The Incident Command System
Geographical Information Systems Technical Specialist Handbook

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Purpose

This handbook has been created at the request of individuals at various levels of both the Incident Command System (ICS) and Geographical Information System (GIS) organizations. This handbook is designed to work within the interagency ICS structure. This handbook is not currently sponsored by any particular agency, coordination group, or Incident Management Team. This handbook is intended to be useful to a GIST regardless of geographic area or incident type (though it is focused on wildland fire incidents).

This handbook has been created based on the training course originally created by FIRESCOPE. Currently, the training is under the direction of the National Fire Geospatial Training Advisory Group (GTAG) and is named "Incident Mapping- The GIS Technical Specialists Training Course."

This handbook is currently being distributed in a .pdf format so that the creator can consolidate future edits. The creator welcomes all input regardless of agency, rank, or technical expertise. This is simply the beginning and hopefully it will clarify some issues, allow for flexibility based on geographic and incident needs, and continue to further the development of the use of GIS within ICS.

The GIST Position

GIST within the ICS structure

The GIST position is located within the Planning Section in the Situation Unit
The GIST directly reports to the Situation Unit Leader.
The Situation Unit consists of the Situation Unit Leader, Infrared Interpreters, Field Observers, Fire Behavior Analysts, Meteorologists, Display Processors, and GISTs.
The GIST works with Display Processors (DPROs) and Field Observers (FOBs) to gather and display information.

The Purpose of the GIST Position

The purpose of the GIST position is to maintain incident status information from the field in a digital format.
This may include the following duties:

- Automate the revision and production of maps and displays.
- Compliment the work of the Display Processor (DPRO).
- Gather and process digital data from the Field Observers.
- Incorporate incident data into maps as determined by the Situation Unit Leader.
- Work with other incident staff as assigned by the Situation Unit Leader.
- Prepare final documentation on GIS data and products for the incident.

The Reality of the GIST Position

At face value, the impression has been occasionally that the GIST or GIS Unit will try and replace the Display Processors at major incidents. This is a false assumption. GIS is utilized to enhance the capabilities of the Situation Unit. It enables the Situation Unit to produce more, larger, and different maps. GIS conducts analysis, which may not be reasonable to expect from the Display Processors. Concurrently, the Display Processors are able to maintain the needed documentation, up to the minute maps, and other valuable resources. The Plans Chief and Situation Unit Leader decide how the two groups interact and who does which map. The "Products Breakout" list maps typically used on incidents, and breaks the products out by the position that typically creates the map.

Recommended Qualifications for a GIST

Technically

A GIST should understand the basic building blocks of GIS including basic cartography, scales, projections, standards, data creation, and software capabilities.

The GIST should also understand the basic concepts of Global Positioning Systems (GPS). This includes GPS concepts such as accuracy, reading various coordinate types, being able to answer questions as needed, choosing and defining a standard incident coordinate system. This also includes figuring out how to standardize unit configurations based upon incident needs.

A GIST should be able to efficiently utilize common GIS software to create data, modify data, reproject data, and create products. This currently includes different versions of ESRI software, such as ArcView 3.X and ArcGIS, and different interfaces, such as the GUI interface and the command line interface. A GIST does not need to be an expert in each one- but the GIST should be adaptable to different versions, interfaces, and learning new extensions.

A GIST should understand the basics of data transfer as well as data types.

A GIST should be capable of establishing and communicating a standardized incident directory structure using the guidelines included in this handbook. The GIST should also be able to establish and communicate a standardized naming convention for the incident based on the guidelines in this handbook.

A GIST should also be flexible and technically capable enough to enter a pre-existing configuration on an incident and adapt to the existing configuration, thus maintaining production until any transition is complete.

Personally

A GIST should be a team player. This includes acting at the position/skill level needed by the incident, regardless of what the GIST's rank is when at their home unit.

A GIST needs to be able to work well under pressure.

A GIST needs to be able to understand the relative importance of details and design in producing products in a timely manner. The GIST needs to be able to prioritize in order to move at a speed that ensures the products are out on time.

Every GIST needs to have an ICS Qualification Card (a "red" card) with the qualified job of "GIS Technical Specialist" listed.

Product Breakout by Producing Unit

Products can be paper products, digital images, projected images, print files, or data.

Products usually done by Display Processors (DPROs)

- Situation Unit/Planning Map
- Facilities Map

Products usually done by either the GIS Unit or DPROs

- Planning Meeting Detail Map
- Incident Action Plan (IAP) tiles
- Incident Action Plan (IAP) Index Map
- Transportation (Traffic) Map
- Incident Command Post Map

Products usually done by the GIS Unit

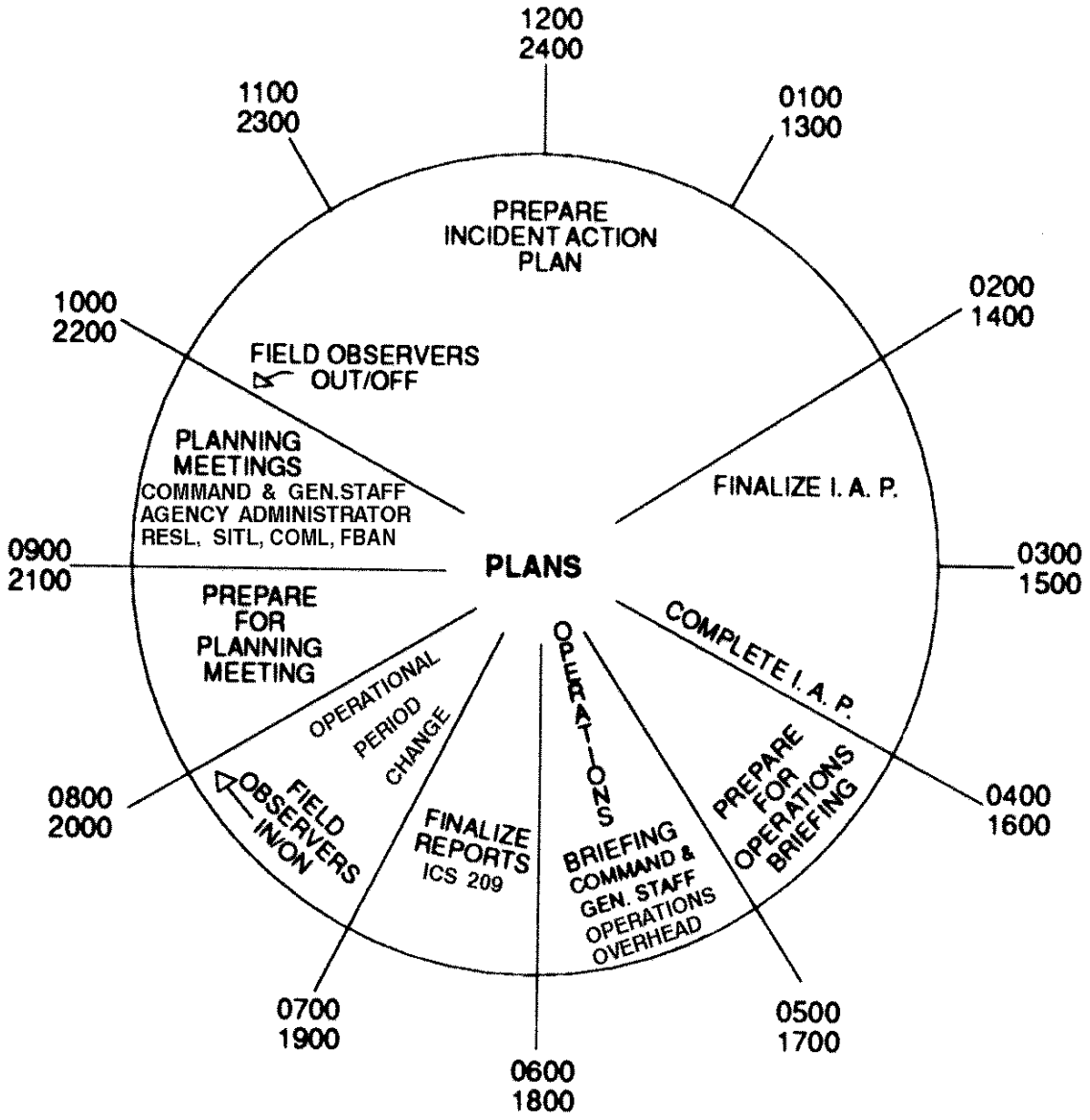
- Public Information Map
- Incident Progression Map
- Incident History Map
- Direct Protection Area (Fire Jurisdiction) Map
- Ownership Map
- Fuels Map
- Air Operations Map (aka Temporary Flight Restrictions Map)
- Hillshade or Elevation Map
- Road Closure Map
- Areas of Special Concern Map
- Non-Wildland Fire Incident Map
- Damage Inspection Map
- Rehabilitation Map
- Wildfire Situation Analysis Map
- Vegetation Map
- Three Dimensional Simulations (3-D)

Products Requiring a Fire Behavior Analyst

- FARSITE Output Products

See **Appendix A** for detailed information on Products.

The Plans Time Cycle



Creating products is a balance between, time, skill, data, and equipment.

Data-

Is the data available?
Does the data have to be manipulated?
What scale is the data at?

Time-

Do you have the time to manipulate the data?
Do you have time to create the needed products?
Are there other priorities?

Skill-

Do you (or someone on the team) have the skills to meet the request?
Does this require a skill that you can order?

Equipment-

Can your machine process the map in time?
Is there time enough to print the map?
Is there time enough to FTP the files?
Do you have the correct supplies to keep productivity at the needed level?

Product Requests-

The Situation Unit Leader approves all product requests.
Products should be ordered with a systematic process.
Deadlines for maps should be published openly.

The GIST Process

Background

Currently GISTs are ordered the same as every other resource. A request is made by the IMT managing the fire. The request goes to the GACC or to NICC and from there a person is dispatched to the location. The disadvantage of this system is that there is no clear way to insure that the GIST you are receiving will fulfill the needs of the incident. This is information will assist GISTs when being ordered.

Pre Positioning

- The GIST gathers hardware, software, and any other material needed to work remotely.
- The GIST meets with the computer specialist to ensure that he or she has proper user privileges (able to install software and change network connections) on their laptop.

Mobilization and Transit

- Upon your dispatch you need the following information:
    1. The fire name.
    2. Your assignment when you arrive.
    3. The order and request number (i.e. O-378).
    4. The reporting time and location.
    5. The dispatcher's name.
    6. The contact person at the incident (and a phone number if possible).
    7. Any travel instructions and radio frequencies to use.

- If you are not in the first wave of dispatched people call the GIS Unit (if there is not an established phone number for the GIS Unit try the Situation Unit and then the Plans Unit). Ask for the GIS Lead or Sit Unit Leader and offer any available equipment or supplies you would be able to bring. Also ask to speak to existing the GIS staff as to what software, data types, and materials are currently being used

.

- It is always a good idea to carry software media with you. The new ArcGIS software allows you to make copies of the disk. But a license, which is separate from the software, is needed to run it.

- Among your personal equipment always remember your ICS qualification (red) card and PPE. Also bring any equipment needed for any other fire line or camp ICS qualifications you have. You may always be re-assigned to another task based on incident needs.

Part I Existing Team in Place and you have been ordered as an additional resource

- **Check In!**

- The GIST meets with the existing SITL, GIS staff, and DPRO staff, to gather existing data, become familiar with existing data structures and see if an existing network is in place to tie in with.

- GIST works with staff to ensure that he/she understands current data structure, software and rules that apply to the incident. If different software is being used than what exists on the GIST's laptop, now is the time to handle this.

- Check to see what coordinate system/projection the data is in, and what is being used on the incident.

- Meet with DPRO, FOBS, or other individuals to become familiar with the fire, and fireline.

- Once the GIST is familiar with the data he/she should copy the data structure to their local computer if needed. Check to see if certain drive lettering is being used to handle data paths. If there are data structure issues these should be discussed with the existing SITL and GIST as to the reasoning, and how things were developed.

- Discuss workload of current staff with staff and SITL. Discuss what products were being produced, how data was collected, naming schemes, and if any routines have been developed with FOBS, Division Supervisors, or local Forest Representative.

- Ensure that you obtain a copy of the schedule when data, maps, and other products are due.

Part II No Existing Team In Place

- The GIST works on gathering base data, and all other data types related to the fire. This can either happen before travel, in transit, or immediately upon arrival.

- GIST meets with Plans or SITL on where GIS should set up shop. Things to consider:
    1. **Power**
    2. **Space** (Number of GIS, DPRO, or other individuals who will work in SITL)
    3. **Map Production** (Plotter, Paper storage, Map assembly, Printer Access)
    4. **Data Flow** (Who, where, how data is updated)
    5. **Traffic** (Avoid areas where many people walk through and could interfere with work)
    6. **Location of the GIS Unit** (The geographical proximity to the Situation Unit and Plans Section where the map changes will occur)
    7. **Location of the sleeping area**. (GIST's can work long, late hours, and GISTs should not be tracking through crews' sleeping areas on the way to your tent)

- The GIST develops the base data structure, naming conventions, and map standards for the incident. Check with SITL to see if the IMT (or even the local managing agency) prefers a set standard for data development and storage.

- The GIST works with the SITL on developing standard of how he/she wants map produced (i.e. size, number, scale), schedule for delivery of maps, and how maps are requested.

- If a GIST is with the incoming Incident Management Team (IMT) they are the "Lead" GIST. If the IMT does not have an assigned GIST then the SITL selects the lead, usually either the first GIST on scene <u>OR</u> the most experienced GIST.

- GIST/SITL coordinates with TYPE I members on what they expect in terms of maps and data (This could be coordinated ahead of time, but each incident is unique therefore you need to be flexible).

- GIST/SITL reviews if more resources are needed.

While at the Incident

- GIST is responsible for data maintenance and backup.
- GIST is responsible that all maps are produced accurately, on time, and ensure they fulfill the needs of the team.
- GIST works with DPRO and SITL on keeping the fire line accurate and all other map data accurate. The DPRO's map is considered the "absolute master" dataset.
- GIST works with FOBS, and others on downloading GPS data and checking to see if everyone is collecting data properly.
- GIST is responsible for daily documentation of products.
- GIST works with SITL on keeping open communication lines with Operations, and Air Ops for mapping purposes.
- GIST coordinates with other mapping sources, such as Infrared ships, or Area Command.
- Data is uploaded to GEOMAC and requested FTP sites when time permits.
- If a request comes in the GIST is responsible for providing data for the 209.
- The GIST ensures that enough paper & ink is available for the plotter, CD's for backup, power strips for plug-in, and overall condition of GIS Unit.
- Always gather rehabilitation data, progression maps, and any BAER related data. Never "throw" away data. Archive data until you leave. It is not your decision to keep our discard data. That decision is made by the managing agency.

Closeout or Transition

- GIST/SITL coordinate with documentation unit leader on what data is expected and what format the data should be in. (PDF, EPS or RTL, ZIP Files, requested number of hard copies, etc.)
- Gather all backed up data and file them accordingly
- Work with other staff on burning necessary CD's.
- Continue to fulfill needs of incident.
- Work with managing agency to fulfill their needs.
- Work with incoming team to fulfill their needs

Geospatial Data Needs

Data Sources

- Local Federal Offices
  - BLM (will generally cover large areas of land)
  - USFS (will generally only cover the immediate Forest)
  - NPS (will generally only cover the immediate Park)
- National/Regional Offices
  - USGS (can order DOQQs for the incident)
  - BLM State Offices (will generally cover the applicable states)
- Local/State Agencies
  - Relevance will depend on which state/county/city you are in
- FTP Sites
  - ftp.fire.blm.gov for statewide data sets of the 11 Western States provided by BLM State Offices
  - ftp.nifc.gov to create a folder for the incident and obtain login to create subfolders to use for data exchange

Data Quality

Characteristics that affect Data Quality

- Scale
  - How much of a given area is shown
  - How accurate the data is (example, 1:24,000 is accurate down to 40 feet)
- Resolution
  - How accurate is the location and shape of the feature represented
  - The size of a cell when using raster datasets
- Accuracy of Digitizing
  - Skill level of the technician
  - Width of the drawing pen
- Data Source
  - How old is the data
  - How much current information is included

Organizing Geospatial Data

A standard directory structure and file naming convention for incident support mapping is necessary to maintain organization, workflow, and archiving.

The Importance of Directory Structures

- You can find data easily
- Someone else can find your data
- Archiving

Directory Structure Basics

- ALWAYS use underscores (_) instead of spaces in directory names.
- Use a flat structure with clear text (normal English words)
- Active_Incident (this is created at the server level)
    - Incident_Name
        - Basedata
            - Images
            - Logos
            - Others as needed
                - Agency Data
                - Transportation
                - Digital Elevation Models (DEMs)
        - Incidentdata
            - Date subdirectories *or* Subject subdirectories
            - Progression
            - Other subjects as needed
                - FOBs GPS data
                - Burned Area Environmental Rehabilitation
        - Products
            - Date subdirectories
            - Final Products
            - Other subjects as needed
        - Projects
            - Date subdirectories
            - Other subjects as needed
        - Working
            - All files being projected, processed, or created
        - FARSITE
            - If applicable

File Naming Conventions

The most important part of a naming convention is that it is standard within the incident. This means that when a naming convention is established for an incident by the lead GIST it needs to be clearly communicated to all people who will be creating files. The lead GIST is defined as being the GIST attached to the first team that responds or the GIST selected by the SITL of the first team that responds. Any GIST entering or transitioning into an incident should make every effort to maintain the continuity of the established naming convention.

Basic Guidelines

- Basedata filenames use clear text

- Incident data filenames include
    - Date- of creation
    - Shift- of use
    - Time (24 hour clock)
    - Data Type
    - Source
    - Feature Type
    - Projection/Datum

- Product filenames include
    - Date- the map is being made for
    - Shift- of use
    - Time (24 hour clock)
    - Product Name
    - Page Size

- Project filenames include
    - Date- of creation
    - Shift- of use
    - Time (24 hour clock)
    - Product Name
    - Page Size

See **Appendix B** for examples of Directory Structures and Naming Conventions

Data Development and Tracking

Data is coming in from various sources daily and being used to update vital incident information. Over time, more refined data will come in but it is important to ensure that the changes are tracked and no data is eliminated. When updating data, the Situation Unit Leader is the person with the authority to approve data changes. The GIST should work with the SITL to establish a schedule establishing data flows and timing.

