

**CA Department of Forestry and Fire Protection
Office of the State Fire Marshal**

**Fire Hazard Severity Map Implementation and
Wildland Urban Interface
Building Standards Rollout
Vision/Scope v1.2**

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Document Revision History

Date	Document Version	Updated By	Description of Changes
December 13, 2006	1.0	Wayne Mitchell	Working Copy Preparation Draft.
February 22, 2007	1.1	Wayne Mitchell, Ernylee Chamlee Dean Cromwell	Design a unified approach incorporating the wildland urban interface building standards and fire hazard severity mapping into a single project.
March 26, 2007	1.2	Wayne Mitchell Ernylee Chamlee	Update timeline and deliverables to account for separating LRA review and recommendation process from SRA public hearing and adoption process.

Synergy

Euclid was a Greek mathematician who lived around 300 BC and is best known for his thirteen-volume treatise titled Elements. Two of Euclid's axioms of geometry have been revised to produce the modern saying, "The whole is greater than the sum of its parts". Another way of stating this principle is that something happens in a group that goes beyond the logic of math.

That something is called synergy, from the Greek word sunergia, meaning cooperation or working together. One person's insight brings a comment from another, which reminds a third of an illustration that really clicks in the mind of a fourth. Wisdom is being willing to share what you have been taught and being willing to learn what others have been taught.

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Background

Problem Statement / Business Opportunity

The State Fire Marshal, by State Law, is responsible for the coordination of the State's fire and life safety codes. The State Fire Marshal must review the proposed regulations of State Agencies that promote fire and life safety before the regulations can be submitted for approval. Because of the continued catastrophic loss of buildings in the wildland urban interface (WUI) areas, in May of 2006 the SFM submitted to the State Building Standards Commission building requirements for all new structures in the "Very High Fire Severity Zones" (VHFSZ) under local jurisdictional control and all of the State Responsibility Area (SRA) lands. These requirements are known as the "wildland urban interface building standards" or WUIBS.

Phase 1 of the building standards implementation immediately required roofing and attic venting construction that eliminates ember intrusion. Phase two of the WUIBS is effective January 2008. This phase will include ignition-resistant siding and decking, doublepaned windows, eaves and wall vents that reduce or prevent ember penetration, and enclosing decks that overhang natural vegetation. These building standards address fire points of entry into the structure during conflagration fire events. Conflagration fires have caused significant home loss in the Wildland Urban Interface. These building standards will substantially reduce fire losses and costs.

Unfortunately, current fire hazard assessments do not necessarily incorporate those factors that drive structure ignition potential. In 1983 the Ayala legislation was passed establishing PRC Sections 4201 – 4204. This legislation called for the Director to map fire hazard conditions in the State Responsibility Areas. The still current fire hazard assessments for SRA were mapped and adopted between 1983 through 1985. These assessments were mapped on paper 7½ and 15 minute quadrangle maps. The official map was retained in Sacramento and one copy was provided to county government officials. The assessment process reflected the state-of-the-science at the time and did not include site specific fire behavior calculations or the contribution of embers to ignition risk. These maps, if they can be found, do not provide sufficient resolution or ease of access to support building permit issuance business processes.

The Bates legislation was passed after the 1991 Tunnel Fire in Oakland, establishing Government Code sections 51175 – 51189. This legislation called for the Director of the Department to map the very high fire hazard severity in Local Responsibility Areas and make a recommendation to local government. The current fire hazard assessments LRA for were mapped and adopted between 1992 and 1995. Local government, on occasion, has updated the original adoptions. These assessments were based on the state-of-the-science at the time and did not include the contribution of embers to ignition risk. The fire hazard recommendations for LRA did not receive consistent adoption by local government. These maps do not provide sufficient resolution or ease of access to support building permit issuance business processes.

