



**RS**  
Metrics

**Property Damage by Parcel  
Project Overview:  
Camp Fire, Butte County, CA**

# Project Overview

In order to track and measure fire related residential damage from the recent Camp Fire in Butte County, CA, RS Metrics will collect and analyze high resolution satellite imagery after the fire was fully contained on Nov 25, 2018.

Base case metrics will be square footage and assessed land and structure value of each home prior to it being destroyed – this data will be sourced from the publicly available Butte County, CA parcel and tax roll data. There are approximately 18,265 parcels within the Camp Fire final perimeter for analysis.

Methodology will include:

1. Determine the fire perimeter areas for the Campfire fire in Butte County, CA, including specific municipalities or any residential properties that intersect a buffer of the fire boundaries.
2. Acquire imagery as near as possible on or after Nov 25, 2018, including satellite imagery and possible airplane/aerial imagery available from the State of California or Butte County, CA.
3. Obtain and purchase if necessary, parcel and tax roll data from Butte County, CA with square footage, assessed value, address, and other information as needed.
4. Determine the number of parcels required for analysis, and capture the following information for each parcel:
  1. Level of destruction for each property from the fire, coded as destroyed, partial damage or undamaged.
  2. Square footage of the parcel/property/structure.
  3. Assessed value of the land/parcel/property/structure.
  4. Street Address.
  5. Other information where possible

# Example of Proposed Final Deliverable

## Butte County Publicly Available Parcel and Tax Roll Data Joined with RS Metrics Damage Assessment

	A	C	D	N	O	P	Q	R	S	T	U	V	W
1	TaxYear	Asmt	FeeParcel	BarCodeZip	Situs1	Situs2	ParcelDescription	LandValue	StructureValue	DamageStatus	SquareFeet	FixturesValue	GrowingVal
2	2018	0010110040	00101100400		492 G ST	BIGGS CA	492 G ST	51,000	25,500	Undamaged	1,244	-	-
3	2018	0010110050	00101100500		496 G ST	BIGGS CA	496 G ST	27,595	88,310	Undamaged	2,101	-	-
4	2018	0010110070	00101100700		488 G ST	BIGGS CA	488 G ST	31,233	48,725	Destroyed	1,450	-	-
5	2018	0010110140	00101101400		484 G ST	BIGGS CA	484 G ST	8,616	536	Destroyed	66	-	-
6	2018	0010110150	00101101500		487 H ST	BIGGS CA	487 H ST	61,200	120,360	Destroyed	2,245	-	-
7	2018	0010110170	00101101700		485 H ST	BIGGS CA	485 H ST	20,019	69,181	Partial Damage	1,632	-	-
8	2018	0010110180	00101101800		3140 7TH ST	BIGGS CA	3140 7TH ST	18,734	44,520	Destroyed	1,359	-	-
9	2018	0010110190	00101101900		3146 7TH ST	BIGGS CA	3146 7TH ST	15,599	8,585	Undamaged	250	-	-
10	2018	0010110200	00101102000		481 H ST	BIGGS CA	481 H ST	27,446	106,890	Destroyed	2,013	-	-
11	2018	0010110210	00101102100		3143 6TH ST	BIGGS CA	H ST & 6TH ST	27,446	60,047	Destroyed	1,545	-	-
12													
13													

Key fields from Butte County Assessor Parcel and Tax Roll data.

Determined by RS Metrics using satellite imagery and publicly available data sources on the following slides

*RS Metrics will review available parcel and tax roll data fields with customer upon acquisition from Butte County to determine the exact fields that should be included in the final deliverable. RS Metrics can include/exclude any fields as necessary. Deliverable will be in XLSX and/or CSV format.*

