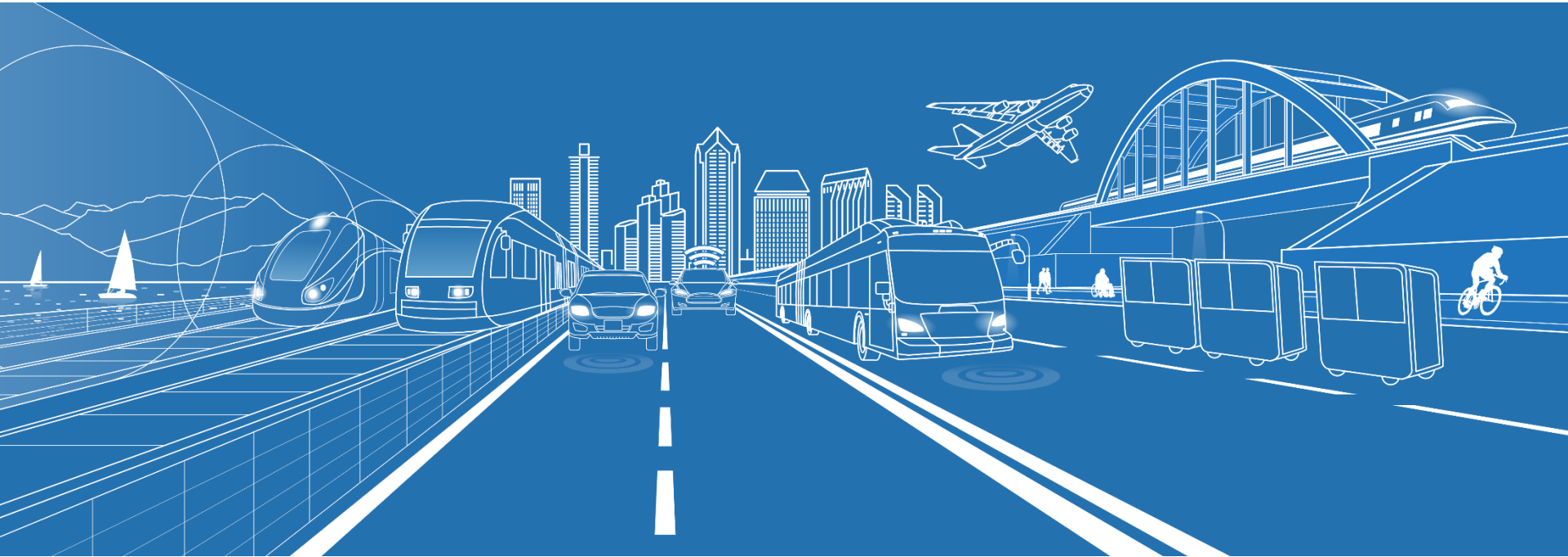


**SANDAG**



# ActivitySim Visualizer Assessment

January 18, 2022

# Assessment Items

- **Organization**
  - Is it well organized and easy to set up?
- **Look and Feel**
  - How is the design and user experience?
- **Extensibility**
  - Is it configurable and extensible to other examples?

# Organization

## To set up and run the visualizer:

1. Add the *summarize* step to the model run list
2. Add the *summarize.yaml*, *summarize.csv*, and *summarize\_preprocessor.csv* files to a *configs* directory
3. Create a *summarize* subdirectory within the *output* directory and add any necessary dashboard configuration files
4. Manually run SimWrapper on a completed ActivitySim scenario

Standard ActivitySim procedures

Non-standard but necessary procedures

## Assessment:

- Visualizer components are well organized and successfully build dashboards
- A layer of user involvement added to generate dashboards
  - Option to create dashboard during model runtime (e.g., HTML)?

