FireOrg User Guide

February 2016

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FireOrg
(A Dispatch Workload Analysis program)

Background / History

Dispatch office staffing levels and the interagency cost sharing for dispatch center operations have always been the two major topics of concern and discussions among coordinators, dispatchers and managers.

In 2001 the National Coordinators formed a workgroup consisting of Subject Matter Experts from the Dispatch Coordination Center Manager business group. This group identified the following items:

- **Identify and document the issues.**
  Dispatch Centers are understaffed and dispatchers are overworked. Staffing and funding issues and/or indicators must be factually quantified through a statistical workload analysis.

- **Articulate what skills and capabilities are needed in the job/offices considering interagency as well as non-operational workload.**
  Utilizing Positions Descriptions and identifying the roles and responsibilities and duties of a dispatch center, the factors within the Dispatch Workload Analysis were developed.

- **Identify a common template for the entire dispatch community to use in evaluating staffing requirements.**
  A national standard was developed for Dispatch Workload Analysis factors.

- **Recommend a strategy with options to deal with any staffing shortfalls.**
  It was recommended that an analysis of the core workload criteria for a dispatch center be completed. The data would then be presented to management to develop a plan to increase staffing based on the analysis calculations.

To date, the workgroup results is a comprehensive and validated analysis program known as *FireOrg*. The program calculates minimum number of dispatchers required to staff a unit dispatch or dispatch center based on some of the actual workload in a dispatch operation. Because of the method that the data is collected, the program also identifies the percent of workload by a unit and/or agency from which managers can then calculate cooperator fair-share costs for their dispatch operation.

Introduction

FireOrg utilizes "factors" to describe the core work criteria that may be accomplished by each dispatch office. The factors, with each of their associated "weighted values", describe the workload that dispatch offices respond to on a daily basis. As such, FireOrg's criteria include factors for the Initial Response to Wildland Fire, Emergency Medical, and Law Enforcement just to mention a few. FireOrg also addresses the day to day workload of a Dispatch/Coordination Center such as; Prescribed Fire, Fires for Resource Objectives, Support of Extended Attack Wildfires, annual and daily reporting requirements and many other factors.

Currently, FireOrg is a stand-alone program. Other programs such as CAD systems, PCHA and FireFamily Plus can be used to help consolidate and validate data.

As a stand-alone analysis program FireOrg capabilities address several other dispatch needs, such as:
- Identifies staffing requirements (permanent fulltime dispatchers) (See Appendix 1)
- Calculates percent of workload by unit/agency (See Appendix 1)
- Can evaluate individual units and dispatch center workloads creating the ability to form or divide dispatch workloads appropriately. (See Appendix 1)
- Identifies initial response from extended response staffing needs (See Appendix 1)
- Can determine fair share costs to support dispatch centers based on percent of workload by unit/agency (See Appendix 2)

Why is a Dispatch Office Workload Analysis Necessary?

Managers have identified that rather than each unit having its own dispatch operations, by combining them and forming Interagency Dispatch Operations it is more effective, cost efficient, eliminates redundancy, and provides continuity.

- For these reasons, it is appropriate for interagency partners to support their common mission and their Interagency Dispatch Operation.

- Interagency Board of Directors who are provided services by, and cooperate in the dispatch center, share the oversight, the staffing and financial obligations of the interagency dispatch center.

- It is important to note that regardless of the number of resources or incidents a unit / agency has, there are bottom line support costs to each agency for the Center's facilities, operations, staffing and the administrative duties of the Center. There are agency and national policies and mandatory requirements relative to fire but beyond the mobilization of resources and support of incidents, that can and are normally accomplished by dispatch (e.g., plans, weather, fuels, reporting, resource status, etc).

- Dispatch operations must be staffed appropriately to:
  - address and help provide for firefighter and public safety,
  - efficient incident support,
  - adhere to work-rest guidelines,
  - assure adequate coverage and oversight of the center

- Through the entry of actual workload data, the FireOrg results are a starting point for interagency partners to mutually agree on how a Center's staffing and operational cost obligations will be allocated among the benefiting agencies. FireOrg results only provide the workload data, whereby, "Fair-share Staffing and Funding Plans" can be developed.

- FireOrg results are a starting point for interagency partners to mutually agree on how a Center's staffing and operational cost obligations will be allocated among the benefiting agencies.

How FireOrg works

The primary functions of dispatch, which create their significant workload are identified within the Core Work Criteria, which are *Incident activity, Resource activity, Resource availability and Administrative duties.* Within each one of these criteria are their associated workload attributes or "Factors", which account for the majority of a dispatch center's workload. Dispatch offices only count the factors as a workload to them if they have specifically and directly performed work.

FireOrg, takes into account the accumulative workload of the majority of all the various tasks accomplished by dispatch. Although every single task (i.e., answering the hundreds of phone calls) is not listed as a factor, they are accounted for within the factor's duties / tasks / impacts. Every dispatch office is affected by these factors and dispatch is able to gather factual statistics on them. It is very important to understand that each factor represents multiple tasks which are expressed by "weighting" each factor, then each task accumulates values based on the workload they create. So for example, sending one crew out of your area is less of a workload than bringing a crew into your area for dispatch.

For Example: You receive a request to mob 1 Crew out of your local area.

Factor	Inclusive Workload ….All that is involved with…	Weighted Value (Sample)
Resourced Dispatched Out of your Area - OH	Taking/making contacts, arranging travel, etc.	5
Resource Available for Dispatch - OH	Maintaining status, redcarding, etc.	5
Database Admin	Initial data entry of the people, Enter the information into ROSS	5
		15 (to resource home unit)

For Example: Mobilizing a T2 Crew into your local area.

Factor	Inclusive Workload …All that is involved with…	Weighted Value (Sample)
Incoming Resources Dispatched - Crew	Taking/making contacts, arranging and maintaining support (meals, lodging, etc.), maintaining status, travel, etc.	40
IA Resource Dispatches	Mobbing crew from unit to unit to fire to fire, etc.	35
Database Admin	Placing Orders, Enter the information into ROSS, daily statusing, wildcad, etc.	5
		80 (to receiving unit)

Inputs to FireOrg factors are quantified figures such as average number of fires per year, or number of resources available for dispatch from your area. The factors chosen are the primary workload for dispatch; the weighted factors help account for all aspects associated with performing that duty. Each factor does create a workload for dispatch operations however the impacts of each of these factors workload varies and therefore each are "weighted" and values are calculated based on an accumulative basis.

Weighted Values – Utilizing weighted values incorporate all workload aspects associated with a factor. The following is a description, by the software developer (Brian Booher - Bighorn Systems), of how Weighted Values were developed and work. *"Utilizing weighted values incorporate all workload aspects associated with a factor. FireOrg calculates FTEs using "Factors" entered by the user and "Weights" created by the FireOrg design group. FireOrg first creates "Weighted Factors", by first "normalizing" the user-entered Factors by using established ranges. The normalized Factor is then multiplied times the Weight to produce a Weighted Factor. All of these are totaled for the Unit or Dispatch Center, and multipliers are applied to derive FTEs. The entire process was initially calibrated using real data from a small, medium, and large center."*

There may be a need to split units to create workable dispatch areas. It may be due to area size or topography, excessive workload, or to combine workloads. (e.g., the Medicine Bow/Routt NF is dispatched by 3 Dispatch Centers, due to the vast area the forest covers).

Data Entry and Collection

The "Units" entered into FireOrg should be for the units that you want to know workload impacts and/or by unit providing support (funding, staffing, etc) to a dispatch center.

It is important that data is entered honestly and that only the data that has an effect on the workload of your dispatch office be entered. For example, if a county has 500 fires but your dispatch is only involved with 3 of the fires, only enter the 3 fires under the appropriate size class factors. Include only the actual workload impacts to your dispatch office. (When possible have the units provide the actual data.)

FireOrg Results

FireOrg will create an output page for each unit entered and one for the dispatch center.

Note that the "results" for each unit only include the factors that were entered for that unit. Also, the number of FTE's required to run a *unit* dispatch will be higher than the total number of dispatchers needed for a *dispatch center*. This is because duties and staffing hours are combined within a dispatch center, alleviating the need for additional staff.

The Dispatch center output page contains: the combined unit factors, showing the total workload for the dispatch center; a summary of the resulting interagency FTE; and workload percentages broken down by each unit.

FireOrg results include:

- <u>TOTAL FTE</u> - the number of dispatchers required to staff dispatch.

- <u>IR FTE (Initial Response FTE)</u> (*FPA entry*) - the number of dispatchers required for initial actions on fire incidents. (This number is entered into FPA);

- <u>Percent (%)</u> the average annual percentage of workload per unit is calculated for offices.

Using the "Percent" calculations, managers can identify fair-share costs by unit/agency for Dispatch Operations, Staffing and Operational Costs. (It is recommended that Dispatch Operations costs not include "space costs" if a center is co-located within an agency building, since these costs are normally taken off the top at the state or WO levels.)

Any additional duties a dispatch office performs that are not normally a "dispatch" responsibility (i.e., aviation officer, FPA, training officer, etc) should be presented to managers as a separate narrative, with the final FireOrg results.

Conclusion

FireOrg is intended for use by fire organization managers as an aid to determining support organization staffing requirements and as applicable, percent of workload by unit.

Inputs to FireOrg are quantified figures such as average number of fires per year, or number of aircraft dispatched.

Outputs from the model are number of full time equivalent dispatcher positions and the percent of workload created by units affecting a dispatch office.

FireOrg runs as a stand-alone program, although it can, optionally, import certain information from PCHA99 and from Computer Aided Dispatch (CAD) software such as WildCAD.

It is important that you enter only the data that honestly has an effect on the workload of your dispatch office. For example, if a county has 500 fires but your dispatch is only involved with 3 of the fires, only enter 3 under the "Fires" factor and as appropriate under the "A-C Fires" and/or "D+ Fires" fire size factors. Include only the actual workload impacts to your dispatch office.

Installation

As of 2009, FireOrg can be downloaded from: http://www.fs.fed.us/fire/nfmas-beta/

FireOrg is installed by running: SetupFireOrg.exe. This program creates a folder called \FireOrg and installs into it:

> FireOrg.exe
> FireOrg.new (empty database)
> FireOrg.doc (this file)

In addition, shortcuts are created, and system files are added as required for your particular system. If using Windows 2000, Windows NT, or Windows XP, you should login with administrator privileges prior to running the installation.

