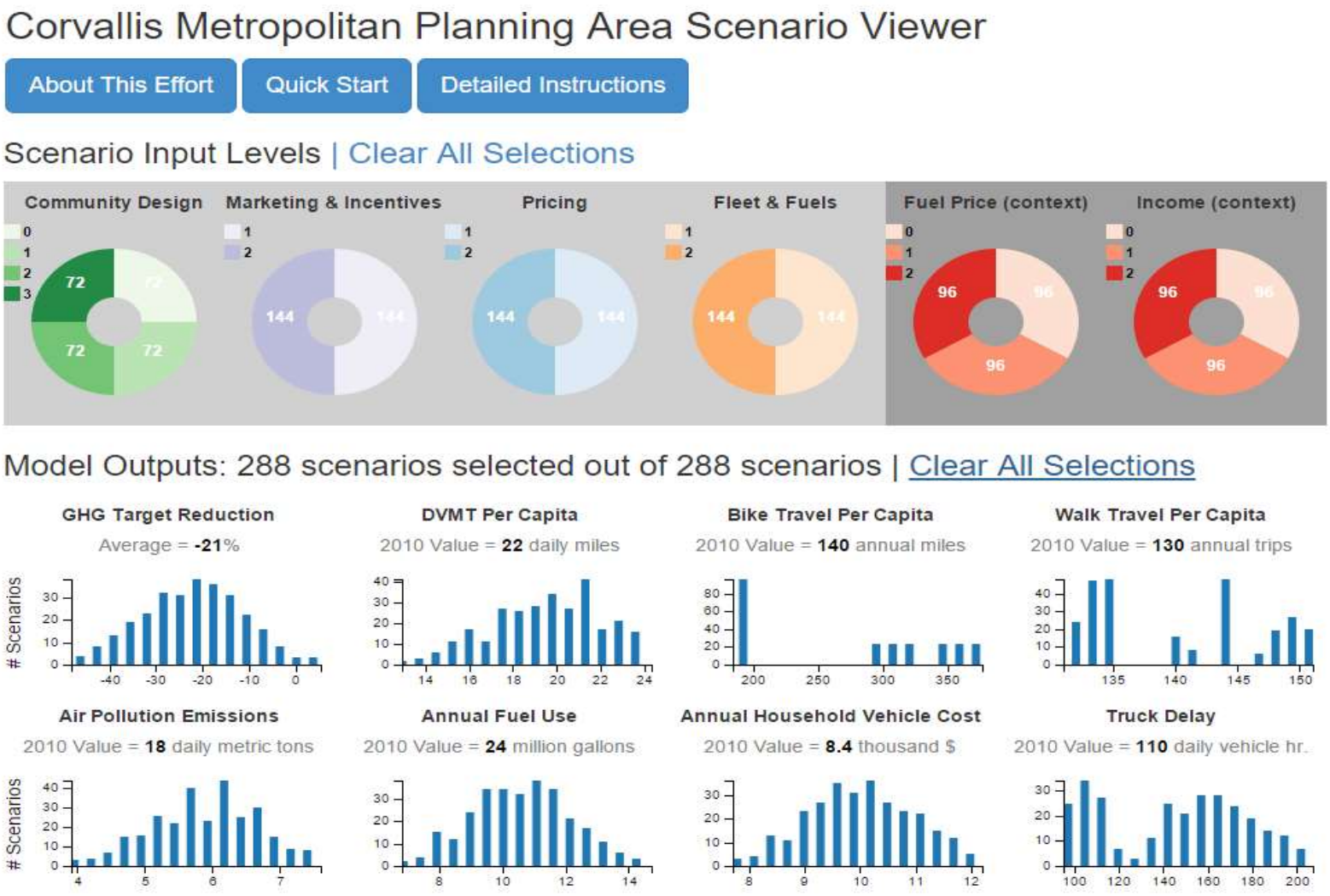
# RPAT Scenario Viewer

- Background
- Demonstration
- Methodology for creating RPAT demonstration
- Outline of changes needed to incorporate into RPAT

