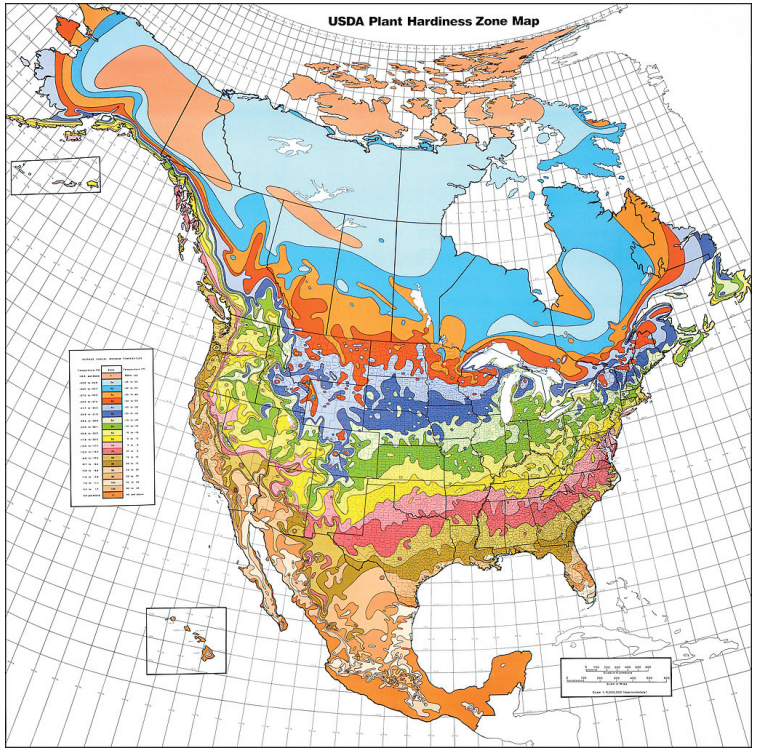
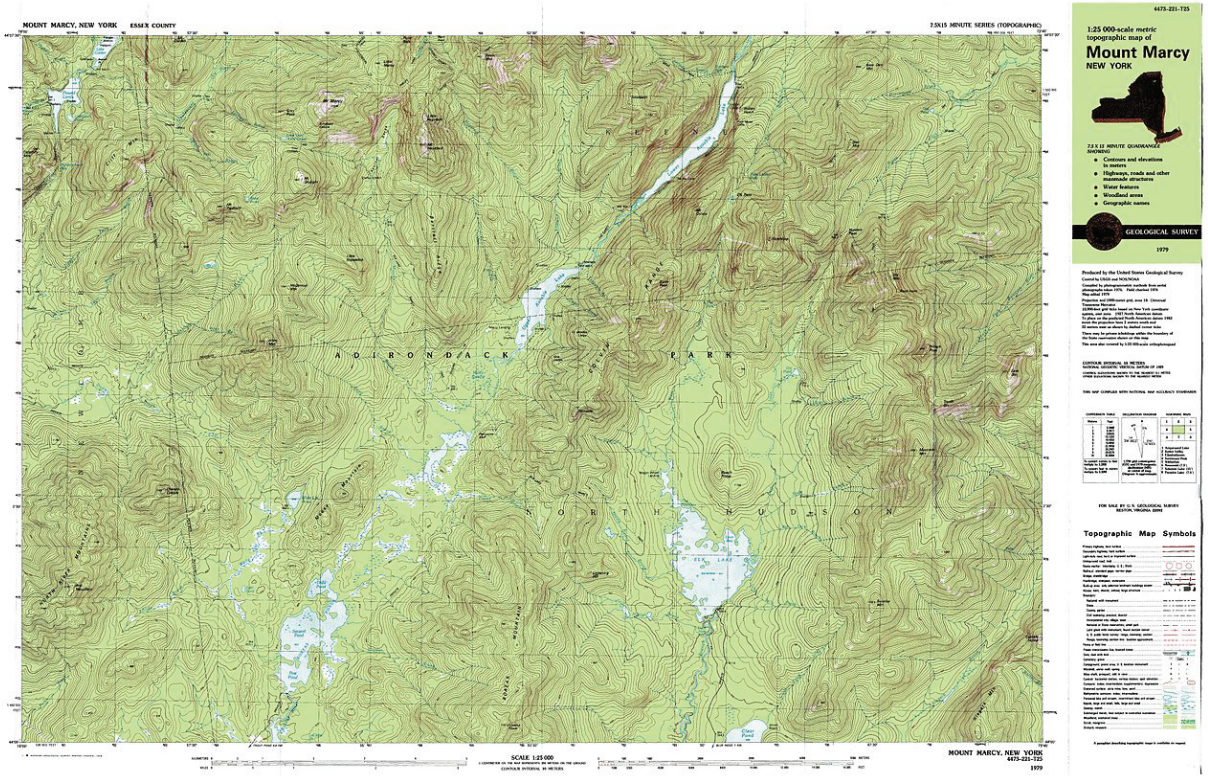
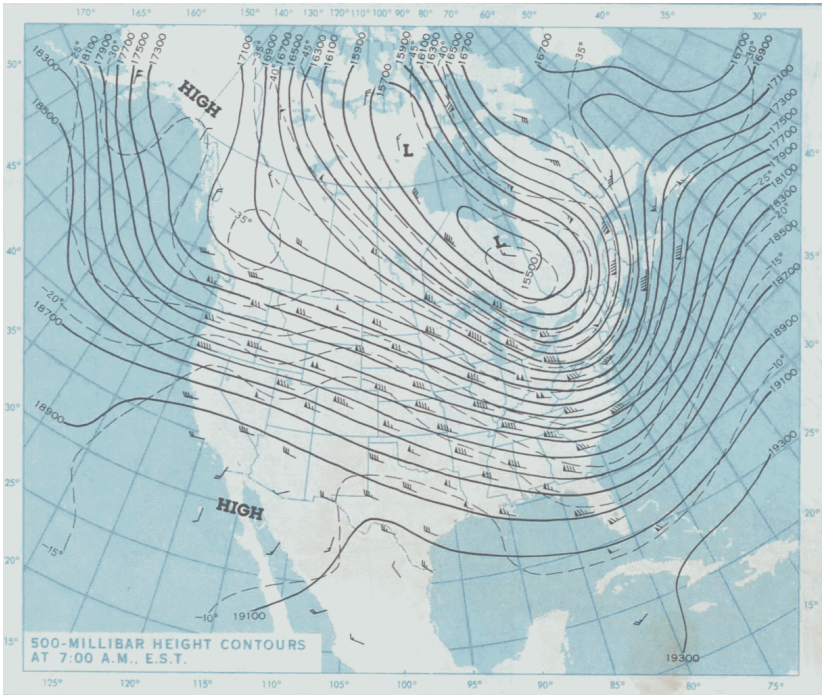
DORKSHOP:
CARTOGRAPHIC DESIGN