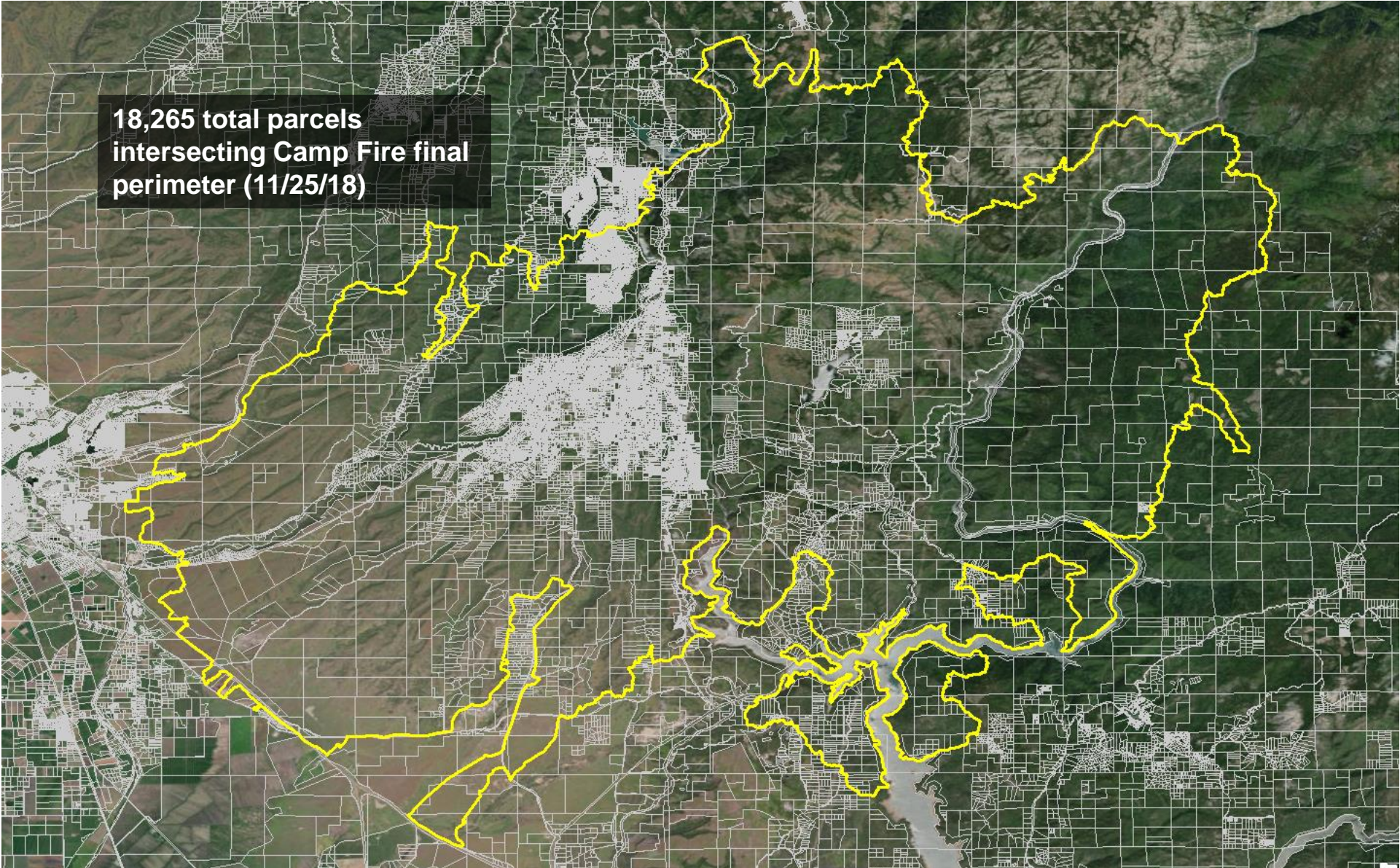




# Data Sources



# Camp Fire Perimeter with Butte County Parcels





# Camp Fire Post-Event Satellite Imagery

Source data are three very high resolution (50cm) satellite images captured on 11/25/18 and 12/19/18 by DigitalGlobe and Airbus Defence and Space

