REQUEST FOR PROPOSAL

UPGRADE FOR SMS - IVR SYSTEMS

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1. INTRODUCTION

The San Joaquin Valley Air Pollution Control District (District) was formed in 1991 to assume responsibilities for air pollution control in the San Joaquin Valley (Valley). This includes developing plans, adopting and enforcing rules, providing incentives, and issuing permits to reduce and limit pollutant emissions in the Valley. The area served by the District are – the counties of Fresno, Kern, Kings, Madera, Merced, Stanislaus, San Joaquin, and Tulare – which is nearly 300 miles long. Administrative headquarters are at the Central Region Office in Fresno and regional offices are in Modesto and Bakersfield. The District's Governing Board has 15 members: one supervisor from each of the eight counties, five City Council members selected by the cities within the District, and two public members appointed by the Governor.

Each year approximately 300,000 tons of agricultural waste is burned in the San Joaquin Valley. Land management agencies currently conduct approximately 35,000 acres of prescription burning per year and burn areas will be increasing due to the years of drought and bark beetle infestation within the Sierra Nevada Mountains. In order to deal with smoke impacts and to address California Title 17 requirements, the District implemented a Smoke Management System (SMS). The SMS system utilizes a method of assigning burn allocation within geographic zones throughout the Central Valley, and approximately 7,500 burn permit holders can request this allocation to conduct burns.

2. BACKGROUND

2.1 Current Smoke Management System

The current Smoke Management System (SMS) utilizes technology to control the amount of burning allowed to take place on any given day and is based on several factors such as the local meteorology, the air quality conditions, the atmospheric holding capacity, the amount of burning already approved in a given area, and the potential impacts on downwind populations. Since implemented in 2003, there were no SMS operational changes; however, several SMS system components had a technology refresh.

The IVR system as well as the PBX and Nortel Contact Center were upgraded in 2008. Database and Business Services servers were upgraded a few years ago as well and currently use a supported Windows platform.

3. SYSTEM OVERVIEW

3.1 Technical Overview

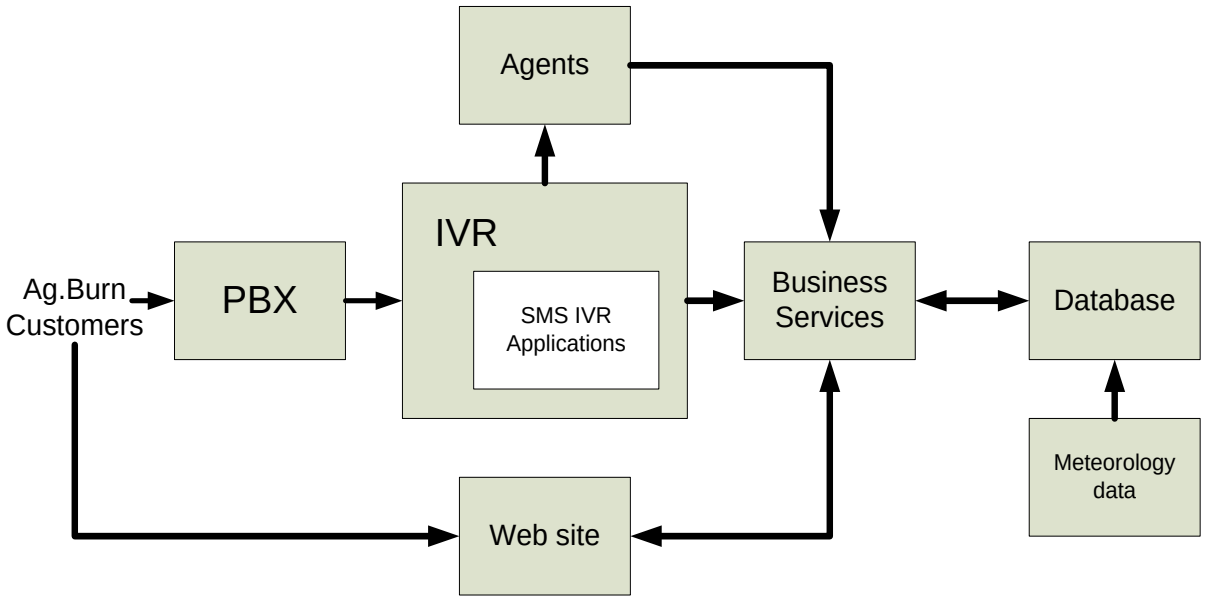
At its highest level, the Smoke Management System requires an interaction between Ag and prescribed burn customers, the District's Compliance Program – Ag Burn Division, and the Air Quality Science and Planning – Modeling Division. The Modeling Division provides agricultural burn allocation data to the Ag Burn Division, and the Ag Burn Division collects burn data from customers.

The Smoke Management System is a complex business application, which provides automated burn request approval for agricultural customers. The system consists of multiple components:

- Phone system
- IVR System
    - SMS IVR Application
- Website
- Business Applications Server
- Database Server
- Desktop Agent Application

Shown below is a simplified diagram of the SMS infrastructure components.

Diagram 1 SMS Infrastructure Components

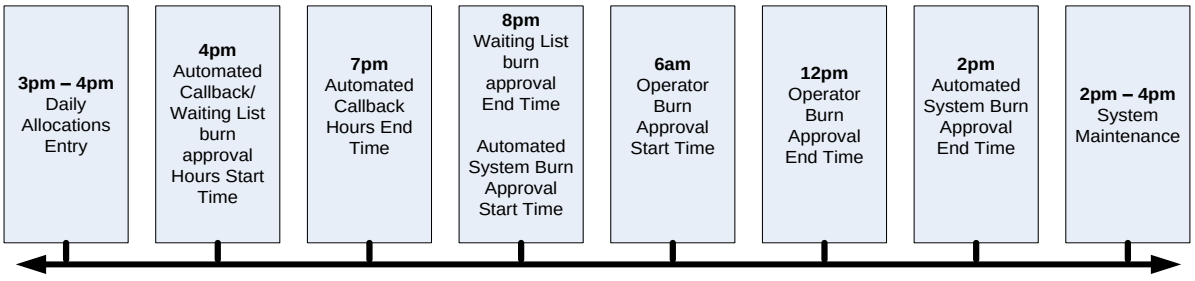


General Smoke Management System high-level business processes:

- Burn customers enter burn details into the Interactive Voice Response system (IVR) or the SMS web site, and receive burn approval based on allocations generated from meteorological analysis processes.
- Callers can be transferred from the IVR to the SMS Contact Center agents during SMS agent hours, normally from 6am to 12pm.
- The IVR, Agent desktop application, and SMS web site communicate to the SMS database in real-time using business services (no direct connection to the database).
- The IVR and SMS web site are available 22x7; the maintenance window is from 2pm to 4pm daily. (Future system should be available 24x7)
- In case no burn allocations are available, callers have an option to be put on a waiting list. The IVR system will automatically call back to notify those on the waiting list once burn allocations become available. New allocations are normally entered during the maintenance window.
- Once notified by the callback application, callers can "redeem" their burn request during the waiting list callback hours, normally between 4pm and 8pm. Regular burn requests cannot be processed during waiting list callback hours.

SMS 24 hour operational timeline is shown in the following diagram:

Diagram 2 SMS (Workflow) Timeline



4. PROJECT SCOPE AND APPROACH

The goal of the project is to upgrade the District's current Smoke Management System Interactive Voice Response (IVR) system and custom SMS software application that interacts with all the SMS components with latest technologies to fulfill all the business needs/requirements defined in this document. Also, design document and readiness for the future PBX upgrade must be provided.

The District's intention is to upgrade the IVR system component of the SMS as the main goal of this project and include the design specifications for the future phone systems that can fully integrate with the newly implemented IVR & SMS. Project intends to take advantage of newer technology and to replace equipment considered no longer maintainable. (See **Diagram 1 SMS Infrastructure Components**) This project is to upgrade the IVR and the SMS IVR Applications residing on the IVR. Upgrading the IVR may require upgrades to other SMS infrastructure components.

The Integrator's responsibilities include the following:

- Perform project management for the SMS IVR design and implementation project.
- Plan and prepare site specifications, as needed for the SMS IVR infrastructure, which includes power, ground, and work area.
- Design and engineer a new IVR system according to the RFP specifications.
- Purchase, fabricate, install, configure, and test equipment to ensure full operability.
- Develop SMS and ITS Emergency Notification applications for the IVR according to the RFP specifications. (See **Diagram 4 Projected Generic SMS Application Inbound Call** Flow and **Diagram 10 ITS Emergency Notification Outbound Application Call Flow).** Additionally allow custom notifications to be created by the District as needed.
- Providing complete documentation for installed systems.
- Providing operational training to District Staff for the system.

