Mobility Index

The Mobility Index is a composite measure that quantifies the extent to which transportation infrastructure and land use support low VMT development. Higher index values indicate areas with greater support for walking, biking, and transit use. Lower values indicate greater dependence on the automobile. The index integrates physical attributes across three dimensions, including:

- Bike and Pedestrian Infrastructure and Safety: Quality, connectivity, and protection of facilities such as sidewalks, crosswalks, trails, and bikeways, along with safety indicators such as crash rates and traffic calming features.
- Transit Service: Frequency, coverage, and proximity of public transportation options, including micro transit.
- Density of Services and Population: Concentration of destinations such as jobs, and retail, as well as residential and employment density, which together support shorter trips and more non-automobile travel.

By combining these factors, the index provides a single metric representing how conducive an area is to active and sustainable transportation. Higher scores indicate environments where residents and visitors can walk, bike, and use transit more safely and conveniently to reach their daily destinations. Lower scores indicate areas where residents and visitors are more reliant on automobiles. The data to inform the index is drawn from sources TRPA and its partners already compile.

The index can be applied in multiple ways. It can be used to track changes over time and the extent to which the Regional Transportation Plan and the Regional Plan are being realized. The index could also be used by local planners to identify which elements an area is doing well on and which require additional attention. For example, areas that score well on transit and active transportation but low density could focus more concentrated development so that more people have the opportunity to take advantage of the transportation opportunities of the area. Within the proposed framework of DP5, the score is tied to the screening level. Where scores go up, the screening size for the area increases. Where score decrease, the screening size also decreases.

Index working draft: https://trpa-agency.github.io/Playground/PIA_Index.html

To simplify analysis and improve interpretability, the index is developed from three sub-indices representing the key categories of interest: Transit Service, Active Transportation Infrastructure, and Density. Each sub-index was generated using ESRI's Create Composite Index spatial analysis tool, with scores normalized using a min–max scaling approach. The data were aggregated to 15-acre hexagonal bins, each encompassing roughly 30 half-acre parcels—a scale previously shown to yield meaningful insights. This level of aggregation highlights spatial patterns effectively while remaining broad enough to support clear, basin-wide mapping and analysis. Additional detail about the variables and the methodology used to calculate them is described in the table below.

Category	Variable	Metric	Weighting within Category	Comments
Transit Service	Bus Service	Within a ½ mile walk of a transit stop (1 or 0)	1	This will be refined by adding service frequency to create a more nuanced value that captures quality of service as well.
Transit Service	Micro-Transit Service	In a micro transit service zone (1 or 0)	0.5	This was considered less important than standard bus service.
Active Transportation	Bike Paths and Sidewalks	Total length of class 1 bike paths and sidewalks within 500m of the middle of each hexagon	2	
Active Transportation	Intersection Stress	Distance-weighted score of the nearest 5 intersections based on our Bike Level of Traffic Stress (BLTS) study	0.5	This is intended to capture the experience of walking or biking in the area.
Active Transportation	Road Stress	Length-weighted average BLTS score for road segments within 500m of the center of the hexagon	0.5	This is intended to capture the experience of walking or biking in the area.
Density	Residential Unit Density	Total number of residential units in the hexagon and all adjacent hexagons	1	Including adjacent hexagons helped produce a smoother gradient of density.
Density	Tourist Accommodation Units	Total number of Tourist Accommodation Units in the hexagon and all adjacent hexagons	1	Including adjacent hexagons helped produce a smoother gradient of density.
Density	Commercial Square Feet	Total CFA in the hexagon and all adjacent hexagons	0.5	CFA may not be the best way to capture density; exploring options such as the number of employees.
Density	# of Commercial Properties	Total number of commercial properties in the hexagon and all adjacent hexagons	0.5	The number of businesses also seemed relevant to density.