System requirements are:

> Pentium or comparable CPU
> 200 MHz or better speed
> 64 MB RAM
> 20 MB available hard drive space

HINTS
PRINT - Clicking on the Printer Icon or press F2 will print a screen or report.
HELP - **Pressing** F1 **will bring up a short description of the factor you are on.**

Getting Started

Under the FILE dropdown menu the options are:
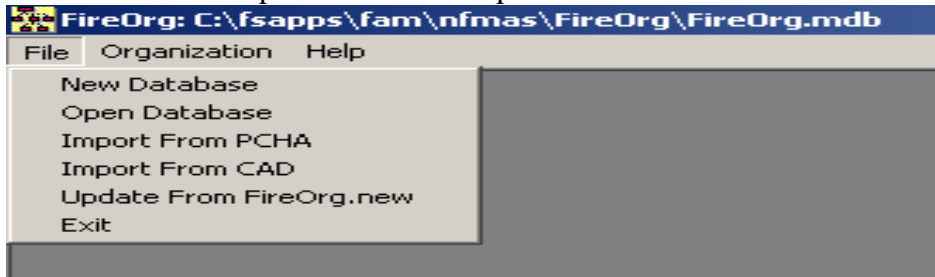
New Database – Name the New Database you are creating for the first time. ; use a Unit identifier. (e.g., CODRC).

This is a good option to run various workload tests to evaluate the need to merge or split units and offices to form new dispatch offices with realistic workload capabilities.

Open DataBase
It is not necessary to use this option if you only want to view/work-in the primary database, *FireOrg.mdb.*   However, if you want to look at another database use this option to select the data base you want to view. PCHA imported for units or all data entered into FireOrg. (FireOrg database files end with a .MDB)
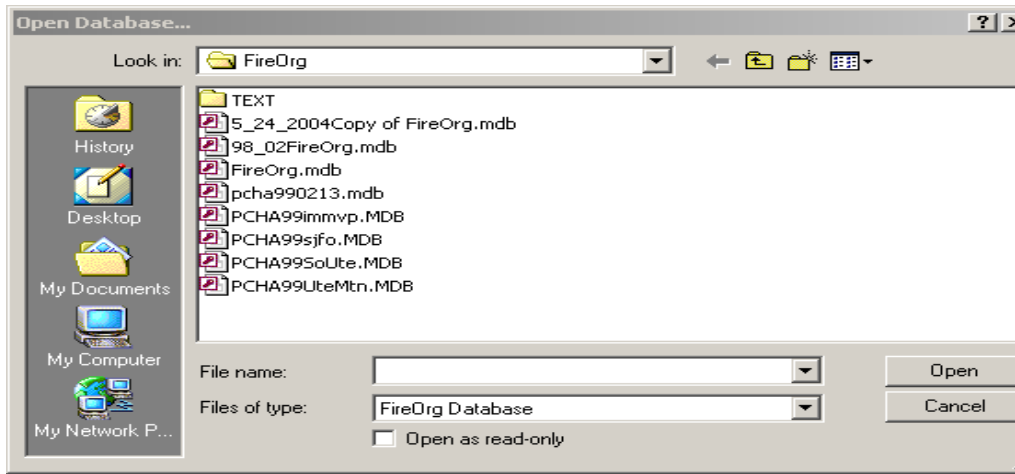
Import from PCHA and Import from CAD are described on pages 13-14 of this users guide.

EXIT the FireOrg Program through this option or by clicking the "x" in the upper right corner of the FireOrg screen.

Initial Data Entry

When you first start FireOrg, you will need to create a database and enter the "Units" and "Offices".

A Unit in FireOrg is an agency organizational unit, such as a Ranger District, National Forest, BLM Field Office, etc. A unit should be created if you want to find the percent of workload created by that unit or will acquire funding from that unit.

An Office in FireOrg is a group of Units (ie Durango Dispatch – CODRC; Workload_Test1, etc)

Consider, for example, a dispatch center which desires to run FireOrg.
The Durango Interagency Dispatch Center ("CODRC") dispatches for the
- USFS - San Juan National Forest ("COSJF"),
- BLM - San Juan Field Office ("COSJD"),
- NPS - Mesa Verde National Park ("COMVP"),
- BIA - Ute Mtn.Ute Agency ("COUMA"),
- BIA - Southern Ute Agency ("COSUA"),
- State - Colorado State Forest Service ("COCOS") includes the associated counties
(La Plata, Montezuma, Archuleta, Dolores, and San Juan Counties)

We would create the 6 units: COSJF, COSJD,COMVP, COUMA, COSUA, COCOS, as "Units" in FireOrg, we would calculate the data for the each "Factor" and enter their statistics separately (Note that some statistics are annual averages, while others are for current year.)

We would create an "Office" called CODRC, and tell FireOrg that COSJF, COSJD, COMVP, COUMA, COSUA, COCOS are all a part of CODRC.

Once data entry is complete we would run the "Results" to see the number of required staffing for the Office (dispatch center) and the percent of workload each unit. These results provide us with the information we need to know how many staff we will need to hire for the center, and based on the calculated percent of workload - how much of the staffing and funding will need to come from which units.

Here's how we do all of this in FireOrg.

FireOrg Initial Data Entry

Under the FILE dropdown menu Select and Name the New Database you are creating.
(Creating this new Database will enable the "Organization" Menu.)
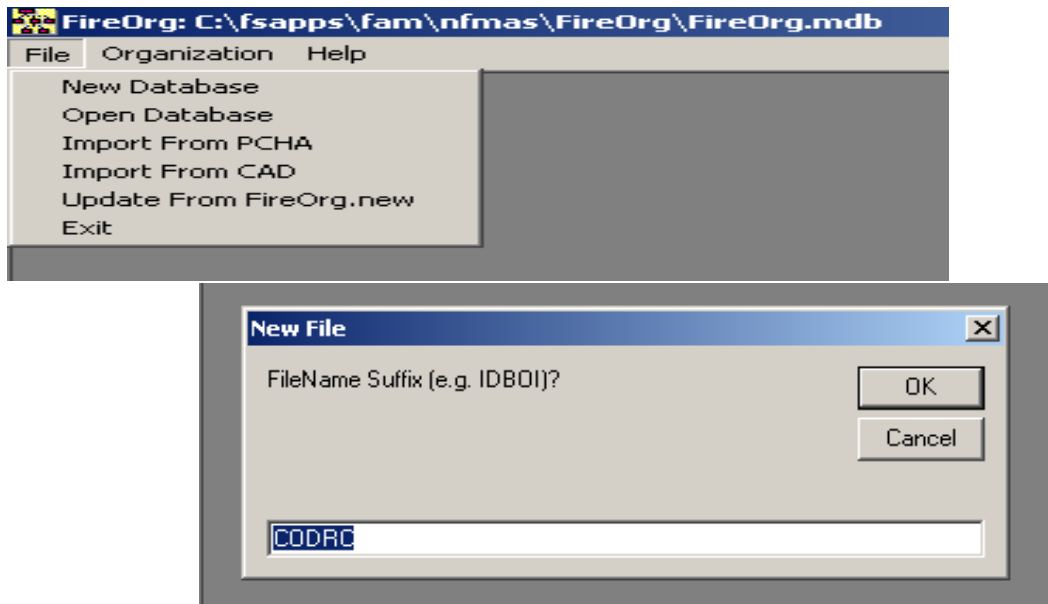
From the **Organization** menu, select **Units**.
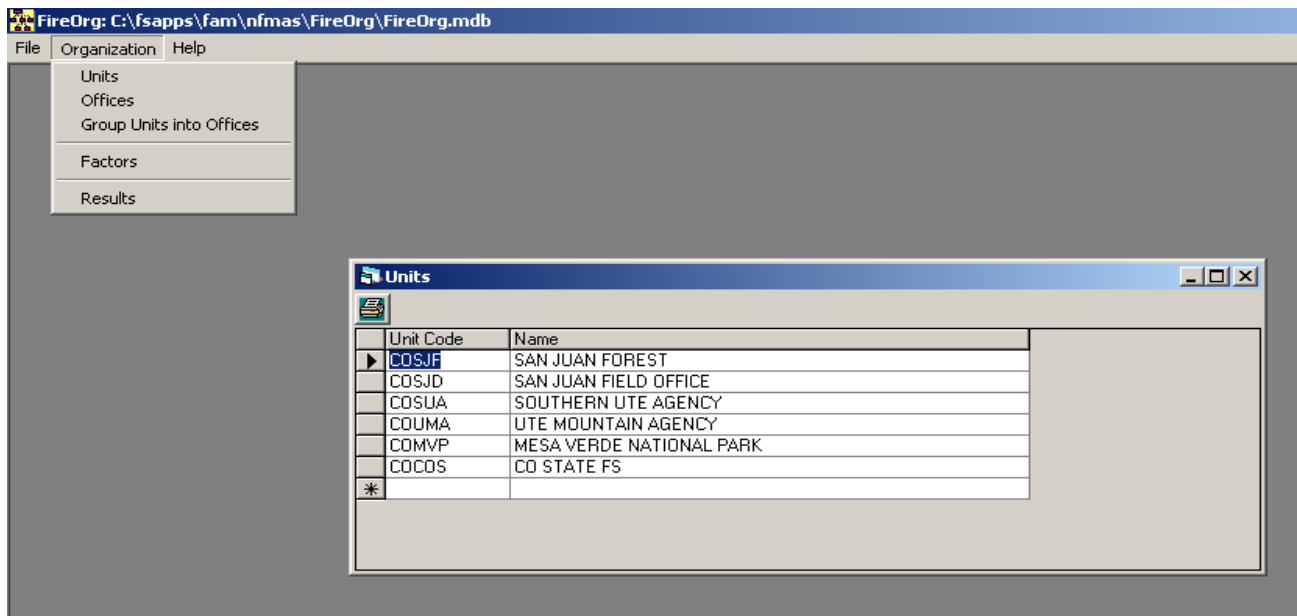
Enter the **Units**, with the code and description for each. When done, click on the small "x" at the top right of the "Units" window. To delete units – highlight the row with the arrow and press the "Delete" Key. (Only create units that are capable of providing funding.)
Do not create the dispatch center as a unit.