The Integrator selected will be fully responsible to the District for carrying out all phases of the project. The Integrator may choose to use subcontractors for some of the tasks. However, the District will look to the Integrator as the responsible party for controlling all activities and relationships with any subcontractors including scheduling, work completion, performance, and payment.

The agreement between the District and the Integrator will specify the following:

- All equipment and services to be provided for this project.
- Projected milestones and their completion.
- Total cost for the project and the payment schedule under which the District will pay the Integrator.
- The Integrator will be responsible for all payments to equipment suppliers, subcontractors, providers of services, and others as necessary to complete the project.

In summary, the steps to be taken in implementing this project are as follows:

a. The District issues this RFP, which provides the system requirements and basic design concepts.

b. Interested system Integrators have approximately 30 days to respond to the RFP with their proposals and proposed costs for the District's design concepts. During these 30 days, the District will field questions and supply answers as needed to provide additional information and clarification on the District's requirements. In addition, the District will convene a mandatory Bidders Conference for onsite inspection and discussion of existing support capabilities. If they wish, Integrators may also propose cost and design concepts they have developed along with the required proposal for the District's design concepts.
c. District staff recommends the selection of one Integrator based on best value for the District and negotiates an agreement based on the RFP and submitted proposal. Governing Board approves.
d. Integrator completes installation of system according to the schedule established within the agreement.

Critical dates for this project include:

- October 4, 2019 RFP Released to Vendors
- October 22, 2019 RFP Bidders Conference in Fresno, CA
- November 19, 2019 RFP Due from Vendors
- December/Jan, 2019-20 Vendor Selection

4.1 Anticipated Project Timeline

The District's existing SMS call handling system experiences cyclical call volumes. The busy season for the Ag Burn system begins in September and runs through February. It is the intent of the District to "cut over" to the new SMS during a season with low call volumes (i.e., March through August).

With a contract in place, the Integrator will have three months to implement the SMS IVR project outlined in this RFP. The District will then begin the SMS testing and acceptance portion of the project. The testing and acceptance phase will be 90 days in length. During the first 45 days of this stage, the District will create a "punch list" of items that need additional work to meet functional or operational requirements of the RFP. The Integrator will then have 45 days to address the items on the District's punch list. It is the intent of the District to have live SMS IVR operation on or before June 1, 2020.

The rough timeline and some key milestone dates for this project are listed on the spreadsheet in **Appendix A District SMS IVR System Project Schedule.**

5. SERVICES TO BE PROVIDED

For purposes of this RFP, it should be understood that the system Integrator will function as primary contractor for the entire project. The Integrator will be entirely responsible for the acquisition of all components, installation, and functioning of the SMS-IVR System and will perform all necessary tasks except those listed in Section 5.1. The Integrator will make suggestions to the District as appropriate regarding the implication that the tasks in Section 5.1 may have on the success of the project.

5.1 District Responsibilities

The District's responsibilities are:

- Providing the Integrator with access to all the necessary drawings and floor plans for the District's facilities.
- Providing the Integrator with access to IVR code, as well as remote access to the current and future IVR system.
- Providing site access during regular business hours (Monday through Thursday 7:30am-5:30pm, and alternating Fridays 8:00am-5:00pm), allowing for access outside these hours on an as-needed basis with prior arrangements.
- Procuring and installing communication lines required for implementation of the SMS IVR System.
- Completing necessary facility changes agreed upon during the design phase of the project that is required for implementation of the SMS IVR System.
- After the integration is complete and a complete system testing has been provided by the integrator, District will perform functional testing of each system and generate a punch list containing any items to be addressed before final acceptance.

5.2 Integrator Responsibilities

The Integrator's responsibilities include, but are not limited to, the following:

- Performing total project management from initiation to completion of the scope defined in this document.
- Providing necessary telecommunication lines hardware, software, and configuration specifications for the SMS IVR System.
- Providing the acquisition of all components, installation, and functioning of the SMS-IVR System
- Ensuring all the components of the project are completed in accordance with the system specifications.
- Ensuring contractors are compliant with any licensing requirements in their specialty.
- Designing, procuring, and installing the necessary items to meet the SMS IVR System requirements of this RFP. This includes, but is not limited to; all IVR-related hardware, software, application development, and others.

- Defining all services, materials, and equipment for the project to meet performance requirements.
- Developing and presenting pricing options for all components of this project. (See **Appendix B Detailed Pricing Summary.**)
- Purchasing all additional items needed to complete the project, as well as, shipping or transporting these items to the installation site.
- Performing final test and checkout of the new system and its operation with other components of the SMS.
- Assisting with and addressing to resolve any items on the District-created punch list for each phase of the project.
- Providing initial training on facility and network operation, including training manuals and materials. (See
- **9.** TRAINING)
- Delivering complete paper and electronic facility, software and systems documentations, to include at a minimum: final detailed system specifications and system engineering specifications, schematics/flow diagrams, source code, system procedures, etc.
- Proposing an on-going maintenance and service agreement for the new equipment, to amend and/or replace the District's existing service agreement. (See **8. MAINTENANCE AND SERVICE**).
- Providing a warranty for the new system. During the warranty period, following installation of the system, all maintenance, repairs, and operating problems are handled at no additional charge. (See **8. MAINTENANCE AND SERVICE**).

6. SYSTEM FUNCTIONALITY

6.1 New System

Integrator must provide all the business needs and functionalities described in this document.

Table 1 List of business needs

Business Functionalities	Required (as described)	Desired	Enhancements	Notes
Provide all the existing functionalities of the District's current system described in this document	Required			All the items in section **7. CURRENT SYSTEM**
Provide flexibility to add/delete and modify the IVR applications from a GUI in a simple way Provide the ability to add/delete/modify work flows at all levels	Cover not just the IVR but other components like speech recognition and web services/database integration Availability of application templates, universal tool for application development, web based GUI			Example can be found at **7.1 Call Flow,** **7.2 Key Processes and Services,** **7.3 Burn Approval Process**
Mobile App (Both Apple & Android)	Ability to integrate with the IVR. (API)	Provide Mobile App to support the same functionality as the IVR		
Languages	English and Spanish	Other languages available upon request	Best system will allow addition of languages	Please see User Profiling at **Table 2 Technical requirements of the new system**
Speech recognition	"Direct dialog", ADA compliance, Spanish language support	"Natural language interpretation", adaptive to accents, multiple languages available	Upgrade to currently available level of speech recognition.	For more details, see **SR_Menu**, **SR_Gdat**, **Grammars**, **Init Call Records**,
System availability	24x7x365	SMS IVR is online during maintenance		For more details, please see

				Table 2 Technical requirements of the new system
System reliability	Uptime close to 100%			For details, please see **Table 2 Technical requirements of the new system**
System reporting	Detailed standard reports: historical, real-time, detailed call tree statistics (call-by-call). Reports to be easy to build and customize, ability to schedule reports generation	Web-based reporting	Templates for most reports	Please also see **7.5 Reports and Auditing**
User access permissions	Configurable access rights for admins, supervisors, users	Role-based access control with flexible customizable rights		For more details, please see **Table 2 Technical requirements of the new system**
Optional Upgrades				
• Phone system • Website • Agent Application				These items to be priced at a high level without any specific requirements provided by the District with the understanding the prices will change with specific requirements.

The goal of the project is to upgrade District's current Smoke Management System Interactive Voice Response (IVR) system and custom SMS software application that interacts with all the SMS components with latest technologies to fulfill all the business needs defined in this document. Also, design document and readiness for the future PBX upgrade must be provided.

