

Smart Land Information System

For Southern California Regional Planning

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Southern California Association of Governments

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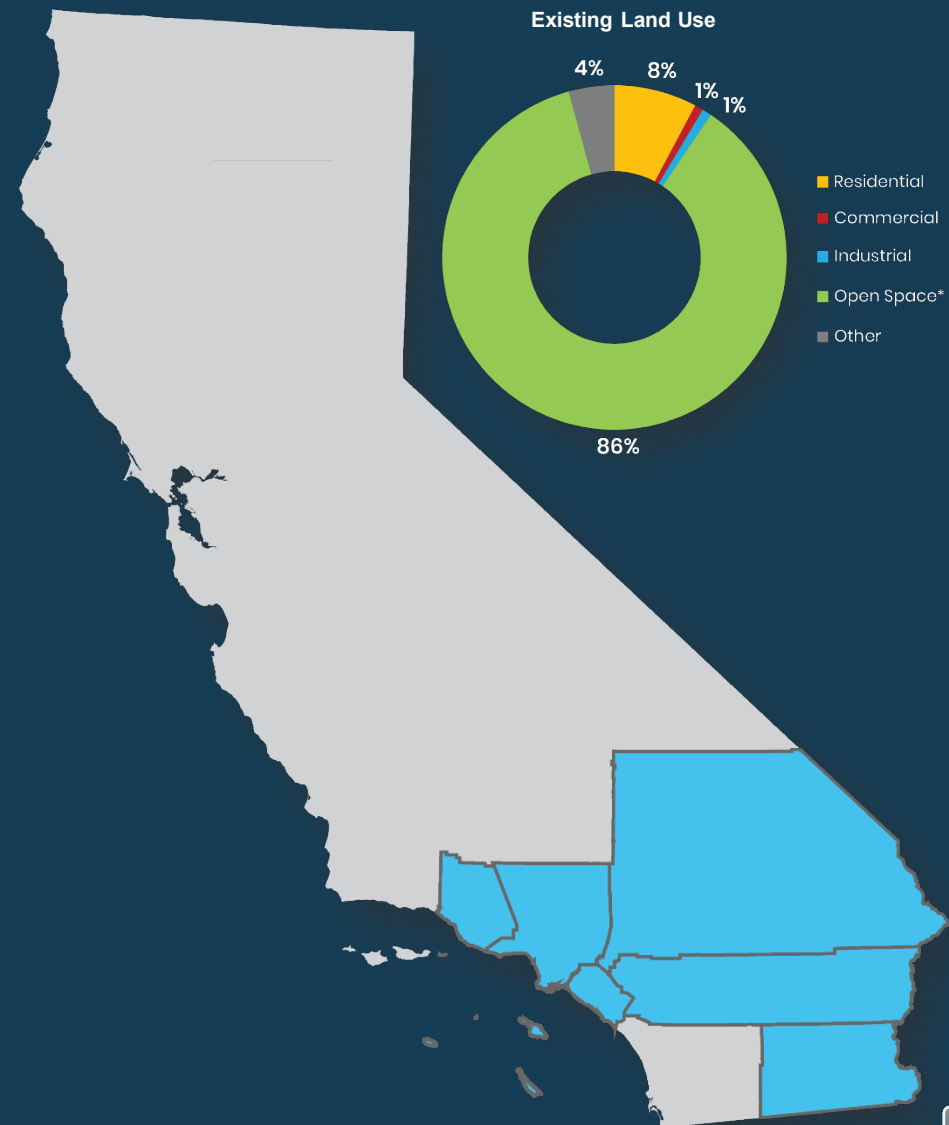
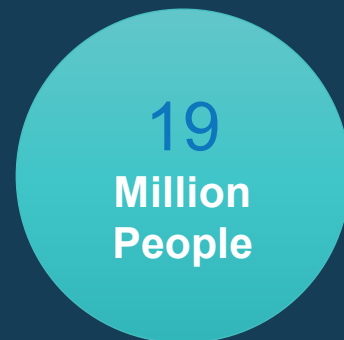
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Southern California Association of Governments (SCAG)