Next, use **Organization – Offices** to enter an "Office" (A dispatch center or the name of a group you may want to analyze).
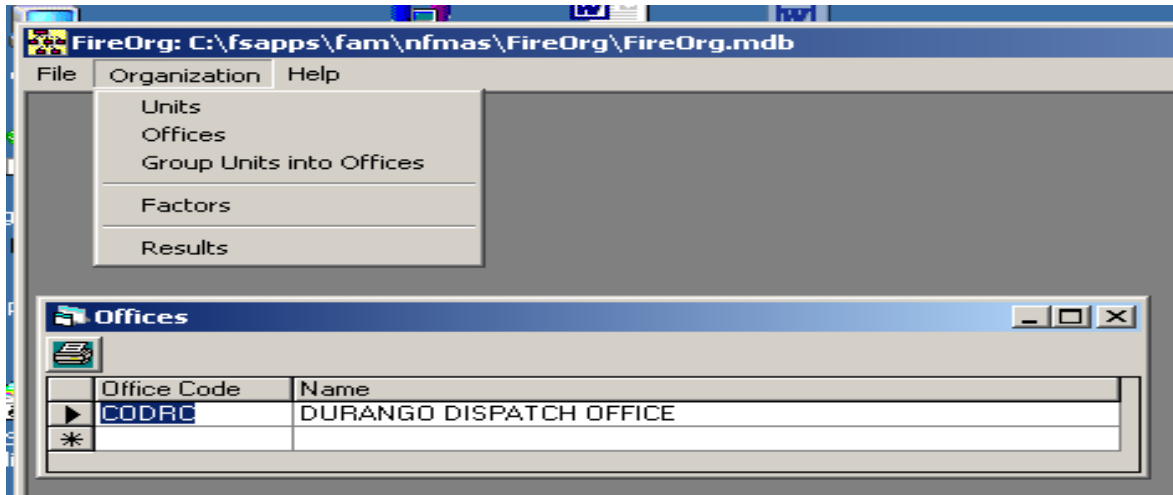
Finally, use Organization – Group Units into Offices:
The groups you create can be a dispatch center or may be a group of units that you want to analyze the workload.
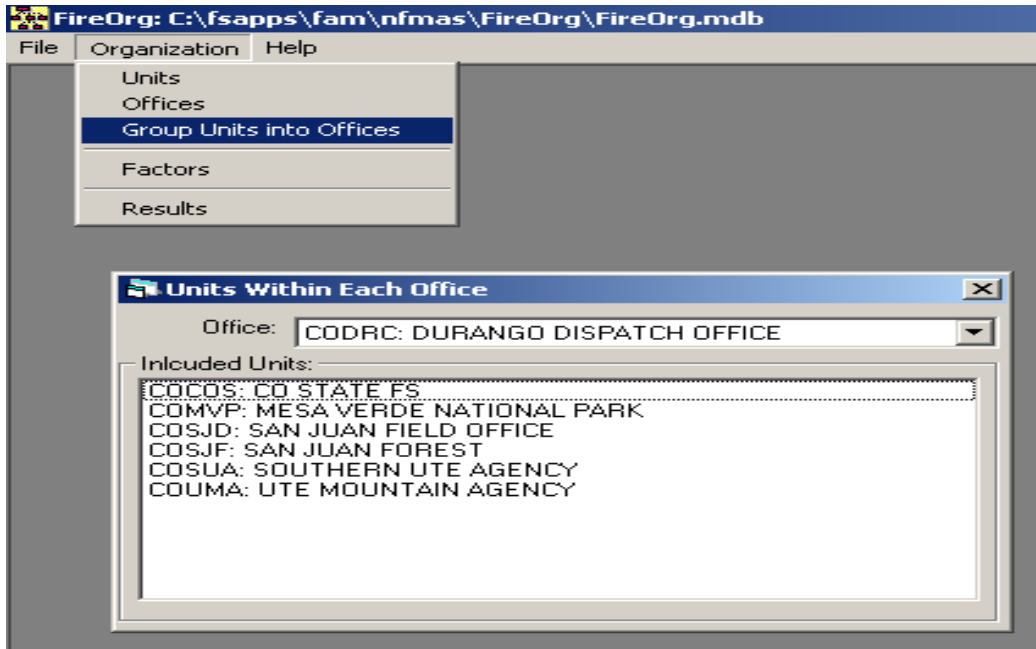
Select the "CODRC" Office, and click on all "Units" to show that they are included in this office.

This completes the initial setup in FireOrg. The next step is to import from PCHA/CAD (if applicable).

Import From PCHA (Not mandatory to use)

Data entry requirements for FireOrg (Fires, A-C Fires, and D+ Fires) can be imported directly from PCHA, saving you data collection and entry time. If you do not have or want to use the PCHA data, you can calculate and enter the annual average number of fires by hand.
Use **File – Import From PCHA**:
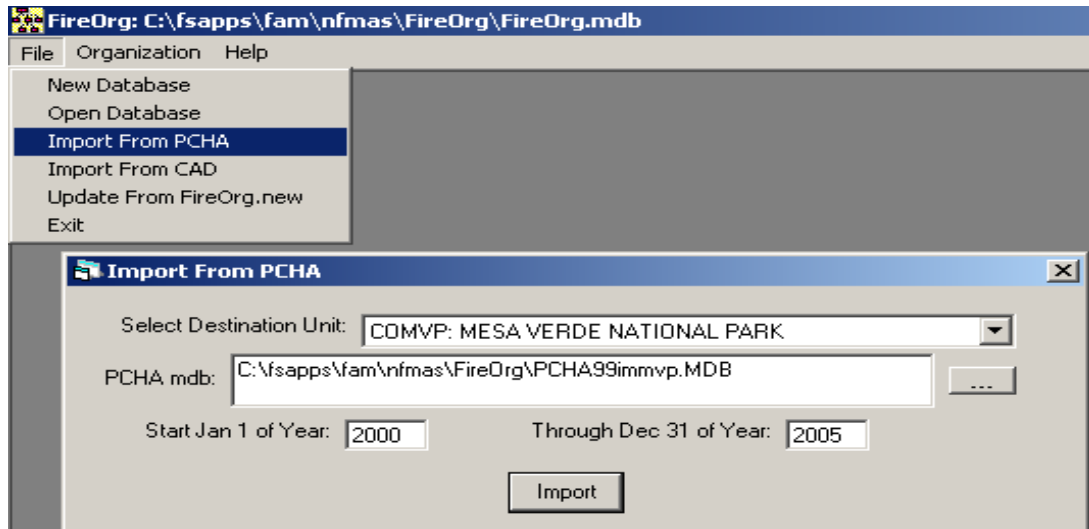
Use the pull down to select the Destination Unit. In this case, we are importing from the NPS PCHA database "PCHA99immvp.mdb" for Mesa Verde National Park, and asking FireOrg to put the results into the "COMVP" Unit.

"Browse" to the PCHA database by clicking on the browse button (3 dots) to the right of the place where the PCHA mdb: filename shows above.

Enter the starting and ending years, and click "Import". The process should only take a few seconds, after which you will see:
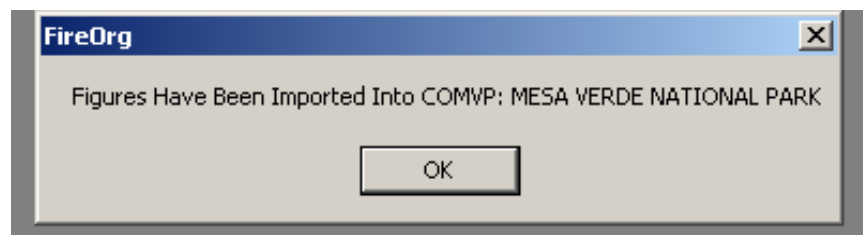
FireOrg will pull the fire statistical data for the unit, average it and input the data into the Factors table.

Import From CAD (Not mandatory to use)

If your Computer Aided Dispatch software is supported in FireOrg you can import additional information directly from your CAD database. Use **File – Import From CAD**:
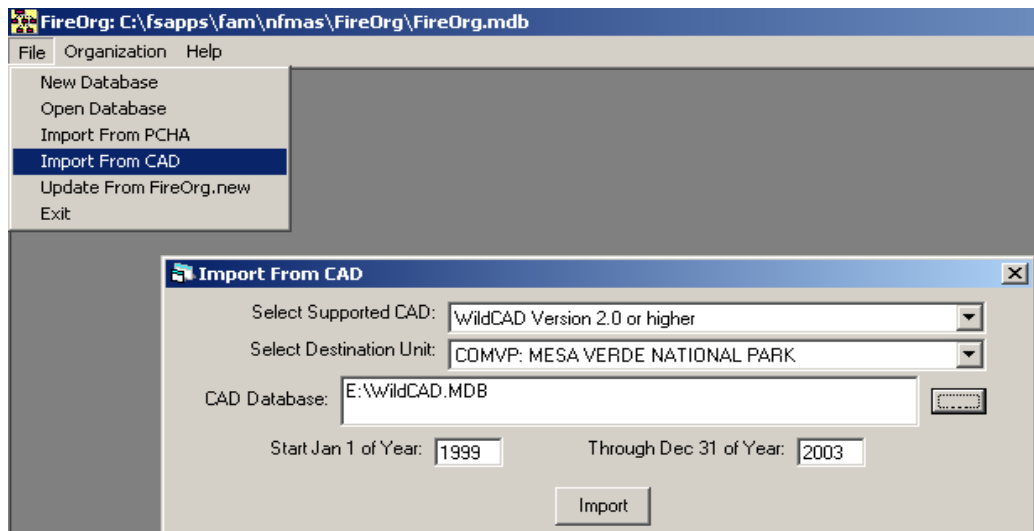
Select your CAD, and Destination Unit, and then browse to your CAD database.

Enter the starting and ending years. Note that you should select years for which your CAD database contains information representative of the workload in your area.

At its completion, you will see:
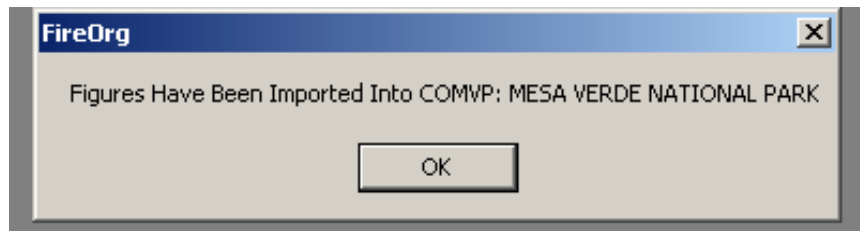
Enter Factors

The real work in FireOrg is collecting and entering the required figures which are called "Factors". Use **Organization – Factors**:

We see a list of Factors, the Unit of Measure, and a place to enter figures for each of our units. Scroll down to see the complete list.