Additionally, this project focuses on upgrading the SMS IVR system to the latest technologies, which provides:

- Real-time connectivity to various databases (independent yet well integrated with the PBX system)
- Redundancy to provide 24x7 availability and failover for maintenance etc.
- Hardware platform independence
- Improved reporting

The new IVR needs to allow District to add and host future applications such as:

- Smog Info Line
- Hazard Burn Line
- VW Bus Line

Table 2 Technical requirements of the new system

Business Need	Required (as described)	Desired	Enhancements
System architecture	VMware, on-site, scalable		
Hardware	Vendor to define the best suitable hardware with redundant physical VM server chassis with automatic failover, and scalability	Compatible with the District's current backup system Ability to add hardware (CPU's, network cards, etc.) to provide capacity for future PBX Ability to add licenses to handle future PBX	System design will handle VM's for IVR and all future PBX servers (or can easily be extended to handle future PBX)
Database integration	Real-time read-write multiple channels Microsoft SQL databases Use universal web services instead of current custom built services.		
Call processing power: average	Can dynamically expand to any numbers (unlimited)		
Call processing power: peak capacity	Can dynamically expand to any numbers (unlimited)		
Network connection to PBX and telephone network	Industry standard SIP trunk connections to the District's future PBX and AT&T network.	Communication line ports compatible with current PBX. E.g., PRI lines	
System resources	100% reservation of resources for each call, e.g. Speech Recognition and database connection. Efficient use of resources to prevent call degradation.		
Outbound dialing	Support the following call properties: call origination, termination, filtering of "short" calls, detection of call answer, detection of "busy", "fast busy", "ring tone", etc. Add a choice to also	IVR has bidirectional voice channels (used for both incoming and outgoing calls)	

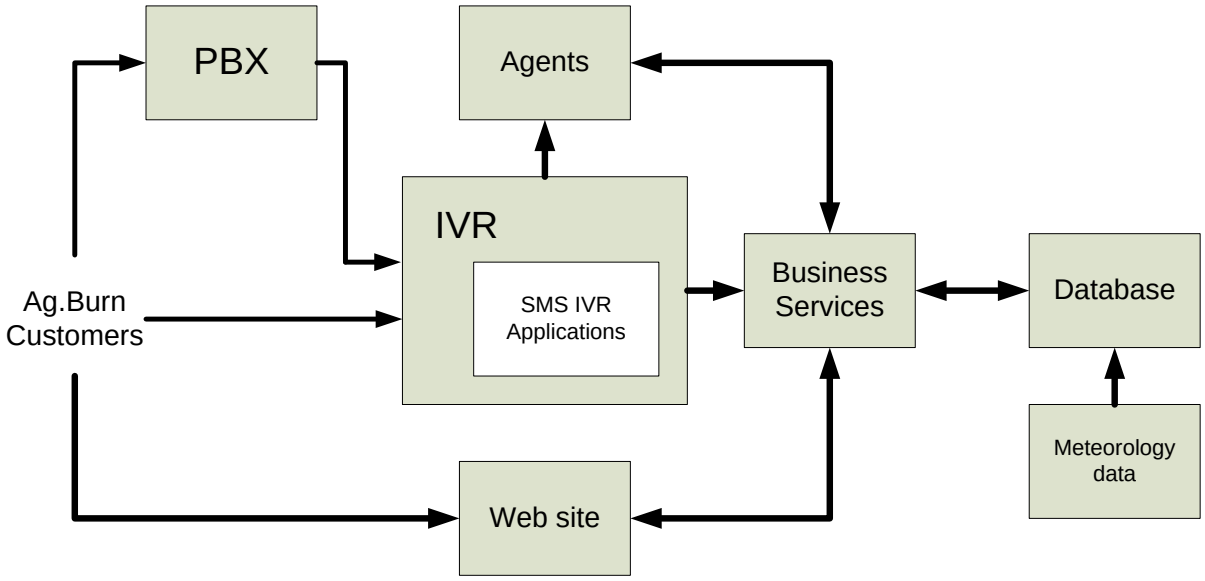
	E-mail and text the users.		
Extended auditing and reporting, custom built reports	Advanced report generation tool with user-friendly graphical interface.	Preference to keep data logging in a database.	
Transfer to agents from any step of the call flow (during agent hours)	Add ability to leave a message in a voice mail box during non-agent hours and when agents are not available (e.g. too long to wait for an agent)		
User profiles	User information is set by an agent. Users can configure their caller's profile where they set: *Telephone numbers* *Use of speech recognition* *Preferred language* *Waiting list notification: callback, and/or text, and/or e-mail* *Change security code* *Reset profile to default*	User profile can be created, modified, or deleted not only by a user in the IVR, but also by an agent, or through the SMS website	
Automatic pop-up window for agents with permit holder's information	For caller identification, use caller's CLID and information from permit if user profile is not set by user, or information from profile if user's profile is set.	Presented pop-up screen should show at which point of the call tree the user was transferred to the agent.	
Automatic transaction approval for callers	Automatic burn approval for existing permit holders	Make a change to a permit without talking to an operator	

Proposed High-level system interaction

A high-level diagram of the proposed Smoke Management System is shown below. The new IVR should be able to connect to a PBX or the AT&T network directly. If callers choose to speak to an operator, the IVR would be able to transfer them to the PBX. The District's expectation is that both connections to the AT&T network and to the PBX are always up. The primary route of the incoming SMS calls should go through the PBX. If this route becomes unavailable, the calls use the secondary route from AT&T to the IVR.

The IVR will communicate to the existing SMS database using Business Services. We do not expect the database be changed at this time; however, Business Services can be redesigned to best fit the new IVR system.

Diagram 3 Proposed SMS High-level components



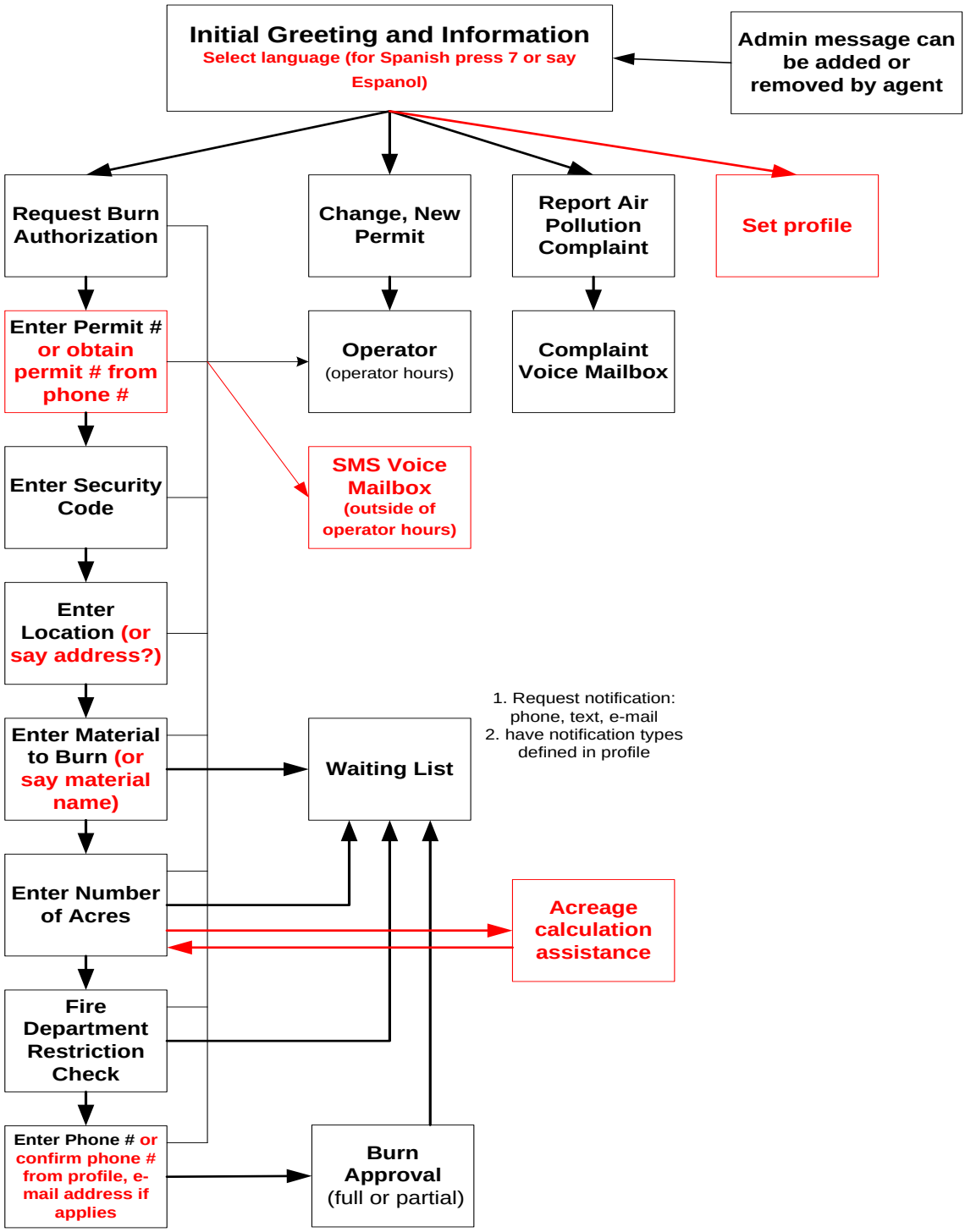
The proposed SMS system's processes should be built on the latest web services technology that can be used by other components of the system. The system should have advanced auditing and debugging troubleshooting capabilities.

A **Generic High-Level** call flow of the new system is shown below. Notes and blocks in red represent additions or changes from the existing system. New system will have both existing and new changes and will be flexible to make changes as necessary.