# Look and Feel

## Design Assessment:

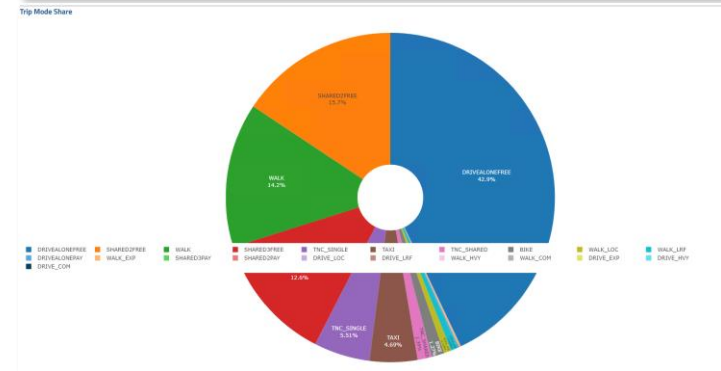
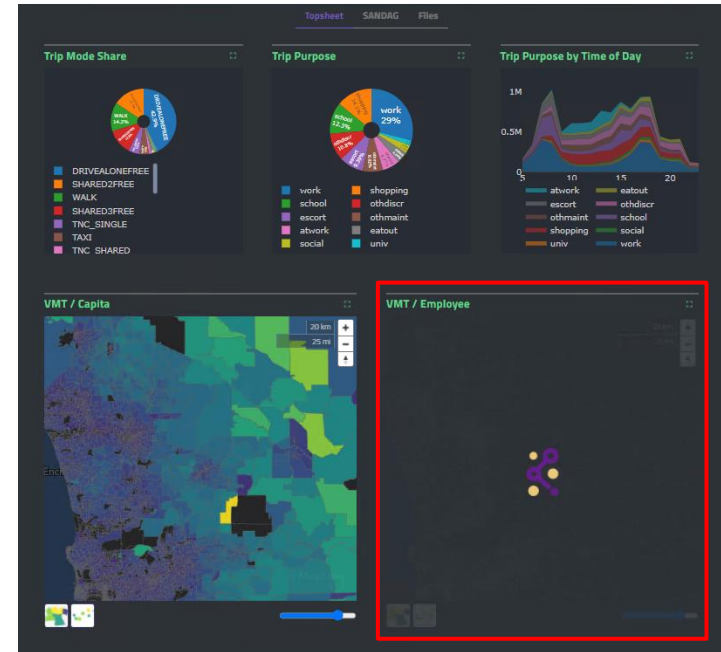
- Clean and intuitive dashboard design
- Row and tab-based structure allows for easy dashboard organization
- Useful features: light/dark mode, split panels, saving charts as images
- Difficulty comparing multiple scenarios through panels



# Look and Feel

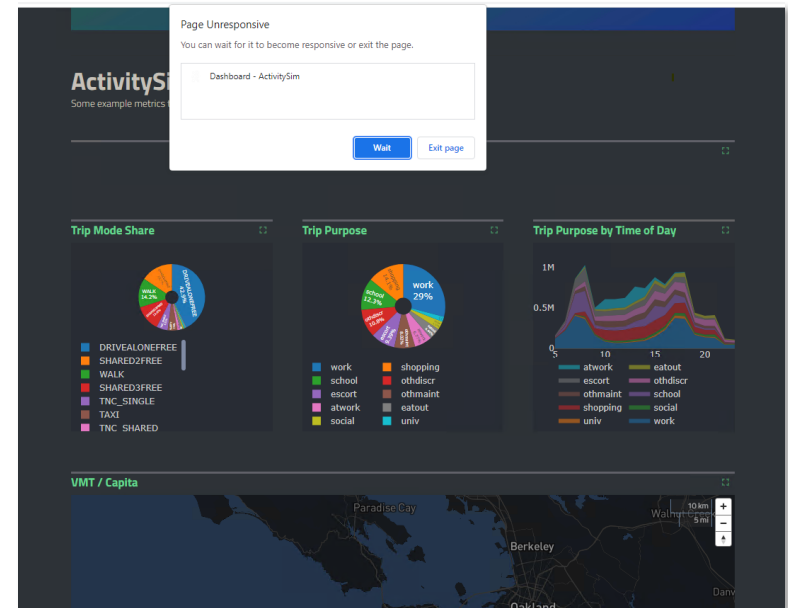
## User Experience Assessment:

- Easy to generate and navigate dashboards
- Dashboard not supported for all browsers
- Insufficient error logging (right)
- Bugs:
  - Chart legend placement (right)
  - Maps centered on SF by default
- **Performance-related issues**



# Performance

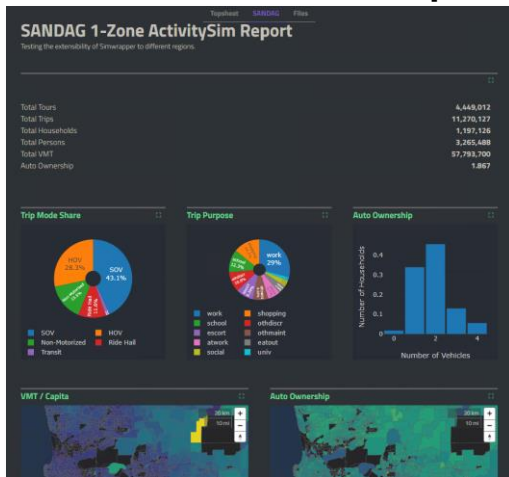
- Dashboard performance varies heavily across different machines
  - Best performance on machines with GPUs
- Dashboard may become slow, unresponsive, or even timeout while navigating maps, working with panels, or navigating tabs
- Charts/maps within tabs require loading every time
- Performance issues may arise when developing more complex dashboards