One way to handle the data flow is to create three categories of data:
Data In
Master Data
Processed Data

Data In is defined as data sets separated out by the source of data.
Examples:
FOBS data sets- organized by FOBS group or name
IRIN data sets- created by either the IRIN or digitized by the GIS Unit

Master Data is defined as data sets separated by type of data.
Examples:
Dozer lines- all dozer lines from all sources for the duration of the fire
Completed Handline- all handline from all sources of data for the duration of the fire
Structures at Risk- structures that may be in the path of the projected fire path

Processed Data is defined as data sets that combine data from different sources and/or different data types to create an overall view of the fire.
Examples:
Fire perimeter- this is the edge of the fire
Fireline- this is the edge of the fire delineated by what line types are at the edge

Each operational shift the master data sets should be copied. The copied data sets will be edited to include all the changes for that particular operational shift. The attribution of the data source allows the SITL to know what day the data was updated, where the data came from, and will enable the SITL to make better decisions when updating data. For example, if the data currently in the dataset was eyeballed on a map and a FOBS brings in GPS data changing the shape of the line, the SITL can choose to replace that section of line with GPS data.

Example of data attributes used when updating data:

Data Source	Source Method	Date	Comment
GPS	Helicopter		FBAN
GPS	FOB		Smith
GPS	DZR		County
EYE	Map		SITL
IR	IRIN		
IR	FLIR		

Data Flow Examples:

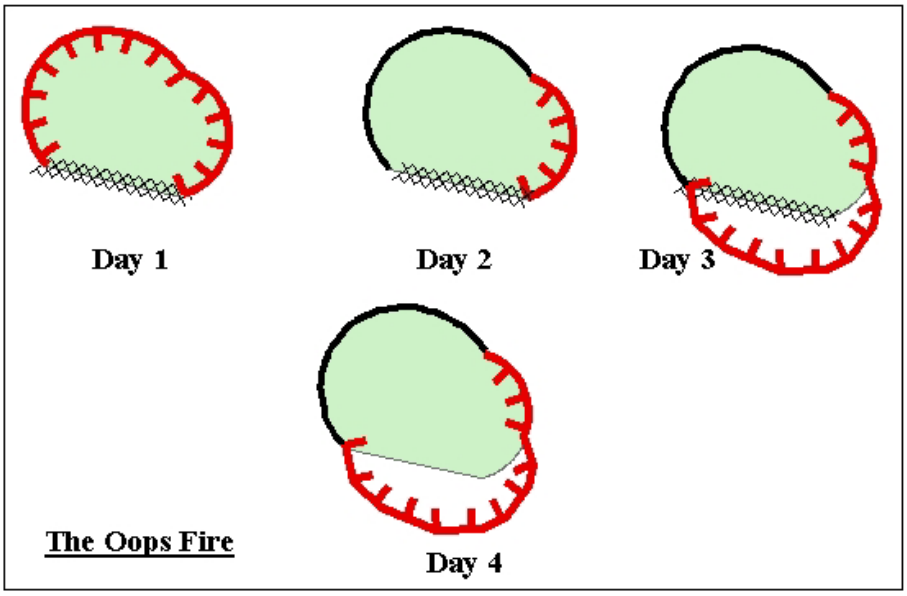
Example 1:
At 0550 IRIN data update is given to GIST in shapefile format
At 0600 GIST updates pre-printed Briefing map (with red pen)
At 0615 GIST updates fire perimeter based on IRIN's shapefile
At 0630 GIST updates fireline

Example 2:
At 2000 FOBS enters GIS Unit
At 2005 FOBS data is downloaded by GIST
At 2010 GIST creates shapefile of FOBS data and printout of data
At 2025 FOBS goes to SITL and DPRO to update the master map
At 2030 DPRO informs GIST of fireline update
At 2035 GIST updates dozerline then fireline then the fire perimeter with FOBS GPS data

Common Issues with the Fireline:

Firelines do not necessarily move in the desired directions, sometimes a fire jumps the line, doubles back, or the IC chooses to conduct a burnout. This can lead to constructed line being contained within the fire perimeter. The constructed line is at that point no longer the "fireline", but is still considered a constructed line. The reason this data needs to be kept is for the affected agencies records, the Burned Area Environmental Rehabilitation (BAER) Team, and in case any member of the fire staff wishes to have it on a specialized map.

See the following figure for an example of how a dozer line could be totally within the fire:



On Day 4, since the map only needs to show the fire line, the dozer line is not on the map.

Layout Standards

Maps are a method of communication and it is essential to ensure we are discussing the same facts and issues. Standards enable the GIST to clearly communicate to the rest of the fire organization utilizing common symbology.

The Look of the Maps depends on:

- The Incident
- The Product
- The Software utilized
- The Team managing the fire
- User Needs

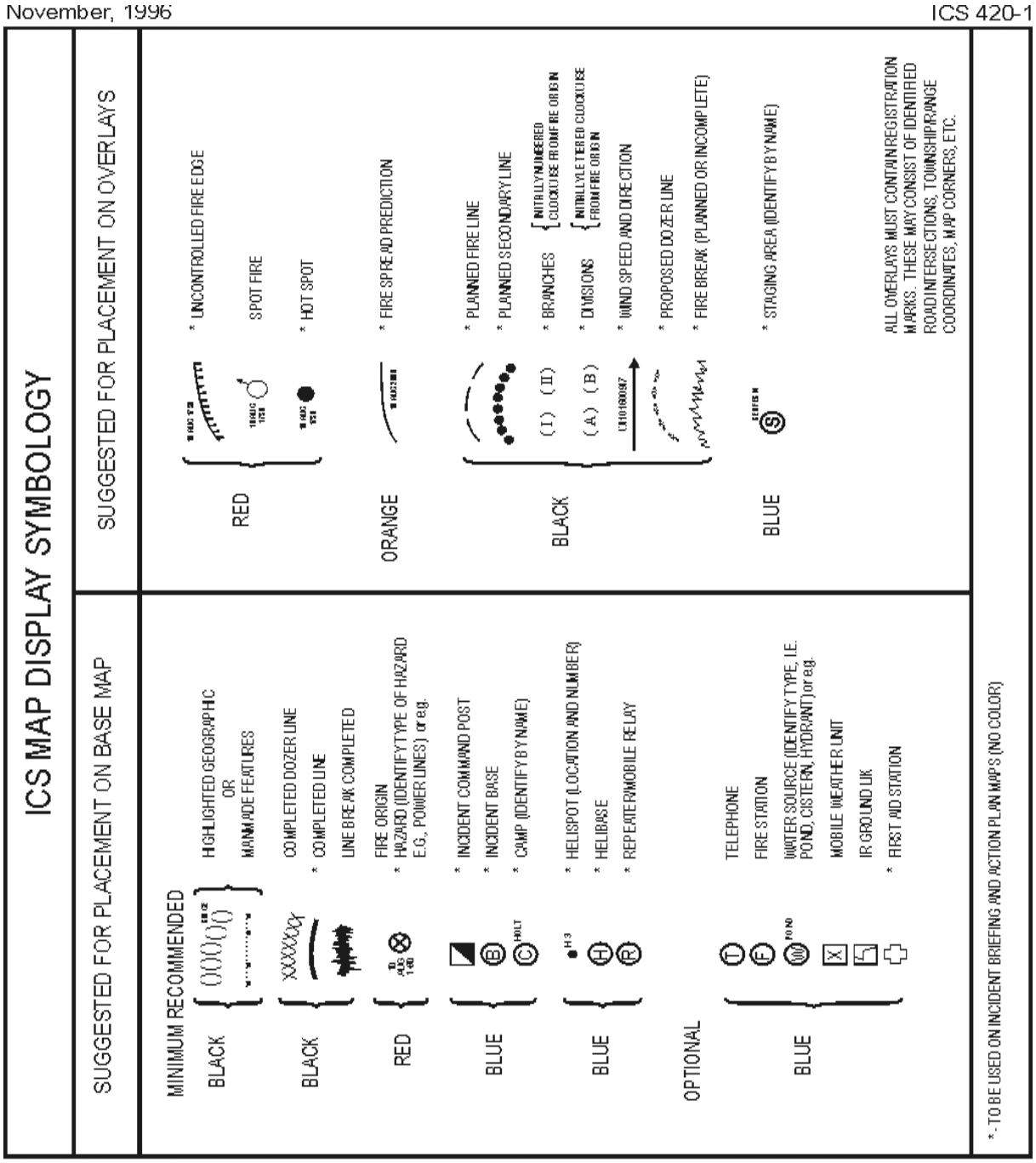
Basic Cartographic Standards

- S.T.A.N.D.
  - Scale
  - Title
  - Arrow
  - Name
  - Date and Time
- Other Recommended Elements
  - Legend
  - Logos
    - The Managing Team
    - The Managing Agency(s)
    - Less is more and be flexible
  - Incident Name and Number
  - Project file name and path
  - Disclaimer (if requested)
- Standard Colors
  - Standard ICS Symbology (ICS 420-1)
  - Ownership (National Mapping Standards)
  - Traditional Map colors
    - USGS Topography Legend
      - Water is blue
      - Roads are black or red
      - Vegetation is green
  - Non-Standard Colors
    - Progression
    - Wilderness
    - Wildfire Situation Analysis (WFSA)
    - Fuels
    - Vegetation
    - Hillshade/Elevation
  - Text

        - Text Size
        - Font (simple is best)
        - Text color
        - Format (Bold/Italics/Normal)
- Page Setup
    - Portrait vs Landscape
    - Size
    - Color vs Black and White
- Quality Control
    - Spelling
    - Correct Dates and Times
    - Current/Required/Correct layers
    - Easily Read

Note For maps that are incorrect, old, or practice write DRAFT and release per the Situation Unit Leader's instructions. Remember your trash can be someone else's souvenir.

Standard ICS Symbology



Archiving

What to save

- All incident data
- All created base data
- All (at the minimum final) products

Why

- For the agency with jurisdiction to incorporate new data into their corporate data
- Documentation
- Training purposes
- Litigation

Recommendations

- Use a centralized server concept
    - Designate one machine as file server
    - Do NOT use this machine as anything else (this will greatly improve performance)
    - Make sure all data, projects, and products are stored on the designated file server
    - The server contains the master files
    - This is a single point of failure so make sure to mitigate the risk
- Ensure proper directory structure and naming conventions are used
- Don't wait until the last minute to begin
- Establish a protocol for keeping track of data changes
- Periodically backup data to CDs
- Backup products every couple of days (to free up server space)
- Remember to populate your "Final" subdirectory under products

Who receives copies of the Archive CDs

- Minimum
    - Documentation Unit
    - Local agency(s) with jurisdiction
- Recommended
    - Regional (Fire) GIS coordinator of the agency with jurisdiction
    - Personal copy

Appendix A Standard Products

Standard Products: Situation Unit/Planning Map

Done by: Display Processors

AKA: Master Map, "Mother" Map

Purpose:

- Displayed in the Situation Unit
- Displays the fire perimeter and current suppression operations
- Tracks data from FOBS, Operations, etc.

Layers:

- Base Data Layers
    - Topological maps- USGS 7.5' Topo Maps
        - Maps are cut and pasted together on a board
    - Pertinent threatened resource values
- Incident Data Layers (drawn on overlay of mylar)
    - Fire perimeter
    - Location of incident specific data
    - Any other relevant incident specific data

Cycle: Prepared for shift briefings

Print Size: N/A

Notes:

- This map is the master data set that GIS bases their data on
- Used for tracking the progression of the incident
- This map is maintained by the DPROs with changes approved by the SITL

SITUATION UNIT DEBRIEFING MAP
(SEE SITUATION UNIT PERSONNEL TO UPDATE)

Standard Products: Facilities Map

Done by: Display Processors

AKA: Camp Map

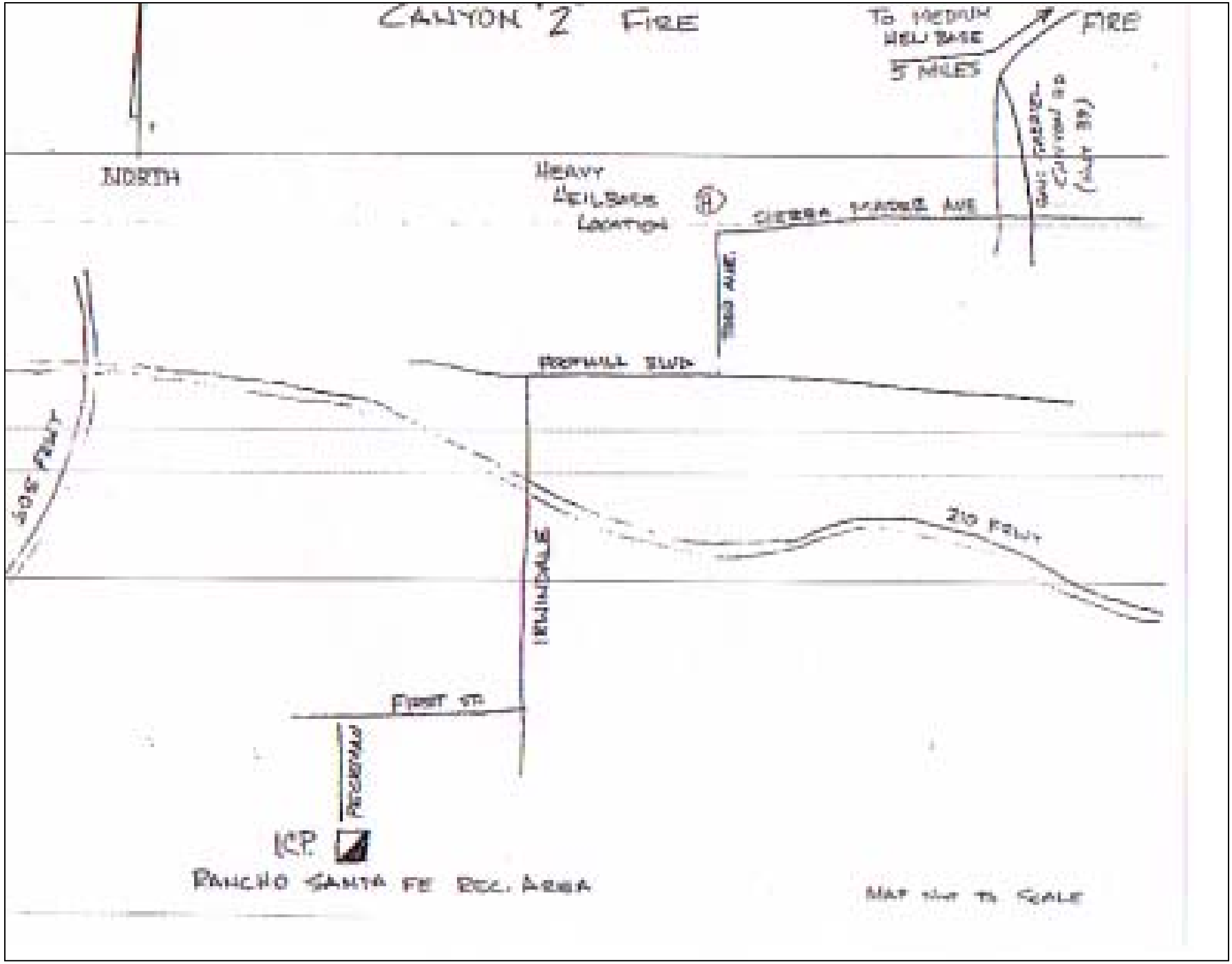
Purpose: Orient incident staff to the layout of the Incident Command Post

Layers:
- Base Data Layers
  - Roads
  - Notable Geographic Features
- Incident Data Layers
  - Incident Facilities locations

Cycle: Done at the beginning of an incident and only changed when facilities move

Print Size: 8.5”x 11”

Notes:
- Usually hand sketched
- Reproduced in the IAP
- Reproduced in black and white
- Can be done by the GIS unit but this rarely happens


CANYON 2 FIRE
TO MEDIUM HELI BASE
5 MILES
FIRE
NORTH
HEAVY HEILBASE LOCATION
SIERRA MADRE AVE
FOOTHILL BLVD
210 FRWY
IRWINDALE
FIRST ST
PECKHAM
ICP
RANCHO SANTA FE REC. AREA
MAP NOT TO SCALE

Standard Products: Planning Meeting Detail Map

Done by: Display Processors or GIS Unit

AKA: Situation Map, Operations Map

Purpose:

- Displayed at Planning and Operational briefing meetings
- Display the fire perimeter and current suppression operations
- This replicates the Situation Unit map
-

Layers:

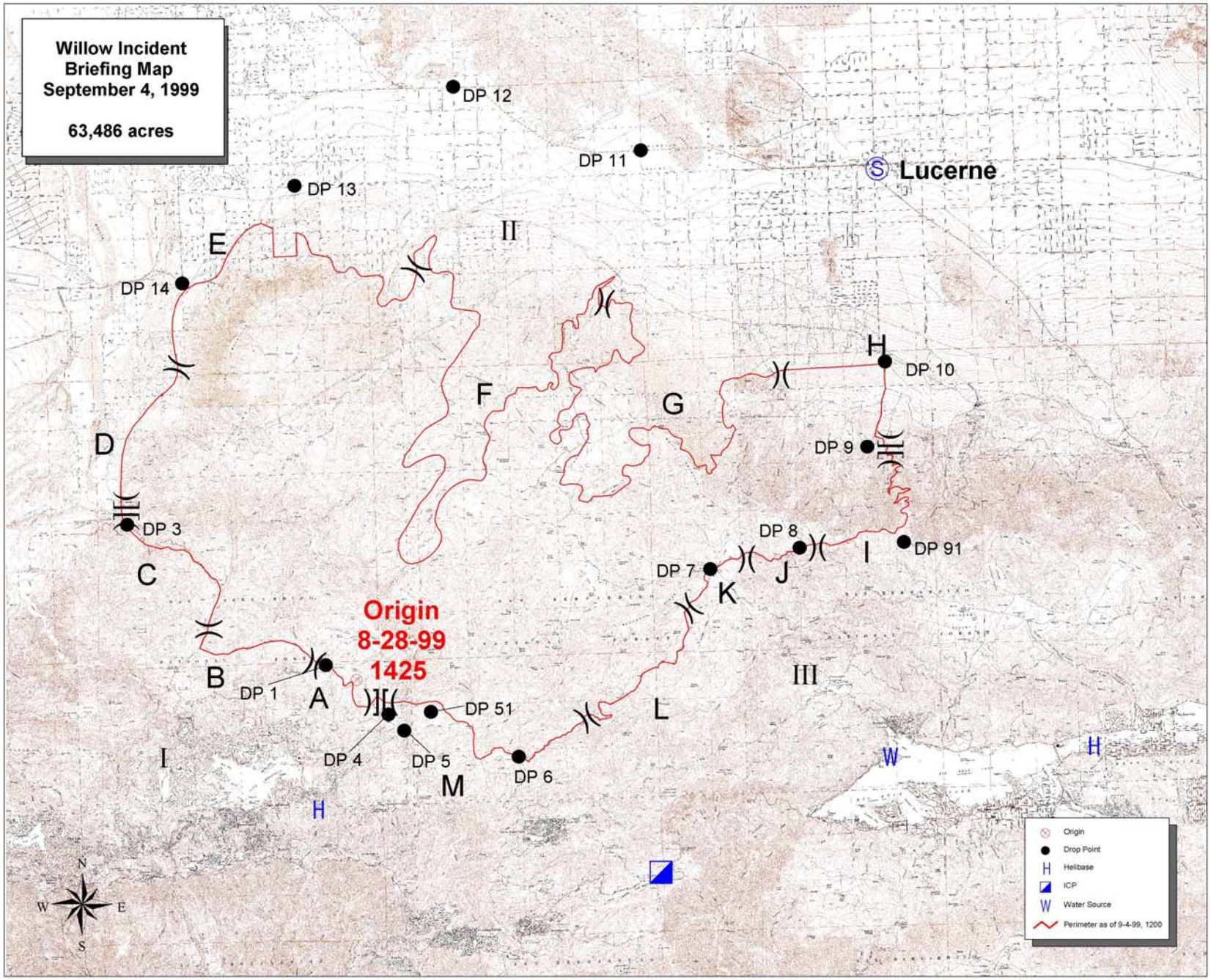
- Base Data Layers
  - Raster dataset background
    - Topological maps- USGS Digital Raster Graphics (DRGs)
    - Scanned Recreation Maps
  - Pertinent threatened resource values
- Incident Data Layers
  - Fire perimeter
  - Location of incident specific data
  - Any other relevant incident specific data

Cycle: Prepared for shift briefings

Print Size: 36” x 44” (E Size)

Notes:

- Based on a copy of the main Situation Unit Map
- The map is zoomed to the extent of the incident
- Useful for plans, operations, and public information


Willow Incident
Briefing Map
September 4, 1999
63,486 acres
DP 12
DP 11
DP 13
Lucerne
II
E
DP 14
H
DP 10
F
G
D
DP 9
DP 3
DP 8
DP 91
I
DP 7
J
K
C
Origin
8-28-99
1425
B
DP 1
A
III
DP 51
L
I
DP 4
DP 5
M
DP 6
W
H
H
N
W
E
S
Origin
Drop Point
Helibase
ICP
Water Source
Perimeter as of 9-4-99, 1200

Standard Products: Incident Action Plan Map

Done by: Display Processors or GIS Unit

AKA: IAP map

Purpose: A page-sized version of the main Situation Unit and Planning Meeting maps to be included in the Incident Action Plan for wide distribution

Layers:

- Base Data Layers
    - Raster background (digitally)
        - Topological map- USGS Digital Raster Graphics (DRGs)
        - Scanned Recreation Maps
    - Incident Data Layers
        - Fire perimeter
        - Location of incident specific data
        - Any other relevant incident specific data
        -

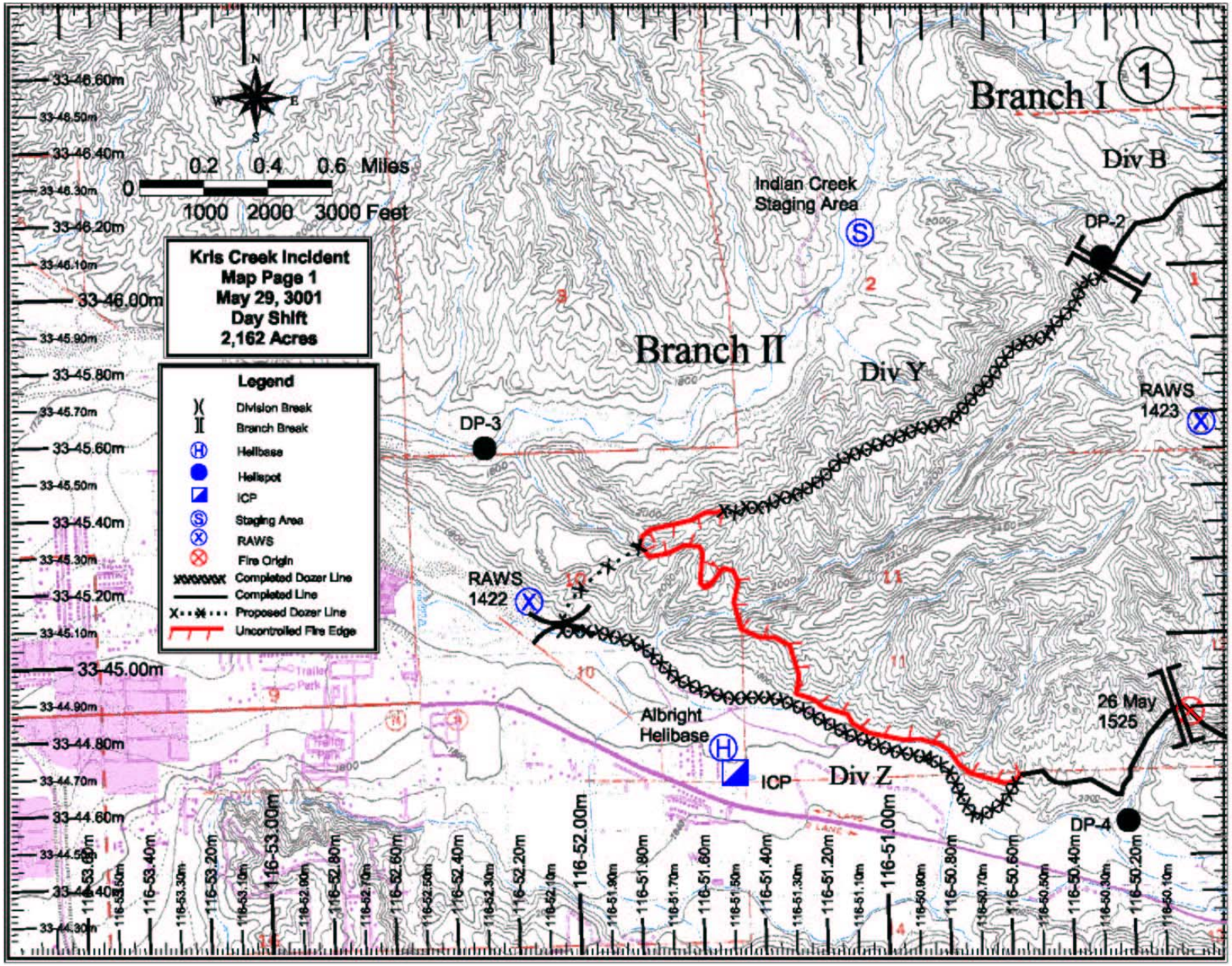
Cycle: Ready each planning cycle

Plot Size: As per the needs of the incident

- 8.5" x 11" (A size)
- 8.5" x 14" (Legal size)
- 11" x 17" (B size)

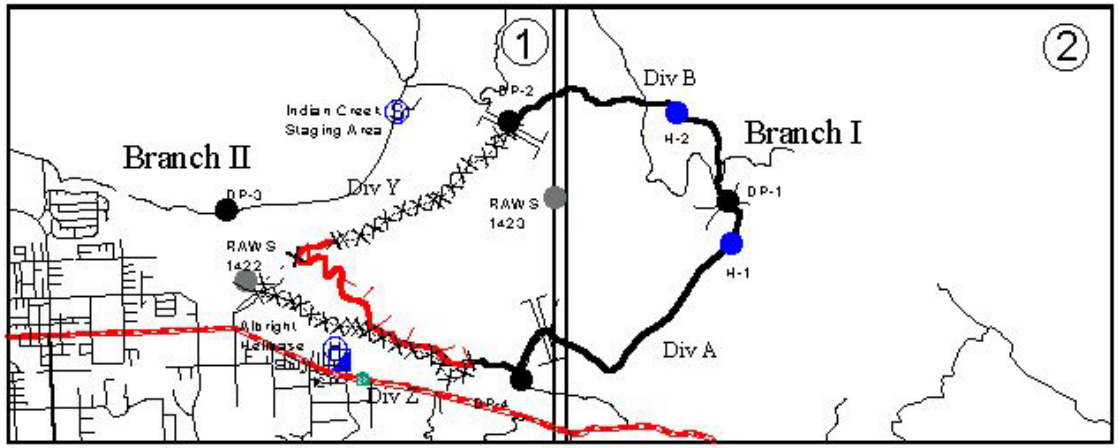
Notes:

- Reproduced in black and white
- Usually mapped at 1: 24,000
- If more than one map is needed than an Index Map should be included to show the overall view of the incident


Kris Creek Incident
Map Page 1
May 29, 3001
Day Shift
2,162 Acres
Legend
Division Break
Branch Break
Helibase
Helispot
ICP
Staging Area
RAWS
Fire Origin
Completed Dozer Line
Completed Line
Proposed Dozer Line
Uncontrolled Fire Edge
0 0.2 0.4 0.6 Miles
1000 2000 3000 Feet
Branch I
Div B
Indian Creek
Staging Area
DP-2
Branch II
Div Y
RAWS
1423
DP-3
RAWS
1422
Albright
Helibase
ICP
Div Z
26 May
1525
DP-4

KRIS CREEK INCIDENT
EDF-0114
IAP Map Index

May 29, 3001
DAY SHIFT



N

0 0.7 1.4 2.1 2.8 Miles

E. Hucks
06/28/03
22:30 Hours

C:\Active_Incident\Kris_Creek\Projects\0520_Iap.apr

Standard Products: Traffic Map

Done by: Display Processors or GIS Unit

AKA: Transportation Map

Purpose: Display overall access to the incident

Layers:

- Base Data Layers
    - Roads network
        - Should detail the level or type of road
    - Administrative boundaries
    - Geographically relevant features
        - Hydrographic features
            - Rivers
            - Lakes
        - County boundaries
- Incident Data Layers
    - Fire perimeter
    - Location of incident command post
    - Location of other relevant incident specific data

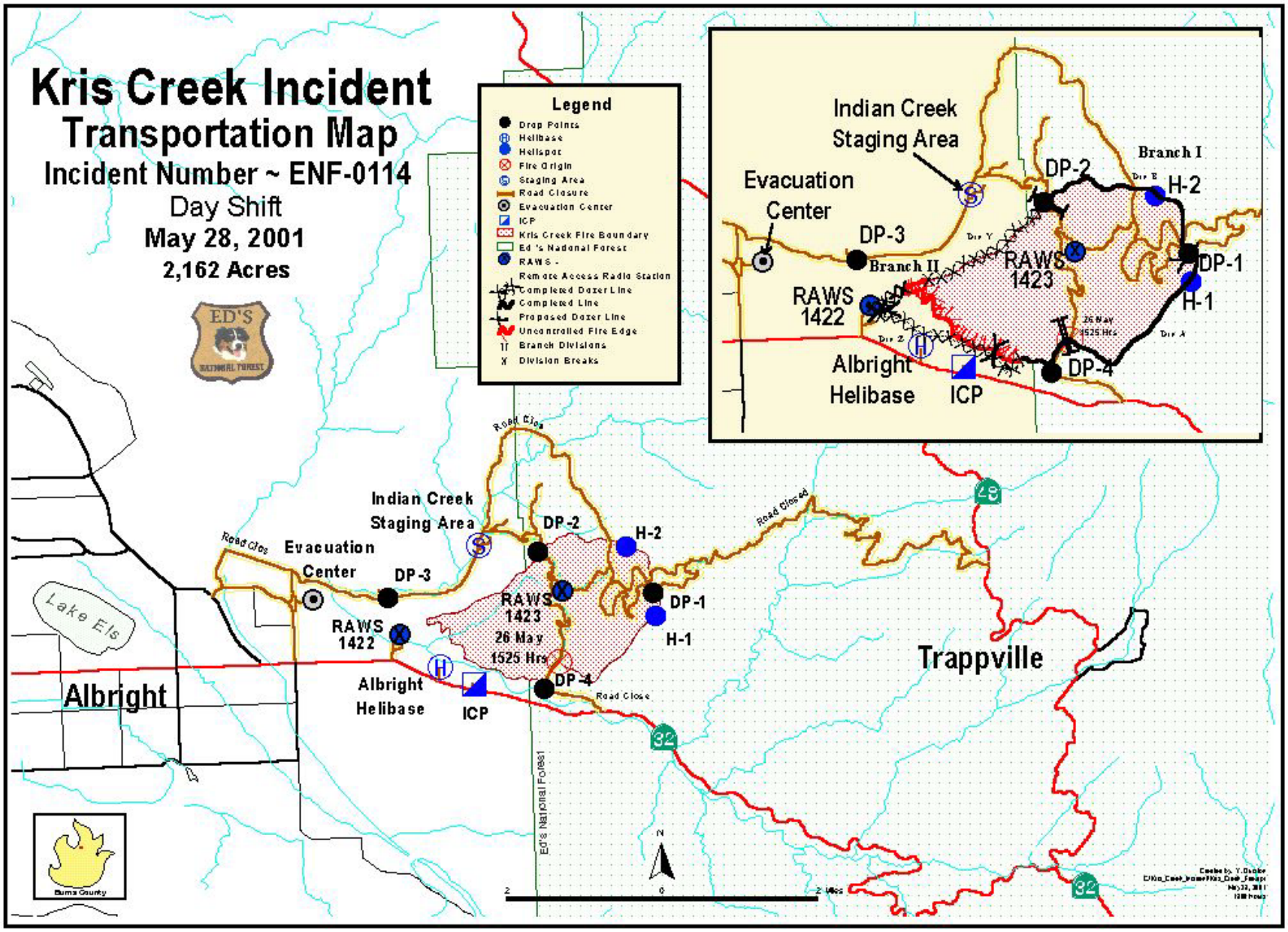
Cycle: As requested

Print Size: As per the needs of the incident

- 8.5” x 11” (A size)
- 8.5” x 14” (Legal size)
- 11” x 17” (B size)

Notes:

- This map includes access to the incident for out of area personnel
- This map can be hand sketched, done with GIS, or done with a street locator software
- All major relevant streets or roads should be labeled
- This should be a simplified map


Kris Creek Incident
Transportation Map
Incident Number ~ ENF-0114
Day Shift
May 28, 2001
2,162 Acres
Legend
Drop Points
Helibase
Helispot
Fire Origin
Staging Area
Road Closure
Evacuation Center
ICP
Kris Creek Fire Boundary
Ed 's Nadonal Forest
RAWS -
Remote Access Radio Station
Completed Dozer Line
Completed Line
Proposed Dozer Line
Uncontrolled Fire Edge
Branch Divisions
Division Breaks
Indian Creek
Staging Area
Evacuation
Center
DP-3
DP-2
H-2
DP-1
H-1
DP-4
RAWS
1422
RAWS
1423
26 May
1525 Hrs
Albright
Helibase
ICP
Branch I
Branch II
Lake Els
Albright
Trappville
Road Closed
Ed's National Forest
Burns County
N