The opportunity now exists to update both the SRA fire hazard zones and the LRA severe fire hazard area recommendations using current technology, fire modeling science, and detailed remotely sensed wildland fuels information. The technology also exists to make this information readily available to building officials in support of the building permit issuance and enforcement process. The opportunity also exists to provide consistent training on the new fire hazard severity zones and the ignition resistant construction standards before the WUIBS go into effect on January 2008. The State Fire Marshal has an opportunity to partner with the California Building Officials (CalBO) and the Northern and Southern Fire Prevention Officers to ensure that building officials, fire officials, and industry personnel are trained for the new requirements.

Vision Statement

By January 1, 2008, California Building Officials, land developers and building industry personnel will have access to appropriate fire hazard severity zone information in sufficient detail and scientific rigor, and will have a clear understanding of the newly required building standards so that the Wildland Urban Interface Building Standards are successfully applied.

Project Scope

The Fire Hazard Severity Mapping project is nearing completion of the hazard model development phase and is entering the implementation phase. This implementation phase includes the following key activities:

- Producing fire hazard severity maps for all counties in California
- Validating the fire hazard severity maps and the associated models for areas of concern in the counties
- Providing maps and detailed GIS information to each CDF Unit and making this information available to local government in each county
- Conducting a public hearing in each county with SRA lands
- Provide support information for public hearings in local responsibility areas
- Adopting a California Code of Regulations Title 14 revision for fire hazard severity zones on SRA

The mapping portion of the project will conclude with the adoption of a CCR Title 14 revision by the Office of Administrative Law and the delivery of Very High Fire Hazard Severity Zone recommendations to local government.

Course curriculum for the WUIBS will be developed and training implemented throughout the state.

A Statewide State Fire Marshal Wildland Urban Interface Advisory Committee will be

established.

Success Criteria

Successful completion of this project will be measured by completion of the following:

Technology deliverables:

- Geographic Information System data delivered to each CDF operational unit and each contract county
- Geographic Information System data posted on the internet and accessible to local government
- Geographic Information System data hosted at the UC Berkeley Center for Fire Research and Outreach web site (<http://firecenter.berkeley.edu/toolkit/>)
- Various documents posted to the Department's web sites

Product Deliverables

- Maps of fire hazard suitable for posting in a public location in each county
- Training material, public speaking outlines, and other explanatory material for use by team members, local government fire officials, and department employees to support public hearings
- Training material, and other explanatory material for use by local government building officials to support the adoption of associated ignition resistant construction building standards
- Department Policy and Procedure Handbook updates to reflect the new fire hazard map process and products
- WUIBS curriculum developed and delivered for thirty 1 day training class

Constraints

1. System must meet State and Department information security standards
2. Stay within Project Budget
3. Complete the SRA Title 14 regulation by January 1, 2008, the adoption date for the ignition resistant construction building codes.
4. The majority of the WUIBS classes must be done by January, 2008.

Strategies

Strategy 1: General

1. Develop and deliver WUIBS formal training and deliver projected 30 classes statewide, partnering with stakeholders

2. Develop presentations/posters for various conferences
3. Develop a brochure/documents as a handout
4. Update various statewide stakeholder forums such as Cal-Building Officials (CalBO), Cal-Chiefs, Building Industries, Architects, Cal Fire Prevention Officers, Insurance Industry, etc.
5. Advertise new regulations to public and through news releases, PSA, periodicals and fire prevention materials

Strategy 2 – Hazard Model:

1. Develop and conduct a field validation process that seeks and documents local knowledge.
2. Develop a hazard model evaluation procedure that will allow the Director to evaluate alternative approaches to a standard California hazard model.
3. Validate SRA during 2007 and conduct hearings for adoption of a Title 14 regulation by December, 2007.
4. Provide review and validation opportunities for LRA throughout 2007. Incorporate appropriate recommendations from local government and issue LRA recommendations in January 2008.

