

**WRAP EDMS
2005 PHASE II Tasks
Cost Estimate**

For calendar year 2005, 2 major tasks have been identified for Phase II activities for the EDMS. The tasks are continued operation of the EDMS built during 2004, and a Fire Emissions module with functionality to accept emissions data in various formats, accept activity data, calculate emissions using one or more standard Fire models and process the emissions and activity data to present different informational views of Fire data.

DBA/Data Analyst Activities

An EDMS-specific database administrator and data analyst for system-specific activity, such as assisting with data import processing, developing and running periodic major reports and procedures, as well as implementing necessary adjustments including additional gap-filling and data maintenance will be provided. The database administrator and data analyst will have thorough knowledge of the EDMS, and will act as the principal contacts for this phase of the project. The data analyst (DA) is intended to be a resource for stakeholders requiring analytical studies and specialized reporting using the EDMS database. Activities of the DBA and DA are detailed in the following paragraphs.

EDMS will require hosting and associated maintenance during the contract period. In addition to connectivity, power, and housing (ongoing), this hosting includes routine backups (incremental backups nightly; full back-ups not less frequently than weekly), physical security (ongoing), and related activities (conducted as needed).

This task also covers telephone, web, and email-based support for the contract year, as well as maintenance of the Frequently Asked Questions, Online Documents, Links, Upcoming Events, and other such areas of the EDMS.

The DBA will be responsible for User Management, assuring that logon requests are dealt with promptly and that users have sufficient privileges to effectively conduct work. User activity will be monitored as a security precaution as well.

Continual operations are likely to include on-going data take-on as S/L/T agencies update or add data to the EDMS. Other inventory types, such as projections or test case scenarios developed outside the EDMS may require loading into the EDMS for dissemination and viewing. The DBA and DA will be responsible for the loading and delivery of this data, including initiating the data processing, such as the preparation of report views, required to mount an inventory in the EDMS.

Additional continuous operational activities may include, but not be limited to:

- interacting with Data Providers;
- developing additional reports;

- monitoring disk space constraints
- performing exports and data migrations;
- performing database optimization activities such as offloading and backing up audit trails, monitoring queries, and developing indexes;
- performing export/import to retrieve empty database space and make table storage contiguous (defragmentation);
- taking, researching, and responding to user support questions and comments;
- designing and developing system and database enhancements
- gap-filling submissions;
- cloning inventories; and
- reporting activity.

All email and telephone-based support requests will be combined and handled in the order in which they are received. The EDMS staff will log all support requests in a common database for tracking and reporting. This information can provide valuable insights into areas of the system that are candidates for reorganization, improvement, clarification, or overhaul. The EDMS staff will report support activity, including requests received, status, and hours expended to the EDMS Oversight Committee (proposed) and/or its coordinator on a monthly basis.

The data analyst time is estimated to be up to one-half of a mid-level analyst full time equivalent (FTE). The database administrator (DBA) oversees technical administration of the EDMS project, but moreover provides domain expert services to the WRAP, working with the Steering Committee to assist in the development of sound practice and sustainable policies. The database administrator time is estimated to require one-third of a senior analyst FTE.

WRAP has expressed interest in on-site status reports, such as at Emissions Forum meetings; and additional training events if desired. The personnel time for these events can be provided by in the stated DBA/DA funding.

With this task, Pechan will track the tasks performed (including, but not limited to: user's support, data maintenance, data loading, data remediation, gap-filling , data augmentations) and hours associated with each task. User's support will be tracked so that the detail of fielding and answering questions can be analyzed including the method of support (telephone, e-mail, etc...). Each month, Pechan will provide a report of tasks performed and hours spent and forecast expenditures for the remaining months of the calendar year.

The estimate in the table below is meant to provide about 5 to 6 months of DBA and DA time and one year of site hosting. At that point the expenditures will have accumulated through enough months to more accurately forecast the remaining months left in the calendar year.