Standard Products: Incident Command Post Map

Done by: Display Processors or GIS Unit

AKA: Outside Facilities Map

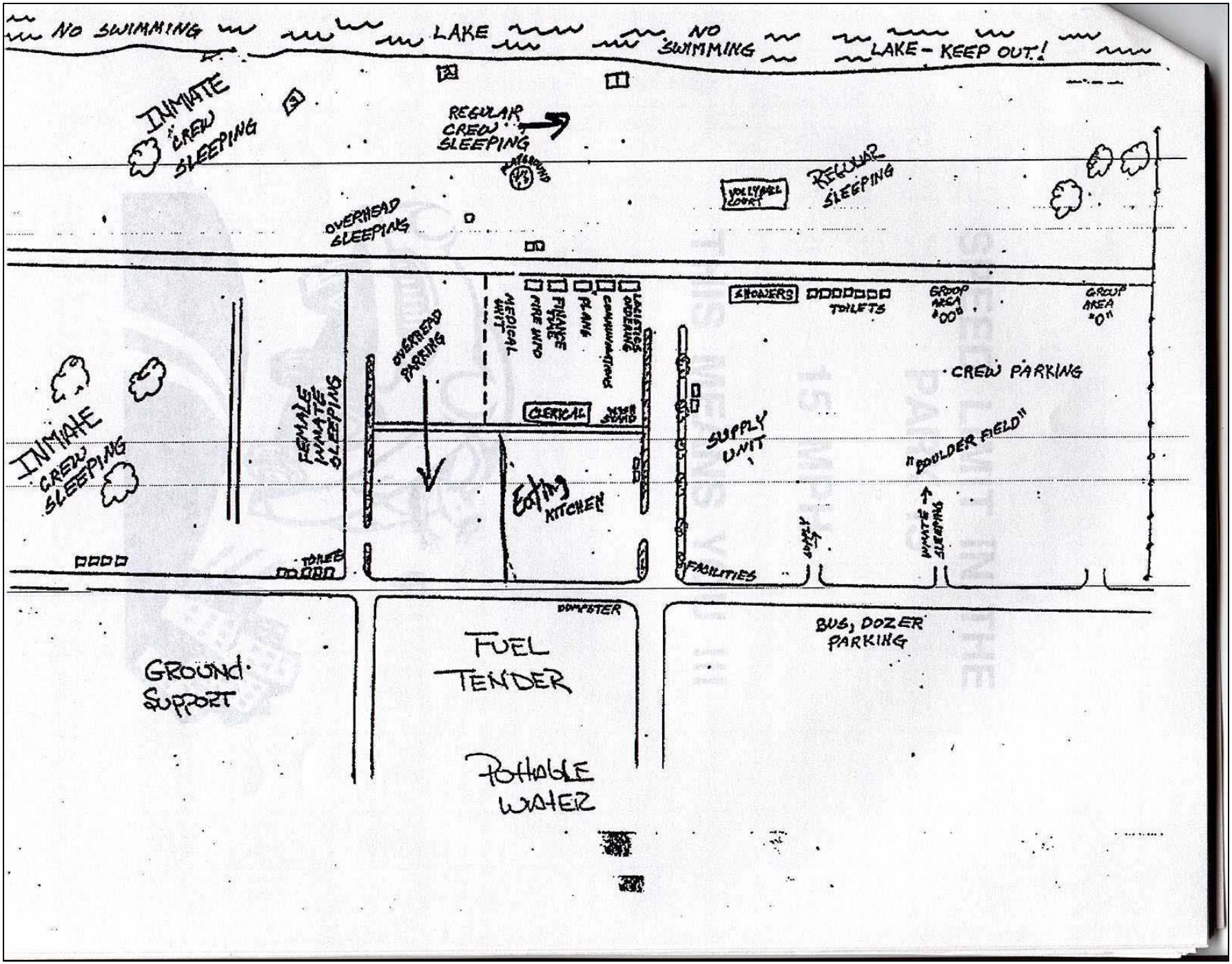
Purpose: Incident Command briefing of non-incident personnel, used if the ICP is separate from other facilities

Layers:
- Base Data Layers
  - Roads
  - Notable Geographic Features
- Incident Data Layers
  - Incident Facilities locations

Cycle: Done at the beginning of an incident and only edited when facilities move

Print Size: 8.5”x 11”

Notes:
- Can be hand sketched
- Reproduced in the IAP
- Reproduced in black and white
- Can be done with a travel planning software


NO SWIMMING
LAKE
NO SWIMMING
LAKE - KEEP OUT!
INMATE CREW SLEEPING
REGULAR CREW SLEEPING
OVERHEAD SLEEPING
VOLLYBALL COURT
REGULAR SLEEPING
FIRE INFO
FINANCE
PLANS
COMMUNICATIONS
LAUNDRY
MEDICAL UNIT
SHOWERS
TOILETS
GROUP AREA "00"
GROUP AREA "0"
CREW PARKING
OVERHEAD PARKING
CLERICAL
FEMALE INMATE SLEEPING
INMATE CREW SLEEPING
EATING KITCHEN
SUPPLY UNIT
"BOULDER FIELD"
WHITE SLEEPING
TOILETS
FACILITIES
DUMPSTER
GROUND SUPPORT
FUEL TENDER
POTABLE WATER
BUS, DOZER PARKING

Standard Products: Public Information Map

Done By: GIS Unit

AKA: Vicinity Map

Purpose: Public Informational Display

Layers:

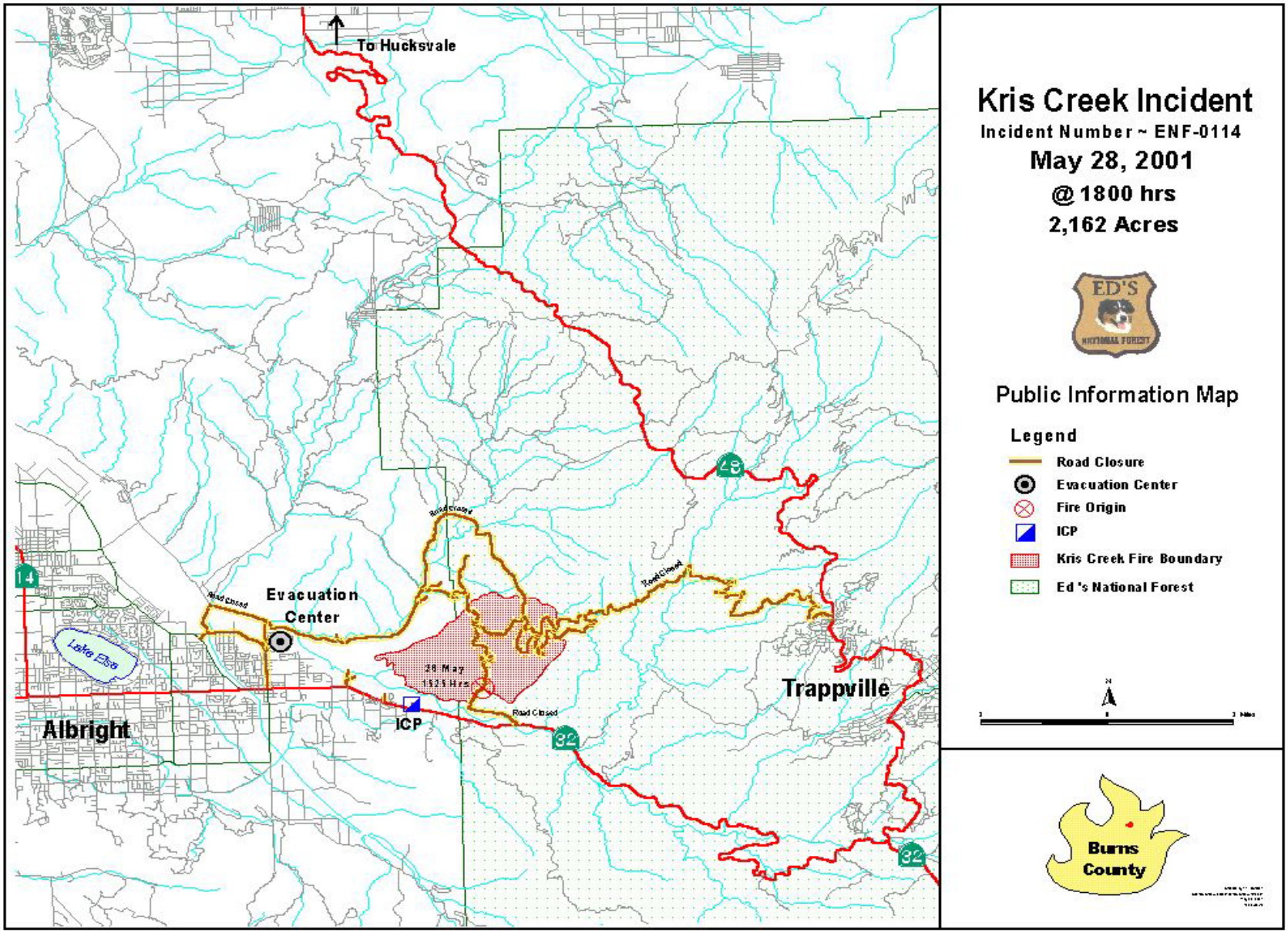
- Base Data Layers
  - Raster background
    - Topographical maps- USGS Digital Raster Graphics (DRGs)
    - Scanned Recreation Maps
  - Incident Data Layers:
    - Fire Perimeter

Cycle: Created as needed

Print Size: 36” x 44” (E Size)

Notes:

- This map mimics the Situation map but does not show the incident details
- The map includes the immediate area impacted by the fire



Kris Creek Incident
Incident Number ~ ENF-0114
May 28, 2001
@ 1800 hrs
2,162 Acres
ED'S
NATIONAL FOREST
Public Information Map
Legend
Road Closure
Evacuation Center
Fire Origin
ICP
Kris Creek Fire Boundary
Ed 's National Forest
To Hucksvale
Evacuation Center
Lake Elsa
Albright
ICP
Trappville
Road Closed
28 May
1525 Hrs
14
48
32
Burns County

Standard Products: Incident Progression Map

Done By: GIS Unit

AKA: Fire History Map

Purpose: To track the incident's progression during the duration of the incident

Layers:

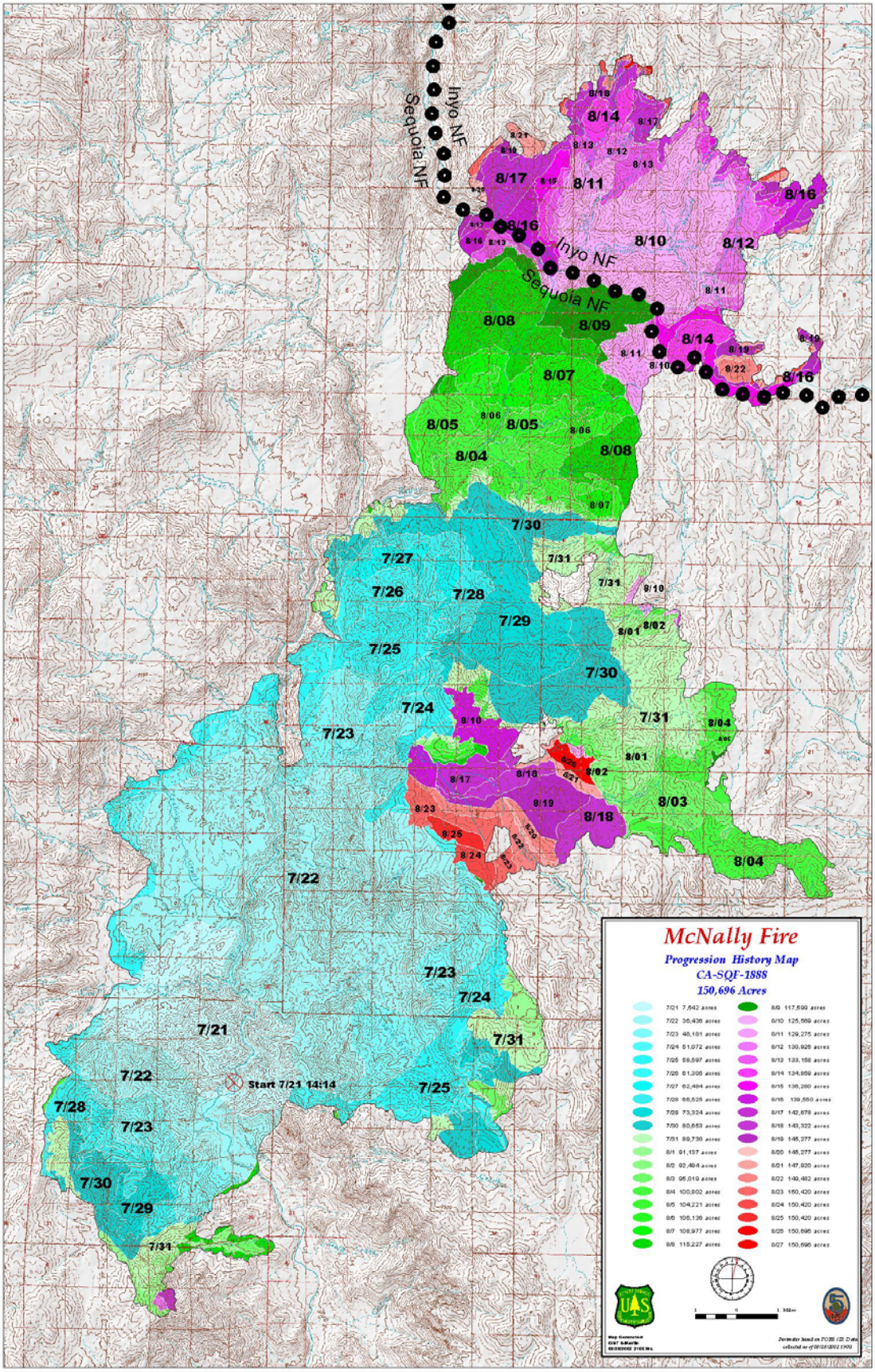
- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
  - Contours
- Incident data
  - Incident Origin
  - Each day's (or operational period) incident perimeter

Cycle: As requested and at the end of the incident

Print Size: 36" x 44" (E Size), and/or 8.5" x 11" (Page Size)

Notes:

- Can include time and acreage of every perimeter
- Typically one perimeter is gathered per operational period
- Final decisions of perimeter edits are made by the Situation Unit Leader


McNally Fire
Progression History Map
CA-SQF-1888
150,696 Acres
7/21 7,542 acres
7/22 36,436 acres
7/23 48,161 acres
7/24 51,072 acres
7/25 58,597 acres
7/26 61,395 acres
7/27 62,484 acres
7/28 66,526 acres
7/29 73,324 acres
7/30 80,653 acres
7/31 89,730 acres
8/1 91,137 acres
8/2 92,494 acres
8/3 95,019 acres
8/4 100,802 acres
8/5 104,221 acres
8/6 106,136 acres
8/7 108,977 acres
8/8 115,227 acres
8/9 117,599 acres
8/10 125,569 acres
8/11 129,275 acres
8/12 130,926 acres
8/13 133,168 acres
8/14 134,859 acres
8/15 136,280 acres
8/16 139,550 acres
8/17 142,678 acres
8/18 143,322 acres
8/19 145,277 acres
8/20 145,277 acres
8/21 147,920 acres
8/22 149,482 acres
8/23 150,420 acres
8/24 150,420 acres
8/25 150,420 acres
8/26 150,696 acres
8/27 150,696 acres
Inyo NF
Sequoia NF
Start 7/21 14:14
8/14
8/17
8/11
8/16
8/10
8/12
8/08
8/09
8/07
8/05
8/04
7/30
7/27
7/26
7/28
7/29
7/25
7/24
7/23
7/31
8/02
8/01
8/03
8/18
7/22
7/21
7/25
7/28
7/30
7/29

Standard Products: Historical Fire Perimeter Map

Done By: GIS Unit

AKA: Area's Fire History, Historical Burns

Purpose: Comparative analysis of the current fire perimeter and local previously burned outlines

Layers:

- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
- Incident data
  - The Current Incident Perimeter
  - Fire Line types
  - Historically Burned Areas

Cycle: As requested

Print Size: As requested, but usually 36" x 44" (E Size)

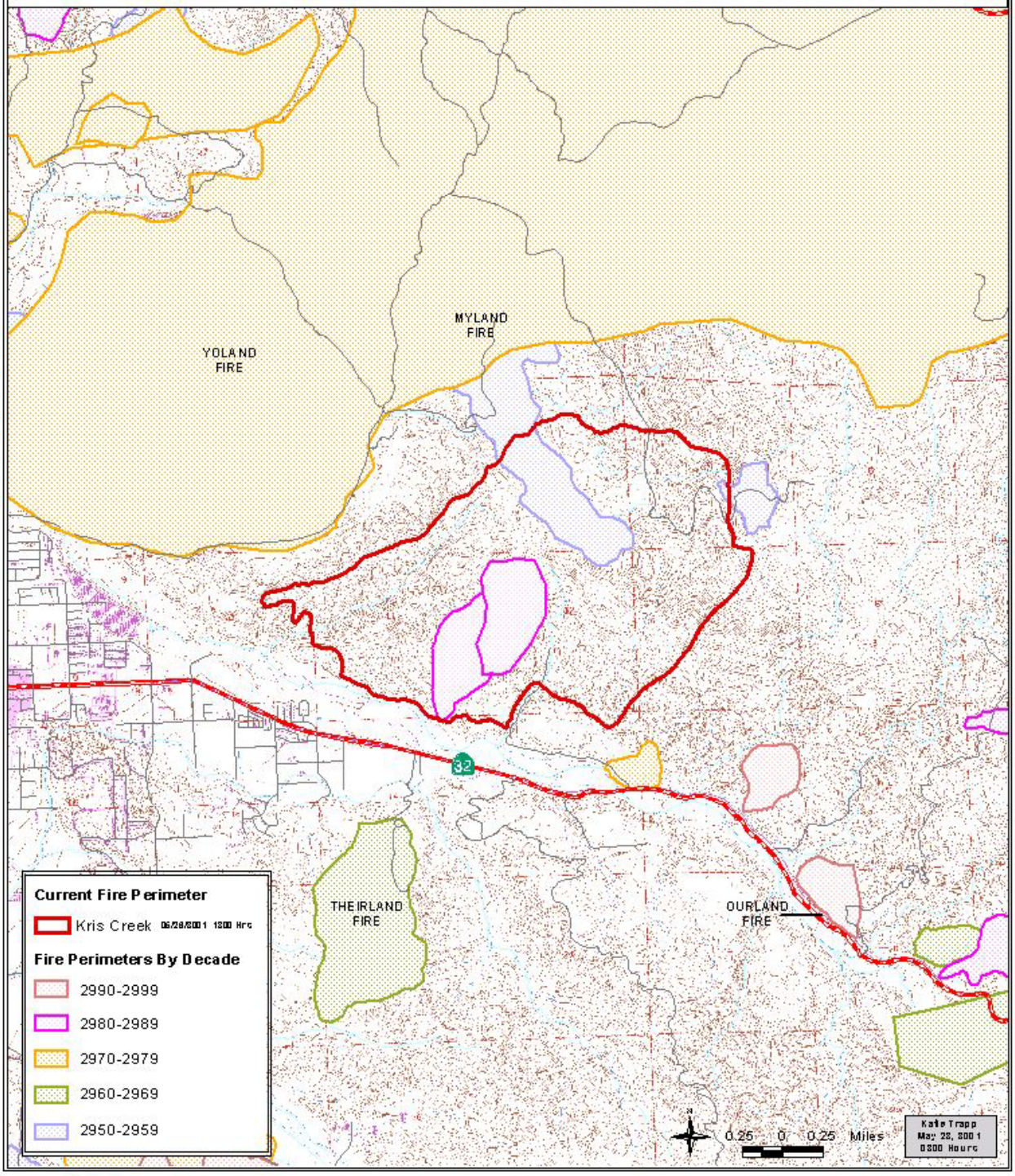
Notes:

- Sit Unit Leader may want to color the historical fires per decade and label the year within the perimeter
- Usually the past 50 years are priority to display
- Other pertinent information may be fuel breaks, vegetation, or fuels
- This is useful for the fire behavior analysts, operations, and rehabilitation teams

Kris Creek Incident - Fire History

May 28, 3001

Incident Number ENF-0114



C:/Active_Incident/Kris_Creek/Projects/Fire_History.apr Fire History Created in Map Size: E

Standard Products: Direct Protection Area map

Done By: GIS Unit

AKA: DPA map, Cost Share map, Responsibility map, Jurisdictional map

Purpose: Determine the areas of responsibility for each impacted agency

Layers:

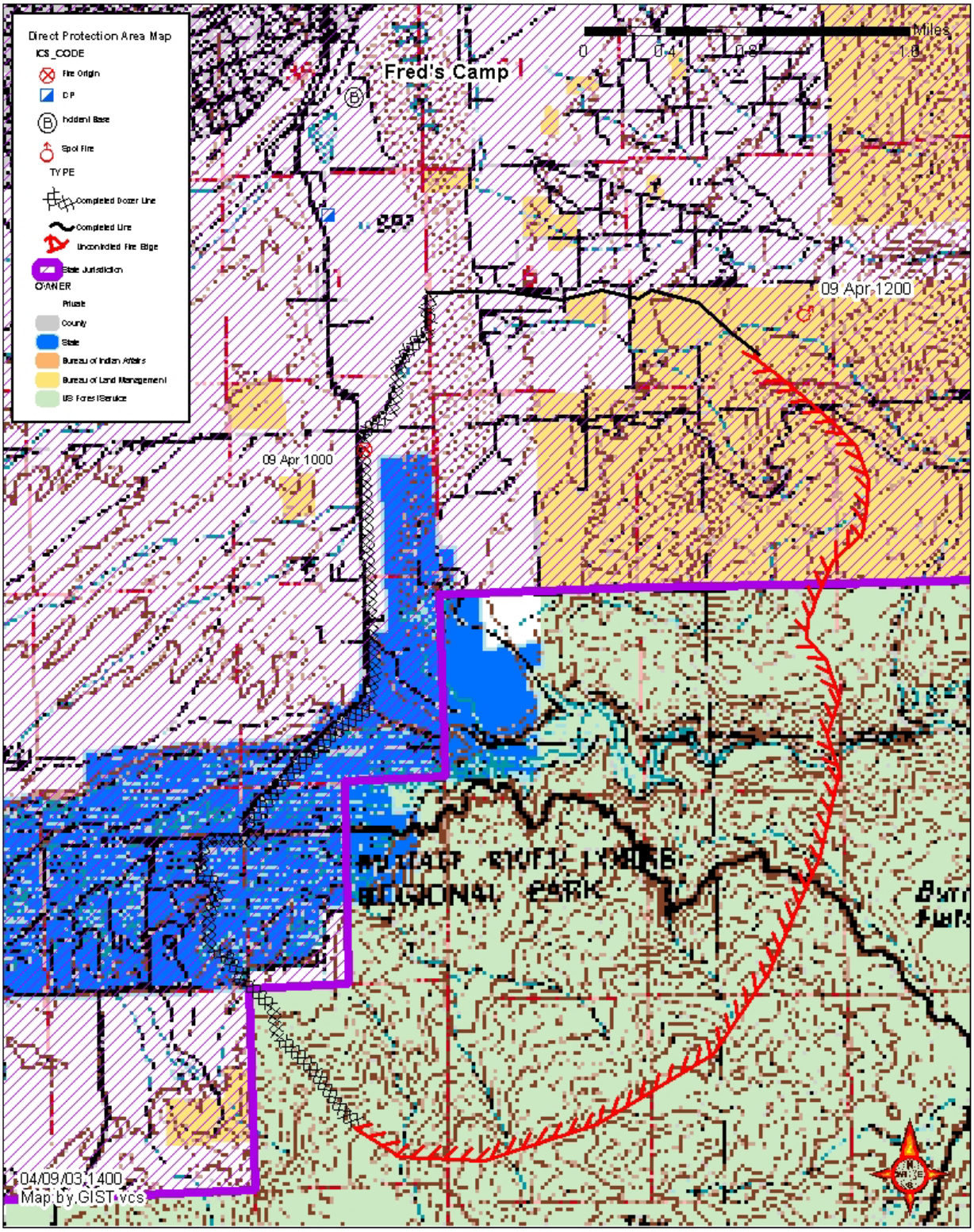
- Base Data
  - Ownership
  - Administrative Boundaries
  - Direct Protection Areas
  - Raster Background
    - Topographical maps- USGS Digital Raster Graphics (DRGs)
- Incident Data
  - Final Incident Perimeter (or current perimeter)
  - Incident Origin
  - Any relevant incident specific data

Cycle: As requested

Print Size: As requested

Notes:

- May include ownership layer and Direct Protect Areas on the same map
- Includes a GIS report of acreage by responsibility party in the layout (with the approval of the Situation Unit Leader)
- May require a Cost Share Percentage Report (which can be written or verbal)
- Should include needed disclaimers as to use, accuracy, and data sources


Direct Protection Area Map
ICS_CODE
Fire Origin
DP
Incident Base
Spot Fire
TYPE
Completed Dozer Line
Completed Line
Unconfined Fire Edge
State Jurisdiction
OWNER
Private
County
State
Bureau of Indian Affairs
Bureau of Land Management
US Forest Service
Miles
0
0.4
0.8
1.6
Fred's Camp
09 Apr 1200
09 Apr 1000
04/09/03 1400
Map by GIST vcs

Standard Products: Ownership map

Done By: GIS Unit

AKA: Agency map

Purpose: Shows the areas of ownership for each impacted agency

Layers:

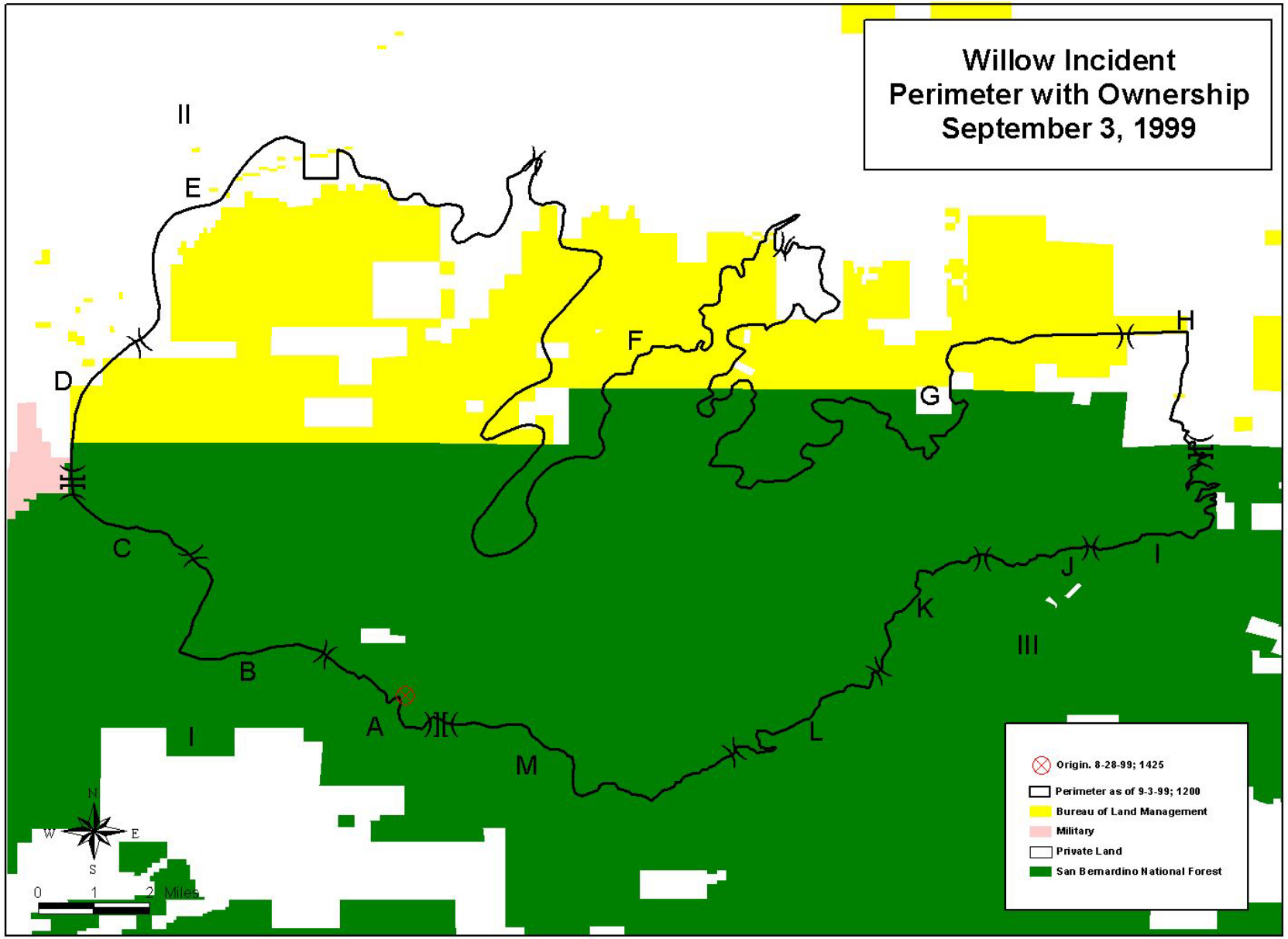
- Base Data
  - Ownership
  - Administrative Boundaries
  - Raster Background
    - Topographical maps- USGS Digital Raster Graphics (DRGs)
- Incident Data
  - Final Incident Perimeter (or current perimeter)
  - Incident Origin
  - Any relevant incident specific data

Cycle: As requested

Print Size: As requested

Notes:

- May include ownership layer and Direct Protect Areas on the same map
- Includes a GIS report of acreage by agency in the layout (with the approval of the Situation Unit Leader)
- Should include needed disclaimers as to use, accuracy, and data sources


Willow Incident
Perimeter with Ownership
September 3, 1999
II
E
D
C
B
A
I
M
F
G
H
L
K
J
I
III
N
W
E
S
0
1
2 Miles
Origin. 8-28-99; 1425
Perimeter as of 9-3-99; 1200
Bureau of Land Management
Military
Private Land
San Bernardino National Forest

Standard Products: Fuels Map

Done By: GIS Unit

AKA: N/A

Purpose: To use for comparative analysis of the current fire perimeter and surveyed fuels of the area. It is also to assist the fire behavior analyst with determining a plan of attack

Layers:

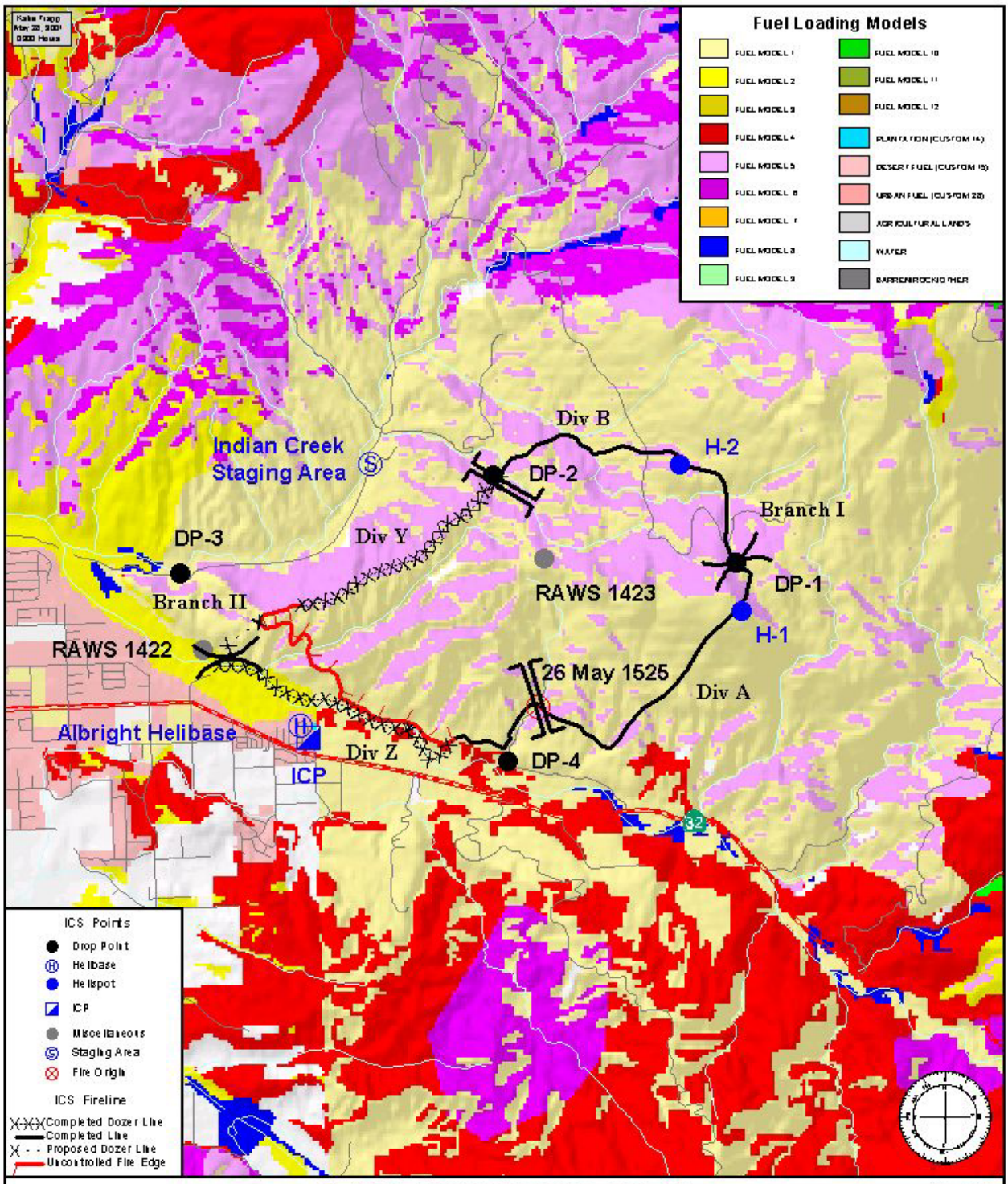
- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Fuels
- Incident data
  - The Current Incident Perimeter

Cycle: As requested

Print Size: As requested, but usually 36" x 44" (E Size)

Notes:

- Useful in predicting potential fire behavior, developing suppression strategies, fire behavior analysis, and rehabilitation



KRIS CREEK INCIDENT - FUELS

May 28, 3001 - 1348 Hours

Incident Number ENF-0114

C:\Active_Incident\Kris_Creek\Projects\Fuels.apr

Fuels

Created in Map Size: As Requested

Standard Products: Air Operations Map

Done By: GIS Unit

AKA: Aviation Maps, Pilot Briefing Map, Temporary Flight Restrictions (TFR) map

Purpose: To provide Air Travel routes to and around incident including air hazards or incident specific data to helicopter and tanker bases.

Layers:

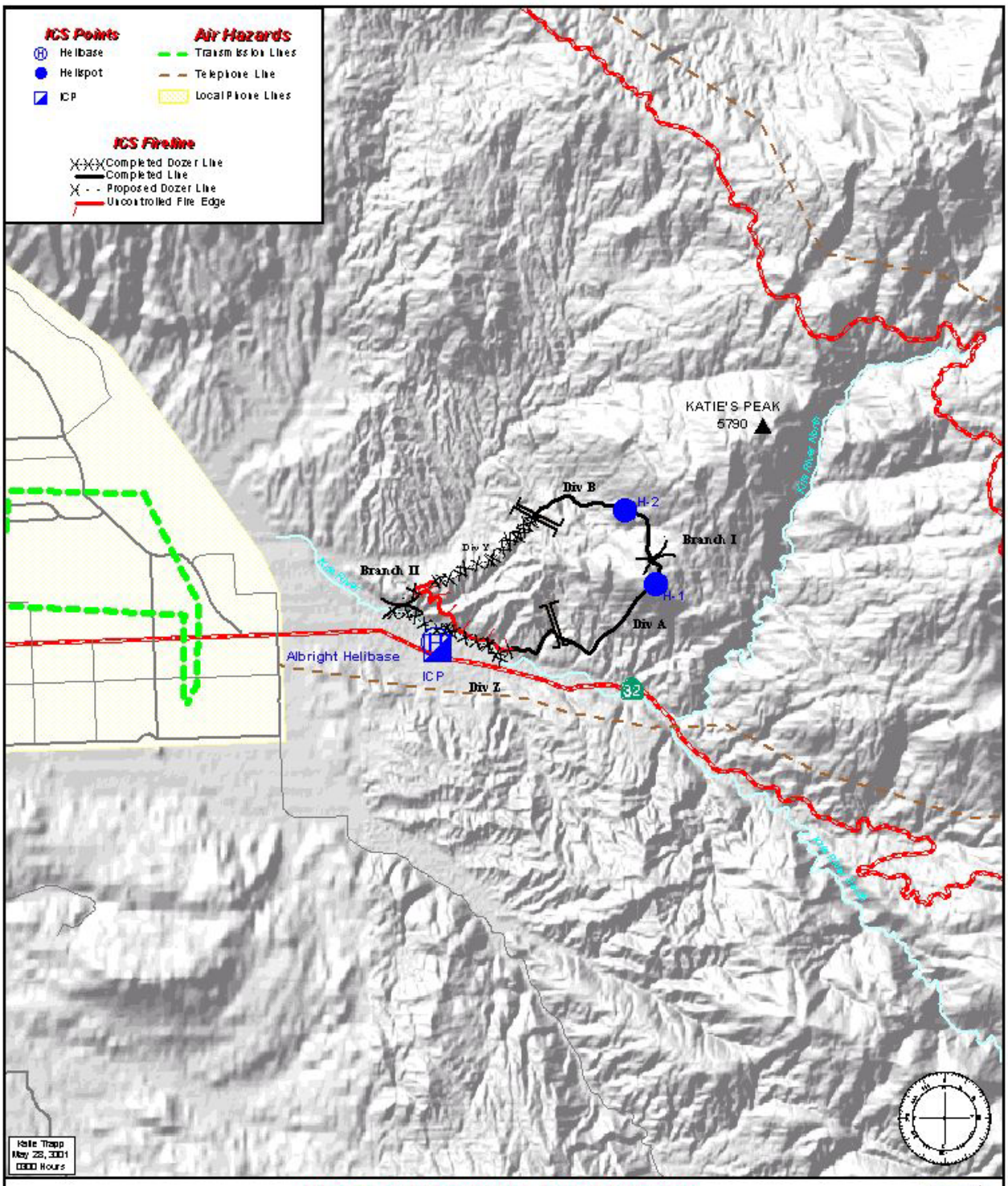
- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
- Incident data
  - Each day's (or operational period) incident perimeter
  - Flight Routes
  - Aviation Hazards
  - Sometimes includes Temporary Flight Restriction zones

Cycle: As requested, usually when bases are moved

Print Size: 36" x 44" (E Size), and/or 8.5" x 11" (Page Size)

Notes:

- May include data on air hazards (towers, powerlines), military training routes, flight paths
- Must include the disclaimer "Not for Navigation" prominently displayed



Kris Creek Incident - Aerial Hazards

"Not For Navigational Purposes"

May 28, 3001 - 1348 Hours

Incident Number ENF-0114

C:/Active_Incident/Kris_Creek/Projects/AirOperations.apr

Aerial Hazards

Created in Map Size: As Requested

Standard Products: Hillshade Map

Done By: GIS Unit

AKA: Relief Map, Elevation Map

Purpose: To assist staff with visualizing the terrain of the incident.

