Using REVSION to Understand Neighborhood Transportation Dynamics
Guidance for Users
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Introduction/Summary

REVISION is a web-based mapping and analysis application tool that integrates a range of public and private data for sustainable communities planning and trend visualization. The application creates a common regional performance-monitoring tool for use in neighborhood and community-level time-series analyses. REVISION is available for Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties on the web at http://revision.lewis.ucla.edu.

This white paper is intended to highlight how the REVISION application can be utilized to explore available transportation data, as well as how to understand this data in relation to neighborhood change. More specifically, how areas near transit may vary in terms of the numbers of cars, mode of transportation to work, and parking, among other variables. This information is useful in order to monitor existing planning strategies, as well as to continue to refine proposed policy work and sustainable development planning.

With a range of metrics, which include accessibility, livability, employment, and health, REVISION helps both professional planners and stakeholders without a technical background to examine and monitor neighborhood change throughout the region and at different time periods. The REVISION application provides users with four tabs: Land Use, Livability, Mobility/Accessibility, as well as Trends. Each of these categories provides an assortment of data to explore; below are examples of how to utilize them in relation to transportation related queries.

Transportation Related Queries and REVISION

The first tab in REVISION is Land Use where users can find 2015 data for existing garages and parking structures when they click the *Parking* layer. The parking inventory numbers can be beneficial for a variety of planning purposes, such as estimating parking demands for new developments.
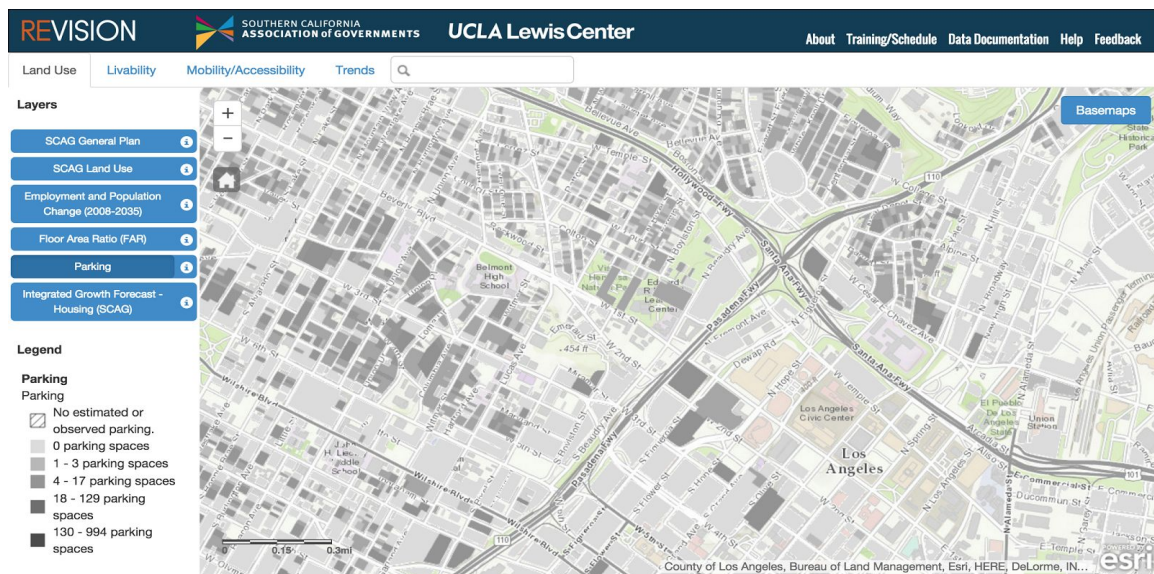

Parking Information for Downtown Los Angeles and abutting areas.

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Under the second tab, Livability, users can find the *Housing & Transportation Affordability Index (2008-2012),* which gives estimates and percentages of transportation and housing cost for families by block group level, this is provided through the ACS 5-year 2008-2012 data set and the Location Affordability Index (LAI). The higher the percentage (or darker the color) indicates that there is a higher cost burden for living in the block group area. A lower percentage of Income spent on Housing and Transportation indicates that an area is affordable. However, additional information, such as the household income quintiles, which can be found in a block group's Area Report, indicates whether the area is affordable for higher or lower-income households.
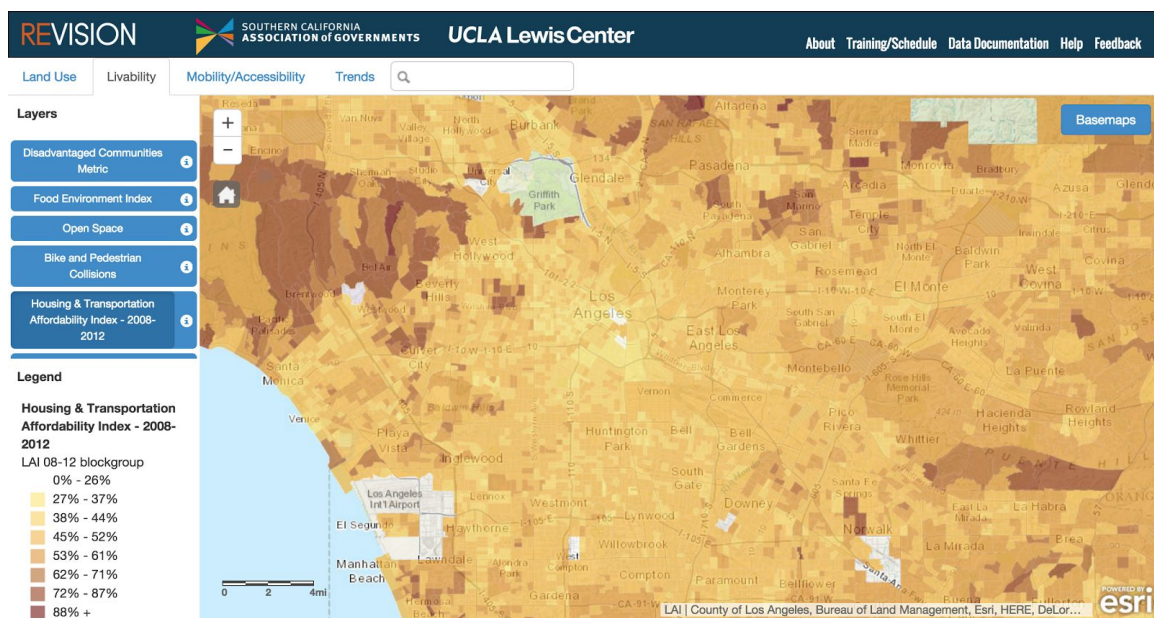