Strategy 3 – Public Hearings:

1. Request county fire chiefs associations (through FPO/CALCHIEFS and CDF Unit Chiefs) to assemble county level task groups capable of conducting public hearings.
2. Fund county level public hearing task group's operational needs for supplies through the FEMA grant.
3. Develop a standard PowerPoint presentation that can be modified to fit the local audience.
4. Develop a bi-fold brochure to be used as a handout at public hearings.
5. Develop and maintain a Q&A document and make it available on the Department's web sites.
6. Hire regional level public hearing coordinators (retired annuitants) to coordinate and assist with the public hearing process.
7. Develop a model ordinance for LRA Very High Fire Severity Zones.

Strategy 4: Product Distribution:

1. Post downloadable county level map files (PDF format) on the Department's FRAP web site
2. Post county level GIS data files with the FHSZ information (ESRI ArcInfo/ArcMap file format)

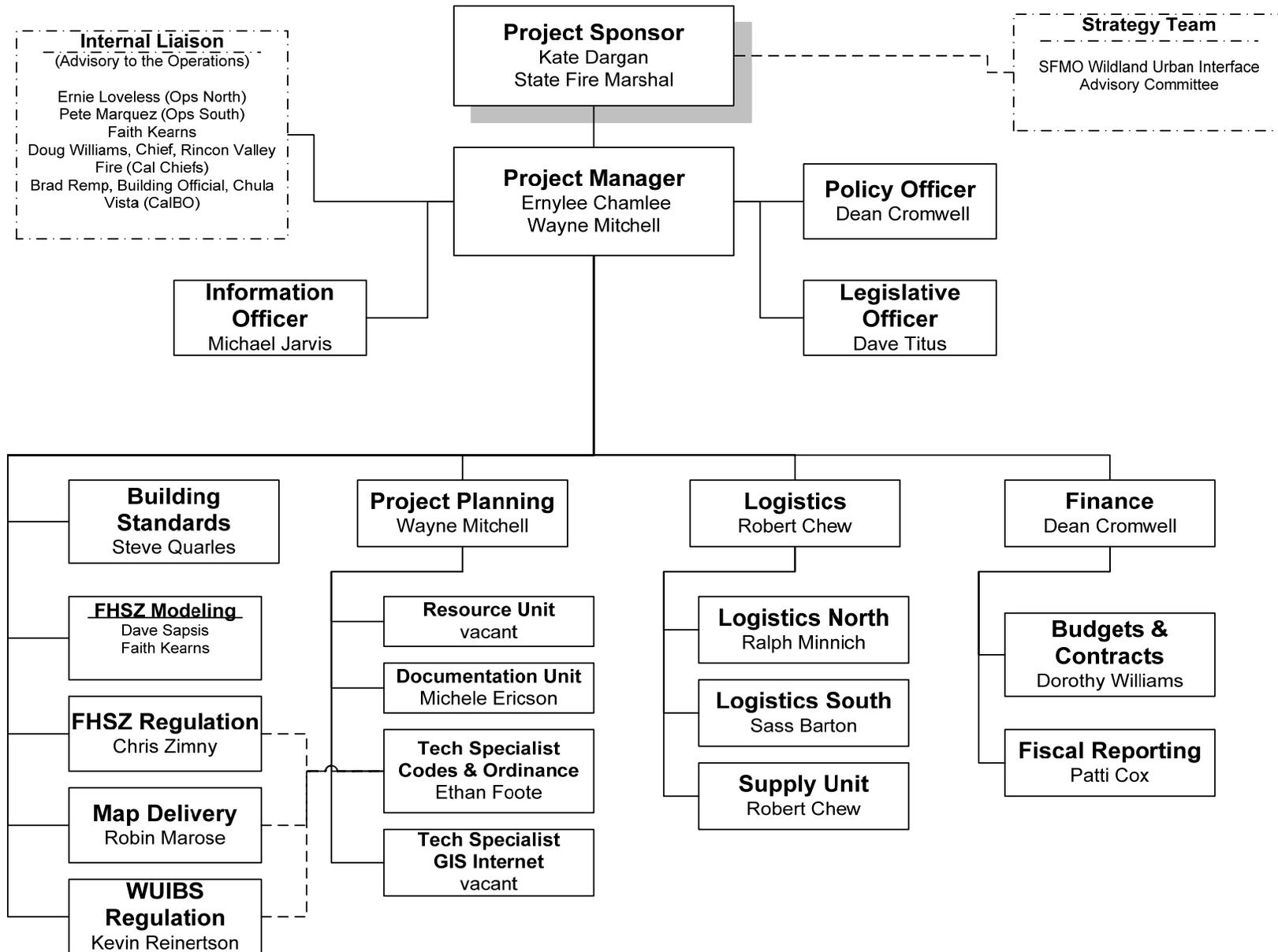
3. Provide a GIS data set to the U.C. Berkeley Center for Fire Research and Outreach to be hosted on their web site.
4. Provide county level GIS data files to local government GIS operations to facilitate integration into local building official's building permit issuance and enforcement business processes.
5. Develop plan checking check off sheet for WUIBS, public/contractor handouts that can be used locally by building officials explaining requirements of WUIBS.