Layers:

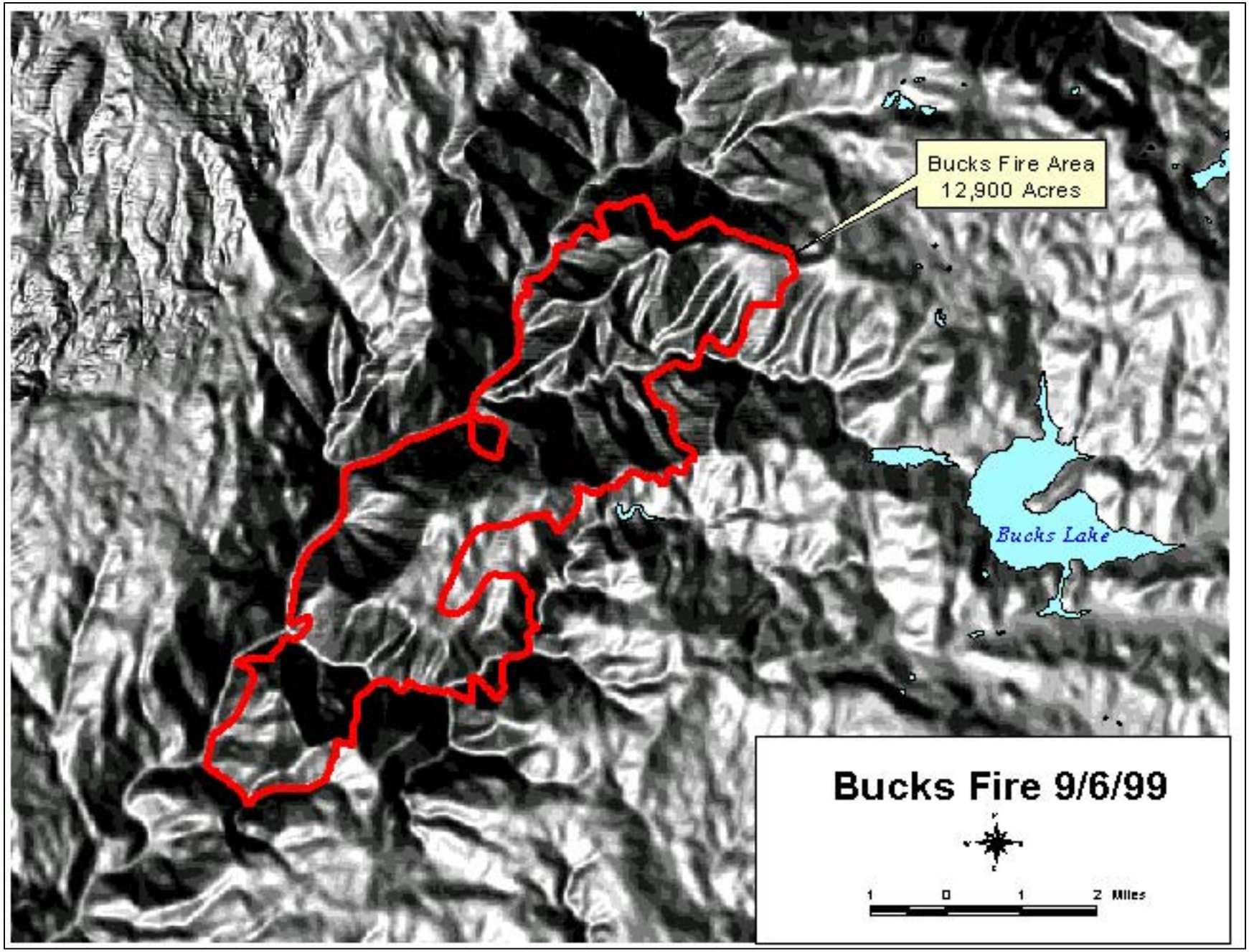
- Base data
  - Hydrology, including Lakes and Streams
  - Transportation Network
  - Contours
  - Hillshade (derived from Digital Elevation Models- DEMs)
- Incident data
  - The Current Incident Perimeter

Cycle: As requested

Print Size: As requested but usually 36” x 44” (E Size)

Notes:

- Display the perimeter with a red outline
- Display the streams, roads, etc with bright logical colors
- Make sure not to zoom too close- due to pixels sizes
- If showing elevation gradient colors work well


Bucks Fire Area
12,900 Acres
Bucks Lake
Bucks Fire 9/6/99
1
0
1
2 Miles

Standard Products: Road Closure Map

Done By: GIS Unit

AKA: Public Transportation Map

Purpose: Public Informational Display

Layers:

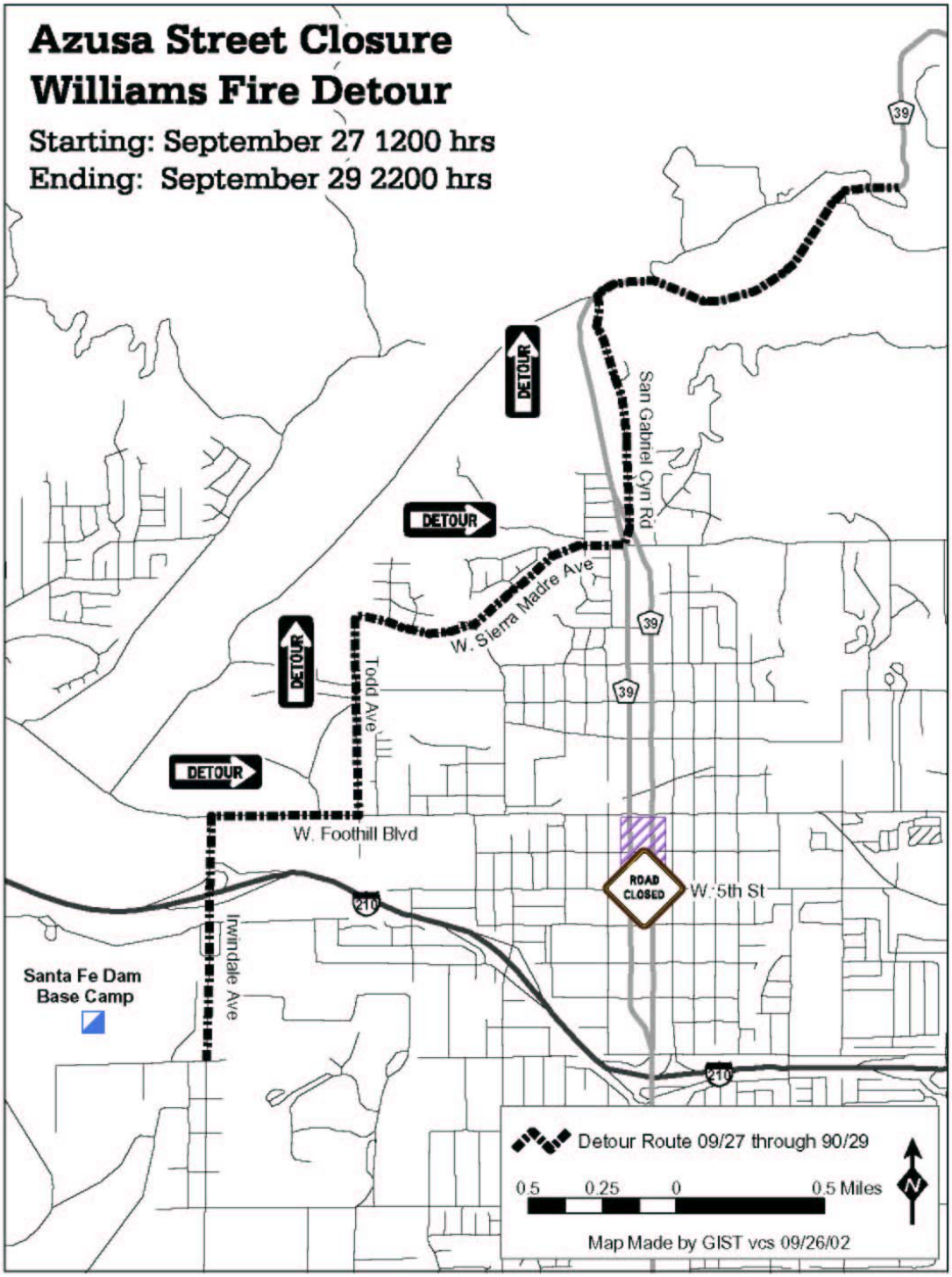
- Base Data Layers
  - Raster background
    - Topographical maps- USGS Digital Raster Graphics (DRGs)
    - Scanned Recreation Maps
  - Incident Data Layers:
    - Fire Perimeter
    - Road Closure Points

Cycle: Created as needed

Print Size: 36” x 44” (E Size)

Notes:

- This map does not show the incident details
- The map includes the general area impacted by the fire


Azusa Street Closure
Williams Fire Detour
Starting: September 27 1200 hrs
Ending: September 29 2200 hrs
DETOUR
DETOUR
DETOUR
DETOUR
San Gabriel Cyn Rd
W. Sierra Madre Ave
Todd Ave
W. Foothill Blvd
ROAD CLOSED
W. 5th St
Irwindale Ave
Santa Fe Dam Base Camp
39
210
Detour Route 09/27 through 90/29
0.5 0.25 0 0.5 Miles
N
Map Made by GIST vcs 09/26/02

Standard Products: Areas of Special Concern

Done By: GIS Unit

AKA: Resources Map, Wildlife Map, T&E Species Map

Purpose: To assist with the identification of sensitive areas such as Endangered Species Locations and/or Habitats, Cultural Resources, or Areas at Risk

Layers:

- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
  - Resource Layers of Concern (provided by the agencies)
- Incident data
  - The Current Incident Perimeter
  - Resource Layers of Concern (created by the incident)

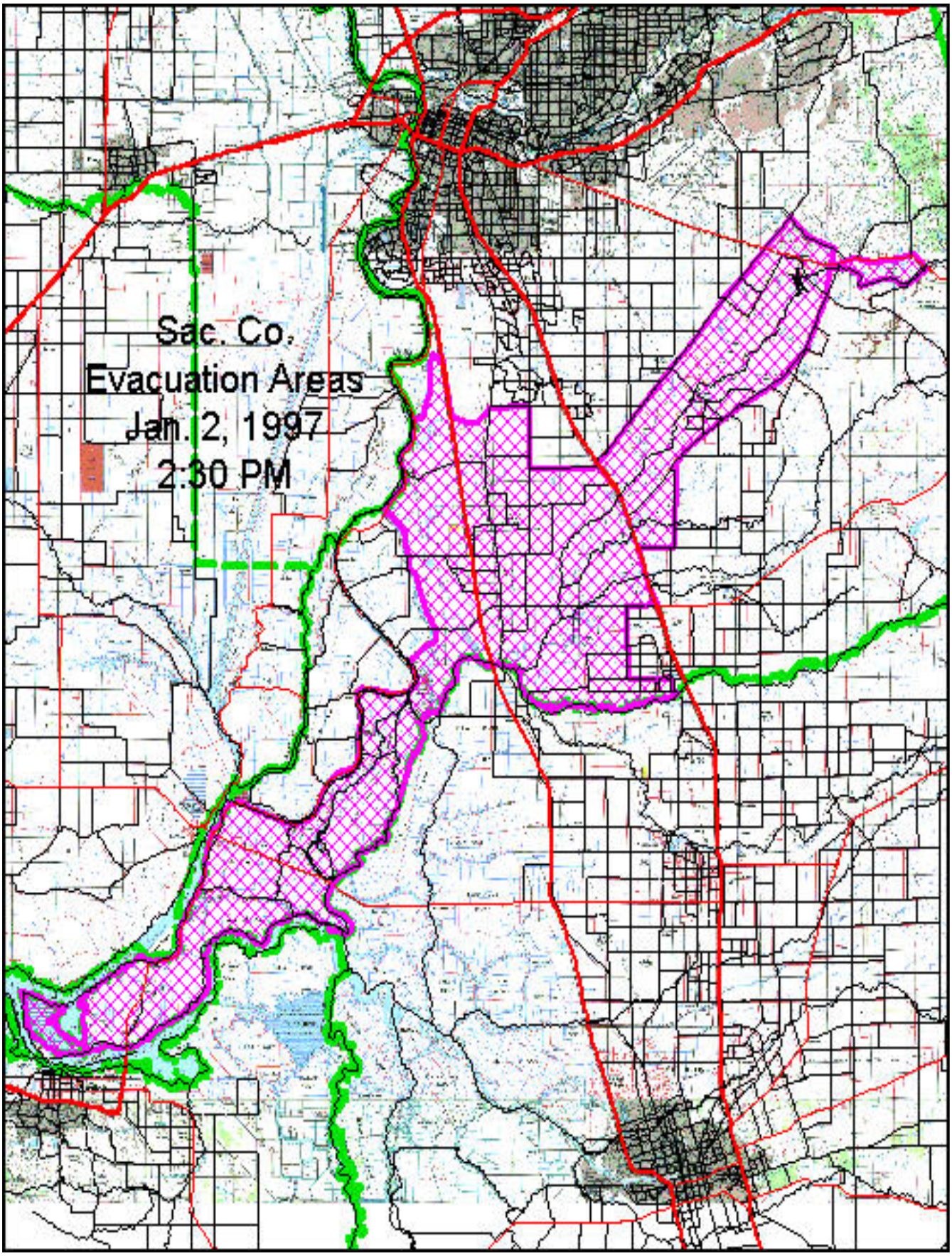
Cycle: As requested

Print Size: As requested but usually 36” x 44” (E Size)

Notes:

- Typically for environmentally and/or culturally sensitive information, therefore legends should be omitted unless requested-. Coordinate this with the local resource advisor.
- Colors or symbols should be coordinated with the local resource advisor.

NOT for public distribution


Sac. Co.
Evacuation Areas
Jan. 2, 1997
2:30 PM

Standard Products: Non-Wildland Fire Incident Map

Done By: GIS Unit

AKA: Structure, HazMat, Flood Search and Rescue, etc.

Purpose: To display specialized and/or localized data, not included within other maps, in relation to the incident. It is also to support informational requests as needed throughout the incident.

