**Code review: DSSG-HOT-MASTER**

# cj

## Notebook Overview

* geo\_travel\_behavior.ipynb - looks at common attributes of census block groups and travel behavior
* hov\_with\_tolls\_exploration.ipynb - looks further into why some trips marked HOV have tolls
* initial\_analysis.ipynb - initial analysis of non-trip level data
* joined\_data\_analysis.ipynb - analysis of trip data with initial census estimates; includes early maps
* mcib\_replication.ipynb - replication of the means-constrained integration brackets method for estimating means of bins of census groups
* modal\_vot.ipynb - analysis of HOV users
* presentation\_viz.ipynb - creating analysis for presentation
* speed\_vol\_exploration.ipynb - exploration of relationships between speed, volume and travel time
* survey\_analysis.ipynb - analysis of WSDOT survey from 2017
* travel\_behavior.ipynb - looking into single users' predictibility and commuting patterns

**-feel free to look more into this - this analysis mainly shows that most people traveling in the HOT lanes do not travel in regular patterns that are easy to identify. i think it'd be interesting to try and quantify how many of these users actually use the facility predictibly and are "regular commuters" (however you define that)**

* unusual\_trips\_and\_fips.ipynb - exploring unusually high frequency trips and areas
* wsdot\_initial\_analysis.ipynb - initial analysis of non-matched trip-level data

## Folders

* shiny\_apps - holds R shiny apps to help visualize benefit distributions from Cory's notebooks

# Shirley

## Folders

* figs - folder containing saved out figures from notebooks
* sql - folder containing sql code

## Code

* acs\_info\_maps.ipynb - makes maps of census block group characteristics from census (American Community Survey) data
* customer\_survey\_analysis.ipynb - some simple analyses of 2018 WSDOT HOT lane customer survey data
* edit\_shapefiles.ipynb - manipulates shapefiles to be able to use them in Tableau, can mostly ignore this
* get\_functioning\_loops.ipynb - grabs the closest functioning loop detectors to toll entry/exit mileposts
* price\_timeseries\_analysis.ipynb - looks at toll prices over diff times of day, etc.
* spatial\_analysis\_interactive.ipynb - creates interactive visualization of geographic variables using altair (cool interactive python package)
* spatial\_analysis\_load.ipynb - loads trips database, filters trips (for commercial users, etc.); loads shapefiles for map visualizations; called by spatial\_analysis\_interactive.ipynb, spatial\_analysis\_plot\_maps.ipynb, spatial\_analysis\_plot\_relationships.ipynb
* spatial\_analysis\_plot\_maps.ipynb - creates maps of many diff variables by block group
* spatial\_analysis\_plot\_relationships.ipynb - aggregates many variables by block group and looks at relnship btwn these variables on the block group level; saves out csv with aggregated block group info to further explore interactively in tableau
* travel\_time\_analysis\_load\_and\_define\_fxns.ipynb - loads travel time data; called by travel\_time\_analysis\_plots.ipynb
* travel\_time\_analysis\_plots.ipynb - plots travel time data by weekday or month, etc.
* exploration\_shirley.sql - playing around/exploring characteristics of the trips data in sql
* joinall\_shirley.sql - practicing joining all the trips files, can mostly ignore this

# Kiana

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## Code

* clustering.ipynb - Making different clusters based on different travel pattern and characteristics
* Hov\_PSRC.ipynb - Analyzing HOV and SOV users in Puget sound regional council trip survey
* crash\_analysis.ipynb - Making some preliminary analysis on crash data along I-405
* Suit\_index\_city.ipynb - Using ecological regression for developing suits index at city level
* suits\_index.ipynb - Previous methodology for developing suits index at county level
* testdb.ipynb - Matching travel time savings and travel time reliability to the trips
* Travel\_time.ipynb - Quality check and analyzing the travel time data

# Cory

## Important notebooks

* ecological\_regression does most of the usage patterns by mode, and income.
* route\_distributions does most of the usage patterns by route.
* VOT\_VOR\_estimation estimates the value of time (VOT) and reliability (VOR) for facility users.
* aggregate\_benefits analyzes the distribution of benefits and costs by mode, income, race, frequency, and time of day.
* equity\_maps plots usage and benefit patterns on maps.
* equity\_graphs makes equity plots for reports or presentations.
* policy examines several potential policy interventions.

## Data preparation notebooks

* toll\_time creates a toll file.
* tracflow creates a speed-volume file.