Roles and Responsibilities

Role and Responsibilities	Team Member
Project Sponsor/Incident Commander: Approve and facilitate project direction and provide necessary program resources.	Kate Dargan
Project Manager/Operations Section Chief: The Project Manager has overall responsibility for the implementation project. The Project Manager is responsible for the development and delivery of the process and associated products. The Project Manager advocates for the project to local government, CDF Operational Unit Chiefs, Contract County Chiefs, other CDF/SFMO program managers, federal agency fire managers, and others. The Project Manager is responsible for communications within the Department, development of necessary policy and procedure, training staff, managing project logistics, managing contracts with 3 rd party vendors and managing project budgets. At the completion of the project, the Project Manager will deliver the business processes, policies, and procedures necessary for the continued operation of the product to the appropriate Department program managers. Maintain issue log.	Wayne Mitchell Ernylee Chamlee
Policy Officer: Responsible for administering policy review for issues that arise relative to the project. Such issues include a feedback/vision mechanism, WUIBS regulations, map drift to other decision environments, scientific mapping issues, stakeholder needs, building materials, and other. Assists in maintaining issue log.	Dean Cromwell
Branch Director Modeling: Manages development of technology deliverables produced during the project. These include coordination between CDF and UCB Fire Center project staff.	Dave Sapsis
Branch Director Regulation Mapping: Prepare Office of Administrative Law filing documents to update the Title 24 Section 1280 regulation for fire hazard severity mapping in state responsibility area. Responsibilities include filing appropriate CEQA documentation, the statement of reasons, drafting the regulation language, developing the PRC 4203 hearing process, conducting an APA hearing and other tasks related to regulation implementation.	Chris Zimny
Branch Director Regulation WUIBS: Complete local government model ordinance. Manage issues relating to the intent of the WUIBS. Chair Responsibilities include filing appropriate CEQA documentation, the statement of reasons, drafting the regulation language, developing the PRC 4203 hearing process, conducting an APA hearing and other tasks related to regulation implementation.	Kevin Reinertson Ethan Foote: SME
Branch Director Training: Develop curriculum, training aids, and outreach material	Steve Quarles