Estimated Cost

Task	Estimated Cost \$
Basic Operations (DBA and DA)	65,000
Hosting	60,000
Total	125,000

Fire

Five EDMS fire module subtasks were identified and prioritized by FEJF and EDMS Steering Committee representatives. The actual development process of the proposed Fire modules, however, will entail that the tasks be reordered to maintain a cost and time efficiency in the development process.

Ongoing discussions with the FEJF produced the Technical Memorandum entitled *Suggested Data Input And Data Flows For The Wrap EDMS Fire Module*, to be referred as the Fire White Paper. The flow chart at the end of the Fire White Paper will be used to delineate some of the tasks.

The table below summarizes the EDMS Fire Modules and their development process order.

WRAP EDMS Fire Module Task Order

Development Order	Task
Independent	Daily Smoke Management
1	State/Local/Tribal Fire Protocol
2	Fire Activity Data Formats
3	Emissions Data Processing
4	Fire Emissions Model Integration
5	Estimate Emissions Processing

Daily Smoke Management

With review and approval by the Fire Emissions Joint Forum and the EDMS Steering Committee, implement a daily Smoke Management activity data protocol for data providers to transmit, view on a GIS, and track daily smoke information via the EDMS. The first phase of the project will entail working with the Fire Emissions Joint Forum and the EDMS Steering Committee to perform a detailed analysis and design and determine the functionality required by daily smoke management. This subtask will support the regional coordination element of the Enhanced Smoke Management Program policy adopted by WRAP. This is *not* an emissions inventory data element. This task is also not represented on the Fire White Paper flow chart.

**Daily Smoke Management Functionality
Estimated Cost**

Task	Estimated Cost \$
Analysis, Design	11,500
Database modifications	3,680
GIS Implementation	6,900
User Interface Development, Testing	20,700
Total	42,780