✓	Sat	Date ↓	Res	Cloud	Off-Nadir		
✓	GE1	12-19-2018	50 cm	0.0%	28.0	i	^
☐	WV1	12-02-2018	50 cm	0.0%	29.0	i	^
☐	WV3	12-01-2018	30 cm	53.0%	42.0	i	^
☐	WV3	12-01-2018	30 cm	50.0%	35.0	i	^
☐	GE1	11-30-2018	50 cm	51.0%	27.0	i	^
✓	WV3	11-25-2018	30 cm	0.0%	41.0	i	^
☐	WV3	11-25-2018	30 cm	0.0%	41.0	i	^
☐	WV3	11-25-2018	30 cm	0.0%	40.0	i	^
✓	P1	11-25-2018	50 cm	0.0%	27.6	i	^
☐	P1	11-25-2018	50 cm	0.0%	26.5	i	^

Rows per page: 100 1-100 of 613 < >

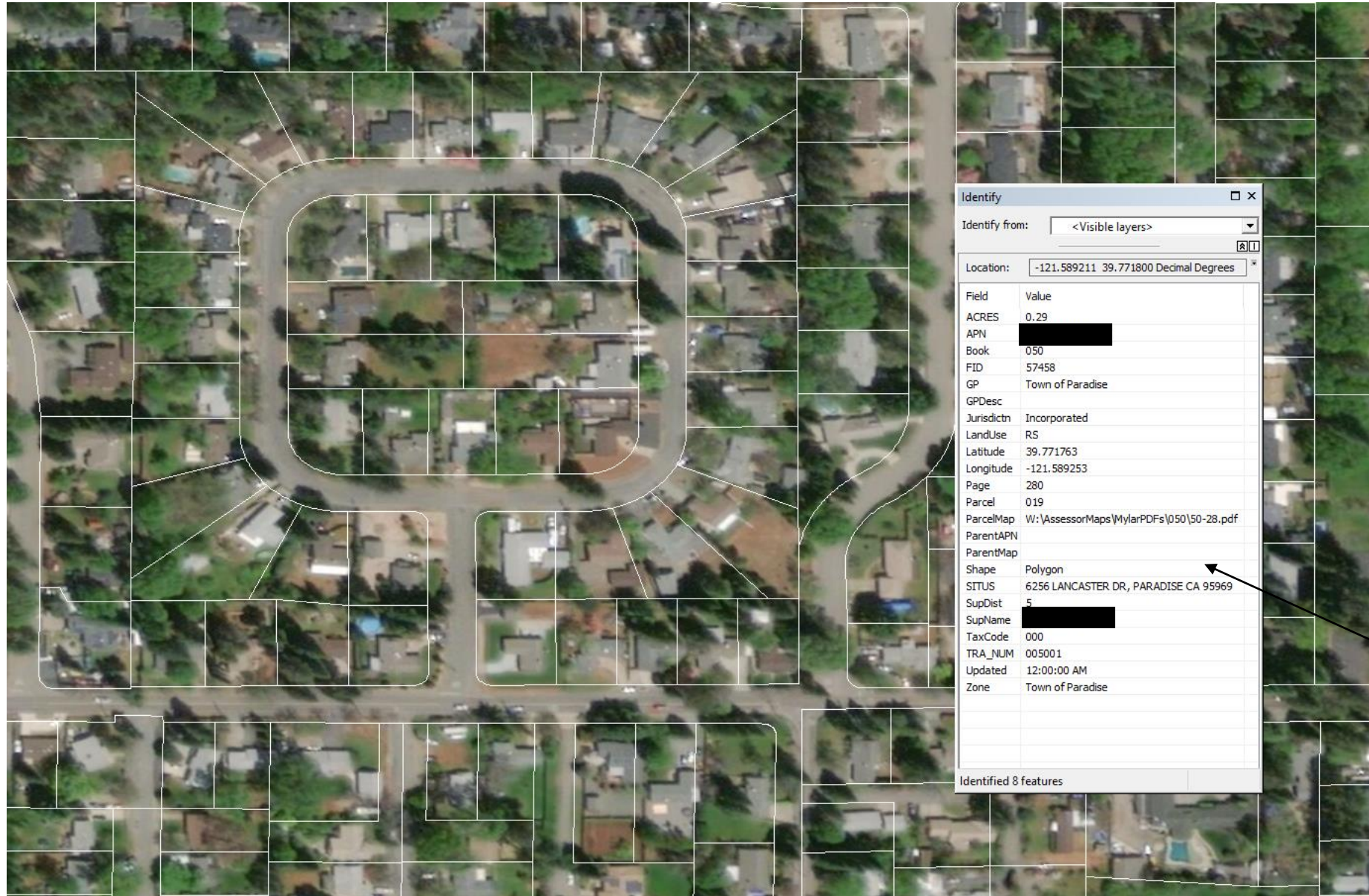
12/19/18

11/25/18

11/25/18



# Zoom of Parcels with Pre-Event Imagery and Example Attributes



RS Metrics proposed workflow will view every parcel individually and record damage based on satellite imagery and secondary data sources described in the following slides.

