CII-LAM-LUCD README

Introduction:

This ReadMe document describes the data created for the Department of Water Resources (DWR)'s Commercial, Industrial, and Institutional - Landscape Area Measurement - Land Use Classification Dataset (CII-LAM-LUCD) Project, (Agreement number 4600015006, referred to hereafter as 'the contract'), by NV5 Geospatial, Inc. The primary purpose of this data is to derive irrigable irrigated (II), irrigable not irrigated (INI), and not irrigable (NI) object level classifications for CII landscapes and landscape area estimates for residential extensions for California urban retail water suppliers (URWS).

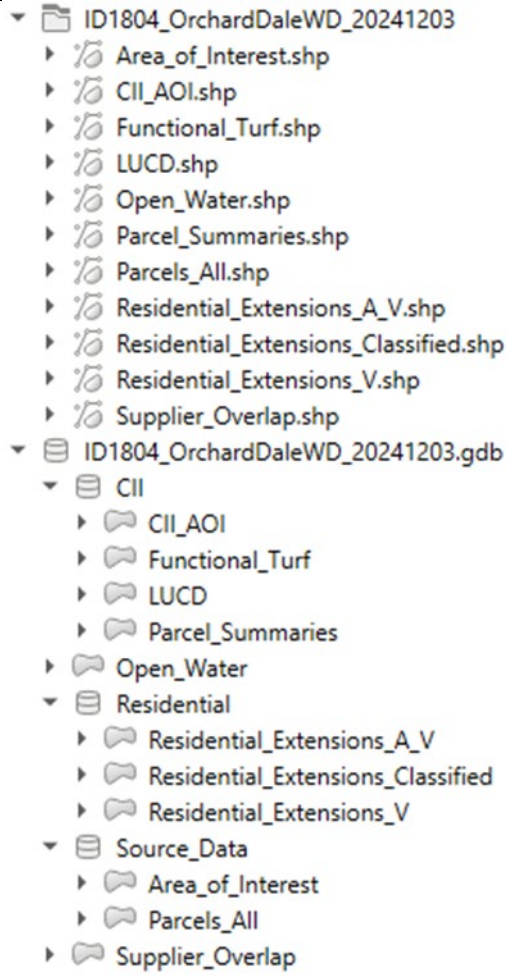
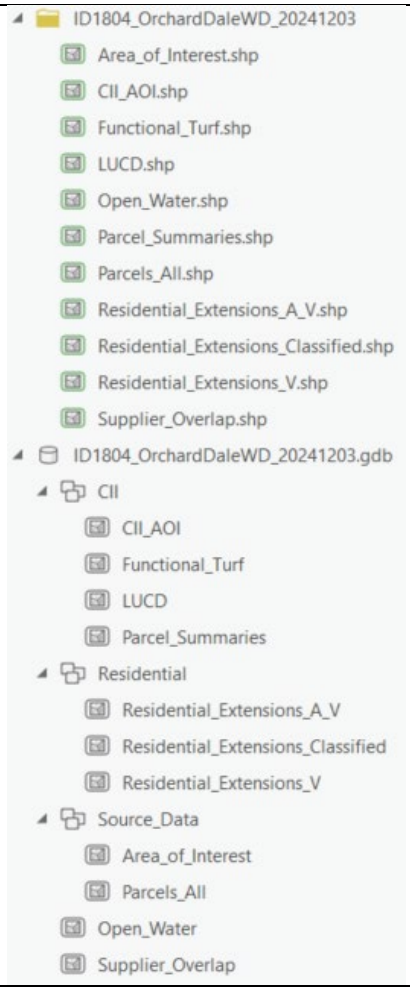
Instructions for URWS Data Review:

Each section heading describes a dataset that is a part of the data delivery package. Data associated with **bold field names** in the tables below are identified as key attributes and should be verified for accuracy and modified by suppliers. The data provided with these data sets is conditional data; in other words, suppliers will need to verify the accuracy of the data provided. DWR does not consider this alternative data for purposes of the Urban Water Use Objective.

Example of File Organization:

Orchard Dale Water District's CII-LAM-LUCD data package is used as an example to demonstrate the file organization for two popular GIS software packages.

In both examples, a data folder containing a series of shapefiles (.shp) is shown on top while the geodatabase (.gdb) is shown on bottom. The .shp and .gdb file formats in both examples contain the exact same data.