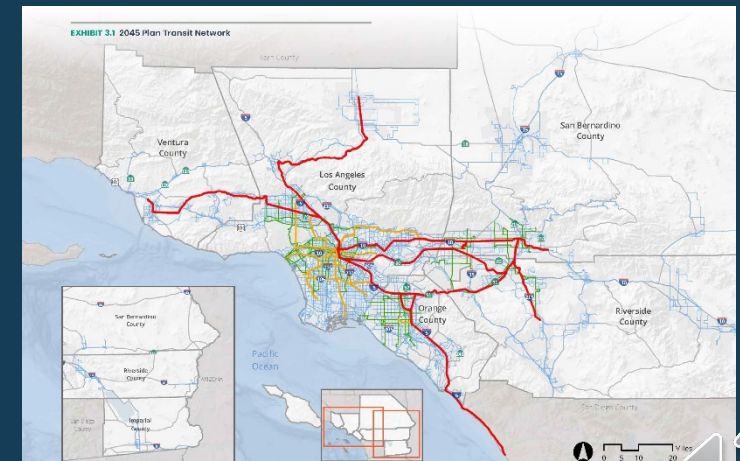
- Nation's largest Metropolitan Planning Organization (MPO)
- Regional planning & policy initiatives to encourage a more sustainable Southern California now and in the future
 - Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS)
 - Federal Transportation Improvement Program (FTIP)
 - Regional Housing Needs Assessment (RHNA)



*Open Space category consists of open space, water, and vacant land use.
Source: SCAG 2016 Regional Land Use Dataset



- **Regional Transportation Plan (RTP)**
 - A long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals
 - Regional transportation strategies and investments to reduce traffic congestion, improve the efficiency of the network and expand mobility choices
- **Sustainable Communities Strategy (SCS)**
 - Linkage among transportation, land use, housing and climate policy at the regional level to reduce GHG emissions
 - General location of uses, residential densities and building intensities
- **Connect SoCal (2020-2045 RTP/SCS)**
 - Adopted on September 3, 2020



Regional Planning RHNA & Housing



- **Regional Housing Needs Assessment (RHNA)**
 - Quantifying the need for housing within each jurisdiction during specified planning periods
 - Final 6th Cycle RHNA Allocation Plan (2021 thru 2029), adopted in March 2021
 - Local housing element update: every 8 years
- **Supports for local housing element updates**
 - To help jurisdictions reduce costs associated with developing 6th cycle housing element updates as well as streamline the review process
 - Pre-certified Local Housing Reports
 - Housing Element Parcel Tool (HELPR) development to assist in a site inventory analysis

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**6TH CYCLE
RHNA
REGIONAL HOUSING
NEEDS ASSESSMENT**

AVAILABLE JULY 2020

Pre-Certified Housing Needs Data

- Data sets will be pre-certified by HCD for use in housing elements. Use of these datasets will help streamline housing element development and review.
- Data sets for each jurisdiction include: Large families, seniors, housing stock characteristics, overcrowding, and more! Click here for a full list of required data.
- Available as a spreadsheet and completed report.
- NEW! Analysis of regional ADU rents to assist in matching anticipated ADUs to RHNA income categories

AVAILABLE FALL 2020

SCAG Parcel Data for Site Inventory & Analysis¹

SCAG's parcel-level land use data (available online) will be updated and augmented to help provide a first pass for a local jurisdiction's site inventory. In addition, SCAG is in the process of developing two new approaches to help identify and analyze sites:

Jurisdiction Parcel Listing

- SCAG parcel data can be used for an identification of nonresidential sites with potential for inclusion.
- Map and parcel level GIS data provided individually to jurisdictions.
- Attributes include: Vacant parcels, public-owned land, underutilized commercial and retail land and more.

TECHNICAL ASSISTANCE FOR HOUSING ELEMENT UPDATES

In partnership with the California Department of Housing & Community Development (HCD), SCAG will be providing a number of data and technical assistance tools to local jurisdictions. These resources will help member jurisdictions reduce costs associated with developing 6th cycle

SCAG HELPR Housing Element Parcel Tool

Select Your Jurisdiction

City or County (Unincorporated) is
Fullerton

Filter Parcels

- Vacant parcels of appropriate size
- Commercial/retail: Potential infill
- Public-owned land
- Inside priority growth area, outside constraint area
- Outside environmentally sensitive areas
- Inside higher opportunity areas
- Inside environmental justice areas
- Close proximity to services