Assessed value and physical structure data (square footage) will come from Butte County tax rolls. Data not shown because it hasn't been purchased yet.

# Butte County GIS: Camp Fire Public Information Website

<http://buttecountygis.maps.arcgis.com/apps/MapSeries/index.html?appid=af7e5bb3960a48c096ed910c640a30b3>

The screenshot displays the 'Camp Fire Information' website interface. At the top, there are navigation tabs: 'Information', 'Drone Images', '360 Images', 'Evacuation Map', 'Cal Fire Structure Status' (which is highlighted), 'Before and After', and 'Debris Removal'. Below the tabs, the main content area shows a map titled 'Camp Fire Structure Status' with various colored house icons representing different damage levels. A search bar is located at the top left of the map area. A popup window is open over a red house icon, displaying the following information:

Category of Damage to Structure

Damage	Destroyed (>50%)
Structure Type	Single Family Residence Single Story

Attachments:  
[attachment1.jpg](#)

Created on 11/13/18 at 10:54 AM

[Zoom to](#)

On the right side, an 'Information' panel is open, containing the following text:

**Information**

About

subject to change as information is gathered and verified. The icons on the map indicate the current known status of the structure. If your structure is not identified by an icon, it has not yet been identified.

Addresses may be entered into search bar to find a specific location.

For additional information visit:

- CAL FIRE - [incident page](#)
- Butte County - [website](#)

Legend

**Damaged or Destroyed Structures**

- Destroyed (>50%)
- Major (26-50%)
- Minor (10-25%)
- Affected (1-9%)

**No Visible Damage**

- No Visible Damage

**Camp Perimeter 11-19**

At the bottom of the map, there is a scale bar for 300 feet and a URL: [https://services1.arcgis.com/jUJYIo9tSA7EHvfZ/arcgis/rest/services/Camp2018\\_DINS\\_Public\\_View\\_Pictures/FeatureServer/0/4084/attachments/4112](https://services1.arcgis.com/jUJYIo9tSA7EHvfZ/arcgis/rest/services/Camp2018_DINS_Public_View_Pictures/FeatureServer/0/4084/attachments/4112). The footer also includes 'Butte County, Bureau of Land Management, Esri' and logos for 'Esri', 'Garmin', 'INCREMENT P', 'USGS', 'EPA', and 'USDA'.

**Destroyed Structure Layer can be used as a secondary source for satellite imagery**



# Butte County GIS: Camp Fire Public Information Website

← → ↻ [https://services1.arcgis.com/jUJYlo9tSA7EHvfZ/arcgis/rest/services/Camp2018\\_DINS\\_Public\\_View\\_Pictures/FeatureServer/0/4084/attachments/4112](https://services1.arcgis.com/jUJYlo9tSA7EHvfZ/arcgis/rest/services/Camp2018_DINS_Public_View_Pictures/FeatureServer/0/4084/attachments/4112)



**Link from previous page brings up photo of damage at each property**





# Butte County GIS: Camp Fire Public Information Website

← → ↻ Not secure | buttecountygis.maps.arcgis.com/apps/MapSeries/index.html?appid=af7e5bb3960a48c096ed910c640a30b3



## Camp Fire Information



- Information
- Drone Images
- 360 Images
- Evacuation Map
- Cal Fire Structure Status
- Before and After**
- Debris Removal

### Before and After - Camp Fire

Compare before and after images of the Camp Fire in Paradise, CA

**Before and after images tied to parcel number act as secondary source to review and assess damage**

by Butte County GIS

- 1
- 2
- 3
- 4
- 5
- 6

Bille Rd and Skyway

