Los Angeles County Building and Safety Permits (New Buildings Only)

Leonid Shpaner

Shiley-Marcos School of Engineering, University of San Diego

Itemized Summary – Business Problem, Dataset, and Preprocessing Steps

Tableau Dashboard link:
https://public.tableau.com/app/profile/leon.shpaner/viz/BuildingandSafetyPermits-LACounty/LosAngelesCountyBuildingandSafetyPermitsNewBuildingsOnly

Business Problem

Contractors in Los Angeles County have historically relied on referral systems or proprietary databases to fill the gap between sourcing suitable projects from a wide variety of residential and commercial listings. One significant, yet often overlooked milestone in the long-run construction and maintenance costs is the prevalence of building and safety permits. A permit "from the Department of Building and Safety is required for private property construction, alteration or repair work on buildings within the City of Los Angeles (Burnham Nationwide, 2016). This Tableau visualization sources the "permits for the construction, remodeling, and repair of buildings and structures in the City of Los Angeles. These are categorized into building permits, electrical permits, and mechanical permits (which include plumbing, HVAC systems, fire sprinklers, elevators, and pressure vessels)" (City of Los Angeles, 2021). Even a cursory glance at the dashboard level will help influence the construction related decisions of real-estate developers, contractors, and subcontractors alike.

Dataset

The City of Los Angeles regularly maintains this database, filtering it for new buildings only, with periodical updates. There are 3,748 rows and 33 columns at the time of this report. The data has been imported into Google Sheets with the `=IMPORTDATA()` function in the first cell (A1), and subsequently connected to Tableau as a data source; this is auto-refreshed daily in order to capture any recent updates made by the City Infrastructure & Service Requests.

Preprocessing Steps

Certain columns and/or contents therein have been renamed and/or feature engineered for clarity. For example, "Use Desc" was changed to "Use Description". Next, "APC" (Area Planning Commission) has been renamed to "Region" since Los Angeles County has several regions within it. Moreover, "Price/ Sq. Ft." has been created using the following calculated field:

```
IF [Square Footage]=0 THEN
[Valuation] ELSE
[Valuation]/[Square Footage] END
```

GPS information was presented as longitude and latitude columns, allowing for mapping coordinates to be carried out with relative ease. The "# of Records" field, a standard with most datasets was introduced as a calculated field based on the count of "Permit Sub Type" values:

```
COUNT ([Permit Sub Type])
```

Permit Sub Type is a binary column that contains either "Apartment or Commercial" permit types. No other adjustments have been made.

User Guide

Summarized Values

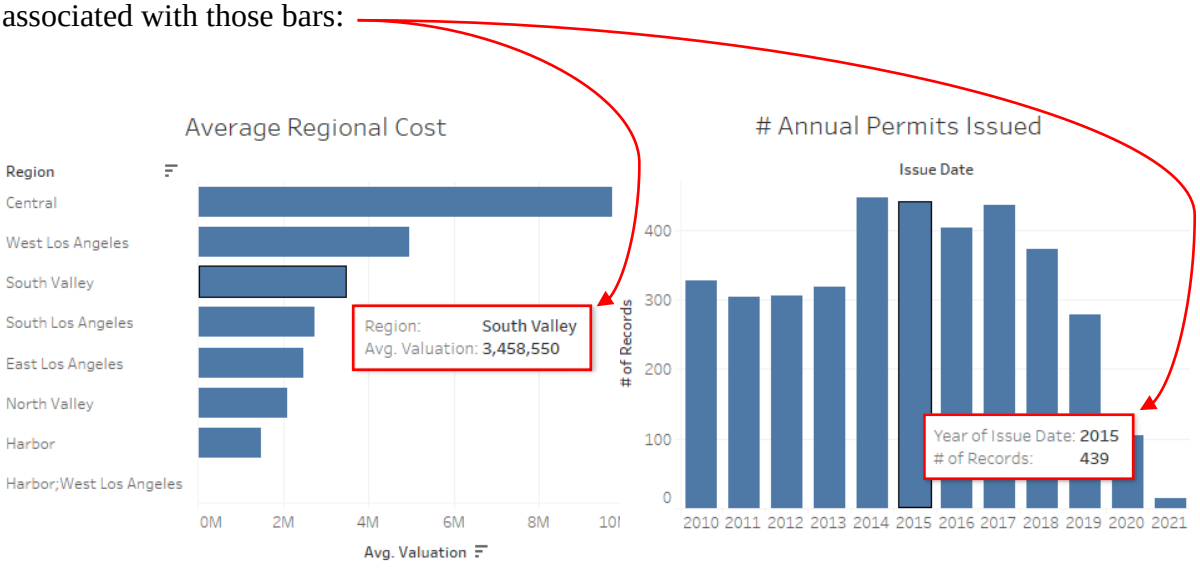
Construction project managers are hereby granted access at the dashboard level to help inform them on the number of residential (referred to as “Apartments” under “Permit Sub Type” and commercial units. Average square feet, average price, and average price per square foot from the database at large are included. These numbers are subject to change with every automated data refresh.