QGIS	ArcGIS Pro
	

Area_of_Interest

The 'Area of Interest' (AOI) is a vector layer representing the suppliers approved boundary consistent with the Residential Landscape Area Measurement (LAM) study (contract number EA-133C-16-CQ-0044 issued by National Oceanic and Atmospheric Administration).

Area_of_Interest data fields

Field Name	Type	Length	Description	Attribute Values example
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ex. 1375

CII_AOI (Area of Interest)

The 'CII_AOI' is a vector layer that classifies the inverse area of the Residential LAM within the URWS approved boundary. The classifications in this layer indicate whether a parcel or area is considered CII.

CII_AOI data fields

Field Name	Type	Length	Description	Attribute Values example
CII_DESC	String	22	Classification of the area.	Ex. Agriculture, CII, etc.
CII_BOOL	String	6	'True' or 'False' field describing if the area is considered CII. CII areas are classified further into LUCD in the data layer of the same name.	Ex. False
LAST_MOD	Date		The date the record was last updated. Used for version control.	Ex. 1/02/2025
IMG_YEAR	Short Integer		Year of the 4-band imagery that was used to derive the data	Ex. 2020
AREA_SF	Short Integer		Square footage for the object.	Ex. 1745
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ex. 1375

Functional Turf

The 'Functional_Turf' is a vector dataset which is a subset of the classified LUCD layer that has been filtered to include only: irrigated functional turf, Irrigable not-irrigated functional turf, irrigated non-functional turf, and irrigable not-irrigated functional turf.

Functional_Turf data fields

Field Name	Type	Length	Description	Attribute Values example
CLASS	**String**	**2**	**Alphanumeric code describing the classification. Will either be 3A (irrigated turf grass) or 4A (irrigable not irrigated turf grass)**	**3A, 4A**
LEVEL_2	**String**		**LUCD Level 2 land use code. Will only be either '3.1 Turf grass' (irrigated turf grass) or '4.1 Turf grass' (irrigable not irrigated turf grass)**	**3.1 Turf grass**
IRRIGATION	**String**		**Classification of the object's irrigation status.**	**Irrigated, irrigable not irrigated, or not irrigable.**
TURF_CLASS	**String**	**40**	**Conditional classification of irrigation status and whether turf is functional or non-functional and will be one of four values:** • **'3.1.1 Functional turf' (irrigated functional turf);** • **'3.1.2 Non-functional turf' (irrigated non-functional turf);** • **'4.1.1 Functional turf' (irrigable not irrigated functional turf); or,** • **'4.1.2 Non-functional turf'.**	**Ex. 4.1.2 Non-Functional Turf**
FUNCTIONAL	**String**	**10**	**True or False description of functional or non-functional turf.**	**Ex. FALSE**
AREA_SF	String	2	Square footage of the turf object	Ex. 354
IMG_YEAR	Short Integer		Year of the 4-band imagery that was used to derive the data	Ex. 2020
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ex. 1375
LAST_MOD	Date		The date the record was last updated. Used for version control.	Ex. 11/04/2024

LUCD

The Land Use Cover Dataset (LUCD) is a vector dataset containing the further classification of objects within the CII_AOI layer where CII_BOOL = TRUE. The LUCD classification system is a 10-class-classification system including a nested and irrigation status of each object.

LUCD data fields

Field Name	Type	Length	Description	Attribute Values example
CLASS	**String**	**2**	**Alphanumeric code describing the classification.**	**Ex. 3A**
LEVEL_2	**String**	**15**	**LUCD Level 2 land use code.**	**Ex. 3.1 Turfgrass**
IRRIGATION	**String**	**70**	**Classification of the object's irrigation status.**	**Irrigated, irrigable not irrigated, or not irrigable**
TURF_CLASS	**String**	**40**	**Conditional classification of functional or non-functional status of the turf based off evidence of recreational use in the aerial imagery or size and shape.**	**Ex. 4.1.2 Non-Functional Turfgrass**
FUNCTIONAL	**String**	**10**	**True or False description of functional or non-functional turf. Is marked 'NA' for all non turf grass areas.**	**Ex. FALSE**
AREA_SF	String	2	Square footage of the object	Ex. 354
IMG_YEAR	Short Integer		Year of the 4-band imagery that was used to derive the data	Ex. 2020
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ex. 1375
LAST_MOD	Date		The date the record was last updated. Used for version control.	Ex. 01/02/2025

Open_Water

The 'Open_Water' (also referred to as Open Water Mask) is a vector layer representation of open water areas within the suppliers AOI boundary. These areas are classified as not irrigable. The polygons in this dataset were created from two source datasets: modeling performed on the same 2020 source imagery that was used as an input to the creation of the LUCD data and a 2020-2021 water feature layer from the NOAA Coastal Change Analysis Program, C-CAP High-Resolution Land Cover (https://coast.noaa.gov/digitalcoast/data/ccaphighres.html). Areas falling within the CII AOI have undergone analysis by a photo interpreter.

