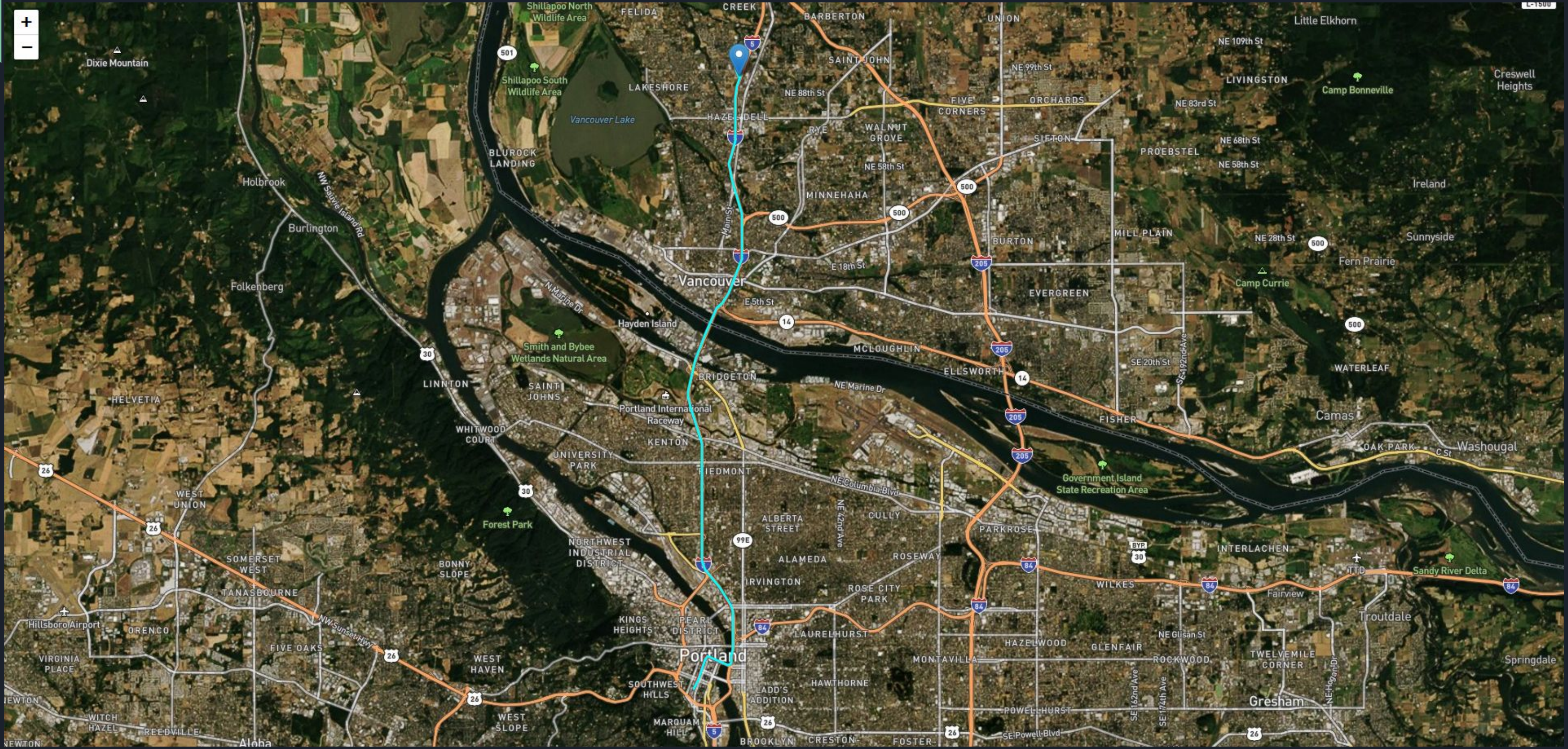
C-Tran Snapped to Route

By Jason Yang and Samuel Youngs

Project Implementation

- Human Readability of the Data (Latitude Longitude 15 floating point)
- Display a map of the original route and a snapped route that places the gps points onto the road
- Calculate the min, max, median, and mean deviations of the trip data