# Scenario Viewer Background

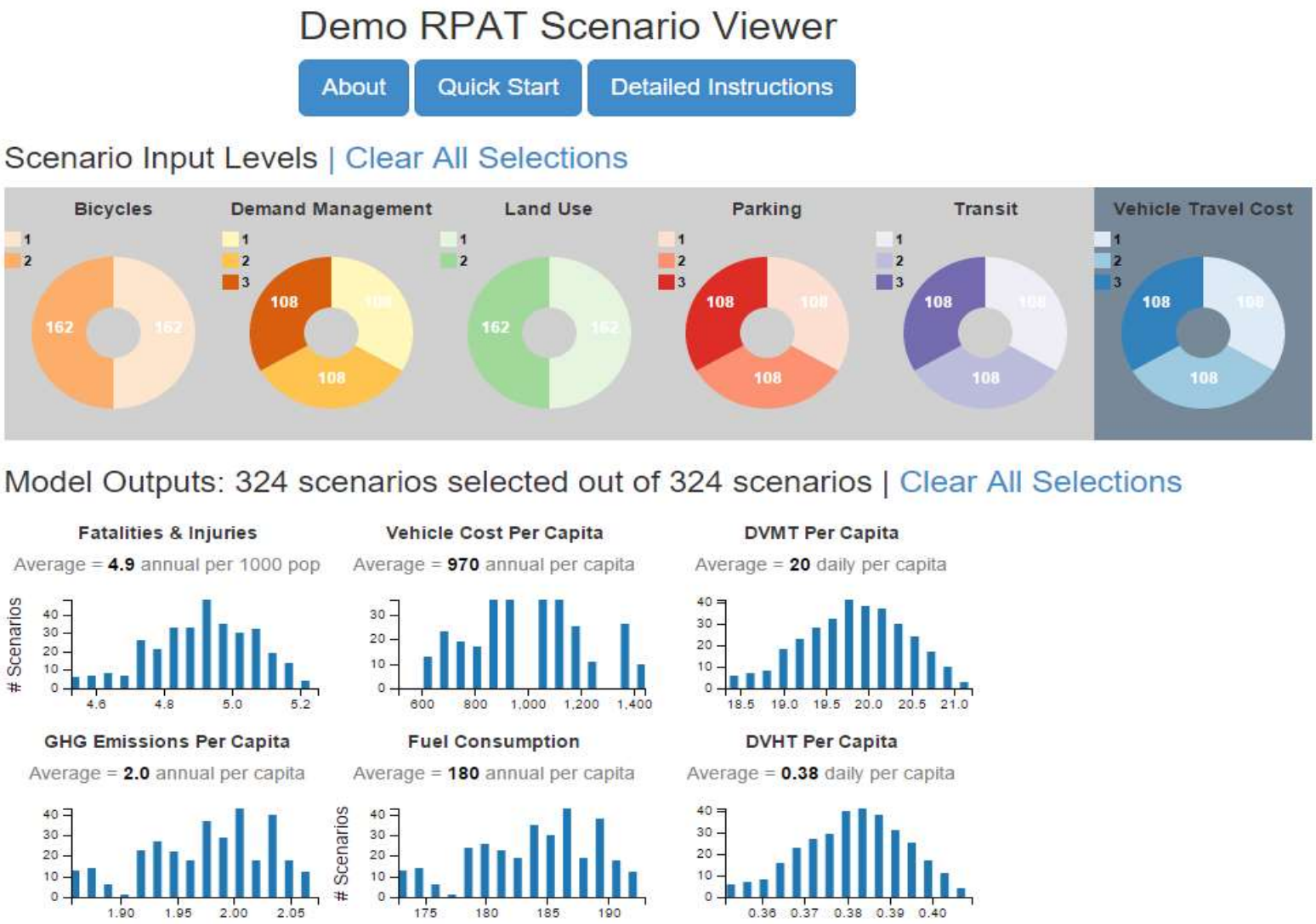
- Developed for RSPM model to support the presentation of sensitivity tests to planners
  - Interactive. Feels like you are modeling.
  - Improve understanding of relative effects of different policies and tradeoffs between them.
- Two parts:
  - Methodology and scripts for building scenarios from category levels, running all scenarios, and compiling results.
  - Web app to visualize results (HTML, Javascript, CSS)

# RSPM Scenario Viewer Demonstration




https://www.oregon.gov/ODOT/TD/TP/Pages/scenarioviewer.html

# RPAT Viewer Example




https://github.com/gregorbj/RPAT/tree/master/VizRPAT

# RPAT Demo Methods 1

- https://github.com/gregorbj/RPAT
- Set up file structure:

```
{factors}
    {common}
    {unique}
    readme.txt
{parameters}
{scenarios}
{scripts}
    license.txt
    outputs.csv
    SmartGAP.r
    SmartGAP_Inputs.r
    SmartGAP_Sim.r
make_scenarios.r
run_many_scenarios.r
```

# RPAT Demo Methods 2

Define categories of inputs to vary and levels within each category

```
B - Bikes/Light vehicles (light_vehicles.csv)
    1- Base bike diversion (9.75%)
    2- Double bike diversion (19.5%)
C - Cost (vmt_charge.csv)
    1- Base, no charge
    2- 4 cents per mile
    3- 8 cents per mile
D - Demand Management (commute_options.csv)
    1- Base
    2- Double all participation rates
    3- Double all participation rates and transit subsidy level
L - Land Use - (place_type_growth.csv)
    1- Base, growth proportions same as base proportions
    2- Half suburban population and employment growth (-13%), distribute to urban core R/E (+4%), urban core MU (+5%)
P - Parking (parking.csv)
    1- Base, existing costs and proportions paid
    2- Increase parking fees to 20% of workforce and 20% of other
    3- Same as 2 but double parking cost
T - Transit (transit_growth.csv)
    1- Base, supply stays at present level
    2- Double transit supply
    3- Triple transit supply
```

# RPAT Demo Methods 3

- Modify and select RPAT code:
  - Change several lines of SmartGAP.r
  - Also need SmartGAP_Inputs.r & SmartGAP_Sim.r
  - Need jsonlite package installed
- Run R script to build all of the scenarios (i.e. all combinations of category levels).
  - make_scenarios.r
- Run R script to run all of the scenarios and create summary comparisons that are used in viewer
  - run_many_scenarios.r

# RPAT Demo Methods 4

- Build the viewer
- HTML, Javascript, and CSS template. This will need to be modified to create the desired design, but  once done, only summary data will need to be inserted to use.
- VizRPAT file structure:

# Incorporating Viewer Into RPAT

- Determine standardized categories.
  - This will make it possible to have one viewer template.
  - Otherwise more challenging to program a flexible viewer.
  - Users have flexibility to define levels for each category
- Revise the design for the viewer.
  - Design for manipulating categories (Central Lane example)
  - Design for showing performance measures
  - Method for documenting user levels in viewer
- Modify the RPAT GUI to enable users to define levels for each category:
  - Enable users to determine number of levels in each category. Provide feedback on run time.
  - Users create a level by modifying reference scenario files or files for another level.