

Orange County Transportation Authority

Visualizing Home to Work Job Locations and Income Demographics using Census LODES Data in a Web-based Application

Presented by:

Steve Hossack and Mark Jackman

2023 Local Employment Dynamics (LED) Partnership Virtual Workshop



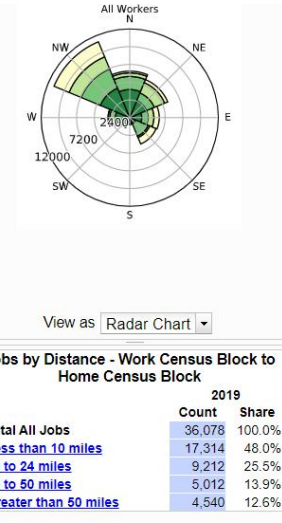
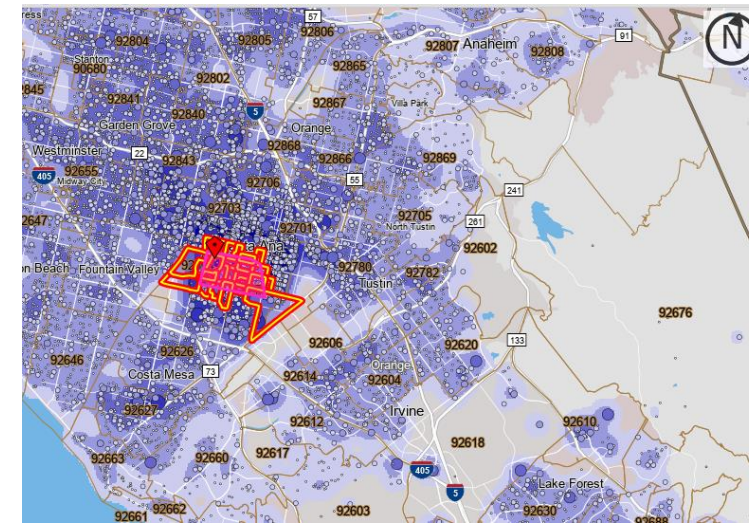
Orange County Transportation Authority (OCTA)

- County transportation planning commission for Orange County, CA
 - 3.2 million residents
 - 34 cities and 1 county agency
- Responsibilities Include:
 - Funding and implementing transit and capital projects for the transportation system
 - Operating a bus and rail transit system
 - Long-term transportation planning
 - Coordination with local, regional (SCAG MPO), state and federal agencies
 - Administering the voter approved local sales tax for transportation improvement projects
- More at <https://www.octa.net>



Investigation of LEHD Data

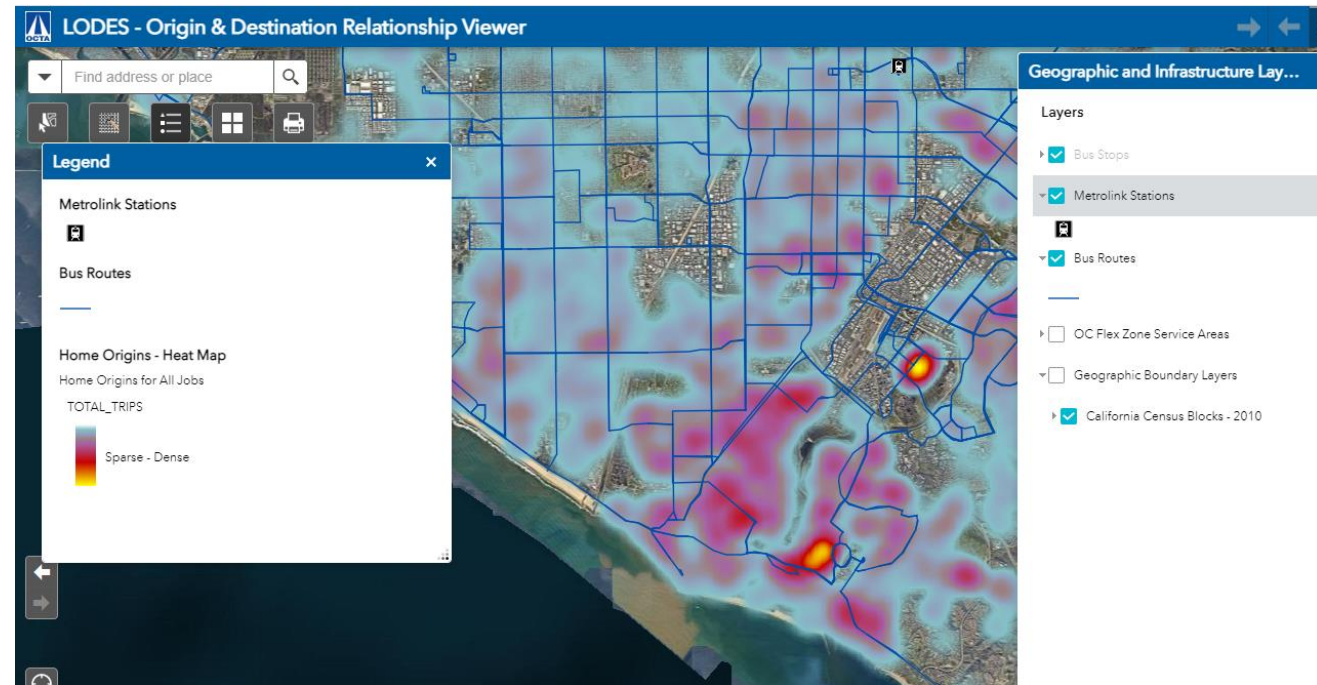
- Review of OnTheMap Application
 - Mapping of Home to/from Work Travel Patterns
 - Ability to Select Various Geographies (County, Zip Code, Tract, Block Group)
 - Analysis of Distance between Home/Work Census Blocks
- Download and Review of LODES Data Files
 - 2019 CA OD Main
 - Filtered only records with Home/Work Blocks in Orange County
 - 2.1 Million OD Records
 - 1.5 Million Workers Reside in Orange County
 - 1.67 Million Jobs within Orange County