Open_Water data fields

Field Name	Type	Length	Description	Attribute Values example
EDITED	Short Integer	1	Binary integer value indicating whether the object was reviewed and edited by a human photo interpreter. A value of 0 indicates that the object was not edited by a photo interpreter. A value of 1 indicates that the object was edited by a photo interpreter.	0, 1
AREA_SF	Short Integer		Square footage of the object	Ex. 439
IMG_YEAR	Short Integer		Year of the 4-band imagery used to derive the data	Ex. 2020
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ex. 1375
LAST_MOD	Date		Date the record was last updated, used for version control.	Ex. 01/02/2025

Parcels_Summaries

The 'Parcels_Summaries' is a vector layer that contains LUCD and functional turf summaries of the complete parcel dataset for the supplier. Parcel data were acquired as part of contract number EA-133C-16-CQ-0044 issued by National Oceanic and Atmospheric Administration. Parcel overlaps and duplication may be present in this layer. It is not recommended to combine parcel summaries to create supplier-wide land cover or irrigation status summaries due to the potential for area duplication. This shape can be used to quickly reference square footage of irrigated, irrigable not irrigated, and non-irrigated area per parcel.

Parcels_Summaries data fields

Field Name	Type	Length	Description	Attribute Values example
PIN	String	40	Parcel Identification Number	Ex. 125-100-11
FIPS	String	5	Federal Information Processing Code for the State + Federal Information Processing Code for the County. First two digits are state code, last three digits are county code.	Ex. 06041
APN	String	40	Property APN/ID as inventoried by the tax assessor.	Ex. 125-100-11
APNUNF	String	40	Property APN/ID as inventoried by the tax assessor with the dashes removed	Ex. 12510011
HSNUM	String	10	Property street number returned from corrected address process.	Ex. "123" in 123 E Main St Anytown CA
DIR	String	2	Property street directional prefix returned from corrected address process.	Ex. "E" in 123 E Main St Anytown CA
STNAME	String	28	Property street name returned from corrected address process.	Ex. "Main" in 123 E Main St Anytown CA
SUFFIX	String	4	Property street suffix returned from corrected address process.	Ex. "St" in 123 E Main St Anytown CA
QUADRANT	String	2	Property street name directional suffix returned from corrected address process.	Ex. "W" in 123 Main St W Anytown CA
UNITPRFX	String	4	Property Unit type returned from corrected address process.	Ex. "Unit" in 123 main street unit A Anytown CA
UNITNUM	String	8	Property Unit number returned from corrected address process.	Ex. "A" in 123 main street unit A Anytown CA
CITY	String	28	Property city name returned from corrected address process.	Ex. "Anytown" in 123 main street unit A Anytown CA
STATE	String	2	Property State returned from corrected address process.	Ex. "CA" in 123 main street unit A Anytown CA
ZIP	String	5	Property zip code returned from corrected address process.	Ex. "92120" in 123 main street unit A Anytown CA 92120
ZIP4	String	4	Last four digits of the larger nine-digit zip code	Ex. 1006