Number of Selected Parcels
29,593

Download Parcels (CSV) Download Parcels (SHP)

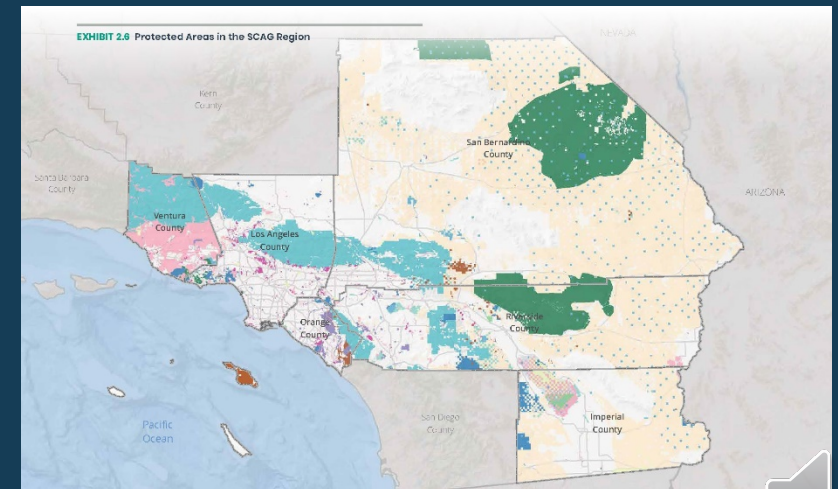
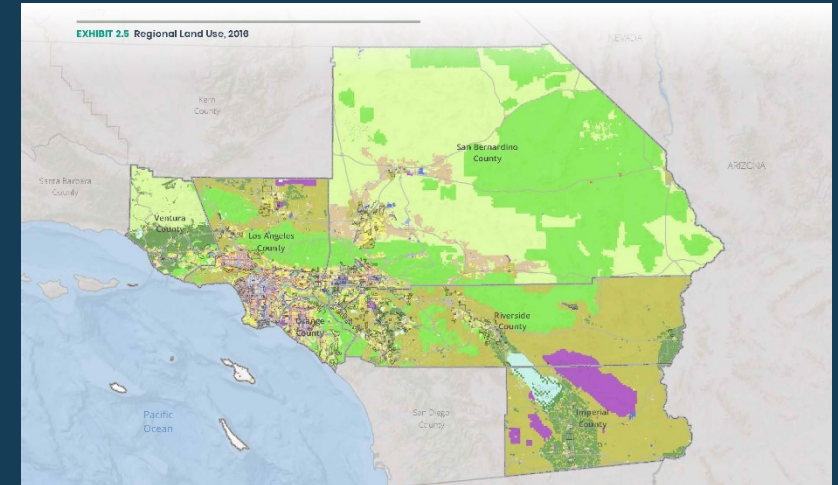
Smart Land Information System Overview

- **Project objectives**

- Develop the value-added regional geospatial land information datasets and land data model
- Support regional transportation planning, scenario planning, growth forecasting, housing, planning and policy analysis, and decision-making process
- Facilitate policy discussion on various regional planning subjects
- Enhance land information database to better serve SCAG member jurisdictions, research institutes, universities, developers, general public, etc.