	w_geocode_str	h_geocode_str	S000	SA01	SA02	SA03	SE01	SE02	SE03	SI01	SI02	SI03	createdate	CountyCode	CountyName	HomeCountyCode	HomeCountyName	h_tract	w_tract	
1	060590016015002	060590013031000	1	0	0	1	1	0	0	0	0	1	20211018	6059	Orange	6059	Orange	001303	001601	
2	060590016015002	060590013031002	2	1	1	0	1	1	0	0	0	2	20211018	6059	Orange	6059	Orange	001303	001601	
3	060590016015002	060590013031004	1	0	1	0	0	1	0	0	0	1	20211018	6059	Orange	6059	Orange	001303	001601	
4	060590016015002	060590013031005	3	0	2	1	0	1	2	0	0	3	20211018	6059	Orange	6059	Orange	001303	001601	
5	060590016015002	060590013031006	1	0	1	0	0	0	0	1	0	0	1	20211018	6059	Orange	6059	Orange	001303	001601
6	060590016015002	060590013032001	6	0	5	1	1	2	3	0	0	6	20211018	6059	Orange	6059	Orange	001303	001601	
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17	060590016015002	060590013041000	1	1	0	0	0	1	0	0	0	1	20211018	6059	Orange	6059	Orange	001304	001601	
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20	060590016015002	060590013041007	1	1	0	0	1	0	0	0	0	1	20211018	6059	Orange	6059	Orange	001304	001601	

Development of OCTA LODES App

- Similar to OnTheMap
 - Goal is for Data Exploration
 - Select by Census Block Level
 - Custom Symbology and Heat Maps
 - Integrate with TAZ
 - Use TAZ to TAZ Distance Matrix for Distances
 - Instead of straight-line distance
 - Display with other GIS Datasets
 - Transit Routes and Stops
 - Transit Centers
 - Major Activity Centers
 - Household, Employment, Population Density
- Development
 - ArcGIS Enterprise – minimal code using Web AppBuilder
 - LODES Data Hosted in Enterprise Geodatabase



OCTA LODES App Demonstration

LODES - Origin & Destination Relationship Viewer

Find address or place

Work Places to Residences

Layers

- Home Destinations (Work Places)
- Home Origins - By Census Blocks
- Home Origins for All Jobs
- Home Origins for High Earning Jobs
- Home Origins for Middle Earning Jobs
- Home Origins for Low Earning Jobs
- Home Origins - Heat Map
- Home Origins for All Jobs
- Home Origins for High Earning Jobs
- Home Origins for Middle Earning Jobs
- Home Origins for Low Earning Jobs

Home Origins for All Jobs

Total Jobs: 5
 Low Earning Jobs: 1
 Middle Earning Jobs: 1
 High Earning Jobs: 3
 Home Geocode: 060590626042029
 TAZ: 1,286

Earning Categories

Jobs Categorized by Earning - Percent

Zoom to

Bus Stops | California Census Blocks - 2010 | Home Origins for All Jobs | Home Origins for Low Earning Jobs | Home Origins for Low Earning Jobs | Home Origins for High Earning Jobs | Home Origins for Middle Earning Jobs

Options | Filter by map extent | Zoom to | Clear selection | Refresh

Total Residents	Low Earning Residents	Middle Earning Residents	High Earning Residents	Home Geocode	TAZ
2	0	1	1	060590626143010	1263
2	0	0	2	060590524221020	1357
2	0	0	2	060590626262000	1257
2	0	0	2	060590626282001	1254
2	1	1	0	060590626272001	1270
2	0	1	1	060590626292009	1273

Further Development of OCTA LODES App

- Implement Travel Time Analysis
- Include Disadvantaged Communities layers (CA EPA, USDOT and Justice 40)
- Implement accessibility analysis by mode (drive, transit, bike walk)

