Wildland Fire Response

Investment:
- Parcel data and structure locations
- Locations and extent of current and predicted fire events

Benefits:
- Parcels provide improved methods for identifying structures and values at risk.
- Address points improve the quality structure locations on the parcel
- Parcels with use attributes enhance the ability to identify residential, commercial and industrial uses.
- Standardized state hosted data saves approximately 10 hours per county per year in collecting and staging data, which averages about $20,000 per year per state.

Beneficiary:
- Wildland Fire response teams improved response
- Protected structures

Data Used:
- Locally created parcel maps hosted by the state to support cross county parcel and structure location data
- Basemap data including hydrography, orthoimagery, hydrography and transportation.
- Site addresses, land use classifications and facility locations

Description:
Over the past decade an increase in larger wildland fires has converged with rapid growth in the wildland-urban interface. Fire suppression resources, including firefighters, equipment and budgets are pressed to their limits. Attacking every fire with equal priority is not an option logistically nor is it desirable as some fires play an essential role in wildland fire mitigation.

The questions that the fire teams must answer as they approach any wildland fire event include: which fires should be attacked first; where are the structures that need to be protected; and how should available resources be best deployed to protect public and private property? Addressing these questions requires the use of geographic information system (GIS) technology to predict the spread of the fire and to identify the values-at-risk. With GIS technology and information about structures in the fire's path, the wildfire response teams can identify what needs protecting allowing them *to get firefighters in the right place for the right reasons.*

Over the past several years the U.S. Forest Service has been testing and utilizing a GIS based system called RAVAR (Rapid Assessment of Values at Risk) that utilizes fire-modeling technology along with land use data. This system has now been deployed as an operational component of the wildland fire decision support system

(WFDSS). Information about the location of structures and an indication of their use (residential, commercial, agriculture, etc) is critical to identify properties at risk.

Since 2006, the RAVAR system has been using property data gathered from local governments. The parcel data is processed into a standard format, establishing a point for every parcel that has a structure as well as the use type if it is available. Having the most accurate and current structure locations and land use data is critical for wildland fire response.

In the figure below the black dots are the locations of parcels determined from local parcel data and the color filed areas moving from red to blue indicate fire spread probability.
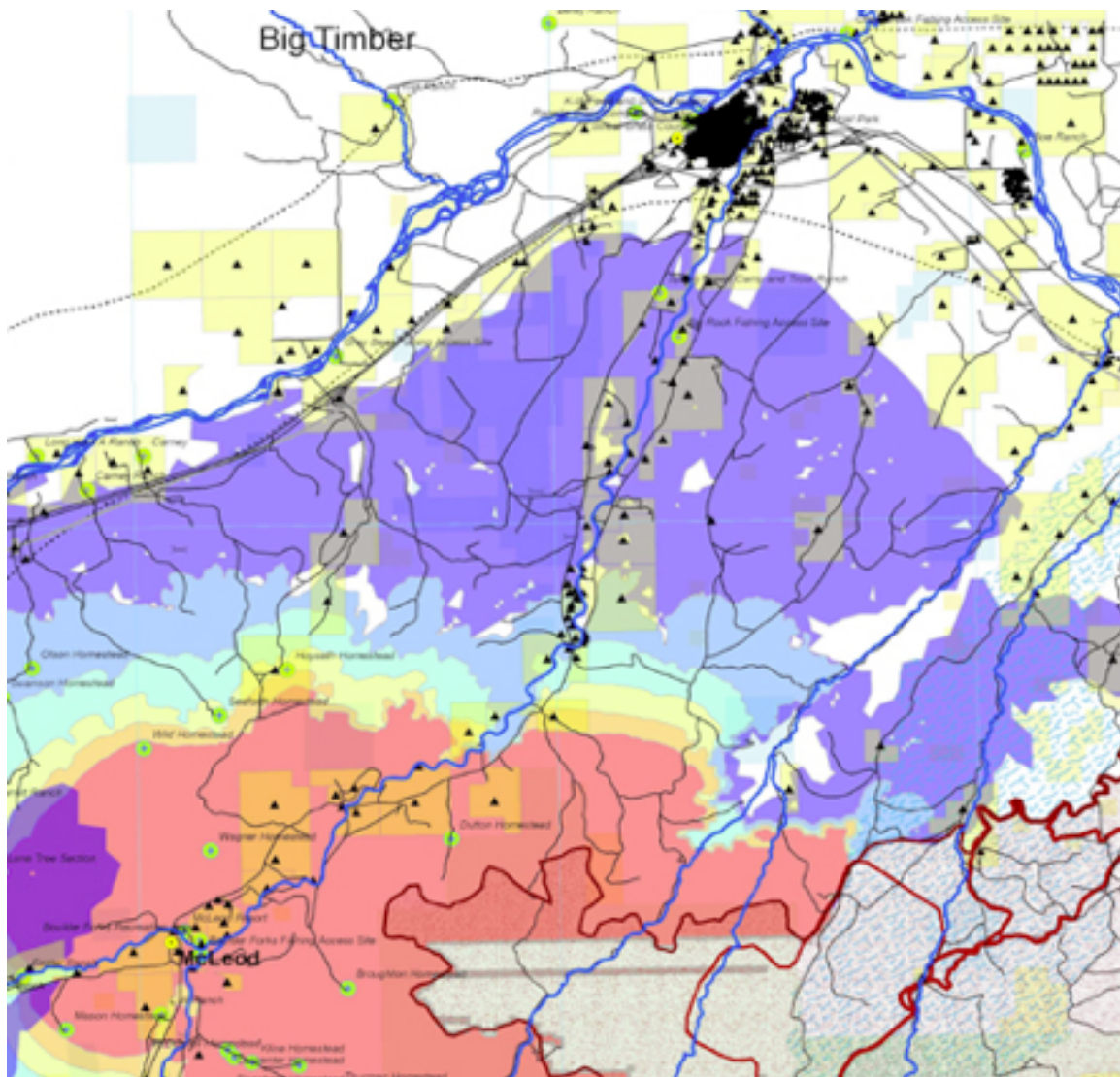

Figure 1 - Wildland Fire RAVAR Map

The table below estimates the use and benefit of the parcel data from local government in the 2010 fire season.

Table 1 - Benefits of Parcel Data to Wildland Fire

Total Large Fires with WFDSS Analysis	164
Total Fires - WFDSS/RAVAR Analysis	70
Large Fires requiring RAVAR *	*43%*
Counties with Structures assessed using County Parcel Data	*78%*
Counties where USGS assistance was required (no usable parcel data)	*22%*
Total Structures Identified	14,389,460
Estimated Structure Value (in trillions) **	$ 2.12
* Total count of fires where RAVAR analysis was completed includes fires in three non-western states FL, GA, MI	
** Based on median home value from US Census of 11 western states @ $147,500 - NOTE: Value not discounted by loss probability - actual risk value is lower	