@chrislhenrick
chrishenrick.com
chrishenrick@gmail.com

http://youtu.be/tj7RlQdF25A


USDA Plant Hardiness Zone Map


MOUNT MARCY, NEW YORK
ESSEX COUNTY
7.5X15 MINUTE SERIES (TOPOGRAPHIC)
1:25 000-scale metric topographic map of
Mount Marcy
NEW YORK
GEOLOGICAL SURVEY
1979
ADIRONDACK PARK
NORTH HUDSON
Topographic Map Symbols
SCALE 1:25 000
MOUNT MARCY, NEW YORK
1979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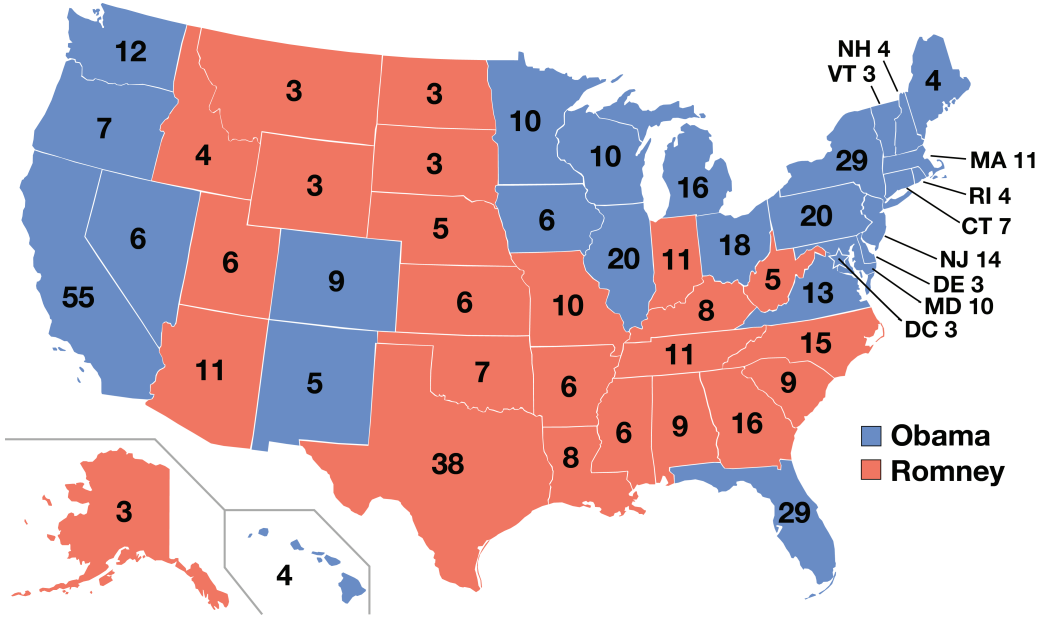
500-MILLIBAR HEIGHT CONTOURS
AT 7:00 A.M., E.S.T.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NH 4
VT 3
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MA 11
RI 4
CT 7
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DE 3
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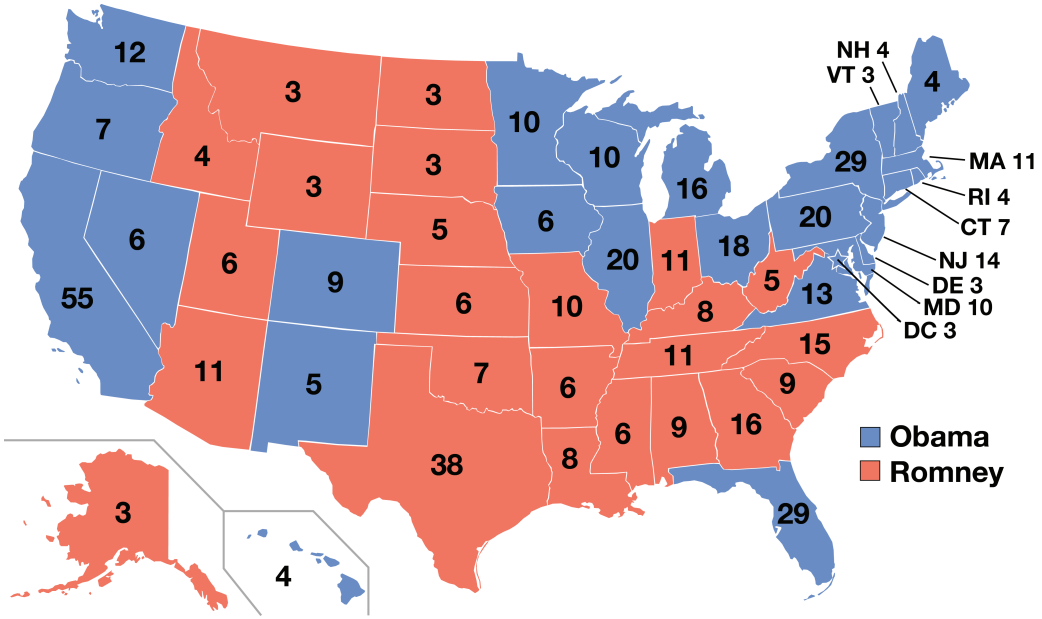
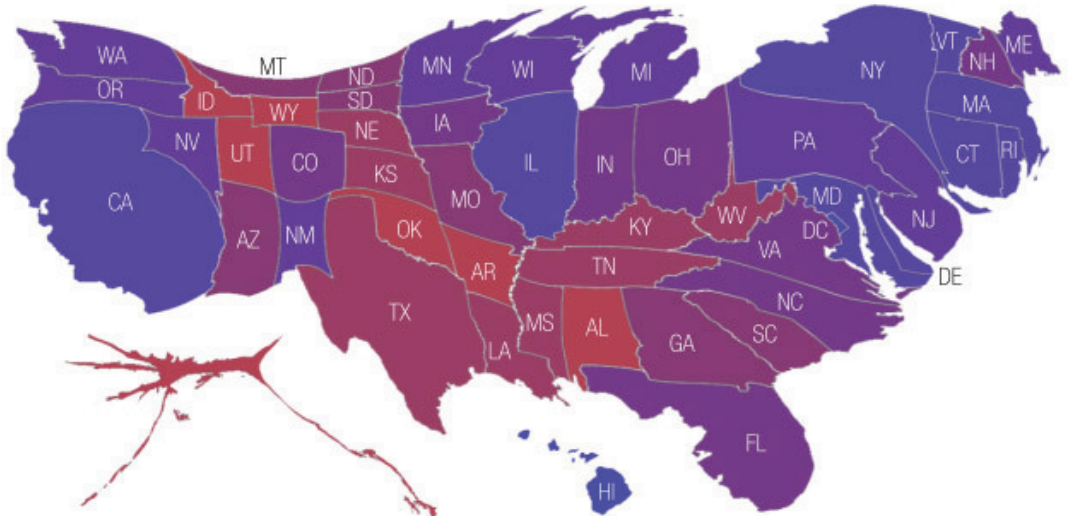
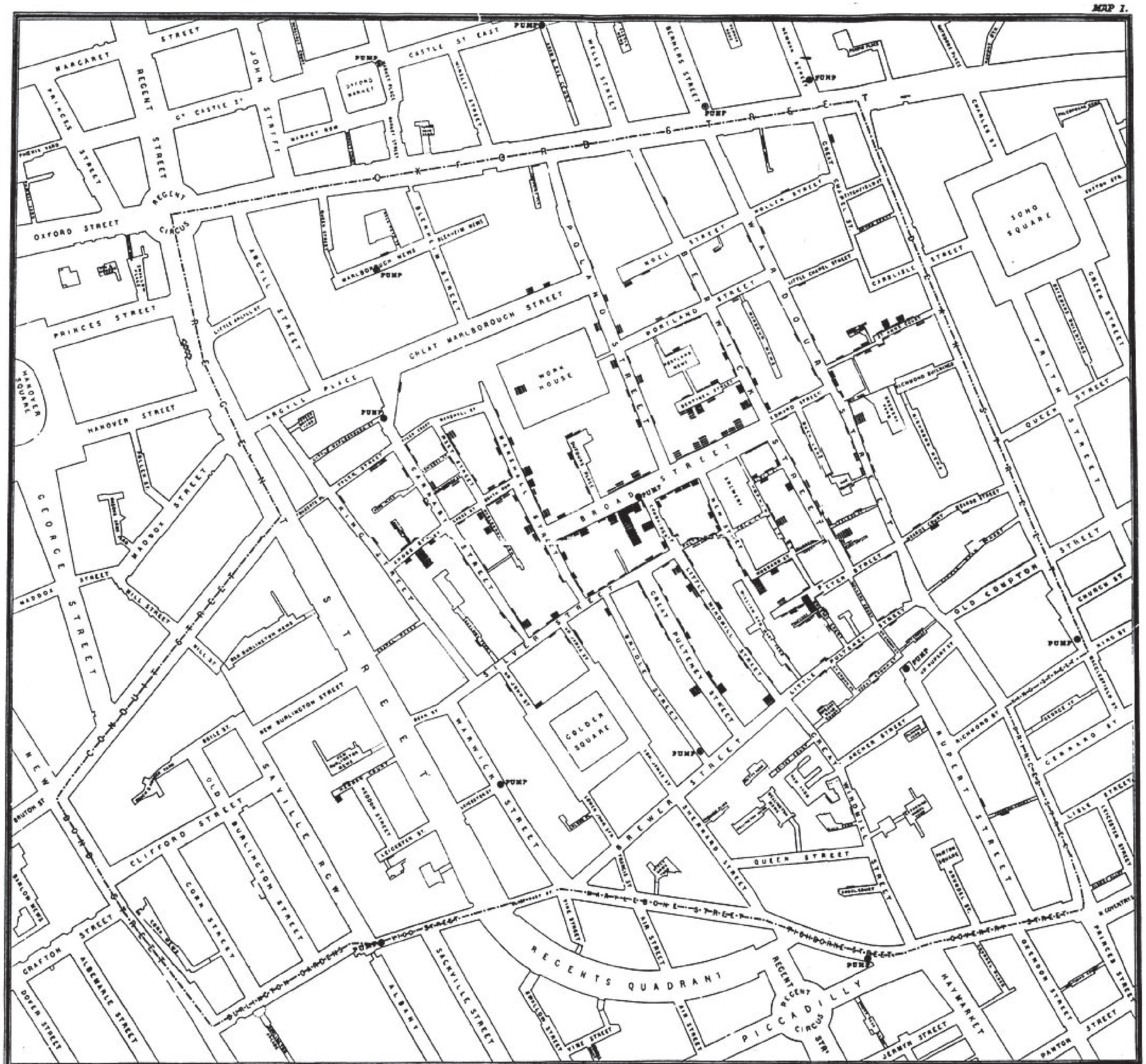
Obama
Romney



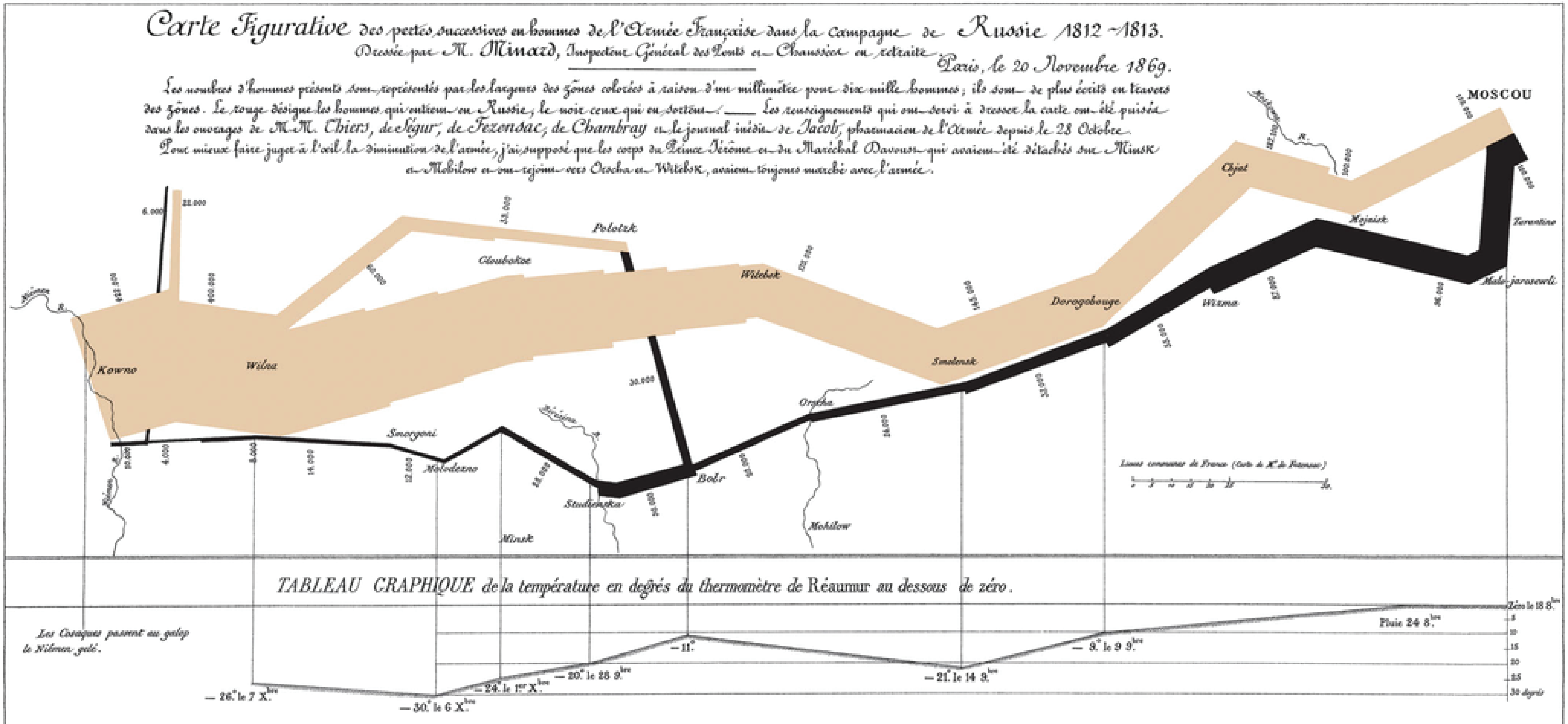
Electoral Votes





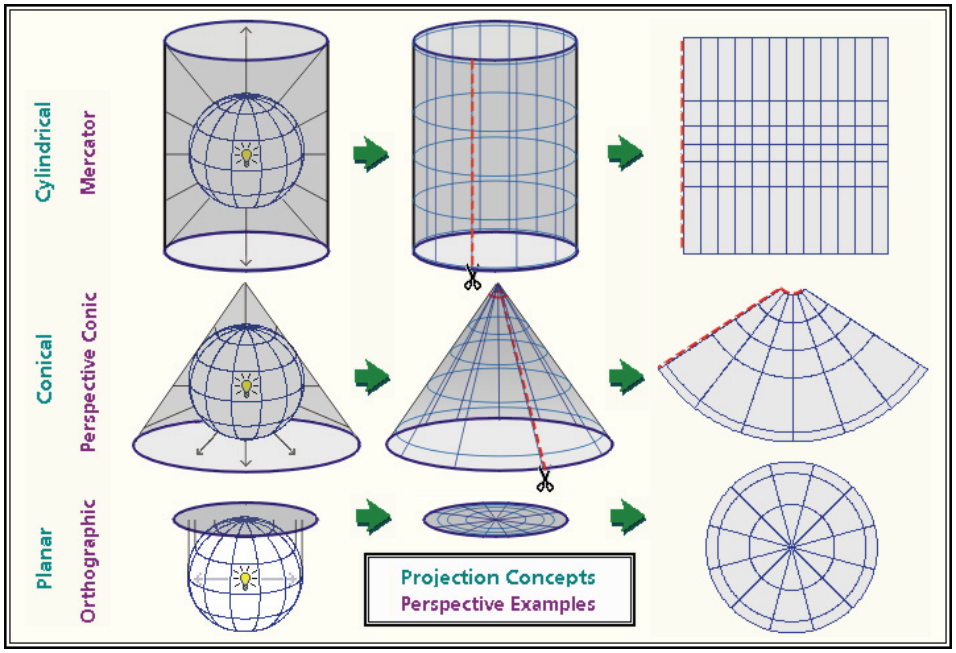
C.F. Cheffins, Lith, Southampton B^dgs London