See Help (F1) for a brief description of Factor data entry information. Note that some factors require Annual averages and others, current year data. For the last 3 factors "Days To Prepare Plans", "Intel / Predictive Services", "Database Administration" – total the Dispatch Center workload and divide equally between the units.

Note that certain figures were imported from PCHA and CAD.

Enter all applicable figures for all units, and then exit from this form with the "x" in the upper right.

View Results

Use Organization – Results to ask that the results be calculated and displayed. Select the "Applications", which are the various types of positions calculated by FireOrg. Then select one or more Units and/or Offices to be calculated.

In this example, we are asking that Dispatcher staffing be calculated for each Unit and for the combined Office (Dispatch Center):
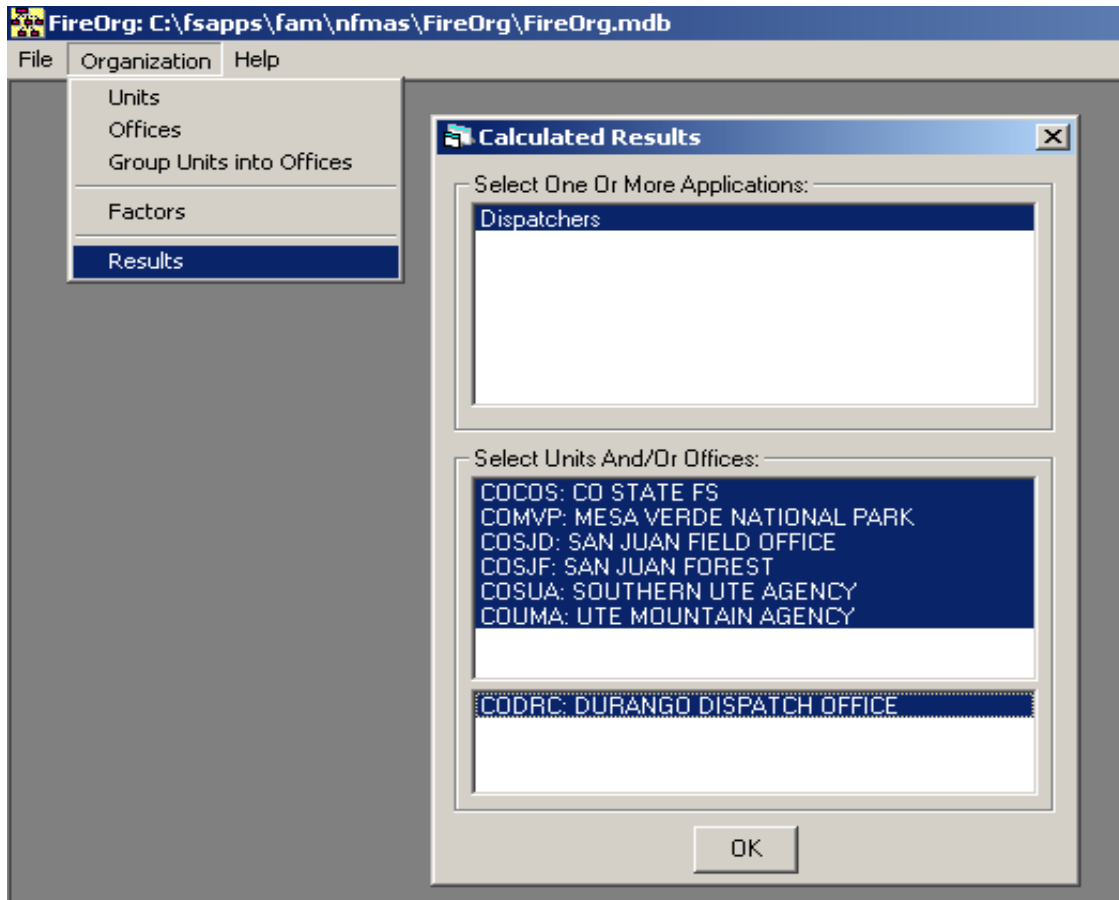
Results include: TOTAL FTE - the number of dispatchers required to staff dispatch; IR FTE (Initial Response FTE) - the number of dispatchers required for initial actions on fire incidents and Percent (%) the average annual percentage of workload per unit is calculated for offices.

Note that the results for each unit only include the factors that were entered for that unit. Also, the number of FTE's required to run a *unit* dispatch will be higher than the total number of dispatchers needed for a *dispatch center*. This is because duties and staffing hours are combined within a dispatch center, alleviating the need for additional staff.

The Dispatch center page contains: the combined unit factors, showing the total workload for the dispatch center; a summary of the resulting interagency FTE; and workload percentages broken down by unit.

A portion of the report is shown below. You can use the printer button in the upper left to send the report to your printer. Also, the report is stored as a text file, whose path is shown in the title bar:

```
FireOrg: C:\fsapps\fam\nfmas\FireOrg\FireOrg.mdb
File   Organization   Help

File: C:\fsapps\fam\nfmas\FireOrg\FireOrg.txt

03-09-2005                                                          13:44:20
                                    FireOrg

                       Unit COSUA: SOUTHERN UTE AGENCY
                          Calculations For Dispatchers

WEIGHTED FACTORS:
                                                              Weighted
            Factor (unit of measure)                  Entry    Factor
            =========================================  ======== ========
            Fires (PCHA, 10-day ma >= .1)               74.00       222
            A-C Fires (Fires)                           73.00       195
            D+ Fires (Fires)                             1.00        60
            Inc Mgt Team Deployments (Teams)             2.00       160
            Prescribed Fire Days (Days)                  7.00        75
            Rx Fire Acres (Acres)                    1,000.00        25
            Planned Event Days (Days)                    7.00        42
            IA Resource Dispatches (OH/SMJ Dispatches)  53.00        85
            IA Resource Dispatches (ENG/WT Dispatches) 112.00        90
            IA Resource Dispatches (CRW Dispatches)     16.00        36
            IA Resource Dispatches (DOZ/TP Dispatches)   4.00        32
            IA Resource Dispatches (AC Dispatches)      35.00       105
            Incoming Resources Dispatched (OH/SMJ Dispatches)  102.00   41
            Incoming Resources Dispatched (ENG/WT Dispatches)   54.00   62
            Incoming Resources Dispatched (CRW Dispatches)      15.00   75
            Incoming Resources Dispatched (DOZ/TP Dispatches)    1.00    8
            Incoming Resources Dispatched (AC Dispatches)       16.00   36
            Resources Dispatched Out Of Your Area (OH/SMJ Dispatches)  5.00   1
            Resources Dispatched Out Of Your Area (ENG/WT Dispatches)  4.00  16
            Resources Available For Dispatch (OH/SMJ)   16.00         5
            Resources Available For Dispatch (ENG/WT)    4.00        12
            Resources Available For Dispatch (DOZ/TP)    1.00         3
            AD & Contract Resources Available (OH)       4.00         7
            Area Resources (ENG)                         4.00        64

ADDITIONAL TIME REQUIREMENTS:

            Factor (unit of measure)                  Entry
            =========================================  ========
            Days To Prepare Plans (Days)                30.00
            Intel / Predictive Services (Hours Per Day)  3.00
            Database Administration (Days)              70.00

TOTAL FTEs NEEDED FOR SINGLE AGENCY DISPATCH OFFICE: 1.58
INITIAL RESPONSE FTEs: 1.43
```

Note that in this example:
- Only the factors with entries for this unit the IR FTE's 1.43
- 1.58 total positions are indicated for the workload of the single unit, Southern Ute Agency.
- The IR FTE's 1.43

See Appendix 1 for complete unit and dispatch center sample results.

Help Utilities
Under the HELP drop down menu the options are:

Additional utilities are found on the Help menu:

The **Database Browser** lets you view the data as stored in your FireOrg database.

Use **Database Structure** to see how your FireOrg Access database is organized.

Help-About, as shown above, gives you the software and database versions of your copy of FireOrg.

Help Screen   (F1)

To see a Help Screen in FireOrg, position the cursor on the Factor and press F1.

The following is the list of FireOrg factor, measures and a brief description of what the data entry should be for the Factor.

Describe	Measure	F1-Help Text
Fires	Fires	Total Average Annual number of Fires, by unit/agency
A-C Fires	Fires	Average Annual number of A-C Fires, by unit/agency
D+ Fires	Fires	Average Annual number of D+ Fires, by unit/agency
Incident Mgt Team Deployments	Teams	Average Annual number Incident Management Teams used within your area (T1,2,3, Fire Use), by unit/agency
Fire Use Days	Days	Average Annual number of days WFU lasted, by unit/agency
Prescribed Fire Days	Days	Average Annual number of days of Prescribed Fires, by unit/agency
Rx Fire Acres	Acres	Average Annual number of Prescribed Fire Acres accomplished, by unit/agency
Law Enforcement Incidents	Incidents	Average Annual number of Law Enforcement Incidents, by unit/agency
Hazmat Incidents	Incidents	Average Annual number of Hazmat Incidents, by unit/agency
Search & Rescue Incidents	Incidents	Average Annual number of Search & Rescue Incidents, by unit/agency
Traffic Collision Incidents	Incidents	Average Annual number of Traffic Collision Incidents, by unit/agency
Medical Aid Incidents	Incidents	Average Annual number of Medical Aid Incidents, by unit/agency
Unplanned Event Days	Days	Average Annual number of Unplanned Event Days, by unit/agency (Natural or Human caused Disasters (hurricane, terrorist, etc))
Planned Event Days	Days	Average Annual number of Planned Event Days, by unit/agency (Events that require preparatory planning and resource mobilization rainbow family gathering, Sturgis Rally, etc)
IA Resource Dispatches	OH/SMJ	Average Annual number of Overhead used for Initial Attack, by unit/agency
IA Resource Dispatches	ENG/WT	Average Annual number of Engines and Water Tenders used for Initial Attack, by unit/agency
IA Resource Dispatches	CRW	Average Annual number of Crews used for Initial Attack, by unit/agency
IA Resource Dispatches	DOZ/TP	Average Annual number of Dozers & Tractor Plows used for Initial Attack, by unit/agency
IA Resource Dispatches	AC	Average Annual number of Aircraft used for Initial Attack, by unit/agency

