Public Works Improvements Arts Program: Economic and Social Impact **DSO 545 Final Project**

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Project Write-Up

The Department of Cultural Affairs Public Arts Division's Public Works Arts Program (PWIAP) creates art amenities, facilities and services in connection with all City Capital Improvement Projects. The mission of PWIAP is to provide publicly accessible works of art, arts and cultural facilities, and services for the cultural benefit of the city to the citizens and visitors.

The Department of Cultural Affairs has tasked our team to demonstrate the impact of the implemented projects on the city. To demonstrate the impact, our team identified potential Key Performance Indicators (KPIs), data sources to support our KPI model, and developed a Shiny App to demonstrate our findings.

Potential KPIs

Our group identified many potential KPIs such as, change in crime rate, project budget, local foot and auto traffic, rent price, home price, income level, age (gentrification), employment, and poverty level of the surrounding area.

While we were able to identify many potential KPIs, we knew that the data was only valuable if we could link the local data to the project specific data. We concluded the best way to measure the success of a project is by the impact to the surrounding area. Our initial intent was to tie the project specific data to individual cities, but we found that cities are generally too large, leading to a large variance in data, and that most of the specified projects are located within the City of Los Angeles proper. After further discussion, we concluded that the best method for linking local data to the project specific data is through the use of Zone Improvement Plan (ZIP) Codes. ZIP Codes are used by the postal service to determine specific geographical locations and are much smaller than cities; the City of Los Angeles has 122 unique ZIP Codes.

Data Sources

After identifying the various KPIs, our team set out to find data to support our model. The following is a list of potential data sources identified for our project:

Census Data	https://censusreporter.org/
Census Data	https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml
Home Prices	https://www.zillow.com/research/data/
Rental Prices	https://www.zillow.com/research/data/
Crime Rate	http://shq.lasdnews.net/CrimeStats/CAASS/desc.html
Crime Rate	http://shq.lasdnews.net/CrimeStats/CAASS/desc.html 2005-2016
Income	https://www.irs.gov/uac/soi-tax-stats-individual-income-tax-statistics-zip-code-data-soi
Income	https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml
Income	http://maps.latimes.com/neighborhoods/income/median/neighborhood/list/

Selected Data

Data was selected for the model that included ZIP code information (or contained addressed or other local information that could be converted to ZIP Codes) and would best represent the identified KPIs. We selected the four (4) KPIs with supporting data sets that best fit this criterion.

KPI 1: Median Home Price based on the Zillow Home Value Index
KPI 2: Average Rent Price based on the Zillow Rental Index
KPI 3: Local Crime Rate based on Los Angeles Crime Incident Data
KPI 4: Crime Rate Percentage of LA

Shiny App

Our team developed a Shiny App to demonstrate the findings of the selected Key Performance Indicators. To generate project specific findings, the user selects a specific project from a drop-down menu and the dashboard will display the resulting 4 KPIs for the identified project's ZIP code. Because some ZIP codes have more than one project, we listed all projects located within the identified ZIP code; this clarifies the KPI output letting the user know that results may be amplified by one or more projects.

The following table list of inputs and outputs for each KPI.

KPI	Inputs	Outputs
KPI 1: Median Home Price	ZHVI (Zillow Home Value Index) Year Zip Code	Y-Axis: ZHVI X-Axis: Year
KPI 2: Average Rental Price	ZRI (Zillow Rental Index) Year Zip Code	Y-Axis: ZRI X-Axis: Year
KPI 3: Local Crime Rate	Year Zip Code	Y-Axis: Number of Incidents X-Axis: Year
KPI 4: Crime Rate Percentage of LA	Year Zip Code	Y-Axis: Number of Incidents as a Percentage of Total Incidents in LA X-Axis: Year

The Shiny App Dashboard may be loaded at the following address:
https://mrvudoo.shinyapps.io/dso545/

Recommendations and Further Analysis
The analysis performed by our group defines KPIs to show the impact of PWIAP through the use of a Shiny App dashboard. The dashboard allows Cultural Affairs staff to view the data associated with each KPI in an easy interactive medium. For further analysis, we have identified two recommendations:

Recommendation 1: Identify the change in each KPI before and after the implementation of each project; we recommend the change in the 2-5 years following the end date. This will allow Cultural Affairs staff to compare the impact of specific projects against one another. Also, group the projects based on budget to perform a cost-benefit analysis. For example, identify projects with smaller budgets which resulted in larger impacts.

Recommendation 2: Standardize the data using a unit of assessment to remove natural regional and market fluctuations. For example, home prices over a given region will fluctuate based on the regional market (ie. in 2008 home prices fell by over 15 percent). A unit of assessment is a standardized unit, such as average home value for the region, that can be used to minimize the natural market fluctuations

in the data; in this case divide the average home price by the average regional home price in a specific year. This will allow the user to better assess the impact of each project.