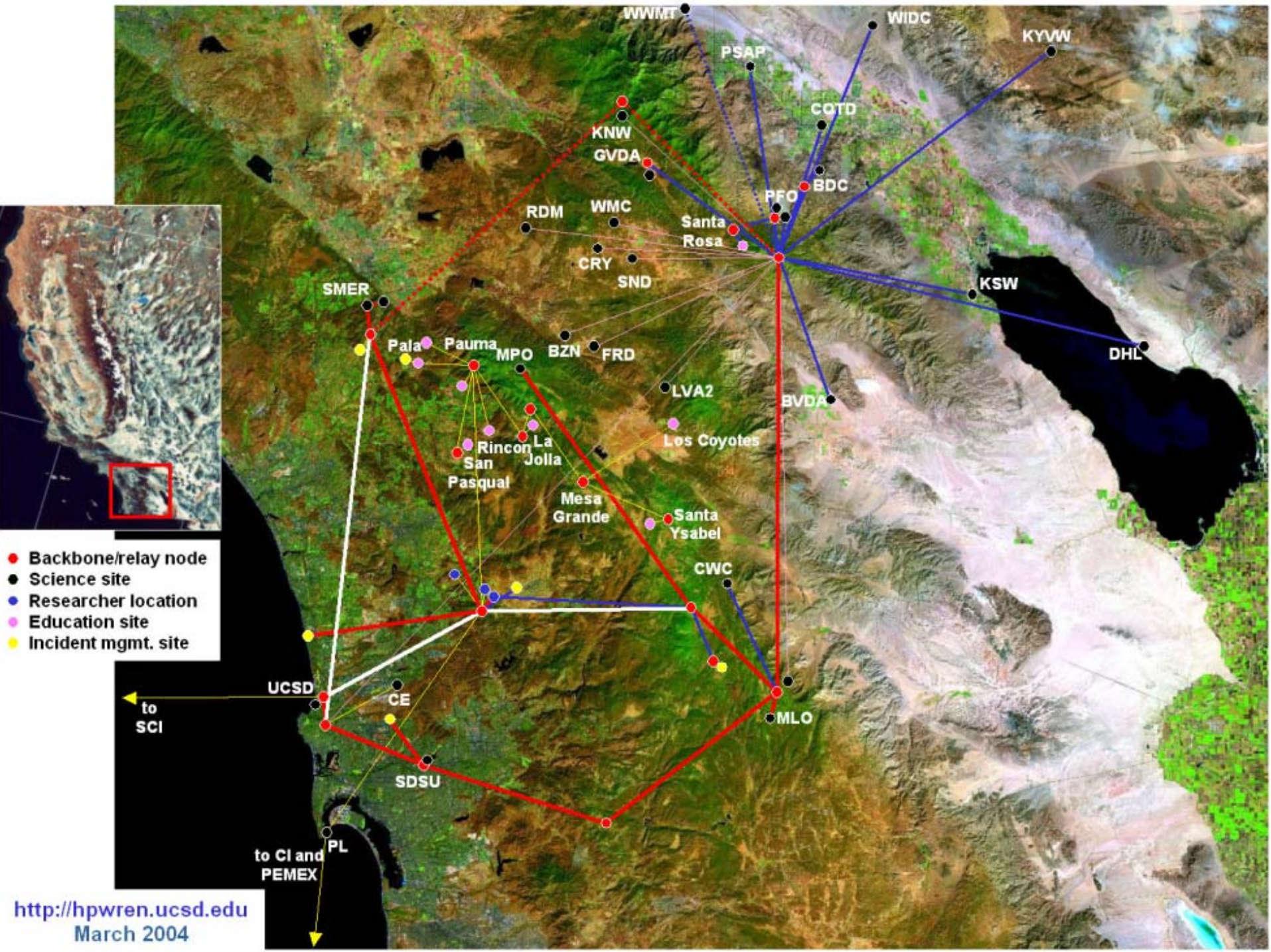
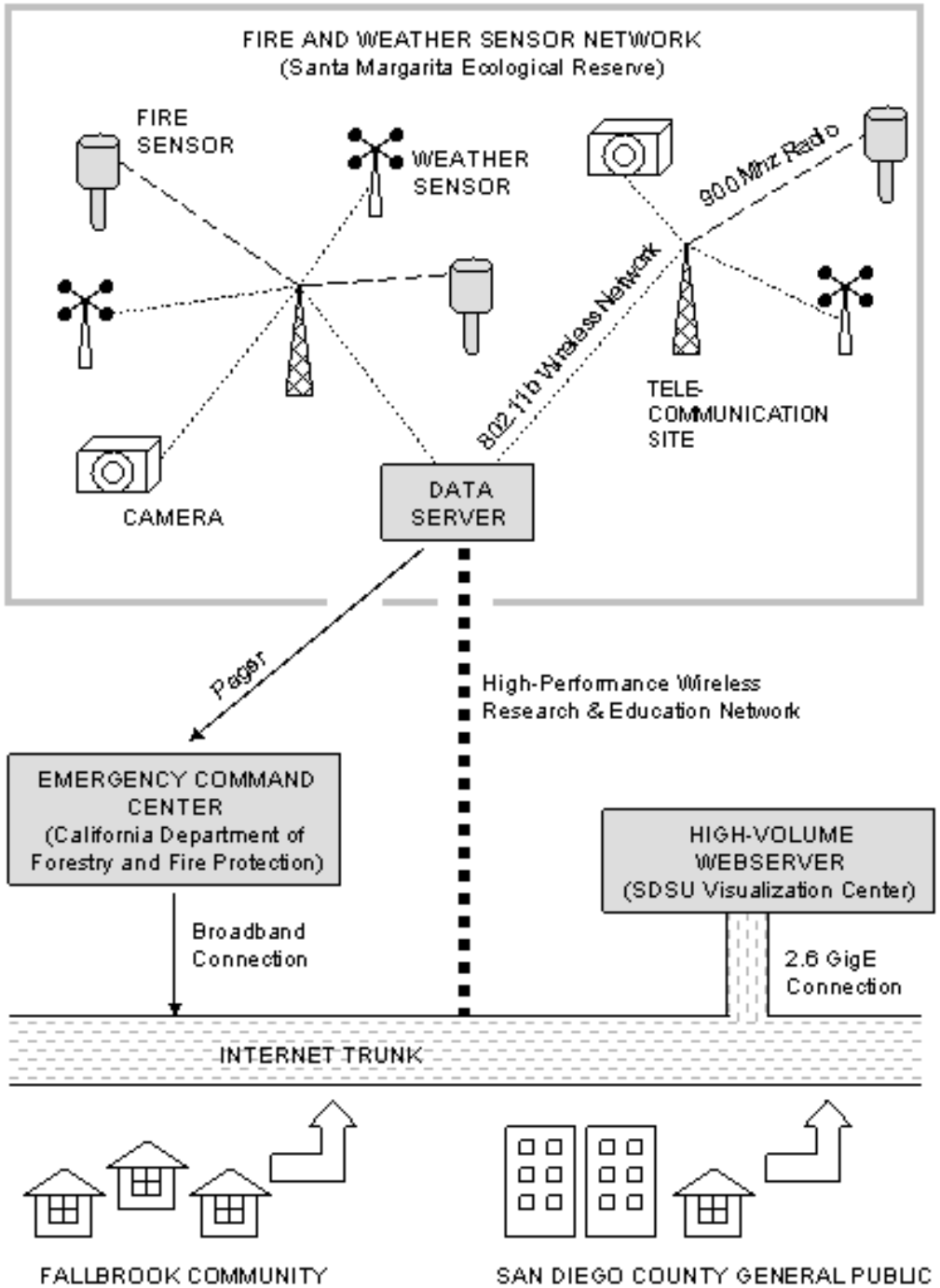
A Real-time Fire Detection Network for a Severe Fire Hazard Community