XCOORD	String	11	Latitude	Ex. -122.662918
YCOORD	String	11	Longitude	Ex. 38.133250
LUC	String	4	Four-digit Land Use Code (held as string field to preserve leading zeros). Indicates the use of a property. Refer to LUCDSC field for the corresponding description.	Ex. 0015, 9016, etc.
LUCDSC	String	73	Standardized land use description. Descriptive text corresponding to the land use code (LUC)	Ex. SINGLE FAMILY RESIDENTIAL
LUCCTR	String	5	Land Use Code category	Ex. 1001
LUCCTRDSC	String	100	Land Use Code category description. Descriptive text corresponding to the land use category (LUCCTR)	Ex. RESIDENTIAL
LOCATIONID	String	50	Persistent unique ID for each parcel, where there is a matched property record	Ex. US_06_041_12510011
ASSACREAGE	String	14	Assessed acreage of the parcel	Ex. 1197
CALACREAGE	String	15	GIS calculated acreage of the parcel polygon.	Ex. 1140.32
PERIMFEAT	String	1	A binary field denoting if the polygon is a perimeter feature.	Ex. N
PRCLDMPID	String	21	Digital Map Product (DMP) unique parcel ID	Ex. 100660192_204808495
PROPDMPID	String	21	DMP unique property ID; parcels with the same boundaries will have matching PROPDMPIDs and PRCLDMPIDs.	Ex. 100660192_204808495
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
AREA_1A through AREA_10A	Short integer		Square footage of each LUCD classified object within a parcel	Ex. 127
TOTAL_II	Double		Total irrigated area of the parcel, in square feet. This is a sum of the I_AREA and POOL_AREA fields.	Ex. 689.2983
TOTAL_INI	Double		Total irrigable not irrigated area of the parcel, in square feet.	Ex. 1693.8394
TOTAL_NI	Double		Total not irrigable area of the parcel, in square feet. This is a sum of the IMP_AREA, NI_AREA, HCL, UDM, and AG fields.	Ex. 3984.9548
SFMF	Double		Square footage of a parcel that was originally captured in the Residential LAM project	Ex. 9562
TOTAL_AREA	Double		Area of the parcel in square feet	Ex. 4623.2356
TOTAL_FT	Double		Area of functional turf in square feet	Ex. 2555

TOTAL_NFT	Double		Area of nonfunctional turf in square feet	Ex. 60
INSIDE AOI	String	1	A binary field denoting if the parcel is completely contained within the AOI or has parcel boundaries outside of the AOI. (1 is within the AOI, 0 is partially outside the AOI)	Ex. 1
ORG_ID	Short Integer		DWR water district number	Ex. 1375
LAST_MOD	Date		Date the record was last updated, used for version control.	Ex. 04/02/2019
IMG_YEAR	Short Integer		Year of the 4-band imagery that was used to derive the data	Ex. 2016

Parcels_All

The 'Parcels_All' is the complete parcel dataset from which parcels were filtered to separate single and multi-family residential parcels and commercial, industrial, and institutional parcels. Acquired as part of contract number EA-133C-16-CQ-0044 issued by National Oceanic and Atmospheric Administration.

Parcels_All data fields

Field Name	Type	Length	Description	Attribute Values example
PIN	String	40	Parcel Identification Number	Ex. 125-100-11
FIPS	String	5	Federal Information Processing Code for the State + Federal Information Processing Code for the County. First two digits are state code, last three digits are county code.	Ex. 06041
APN	String	40	Property APN/ID as inventoried by the tax assessor.	Ex. 125-100-11
APNUNF	String	40	Property APN/ID as inventoried by the tax assessor with the dashes removed	Ex. 12510011
HSNUM	String	10	Property street number returned from corrected address process.	Ex. "123" in 123 E Main St Anytown CA
DIR	String	2	Property street directional prefix returned from corrected address process.	Ex. "E" in 123 E Main St Anytown CA
STNAME	String	28	Property street name returned from corrected address process.	Ex. "Main" in 123 E Main St Anytown CA
SUFFIX	String	4	Property street suffix returned from corrected address process.	Ex. "St" in 123 E Main St Anytown CA
QUADRANT	String	2	Property street name directional suffix returned from corrected address process.	Ex. "W" in 123 Main St W Anytown CA
UNITPRFX	String	4	Property Unit type returned from corrected address process	Ex. "Unit" in 123 main street unit A Anytown CA

UNITNUM	String	8	Property Unit number returned from corrected address proces	Ex. "A" in 123 main street unit A Anytown CA
CITY	String	28	Property city name returned from corrected address process	Ex. "Anytown" in 123 main street unit A Anytown CA
STATE	String	2	Property state returned from corrected address process	Ex. "CA" in 123 main street unit A Anytown CA
ZIP	String	5	Property zip code returned from corrected address process	Ex. "92120" in 123 main street unit A Anytown CA 92120
ZIP4	String	4	Last four digits of the larger nine-digit zip code	Ex. 1006
XCOORD	String	11	Latitude	Ex. -122.662918
YCOORD	String	11	Longitude	Ex. 38.133250
LUC	String	4	Four-digit Land Use Code (LUC) (held as string field to preserve leading zeros). Indicates the use of a property. Refer to LUCDSC field for the corresponding description	Ex. 0015, 9016, etc.
LUCDSC	String	73	Standardized land use description. Descriptive text corresponding to the land use code (LUC)	Ex. SINGLE FAMILY RESIDENTIAL
LUCCTR	String	5	Land Use Code category	Ex. 1001
LUCCTRDSC	String	100	Land Use Code category description. Descriptive text corresponding to the land use category (LUCCTR).	Ex. RESIDENTIAL
LOCATIONID	String	50	Persistent unique ID for each parcel, where there is a matched property record.	Ex. US_06_041_12510011
ASSACREAGE	String	14	Assessed acreage of the parcel	Ex. 1197
CALACREAGE	String	15	GIS calculated acreage of the parcel polygon	Ex. 1140.32
PERIMFEAT	String	1	A binary field denoting if the polygon is a perimeter feature	Ex. N
PRCLDMPID	String	21	Digital Map Product (DMP) unique parcel ID.	Ex. 100660192_204808495
PROPDMPID	String	21	DMP unique property ID; parcels with the same boundaries will have matching PROPDMPIDs and PRCLDMPIDs.	Ex. 100660192_204808495
SUPPLIER	String	70	Name of the water district as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ex. 1375