Route 199



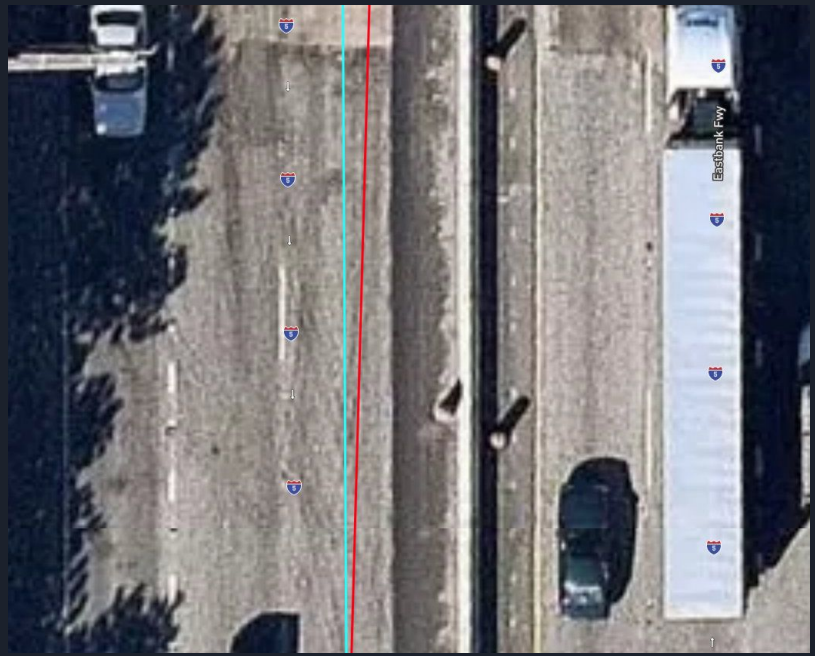
Shillapoo North Wildlife Area
FELIDA
CREEK
BARBERTON
UNION
Little Elkhorn
Dixie Mountain
Shillapoo South Wildlife Area
LAKESHORE
SAINT JOHN
NE 109th St
NE 99th St
LIVINGSTON
Camp Bonneville
Creswell Heights
Vancouver Lake
NE 88th St
HAZEL DELL
FIVE CORNERS
ORCHARDS
NE 83rd St
BLUROCK LANDING
RYE
WALNUT GROVE
SIFTON
PROEBSTEL
NE 68th St
NE 58th St
Holbrook
MINNEHAHA
Ireland
Burlington
BURTON
MILL PLAIN
NE 28th St
Sunnyside
Fern Prairie
Vancouver
E 18th St
Folkenberg
EVERGREEN
Camp Currie
E 5th St
Hayden Island
Smith and Bybee Wetlands Natural Area
MCLOUGHLIN
ELLSWORTH
WATERLEAF
LINNTON
SAINT JOHNS
BRIDGETON
NE Marine Dr
HELVETIA
Portland International Raceway
FISHER
Camas
WHITWOOD COURT
KENTON
OAK PARK
Washougal
UNIVERSITY PARK
PIEDMONT
Government Island State Recreation Area
WEST UNION
Forest Park
ALBERTA STREET
CULLY
PARKROSE
NORTHWEST INDUSTRIAL DISTRICT
ALAMEDA
ROSEWAY
INTERLACHEN
SOMERSET WEST
BONNY SLOPE
IRVINGTON
ROSE CITY PARK
WILKES
Sandy River Delta
TANASBOURNE
Fairview
KINGS HEIGHTS
PEARL DISTRICT
LAURELHURST
Troutdale
Hillsboro Airport
ORENCO
FIVE OAKS
HAZELWOOD
GLENFAIR
NE Glisan St
Portland
MONTAVILLA
ROCKWOOD
TWELVEMILE CORNER
Springdale
VIRGINIA PLACE
WEST HAVEN
SOUTHWEST HILLS
LADD'S ADDITION
HAWTHORNE
Gresham
POWELLHURST
WITCH HAZEL
REEDVILLE
WEST SLOPE
MARQUAM HILL
BROOKLYN
CRESTON
FOSTER
SE Powell Blvd
Aloha