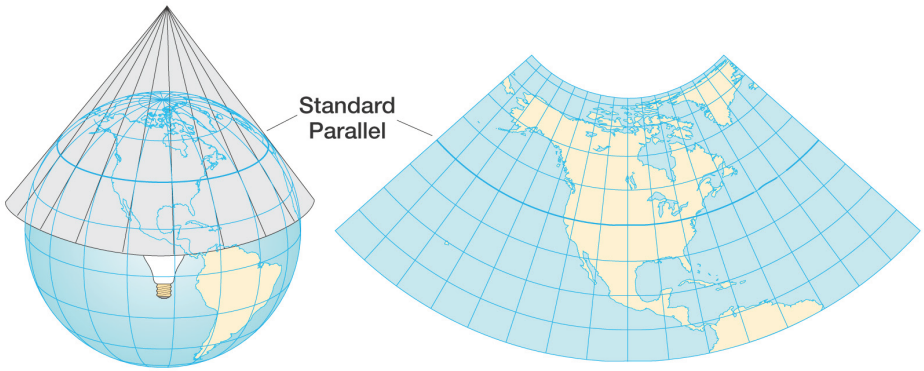
SCALE 30 INCHES TO A MILE.

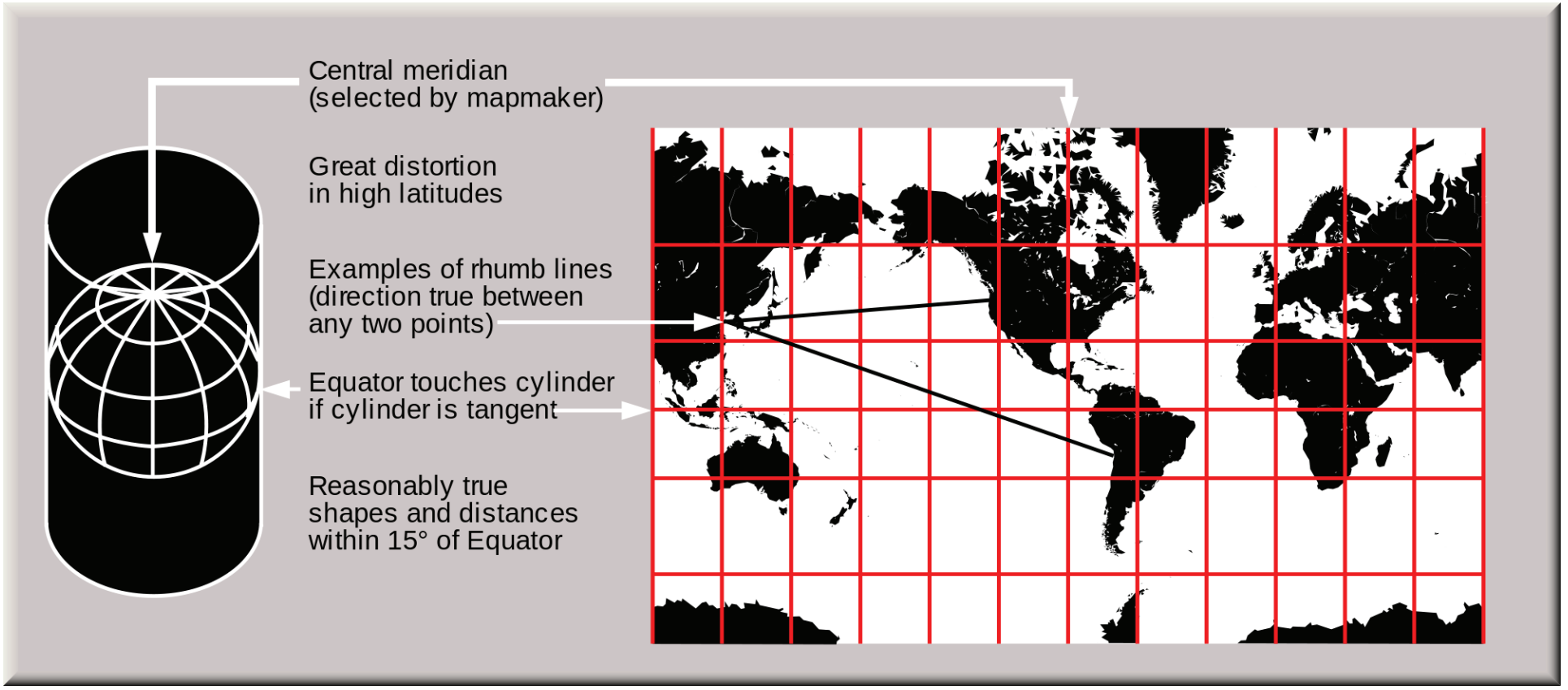


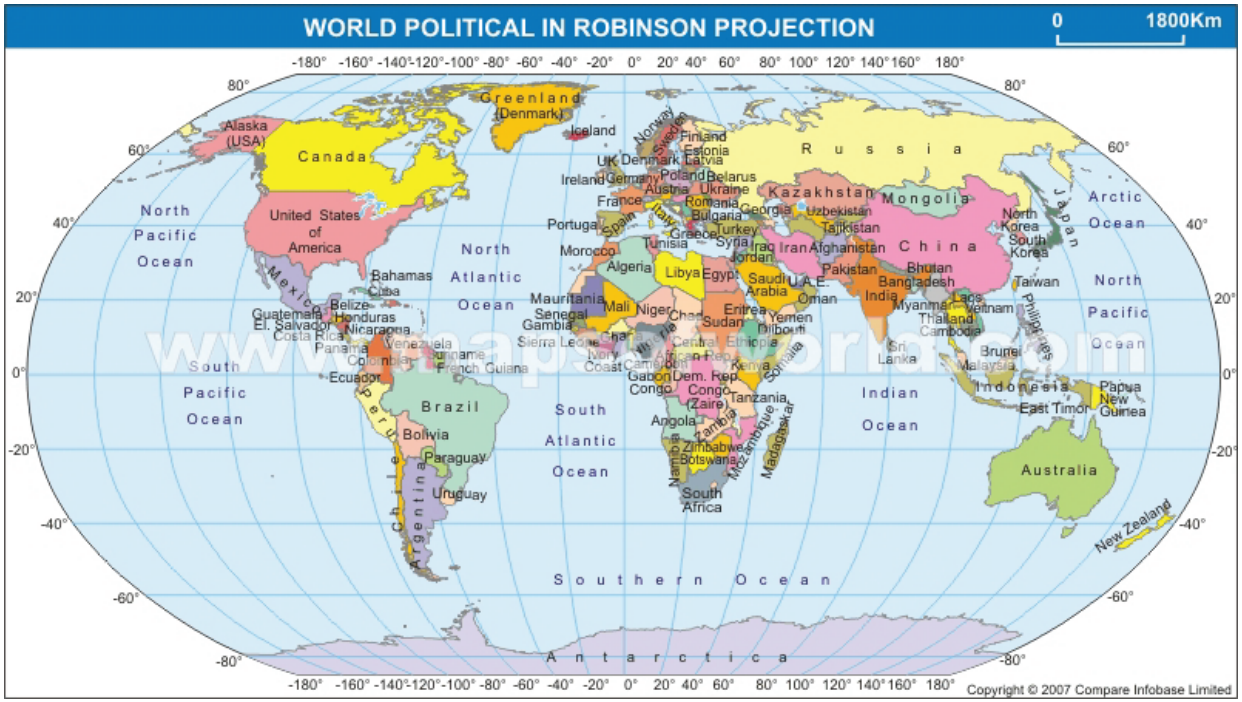
Autog. par Regnier, 8. Pas. S.te Marie S.t G.ain à Paris.

Imp. Lith. Regnier et Dourdet.



