

UPlan Present Projects and Future Directions

In Progress:

Time steps: Break the UPlan run down into blocks of time that each have their own population totals, land use mixes, and can have independent general plans, masks, attractors and discouragers.

Improved Redevelopment: Building on the Fresno model for redevelopment. Include two additional datasets that have population and employment density in areas available for redevelopment. Calculate the number of displaced residents and employees, and reintroduce them as a portion of a second run.

Vertical Mixed Use: Residential and employment land uses can be permitted to build over each other to create a vertical mixed use.

Simplified Data Management: Built in tools for importing data for use in UPlan. This will replace the data loader and will be accessible while setting up a run.

Land use flexibility: Land uses are no longer tied directly to a fixed variant. They can be added and removed while setting up a run.

Combined User Interface: There will be one user interface that gives direct control to all aspects of the model. This avoids having to exit out of model setup to add a data layer that might be needed or adjust land uses.

Speed Increase: UPlan will use more efficient data handling and processing methods.

Trace Through Queries: Identify specific attractor, mask and general plan effects by land use. This will allow easy checking on why growth is projected in the manner that it is.

Planned:

4D Calculator: A tool for predicting the effects of land use changes on VMT. A set of elasticities derived by Fehr & Peers and a processing method being developed by SACOG will be implemented into UPlan.

Land Use Mix Metrics : Computable metrics demonstrating the cumulative mix of land uses tabulated by a user defined zone system.

Potential Future Directions:

Monte Carlo Simulation: Use the net attraction as a utility surface in a logit choice model or as a simple (pseudo)probability surface for development.

UPlan as a Compiled Tool: Movement of UPlan to a VB.Net programming language where we might be able to multithread portions of the code for improved speed as a raster model.

Vector Based UPlan (vUPlan): Redevelop UPlan as a vector based model. Raster modeling has some speed and processing limitations that we're encountering. Moving to a vector system will let us take advantage of modern databases that should enable faster processing and more flexibility in the modeling system. This could remain within the ESRI Object Model, or it could move to open source.

Internet UPlan: Develop a UPlan interface that can be exposed to the internet for web based use.

Continuing Usability Improvements: Add simple features as they become needed. Some ideas that have already been brought up: support for all random allocations, random allocation block separation, direct shapefile display as a base layer.