Residential_A_V

The 'Residential_A_V' is a vector data layer representing the relationship between 'A' layer residential parcel summaries provided during the Residential LAM Project (contract number EA-133C-16-CQ-0044 issued by National Oceanic and Atmospheric Administration) and 'V' layer residential extensions. The 'A' to 'V' relationship table can be used to connect residential LAM parcels to their topologically corrected extensions using the NV5-generated parcel identifier ("A_UID") and extension identifier ("V_UID").

Residential_Extensions_A_V data fields

Field Name	Type	Length	Description	Attribute Values example
A_UID	String	50	Unique ID added to the original parcel layer by NV5.	Ex. Ranch00000000341
V_UID	String	50	Unique ID added by NV5 to the topologically corrected parcel layer (to account for parcel overlap in the original parcel layer).	Ex. V0000000028
APN	String	40	Property APN/ID as inventoried by the tax assessor	Ex. 125-100-11
ZIP	String	5	Property zip code returned from corrected address process	Ex. "92120" in 123 main street unit A Anytown CA 92120
LUC	String	4	Four-digit Land Use Code (held as string field to preserve leading zeros). Indicates the use of a property. Refer to LUCDSC field for the corresponding Description.	Ex. 0015, 9016, etc.
A_MANY	String	4	When this field equals 1, there are many V_UIDs for the one A_UID. Otherwise, there is just a single UID.	Ex. 1
V_MANY	String	4	When this field equals 1, there are many A_UIDs for the one V_UID. Otherwise, there is just a single UID.	Ex. 0
IMG_YEAR	Short Integer		Year of the 4-band imagery that was used to derive the data.	Ex. 2018
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract.	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ex. 1375
LAST_MOD	Date		Date the record was last updated, used for version control.	Ex. 04/02/2019

Residential_Extensions_V

The 'Residential_Extensions_V' is a vector data layer representing Residential LAM Project (contract number EA-133C-16-CQ-0044 issued by National Oceanic and Atmospheric Administration) summaries within residential extension areas. Classifications for Residential Extensions are done with the same imagery used on the Residential LAM project. The Residential LAM classification was summarized to a topologically correct vector layer ('V' layer) of the residential extensions. The 'V' layer does not contain overlap and is appropriate to use for generating supplier-level landscape area measurement

calculations. This layer does not contain Assessor Parcel Numbers (APNs). To create district level, three-class summaries (irrigated, irrigable-not- irrigated, and not irrigable) sum up the rows TOTAL_II, TOTAL_INI, and TOTAL_NI of the V_UID_Summary, respectively. Suppliers can modify the attribute values of each residential extension using the '**RES_LAM_YN**' field: if the residential extension is irrigated by a residential customer, change the default 'No" value to 'Yes'; otherwise, the area associated with the Residential Extensions is included with the CII LAM by leaving the default 'No' value. Classifications for Residential Extensions are done with the same imagery used on the Residential LAM project.