Department of Commerce
Technology Opportunity Project Grant
Oct 2004 - Oct 2007

San Diego State University Field Station Programs
Fallbrook Fire Safe Council
California Department of Forestry and Fire Protection
North County Fire Protection District
San Diego State University Visualization Center
Mission Resource Conservation District
Scripps Institute of Oceanography
Ambient Control Systems


WWMT
WIDC
KYVW
PSAP
COTD
KNW
GVDA
BDC
PFO
RDM
WMC
Santa Rosa
CRY
SND
SMER
KSW
DHL
Pala
Pauma
MPO
BZN
FRD
LVA2
BVDA
Los Coyotes
Rincon
La Jolla
San Pasqual
Mesa Grande
Santa Ysabel
CWC
UCSD
to SCI
CE
MLO
SDSU
PL
to CI and PEMEX
Backbone/relay node
Science site
Researcher location
Education site
Incident mgmt. site
http://hpwren.ucsd.edu
March 2004


FIRE AND WEATHER SENSOR NETWORK
(Santa Margarita Ecological Reserve)
FIRE SENSOR
WEATHER SENSOR
900 Mhz Radio
802.11b Wireless Network
TELE-COMMUNICATION SITE
CAMERA
DATA SERVER
Pager
High-Performance Wireless Research & Education Network
EMERGENCY COMMAND CENTER
(California Department of Forestry and Fire Protection)
HIGH-VOLUME WEBSERVER
(SDSU Visualization Center)
Broadband Connection
2.6 GigE Connection
INTERNET TRUNK
FALLBROOK COMMUNITY
SAN DIEGO COUNTY GENERAL PUBLIC