- At the initial menu, callers can choose a language and set the caller's profile
- Outside of operator hours, callers should be able to leave a message in the SMS mailbox

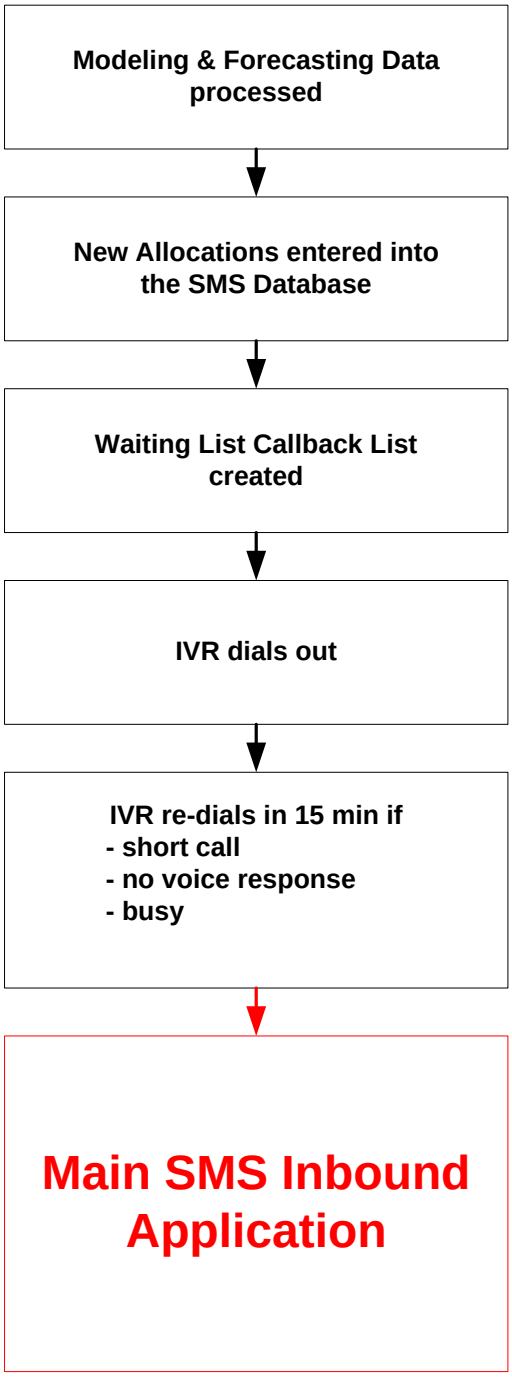
- The new system should have multiple ways to detect a caller's permit number
- The capabilities of Speech Recognition should be augmented. (See **Table 1 List of business needs** and **Table 2 Technical requirements of the new system**)

Diagram 4 Projected Generic SMS Application Inbound Call Flow



A **Generic High-Level** diagram of the new Waiting List user notification over the phone is shown below.

Diagram 5 Generic Waiting List Outbound Call Flow



The Bidder's proposal must include a new system design, including proposed call flow for applications.

6.2 Hardware

Table 3 Hardware related items to be included in the Proposal:

Item	Description	Priced as required/optional
VM infrastructure (servers, etc), detailed parts list including part numbers	Infrastructure should have capacity to host the new SMS IVR and future PBX	Optional price, the District has a right to provide the item
Licenses	All licenses required for new SMS IVR	Optional price, the District has a right to provide the item
SIP trunks from AT&T	SIP connectivity to AT&T, DID numbers, etc.	District provided
SIP servers (if any)	Servers that provide SIP protocol support	Optional price, the District has a right to provide the item
PBX connectivity ports (e.g. PRI)	Ports on the IVR side. District will provide PRI or other connection ports	Optional price, the District has a right to provide the item
Power circuits, outlets	Provide detailed power specifications for the new equipment	District provided
Ground	Provide detailed specifications	District provided
Rack space	Provide detailed specifications	District provided

6.2.1 New PBX

Following the SMS IVR Project, the District is planning to upgrade its current PBX. As a requirement of this proposal, Bidders must provide an independent IVR system that can be integrated with a future PBX system. In this proposal Bidders need to provide the critical requirements via a design document that will ensure the proposed IVR system to accommodate a future PBX with general prices, District understand these prices will change in the future. The IVR and PBX systems must be completely independent of each other in terms of software and hardware versions, brands, etc. and must include the following:

- List of IVR requirements for integration with a future PBX
- Restrictions on specific brands, communication lines, compatibility, etc.
- Recommendations on best practices for PBX design, architecture, brands
- Anticipated level of reliance between the IVR and PBX, e.g., generic and proprietary communication protocols, shared resources, etc.
- Recommendations on communication network and hardware infrastructure design

7. CURRENT SYSTEM

The Smoke Management System is a sophisticated business application, which provides automated burn request approval for agricultural customers. The system consists of multiple components:

- Phone system
- IVR System
    - SMS IVR Application
- Website
- Business Applications Server
- Database Server
- Desktop Agent Application

The current SMS IVR system is built on a Nortel Periphonics hardware platform. SMS calls are routed to the IVR through the PBX and processed by the SMS Applications that are built-in the IVR. If callers choose to speak to an operator, the IVR transfers them to the PBX. The following processes and components of the current system are described in detail below:

- Call Flow
- Key Processes and Services
- Burn Approval Process
- Hardware
- Reports and Auditing

7.1 Call Flow

Please refer to **Appendix C Call Flow Diagram** of this RFP for current detailed call flow diagrams. The application details, including related functions and processes, can be found in **Appendix E Current IVR Applications Details**.

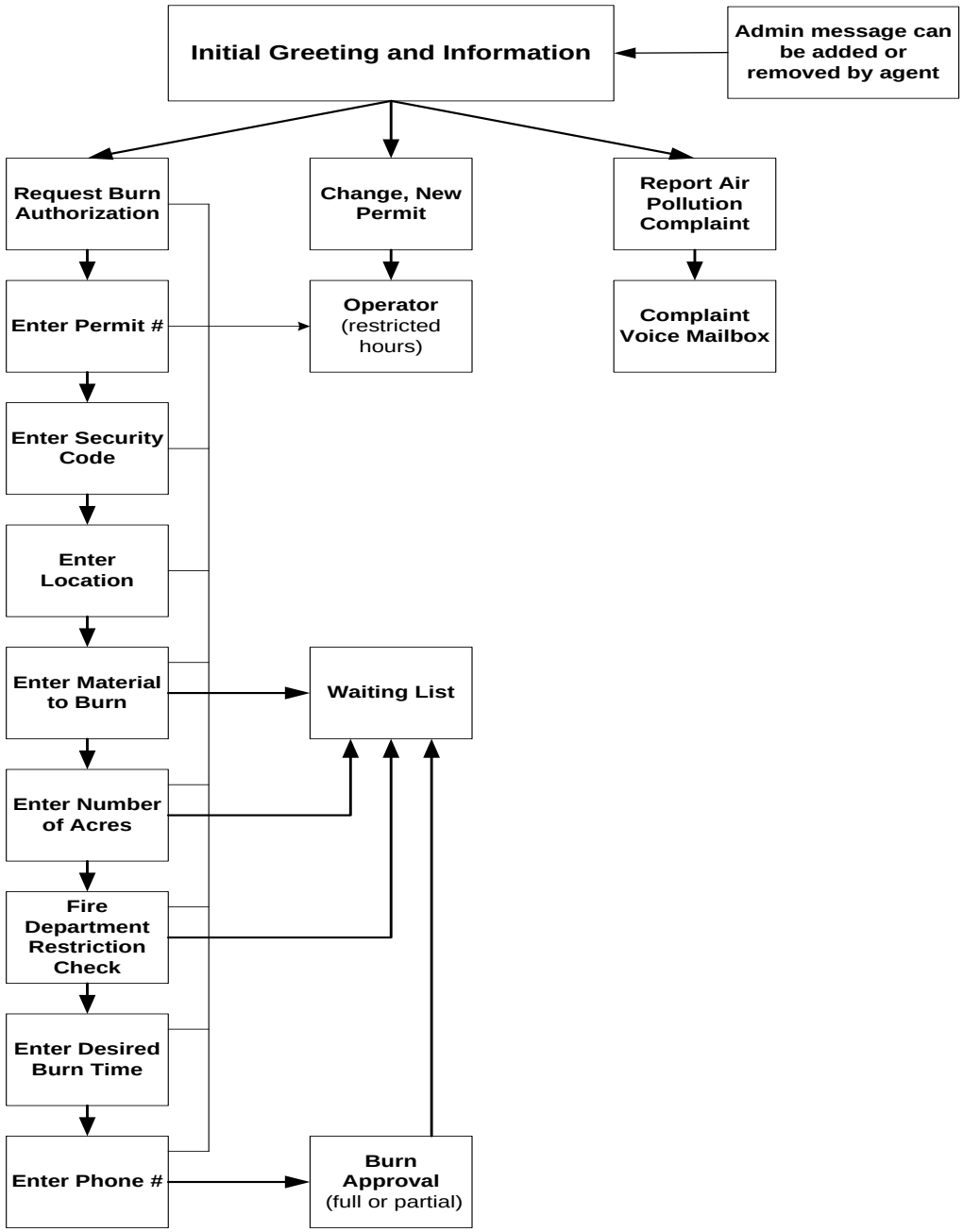
The IVR has the following applications:

- SMS Inbound application
- SMS Waiting List Outbound application
- SMS Fire Department Restriction Notification Outbound application
- Answer Application
- ITS Emergency Notification Outbound application

SMS Inbound Application allows callers to do the following:

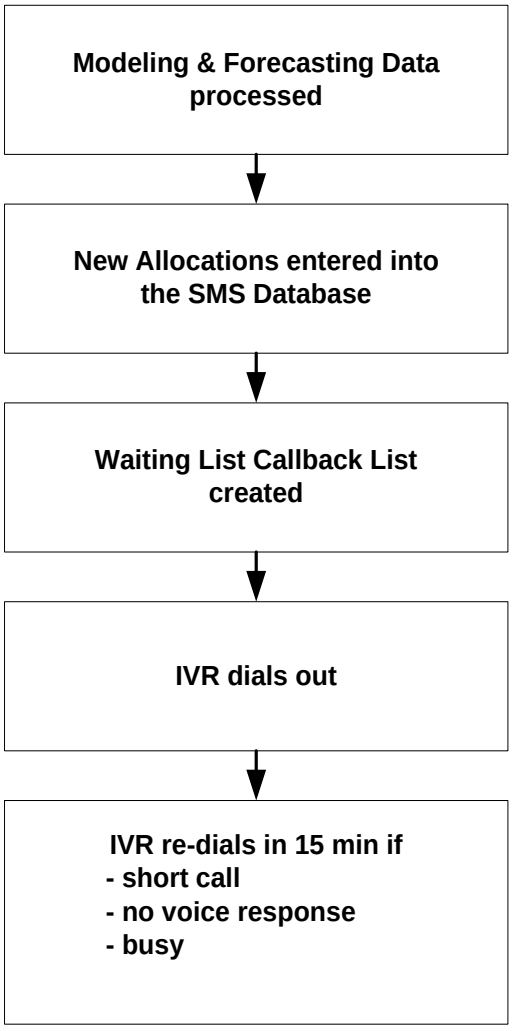
- Request a burn authorization
- Apply for or change a burn permit
- Report an illegal burn
- Transferred to an operator if they would rather speak to a live person during operator hours.
- Have the option of being placed on a waiting list.

Diagram 6 High-level Inbound Application Call Flow



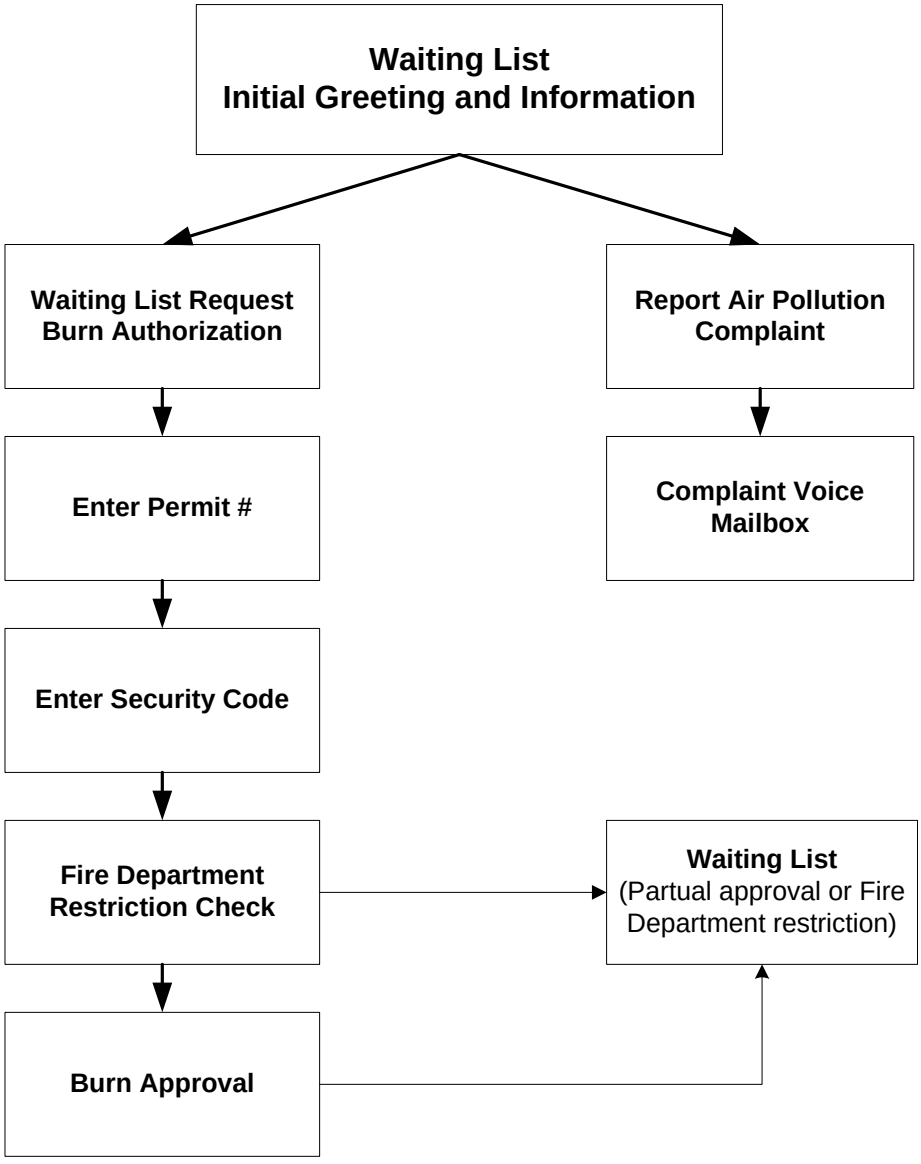
SMS Waiting List Outbound Application takes a list of pre-determined phone numbers and uses them for automated out-dialing. The waiting list is created by determining which burns can be accommodated by the available allocations and checks for Fire Department restrictions. The pre-arranged phone numbers for those burns that meet the criteria are then used by the IVR to place outbound calls. If a call is answered, it will be the last (or only) entry for a phone number. A call that is not answered or busy will be rescheduled. The interval for rescheduling is provided by the SMS database. A call that fails, due to unexpected conditions, will be rescheduled immediately. This immediate reschedule interval may be seconds or several minutes, depending on the number of calls currently in progress. A call will be cancelled when the cutoff time for placing calls has elapsed.

Diagram 7 High-level Waiting List Outbound Application Call Flow



Permit holders that receive an automated call from the SMS system can call back and redeem their waiting list burn request. The call flow for this scenario is shown below:

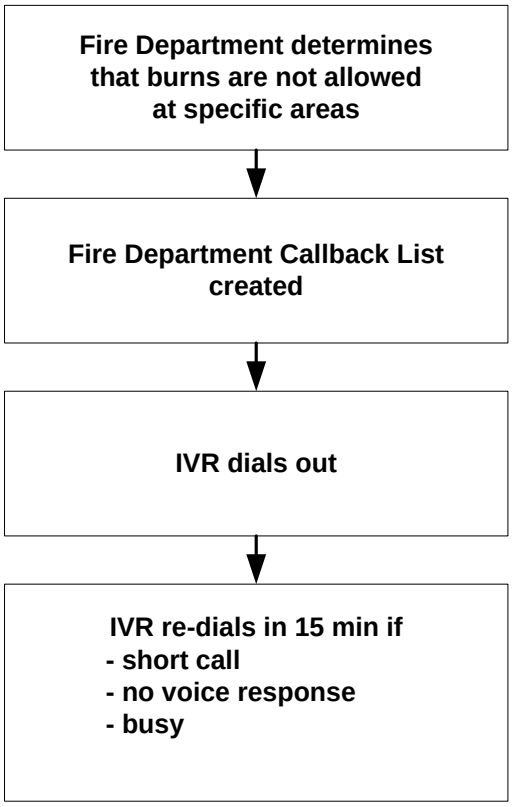
Diagram 8 Inbound Application Call Flow during Waiting List Hours



SMS Fire Department Restriction Notification Outbound Application calls clients who have been approved to burn, but the local Fire Department subsequently restricted burning due to unsafe conditions.