Residential_Extensions_V data fields

Field Name	Type	Length	Description	Attribute Values example
V_UID	String	50	Unique ID added by NV5 to the topologically corrected parcel extension layer (to account for parcel overlap in the original parcel layer).	Ex. V0000000130
IMP_AREA	Double		Area of impervious surfaces, in square feet.	Ex. 90.2356
I_AREA	Double		Area of irrigated land, in square feet.	Ex. 623.2356
INI_AREA	Double		Area of irrigable but not currently irrigated land, in square feet.	Ex. 102.2356
NI_AREA	Double		Area of not irrigable land, in square feet.	Ex. 823.2356
POOL_AREA	Double		Area of pools, in square feet.	Ex. 56.2356
NIA	Double		Total area not covered by the available imagery in square feet. NIA means No Imagery Available.	Ex. 11.99393487925319
MODEL_AREA	Double		Developed area within the parcel, in square feet, that was not included in the masks for agricultural, horse corrals, or undeveloped lands: [= TOTAL_AREA - (HCL + UDM + AG)]	Ex. 1548.7068
UDM	Double		Area of undeveloped (for the purpose of irrigation) land, in square feet.	Ex. 14623.2356
HCL	Double		Area of horse corrals and arenas in square feet.	Ex. 100.2356
AG	Double		Area of agricultural land in square feet.	Ex. 2635. 7853
TOTAL_AREA	Double		Area of the parcel extension in square feet	Ex. 4623.2356
CAN_AREA	Double		Total area of vegetative tree and shrub canopy (anything that casts a shadow), regardless of irrigated class, in square feet.	Ex. 56.426433
TOTAL_II	Double		Total irrigated area, in square feet. This is a sum of the I_AREA and POOL_AREA fields.	Ex. 689.2983

TOTAL_INI	Double		Total irrigable not irrigated area, in square feet.	Ex. 1693.8394
TOTAL_NI	Double		Total not irrigable area, in square feet. This is a sum of the IMP_AREA, NI_AREA, HCL, UDM, and AG fields.	Ex. 3984.9548
RES_LAM_YN	**String**	**3**	**May be included by suppliers with their ResLAM data by confirming irrigation by the residential customer by changing the default value of 'NO' to 'YES'; for guidance on confirming refer to the accompanying LUCD Supplier Report.**	**Ex. No**
IMG_YEAR	Short Integer		Year of the 4-band imagery that was used to derive the data.	Ex. 2018
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG-ID	Short Integer		DWR water district number	Ex. 1375
LAST_MOD	Date		Date the record was last updated, used for version control.	Ex. 04/02/2018

Residential_Extensions_Classified

The 'Residential_Extensions_Classified' is a vector data layer containing individual shapes for II, INI, and NI classifications within each residential extension boundary. Residential extension areas were generated in the void area of the Parcels_All layer, which is the same parcel layer that was used for the Residential LAM project. The polygon shapes in the Residential_Extensions_Classified layer can be used to facilitate reclassification of individual shapes within the residential extensions, if necessary.

Residential_Extensions_Classified data fields

Field Name	Type	Length	Description	Attribute Values example
V_UID	String	50	Unique ID added by NV5 to the topologically corrected parcel layer (to account for parcel overlap in the original parcel layer).	Ex. V00000001
IRRIGATION	String	13	Irrigation status of the identified objects	Ex. Irrigated
AREA_SF	Double		Area of the objects, in square feet.	Ex. 90.2356
IMG_YEAR	Short Integer		Year of the 4-band imagery that was used to derive the data.	Ex. 2018
SUPPLIER	String	70	Name of the URWS as outlined in Appendix A of the contract	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR water district number	Ranges from 1 through 403
LAST_MOD	Date		The date the record was last updated. Used for version control.	Ex. 04/02/2019

Supplier_Overlap

'Supplier_Overlap' are the areas of an URWS service boundary that overlap with another URWS service boundary.

Supplier_Overlap data fields

Field Name	Type	Length	Description	Attribute Values example
Overlap	String	70	Name of the overlapping URWS	Ex. City of Escondido
Acreage	Short Integer		Amount of acreage of supplier overlap.	Ex. 15.3 Acres
Supplier	String	70	Name of the URWS as outlined in Appendix A of the contract.	Ex. Rancho California Water District
ORG_ID	Short Integer		DWR Water District Number	Ex. 125
LAST_MOD	Date		Date the record was last updated, used for version control.	Ex. 04/02/2019

Data Processing Rule Updates

Lessons learned during the initial implementation of the CII-LAM-LUCD project required the project team to update the rulesets classifying areas that should be included in the CII AOI, and subsequent LUCD classification, which are not uniformly applied to all suppliers. This creates differences in the appearance of certain features in the spatial data between supplier areas. The CII-LAM-LUCD data is provided as a working resource for suppliers and allows suppliers to modify data as appropriate. As a result, variations in the data processing rules are acceptable. A list of applicability of these rulesets to supplier data is provided in Appendix A.

Updated Ruleset 1: Residential Excluded Parcels

Description: In some instances, single-family and multifamily residential parcels with land use codes (LUCs 1000-1999) were excluded from the Residential LAM project and are obviously CII land use based on the 2020 Hexagon imagery. In the standardized statewide parcel dataset these parcels are identified as residential LUCs but are obvious CII land uses and should be included as part of the CII AOI.

