Mobile Technology used for Structure Protection on the Saddle Fire

The Saddle Fire began June 13 with a lighting strike on Saddle Mountain in the Pine Valley Mountain Wilderness of the Dixie National Forest. The fire started approximately 2.5 miles south west of Pine Valley, Utah.   Pine Valley is an unincorporated community, in Washington County, that lies approximately 45 minutes north of St. George. With a year-round population of 186, the community is located at the head of the Santa Clara River in the Pine Valley Mountains, and was settled in 1859.

All three tenants of the National Wildland Fire Cohesive Strategy - restore and maintain landscapes, fire-adapted communities, and wildfire response have been demonstrated on the Saddle Fire and within Pine Valley.

Pine Valley is identified by the State of Utah as a Community at Risk (CAR). The Southwest Utah Regional Wildfire Protection Plan identifies Pine Valley are part of the Central/Dixie Deer Focus Area. Located in the Upper Santa Clara River Watershed, lands consist of mixed ownership, representing Bureau of Land Management, US Forest Service, State, and Private. Communities at Risk in the Focus Area include Brookside, Central, Dixie Deer, Pine Valley, and Veyo. Lower reaches within this watershed are composed of closed canopy pinyon-juniper, interior chapparal, live oak and sagebrush. Cheatgrass continues to increase and is the primary understory within the pinyon-juniper woodland and sagebrush/steppe communities. Mountain brush, ponderosa and mixed conifer are common in the upper reaches of the watershed. Firefighting and access concerns include expanding cheatgrass with increases in the risk for fast moving fires, especially in dry, windy conditions.


Many subdivisions have limited ingress/egress that accesses the Pine Valley Wilderness area.

Around Pine Valley a number of fuels treatments have occurred on the Dixie National Forest. These fuel breaks vary in size and age and consist of thinning and burning of the slash along the Forest boundary. The earlier treatments were along the western and northern perimeters of the community and were 100 to 150 feet in width. A more recent fuels treatment occurred south of the community with a width of 250 to 300 feet. Opportunities to burn off of these fuels treatments and apply aerial retardant exist off of these locations. Similar fuels treatment have been completed across the valley on the northeast side of the community. These treatments are approximately 200 feet in width. Several masticator units were deployed on the Saddle Fire to further enhance the existing fuel treatments as an emergency action. NEPA was in its final phases of planning to conduct this work as part of the Dixie National Forest's program of work.

Shortly after the arrival of the Color Country Type 3 Incident Management Team, efforts were started to conduct a structural assessment of the community of Pine Valley by the Structure Protection Group. Initially the structural assessment was conducted in a traditional format with paper forms taken to the field by resources from the Structure Protection Group to be later entered into an MS Word document. The initial collection of field data took almost three days by five engines. After nearly a week of transferring data to the MS Word document, it was still not in a uniform and useable format.
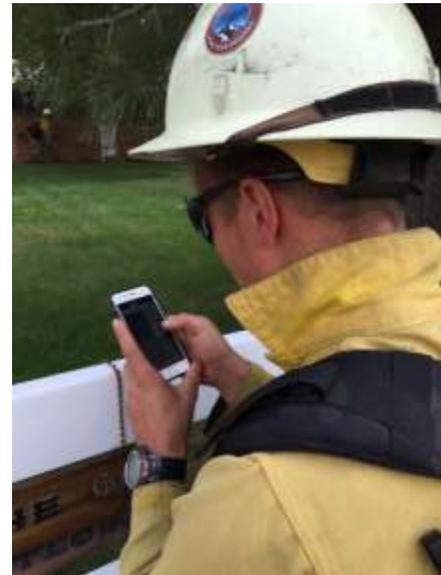
At this point an alternative was sought with the Intterra SituationAnalyst (SA) program and SA Field Tool identified to collect data in the field. SituationAnalyst is a web-based Decision Support System that provides an up-to-date picture of the jurisdiction in an easy-to-use map-based Common Operating Picture so the Operations Section has the knowledge needed to make strategic and tactical decisions within the Structure Protection group. Data collected is real time and allows for responding resources to have detailed information on structures and the neighborhood.

Data was collected on the ground through the SA Field Tool app. The SA Field Tool is a downloadable app that gives a simplified mapping tool for viewing, collecting, and sharing information in SituationAnalyst. This app was developed primarily to give the capability to collect information from the field (including photos) and to be able to work offline. The SA Field Tool app complements and extends the use of SituationAnalyst to field users.

Incident maps can be viewed and detailed information can be collected for daily use to support incident operations, structure triage, damage assessments, fire prevention and wildfire risk planning. The SA Field Tool supports offline operations, including storage of SituationAnalyst and user-collected data, base maps, and updating a centralized database. This app also allows registration of a smart device and ability to enable location tracking so information and location can be tracked in SituationAnalyst .

Data collected within the Structural Risk portal within SA Field Tool includes geospatial location, basic information on a property, access, structure construction information, defensible space, safety concerns to fire fighters, and a photo of the property.

