

☐ 2831 NW 73rd St (\$350000)

☐ 6400 144th Ave NE (\$340000)

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<Thank You!>

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Nabil Naghdy - Maps API Product Manager