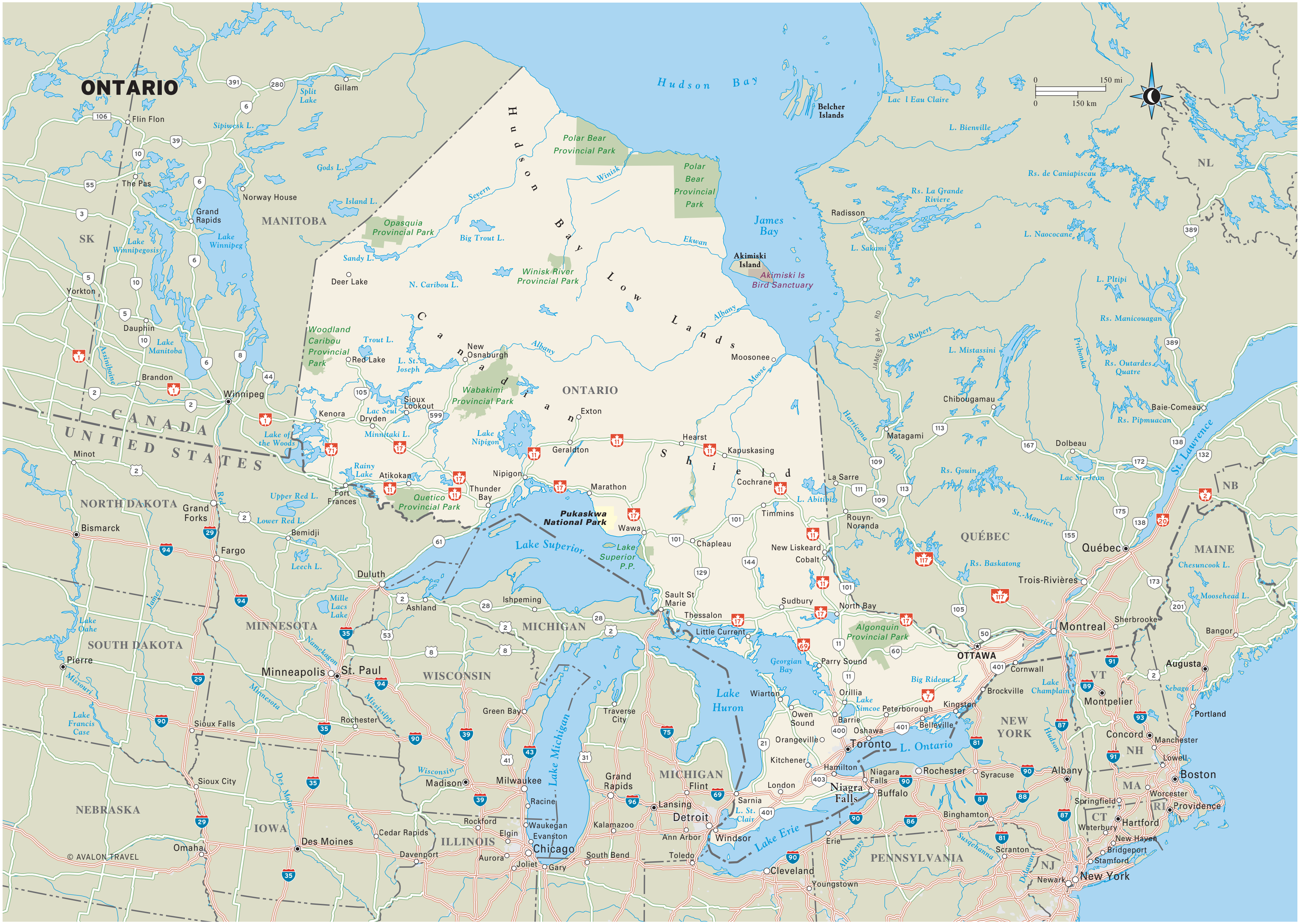






http://cartography.oregonstate.edu/demos/CompositeMapProjection/

http://mbostock.github.io/d3/talk/20111018/azimuthal.html



ONTARIO
Hudson Bay
James Bay
Belcher Islands
Akimiski Island
Akimiski Is Bird Sanctuary
Polar Bear Provincial Park
Opasquia Provincial Park
Winisk River Provincial Park
Woodland Caribou Provincial Park
Wabakimi Provincial Park
Quetico Provincial Park
Pukaskwa National Park
Lake Superior P.P.
Algonquin Provincial Park
Hudson Bay Low Lands
Canadian Shield
ONTARIO
MANITOBA
SK
QUÉBEC
NL
NB
CANADA
UNITED STATES
NORTH DAKOTA
SOUTH DAKOTA
MINNESOTA
WISCONSIN
MICHIGAN
IOWA
ILLINOIS
NEBRASKA
PENNSYLVANIA
NEW YORK
MAINE
VT
NH
MA
CT
RI
NJ
Gillam
Flin Flon
The Pas
Norway House
Grand Rapids
Yorkton
Dauphin
Brandon
Winnipeg
Minot
Grand Forks
Bismarck
Fargo
Pierre
Sioux Falls
Sioux City
Omaha
Des Moines
Minneapolis
St. Paul
Rochester
Duluth
Ashland
Ishpeming
Green Bay
Madison
Milwaukee
Racine
Rockford
Elgin
Waukegan
Evanston
Chicago
Aurora
Joliet
Gary
Davenport
Cedar Rapids
South Bend
Kalamazoo
Grand Rapids
Traverse City
Lansing
Flint
Ann Arbor
Detroit
Windsor
Toledo
Cleveland
Youngstown
Erie
Sarnia
London
Kitchener
Hamilton
Niagara Falls
Buffalo
Rochester
Syracuse
Binghamton
Scranton
Albany
Toronto
Orangeville
Barrie
Orillia
Owen Sound
Wiarton
Parry Sound
Oshawa
Peterborough
Belleville
Kingston
Brockville
Cornwall
OTTAWA
Montreal
Sherbrooke
Trois-Rivières
Québec
Baie-Comeau
Dolbeau
Chibougamau
Matagami
Radisson
La Sarre
Rouyn-Noranda
Montpelier
Concord
Manchester
Lowell
Boston
Worcester
Providence
Springfield
Hartford
Waterbury
New Haven
Bridgeport
Stamford
Newark
New York
Portland
Augusta
Bangor
Deer Lake
Red Lake
New Osnaburgh
Sioux Lookout
Kenora
Dryden
Atikokan
Fort Frances
Bemidji
Thunder Bay
Nipigon
Geraldton
Exton
Marathon
Wawa
Hearst
Kapuskasing
Cochrane
Moosonee
Timmins
Chapleau
New Liskeard
Cobalt
Sudbury
North Bay
Sault St Marie
Thessalon
Little Current
Lake Huron
Lake Superior
Lake Michigan
L. Ontario
Lake Erie
L. St. Clair
Georgian Bay
Lake Simcoe
Lake Winnipeg
Lake Winnipegosis
Lake Manitoba
Lake of the Woods
Rainy Lake
Lake Nipigon
L. Abitibi
Big Rideau L.
Lake Champlain
Lac St.-Jean
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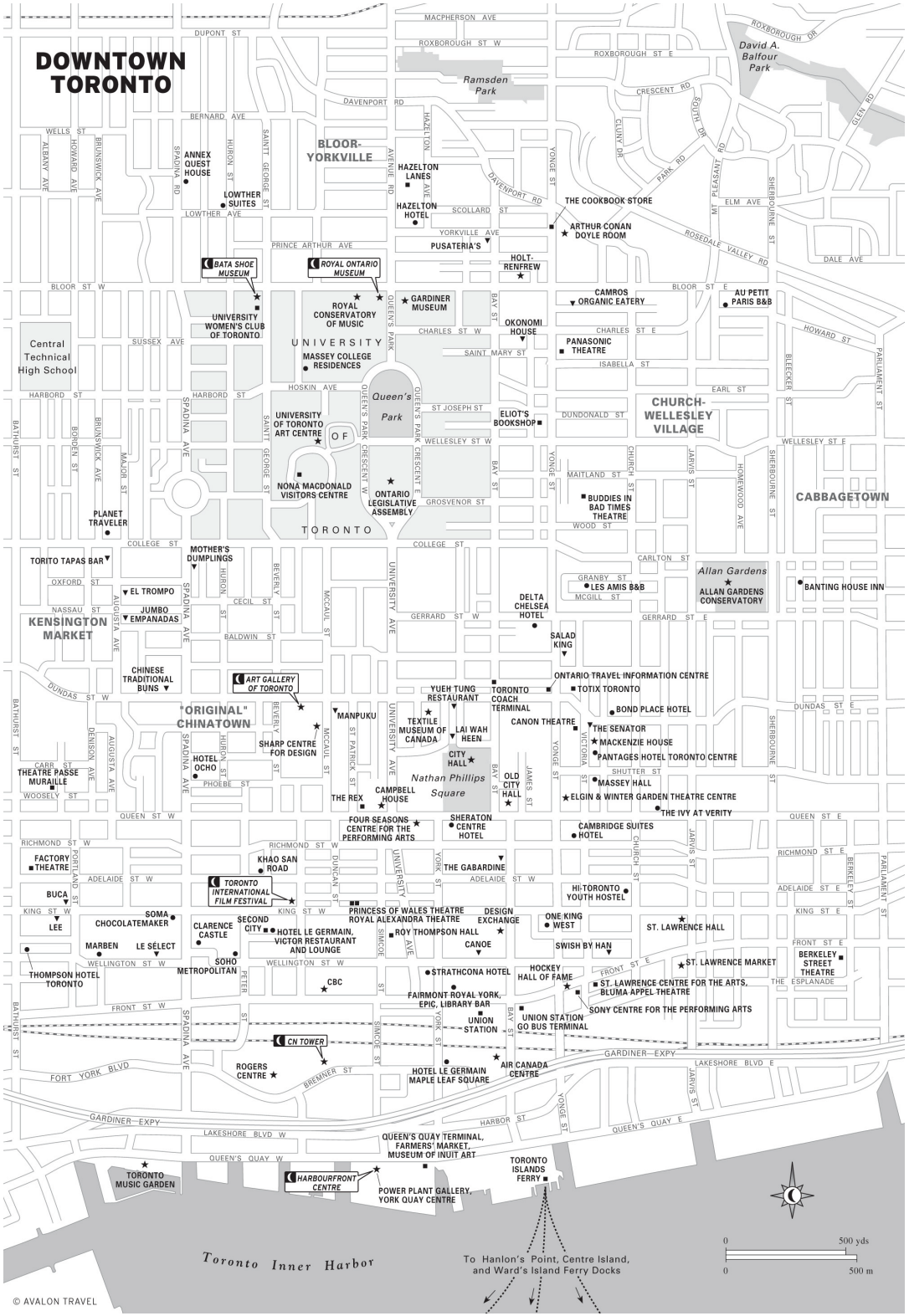
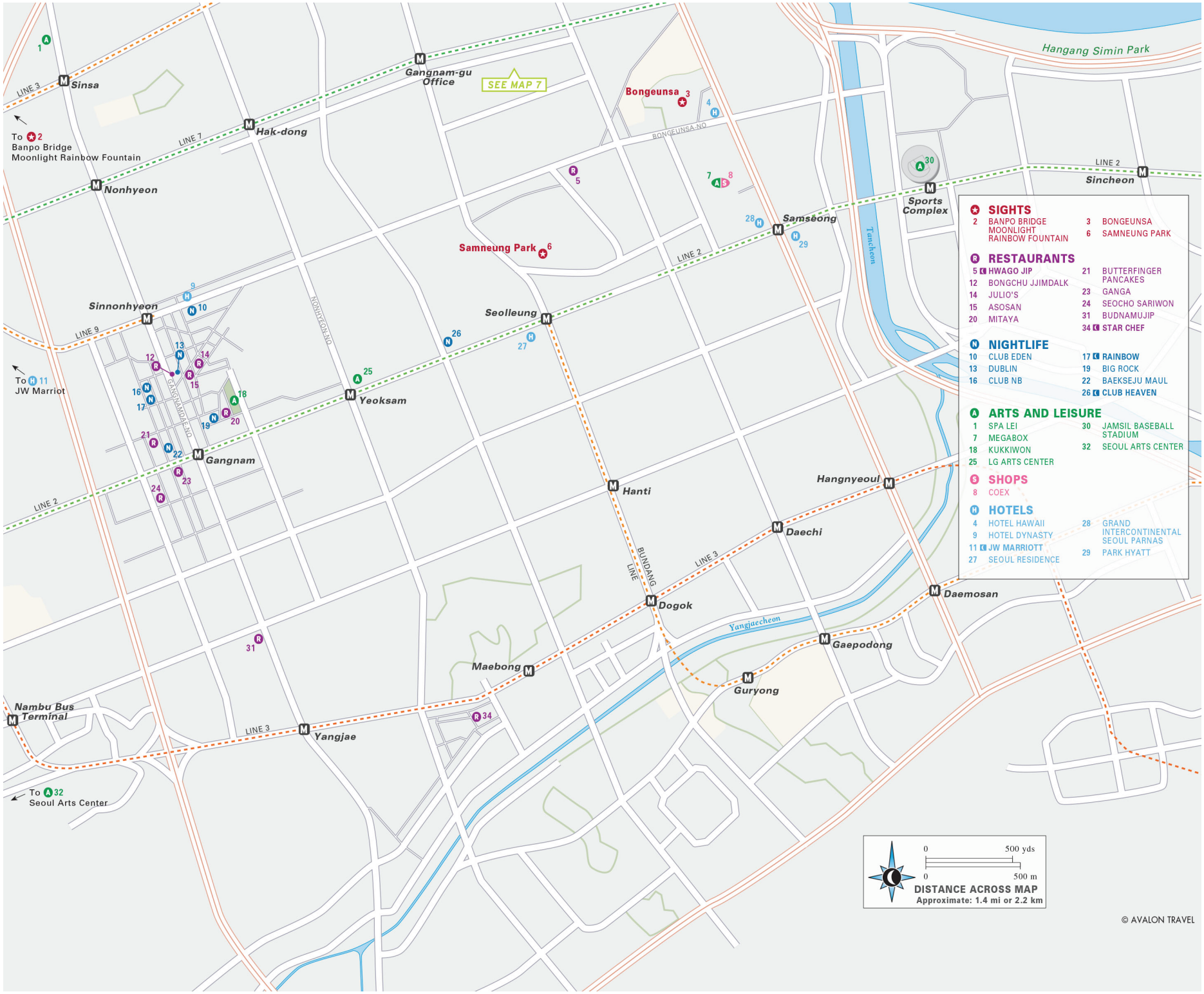
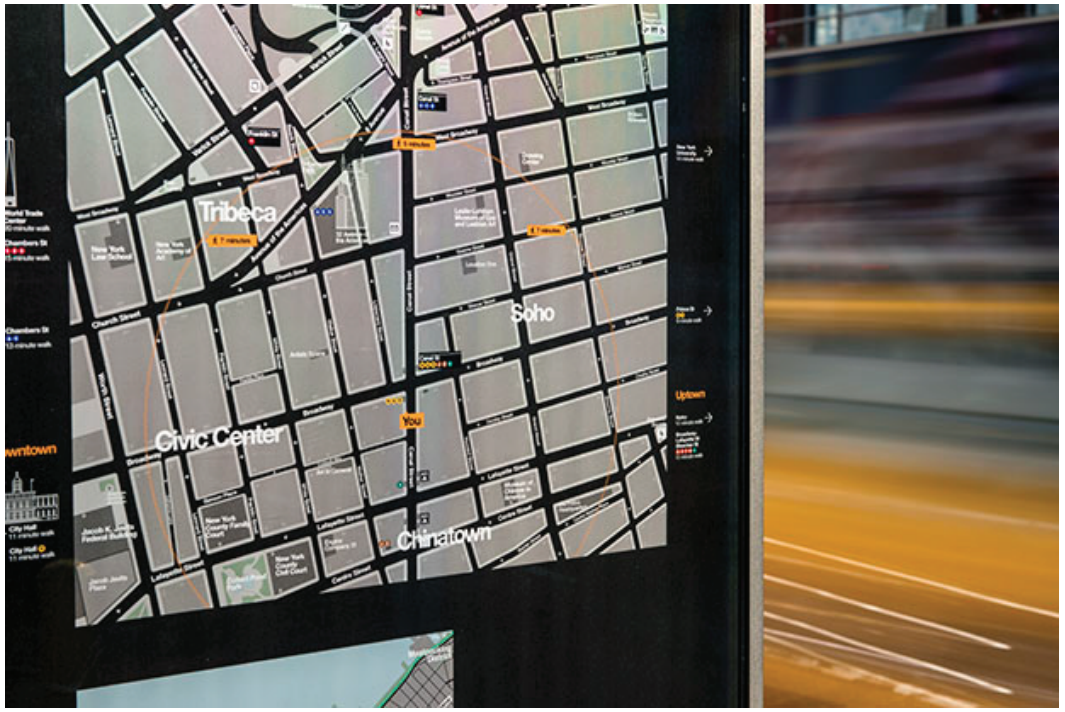