Describe	Measure	F1-Help Text
Incoming Resources Dispatched	OH/SMJ	Average Annual number of Overhead dispatched to local incidents, admin, etc, by unit/agency (Non-IA) , **(Counts are by the Incident's Unit)**
Incoming Resources Dispatched	ENG/WT	Average Annual number of Engines and Water Tenders dispatched to local incidents, admin, etc, by unit/agency (Non-IA) **(Counts are by the Incident's Unit)**
Incoming Resources Dispatched	CRW	Average Annual number of Crews dispatched to local incidents, admin, etc, by unit/agency (Non-IA) **(Counts are by the Incident's Unit)**
Incoming Resources Dispatched	DOZ/TP	Average Annual number of Dozers & Tractor Plows dispatched to local incidents, admin, etc, by unit/agency (Non-IA)
Incoming Resources Dispatched	AC	Average Annual number of Aircraft dispatched to local incidents, admin, etc, by unit/agency (Non-IA) **(Counts are by the Incident's Unit)**
Resources Dispatched Out Of Your Area	OH/SMJ	Average Annual number of Overhead from your area dispatched to other areas incidents, admin, etc, by unit/agency **(Counts are by Resource's Unit)**
Resources Dispatched Out Of Your Area	ENG/WT	Average Annual number of Engines and Water Tenders from your area dispatched to other areas incidents, admin, etc, by unit/agency **(Counts are by Resource's Unit)**
Resources Dispatched Out Of Your Area	CRW	Average Annual number of Crews from your area dispatched to other areas incidents, admin, etc, by unit/agency **(Counts are by Resource's Unit)**
Resources Dispatched Out Of Your Area	DOZ/TP	Average Annual number of Dozers & Tractor Plows from your area dispatched to other areas incidents, admin, etc, by unit/agency **(Counts are by Resource's Unit)**
Resources Dispatched Out Of Your Area	AC	Average Annual number of Aircraft from your area dispatched to other areas incidents, admin, etc, by unit/agency **(Counts are by Resource's Unit)**
Resources Available For Dispatch	OH/SMJ	Total Current Annual number of Overhead (Gov & Cooperators) from your area available for dispatch, by unit/agency
Resources Available For Dispatch	ENG/WT	Total Current Annual number of Engines and Water Tenders (Gov & Cooperators) from your area available for dispatch, by unit/agency
Resources Available For Dispatch	CRW	Total Current Annual number of Crews (Gov & Cooperators) from your area available for dispatch, by unit/agency
Resources Available For Dispatch	DOZ/TP	Total Current Annual number of Dozers & Tractor Plows (Gov & Cooperators) from your area available for dispatch, by unit/agency
Resources Available For Dispatch	AC	Total Current Annual number of Aircraft (Gov & Cooperators) from your area available for dispatch, by unit/agency
AD & Contract Resources Available	Crews	Total Current Annual number of AD & Contract Crews from your area available for dispatch, by hiring unit/agency
AD & Contract Resources Available	Equipment	Total Current Annual number of Contract Equipment from your area available for dispatch, by hiring unit/agency
AD & Contract Resources Available	OH	Total Current Annual number of AD & Contract Overhead from your area available for dispatch, by hiring unit/agency
AD & Contract Resources Available	AC	Total Current Annual number of CWN & Contract Aircraft from your area available for dispatch, by hiring unit/agency
National Resources	AT Bases	Total Current number of Airtanker Bases within your area, by hiring unit/agency
National Resources	Helicopters	Total Current number of State & Govt -owned & Contracted National Helicopters within your area, by hiring unit/agency
National Resources	SMJ Bases	Total Current number of Smokejumper Bases (including contingent bases) within your area, by hiring unit/agency
National Resources	LP	Total Current number of Leadplanes (including ASM) positioned within your area, by hiring unit/agency

Describe	Measure	F1-Help Text
National Resources	C1	Total Current number of National Type 1 Crews located within your area, by hiring unit/agency
Area Resources	AC	Total Current number of State & Govt -owned & Contracted Aircraft positioned within your area (excluding national contracts), by hiring unit/agency
Area Resources	CRW	Total Current number of State & Federal Crews available from your area, by hiring unit/agency (excluding AD, contracts & National IHC)
Area Resources	ENG	Total Current number of State & Federal Engines available from your area, by hiring unit/agency (excluding contracts)
Local Govt Cooperation	Agencies	Total number of units (state, federal and cooperators) affecting the support systems workload
Days To Prepare Plans	Days	Annual Number of **Person Days** needed to prepare required documents (Mob Guides, Incident /Accident Response Plans, Annual reports, etc)
Intel / Predictive Services	Hours Per Day	Average Annual number of **Person Hours** per day required to perform predictive services.
Database Administration	Days	Annual Number of **Person Days** required for Database Administration (Fire report programs, Quals, IQCS, ROSS, WildCad, PCMS, etc)

Appendix 1 – Sample Results

Results include: TOTAL FTE - the number of dispatchers required to staff dispatch; IR FTE (Initial Response FTE) - the number of dispatchers required for initial actions on fire incidents and Percent (%) the average annual percentage of workload per unit is calculated. Note that the results for each unit only include the factors that were entered for that unit. Also, the number of FTE's required to run a *unit* dispatch will be higher than the total number of dispatchers needed for a *dispatch center*. This is because duties and staffing hours are combined within a dispatch center, alleviating the need for additional staff.

The Dispatch center page contains: the combined unit factors, showing the total workload for the dispatch center; a summary of the resulting interagency FTE; and workload percentages broken down by unit.

The following 6 pages are an example of the FireOrg results for 6 units and a dispatch center.

```
                              FireOrg
                       Unit COCOS: CO STATE FS
                       Calculations For Dispatchers


WEIGHTED FACTORS:
                                                                   Weighted
          Factor (unit of measure)                       Entry     Factor
          ==========================================     =========  =========
          Fires (PCHA, 10-day ma >= .1)                    30.00         90
          A-C Fires (Fires)                                29.00         77
          D+ Fires (Fires)                                  1.00         60
          Inc Mgt Team Deployments (Teams)                  1.00         80
          Unplanned Event Days (Days)                       1.00          8
          IA Resource Dispatches (OH/SMJ Dispatches)       15.00         24
          IA Resource Dispatches (ENG/WT Dispatches)       30.00         24
          IA Resource Dispatches (CRW Dispatches)           1.00          2
          IA Resource Dispatches (DOZ/TP Dispatches)        3.00         24
          IA Resource Dispatches (AC Dispatches)            9.00         27
          Incoming Resources Dispatched (OH/SMJ Dispatches) 12.00         5
          Incoming Resources Dispatched (ENG/WT Dispatches) 11.00        13
          Incoming Resources Dispatched (CRW Dispatches)    4.00         20
          Incoming Resources Dispatched (DOZ/TP Dispatches) 2.00         16
          Incoming Resources Dispatched (AC Dispatches)     2.00          4
          Resources Dispatched Out Of Your Area (OH/SMJ Dispatches)  7.00    1
          Resources Dispatched Out Of Your Area (ENG/WT Dispatches)  5.00   20
          Resources Available For Dispatch (OH/SMJ)         3.00          1
          Resources Available For Dispatch (ENG/WT)        15.00         45
          Resources Available For Dispatch (DOZ/TP)         6.00         18
          Local Govt Cooperation (Agencies)                 6.00         42

ADDITIONAL TIME REQUIREMENTS:

          Factor (unit of measure)                       Entry
          ==========================================     =========
          Days To Prepare Plans (Days)                     30.00
          Intel / Predictive Services (Hours Per Day)       3.00
          Database Administration (Days)                   70.00

TOTAL FTEs NEEDED FOR SINGLE AGENCY DISPATCH OFFICE: 1.24
INITIAL RESPONSE FTEs: 1.20
```

```
                              FireOrg
             Unit COMVP: MESA VERDE NATIONAL PARK
                  Calculations For Dispatchers
```

WEIGHTED FACTORS:

Factor (unit of measure)	Entry	Weighted Factor
Fires (PCHA, 10-day ma >= .1)	22.00	66
A-C Fires (Fires)	21.00	56
D+ Fires (Fires)	1.00	60
Inc Mgt Team Deployments (Teams)	1.00	80
Rx Fire Acres (Acres)	10.00	0
IA Resource Dispatches (OH/SMJ Dispatches)	45.00	72
IA Resource Dispatches (ENG/WT Dispatches)	12.00	10
IA Resource Dispatches (CRW Dispatches)	2.00	4
IA Resource Dispatches (AC Dispatches)	20.00	60
Incoming Resources Dispatched (OH/SMJ Dispatches)	52.00	21
Incoming Resources Dispatched (ENG/WT Dispatches)	22.00	25
Incoming Resources Dispatched (CRW Dispatches)	7.00	35
Incoming Resources Dispatched (AC Dispatches)	13.00	29
Resources Dispatched Out Of Your Area (OH/SMJ Dispatches)	23.00	5
Resources Dispatched Out Of Your Area (ENG/WT Dispatches)	1.00	4
Resources Dispatched Out Of Your Area (AC Dispatches)	6.00	14
Resources Available For Dispatch (OH/SMJ)	23.00	7
Resources Available For Dispatch (ENG/WT)	3.00	9
Resources Available For Dispatch (AC)	1.00	17
AD & Contract Resources Available (OH)	1.00	2
AD & Contract Resources Available (AC)	1.00	30
Area Resources (AC)	1.00	133
Area Resources (ENG)	3.00	48

ADDITIONAL TIME REQUIREMENTS:

Factor (unit of measure)	Entry
Days To Prepare Plans (Days)	30.00
Intel / Predictive Services (Hours Per Day)	3.00
Database Administration (Days)	70.00

TOTAL FTEs NEEDED FOR SINGLE AGENCY DISPATCH OFFICE: 1.31
INITIAL RESPONSE FTEs: 1.19

```
                              FireOrg
                Unit COSJD: SAN JUAN FIELD OFFICE
                    Calculations For Dispatchers
```