The Housing & Transportation Affordability Index – 2008 to 2012.

The Livability tab also provides a *Bike and Pedestrian Collisions* layer from 2003 to 2011, which can be utilized at different scales. The layer shows the number of collisions per census tract (higher zoom levels) or individual collision locations (lower zoom levels). The specific location of collisions involving pedestrian and people on
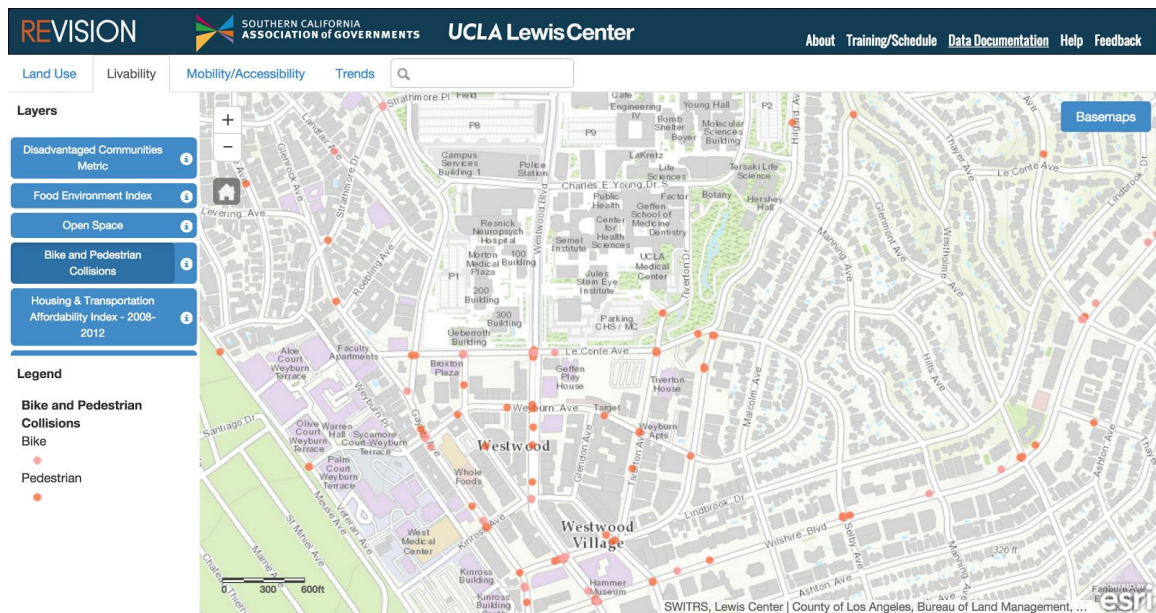
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bicycles can be used to assess a combination of pedestrian volumes and infrastructure design at a location, The data is from the [California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS)](#).
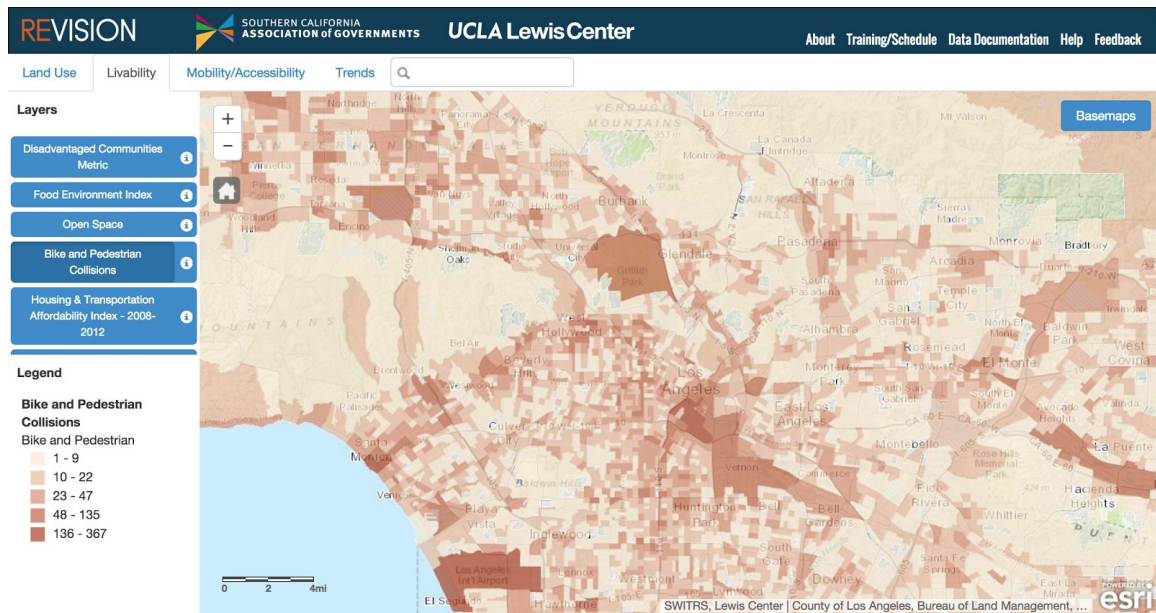
**Number of bicycle and pedestrian collision points in Los Angeles region for 2003 – 2011.**

Geocoded bicycle and pedestrian collision points around Westwood Village for 2003 – 2011.