DOWNTOWN TORONTO
MACPHERSON AVE
ROXBOROUGH ST W
ROXBOROUGH ST E
ROXBOROUGH DR
David A. Balfour Park
Ramsden Park
CRESCENT RD
SOUTH DR
GLEN RD
CLUNY DR
PARK RD
MT PLEASANT RD
DUPONT ST
DAVENPORT RD
BERNARD AVE
WELLS ST
ALBANY AVE
HOWARD AVE
BRUNSWICK AVE
SPADINA RD
ANNEX QUEST HOUSE
HURON ST
SAINT GEORGE ST
LOWTHER SUITES
LOWTHER AVE
BLOOR-YORKVILLE
HAZELTON AVENUE RD
HAZELTON LANES
HAZELTON AVE
HAZELTON HOTEL
SCOLLARD ST
DAVENPORT RD
YONGE ST
THE COOKBOOK STORE
ARTHUR CONAN DOYLE ROOM
ELM AVE
SHERBOURNE ST
YORKVILLE AVE
PUSATERIA'S
PRINCE ARTHUR AVE
ROSEDALE VALLEY RD
DALE AVE
HOLT-RENFREW
BATA SHOE MUSEUM
ROYAL ONTARIO MUSEUM
BLOOR ST W
BLOOR ST E
CAMROS ORGANIC EATERY
AU PETIT PARIS B&B
ROYAL CONSERVATORY OF MUSIC
GARDINER MUSEUM
QUEEN'S PARK
BAY ST
OKONOMI HOUSE
UNIVERSITY OF TORONTO
UNIVERSITY WOMEN'S CLUB OF TORONTO
CHARLES ST W
CHARLES ST E
PANASONIC THEATRE
HOWARD ST
Central Technical High School
SUSSEX AVE
MASSEY COLLEGE RESIDENCES
SAINT MARY ST
ISABELLA ST
PARLIAMENT ST
BLEECKER ST
HARBORD ST
HOSKIN AVE
Queen's Park
ST JOSEPH ST
ELIOT'S BOOKSHOP
DUNDONALD ST
EARL ST
CHURCH-WELLESLEY VILLAGE
BATHURST ST
BORDEN ST
BRUNSWICK AVE
MAJOR ST
SPADINA AVE
SAINT GEORGE ST
UNIVERSITY OF TORONTO ART CENTRE
OF
QUEEN'S PARK CRESCENT W
QUEEN'S PARK CRESCENT E
WELLESLEY ST W
WELLESLEY ST E
CHURCH ST
JARVIS ST
SHERBOURNE ST
HOMEWOOD AVE
MAITLAND ST
NONA MACDONALD VISITORS CENTRE
ONTARIO LEGISLATIVE ASSEMBLY
GROSVENOR ST
BUDDIES IN BAD TIMES THEATRE
CABBAGETOWN
WOOD ST
PLANET TRAVELER
TORONTO
COLLEGE ST
TORITO TAPAS BAR
MOTHER'S DUMPLINGS
CARLTON ST
Allan Gardens
ALLAN GARDENS CONSERVATORY
BANTING HOUSE INN
OXFORD ST
EL TROMPO
HURON ST
BEVERLY ST
GRANBY ST
LES AMIS B&B
NASSAU ST
JUMBO EMPANADAS
CECIL ST
MCGILL ST
DELTA CHELSEA HOTEL
KENSINGTON MARKET
AUGUSTA AVE
BALDWIN ST
MCCAUL ST
UNIVERSITY AVE
GERRARD ST W
GERRARD ST E
SALAD KING
CHINESE TRADITIONAL BUNS
ART GALLERY OF TORONTO
ONTARIO TRAVEL INFORMATION CENTRE
TOTIX TORONTO
DUNDAS ST W
DUNDAS ST E
YUEH TUNG RESTAURANT
TORONTO COACH TERMINAL
"ORIGINAL" CHINATOWN
MANPUKU
TEXTILE MUSEUM OF CANADA
LAI WAH HEEN
CANON THEATRE
BOND PLACE HOTEL
THE SENATOR
MACKENZIE HOUSE
PANTAGES HOTEL TORONTO CENTRE
SHARP CENTRE FOR DESIGN
ST PATRICK ST
CITY HALL
Nathan Phillips Square
OLD CITY HALL
JAMES ST
VICTORIA ST
SHUTTER ST
MASSEY HALL
ELGIN & WINTER GARDEN THEATRE CENTRE
THE IVY AT VERITY
CARR ST
THEATRE PASSE MURAILLE
WOOSELY ST
HOTEL OCHO
PHOEBE ST
THE REX
CAMPBELL HOUSE
QUEEN ST W
QUEEN ST E
FOUR SEASONS CENTRE FOR THE PERFORMING ARTS
SHERATON CENTRE HOTEL
CAMBRIDGE SUITES HOTEL
RICHMOND ST W
RICHMOND ST E
FACTORY THEATRE
PORTLAND ST
KHAO SAN ROAD
DUNCAN ST
YORK ST
THE GABARDINE
CHURCH ST
BERKELEY ST
ADELAIDE ST W
ADELAIDE ST E
TORONTO INTERNATIONAL FILM FESTIVAL
HI-TORONTO YOUTH HOSTEL
BUCA
KING ST W
KING ST E
SOMA CHOCOLATEMAKER
LEE
PRINCESS OF WALES THEATRE
ROYAL ALEXANDRA THEATRE
DESIGN EXCHANGE
ONE KING WEST
ST. LAWRENCE HALL
CLARENCE CASTLE
SECOND CITY
HOTEL LE GERMAIN, VICTOR RESTAURANT AND LOUNGE
ROY THOMPSON HALL
SIMCOE ST
CANOE
SWISH BY HAN
FRONT ST E
MARBEN
LE SÉLECT
WELLINGTON ST W
SOHO METROPOLITAN
PETER ST
CBC
STRATHCONA HOTEL
HOCKEY HALL OF FAME
ST. LAWRENCE MARKET
BERKELEY STREET THEATRE
THE ESPLANADE
THOMPSON HOTEL TORONTO
FAIRMONT ROYAL YORK, EPIC LIBRARY BAR
ST. LAWRENCE CENTRE FOR THE ARTS, BLUMA APPEL THEATRE
SONY CENTRE FOR THE PERFORMING ARTS
FRONT ST W
UNION STATION
UNION STATION GO BUS TERMINAL
CN TOWER
ROGERS CENTRE
HOTEL LE GERMAIN MAPLE LEAF SQUARE
AIR CANADA CENTRE
GARDINER EXPY
LAKESHORE BLVD E
FORT YORK BLVD
BREMNER ST
HARBOR ST
JARVIS ST
QUEEN'S QUAY E
GARDINER EXPY
LAKESHORE BLVD W
QUEEN'S QUAY TERMINAL, FARMERS' MARKET, MUSEUM OF INUIT ART
QUEEN'S QUAY W
TORONTO ISLANDS FERRY
TORONTO MUSIC GARDEN
HARBOURFRONT CENTRE
POWER PLANT GALLERY, YORK QUAY CENTRE
Toronto Inner Harbor
To Hanlon's Point, Centre Island, and Ward's Island Ferry Docks
0
500 yds
0
500 m
© AVALON TRAVEL


Hangang Simin Park
LINE 3
Sinsa
Gangnam-gu Office
SEE MAP 7
Bongeunsa
BONGEUNSA-NO
To 2
Banpo Bridge
Moonlight Rainbow Fountain
LINE 7
Hak-dong
Nonhyeon
LINE 2
Sincheon
Sports Complex
Tancheon
Samseong
Samneung Park
Sinnonhyeon
LINE 9
NONHYEON-NO
Seolleung
To 11
JW Marriot
GANGNAM-DAE-RO
Yeoksam
Gangnam
Hanti
Hangnyeoul
Daechi
BUNDANG LINE
Dogok
Daemosan
Yangjaecheon
Gaepodong
Guryong
Maebong
Nambu Bus Terminal
Yangjae
To 32
Seoul Arts Center
SIGHTS
2 BANPO BRIDGE MOONLIGHT RAINBOW FOUNTAIN
3 BONGEUNSA
6 SAMNEUNG PARK
RESTAURANTS
5 HWAGO JIP
12 BONGCHU JJIMDALK
14 JULIO'S
15 ASOSAN
20 MITAYA
21 BUTTERFINGER PANCAKES
23 GANGA
24 SEOCHO SARIWON
31 BUDNAMUJIP
34 STAR CHEF
NIGHTLIFE
10 CLUB EDEN
13 DUBLIN
16 CLUB NB
17 RAINBOW
19 BIG ROCK
22 BAEKSEJU MAUL
26 CLUB HEAVEN
ARTS AND LEISURE
1 SPA LEI
7 MEGABOX
18 KUKKIWON
25 LG ARTS CENTER
30 JAMSIL BASEBALL STADIUM
32 SEOUL ARTS CENTER
SHOPS
8 COEX
HOTELS
4 HOTEL HAWAII
9 HOTEL DYNASTY
11 JW MARRIOTT
27 SEOUL RESIDENCE
28 GRAND INTERCONTINENTAL SEOUL PARNAS
29 PARK HYATT
0 500 yds
0 500 m
DISTANCE ACROSS MAP
Approximate: 1.4 mi or 2.2 km
© AVALON TRAVEL