Layers:

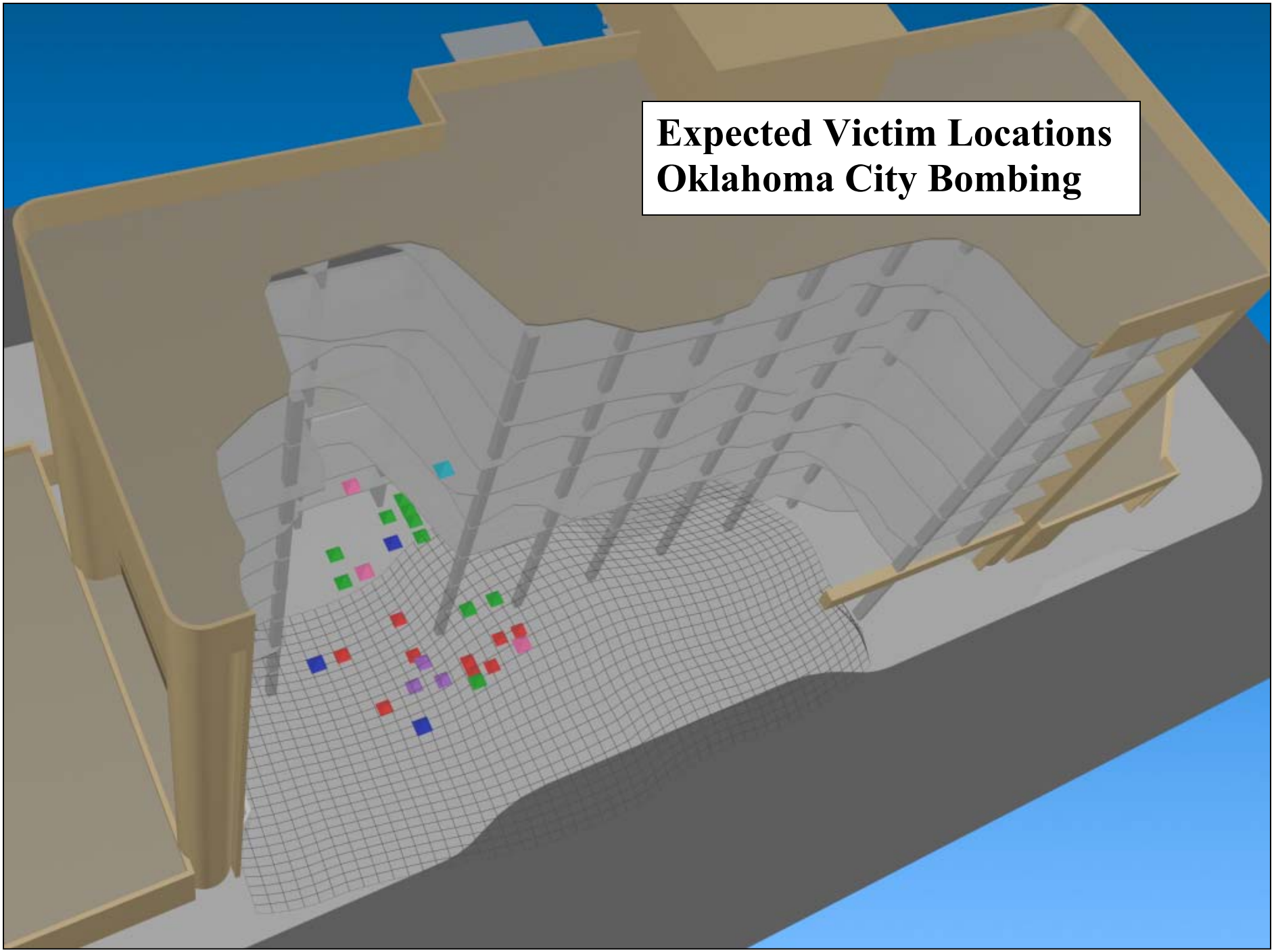
- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
  - Contours
  - Building Plans
- Incident data
  - Incident Origin
  - Each day's (or operational period) incident perimeter

Cycle: As requested

Print Size: As requested

Notes:

- Map will be determined by the incident needs and data availability
- May involve data entry and generation of data
- Requests will come through the Plans Chief and Situation Unit Leader


Expected Victim Locations
Oklahoma City Bombing

Standard Products: Damage Inspection Map

Done By: GIS Unit

AKA: Damage Assessment Map

Purpose: To document losses to property improvement

Layers:

- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
- Incident data
  - Damaged Asset Locations and Attributes
  - Current incident perimeter

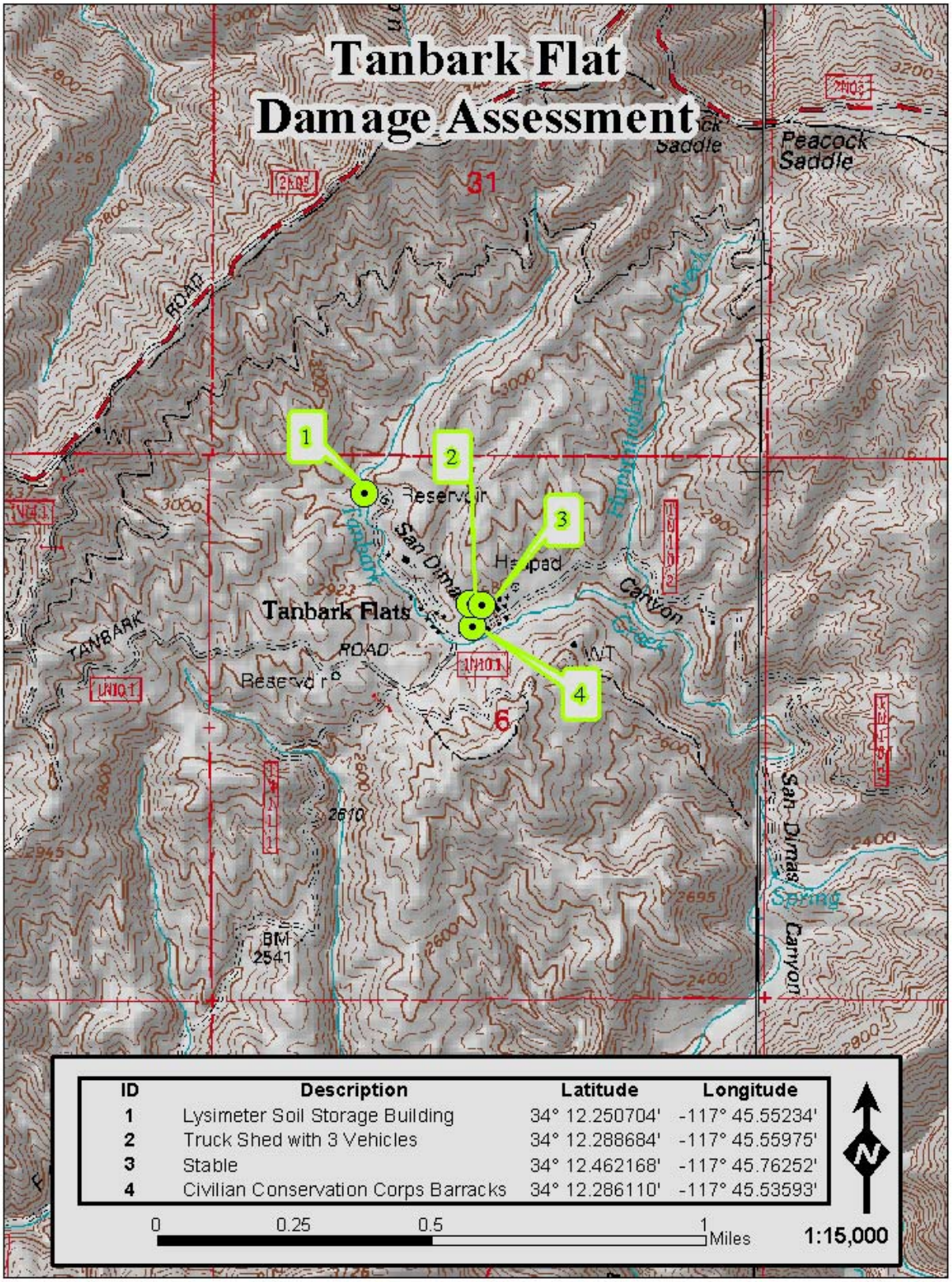
Cycle: As requested

Print Size: As requested

Notes:

- Especially needed in all risk incidents
- Establish standard symbology for the incident in conjunction with the Situation Unit Leader.

Tanbark Flat Damage Assessment



ID	Description	Latitude	Longitude
1	Lysimeter Soil Storage Building	34° 12.250704'	-117° 45.55234'
2	Truck Shed with 3 Vehicles	34° 12.288684'	-117° 45.55975'
3	Stable	34° 12.462168'	-117° 45.76252'
4	Civilian Conservation Corps Barracks	34° 12.286110'	-117° 45.53593'

0 0.25 0.5 1 Miles

1:15,000

Standard Products: Rehabilitation Map

Done By: GIS Unit

AKA: Rehab map, BAER map

Purpose: To identify environmental damage caused by the fire and the fire suppression activities

Layers:

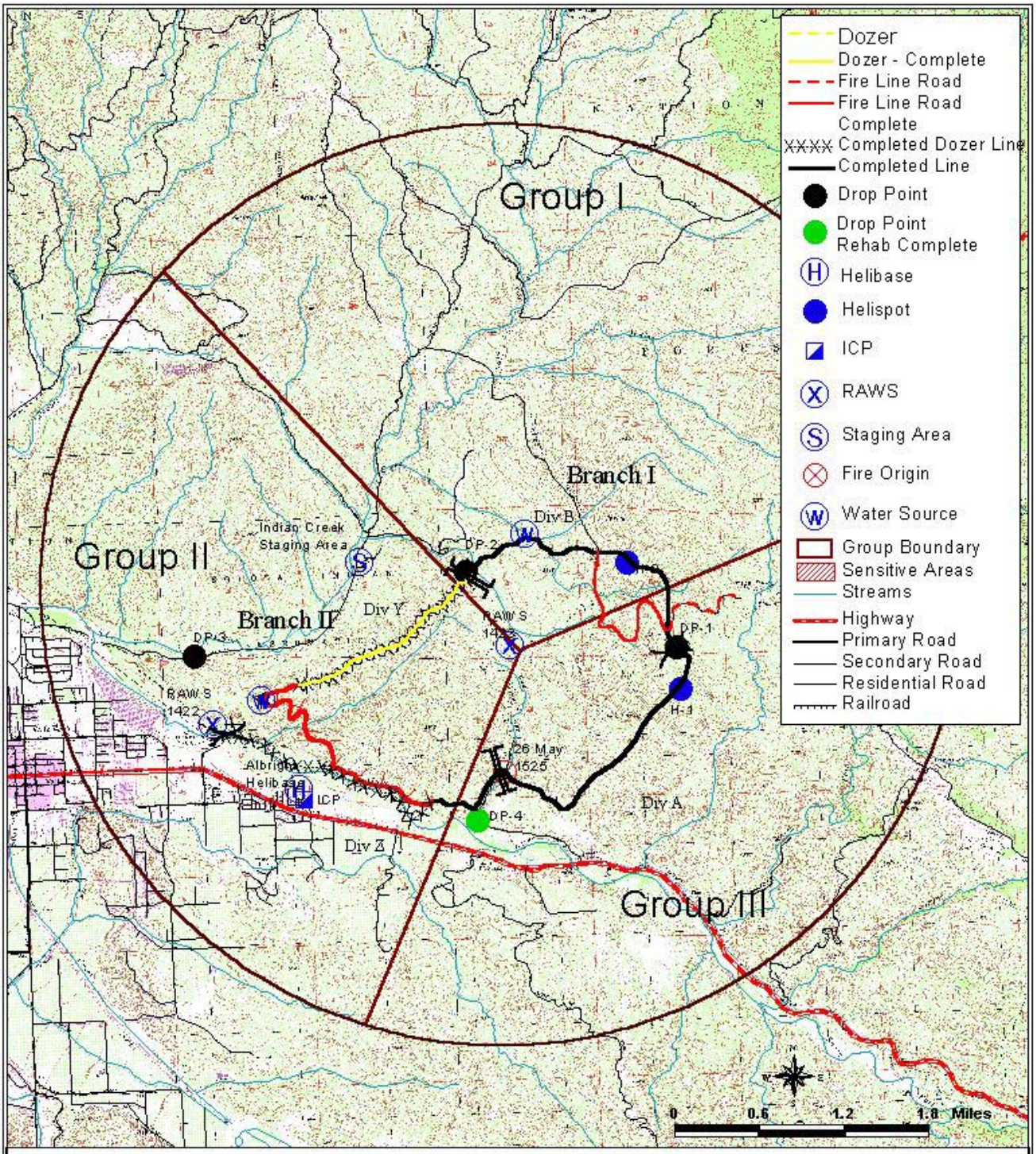
- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
- Incident data
  - The Incident Perimeter
  - Damaged Environmental Locations and Attributes
  - Burn Severity (created by remote sensing specialists)

Cycle: As requested

Print Size: As requested

Notes:

- The Rehab or BAER Teams typically have their own GIS Specialist assigned
- Typically the team should only ask for data layers.



Kris Creek Suppression Rehabilitation

ENF-0114

2,162 Acres

C:\Active_Incident\Kris_Creek\Projects\Rehab.apr Rehab Map Standard Size: E

Standard Products: Wild Fire Situation Analysis Map

Done By: GIS Unit

AKA: WFSA map, Contingency map

Purpose: To project the contingency plan of attack

Layers:

- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Hillshade (derived from Digital Elevation Models- DEMs)
- Incident data
  - The current incident perimeter
  - Planned perimeters based on WFSA Plan

Cycle: As requested, typically at the beginning of the incident

Print Size: As requested

Notes:

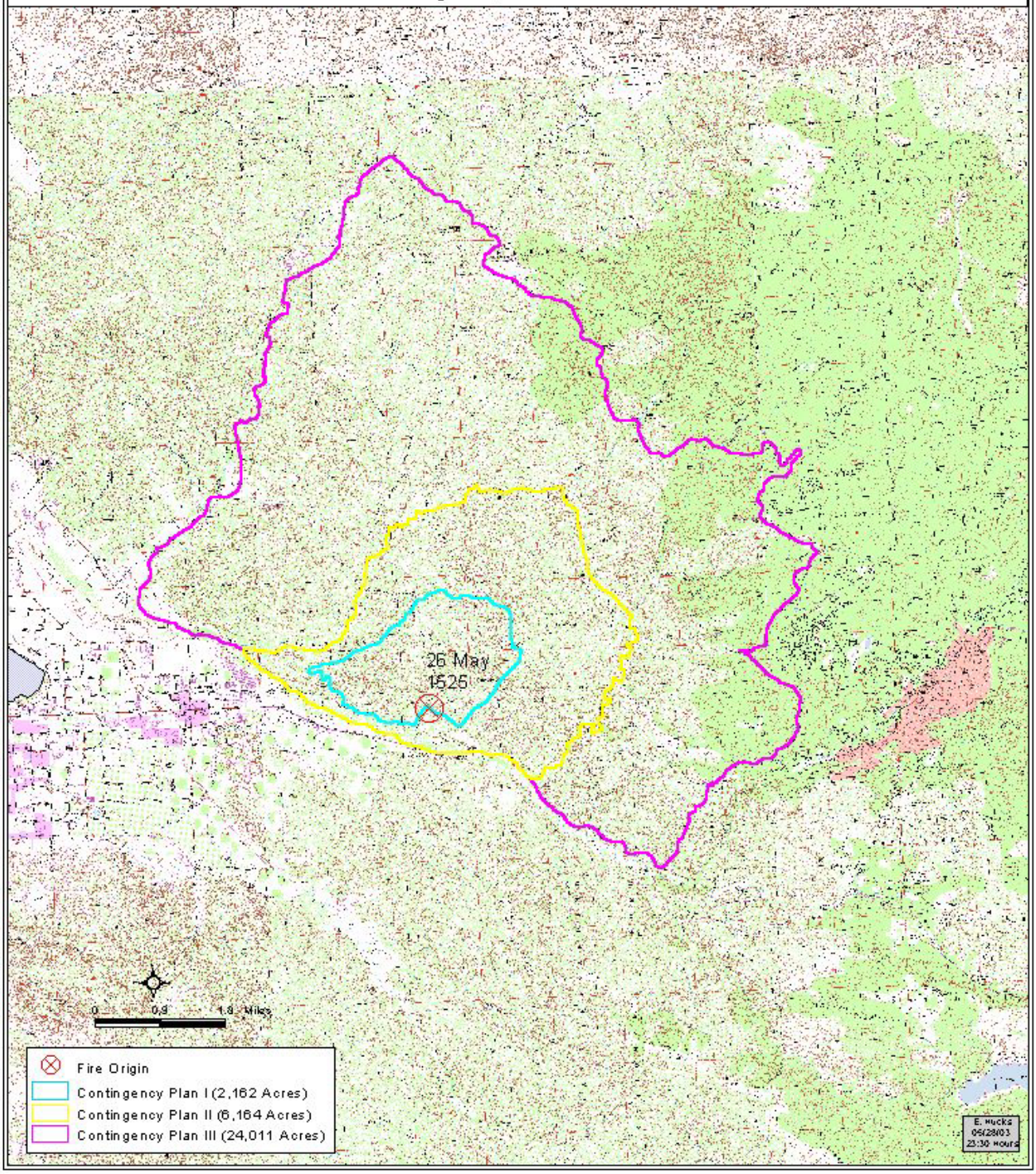
- Usually a product associated with Wilderness areas
- Use vibrant colors for the contingency polygon outlines

Kris Creek Fire EDF-0114

Wild Fire Situation Analysis

May 28, 3001

Burns County



C:\Active_Incident\Kris_Creek\Projects\0828_WFSA

WFSA

Standard Size: E and C

Standard Products: Vegetation Map

Done By: GIS Unit

AKA: Veg Map

Purpose: To use for comparative analysis of the current fire perimeter and surveyed vegetation of the area. It also is to assist the fire behavior analyst with determining a plan of attack.