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Under the third tab, the Mobility/Accessibility tool allows users to visualize a range of data that is beneficial for the study of transit and neighborhood change, examples include: *Public Transit* networks*, High Quality Transit and Transit Priority Areas*, and *Median Commute Distances*, as well as information regarding Current and Proposed Bikeway Networks.
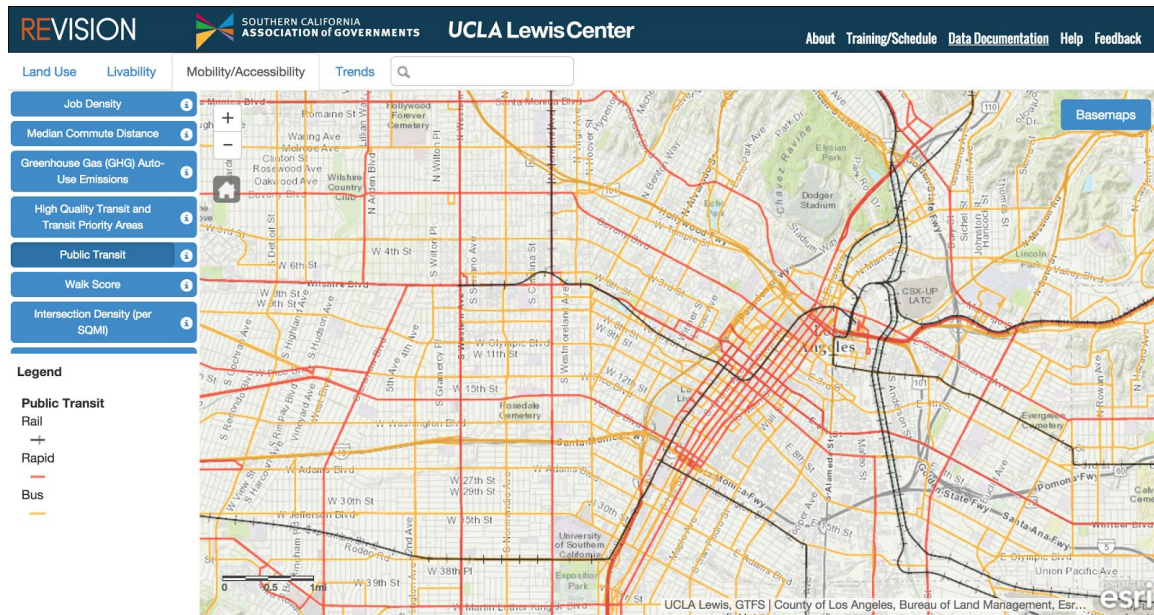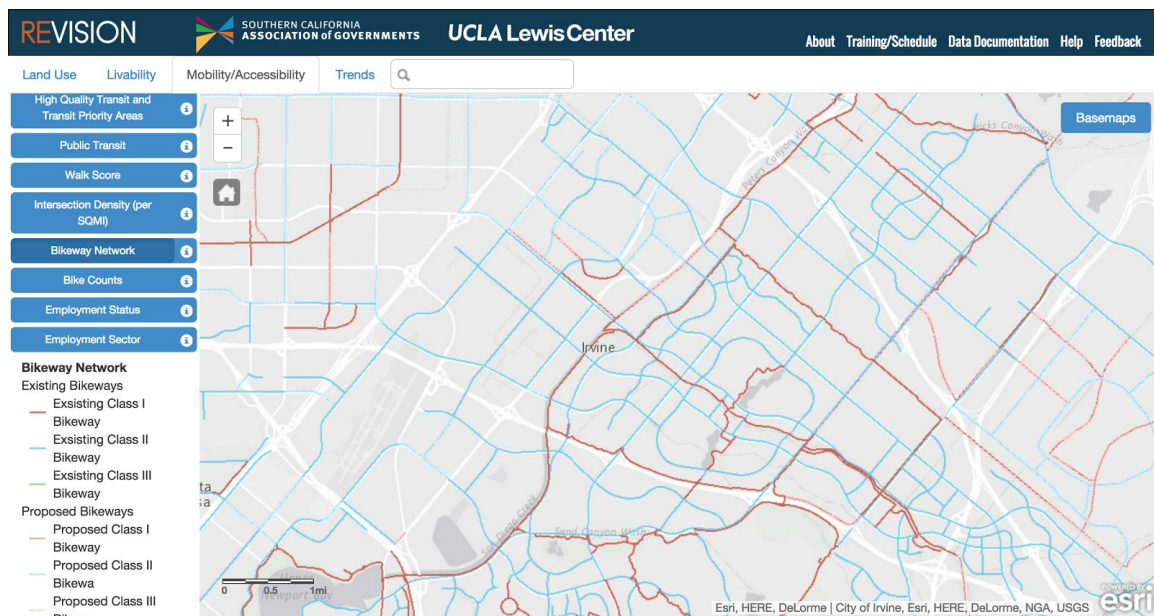

Public Transit networks near downtown Los Angeles.

