How To...Placetypes_USA Tool

Place types are categories of land use built form, that are useful for describing development patterns and their relationship to human behavior (e.g. travel behavior) and well being (e.g. health). Placetypes_USA is a land use topology developed for use in the RPAT and related family of VisionEval models at the block group level. The classification is facilitated by the Placetypes_USA tool which currently houses the 2010 Census & EPA’s Smart Location Database at the block group level used to build the place types, as well as the resulting place type maps in a visual and interactive way. The users is able to adjust the place type definitions and view the impacts for each state. The data can then be downloaded and used as baseyear land use input to the RPAT tool, or other analysis purposes. This guide includes screen captures of the tool to provide and understanding about what it does. For more information on how place types are used in Oregon DOT applications, see these links:

INSTALL:
1. Install RStudio
2. Download Placetypes_USA from GitHub (link below) and unzip the application on your local drive
   https://github.com/gregorbj/Placetypes_USA
3. Double click “Placetypes_USA.Rproj” to open Placetypes_USA in RStudio (see Figure 1)
4. Check that the following libraries are installed (“Packages” tab in lower right corner). If not install them (add via “Install” menu within “Packages” tab)
   - Mime
   - Jsonlite
   - Leaflet
   - Sourcetools
   - Shiny (install last)
5. From RStudio, launch Placetypes_USA user interface (find/open “ui.R” tab in upper left quadrant; from it click “Run App”).

   Note: It works best if your default browser is a browser other than internet explorer.

Figure 2 shows what the Placetypes_USA tool looks like when opened correctly. The left side has a panel of options for controlling what is displayed on the map as well as user edits to the place type definitions that can be saved.

The right side displays the place type map, as well as other information tabs. Figure 3 shows the “App info” page with explains more about the tool use and navigation. Other tabs provide documentation for how the 3 Place Type “types” are defined. The last tab provides summary statistics for the chosen “type” across the block groups in the displayed map.

---

1 Placetypes_USA tool was developed by Brian Gregor, Oregon Systems Analytics, based on default place type definitions created in collaboration with the Oregon Department of Transportation and Department of Land Conservation & Development for use in the VisionEval family of models building on definitions in the SHRP2 C16 Rapid Policy Assessment Tool (RPAT). More on ODOT use of Place Types: [http://www.oregon.gov/ODOT/TD/OSTI/Pages/scenario_planning.aspx#3](http://www.oregon.gov/ODOT/TD/OSTI/Pages/scenario_planning.aspx#3)
Figure 2. Placetypes_USA Tool opening screen
Note Panel to left and Map to right, other state maps can be selected with drop-down box

Figure 3. Placetypes_USA Tool Metadata – “App info” tab

How To...Placetypes_USA Tool
Place Type Categories:
The Placetypes_USA tool uses 3 “types” to categorize land use in each block group:

- **Location Type**: categorizes the general urban context of the place (e.g. large urbanized area, small city, etc.).
- **Area Type**: categorizes the spatial relationship of urban places to the urban center (e.g. urban center, suburbs, etc.).
- **Development Type**: categorizes the general character of land uses occupying the place (e.g. residential, employment, mixed, etc.)

Place Types are established in a two-step process. First, categorical variables are established for the underlying built form attributes (“5D” attributes e.g., population density, land use diversity, etc.) using values of very low (VL), low (L), medium (M), or high (H). Second, a series of rules is applied to designate types based on various combinations of the categorical variable levels. Information on how this is done for each of the three type dimensions is explained in the corresponding “… Info” tabs on the right side of the interface (see Figures 4). In the “Map” tab the value of the user-set “type” is shown for each Census block group with a colored dot located at the center of block group.

**Figure 4. Placetypes_USA Tool – Tabs show info on 3 Place Type “types”**

Note Library install in lower right & ui.R “Run App” in upper right

The pull-down menu at the left side of the interface are used to control what information is displayed on the map and the parameter values for establishing categorical values. Figure 5 shows the menu that allows you to select a state to display, which of the 3 place type “types” to display on the map. Figure 6 highlights the lower portion of the left panel showing the user pull-down menus that allow edits to the 3 place type definitions. Buttons on the bottom allow the user to recalculate the place type maps with these edits, as well as saving, restoring to defaults. The saved versions are saved in binary R files in the “outputs” directory.

**Figure 5. Placetypes_USA Tool Menu to display State & Place Type “Type”**

*How To...Placetypes_USA Tool*
How To... Placetypes_USA Tool

Figure 6. Placetypes_USA Tool – Left Panel modifiable criteria that define the 3 Place Type “types”

Figures 7-9 show the map of Portland, Oregon using the default Place Type definition for Location Type, Area Type, and Development Type. Figure 10-11 shows the same map for two of the underlying “5D” datasets, density and accessibility level.

Figure 7. Placetypes_USA Tool – Portland Oregon Place Type Map of “Location type”
Figure 8. Placetypes_USA Tool – Portland Oregon Place Type Map of “Area type”

Figure 9. Placetypes_USA Tool – Portland Oregon Place Type Map of “Development type”
Figure 10. Placetypes_USA Tool – Portland Oregon Place Type Map of 5D “Density Level”

Figure 11. Placetypes_USA Tool – Portland Oregon Place Type Map of 5D “Accessibility Level”