WEIGHTED FACTORS:

```
                                                             Weighted
        Factor (unit of measure)                     Entry     Factor
        =================================================  =========  =========
        Fires (PCHA, 10-day ma >= .1)                 47.00        141
        A-C Fires (Fires)                             47.00        125
        Prescribed Fire Days (Days)                    2.00         21
        Rx Fire Acres (Acres)                        600.00         15
        IA Resource Dispatches (OH/SMJ Dispatches)    15.00         24
        IA Resource Dispatches (ENG/WT Dispatches)    70.00         56
        IA Resource Dispatches (CRW Dispatches)        5.00         11
        IA Resource Dispatches (DOZ/TP Dispatches)     2.00         16
        IA Resource Dispatches (AC Dispatches)        25.00         75
        Incoming Resources Dispatched (OH/SMJ Dispatches)  30.00    12
        Incoming Resources Dispatched (ENG/WT Dispatches)  15.00    17
        Incoming Resources Dispatched (CRW Dispatches)      3.00    15
        Incoming Resources Dispatched (DOZ/TP Dispatches)   4.00    32
        Incoming Resources Dispatched (AC Dispatches)       3.00     7
        Resources Dispatched Out Of Your Area (OH/SMJ Dispatches)  29.00   6
        Resources Dispatched Out Of Your Area (ENG/WT Dispatches)   2.00   8
        Resources Available For Dispatch (OH/SMJ)     27.00          8
        Resources Available For Dispatch (ENG/WT)      1.00          3
        Resources Available For Dispatch (AC)          1.00         17
        AD & Contract Resources Available (AC)         1.00         30
        Area Resources (AC)                            1.00        133
        Area Resources (ENG)                           1.00         16
```

ADDITIONAL TIME REQUIREMENTS:

```
        Factor (unit of measure)                     Entry
        =================================================  =========
        Days To Prepare Plans (Days)                  30.00
        Intel / Predictive Services (Hours Per Day)    3.00
        Database Administration (Days)                70.00
```

```
TOTAL FTEs NEEDED FOR SINGLE AGENCY DISPATCH OFFICE: 1.32
INITIAL RESPONSE FTEs: 1.23
```

```
                              FireOrg
                   Unit COSJF: SAN JUAN FOREST
                    Calculations For Dispatchers


WEIGHTED FACTORS:

                                                           Weighted
          Factor (unit of measure)                Entry      Factor
          ==========================================   =========   =========
          Fires (PCHA, 10-day ma >= .1)             128.00         384
          A-C Fires (Fires)                         127.00         339
          D+ Fires (Fires)                            1.00          60
          Inc Mgt Team Deployments (Teams)            2.00         160
          Fire Use Days (Days)                      120.00       1,200
          Prescribed Fire Days (Days)                45.00         480
          Rx Fire Acres (Acres)                  10,000.00         250
          Law Enforcement Incidents (Incidents)       5.00           1
          Search & Rescue Incidents (Incidents)       1.00          23
          Medical Aid Incidents (Incidents)           1.00           2
          Unplanned Event Days (Days)                 1.00           8
          Planned Event Days (Days)                   6.00          36
          IA Resource Dispatches (OH/SMJ Dispatches) 135.00        216
          IA Resource Dispatches (ENG/WT Dispatches) 141.00        113
          IA Resource Dispatches (CRW Dispatches)     25.00         56
          IA Resource Dispatches (DOZ/TP Dispatches)   6.00         48
          IA Resource Dispatches (AC Dispatches)      71.00        213
          Incoming Resources Dispatched (OH/SMJ Dispatches) 481.00 192
          Incoming Resources Dispatched (ENG/WT Dispatches) 164.00 187
          Incoming Resources Dispatched (CRW Dispatches)     46.00 230
          Incoming Resources Dispatched (DOZ/TP Dispatches)   1.00   8
          Incoming Resources Dispatched (AC Dispatches)      64.00 144
          Resources Dispatched Out Of Your Area (OH/SMJ Dispatches) 148.00 30
          Resources Dispatched Out Of Your Area (ENG/WT Dispatches)   5.00 20
          Resources Dispatched Out Of Your Area (CRW Dispatches)     22.00 86
          Resources Dispatched Out Of Your Area (AC Dispatches)      29.00 68
          Resources Available For Dispatch (OH/SMJ)  259.00          78
          Resources Available For Dispatch (ENG/WT)    6.00          18
          Resources Available For Dispatch (CRW)       2.00          33
          Resources Available For Dispatch (DOZ/TP)    1.00           3
          Resources Available For Dispatch (AC)        3.00          50
          AD & Contract Resources Available (Engines)  7.00         140
          AD & Contract Resources Available (OH)      43.00          72
          AD & Contract Resources Available (AC)       3.00          90
          National Resources (AT Bases)                1.00         700
          National Resources (Helicopters)             2.00         700
          National Resources (C1)                      1.00         233
          Area Resources (CRW)                         1.00          40
          Area Resources (ENG)                         6.00          96


ADDITIONAL TIME REQUIREMENTS:

          Factor (unit of measure)                          Entry
          ==========================================   =========
          Days To Prepare Plans (Days)                      30.00
          Intel / Predictive Services (Hours Per Day)        3.00
          Database Administration (Days)                    70.00


TOTAL FTEs NEEDED FOR SINGLE AGENCY DISPATCH OFFICE: 3.72
INITIAL RESPONSE FTEs: 2.45
```

```
                              FireOrg
                  Unit COSUA: SOUTHERN UTE AGENCY
                     Calculations For Dispatchers


WEIGHTED FACTORS:

                                                              Weighted
            Factor (unit of measure)                  Entry    Factor
            ================================================  =========  =========
            Fires (PCHA, 10-day ma >= .1)              74.00       222
            A-C Fires (Fires)                          73.00       195
            D+ Fires (Fires)                            1.00        60
            Inc Mgt Team Deployments (Teams)            2.00       160
            Prescribed Fire Days (Days)                 7.00        75
            Rx Fire Acres (Acres)                   1,000.00        25
            Planned Event Days (Days)                   7.00        42
            IA Resource Dispatches (OH/SMJ Dispatches)    53.00        85
            IA Resource Dispatches (ENG/WT Dispatches)   112.00        90
            IA Resource Dispatches (CRW Dispatches)       16.00        36
            IA Resource Dispatches (DOZ/TP Dispatches)     4.00        32
            IA Resource Dispatches (AC Dispatches)        35.00       105
            Incoming Resources Dispatched (OH/SMJ Dispatches)   102.00   41
            Incoming Resources Dispatched (ENG/WT Dispatches)    54.00   62
            Incoming Resources Dispatched (CRW Dispatches)       15.00   75
            Incoming Resources Dispatched (DOZ/TP Dispatches)     1.00    8
            Incoming Resources Dispatched (AC Dispatches)        16.00   36
            Resources Dispatched Out Of Your Area (OH/SMJ Dispatches)   5.00    1
            Resources Dispatched Out Of Your Area (ENG/WT Dispatches)   4.00   16
            Resources Available For Dispatch (OH/SMJ)    16.00         5
            Resources Available For Dispatch (ENG/WT)     4.00        12
            Resources Available For Dispatch (DOZ/TP)     1.00         3
            AD & Contract Resources Available (OH)        4.00         7
            Area Resources (ENG)                          4.00        64


ADDITIONAL TIME REQUIREMENTS:

            Factor (unit of measure)                  Entry
            ================================================  =========
            Days To Prepare Plans (Days)               30.00
            Intel / Predictive Services (Hours Per Day)  3.00
            Database Administration (Days)             70.00


TOTAL FTEs NEEDED FOR SINGLE AGENCY DISPATCH OFFICE: 1.58
INITIAL RESPONSE FTEs: 1.43
```

```
                          FireOrg
                Unit COUMA: UTE MOUNTAIN AGENCY
                 Calculations For Dispatchers
```

WEIGHTED FACTORS:

```
                                                            Weighted
        Factor (unit of measure)                   Entry     Factor
        ================================================== =========  =========
        Fires (PCHA, 10-day ma >= .1)                72.00        216
        A-C Fires (Fires)                            71.00        189
        D+ Fires (Fires)                              1.00         60
        Inc Mgt Team Deployments (Teams)              2.00        160
        Prescribed Fire Days (Days)                   5.00         53
        Rx Fire Acres (Acres)                       428.00         11
        Planned Event Days (Days)                    14.00         84
        IA Resource Dispatches (OH/SMJ Dispatches)   37.00         59
        IA Resource Dispatches (ENG/WT Dispatches)   44.00         35
        IA Resource Dispatches (CRW Dispatches)       7.00         16
        IA Resource Dispatches (DOZ/TP Dispatches)    2.00         16
        IA Resource Dispatches (AC Dispatches)       50.00        150
        Incoming Resources Dispatched (OH/SMJ Dispatches)  25.00    10
        Incoming Resources Dispatched (ENG/WT Dispatches)  14.00    16
        Incoming Resources Dispatched (CRW Dispatches)      7.00    35
        Incoming Resources Dispatched (DOZ/TP Dispatches)   1.00     8
        Incoming Resources Dispatched (AC Dispatches)       8.00    18
        Resources Dispatched Out Of Your Area (OH/SMJ Dispatches)  5.00   1
        Resources Dispatched Out Of Your Area (ENG/WT Dispatches)  5.00  20
        Resources Dispatched Out Of Your Area (CRW Dispatches)     4.00  16
        Resources Dispatched Out Of Your Area (AC Dispatches)      2.00   5
        Resources Available For Dispatch (OH/SMJ)    20.00          6
        Resources Available For Dispatch (ENG/WT)     6.00         18
        Resources Available For Dispatch (AC)         1.00         17
        AD & Contract Resources Available (Crews)     4.00         13
        AD & Contract Resources Available (OH)       20.00         33
        AD & Contract Resources Available (AC)        1.00         30
        Area Resources (AC)                           1.00        133
        Area Resources (CRW)                          2.00         80
        Area Resources (ENG)                          6.00         96
```

ADDITIONAL TIME REQUIREMENTS:

```
        Factor (unit of measure)                   Entry
        ================================================== =========
        Days To Prepare Plans (Days)                 30.00
        Intel / Predictive Services (Hours Per Day)   3.00
        Database Administration (Days)               70.00
```