Pine Valley Home Risk Map
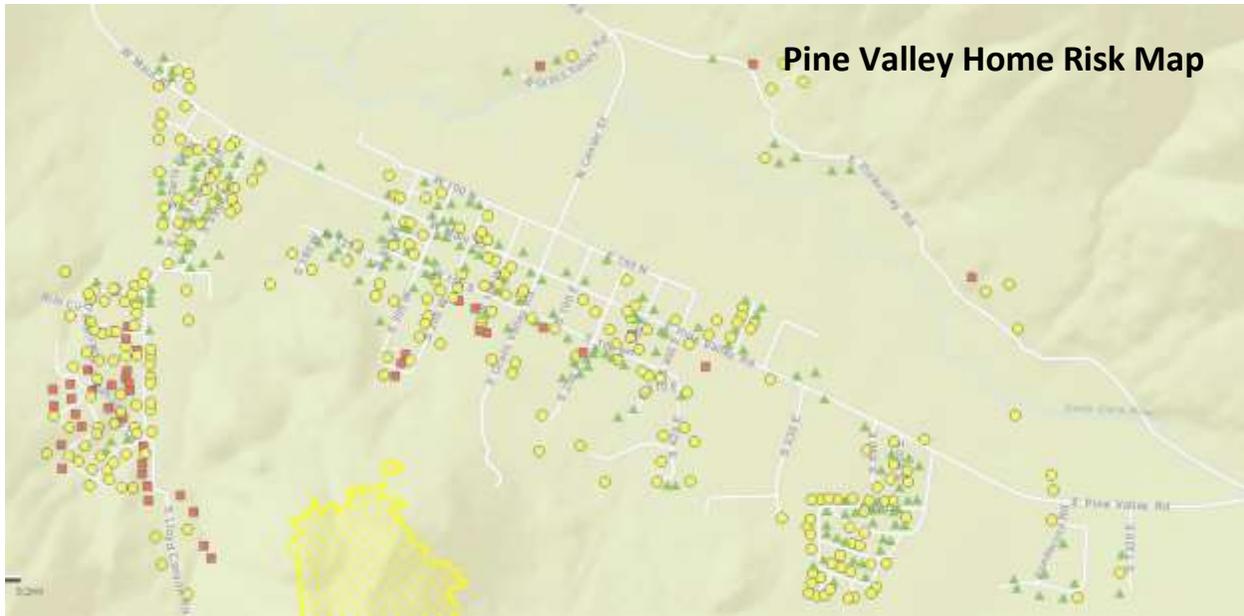
The SituationAnalyst program provides a Summary Wildfire Risk Assessment and detailed one page Wildfire Risk Assessment for each primary structure where data was collected. The detailed Wildfire

Risk Assessment includes information on location, structure composition, access, vegetation, protection, and notes with type of preparations suggested (i.e. limb trees, brushing, moving of wood pile) and resources and equipment recommended (i.e. engine type and number, water handling equipment including amount of hose, nozzles, and sprinklers). An overall hazard is provided for each structure and is depicted on a geo-referenced map of the community.

Five wildland fire engine task forces were able to collect data on 489 structures within Pine Valley within one day. This included downloading the application on smart devices, providing individual training to all five task forces, and printing up a comprehensive Wildfire Risk Assessment. In the event immediate structural protection measures were required, data populated into the SA Field Tool could be viewed by incoming resources on a real time basis. SituationAnaylsis has other functions outside of those highlighted and used on the Saddle Fire, but provided the Structural Assessment as originally desired for the incident.

Some considerations in using the SA Field Tool App include the Highly Reliable Organization concept of difference to expertise. In some cases the leader of a resource might not be as technologically astute as some of their younger crew members. Thus, for efficiencies and timeliness, younger crew members might take a lead in field data collection. Not all resources have an agency provided smart device. Thus at times, resources might be using a personal device and issues could arise if damage occurred to such device. Efforts were made to provide hot spots so individuals would not need to use their own data.

Data from and access to the SituationAnalyst program was shared with the local Pine Valley Fire Department and Utah Forestry, Fire and State Lands (FFSL). The two agencies were then able to encourage homeowners with a higher risk rating that efforts should be taken to reduce the risk of wildfire. With the Saddle Fire having a Fire Management Assistance Grant Program (FMAGP) declaration through Federal Emergency Management Agency (FEMA), the State of Utah allowed resources working within the Structure Protection Branch to make further assessments and recommendations for fuels treatments around the property using Firewise concepts. Through the Utah FFSL's Wildland Urban Interface program, property owners could sign up for treatments to be implemented on their property. In all, 72 assessments, recommendations, and treatments occurred throughout the community of Pine Valley.

While the Saddle Fire has not reached Pine Valley, lasting products have been provided to the community, as future threats to the area will occur from wildfire. The fire department is better prepared to respond to future wildfires and when Incident Management Teams arrive, a structural assessment will be available to the team. Furthermore, following Firewise principles, many structures are in better condition to survive a wildfire if one approaches their homes and the community.