WUIBS training for building officials, inspectors, industry, etc. Partner with CalBO and FPO for instructors. Manage class scheduling, requirements, changes, and maintain integrity of curriculum for future course for State Fire Training.	
UCB Fire Center Technical Team Builds and tests features to meet project requirements. This team analyzes the developed environment portion of the hazard map analysis. This team also hosts the final hazard map coverage on the UCB web server.	Faith Kearns
Plans Section Chief: Support the management of the overall process, resource allocation, and the project schedule. Reports project status monitors the product scope and specification, facilitates team communication, and facilitates trade-off decisions.	Wayne Mitchell
Logistics Section Chief: Responsible for logistical support including scheduling.	Robert Chew
Legislative Outreach: Develops and manages the outreach effort to the legislature	Dave Titus
Finance Section Chief: Assist Project Manager with fiscal support including tracking of expenditures and preparing fiscal reports to support grant reporting requirements.	Dean Cromwell
Communications Officer: Develops internal and external project communication including messages, press release drafts, the steering committee directory, and other communication missives.	Karen Terrill
Information Officer: Manages the message to the media. Develops and manages the press strategy for the project.	Michael Jarvis
Tech. Specialist Systems Technology: Provide expertise, resources, and oversight relative to information technology issues.	TBD
Subject Matter Expert – Code Interruption: Provide expertise on the history and technical science of requirements.	Ethan Foote
Subject Matter Expert – Codes and Regulations: Keeps Team advised on any changes or updates regarding the WUIBS, ICC, or testing of WUIBS that may effect project	Kevin Reinertson
Subject Matter Expert – Life Safety: Provide input regarding any life safety issue that might arise during Class development or implementation	Ben Ho
Subject Matter Expert - Building Materials Listings: Provides expertise to Project Lead in relation to project acceptance for WUI standards	Ken Vollenweider
Stakeholders: Includes representatives from CDF Regions, Units, SoCal FPOs, NoCal FPOs, CalBO, Industry, Sierra Club, and other interest parties that have partnered with SFM on the WUIBS.	

Fire Hazard Severity Zone – Building Standards Rollout
FHSZ-BSR
March 26, 2007



Communications Plan

The Project Managers will:

1. Conduct frequent meetings with the Project Team.
2. Monthly (additional as needed) status reports to the project sponsor.
3. Quarterly progress reports to OES detailing accomplishments funded through the FEMA HMGP.
4. Maintain issue and risk logs with documented resolutions.
5. Conduct monthly meetings with project sponsor and steering group.
6. Project workgroups will hold working sessions as needed.

Key Stakeholders:

- Building Officials
- Fire Chiefs
- Fire Prevention Officers
- SFMO Fire Prevention Engineering
- CDF Unit Chiefs
- Contract County Chiefs
- Building Industry
- Insurance Companies

Project Team:

- All individuals and workgroups will provide periodic project status reports to the Project Manager. Status reports will be focused on accomplishment of tasks (percent complete) identified in the project GANTT chart, identification of additional tasks not previously identified, identification of cost changes (over/under budgeted amounts).
- All vendor calls, meetings and working sessions will result in at least notes containing action item summaries and outcomes so that all are captured in the issue log.
- Notes from meetings and working sessions will be distributed to the core team via email, as will weekly and monthly status reports.
- MAP Project documents will also be posted on the FRAP Fire Hazard Mapping internet website.
- Project documents will also be available in a project drive to which all team members will have permissions. Documents will be posted on the CAL FIRE Intranet and may be made available on a ftp site for availability to those outside of the Department.

Project Schedule: see attached GANTT Chart

Milestones:

December 2006

- Complete first draft of data calculations for all counties
- Develop validation documentation tools
- Dry run test for validation tools

January – March 2007

- Conduct validation sessions in county groups
- Collect validation data and re-evaluate model
- Complete final run of data calculations for all counties
- Prepare data and map files for public hearings
- Post WUIBS on CDF and SFM websites
- PowerPoint for Unit Chiefs and internal use
- Curriculum development complete

April 2007

- Document mapping methodology
- Prepare support documentation for the Regulation package
- Curriculum approved by all stakeholders
- Secure venues for SRA public hearings

May 2007

- New Cal Fire Education Campaign Kickoff
- Secure 30 Classrooms for classes
- Secure instructors for all classes
- Secure venues for SRA public hearings

June 2007

- Classes Begin
- SRA Public Hearings

July 2007

- SRA Public Hearings

August 2007

- SRA Public hearings complete
- Model updates complete

September 2007

- Revised LRA recommendations made available for local validation

December 2007

- Hearings completed
- Most Classes completed
- Reassess need for additional education

January 2008

- Title 14 Regulation completed
- LRA Very High Fire Hazard Severity Recommendations given to local government