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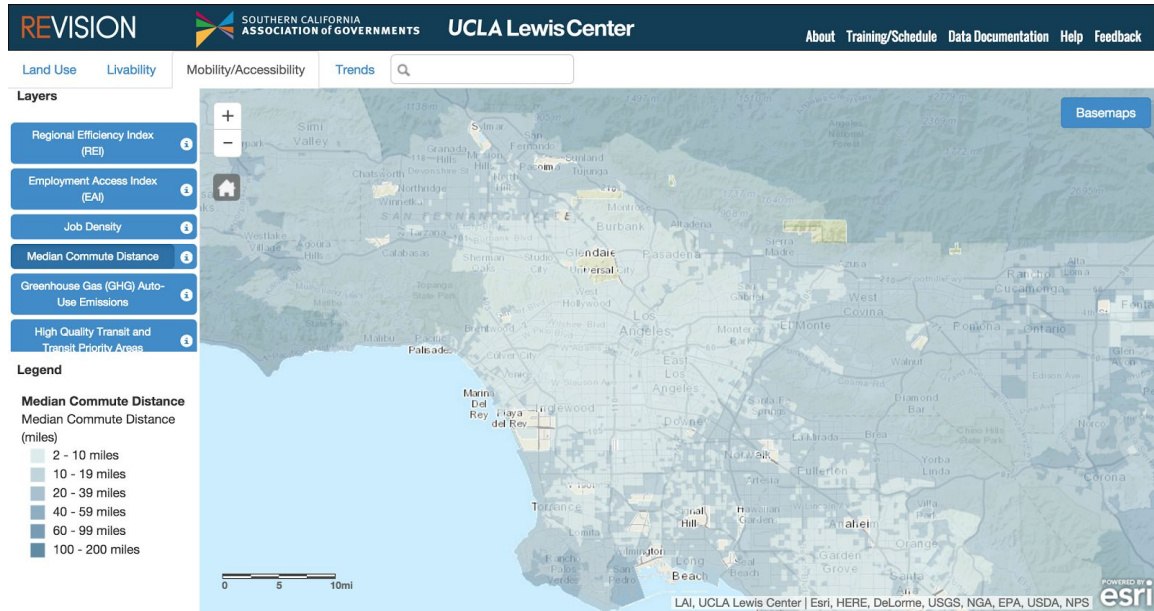
Median Commute Distances in Los Angeles County.

Bikeway networks in Irvine.

Trends Tab and Transportation Analysis

The abovementioned data available through REVISION can provide a snapshot of existing transportation and parking trends. However, under the Trends tabs, the

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application allows users to visualize American Community Survey (ACS) variables for a single year or compare change over multiple years at the block group level. REVISION offers 12 ACS variable to explore, in four 5-year rolling averages, however two variables of particular interest to transportation are *Means of Transportation to Work* and *Tenure by Vehicles Available*.

- *Means of Transportation to Work*

In the Trends Section, by choosing Means of Transportation to Work and Subway or Elevated as the variable, the user can explore what areas of the city have seen statistically-significant changes in populations that commute to work by subway from the 2006-2010 to 2010-2014 ACS. For instance, in downtown Los Angeles, as well as a block group in South Pasadena and Pasadena there has been a statistically-significant increase in subway use by residents.
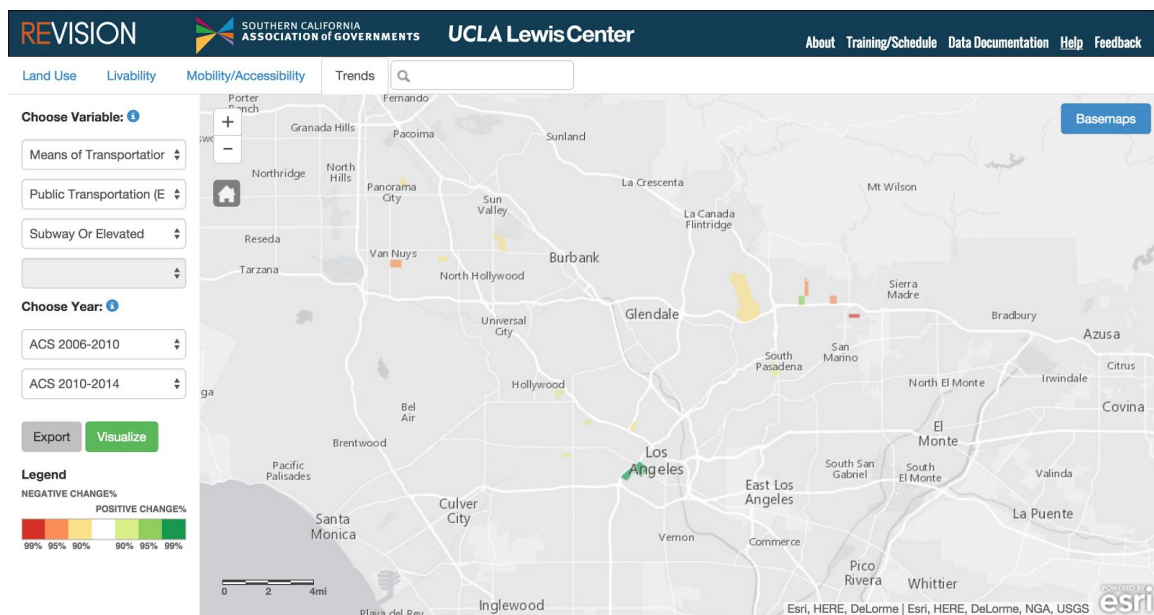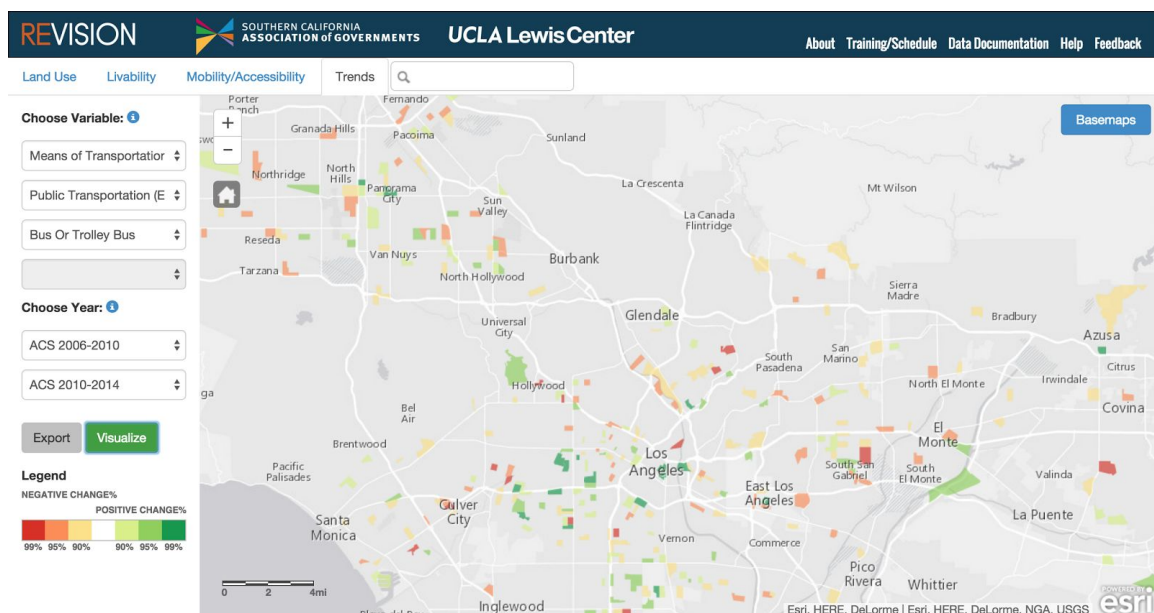