- **Key components**

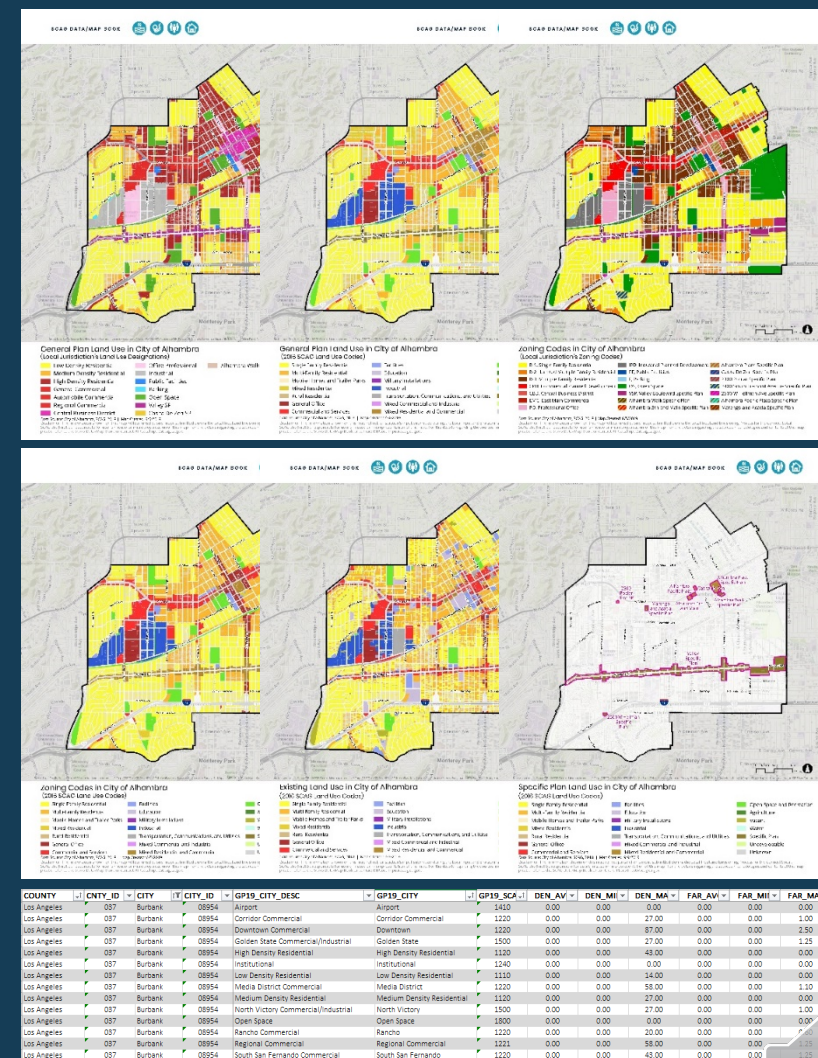
- Parcel-level land information
- GIS programming and modeling



Smart Land Information System Combined Land Use



- Quadrennial development of comprehensive land information
 - To support RTP/SCS, RHNA, scenario planning, growth forecasting, policy analysis, etc.
 - Including **general plan** land use, **specific plan** land use, **zoning** code and **existing** use information
- Contents
 - Local land designations & zoning codes
 - SCAG standardized land use codes
 - Residential density (DUs per acre)
 - Non-residential intensity (FAR)
 - Correspondence tables between local designations and SCAG land use codes
- Available at [SCAG Open Data Portal](#)



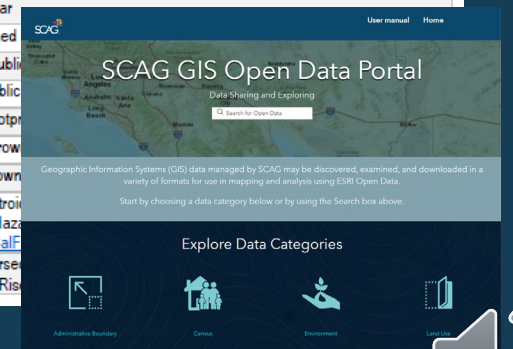
Smart Land Information System

Annual Land Use



- **Annual development of existing land information**
 - New project started in 2019
 - To update existing land use information annually
 - To effectively monitor regional land use changes and patterns
 - Major source: County assessor's tax roll (use code)
- **Contents**
 - Correspondence tables between county assessor's use code and SCAG land use codes
 - Existing land use, CLU and other value-added land information (50+ attribute fields)
 - Environmentally sensitive areas & housing element-related data for [HELPR](#) tool site suitability feature
- **2019 ALU data available at [SCAG Open Data Portal](#)**