The IVR will uses an outbound dialing function to call the numbers on each of the lists. When the call is answered, either by a live person or by an answering machine, the IVR reads a pre-recorded message for either the **Waiting List** or **Fire Department Restriction Notification** and then hangs-up. Rules for how many times the IVR will try a phone number before abandoning further attempts are defined in configuration files (normally the system redials every 15 minutes during call back hours). The call flow for this scenario is shown below:

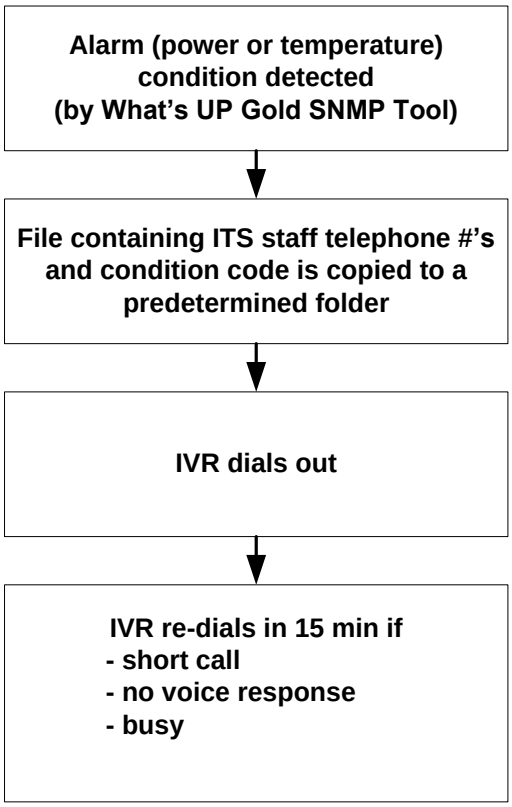
Diagram 9 High-level Inbound Application Call Flow



Answer Application is assigned to all incoming IVR lines. The purpose of this application is to answer incoming calls, collect the call information via C-Pop, and link to the appropriate application based on the dialed digits (**SMS Inbound** application is one of them). The dialed digits are cross-referenced to the application name using one of the configuration files.

ITS Emergency Notification Outbound Application calls select District Information Technology staff in order to notify them of emergency conditions related to power outages or excessive temperature in equipment facilities. It receives a list of select telephone numbers via an ftp process, dials out the phone numbers, and plays prerecorded announcements that correspond to the emergency condition code.

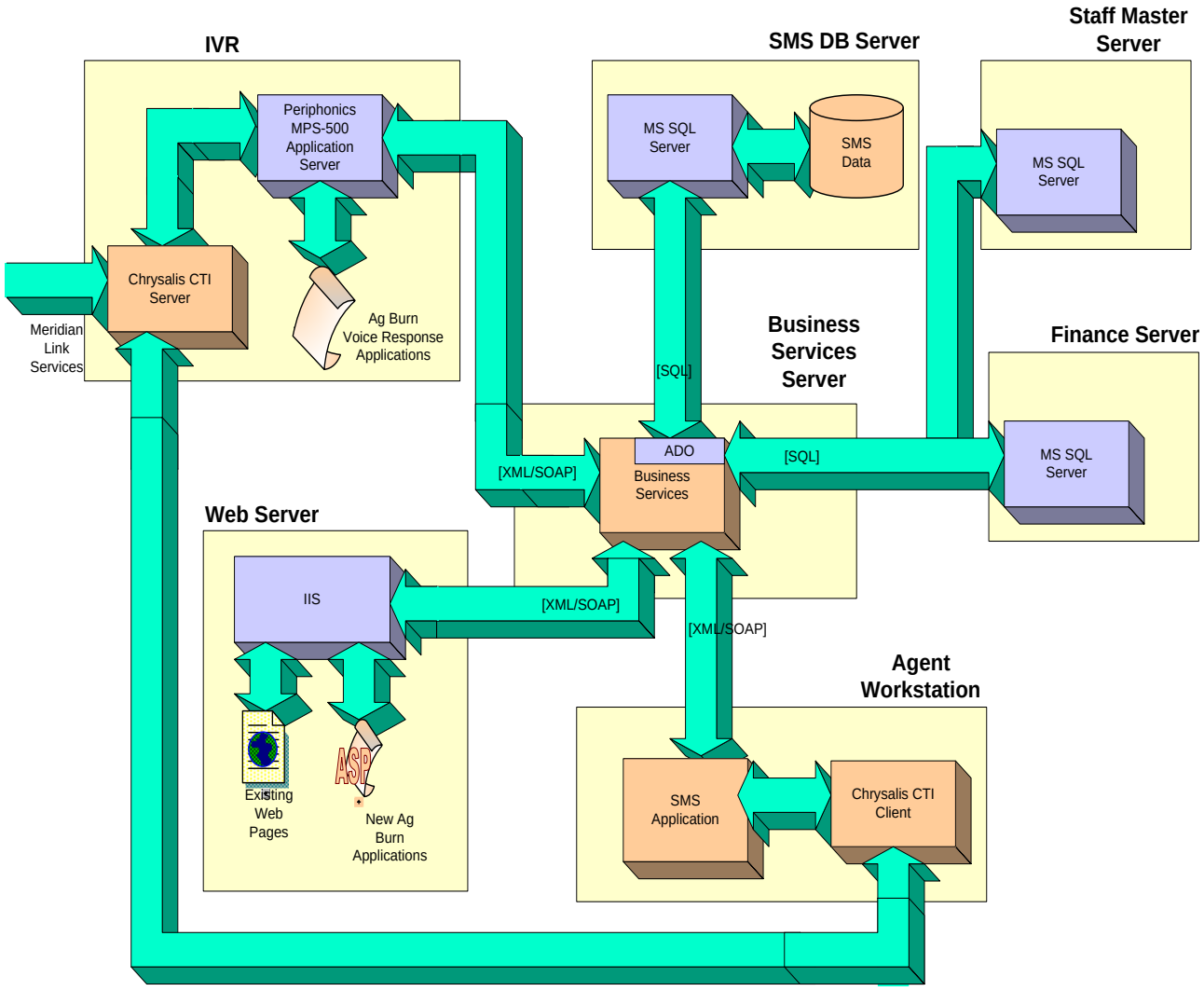
Diagram 10 ITS Emergency Notification Outbound Application Call Flow



7.2 Key Processes and Services

The diagram below shows all high level processes of the existing SMS system.

Diagram 11 SMS Interaction Processes



Business Services

The Business Services Server component will accept requests from the three subsystems: IVR, Web Server, and Agent Workstation Application, and translate them to the appropriate ActiveX Data Objects methods for data access on the Microsoft SQL Server. This allows common business services for manipulating data and maintaining data integrity to be in one component for easier maintenance across subsystems. Messages exchanged between the business service tier and the various subsystems are in the form of XML over an HTTP protocol. Simple Object Access Protocol (SOAP) technology enables this functionality.

The purpose of SOAP is to enable rich and automated web services based on a shared and open Web infrastructure. SOAP can be used in combination with a variety of existing Internet protocols and formats including HTTP, SMTP, and MIME and can support a wide range of applications from messaging systems to Remote Procedure Call (RPC). One advantage to this is that the HTTP protocol can be used as the transport protocol between the web application and the business services component. By restricting the firewall to certain HTTP requests, transactions between the web application and database server are more secure. This allows the IVR, which runs on a Sun Solaris platform, to make remote procedure calls to the business layer residing on the Microsoft Windows platform.

SMS Database

The SMS database, which is accessed in real time during the caller sessions, is implemented on the District's database server using Microsoft SQL Server (current version is SQL 2014 Enterprise Edition). None of the user interfaces in the SMS can access the database directly but will instead go through the business service components.

Computer Telephone Integration (CTI)

The Computer Telephony Integration (CTI) component of this system allows Contact Center agents to automatically be presented with the customer information in the SMS desktop application when a caller is transferred out of the voice response system provided the caller's telephone number (CLID) is associated with the permit number in the system.

A CTI client resides on each agent's desktop, which allows the SMS desktop application to present a screen to the agent that contains detailed permit information. The CTI component is a Chrysalis product called C-Pop. This product is composed of a CTI server that resides on the IVR and a CTI client that resides on each agent's desktop.