Change in Subway Use as a Means of Transportation to Work (between 2006-2010 to 2010-2014).

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Similarly, in the Trends Section, by choosing Means of Transportation to Work and Bus or Trolley Bus as the variable, the user can explore what areas of the city have seen statistically-significant changes in populations that commute to work by bus from the 2006-2010 to 2010-2014 ACS. Unlike in the previous subway example, the data reveals that there have been a greater number of areas that have seen both negative and positive significant change in terms of residents who commute to work by by bus in the Los Angeles area.


Change in Bus Use as a Means of Transportation to Work (between 2006-2010 to 2010-2014).

Once a user has explored a specific trend at the County or City level, they can then explore a specific block group area of interest. In this example, the block group in Pasadena that has seen a statistically-significant positive change in the resident's means of transportation to work by subway is used.

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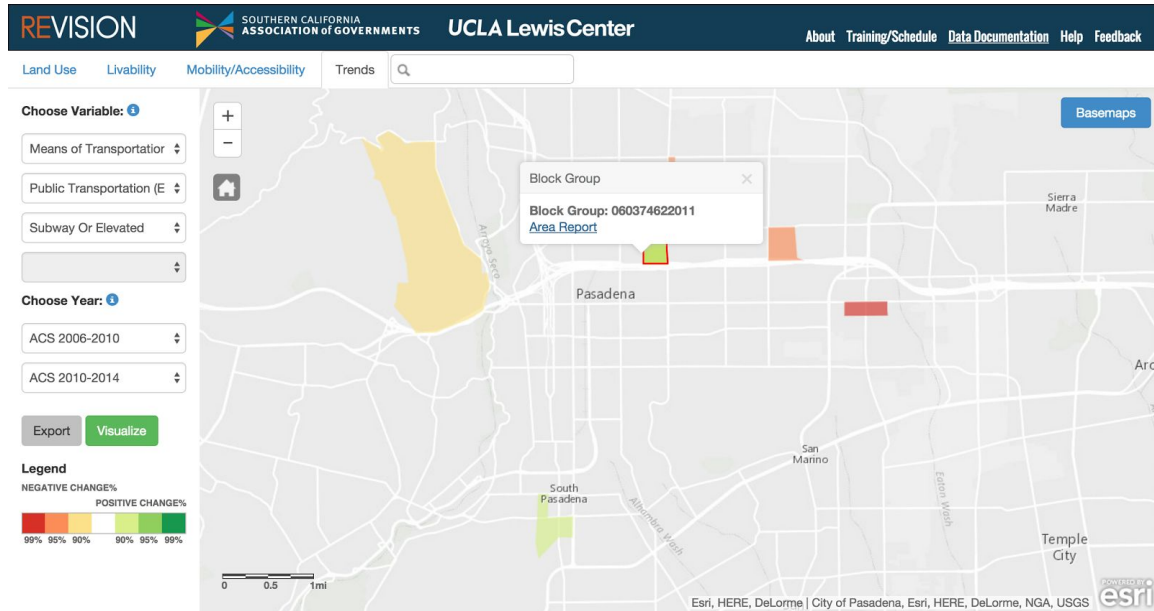
Block Group that has seen positive change in subway use.

The user can continue to explore this area through the ACS data available. For instance, by choosing the Tenure by Vehicle Available and Owner Occupied the data indicates that there has been a statistically-significant negative change in the number of vehicles per owner-occupied household for the same block group. To the north there is a similar statistically-significant negative change, however to the south the opposite trend is occurring. The increase in subway use along with the decrease in car ownership is an interesting find and might prompt the user to explore this area more.