TOTAL FTEs NEEDED FOR SINGLE AGENCY DISPATCH OFFICE: 1.64
INITIAL RESPONSE FTEs: 1.35

```
                              FireOrg
              Office CODRC: DURANGO DISPATCH OFFICE
                    Calculations For Dispatchers
WEIGHTED FACTORS:

        Factor (unit of measure)                          Entry
        ================================================  =========
        Fires (PCHA, 10-day ma >= .1)                        373.00
        A-C Fires (Fires)                                    368.00
        D+ Fires (Fires)                                       5.00
        Inc Mgt Team Deployments (Teams)                      8.00
        Fire Use Days (Days)                                120.00
        Prescribed Fire Days (Days)                          59.00
        Rx Fire Acres (Acres)                             12,038.00
        Law Enforcement Incidents (Incidents)                 5.00
        Search & Rescue Incidents (Incidents)                 1.00
        Medical Aid Incidents (Incidents)                     1.00
        Unplanned Event Days (Days)                           2.00
        Planned Event Days (Days)                            27.00
        IA Resource Dispatches (OH/SMJ Dispatches)          300.00
        IA Resource Dispatches (ENG/WT Dispatches)          409.00
        IA Resource Dispatches (CRW Dispatches)              56.00
        IA Resource Dispatches (DOZ/TP Dispatches)           17.00
        IA Resource Dispatches (AC Dispatches)              210.00
        Incoming Resources Dispatched (OH/SMJ Dispatches)   702.00
        Incoming Resources Dispatched (ENG/WT Dispatches)   280.00
        Incoming Resources Dispatched (CRW Dispatches)       82.00
        Incoming Resources Dispatched (DOZ/TP Dispatches)     9.00
        Incoming Resources Dispatched (AC Dispatches)       106.00
        Resources Dispatched Out Of Your Area (OH/SMJ Dispatches)  217.00
        Resources Dispatched Out Of Your Area (ENG/WT Dispatches)   22.00
        Resources Dispatched Out Of Your Area (CRW Dispatches)      26.00
        Resources Dispatched Out Of Your Area (AC Dispatches)       37.00
        Resources Available For Dispatch (OH/SMJ)           348.00
        Resources Available For Dispatch (ENG/WT)            35.00
        Resources Available For Dispatch (CRW)                2.00
        Resources Available For Dispatch (DOZ/TP)             8.00
        Resources Available For Dispatch (AC)                 6.00
        AD & Contract Resources Available (Crews)             4.00
        AD & Contract Resources Available (Engines)           7.00
        AD & Contract Resources Available (OH)               68.00
        AD & Contract Resources Available (AC)                6.00
        National Resources (AT Bases)                         1.00
        National Resources (Helicopters)                      2.00
        National Resources (C1)                               1.00
        Area Resources (AC)                                   3.00
        Area Resources (CRW)                                  3.00
        Area Resources (ENG)                                 20.00
        Local Govt Cooperation (Agencies)                     6.00

ADDITIONAL TIME REQUIREMENTS:

        Factor (unit of measure)                          Entry
        ================================================  =========
        Days To Prepare Plans (Days)                        180.00
        Intel / Predictive Services (Hours Per Day)         18.00
        Database Administration (Days)                      420.00
```

TOTAL FTEs NEEDED: 5.82
INITIAL RESPONSE FTEs: 3.85
FTEs BY UNIT FOR INTERAGENCY DISPATCH OFFICE:

```
                       IR
        Unit Code  FTE  FTE   %    Unit Name
        ========== ===== ===== ===== ===========================================
        COCOS       .67   .44  11.5 CO STATE FS
        COMVP       .71   .47  12.2 MESA VERDE NATIONAL PARK
        COSJD       .71   .47  12.2 SAN JUAN FIELD OFFICE
        COSJF      2.00  1.32  34.4 SAN JUAN FOREST
        COSUA       .85   .56  14.6 SOUTHERN UTE AGENCY
        COUMA       .88   .58  15.2 UTE MOUNTAIN AGENCY
```

Appendix 2 – Fair-share Staffing and Costs Example

When several units integrate into a single dispatch center, staffing and funding support to the center can be equitably calculated according to the workload impacts each unit has on the dispatch center. The following pages are one example of how units support this dispatch center through staffing and operating cost funding.

.

DURANGO DISPATCH CENTER OPERATING COSTS

1. **DRC INTERAGENCY STAFFING SUPPORT**

    Durango Interagency Dispatch Center staff will be six (6) personnel.
    Positions, agency representation and funding is as listed below.
    All Salary, travel and training are paid by the hiring agency, or as designated by agreement.

    San Juan PLC
    San Juan Public Lands, USFS
    - Center Manager Salary   GS - 11
    - Asst Center Manager Salary   GS - 8/9
    - Intelligence Dispatcher   GS - 6
    - Logistics (WAE) Dispatcher   GS - 7
      Travel and Training $10,000

    San Juan Public Lands, BLM
    - I.A. Dispatcher Salary (1/2)   GS - 4/5/6
    Travel and Training $ 2,500

    Mesa Verde National Park, NPS
    - I.A. Dispatcher Salary (1/2)   GS - 4/5/6
    - Travel and Training $ 2,500

    Southwest Regional Office, BIA
    - Aircraft Dispatcher Salary   GS - 8
    Travel and Training $ 2,500

2. DRC OPERATIONS COSTS

*Facilities Costs	$23,000
(DRC Space, Admin, OH, Utilities, Radio, Phones,etc)	
Equipment	$15,000
(Software, Computers, Additional radio maintanence, etc)	
Supplies	$ 5,000
(Office, reports, plans, guides, furniture, etc)	
Training Support	$ 5,000
Other	$ 2,000
(Answering Service, cell phones, etc)	
Total DRC Operating Costs	**$50,000**

- Actual DRC facilities costs for being located within the SJ PLC is $85,241 (3 yr avg).
  The SJPL USFS & BLM budgets cover the overage.

Fair-share Staffing and Costs Example

Durango Dispatch Center

INTERAGENCY WORKLOAD PERCENTAGES & FAIR-SHARE OBLIGATIONS SUMMARY
An average annual percentage of workload per unit was calculated using the FireOrg Dispatch Workload Analysis program. The following is the resulting interagency FTE and workload percentages broken down by unit.

FTEs BY UNIT FOR INTERAGENCY DISPATCH OFFICE:

Unit Code	FTE	%	Unit Name
COCOS	.88	14.2	CO STATE FS
COMVP	.76	12.2	MESA VERDE NATIONAL PARK
COSJD	.71	11.4	SAN JUAN FIELD OFFICE
COSJF	2.09	33.5	SAN JUAN FOREST
COSUA	.88	14.1	SOUTHERN UTE AGENCY
COUMA	.91	14.5	UTE MOUNTAIN AGENCY

TOTAL FTEs NEEDED: 6.39

The following cost calculations for each agencies workload are based from FireOrg workload percentages.

	SWA BIA		SJPL		MVP	COS
	SUA & UMA		SJF & SJD			
	14	15	34	11		
	|__ 29 % __|		|_ 45 % _|		12 %	14%
DRC Operating Funds ($50,000)	$14,500		$ 22,500		$ 6,000	$ 7,000
Add Costs ($2,680) (BIA Radio/Phone lines)	$2,680					
DRC Costs Per Unit	**$17,180**		**$ 22,500**		**$ 6,000**	**$ 7,000**

Appendix 3 - Data Collection Worksheet
Use one sheet for each unit

Enter your Units ID's and 5 years for data collection

Factor	Unit of Measure	UnitID_Yr	UnitID_Yr	UnitID_Yr	UnitID_Yr	UnitID_Yr	Factors	Unit 5 year Total
Fires	Total Fires							0
A-C Fires	Fires							0
D+ Fires	Fires							0
Inc Mgt Team Deployments	Teams							0
Fire Use Days	Days							0
Prescribed Fire Days	Days							0
Rx Fire Acres	Acres							0
Law Enforcement Incidents	Incidents							0
Hazmat Incidents	Incidents							0
Search & Rescue Incidents	Incidents							0
Traffic Collision Incidents	Incidents							0
Medical Aid Incidents	Incidents							0
Unplanned Event Days	Days							0
Planned Event Days	Days							0
IA Resource Dispatches	OH/SMJ Dispatches							0
IA Resource Dispatches	ENG/WT Dispatches							0
IA Resource Dispatches	CRW Dispatches							0
IA Resource Dispatches	DOZ/TP Dispatches							0
IA Resource Dispatches	AC Dispatches							0
Incoming Resources Dispatched	OH/SMJ Dispatches							0
Incoming Resources Dispatched	ENG/WT Dispatches							0
Incoming Resources Dispatched	CRW Dispatches							0
Incoming Resources Dispatched	DOZ/TP Dispatches							0
Incoming Resources Dispatched	AC Dispatches							0
Resources Dispatched Out Of Your Area	OH/SMJ Dispatches							0
Resources Dispatched Out Of Your Area	ENG/WT Dispatches							0
Resources Dispatched Out Of Your Area	CRW Dispatches							0
Resources Dispatched Out Of Your Area	DOZ/TP Dispatches							0
Resources Dispatched Out Of Your Area	AC Dispatches							0

Factor	Unit of Measure	UnitID_Yr	UnitID_Yr	UnitID_Yr	UnitID_Yr	UnitID_Yr	Factors	Unit 5 year Total
Resources Available For Dispatch	**OH/SMJ**							0
Resources Available For Dispatch	**ENG/WT**							0
Resources Available For Dispatch	**CRW**							0
Resources Available For Dispatch	**DOZ/TP**							0
Resources Available For Dispatch	**AC**							0
AD & Contract Resources Available	**Crews**							0
AD & Contract Resources Available	**Engines**							0
AD & Contract Resources Available	**OH**							0
AD & Contract Resources Available	**AC**							0
National Resources	**AT Bases**							0
National Resources	**Helicopters**							0
National Resources	**SMJ Bases**							0
National Resources	**LP**							0
National Resources	**C1**							0
Area Resources	**AC**							0
Area Resources	**CRW**							0
Area Resources	**ENG**							0
Local Govt Cooperation	**Agencies**							0
Days To Prepare Plans	**Days**							0
Intel / Predictive Services	**Hours Per Day**							0
Database Administration	**Days**							0

Appendix 4 - GACC Data Collection Worksheet
(Use one sheet for each unit)

Factor	Unit of Measure	UnitID_Yr	UnitID_Yr	UnitID_Yr	UnitID_Yr	UnitID_Yr	Factors	5 year Total
Inc Mgt Team Deployments	Teams							0
Unplanned Event Days	Days							0
Planned Event Days	Days							0
Incoming Resources Dispatched	OH/SMJ Dispatches							0
Incoming Resources Dispatched	ENG/WT Dispatches							0
Incoming Resources Dispatched	CRW Dispatches							0
Incoming Resources Dispatched	DOZ/TP Dispatches							0
Incoming Resources Dispatched	AC Dispatches							0
Resources Dispatched Out Of Your Area	OH/SMJ Dispatches							0
Resources Dispatched Out Of Your Area	ENG/WT Dispatches							0
Resources Dispatched Out Of Your Area	CRW Dispatches							0
Resources Dispatched Out Of Your Area	DOZ/TP Dispatches							0
Resources Dispatched Out Of Your Area	AC Dispatches							0
Resources Available For Dispatch	OH/SMJ							0
Resources Available For Dispatch	ENG/WT							0
Resources Available For Dispatch	CRW							0
Resources Available For Dispatch	DOZ/TP							0
Resources Available For Dispatch	AC							0
AD & Contract Resources Available	Crews							0
AD & Contract Resources Available	Engines							0
AD & Contract Resources Available	OH							0
AD & Contract Resources Available	AC							0
National Resources	AT Bases							0
National Resources	Helicopters							0
National Resources	SMJ Bases							0
National Resources	LP							0
National Resources	C1							0
Area Resources	AC							0
Area Resources	CRW							0
Area Resources	ENG							0
Local Govt Cooperation	Agencies							0
Days To Prepare Plans	Days							0
Intel / Predictive Services	Hours Per Day							0
Database Administration	Days							

Appendix 5 - FireOrg Algorithms
Brian Booher, Bighorn Information Systems

Bighorn was contracted by the Forest Service in 2001 to build SupportOrg, later renamed to FireOrg. Originally, the software would support functions other than dispatch, or even other than fire.