Field Name	Data Type	Field Description
APN19	Text	2019 Assessor's parcel number
ACRES	Double	Parcel area (in acreage)
MULTIPART	Short Integer	Multipart feature (the number of multiple polygons; '1' = singlepart feature)
STACK	Long Integer	Duplicate geometry (the number of duplicate polygons; '0' = no duplicate polygons)
COUNTY	Text	County name (based on 2016 county boundary)
COUNTY_ID	Double	County FIPS code (based on 2016 county boundary)
CITY	Text	City name (based on 2016 city boundary)
CITY_ID	Double	City FIPS code (based on 2016 city boundary)
GEOID10	Text	2010 Census Block Group GEOID
SLOPE	Short Integer	Slope information ¹
APN_DUP	Long Integer	Duplicate APN (the number of multiple tax roll property records; '0' = no duplicate APN)
IL_RATIO	Double	Ratio of improvement assessed value to land assessed value
LU19	Text	2019 existing land use
LU19_SRC	Text	Source of 2019 existing land use ²
LU16	Text	2016 existing land use
CITY_GP_CO	Text	2016 Jurisdiction's general plan land use designation
SCAG_GP_CO	Text	2016 SCAG general plan land use code
CITY_SP_CO	Text	2016 Jurisdiction's specific plan land use designation
SCAG_SP_CO	Text	2016 SCAG specific plan land use code
SP_INDEX	Short Integer	Specific plan index ('0' = outside specific plan area; '1' = inside specific plan area)
CITY_ZN_CO	Text	2016 Jurisdiction's zoning code
SCAG_ZN_CO	Text	2016 SCAG zoning code
YEAR	Long Integer	Dataset year
PUB_OWN	Short Integer	Public-owned
PUB_NAME	Text	Name of public
PUB_TYPE	Text	Type of public
BF_SQFT	Double	Building footprint
BSF_NAME	Text	Name of brown
BSF_TYPE	Text	Type of brown
FIRE	Short Integer	Parcel centroid and High Hazard version) (CalE
SEARISE36	Short Integer	Parcel intersection Sea Level Rise

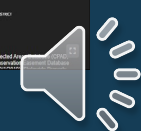
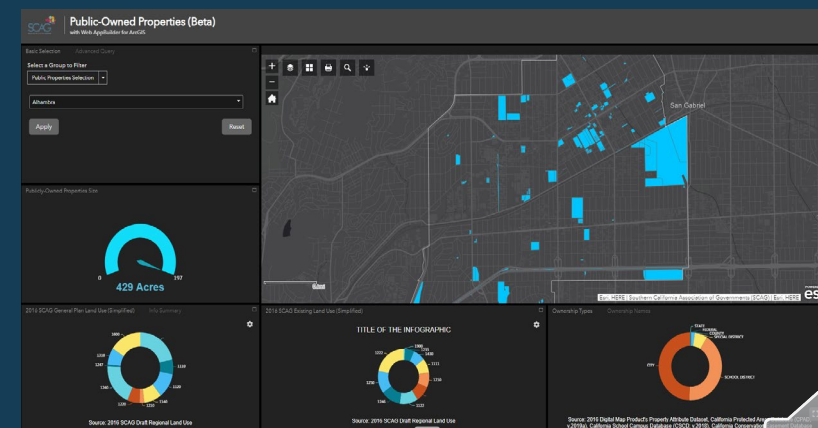
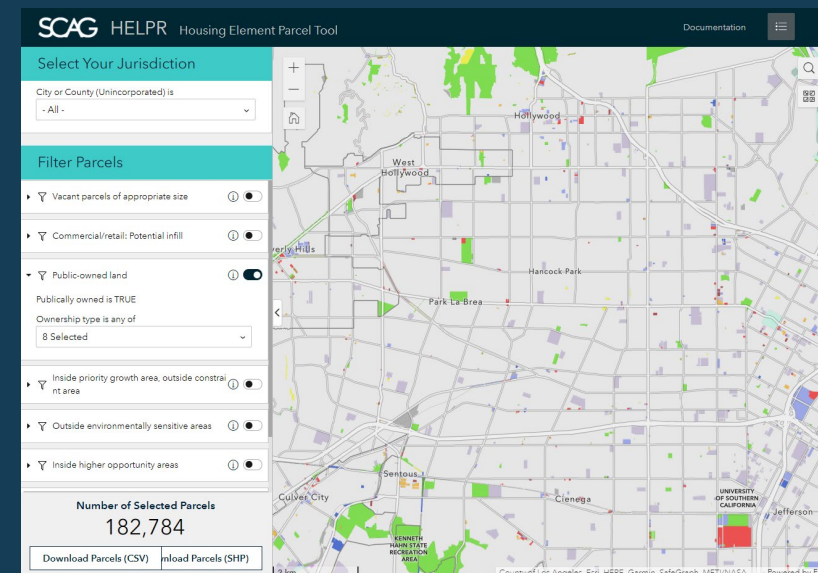