Residential	Commercial	Total Units
1,645	2,103	3,748

Avg. Sq. Ft.	Avg. Price	Avg. $/ Sq. Ft.
29,340	$4.4M	$422.8K

Bar Graphs

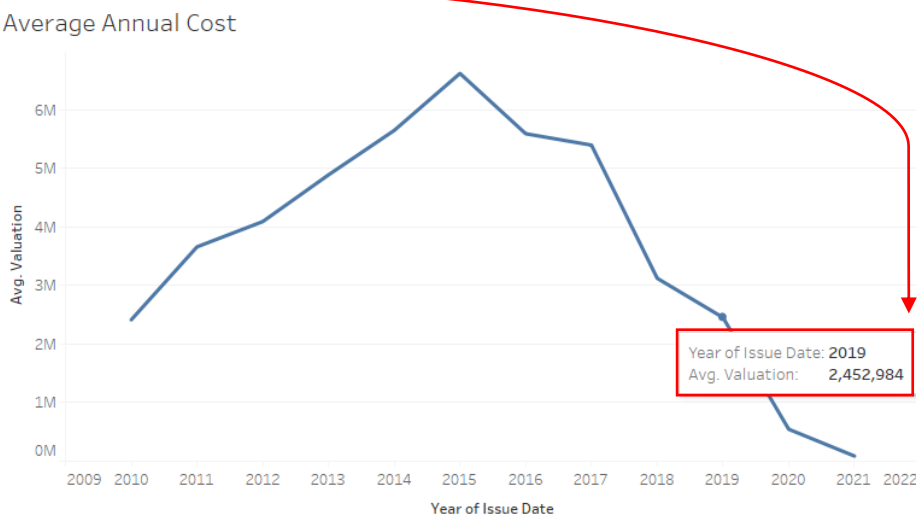
This is followed by two bar graphs of average regional cost, and number of annual permits issued for the last 11 years. Hovering over any given bar provides the respective values associated with those bars:



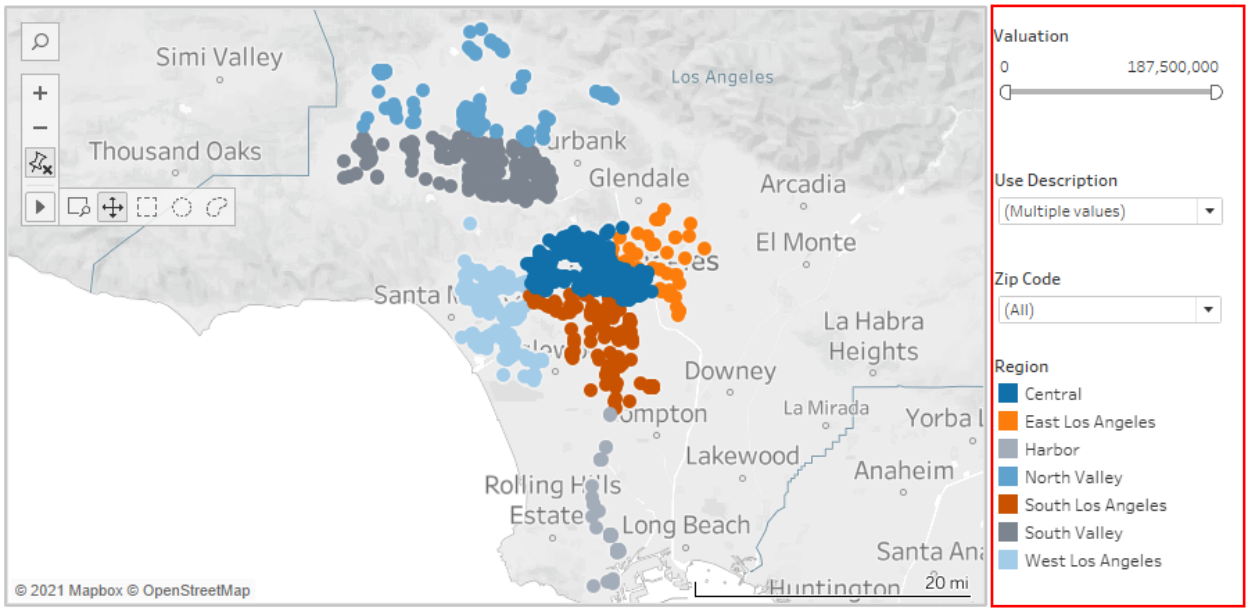
Line Plot (Time Series)

Examining the average annual cost (valuation) as a time series adds value to the overarching cost-benefit analysis theme. It is meaningful and worthwhile to gain insights from the

construction-related permit costs over time. Moreover, these costs have proven to be at historic lows, and declining:

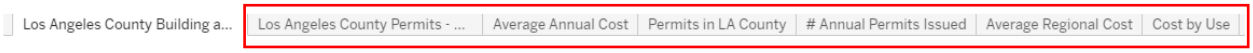


Most importantly, there is a map of permits clustered by region, which can be filtered by changes in valuation (using the slider), use description, and zip code (all using multiple item drop down menus on the right-hand side of the map):



Moreover, it is interesting to note that when selecting any one given bar of the Average Regional Cost graph, the specific cluster is highlighted on the ensuing map and vice versa.

Additional worksheets are shown as separate tabs next to the dashboard. For example, the first tab following the dashboard contains a data table should it be of interest to drill down into.



References

Burnham Nationwide (2016, January 27). 5 Things to Know About Building Permits in Los Angeles. *Burnham.* https://www.burnhamnationwide.com/final-review-blog/5-things-to-know-about-building-permits-in-los-angeles

City of Los Angeles. (2021, October 24). Building and Safety Permit Issued 2010 to now. https://data.lacity.org/City-Infrastructure-Service-Requests/Building-and-Safety-Permit-Issued-2010-to-now/n9nq-vewq

City of Los Angeles. (2021). New Buildings Permit Breakdown [Data file]. Retrieved from https://data.lacity.org/City-Infrastructure-Service-Requests/New-Buildings-Permit-Breakdown/x7mm-5mda