Layers:

- Base data
  - Topological maps- USGS Digital Raster Graphics (DRGs)
  - Vegetation
- Incident data
  - The Current Incident Perimeter

Cycle: As requested

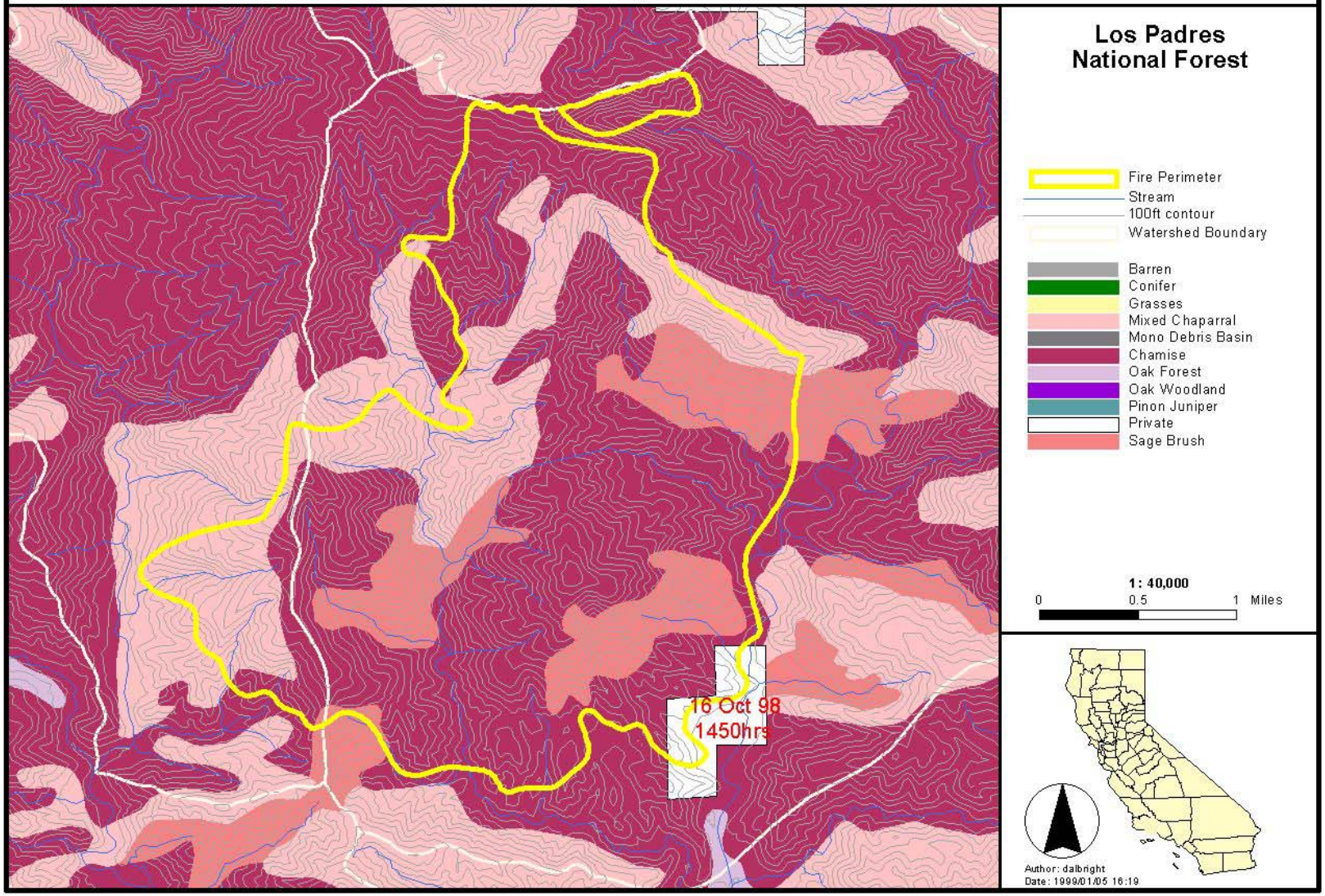
Print Size: As requested but usually 36" x 44" (E Size)

Notes:

- Standards colors can be as follows:
  - Grasses- Yellows
  - Brush- Reds
  - Conifers- Greens
  - Alpine Species- Blues
  - Oak Woodlands- Purples
- Useful in predicting potential fire behavior, developing suppression strategies, and rehabilitation

Ogilvy Fire - 24 Oct 98

Vegetation



Standard Products: Simulated Three Dimensional Map

Done By: GIS Unit

AKA: 3-D Map

Purpose: To allow the viewer a more realistic view of the landscape

Layers:

- Base data
  - Hydrology, including lakes and streams
  - Transportation Network
  - Contours
  - Digital Elevation Models (DEMs)
- Incident data
  - The Current Incident Perimeter

Cycle: As requested

Print Size: As requested, but usually 36" x 44" (E Size)

Notes:

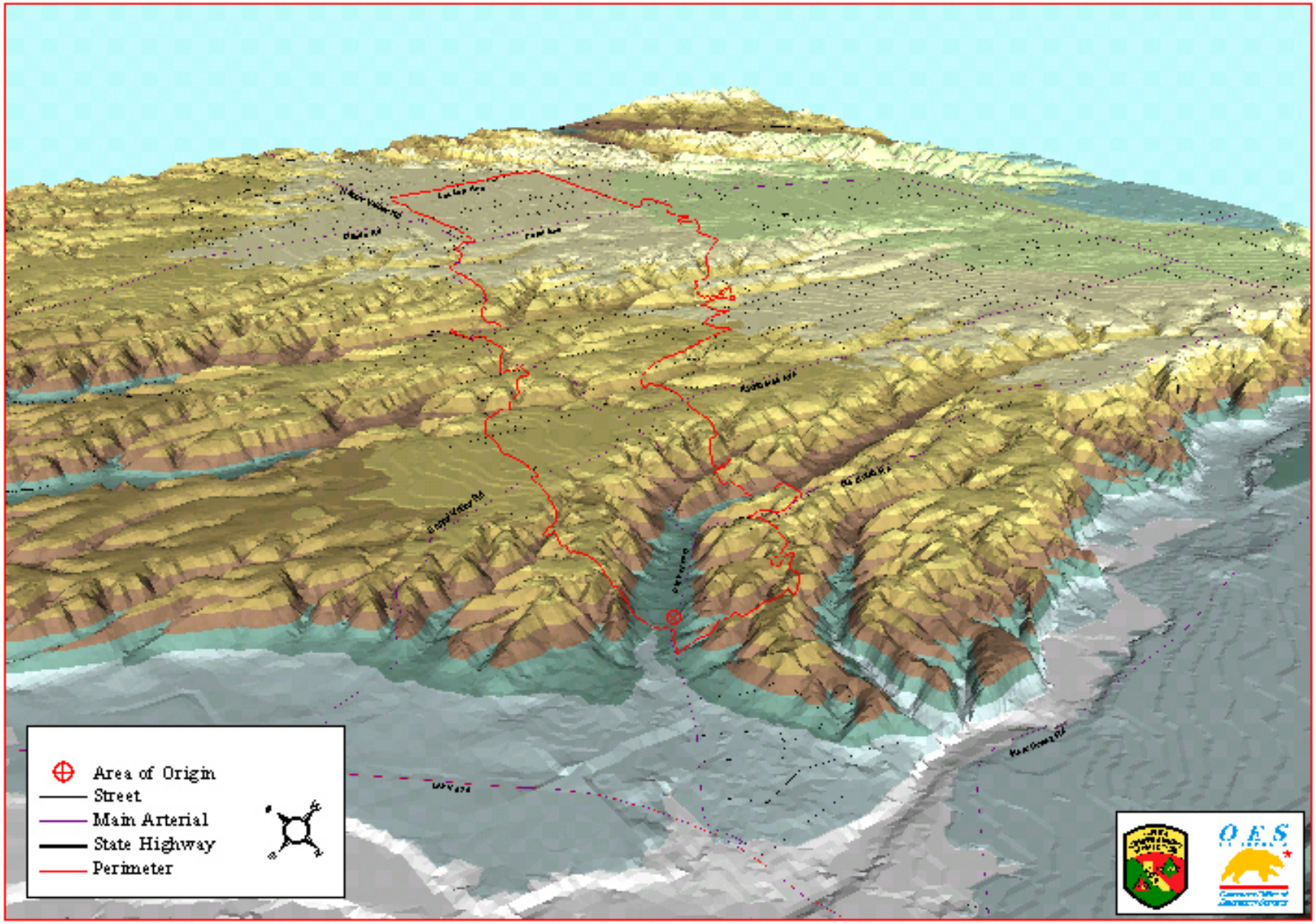
- This map requires 3-D analyst and Spatial analyst or ArcInfo GRID
- Requires experience with this modeling software to "tweak"
- Requires computer power and time to run rendering
- Can use a projector to show fly-bys

Canyon Fire - 3D Perspective

SHU-7946

View to the Southwest Vertical Exaggeration -1

Final Perimeter
9/27/99 1800 Hours
Total Acreage : 2,580



Standard Products: FARSITE Output Products

Done By: GIS Unit

AKA: N/A

Purpose: To assist the Fire Behavior Analyst in planning fire attack. And to support the FARSITE modeler with data input layers and produce map products of FARSITE outputs.

Layers:

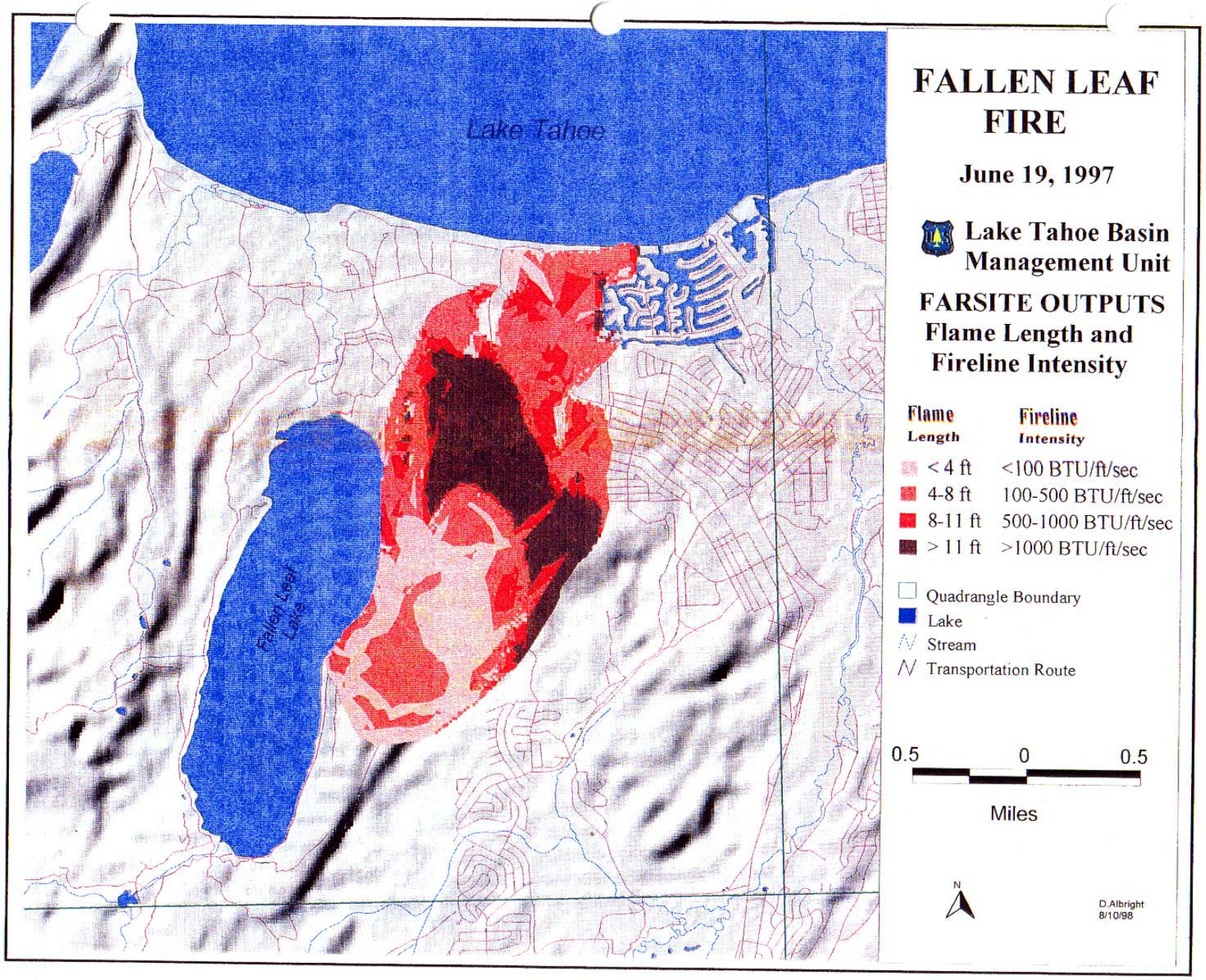
- Base data
  - Lakes
  - Transportation Network
  - Streams
  - Contours
- Incident data
  - The Current Incident Perimeter
  - FARSITE Inputs

Cycle: As requested

Print Size: As requested, but usually 36" x 44" (E Size)

Notes:

- A working knowledge of the ArcInfo and FARSITE software is required
- Requires specialized data sets
- Requires specialized skills
- Need to work with Fire Behavior Analysts closely


Lake Tahoe
Fallen Leaf Lake
FALLEN LEAF FIRE
June 19, 1997
Lake Tahoe Basin Management Unit
FARSITE OUTPUTS
Flame Length and Fireline Intensity
Flame Length
Fireline Intensity
< 4 ft
<100 BTU/ft/sec
4-8 ft
100-500 BTU/ft/sec
8-11 ft
500-1000 BTU/ft/sec
> 11 ft
>1000 BTU/ft/sec
Quadrangle Boundary
Lake
Stream
Transportation Route
0.5
0
0.5
Miles
N
D.Albright
8/10/98

Appendix B Standard Configurations

DIRECTORY STRUCTURE

Guideline notes:

- Be certain to use clear text (real words instead of abbreviations) for all file names used within the directory structure except in the IncidentData and FARSITE folders.
- Subdirectories in *italics* will use incident specific names.

Active_Incident (this name used so it will be easily found in the directory structure)
- ***Firename*** (insert the name of the Incident here)
  - **Basedata**
    - **Images** (Quads, Rec Maps, DOQQ's)
    - **Logos**
  - **Incidentdata**
    - ***Date Directory*** (date of these data layers) *or Subject Directory*
      - **Images** (photos)
    - **Progression** (merged & edited perimeters for the progression map)
  - **Products**
    - ***Date Directory*** (date of the product's use) *or Subject Directory*
  - **Projects**
    - ***Date Directory*** (date of the product's use) *or Subject Directory*
  - **Working**
    - ***Date Directory*** *or Subject Directory*
  - **FARSITE**
    - **Inputs**
    - **Outputs**

There are different ways of organizing directory structures:

1. *Date Directories*:

   Advantages:

   - All data from each day is compiled together.
   - This can facilitate copying all the data sets from each day at the beginning of the shift-in example in ArcCatalog simply select all and copy to the new date's folder.

   Disadvantages:

   - When data is not created daily one must go back through the directory structure until the most current data is found. On extensive fires this can be tedious.
   - On extensive fires the directory structure can become extremely long.

2. *Subject Directories*:

   Advantages:

   - Each data type is compiled together thus it is easy to find the latest dataset.
   - This limits the directory structure length.
   - This would work best using the data naming convention that starts with data type.

   Disadvantages:

   - On extensive fires the data within the subdirectory can become extensive.
   - People cannot assess at one glance what data has been created for that particular day.

3. *A combination of using Date Directories and Subject Directories*

   This maximizes the advantages of both directory types.

   - Date Directories are used for daily data:
     - Fire perimeter
     - Fireline

   - Subject Directories are used for data not created everyday:
     - Dozer lines
     - Temporary Flight Restriction Zones
     - FOBs Data
     - Progression Files

DIRECTORY STRUCTURE for the "Example" Fire

Example_fire

BASEDATA

Type of Layer	**Example File Name**
City_Boundaries	LA_city_boundary.shp
Areas_of_Special_Concern	Arch_sites.shp
Contours	contours40ft.shp
Demographic_Data	population_density.shp
DEMs	DEM90mtr.shp
Fire_History	firehistory.shp
Transportation_Network	roads.shp
Vegetation	vegetation.shp
Wilderness_Areas	Ventana_wilderness.shp

IMAGES

24k_Quads	Q34119e5.tif
USFS_Recreation_Maps	NF_visitormap.tif

LOGOS

Logo in Color	BLM.tif
Logo in Black/White	NPS_bw.tif

INCIDENT_DATA

"102503"

Origin	1025_ORIGIN_GPS_X_LLN83_Example
Perimeter	10251200_PER_GPS_P_LLN83_Example

IMAGES

102503_1200_MV322_Example.jpg

PROGRESSION

Progression file	10251200_PROG_P_T_Example

PRODUCTS

"102503"

IAP Map	10251800_IAP_8x10_Example.eps
Progression print file	10251800_progression_E_Example.rtl
Transportation Map	10251800_transportation_11x17_Example.rtl

PROJECTS

"102503"

Briefing Map	10251800_briefing_Example.apr
Progression Map	10252000_progression_Example.apr

WORKING

"102503"

Perimeter	1025031200_PER_GPS_L_lln27_Example.shp
Perimeter	1025031200_PER_GPS_p_t_Example.shp

INCIDENT DATA FILENAMING CONVENTIONS

Each Incident data file name should be composed of the following components:

1. The **date** the data was collected (example, 0515 for May 15).
2. The **time** the data was collected by the 24 hour clock (example, 1430 for 2:30 pm).
3. The **incident data type** (example, DZR for Dozer information).
4. The **source** code (example, FOB for Field Observer collected data).
5. The **data feature** code (example, L for a polyline).
6. The **projection** code (example, _u11n83 for UTM Zone 11, Datum NAD 83).
7. The **incident name** using the full name of the incident.

There are various ways that the naming convention can be organized in terms of order. The following examples illustrate two possibilities of ordering:

Order Type 1:

Components of the data are the following-

Date	Time	**Data Type**	Source	**Feature**	Projection-Daturm	**Incident Name**
0515	1430	**DZR**	GPS	**L**	U11n83	**Concow**

The result would be:
0515_1430_DZR_GPS_L_u11n83_concow

The advantage of this ordering is that all data in the incident directory will be ordered by date and then by data type. This allows all of each day's data to be together. This can cause difficulty on long incidents when data types are not being created each day because one must go through many data layers to find the latest layer.

Order Type 2:

Components of the data are the following-

Data Type	Source	**Date**	Time	**Feature**	Projection-Datum	**Incident Name**
PER	FOB	**0705**	1900	**P**	alb27	**Piru**

The result would be:
PER_FOB_0705_1900_P_alb27_piru

The advantages of this ordering are that the data in the incident directory will be ordered by data type, source and then by date. This leads to all data of similar type and source showing together. This means that it would be easier to tell what data had been edited and copied when.

Examples of Codes and Types

Features
X = point
L = line
P = polygon
G = grid
T = TIN

Projection Codes
u11n27 = UTM Zone 11North America Datum 1927
ll = Latitude/Longitude
alb = Albers
sp5 = State Plane Zone 5

Incident Data Types
PER = Raw Perimeter
DZR = Dozer
PRO = Progression Perimeter
ORIGIN
UNCFIRE = Uncontrolled Fireline
CTLFIRE = Controlled Fireline
CONT = Contingency
WFSA = Wildland Fire Situation Analysis
DMAG = Suppression Damage
ICP = Incident Command Post

Source Codes
GPS = Global Positioning System
IR = infrared
SAT = Satellite
FOB = Field Observer
SIT = Situation Unit Leader

Remember when it comes to filenames; if in doubt, spell it out!