State/Local/Tribal Fire Protocol

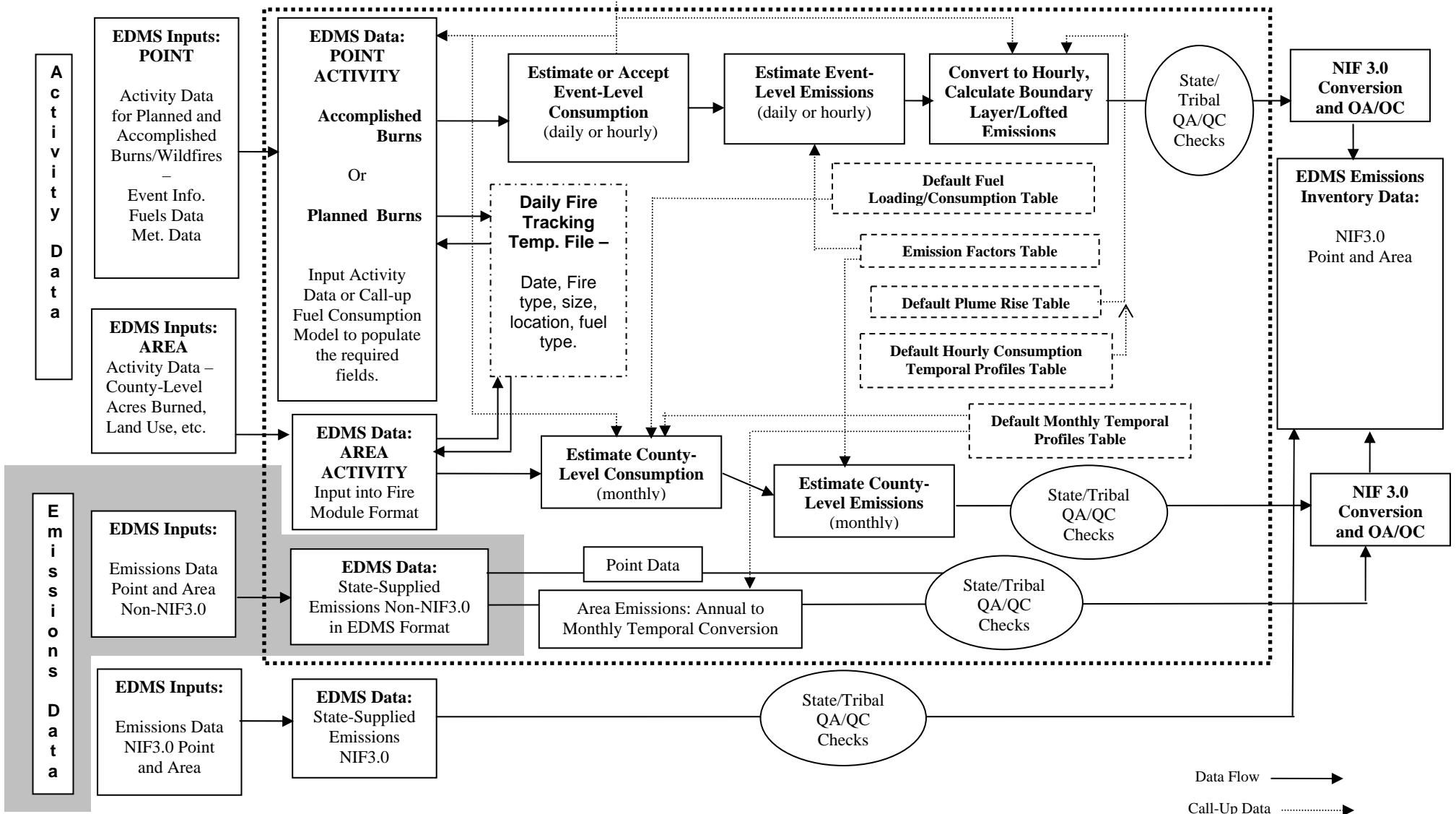
With review and approval by the Fire Emissions Joint Forum and the EDMS Steering Committee, specify and implement an EDMS protocol to accept/use/display state/tribal-reported fire emissions data with supporting activity data. These data would be stored to satisfy the Fire Tracking System policy adopted by WRAP, and to support the fire emissions tracking elements in §309 smoke management programs committed to by OR, WY, UT, AZ, and NM. This subtask would create emissions inventories for regulatory tracking purposes, and would be separate from the fire emissions inventories provided to Pechan by the Fire Emissions Joint Forum for regional modeling and analysis purposes. The estimate will support up to 10 different import formats provided that the data are available electronically and are organized in a predictable and normalized manner.

This module is shown highlighted with the grey background in the EDMS Fire Module flow chart from the Fire White Paper on the next page.

**State/Local/Tribal Fire Protocol Functionality
Estimated Cost**

Task	Estimated Cost \$
Analysis, Design	16,500
Database modifications	4,600
Algorithm Implementation	14,200
User Interface Development, Testing	10,350
Total	45,650

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State/Local/Tribal Fire Protocol Functionality