Procedure:
Review all Residential Excluded parcels and determine if there is an obvious CII land use present in the imagery. Available ancillary information was used as appropriate within project constraints.

Procedure Specifics:

- If parcels have an obvious CII use, the parcel boundary is included in the CII AOI. As necessary the masking of undeveloped or industrial lands, agriculture, or horse corrals may occur.
- If a parcel is not an obvious CII use or cannot be determined from a review of aerial imagery, it remains classified as Residential Excluded and not included in the CII AOI.
- Land use codes from the standardized APN dataset may appear incongruent with actual land use observed in the 2020 Hexagon imagery. For consistency, the parcel attribution from the standardized parcel datasets is not modified.
- Residential Excluded parcels excluded from the CII AOI are reviewed by DWR and included as appropriate.
- These parcels were not included in residential vector summary datasets from the Residential LAM project that includes the A layer, B layer, and A_B layer.
- Where there are two or more land use codes associated with a Residential Excluded parcel and one of them identifies the land use as a CII parcel, the parcel is included in the CII AOI.

Updated Ruleset 2: Residential Parcel Extensions Modifications Highway Rule

Description: Residential parcels may be adjacent to major highway corridors that do not have an associated land use code, i.e. a void area. Major highways are defined as more than 3 lanes in either direction or as on/off ramps to major highway corridors. When void areas are classified using Thiessen polygons as either residential extensions or CII AOI, residential extensions may be incorrectly associated with a major highway corridor. The dividing feature ruleset was adapted to correct the misclassification of these areas by updating the dividing features definition to include “Fences and/or sound barriers”.

Dividing Features are defined as:

- Improved surfaces (impervious or compacted gravel) that can support motorized vehicular traffic including trains.

- Improved surfaces that support bicycle and pedestrian pathways where motorized vehicle traffic is restricted, a minimum width equal to or greater than 8 feet wide, and not parallel to a road network.
- Linear waterway features (e.g. canals, rivers, streams).
- Large water bodies (e.g. lakes, oceans, ponds); or
- fences and/or sound barriers.

Note: Sidewalks paralleling road networks or roadway features are not dividing features.

Appendix A

The following table lists the applicability of Rulesets 1 and 2 above to supplier data. If a supplier is not listed in this table, it means both updated rulesets were applied to the URWS data.

Urban Retail Water Supplier (URWS)	Ruleset 1 does not apply for all or part of supplier area	Ruleset 2 does not apply for all or part of supplier area
Alhambra, City of	X	X
Anaheim, City of	X	X
Azusa, City of - Water (Azusa Light and Water)	X	
Bellflower-Somerset Mutual Water Company	X	X
Beverly Hills, City of	X	
Brea, City of	X	X
Buena Park, City of	X	X
California American Water Company – Los Angeles	X	X
California Water Service Company – East Los Angeles	X	X
California Water Service Company – Dominguez	X	
California Water Service Company – Hermosa/Redondo	X	
California Water Service Company – Los Altos	X	X
California Water Service Company – Marysville	X	
California Water Service Company – Palos Verdes	X	
California Water Service Company – Stockton	X	
Carlsbad Municipal Water District	X	X
Carpinteria Valley Water District	X	
Casitas Municipal Water District		X
Cerritos, City of	X	X
Chino City of	X	X
Chino Hills, City of	X	
Colton, City of	X	X
Compton, City of	X	X
Corona, City of – Water	X	
Covina, City of	X	
Cucamonga Valley Water District	X	X
Cupertino, City of	X	X
Downey, City of – Water	X	X
Dublin San Ramon Services District	X	
Eastern Municipal Water District	X	X
East Niles Community Services District	X	
East Valley Water District	X	X
El Dorado Irrigation District	X	X
El Monte, City of	X	X
El Segundo City of	X	X
El Toro Water District	X	