Smart Land Information System

Other Value-Added Land Information



- **Public-owned land inventory**
 - Identifying lands and properties owned by public entities for surplus land inventory, future land transformation, infill and redevelopment.
- **Building characteristics**
 - Building numbers and coverage areas
- **Infill/redevelopment potential**
 - I/L ratio, brownfields/superfund sites
- **Environment**
 - Open space, floodplains, farmland, fire, sea level rise, landslide, earthquake, natural habitat, etc.
- **Housing element-related data**
 - Potential accessory dwelling unit (ADU), growth strategy areas, constrained areas, etc.



Smart Land Information System Geospatial Data Processing



- **High-volume data management**
 - To manipulate over 5.6 MM property characteristics and app. 5 MM parcel polygon features
 - To standardize different data attributes obtained from multiple sources
- **GIS programming for geospatial data processing**
 - To streamline repetitive and complicated data manipulation and standardization process of high-volume parcel polygons and property attributes
 - To ensure consistency and accuracy in data processing procedures and methodology
 - To develop user-defined Python functions to conduct customized geoprocessing
- **Statistical Analysis Software (SAS)**
 - Property attribute data processing & standardization

```
## Step 0: Add Fields for HELPR 2.0 Parcel Data ##
print ("-- STEP 0: Add Fields for HELPR 2.0 Parcel Data")
start_step = time.time()
parcels = "AnnualLandUse_poly_" + cnty
# Add attribute fields
fields = [ ("FIRE", "SHORT"), ("SEARISE36", "SHORT"), ("SEARISE72", "SHORT"), ("FLOOD", "SHORT"), ("EQUAKE", "SHORT"), ("LIQUAFA", "SHORT"), ("LANDSLIDE", "SHORT"),
          ("CPAD", "SHORT"), ("RIPARIAN", "SHORT"), ("WILDLIFE", "SHORT"), ("CNDDB", "SHORT"), ("CKPRA", "SHORT"), ("WETLAND", "SHORT"), ("UAZ", "SHORT"),
          ("UNBUILT_SF", "DOUBLE"), ("GRCRY_LIN", "SHORT"), ("HEALTH_LIN", "SHORT"), ("OPENS_LIN", "SHORT"), ("TCAC_2021", "TEXT"), ("HOT4A5", "SHORT"),
          ("JOB_CTR", "SHORT"), ("HWA", "SHORT"), ("ABS_CONSTR", "SHORT"), ("VAR_CONSTR", "SHORT"), ("E3A", "SHORT"), ("SB35", "SHORT"), ("COC", "SHORT"),
          ("STATE", "SHORT"), ("SB", "SHORT"), ("SNT", "SHORT"), ("PK", "SHORT"), ("SB_SH", "SHORT"), ("SB_PK", "SHORT"), ("SH_PK", "SHORT"), ("SB_SH_PK", "SHORT") ]
for field in fields:
    arcpy.AddField_management(parcels, field[0], field[1])
print ("-- DONE: AddFields_management")
# Enter default values
defval = [ ("FIRE", 0), ("SEARISE36", 0), ("SEARISE72", 0), ("FLOOD", 0), ("EQUAKE", 0), ("LIQUAFA", 0), ("LANDSLIDE", 0),
          ("CPAD", 0), ("RIPARIAN", 0), ("WILDLIFE", 0), ("CNDDB", 0), ("CKPRA", 0), ("WETLAND", 0), ("UAZ", 0),
          ("UNBUILT_SF", 0), ("GRCRY_LIN", 0), ("HEALTH_LIN", 0), ("OPENS_LIN", 0), ("TCAC_2021", ""), ("HOT4A5", 0),
          ("JOB_CTR", 0), ("HWA", 0), ("ABS_CONSTR", 0), ("VAR_CONSTR", 0), ("E3A", 0), ("SB35", 0), ("COC", 0),
          ("STATE", 0), ("SB", 0), ("SNT", 0), ("PK", 0), ("SB_SH", 0), ("SB_PK", 0), ("SH_PK", 0), ("SB_SH_PK", 0) ]
print ("-- DONE: CalculateField_management for"),
for value in defval:
    arcpy.CalculateField_management(parcels, value[0], value[1], "PYTHON_9.3")
    print (value[1])