Canal Street
Chinatown


Tribeca
Soho
Civic Center
You
Chinatown
Uptown










Airport


Amphitheater


Boat launch


Boat tour


Bicycle trail


Bus stop/Shuttle stop


Campfire


Campground


Canoe access

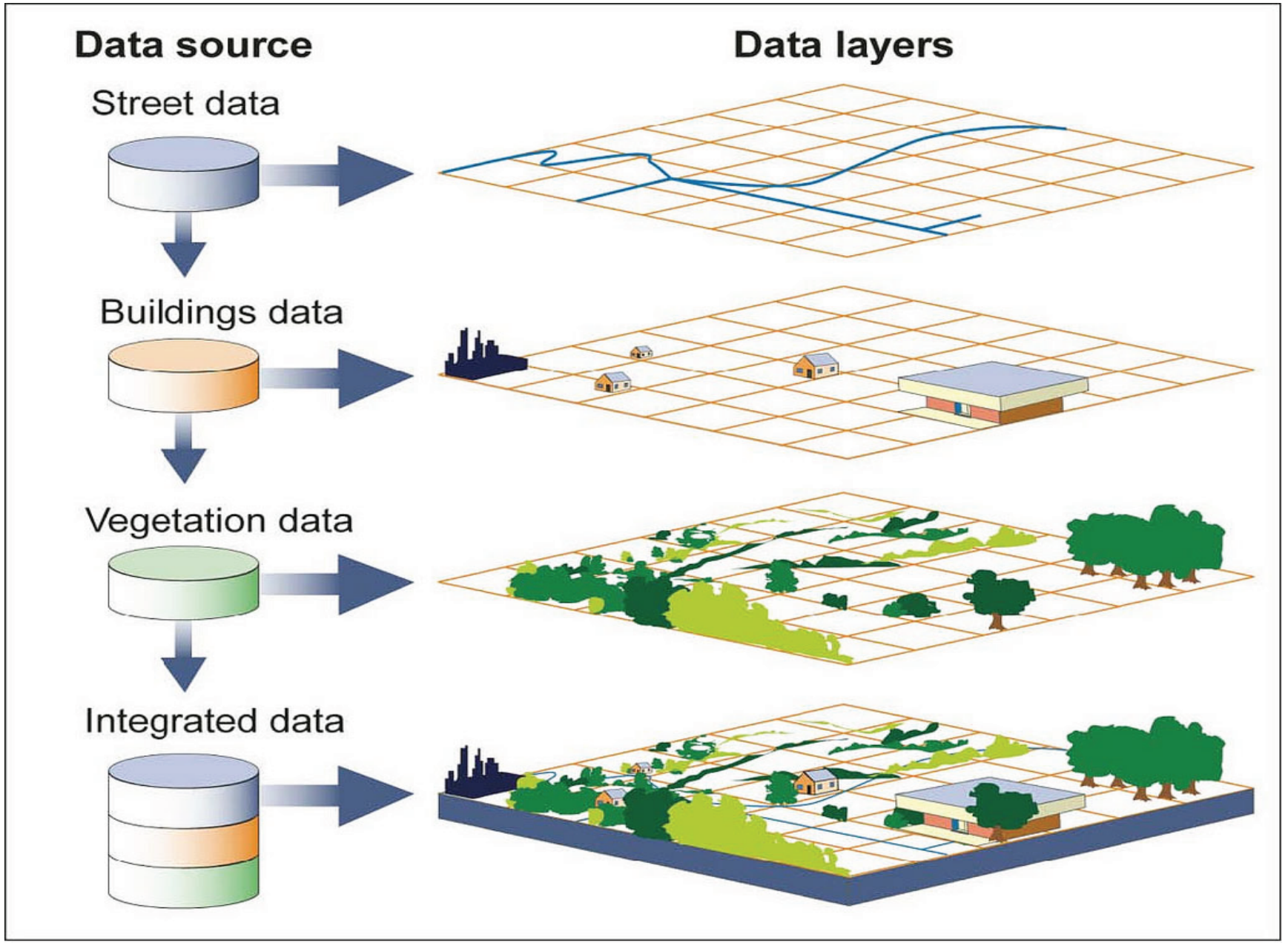

Cross country ski trail


Downhill skiing


Drinking water


First aid

Geographic Information Systems (GIS)



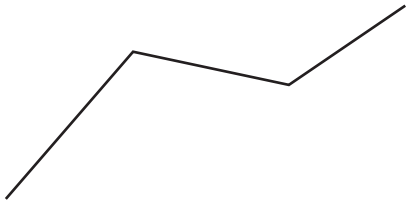
Source: GAO.

WTF is Spatial Data?

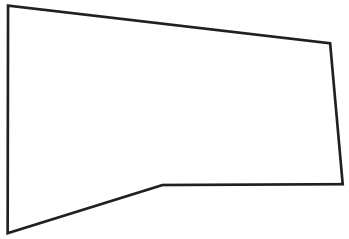
"Geospatial data is information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth, typically represented by points, lines, polygons, and/or complex geographic features. This includes original and interpreted geospatial data, such as those derived through remote sensing including, but not limited to, images and raster data sets, aerial photographs, and other forms of geospatial data or data sets in both digitized and non-digitized forms." (EPA)

Vector Data Geometry is mainly...

Points

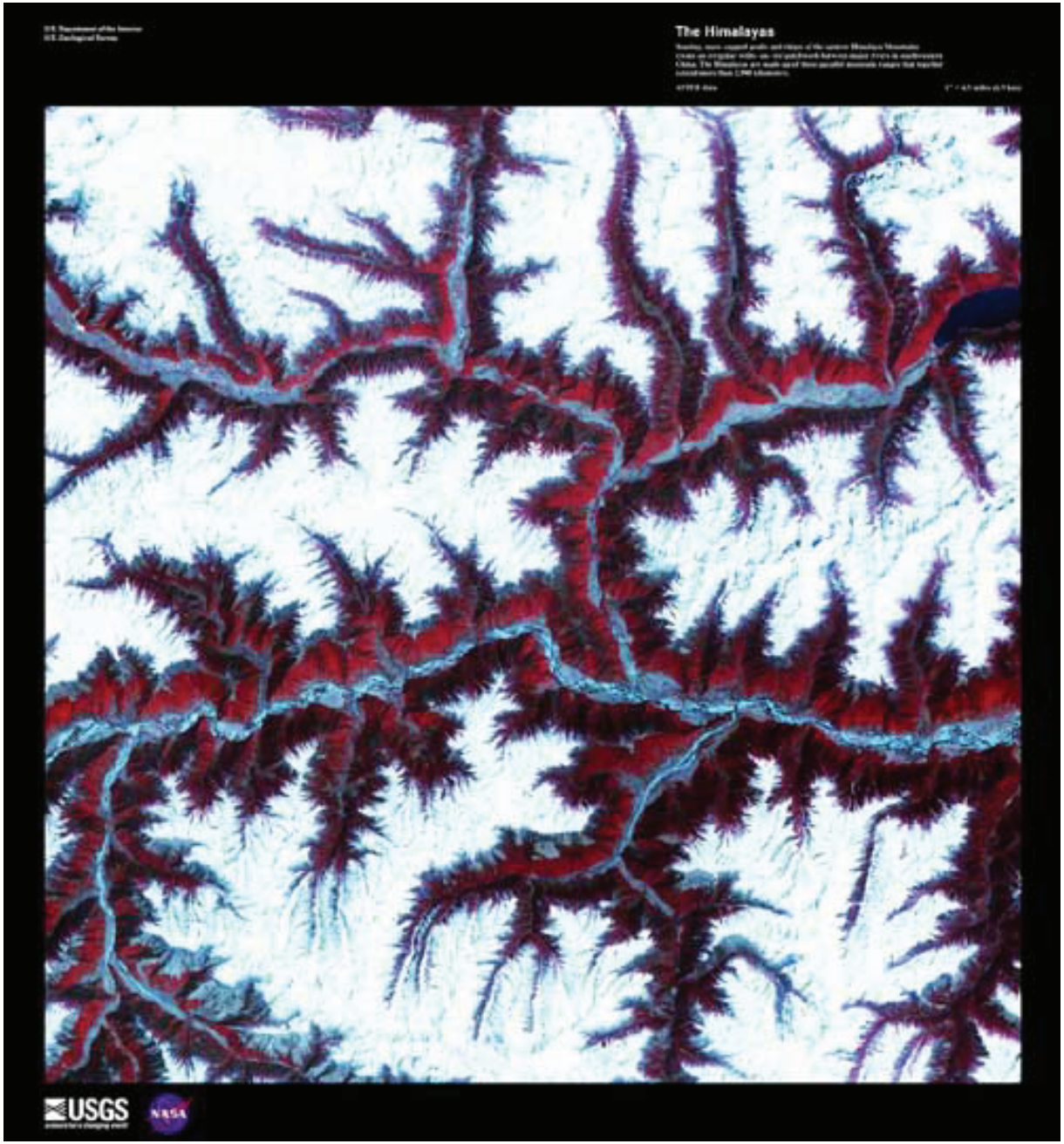


Lines



Polygons

Raster Data...



Formats:

-**Shapefiles** (really a group of 3+ files with same name and different extensions: .shp, .dbf, .prj, .shx)

-**GeoJSON** (spatially aware JSON)

-**CSV** (like a spreadsheet, typically used for point geometry eg: addresses mapped using Lattitude & Longitude)

-**Geospatial databases** (improves speed, the standard when using spatial data to render tiles for slippy maps)

-**GeoTIFF** (most common ***raster format*** that is in the geo-open-data standard. Aerial Imagery, Land Cover, Elevation, etc.)