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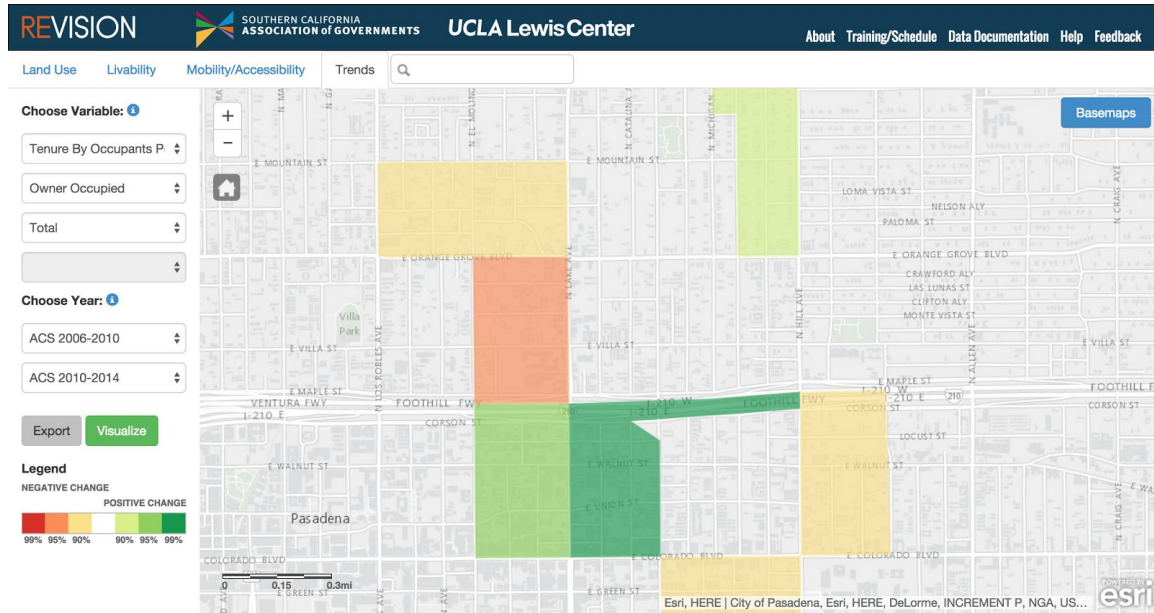
Change in Tenure by Vehicles Available for Owner Occupied Housing (2006-2010 to 2010-2014).

Going back to the Map View's Livability tab, the *Housing & Transportation Affordability Index (2008-2012)* for this area of Pasadena reveals that the block group that saw a positive change in subway use as a means of transportation to work has a slightly higher Location Affordability Index than some the abutting areas. This either indicates that the area is more expensive than the adjoining blocks or that prices are equivalent, but the residents have lower incomes and therefore a greater cost burden.

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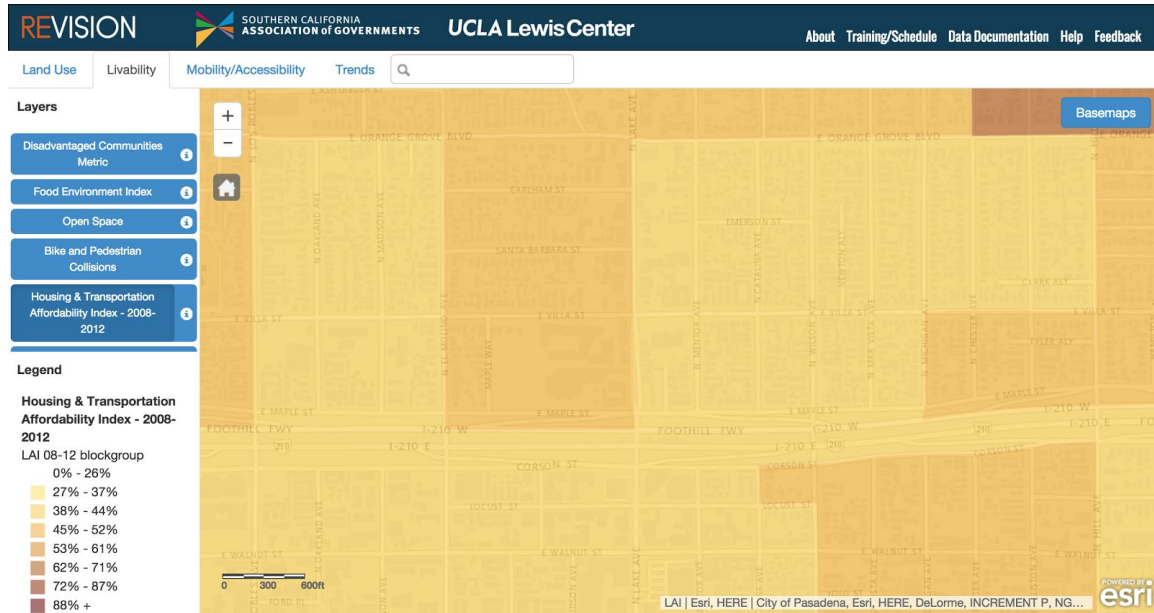
The Housing & Transportation Affordability Index, 2009-2012.
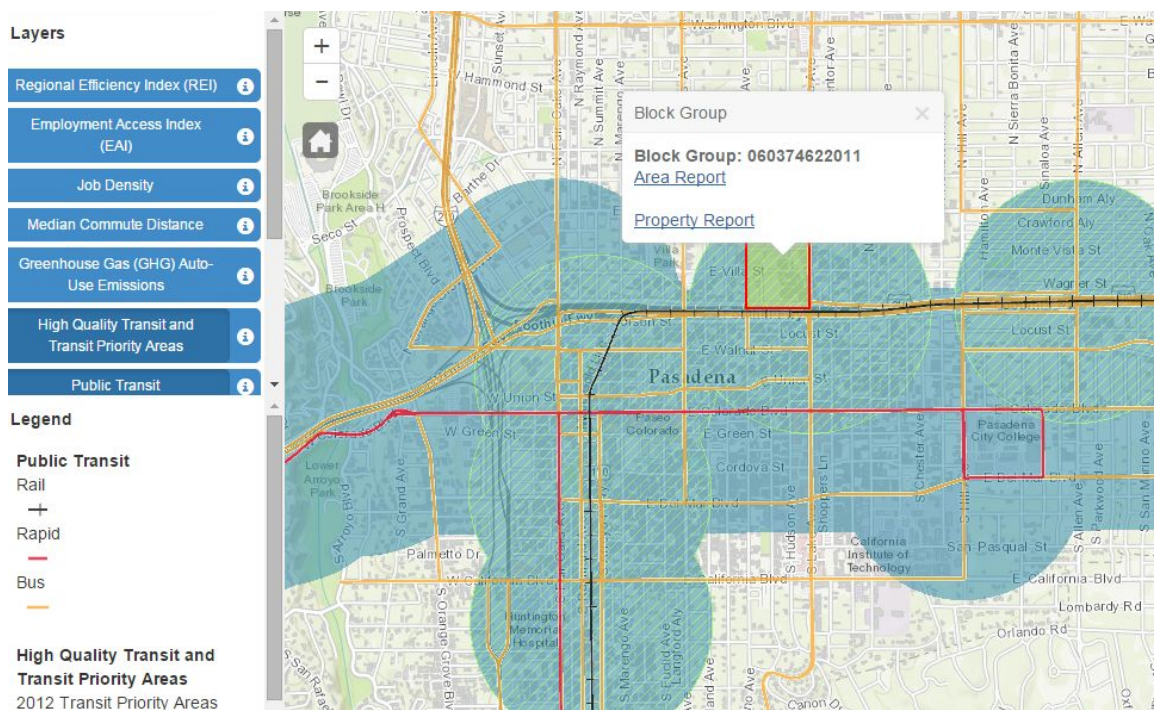
The area under investigation is a High Quality Transit and Transit Priority Area.