Urban Retail Water Supplier (URWS)	Ruleset 1 does not apply for all or part of supplier area	Ruleset 2 does not apply for all or part of supplier area
Escondido, City of	X	X
Folsom, City of	X	X
Fortuna, City of	X	X
Fountain Valley, City of	X	X
Fresno, City of Service Area	X	X
Fullerton, City of	X	X
Garden Grove, City of	X	X
Glendora, City of	X	X
Golden State Water Company – Artesia	X	X
Golden State Water Company – Bell-Bell Gardens	X	X
Golden State Water Company – Claremont	X	X
Golden State Water Company – Culver City	X	
Golden State Water Company – Norwalk	X	X
Golden State Water Company – Orcutt	X	
California Water Service Company – Palos Verdes	X	
Golden State Water Company – Placentia	X	X
Golden State Water Company – San Dimas	X	X
Golden State Water Company – South San Gabriel	X	X
Golden State Water Company – Southwest	X	
Golden State Water Company – West Orange	X	X
Goleta Water District	X	
Great Oaks Water Company Incorporated	X	X
Hawthorne, City of	X	
Helix Water District	X	
Huntington Beach, City of	X	X
Inglewood, City of	X	
Irvine Ranch Water District	Alternative data	
Jurupa Community Services District	X	X
Laguna Beach County Water District	X	
Lakeside Water District	X	X
Lakewood, City of	X	X
La Habra, City of	X	X
La Palma, City of	X	X
Lathrop, City of	X	
La Verne, City of	X	X
Liberty Utilities	X	X
Linda County Water District	X	
Loma Linda, City of	X	X
Lomita, City of – Water	X	
Long Beach City of	X	X
Los Angeles City Department of Water and Power	X	X

Urban Retail Water Supplier (URWS)	Ruleset 1 does not apply for all or part of supplier area	Ruleset 2 does not apply for all or part of supplier area
Manhattan Beach, City of	X	X
Manteca, City of	X	
Mesa Water District	X	X
Milpitas, City of	X	X
Montebello Land and Water Company	X	X
Montecito Water District	X	X
Monterey Park, City of	X	X
Monte Vista Community Water District	X	X
Moulton Niguel Water District	X	
Mountain View, City of	X	X
Newman, City of Service Area		X
Newport Beach, City of	X	X
Nipomo Community Service District	X	
Norwalk, City of	X	X
Oceanside, City of	X	X
Olivenhain Municipal Water District	X	X
Olivehurst Public Utilities District	X	
Ontario, City of	X	X
Orange, City of	X	X
Orchard Dale Water District	X	
Otay Water District	X	
Oxnard, City of		X
Padre Dam Municipal Water District	X	
Palo Alto, City of	X	X
Paramount, City of – Water	X	X
Pico Rivera, City of	X	X
Pico Water District	X	X
Pomona, City of	X	X
Port Hueneme, City of		X
Poway, City of	X	X
Rainbow Municipal Water District	X	X
Ramona Municipal Water District	X	X
Rancho California Water District	X	
Redlands, City of	X	X
Rialto, City of	X	
Rincon Del Diablo Municipal Water District	X	X
Rio Vista, City of	X	
Riverside, City of	X	
Riverside Highland Water Company	X	
Rowland Water District	X	X
Rubidoux Community Service District	X	

Urban Retail Water Supplier (URWS)	Ruleset 1 does not apply for all or part of supplier area	Ruleset 2 does not apply for all or part of supplier area
San Bernardino, City of	X	X
San Buenaventura, City of – Water		X
San Clemente, City of	X	
San Diego, City of	X	X
San Dieguito Water District	X	X
San Gabriel Valley Municipal Water District	X	X
San Gabriel Valley Water Company	X	X
San Gabriel Valley Water Company – Fontana Division	X	
San Jose, City of – Evergreen Edenvale Coyote Alviso NSJ	X	
San Jose Water Company	X	X
San Juan Capistrano, City of – Water	X	
Santa Ana, City of	X	X
Santa Barbara, City of	X	
Santa Clara, City of	X	X
Santa Fe Irrigation District	X	X
Santa Fe Springs, City of	X	X
Santa Maria, City of	X	
Santa Margarita Water District	Alternative data	
Seal Beach, City of	X	X
South Gate, City of	X	X
Stockton, City of	X	
Suburban Water Systems – Whittier/La Mirada	X	X
Suburban Water Systems – San Jose Hills	X	X
Sunnyvale, City of	X	X
Sweetwater Authority	X	
Torrance, City of Municipal Water District	X	
Trabuco Canyon Water District	X	
Tustin, City of	X	X
Upland, City of	X	X
Vallecitos Water District	X	X
Valley Center Municipal Water District	X	X
Valley County Water District	X	
Vista Irrigation District	X	X
Walnut Valley Water District	X	X
Western Municipal Water District	X	
Westminster, City of	X	X
West Valley Water District	X	
Whittier, City of	X	X
Yorba Linda Water District	X	X
Yuba City	X	