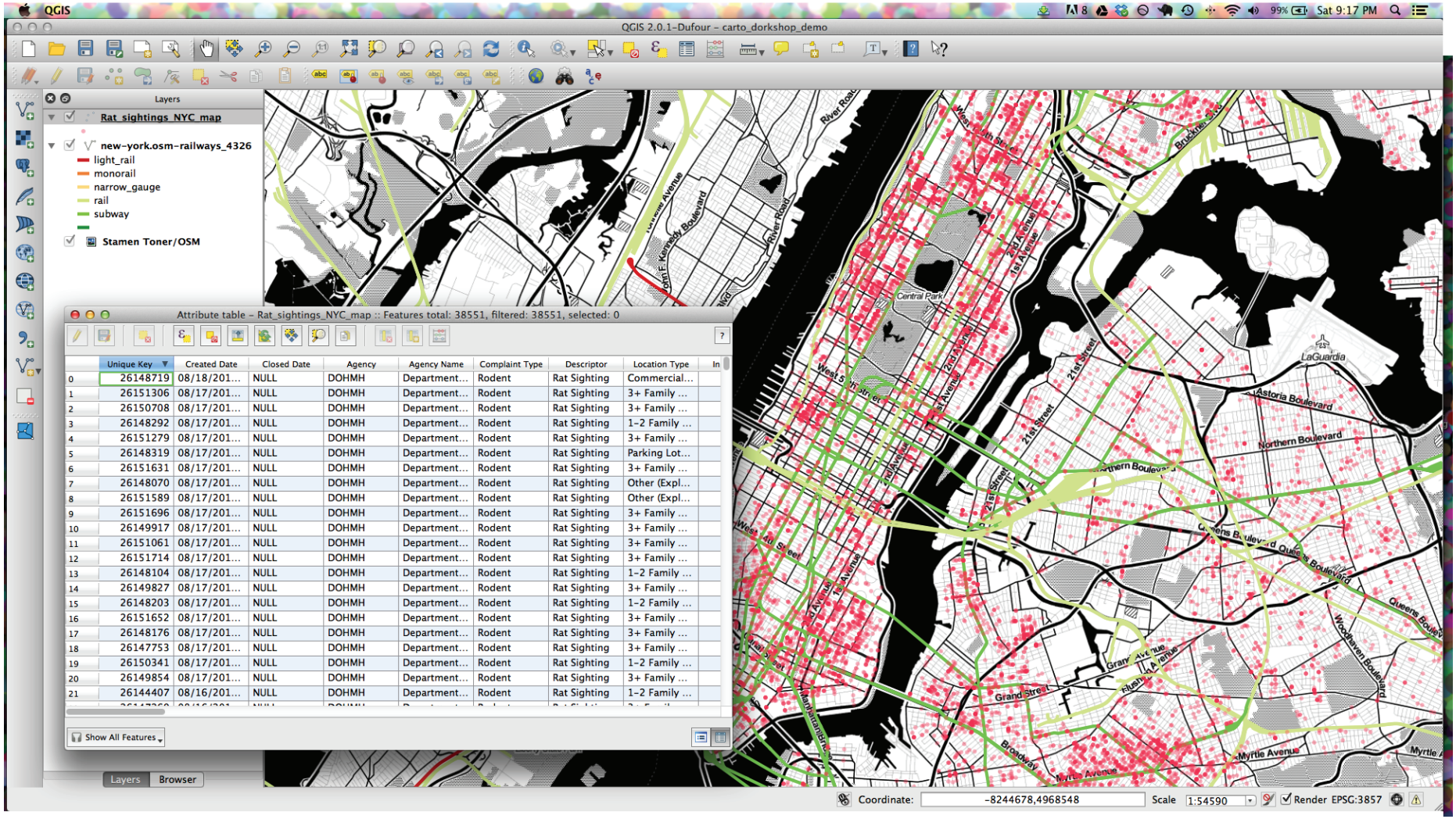
GDAL - Geospatial Data Abstraction Library

esri

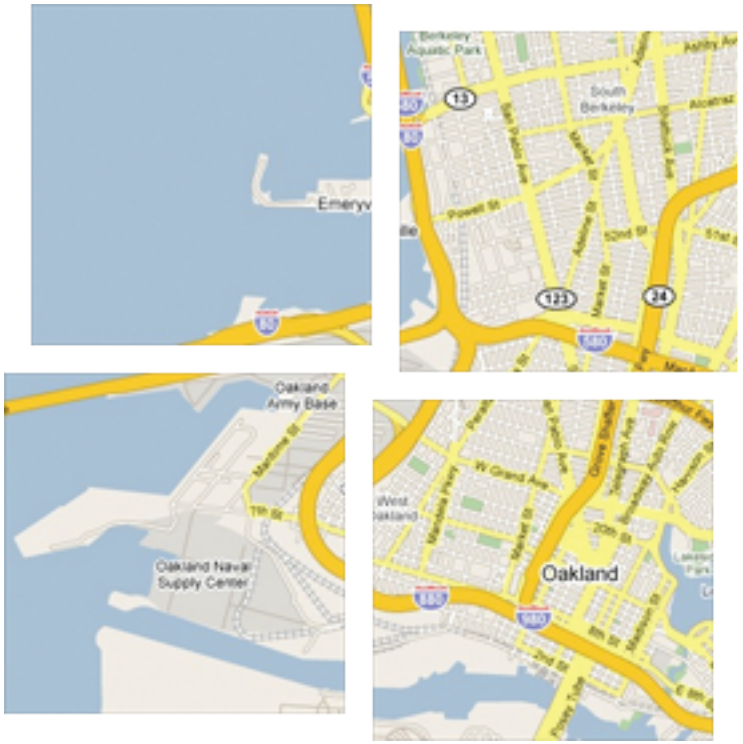

GDAL
GDAL - Geospatial Data
Abstraction Library


esri

QGIS for Inspecting, Editing, & Analyzing Geospatial Data



“Slippy Maps” have two parts:




```
+ var map =
```

Tiles are generated “on the fly” from spatial data on a server, then rendered using an API in your browser

Why go open source?

-Google charges for over 25,000 map views.

-Google's data is kept under lock and key.

"Ask yourself this question: why would you, as a website developer who controls all aspects of your site, from typography to layout, to color palette to photography, to UI functionality, allow a big, alien blob to be plopped down in the middle of your otherwise meticulously designed application? Think about it. You accept whatever colors, fonts, and map layers Google chooses for their map tiles. Sure, you try to rein it back in with custom markers and overlays, but at the root, the core component—the map itself—is out of your hands."

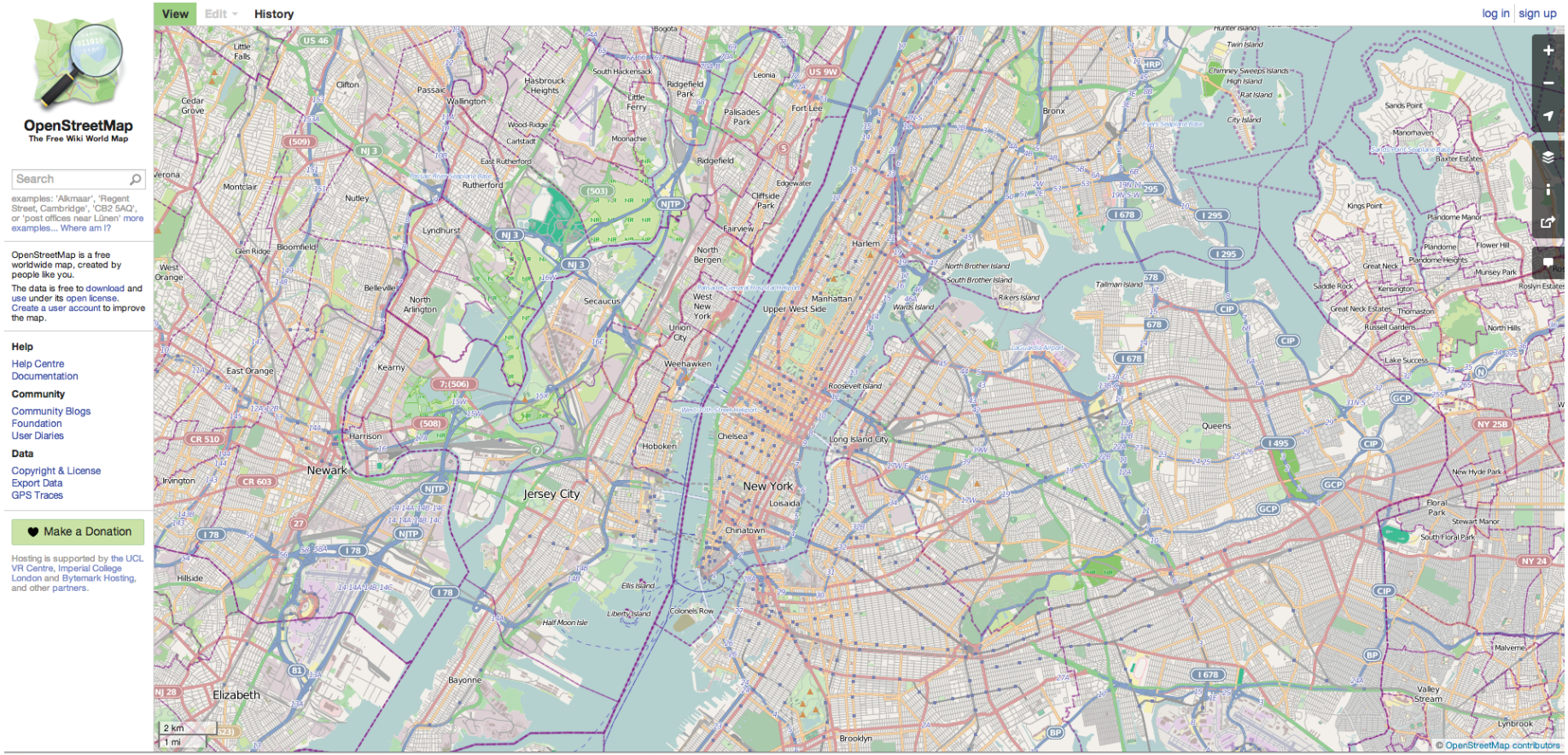
-Paul Smith, *A List Apart*, April 8, 2008

OpenStreetMap:

What it is and why you should care

-Google keeps its data under lock and key,

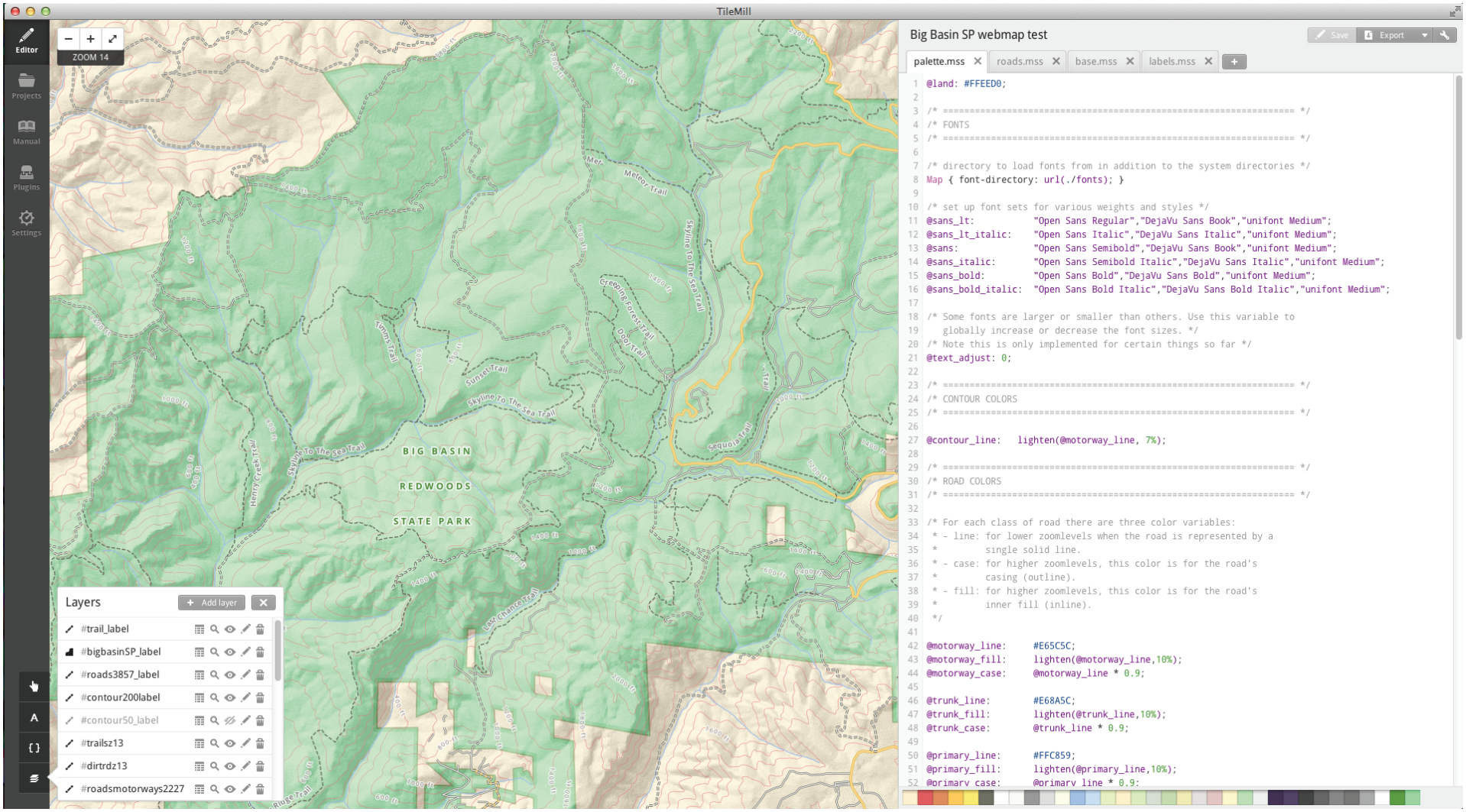
-OSM users contribute and get back the data.



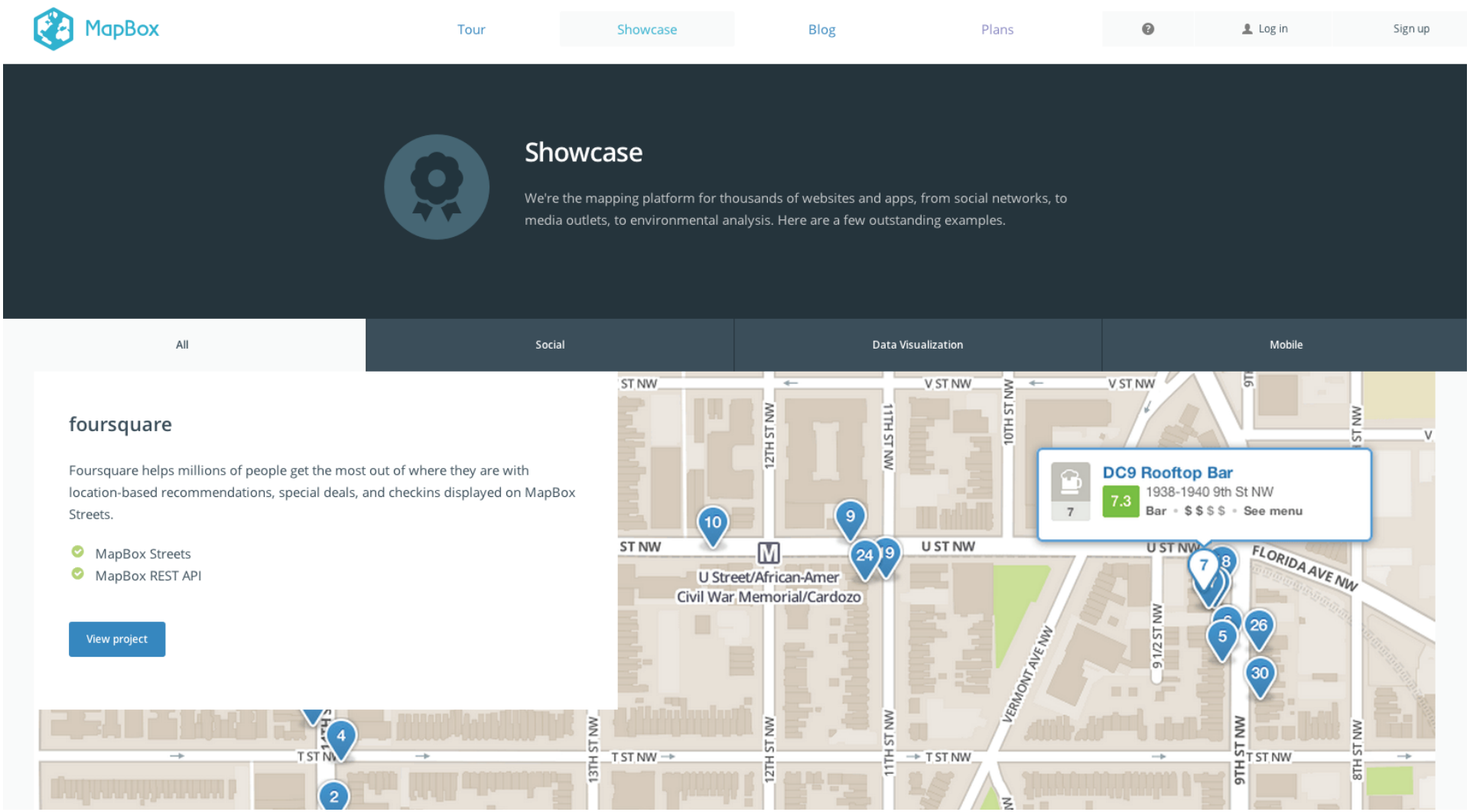
Live editing: http://osmlab.github.io/show-me-the-way/

ID Editor: http://ideditor.com/

TileMill *to style GIS data for slippy mapping (with MapBox hosting)*

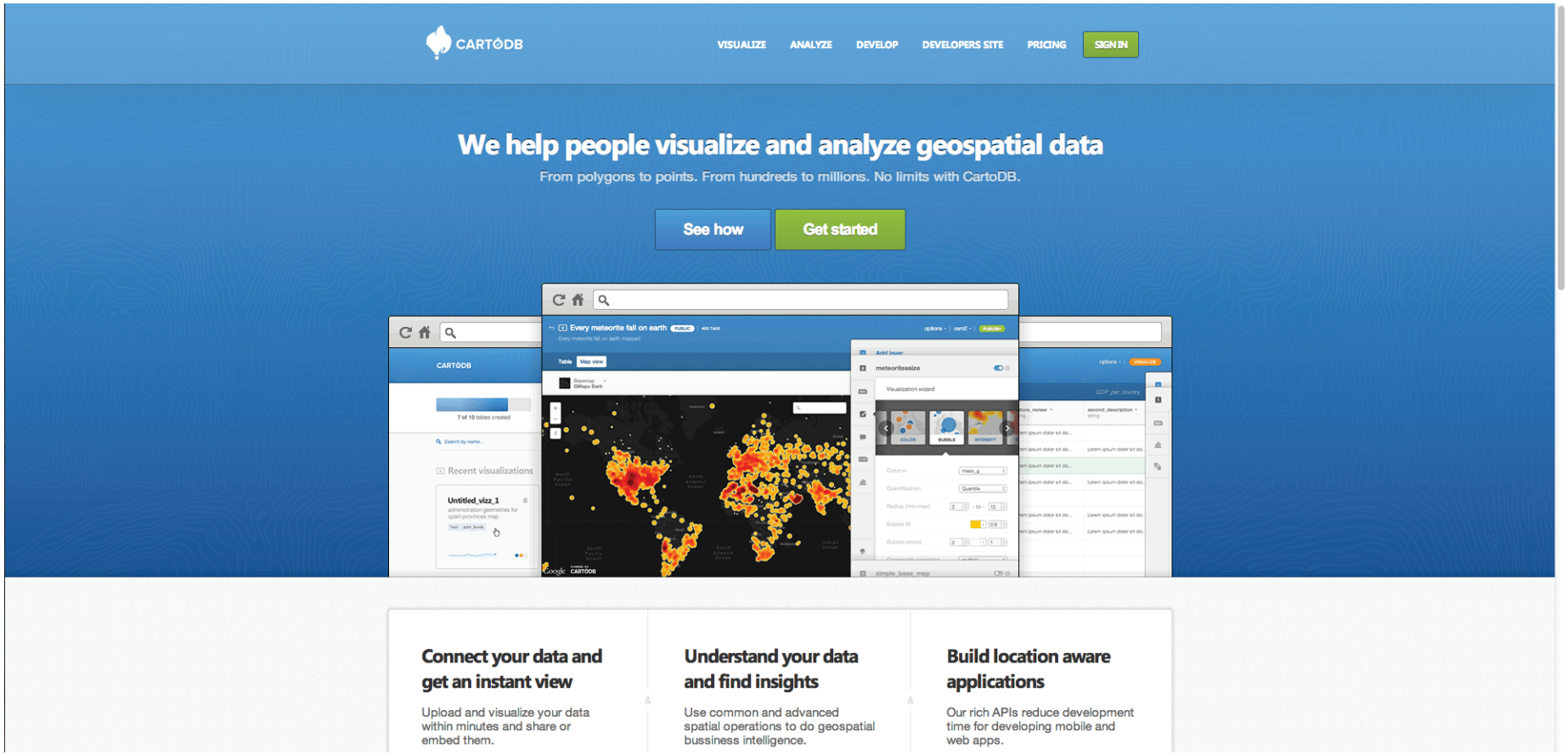


MapBox *to host your custom basemap and overlays. They also have an API.*



CartoDB: *another great tool for visualization and analysis of geospatial data:*

http://cartodb.com/



Resources

1. **Github:** NVKelso's *"Geo-how-to" Wiki*
https://github.com/nvkelso/geo-how-to/

2. **CartoTalk forums:** http://www.cartotalk.com/

3. **TileMill tutorials:** http://www.mapbox.com/tilemill/
docs/crashcourse/introduction/

4. **Googling / YouTube searching** QGIS tutorials
a good one is: http://anitagraser.com/

5. **Leaflet API**: http://leafletjs.com/reference.html

6. **OSM Wiki**: http://wiki.openstreetmap.org/wiki/Main_Page

7. **GeoNYC Meet-Up:** http://www.meetup.com/geonyc/
(meets monthly, next one is October 7th)

8. **WTF is GIS:** http://www.esri.com/what-is-gis

9. **GIS Stackexchange:** http://gis.stackexchange.com/

Data Sources

1. **Natural Earth Data:** (3 levels of small-scale, world coverage)
http://www.naturalearthdata.com/

2. **Metro Extracts:** (OSM extracts of urban areas converted to shapefile and other formats)
http://metro.teczno.com/

3. **Geofabrik** (Continental & Country OSM extracts):
http://download.geofabrik.de/

4. **OpenStreetMapData.com** (OSM Land, Water, Coastline data):
http://openstreetmap-data.com/data

5. **Open Data NYC:**
https://nycopendata.socrata.com/

6. **US National Weather Service (NOAA):**
http://www.nws.noaa.gov/geodata/

7. **U.S. Census:**
http://www.census.gov/2010census/data/