See a Pattern of Repeated Deviations

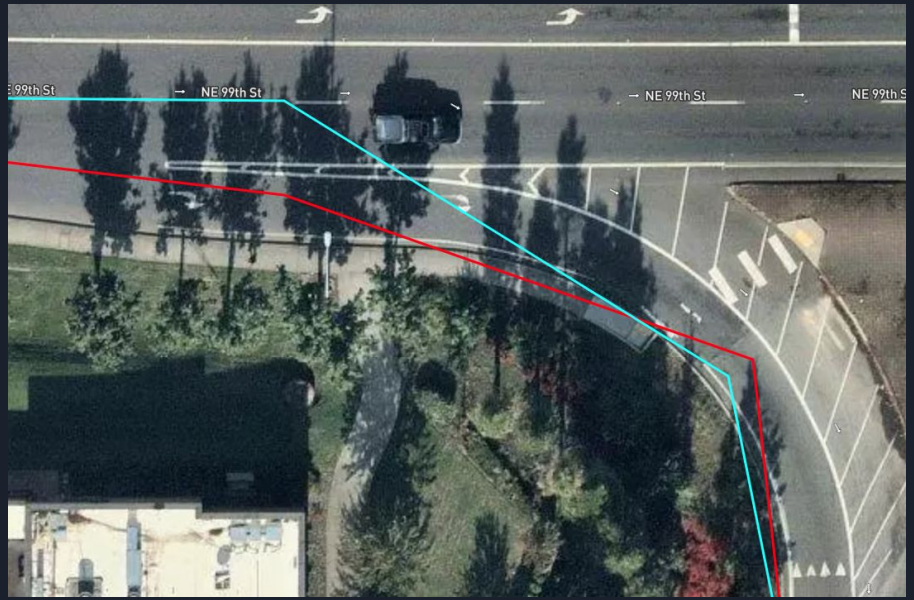
Trip ID 152570206

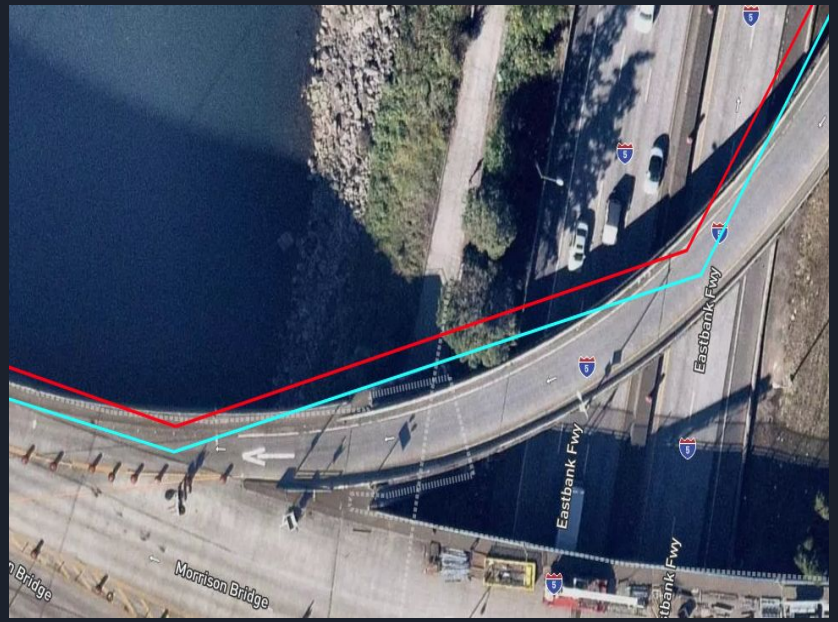
Trip ID 153213331

Google Roads API Favors the Center of the Road



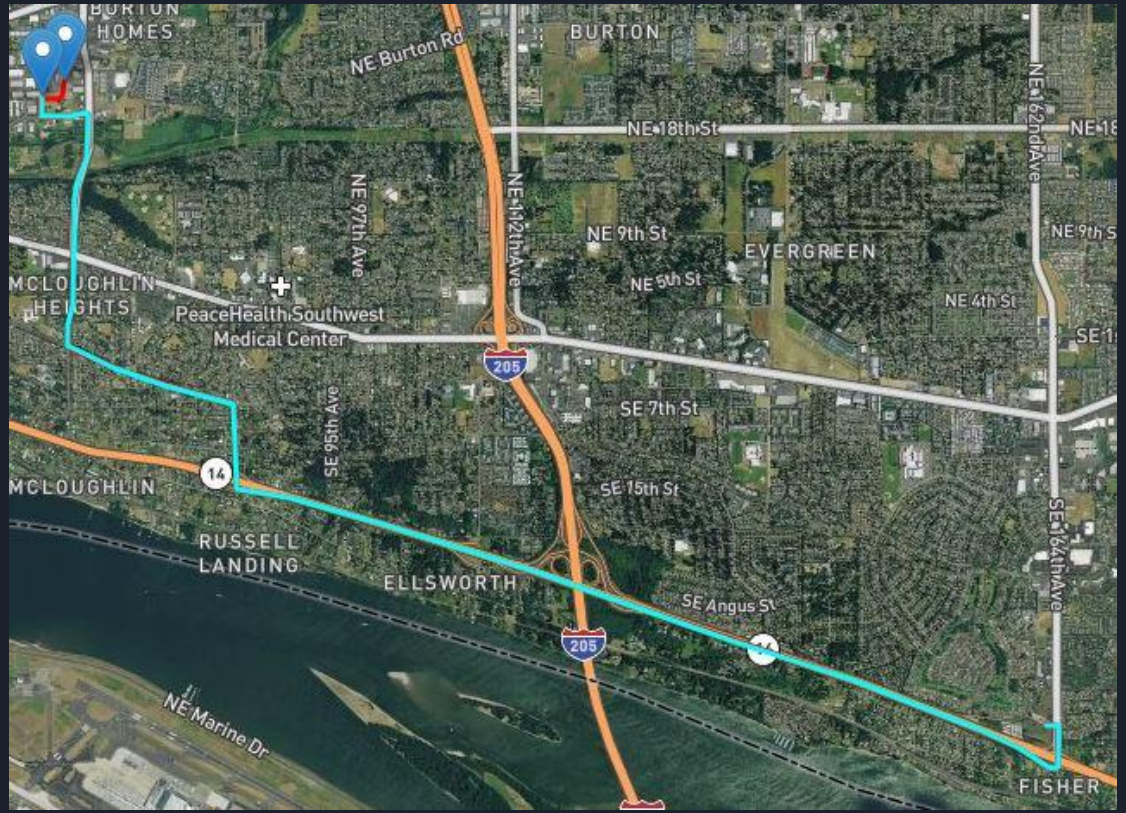
Mapping Struggles with Curves



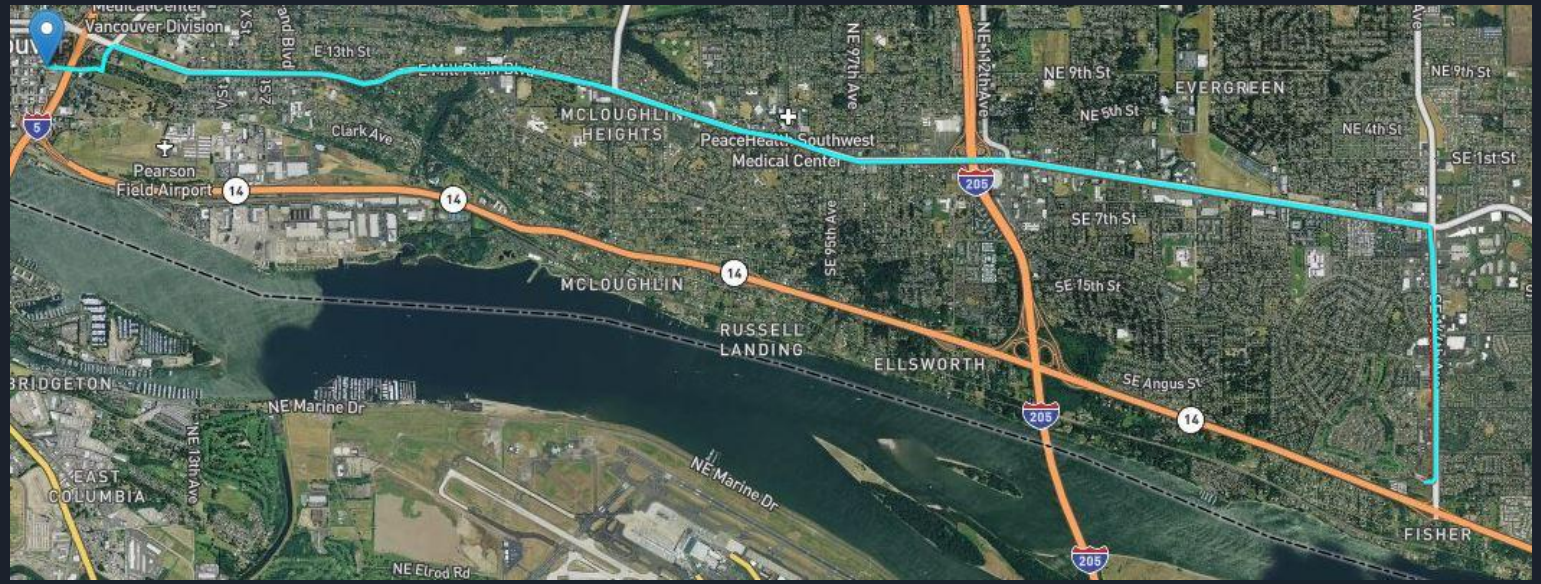


Our Enhanced Data is only as good as the data our program is given

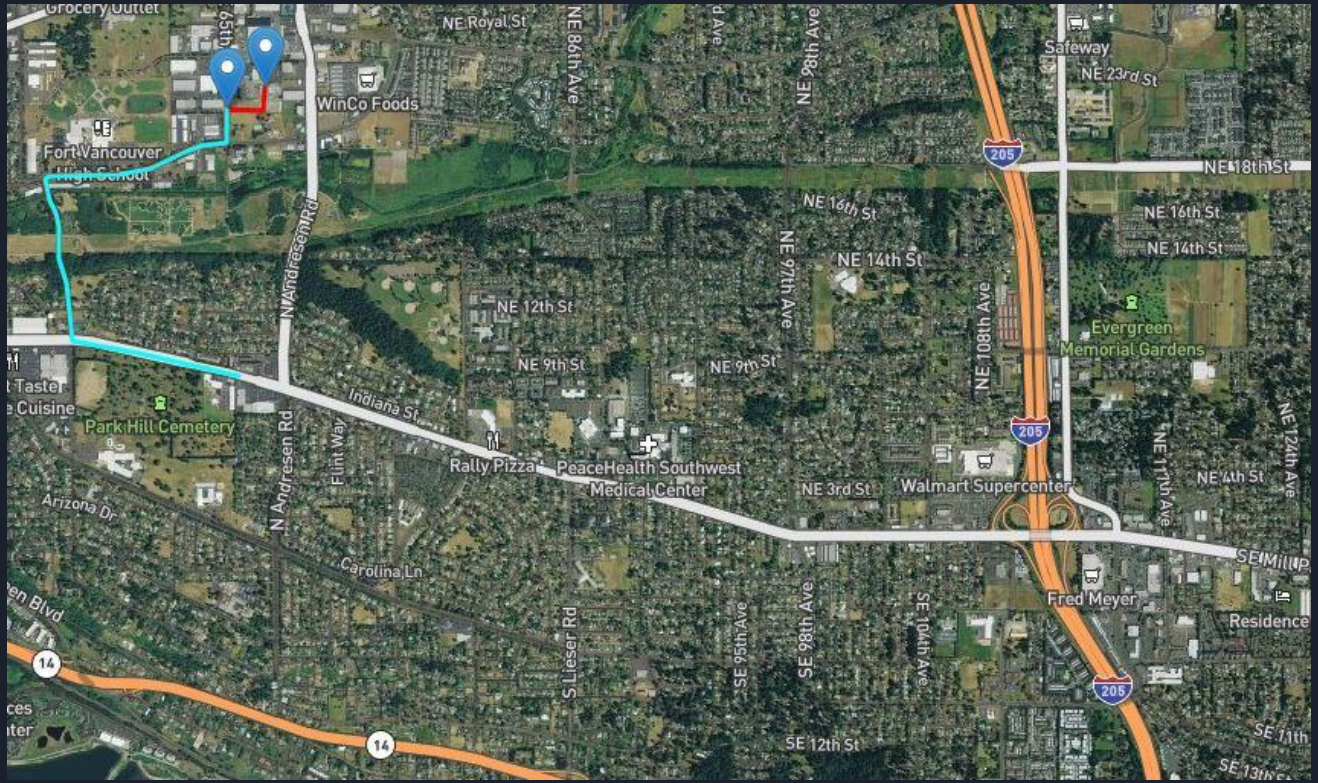
Route 37 Mill Plain / Fisher's



Route 37 Mill Plain / Fisher's



Route 37 Mill Plain / Fisher's