FireALERT-D System - Technical Specification

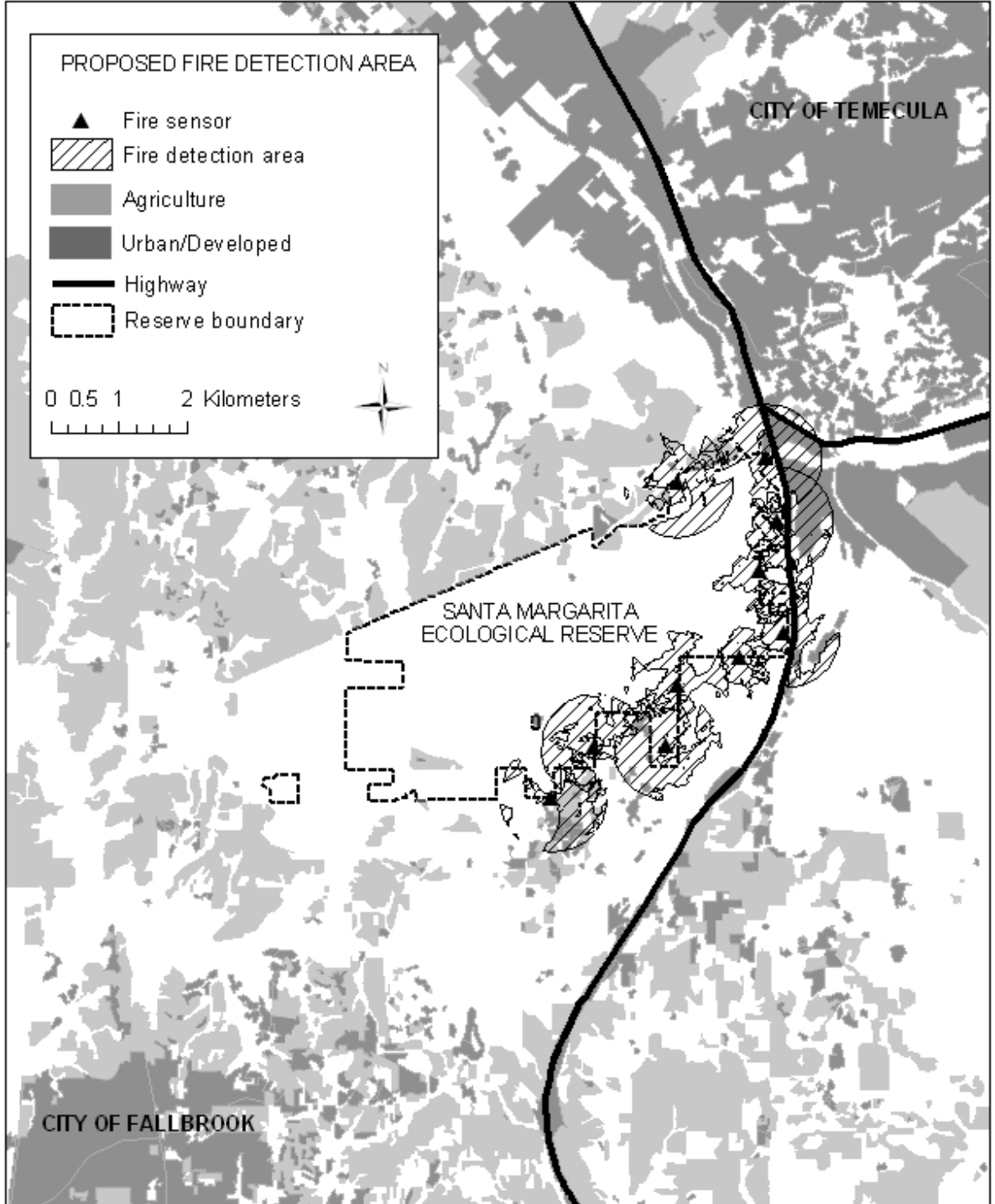
Ambient Control Systems, Inc.

Energy Storage: Supercapacitor array. Battery technology is not employed.

Scanning Imager: Patented circular horizontal 360 degree scanning imager with incremental stepper positioning system. Vertical fields of view available as follows:

- Standard view +/- 22.5 degrees
- Hill Top down view 0 to -22.5 degrees
- Valley Bottom up view 0 to +22.5 degrees

Infra-Red Fire Signature Detection: Detector sensitivity is to a specific infra-red signature. An onboard smart processor analyzes the resulting detector signals using proprietary **S**pectral **R**esonance **I**maging (**SRI**) algorithms, looking for the presence of a fire signature over background levels. This assures that the occurrence of false alarms is reduced to an absolute minimum from non-fire based sources of infra-red. Fire signature detection is achieved in less than 2 minutes from first detection of a possible signature.


PROPOSED FIRE DETECTION AREA
Fire sensor
Fire detection area
Agriculture
Urban/Developed
Highway
Reserve boundary
0 0.5 1 2 Kilometers
N
CITY OF TEMECULA
SANTA MARGARITA
ECOLOGICAL RESERVE
CITY OF FALLBROOK