end_step = time.time()
time_step = end_step - start_step
print ("| DONE (Processing Time: " + time.strftime("%H:%M:%S", time.gmtime(time_step)) + ")")

## Step 1: Overlay Geoprocessing: CalFire Fire Risk Areas
print ("-- STEP 1: Overlay Geoprocessing: CalFire Fire Risk Areas")
start_step = time.time()
parcels = "AnnualLandUse_poly_" + cnty
FIRE = "C:\Annual_LandUse\Annual_LandUse_2019\shapes\References\HELPR\California_Fire_Hazard_Severity_Zones_(FHSZ)\Local_VHSZ_SRAS_2020.shp"
arcpy.MakeFeatureLayer_management(parcels, "parcels")
arcpy.MakeFeatureLayer_management(FIRE, "FIRE")
arcpy.SelectLayerByLocation_management("parcels", "INTERSECT", "FIRE", selection_type="NEW_SELECTION")
arcpy.CalculateField_management("parcels", "FIRE", 1, "PYTHON_9.3")
end_step = time.time()
time_step = end_step - start_step
print ("| DONE (Processing Time: " + time.strftime("%H:%M:%S", time.gmtime(time_step)) + ")")
```

```
685 /*****
686 /*          REVIEW OF STANDARDIZED ATTRIBUTE TABLE          */
687 /*****
688
689 /* Check Zero or Missing Values in Attribute Tables */
690 proc format;
691     value $blank ' ' =BLANK'          other='NOT BLANK';
692     value zero  0='ZERO'      .='Missing' other='NOT ZERO';
693 run;
694
695 %macro missing(cnty);
696 proc freq data=work.PARCEL_ATTR_&cnty;
697     format PARCEL_APN OWNER_1 USECODE USECODE2 USE_DESC USE_SCAG $blank.;
698     tables PARCEL_APN OWNER_1 USECODE USECODE2 USE_DESC USE_SCAG / missing missprint nocum nopercnt;
699     format APN_DUP AV_LAND AV_IMPRV AV_PERS AV_OTHERS AV_TOTAL YR_BLT YR_BLT_EFFECT zero.;
700     tables APN_DUP AV_LAND AV_IMPRV AV_PERS AV_OTHERS AV_TOTAL YR_BLT YR_BLT_EFFECT / missing missprint nocum nopercnt;
701     title "Zero or Missing Values in &cnty.";
702 run;
703 %mend missing;
704 %missing (ID) %missing (LA) %missing (OR) %missing (RV) %missing (SB) %missing (UN);
705
706
707 /* Count Observations by Use Code */
708 %macro usecode(cnty);
709 proc means data = work.STD_APN_&cnty noprint;
710     class USECODE;
711     output out = work.USECODE_&cnty (drop=_TYPE_ _FREQ_) n = CNT;
712 run;
713 data work.USECODE_&cnty;
714     set work.USECODE_&cnty;
715     if USECODE ne " ";
716 run;
717 proc export data=USECODE_&cnty dbms=xlsx
718     outfile="P:\Annual_LU_Update\table\usecode\usecode_&cnty.xlsx" replace;
719 run;
720 %mend usecode;
721 %usecode (ID) %usecode (LA) %usecode (OR) %usecode (RV) %usecode (SB) %usecode (UN);
```



Conclusion

Past, Current & Future Enhancement



- **Enhancement to Smart Land Information System**
 - 2008/2012 data: General plan land use, zoning (local code only) & existing land use
 - 2016 data:
 - Specific plan land use (parcels and boundaries)
 - Enhancement to zoning data (SCAG code & detailed local zoning standards)
 - Leveraging advanced GIS programming and automation technique and methods
 - 2019/2020 data:
 - Annual Land Use (2019) data development
 - Value-added land information, e.g. public-owned lands
 - Inclusion of general plan/specific plan intensity data
- **Next Steps**
 - Developing near-real-time land use update workflow via Regional Data Platform
 - Utilizing machine learning classification methods for regional land use data development



Thank you

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