Why would this TOD area be more expensive? In general, scholarly literature agrees

that transport investments (new stations, TODs) have economic benefits primarily if they

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improve access significantly. Households with easy access to public transit are able to spend less on transportation and can thus afford to spend more on housing (Kilpatrick et al. 2007). Economic theory suggests that the value of decreased travel time should be reflected in home prices (Hess and Almeida 2007). Benefits tend to be the highest near, but not too near, network access points such as rail stations or freeway ramps.

Overall, the impact of transit on home values can vary depending on a number of mediating factors. Wardrip (2011) outlines several reasons, which include: housing tenure and type, the extent and reliability of the transit system, the strength of the housing market, the nature of the surrounding development, and so on. In an area with a strong housing market and a reliable transit system, the price premium may be much higher than the average. Additionally, effects may vary for different stations within a single market. For instance, averages can hide a lot of variation, and transit stations may have little or no impact on housing prices in some neighborhoods but a significant impact in others (Wardrip 2011). Some studies have also found that transit expansion plans may drive increases in property values before anything is built (Knaap, Ding, and Hopkins 2001).

In order to understand this specific transit area better, users can explore the Area Report, which reveals that this block group is over 50% White, highly educated (high percentage of college and graduate school attainment) and has a greater population of older residents 80+.

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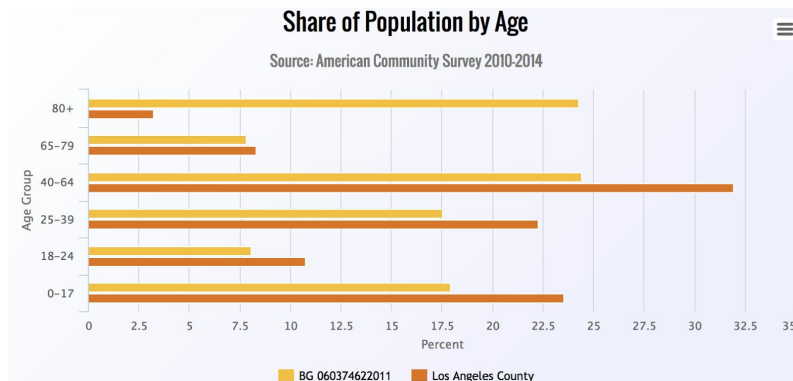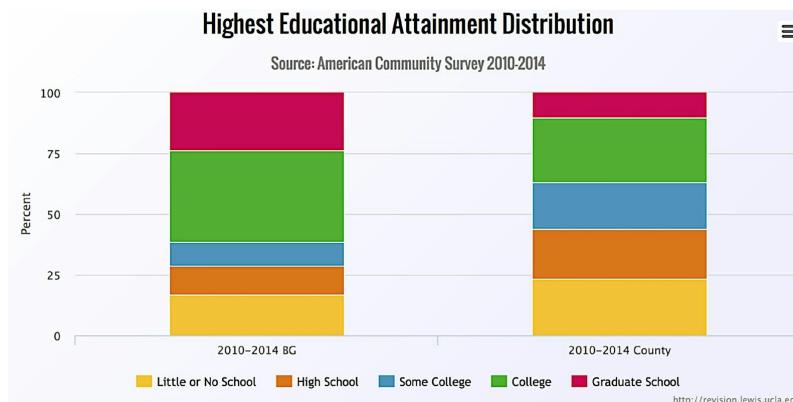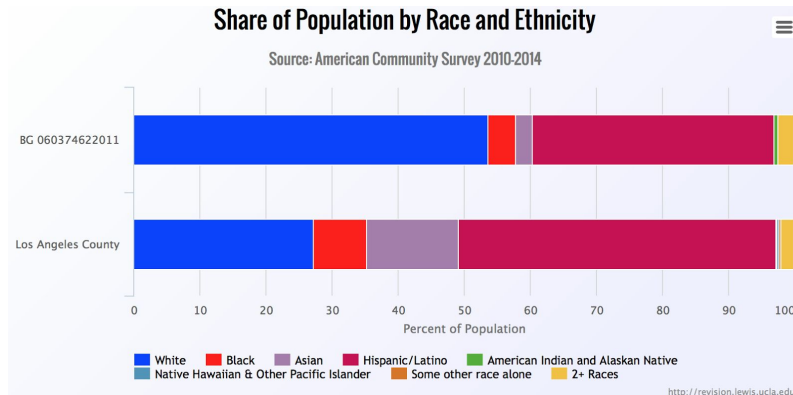
The area is a predominantly renter area and has lower mean household income quintiles compared to the County, although the quintile share is nearly equivalent.