The data collected during the course of the call is shown in **Appendix H Data retrieved by CTI process.**

7.3 Burn Approval Process

A user places a call to the SMS AT&T toll free number that is routed to the PBX (ACD1 queue). The PBX sends the call to the Answer.vex application of the IVR (and subsequent SMS Main.vex application when the caller makes a new burn request). The IVR application:

- Uses vtcpd deamon to communicate to CHASM service in order to access the SMS database (DBMS server)
- Calls OSCAR Nuance server for speech recognition requests
- C-Pop service obtains caller's telephone number
- Records necessary data into various log files for reporting
- Transfers the call to Symposium Contact Center agent, upon caller's request

The SMS burn approval process is shown in **Appendix I Burn Approval Process Diagram.**

ChrysUTIL

The SMS IVR uses multiple data sources and calls custom-built utilities for its functionality. Chrysutil provides access to a variety of utility functions, particularly those having to do with reading and writing data to text files. ChrysUTIL is developed by Chrysalis software; more information on ChrysUTIL is available upon request.

ChrysTERM

ChrysTerm is a flexible, powerful communications driver for the Northern Telecom Symposium IVR. ChrysTerm provides communications capabilities to Symposium IVR applications, including:
• Ethernet connectivity via telnet and tn3270
• Asynchronous line connectivity
• DEC VT100/VT220 "screen scraping"
• Multiplexing requests from many voice channels on to a smaller number of data connections.

ChrysTerm is a user function that manages one or more child processes. Each child process implements an emulation of a DEC VTxxx terminal which controls a single host session, using a standard UNIX communication process such as "telnet" or "tn3270". More information on ChrysUTIL is available upon request.

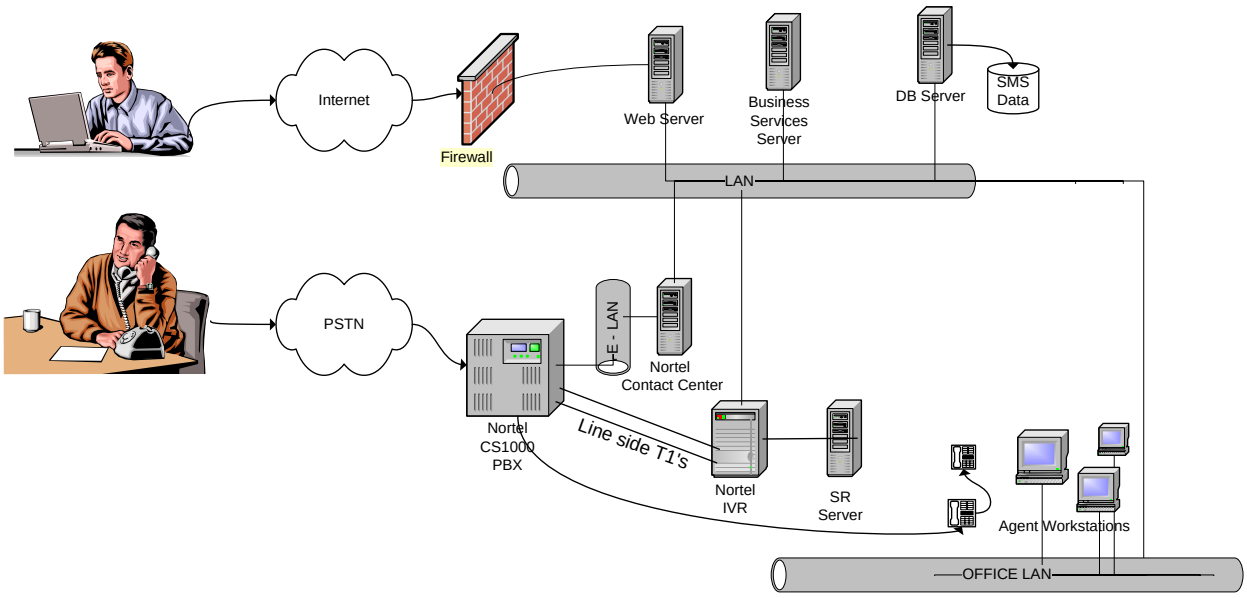
CHASM

CHASM **(Chrysalis Host Access for Smoke Management)** is a service that is presented on the IVR and the Business Services servers. It is custom designed by Chrysalis Software Inc. for database access and based on a ChrysTERM communication driver that is custom configured. On the SMS IVR server (Solaris server), it runs as a daemon process, while on the Business Services server it is a Windows service. (See **Appendix F CHASM Service Details**)

7.4 Hardware

Hardware components of the SMS system are shown in the diagram below. End users can get burn approval by accessing the SMS web site or calling into the SMS telephone line where they have a choice to complete their transaction by using the IVR or be transferred to an agent.

Diagram 12 Hardware Components



7.4.1 IVR

The current IVR platform is Nortel Periphonics MPS-500. The IVR has (2) 24-port links that connect to Line Side T1 cards on the PBX side. The MPS-500 is run by a Solaris based SunFire V240 server. The IVR has two networks: first network provides connectivity to the phone system and office network, and the second one is dedicated for Nuance speech recognition server. The hardware content of the IVR can be found in **Appendix J IVR Hardware.**

7.4.2 Speech Recognition Server

Speech Recognition is used for menu navigation and some data input for the SMS Inbound application. The current system requires Nuance Tier 2 level of speech recognition. Tier 2 licensing includes Tier 1 (digits/yes/no) as well as alphanumeric input, and up to 40 commands.

The Speech Recognition server is a Windows 2003 vendor provided HP DL360 server. It runs Nuance 8.5 Speech Recognition service. Hardware and licensing information of the server is shown in **Appendix J IVR Hardware**

7.4.3 PBX

Each of the three District offices have a stand-alone Nortel CS1000e PBX. All PBX components are located in the District's main computer room facilities. The PBX equipment, as well as, other computer room hardware is on UPS power.

The Fresno PBX is inter-connected with Modesto and Bakersfield PBXs via point-to-point PRI links and provides transparent 4-digit inter-office dialing. In case of link failures, the PBXs are configured to provide automatic re-routing via the AT&T toll network.

The Fresno office maintains two wiring distribution facilities providing voice and data wiring to users. The two facilities are approximately 250 feet apart. An estimated 1/3 of the phone sets are serviced from the main computer room, and 2/3 of the phone sets are serviced from the Minimum Point of Entry (MPOE) room. Each device is directly connected from its floor location to the corresponding distribution facility. Modesto and Bakersfield offices both maintain a single wiring facility located in the computer room.

Most of the District's telephones are Meridian 2008Ds. Call Center agents and Executive Management use Meridian 2616D phones. The District's Video Teleconferencing (VTC) system uses three Polycom Sound Station2 digital conference phones that directly connect to a Meridian digital port.

All three PBXs are manageable from the Telephony Manager (TM) PC that hosts the Nortel Optivity TM application. The application also performs CDR data gathering, processing, and costing via IP (Data Buffering and Access feature) for all three PBXs. It has a capability of generating multiple reports, data exporting, etc.

7.4.4 Contact Center

Each of the three District offices has a standalone Nortel Symposium Contact Center. The Contact Center components (server and network switches) are located in the District's main computer rooms.

The Fresno Symposium is a 27-position Call Center. It has over 200 active scripts and 40 acquired voice mail ports for voice services. The Contact Center server is Release 6.0, and it runs on an HP ProLiant DL360 hardware platform with Windows 2003 OS. The server contains custom-built SMS application reports. SMS agent phones are set to use Meridian Link settings and use a Chrysalis-designed C-Pop service to engage a pop-up screen in order to present information about the SMS permit holder based on its Caller Line ID (CLID).

7.4.5 Business Services Server

The Business Services server (SMSAPSVR) is currently a physical HP ProLiant Windows 2012 R2 platform. The server has two NIC interfaces, one of which is connected to the office network and communicates to the SMS Database server and Call Center agents. The other network connection is to the IVR LAN. The IVR LAN is currently isolated for security purposes. The SMSAPSVR runs CHASM Windows service that communicates to the IVR and uses a number of web services, shown below, as mediators between CHASM, SMS database, and the SMS web servers. (See **7.3 Burn Approval Process**, and **Appendix F CHASM Service Details**).

7.4.6 Database Server

The current SMS database server version is SQL2014; it runs on Windows 2012R2 OS. The server originally lived on a physical chassis, provided by the District, and has since migrated to a VM server. The server is not intended to be modified within the scope of this project unless it is required for integration.

7.5 Reports and Auditing

Call auditing for the SMS application is accomplished using Chrysalis Periphonics Audit Data (C-Pad) method (See **Appendix E Current IVR Applications Details**). This method uses an array of datacards to collect call options during the course of a call and writes the data to log files at the completion of the call. There are two log files associated with the call auditing: audit_data.log & audit_hdrs.log.

Along with report generation, these files can be analyzed to review call activity. Each record in the *audir_hdrs.log* file represents a separate call. The first field is the call ID. Records in *audit_data.log* are referenced by the same call ID. A single call may have several records in *audit_data.log* that will show the IVR audit trace of the call. The *event data* field contains comments and or user data that assists in analyzing call data.