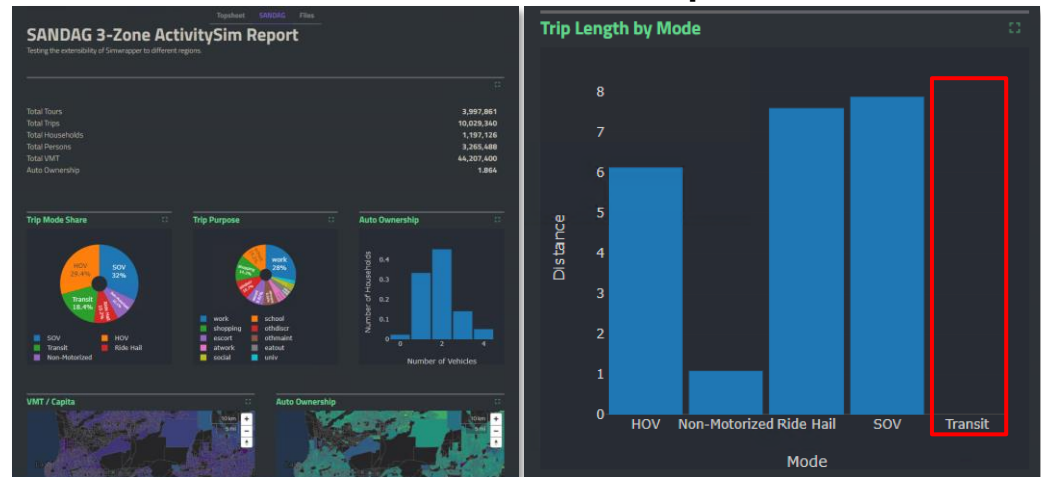
# Extensibility

To test extensibility, a custom dashboard was created for:

## SANDAG 1-Zone Example



## SANDAG 3-Zone Example

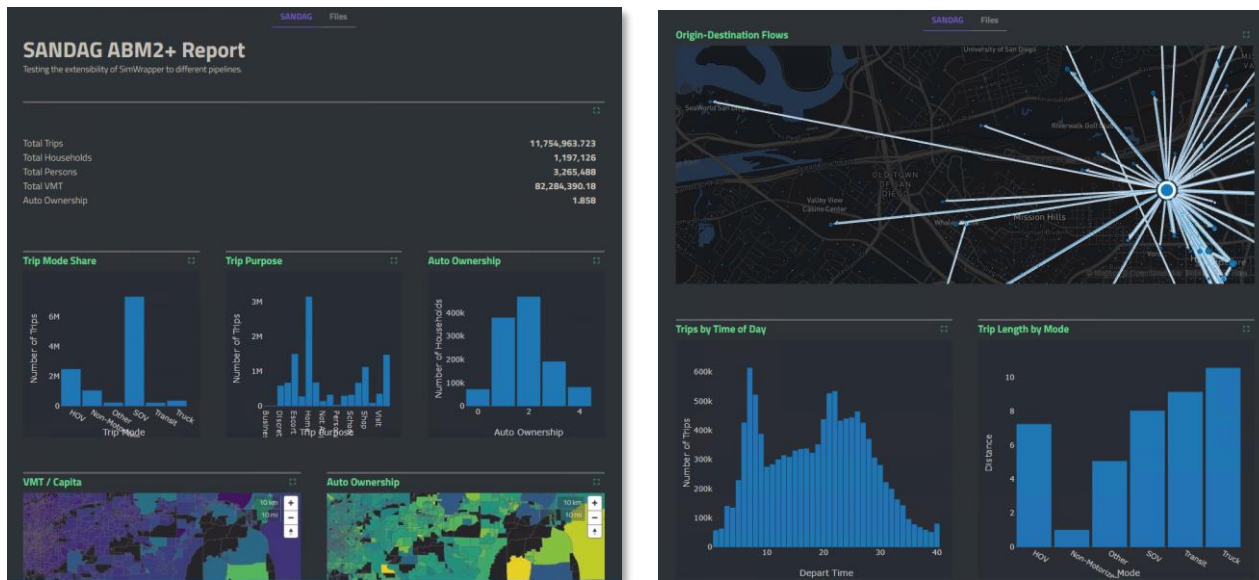


## Assessment:

- Visualizer is extensible and customizable for different ActivitySim scenarios
  - Requires understanding of SimWrapper API
- Data availability issues for the *summarize* preprocessor (TAP skins)
- Feature requests: temporary variables in *summarize.csv*, chart labels ordering, legends/colormaps for maps

# Extensibility: Other Applications

## SANDAG ABM2+ Dashboard



## SimWrapper Requirements (high-level):

- Summary table files resulting from a data pipeline
- Dashboard configuration files



# Key Takeaways

- Visualizer components are well organized
- A simple and working procedure exists to build dashboards from ActivitySim scenarios
- Visualizer dashboards are well designed
- Visualizer is extensible to different ActivitySim scenarios
- No TAP skim summary support for three zone examples
- **Performance-related issues**