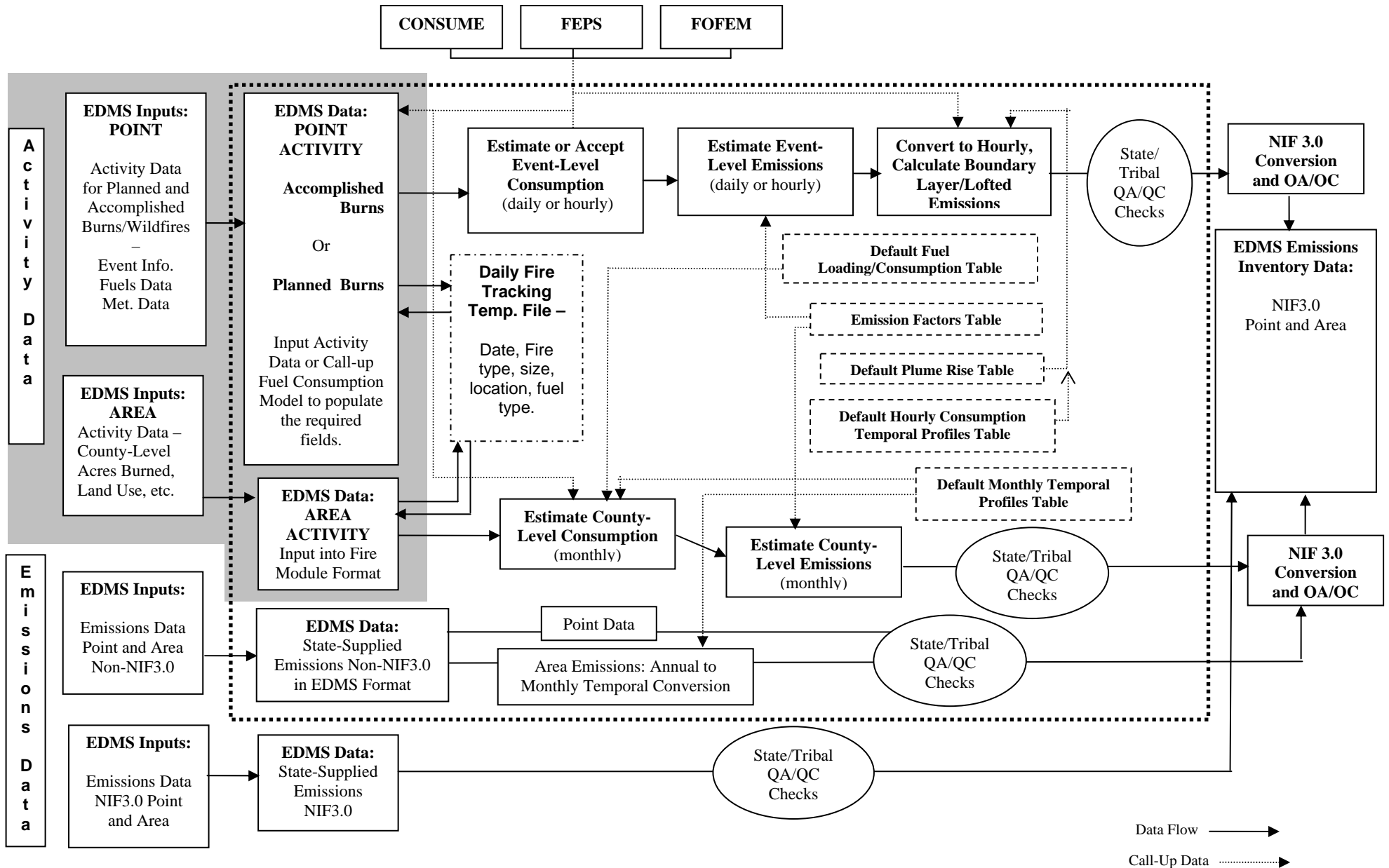
Fire Activity Data Formats

With review and approval by the Fire Emissions Joint Forum and the EDMS Steering Committee, specify and implement the acceptance of EDMS fire activity data reporting format(s) based on inputs to one or more FEJF-specified fire emissions model(s). This subtask would allow the creation of emissions inventories for regulatory tracking purposes, and would be separate from the fire emissions inventories provided to Pechan by the Fire Emissions Forum for regional modeling and analysis purposes.

This module is shown highlighted with the grey background in the EDMS Fire Module flow chart from the Fire White Paper on the next page.