Route:199th Street Express
Trip: 152570206
Date: March-02-20

Minimum Longitude Deviation: 0.000217540084947 Maximum Longitude Deviation: 0.000217540084947

Median Longitude Deviation: 0.000177970210686 Mean Longitude Deviation: 0.000136721718934

Minimum Latitude Deviation: 0.000000553557598 Maximum Latitude Deviation: 0.000028787231436

Median Latitude Deviation: 0.000007130155055 Mean Latitude Deviation: 0.000009923036652

Point with the Smallest Deviation: Original Latitude, Original Longitude (45.691332000000003,-122.663335000000004)
Minimum Deviated Latitude 0.000028787231436 Minimum Deviated Longitude 0.000069873727995

Point with the largest Deviation: Original Latitude, Original Longitude
(0.000005914611457, 0.000177970210686)
Maximum Deviated Latitude 0.000005914611457 Maximum Deviated Longitude 0.000177970210686

Limitations of our Program

- Largest Deviation Point was at the beginning
- Smallest Deviation was also at the beginning
- Points are slightly shifted (most apparent 153648645)
- Difficult to tell whether manipulation of things like min, max and mean are correct
  - Data itself is difficult for a human to read
  - There are hundreds of points in each trip
- The Roads API is a paid for service, so there could be a cost to run the program.
  - Slight positive is that when a trip goes way off the route, that data is preserved rather than snapping the trip back onto the expected route.

HTML Map Links

Route 199

trip152570206Route199.html

trip153213331Route199.html

trip153330402Route199.html

Route 37

tripviz152286664Route37.html

tripviz153124699Route37.html

tripviz153648645Route37.html