The government had a project team which met periodically over a few years to review the model and have Bighorn make changes.

The purpose of FireOrg was to allow a dispatch center to enter certain information about their workload. FireOrg would then calculate FTEs, and would also identify the share per Organizational Unit.

User Input
Users did some initial setup, and then the major workload was inputting quantities of work in a list of factors. (Some data could be imported from PCHA and WildCAD.) For example, one factor was annual fires in size classes A-C. Another was annual count of resources dispatched out of the area.

A portion of the input screen for a center with multiple units is shown below:

Unit Factors   F1 For Information About Current Row, F2 to Print

Factor:	Units	COSJF	COSJD	COSUA	COUMA	COMVP	COCOS
Fires	PCHA, 10-day ma >= .1	64.8	21.2	66	68.8	14.6	136.6
A-C Fires	Fires	63.2					
D+ Fires	Fires	1.6					
Inc Mgt Team Deployments	Teams	3	1	2	1	1	1
Fire Use Days	Days	3	2	1			
Prescribed Fire Days	Days	10	3	2		2	
Rx Fire Acres	Acres	20000	5000	2500		200	

Output
The primary report listed all input quantities, and the calculated FTEs. A sample report follows:

```
                                  FireOrg

                   Office CODRC: DURANGO DISPATCH CENTER
                        Calculations For Dispatchers


WEIGHTED FACTORS:


        Factor (unit of measure)                               Entry
        ==================================================     =========
        Fires (PCHA, 10-day ma >= .1)                          372.00
        A-C Fires (Fires)                                       63.20
        D+ Fires (Fires)                                         1.60
        Inc Mgt Team Deployments (Teams)                        9.00
        Fire Use Days (Days)                                    6.00
        Prescribed Fire Days (Days)                            17.00
        Rx Fire Acres (Acres)                              27,700.00
        Law Enforcement Incidents (Incidents)                   3.00
        Search & Rescue Incidents (Incidents)                   1.00
        Medical Aid Incidents (Incidents)                       1.00
        Unplanned Event Days (Days)                             1.00
        Planned Event Days (Days)                               4.00
        Resources Dispatched Out Of Your Area (OH/SMJ Dispatches) 302.00
        Resources Dispatched Out Of Your Area (ENG/WT Dispatches)  43.00
        Resources Dispatched Out Of Your Area (CRW Dispatches)     12.00
        Resources Dispatched Out Of Your Area (AC Dispatches)      49.00
        Resources Available For Dispatch (OH/SMJ)             288.00
        Resources Available For Dispatch (ENG/WT)             50.00
        Resources Available For Dispatch (CRW)                 4.00
        Resources Available For Dispatch (DOZ/TP)             11.00
        Resources Available For Dispatch (AC)                  4.00
        AD & Contract Resources Available (Crews)              2.00
        AD & Contract Resources Available (Engines)           41.00
        AD & Contract Resources Available (OH)               288.00
        National Resources (AT Bases)                          1.00
        National Resources (Helicopters)                       1.00
        National Resources (C1)                                1.00
        Area Resources (AC)                                    2.00
        Area Resources (CRW)                                   2.00
        Area Resources (ENG)                                  19.00


ADDITIONAL TIME REQUIREMENTS:


        Factor (unit of measure)                               Entry
        ==================================================     =========
        Days To Prepare Plans (Days)                           50.00
        Intel / Predictive Services (Hours Per Day)            1.00
        Database Administration (Days)                         40.00


TOTAL FTEs NEEDED: 3.85
INITIAL RESPONSE FTEs: 1.84


FTEs BY UNIT FOR INTERAGENCY DISPATCH OFFICE:


                     IR
      Unit Code   FTE   FTE    %    Unit Name
      ========== ===== ===== ===== ==============================================
      COCOS        .67   .32  17.3  CO STATE FS
      COMVP        .51   .24  13.2  MESA VERDE NP
      COSJD        .50   .24  13.0  SAN JUAN FO
      COSJF       1.05   .50  27.3  SAN JUAN NF
      COSUA        .54   .26  13.9  SOUTHERN UTE AGENCY
      COUMA        .59   .28  15.2  UTE MT AGENCY
```

Algorithms

Behind the scenes, the project team had developed the following data for each factor, based on their professional knowledge:

Upper Limit – this was the quantity above which no incremental FTE would be accrued. It also was used in the formulas, described below. Later, the government requested the software be changed so that figures above this limit continued to contribute to FTE counts.

IR Percent – as seen in the output above, FireOrg calculates total FTEs, and "Initial Response FTEs". Initial Response FTEs are a subset of total FTEs, and are based on the IR ("Initial Response") Percent. For example, workloads for fires in the area have an IR percent of 100. Traffic Collision incidents have an IR Percent of 0.

Weight – this was a *relative* measure of the workload required for performing the Upper Limit of each factor per year. For example, fires have a weight of 9; Traffic Collisions a weight of 3.

FireOrg also includes three factors which are simply estimates of the amount of time to perform certain functions: days per year to prepare plans; hours per day for intel and predictive services; and days per year for database administration the many computer systems dispatchers work with. Later, although these factors were left in the software, the algorithm was changed so they were ignored. (Few users ever realized this.) The reason was that it was too easy to skew the results if users could simply enter a number of days of work.

The approach used by the project team in developing the algorithms was largely one of developing a defensible approach (the 3 items above) and then making many runs of the model to adjust the data so that *reasonable* outputs were realized.

The Formulas
First a Scaled Quantity (SQ) was calculated for each factor:

$$SQ = 100 * <\text{User-entered quantity}> / \text{Upper Limit}$$

As noted above, this was originally capped at 100, meaning 100% of the Upper Limit.

Next, a Weighted Quantity (WQ) was calculated for each factor:

$$WQ = SQ * \text{Weight}$$

The number of FTEs was then:

$$FTE = 1 + 2 * \text{SumOfAll}(WQ) / 5000$$

A complete list of Factors, Upper Limits, IR Percent, and Weights follows:

Describe	Measure	UpperLimit	IRPercent	Weight
Fires	PCHA, 10-day ma >= .1	300	100	9
A-C Fires	Fires	300	100	8
D+ Fires	Fires	15	100	9
Inc Mgt Team Deployments	Teams	10	0	8
Fire Use Days	Days	60	100	6
Prescribed Fire Days	Days	75	0	8
Rx Fire Acres	Acres	20000	0	5
Law Enforcement Incidents	Incidents	2000	0	5
Hazmat Incidents	Incidents	15	0	6
Search & Rescue Incidents	Incidents	35	0	8
Traffic Collision Incidents	Incidents	200	0	3
Medical Aid Incidents	Incidents	400	0	6
Unplanned Event Days	Days	100	0	8
Planned Event Days	Days	50	0	3
IA Resource Dispatches	OH/SMJ Dispatches	500	100	8
IA Resource Dispatches	ENG/WT Dispatches	1000	100	8
IA Resource Dispatches	CRW Dispatches	400	100	9
IA Resource Dispatches	DOZ/TP Dispatches	100	100	8
IA Resource Dispatches	AC Dispatches	300	100	9
Incoming Resources Dispatched	OH/SMJ Dispatches	2000	100	8
Incoming Resources Dispatched	ENG/WT Dispatches	700	100	8
Incoming Resources Dispatched	CRW Dispatches	180	100	9
Incoming Resources Dispatched	DOZ/TP Dispatches	100	100	8
Incoming Resources Dispatched	AC Dispatches	400	100	9
Resources Dispatched Out Of Your Area	OH/SMJ Dispatches	2000	0	4
Resources Dispatched Out Of Your Area	ENG/WT Dispatches	100	0	4
Resources Dispatched Out Of Your Area	CRW Dispatches	180	0	7
Resources Dispatched Out Of Your Area	DOZ/TP Dispatches	50	0	4
Resources Dispatched Out Of Your Area	AC Dispatches	300	0	7
Resources Available For Dispatch	OH/SMJ	1000	100	3

Describe	Measure	UpperLimit	IRPercent	Weight
Resources Available For Dispatch	ENG/WT	100	100	3
Resources Available For Dispatch	CRW	30	100	5
Resources Available For Dispatch	DOZ/TP	100	100	3
Resources Available For Dispatch	AC	30	100	5
AD & Contract Resources Available	Crews	150	20	5
AD & Contract Resources Available	Engines	15	20	3
AD & Contract Resources Available	OH	180	20	3
National Resources	AT Bases	1	0	7
National Resources	Helicopters	2	0	7
National Resources	SMJ Bases	1	0	7
National Resources	LP	3	0	7
National Resources	C1	3	0	7
Area Resources	AC	3	0	4
Area Resources	CRW	10	0	4
Area Resources	ENG	25	0	4
Days To Prepare Plans	Days	120	50	5
Intel / Predictive Services	Hours Per Day	6	100	3
Database Administration	Days	50	50	5
AD & Contract Resources Available	AC	10	20	3
Local Govt Cooperation	Agencies	100	100	7