**Fire Activity Data Functionality
Estimated Cost**

Task	Estimated Cost \$
Analysis, Design	9,200
Database modifications	3,680
Algorithm Implementation	7,360
User Interface Modifications, Testing	5,520
Total	25,760



Fire Activity Data Functionality

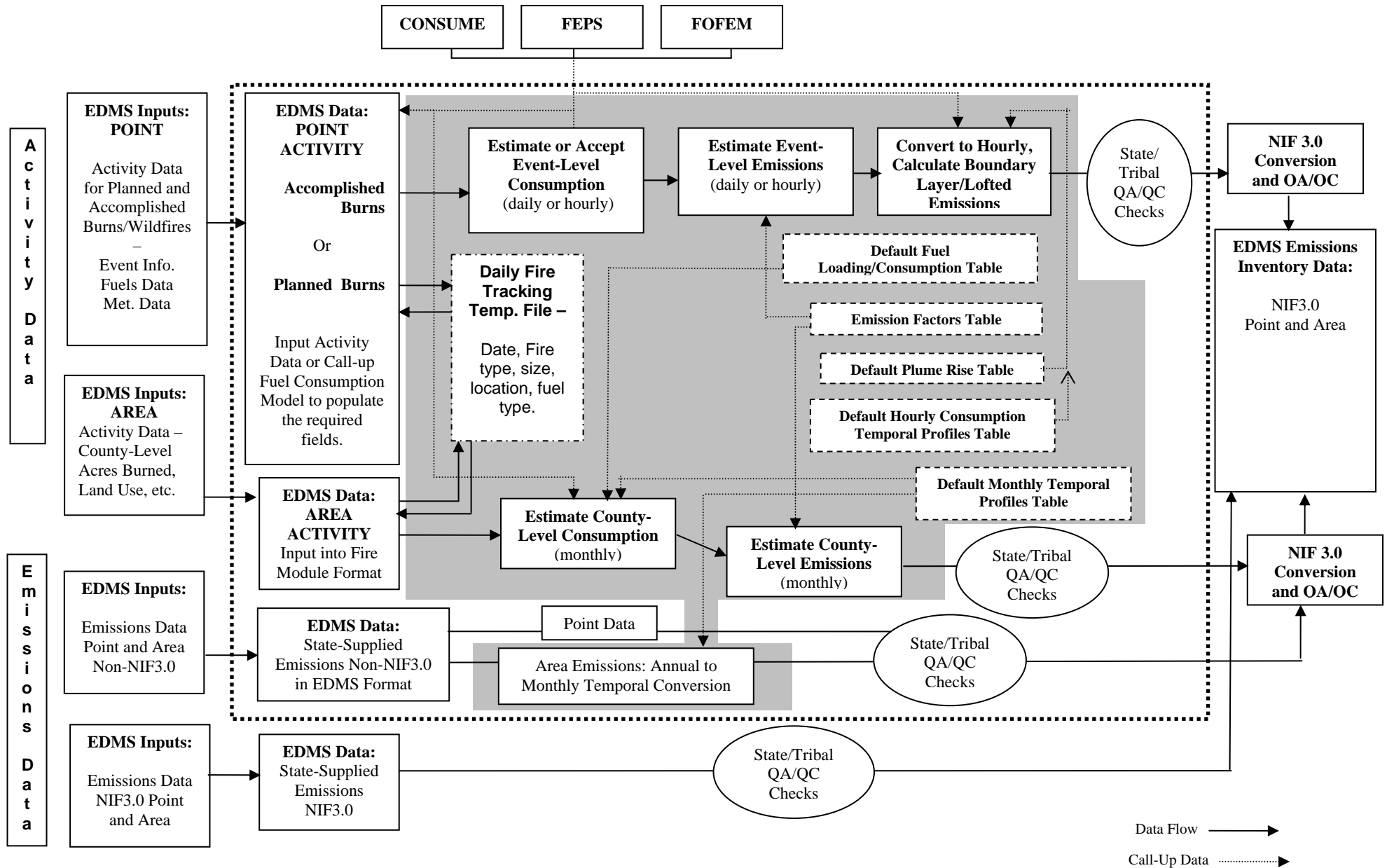
Emissions Data Processing

With review and approval by the Fire Emissions Joint Forum and the EDMS Steering Committee, specify and implement EDMS fire emissions data processing that includes estimating or accepting event-level consumption, estimating event-level emissions, converting emissions to hourly, calculating boundary layer/lofted emissions and estimating monthly county level consumptions.