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Mean Household Income of Quintiles
Source: American Community Survey 2010-2014 ⓘ

	CT 06037462201	Los Angeles County
Highest Quintile	$110609	$217948
Fourth Quintile	$49547	$92026
Third Quintile	$24493	$56427
Second Quintile	$13622	$32201
Lowest Quintile	$6697	$11940

Quintile Share of Aggregate Income
Source: American Community Survey 2010-2014
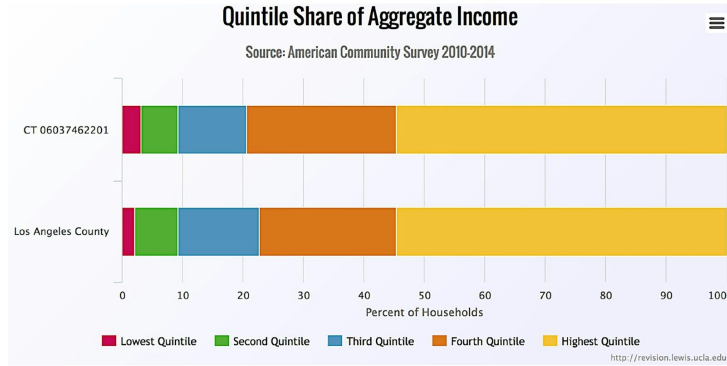
Proportion of Renter Occupied vs Owner Occupied
Source: American Community Survey 2010-2014 ⓘ

	BG 060374622011	Los Angeles County
Rent	87.9%	50.9%
Own	12.1%	49.1%

The REVISION Area Report provides ACS Transportation to Work by Age data for the area of Pasadena. Here the user can see which age group utilizes public transit at a greater rate than the County trend. In the case of this census tract area it is the 16 to 19, 55 to 59, as well as 60 to 64 year olds.

Transportation to Work by Age
CT 06037462201 in Los Angeles County: American Community Survey 2010-2014

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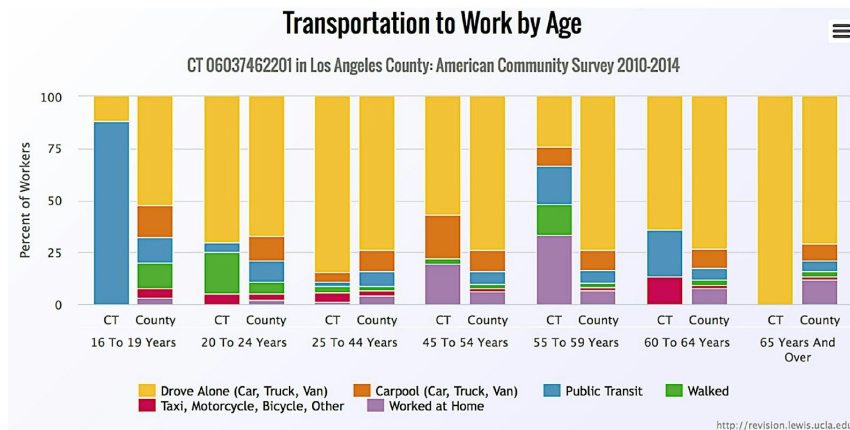
Conclusion/Takeaways

There are numerous data resources available through REVISION, which allow the user to investigate current transportation information and trends. Data can either present a current snapshot of existing conditions, or in the case of the ACS data indicate changes in transportation use.

Sources

Hess, Daniel Baldwin, and Tangerine Maria Almeida. 2007. "Impact of Proximity to Light Rail Rapid Transit on Station-Area Property Values in Buffalo, New York." *Urban Studies* 44 (5-6): 1041–68.

Kilpatrick, John A., Ronald L. Throupe, John I. Carruthers, and Andrew Krause. 2007. "The Impact of Transit Corridors on Residential Property Values." *Journal of Real Estate Research* 29 (3): 303–20.

Knaap, Gerrit J., Chengr Ding, and Lewis D. Hopkins. 2001. "Do Plans Matter? The Effects of Light Rail Plans on Land Values in Station Areas." *Journal of Planning Education and Research* 21 (1): 32–39.

Wardrip, Keith. 2011. "Public Transit's Impact on Housing Costs: A Review of the Literature." http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.233.851.

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