This module is shown highlighted with the grey background in the EDMS Fire Module flow chart from the Fire White Paper on the next page.

**Emissions Data Processing Functionality
Estimated Cost**

Task	Estimated Cost \$
Analysis, Design	16,500
Database modifications	4,000
Algorithm Implementation	14,200
User Interface Development, Testing	10,300
Total	45,000



Emissions Data Processing Functionality

Fire Emissions Model Integration

With review and approval by the Fire Emissions Joint Forum and the EDMS Steering Committee, incorporate an FEJF-specified fire emissions model into the EDMS, to ensure regionally-consistent emissions estimates from the data reported in the Fire Activity Data Formats module, including recently available improved base data layers. This subtask entails determining the appropriate model (Consume, FOFEM, or FEPS) to incorporate into the EDMS, and applying the results of the analysis.

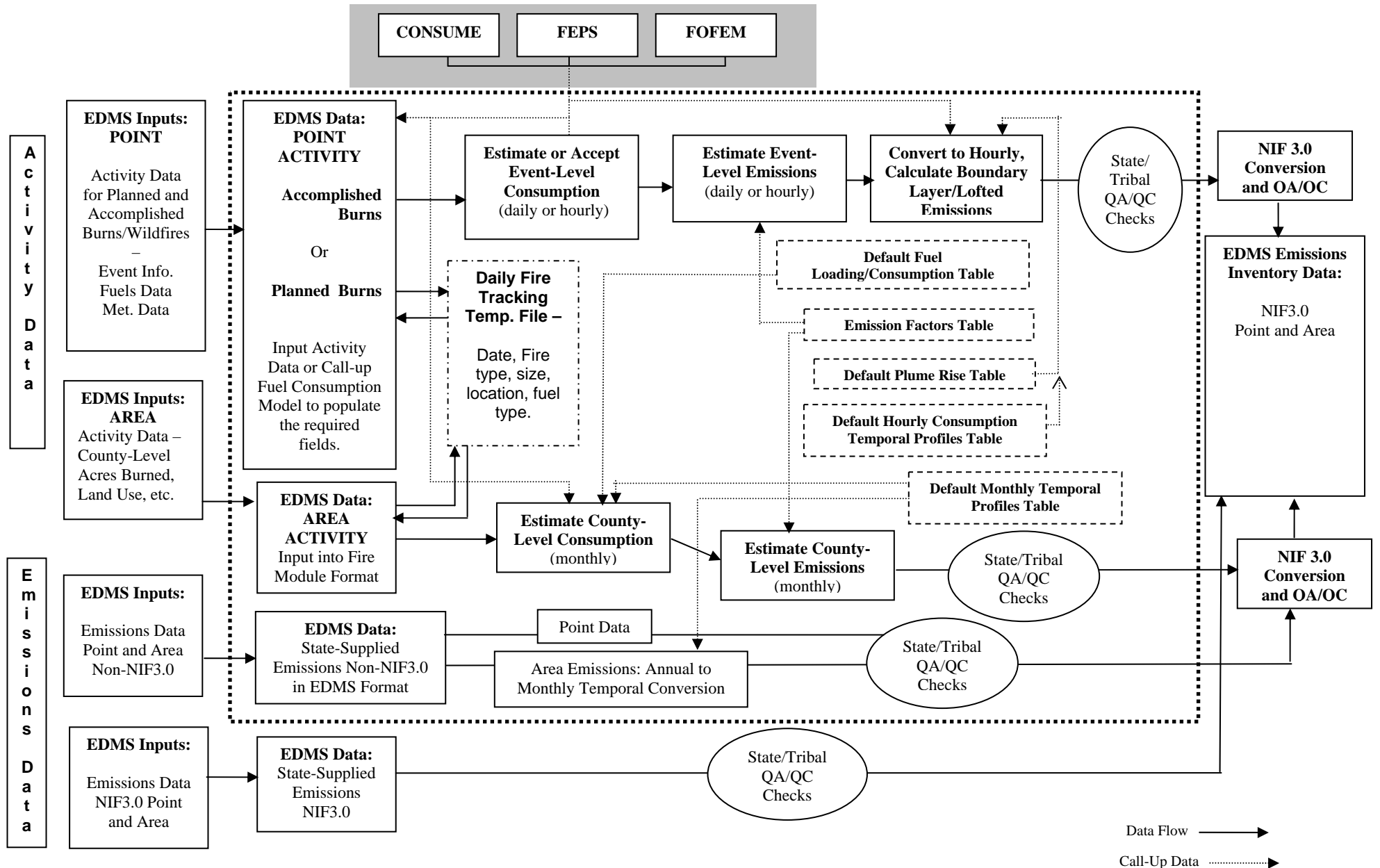
The models have different approaches and uses in the arena of fire modeling; a portion of the analysis will be devoted to assessing the order in which the models will be integrated so that WRAP receives the optimum benefit. The approach will entail using the models as they are offered rather than reengineering their logic into the EDMS. This modular approach offers distinct benefits:

- Updates to models require less modification to the EDMS functionality; and
- EDMS can employ multiple models at a reduced overall cost.

The first model implemented will require the significant analysis and design in order to affect the integration efficiently. Subsequent implantations will be adaptations from the original and will require fewer resources.

**Fire Emissions Model Integration
Estimated Cost**

Task	Estimated Cost \$ – Initial Model	Estimated Cost \$ – Subsequent Models (each)
Analysis, Design	11,500	9,200
Database modifications	4,600	4,600
Algorithm Implementation	18,400	7,360
User Interface Development, Testing	8,970	5,520
Total	43,470	26,680



Fire Emissions Model Functionality

Estimate Emissions Processing

With review and approval by the Fire Emissions Joint Forum and the EDMS Steering Committee, develop and implement EDMS tools and procedures to use in estimating emissions changes from annual emissions goals and regional control strategy scenarios. This subtask would create emissions adjustment factors which smoke management program operators could use to modify their regulatory tracking emissions inventories for planning purposes, as well as to separately modify the fire emission inventories provided to the EDMS by the Fire Emissions Joint Forum for regional modeling and analysis purposes.

This functionality is not represented on the Fire White Paper’s EDMS Fire Module flow chart.

**Estimate Emissions Processing Functionality
Estimated Cost**

Task	Estimated Cost
Analysis, Design	11,500
Database modifications	2,760
Algorithm Implementation	4,600
User Interface Development, Testing	5,520
Total	24,390

WRAP EDMS Phase II Cost Estimate Summary

Basic Operations

Task	Cost \$
Database Administration and Data Analysis	65,000
Site Hosting	60,000
Total	125,000

Fire Module Enhancements

Task	Cost \$	Notes
Daily Smoke Management	42,780	This task can be performed independently.
State/Local/Tribal Fire Protocol	45,650	This group of tasks is presented in sequential development order – such that the tasks build upon each other and must be constructed in that manner to maintain the development cost efficiencies.
Fire Activity Data Formats	25,760	
Calculate Emissions Processing	45,000	
Fire Emissions Model(s) Integration	First model: 43,470 Each subsequent model: 26,680	
Four Above Tasks Totals	One Model: 159,880 Two Models: 186,560 Three Models: 213,240	
Estimate Emissions Changes	24,390	This task requires that at a minimum the task be completed that imports Fire emissions data and ideally after the ones that calculate Fire emissions.
Total All Tasks	280,410	

Discount

Fire Module Amount \$	Discount %
All Tasks	10
140,00 to 280,000	7.5
Up to 140,000	5