The primary purpose of the audit files is to generate IVR statistics. There are two reports the IVR generates for inbound calls: Transfer to Queue and IVR performance reports (See **7.5 Reports and Auditing**). The District can provide further information upon request.

Sample reports are shown in **Appendix G** Reports

SMS Transfer to Queue Report
The transfer to queue report provides statistics for the total number of incoming calls and breaks down the calls that were transferred to the ACD queue.

IVR Performance Report

The IVR performance report shows the IVR system usage. It provides a summary line showing the totals for the reporting period as well as detailed breakdown in 15-minute intervals.

Waiting List Callback Detail Report

The waiting list callback detail report provides information on the **Waiting List Outbound** application (See **Diagram 7 High-level Waiting List Outbound Application Call Flow)**.

The report includes statistics for out-dialing start and end time. The first run time is the time when the list of phone numbers was completely run through. Total calls is the total number of calls placed during the session, not the number of phone numbers in the list. Many numbers may have to be dialed more than once to be completed. Total calls is the sum of total answered, total not answered, total busy, and total error. The second section of the report gives a detailed listing of each number, sorted numerically, the time the call was placed and the status of the call.

8. MAINTENANCE AND SERVICE

All proposed SMS-related equipment in the Bidder's proposal must be warranted by the Bidder and/or by the manufacturer to be free of defects in equipment, software, and workmanship for a period of at least one year following system acceptance and close of all high priority punch list items (phase 4) at no additional cost to the District. During the warranty period and any subsequent maintenance agreement, any defective components shall be repaired or replaced at no cost to the District. All system maintenance during the warranty period and under any maintenance agreements shall be performed by the successful bidding organization using personnel employed or subcontracted by the Bidder and at no additional cost to the District (other than those charges stipulated to maintain the warranty beyond one year). The Bidder should identify, in their proposal, the contact information for the vendor's local service centers and the number of service personnel trained on the proposed system.

The Bidder's proposal must include a complete description of the Bidder's remote monitoring capabilities, remote diagnostics, and remote repair capabilities. The Bidder should also include a description of the Bidder's repair commitment from the time that the trouble is reported to the vendor through the time the trouble is cleared. Bidders must also describe their definitions of critical and minor problems, and what impacts this has on response times and actions.

Proposals must also include a description of disaster recovery capabilities such as; critical spare parts availability, emergency replacement options (in cases where the main IVR system is destroyed), and recovery plans and timeframes.

The District considers ongoing maintenance and service imperative to assure the success of the SMS IVR system and interconnecting networks. It is understood that most hardware devices now being used in SMS IVR systems require little maintenance; however, it would seem prudent to perform certain periodic maintenance inspections (PMIs) and equipment adjustments as necessary. These PMIs would include:

- Remote support (preferred)
    - System backup
    - Logs and health checks
    - Patches and updates including OS and applications
- In addition to remote support, an on-site support option
    - Physical check of connections and system hardware
    - Cleaning of system hardware
    - Check wiring and communication lines

A complete maintenance proposal must be included as part of the Bidder's proposal. All options available for extended coverage for additional 1 year, 3 years, and 5 additional years along with full pricing details of each level of coverage is required. Maintenance options should also include conditions and cost for time and material (T&M) not covered by the maintenance agreement, should the District opt out some components from coverage. T&M should include hourly rate as well as minimum billing time. T&M should also cover any change requests not covered by the maintenance agreement and PMI on-site visits.

8.1 District's Maintenance and Service Expectations

Regular maintenance of the SMS IVR System is vital for the system to perform as expected and based on the following:

- The District is proposing a **quarterly** PMI program
- The length and scheduled days of the quarterly maintenance will be agreed upon ahead of time between vendor and the District
- The maintenance window must not fall on the week of a Gov. Board meeting

In addition to the items above, a detailed test plan must be created. The basic tasks (defined in detail later) performed during the monthly maintenance window are as follows:

- Backup system and configurations
- Updates and Related Integration
- Verify system configurations and settings
- Physical check of connections and system hardware
- Cleaning of system hardware

8.1.1 Backup System and Configuration

This task will ensure the latest system configuration files are readily available in the event of device/system failure.

8.2 Updates and Related Integration

The software and firmware versions of the installed hardware are modified by the manufacturer throughout the supported life of the hardware to correct bugs, enhance current features, and to introduce new features. Manufacturer software and firmware updates will be administered by the maintenance vendor under the agreement. This includes the research required to verify compatibility of said updates with all integrated equipment.

The maintenance vendor will make a best effort to provide information to the District if manufacturer discontinues any part of the system and updates cannot be provided. The provided information must include recommendations by the maintenance vendor to which device/software to upgrade in order to keep the SMS IVR System fully functional.

All potential hardware & software upgrades covered under the maintenance agreement will be discussed between the vendor and the District prior to any work being completed, so that benefits and risks can be determined. No updates will be performed unless agreed upon by both parties.

This agreement includes but is not limited to:

- Hardware firmware (including but not limited to: switches and routers)
- Software

8.3 Tech Support

8.3.1 Support Staff

The maintenance vendor will provide industry qualified staff to the District. Calls from the District will be treated as a priority and every effort will be made to address questions and issues in a timely manner.

8.3.2 Response Times

The District operates on a 7:30am to 5:30pm Monday through Thursday schedule with every other Friday workday of 8:00am to 5:00pm. These times are Pacific Standard times and apply to remote service as well as onsite repairs. Support & repairs must be provided and performed during these hours unless otherwise stated. An additional trip charge may be applicable if a return trip is needed due to system availability issues.

The problem will dictate the time required for a response and successive corrective measure. The levels of problems are as follows:

8.3.3 Critical Problems

Definition: A **Critical Problem** is defined as an incident that renders the District's SMS IVR System unusable until the problem is resolved. There are no acceptable alternatives or workarounds available to restore partial and/or temporary service. Resolution of the problem is considered to be of utmost priority.

Example: A **Critical Problem** would include operational or total failure of the following equipment but is not limited to: IVR Server, switches.

Expectations: For **Critical Problems**, an industry qualified technician would be onsite the business day following the reported incident with the appropriate spare and/or replacement parts or equipment based upon availability of the part or equipment which needs replacing. The replacement may be a newer version of equipment as older and discontinued parts may not be available or hard to procure. If it is determined that replacement parts are needed by 3 PM EST, a replacement part will be delivered the next business day when available. If the replacement part or equipment is not available, the maintenance vendor will make the best effort to obtain the part or equipment as quickly as possible. The maintenance vendor will provide an estimate on when this part or equipment will be onsite.

8.3.4 Minor Problems

Definition: A **Minor Problem** is defined as an incident that hinders normal operation of the District's system(s), and does not preclude the system(s) usability, but is a non-normal condition. There are acceptable alternatives or workarounds available to restore partial and/or temporary service until the problem is resolved. (By default, a Minor Problem is any incident that cannot be classified as Critical.)

Examples: A **Minor Problem** would include partial or total failure of any of the following equipment but is not limited to: disk storage drive, backup process, etc.

Expectations: For **Minor Problems**, an industry qualified technician would be onsite no later than the second business day following the reported incident to diagnose the problem, identify and order the appropriate spare and/or replacement parts or equipment. The technician would be back onsite no later than the fifth business day along with the ordered parts/equipment, and affect the repair by End of Business that day. The replacement may be a newer version of equipment as older and discontinued parts may not be available or hard to procure. If the replacement part or equipment is not

available, the maintenance vendor will make the best effort to obtain the part or equipment as quickly as possible. The maintenance vendor will provide an estimate on when this part or equipment will be onsite.

8.3.5 Exceptions

The District acknowledges there are circumstances out of the maintenance vendor's control. The following exceptions are recognized and apply on a case-by-case situation.

- When determining the overall progress of a trouble ticket, the vendor will not be held responsible for District-related delays, such as office closures, system availability, etc.
- The vendor will not be held responsible for delivery delays outside of their control, i.e. freight/delivery carriers' delays due to weather, disaster, etc. Scheduling delays are not considered to be an exception.
- For any critical problems, the maintenance vendor will make every possible effort to keep the response times as short and quick as possible.
- For any problems, exceptions may be made if the identified part is no longer available and alternatives need to be identified, provided the vendor performs due diligence in locating similar part(s).

8.3.6 Spare Parts

The maintenance vendor will have access to spare parts to meet the response times based on part availability. These parts may be a newer version of equipment as older and discontinued parts may not be available or hard to procure.

In the event failed equipment cannot be replaced with the same model, then recommendations must be made to the District to replace units with the proposed replacement model.

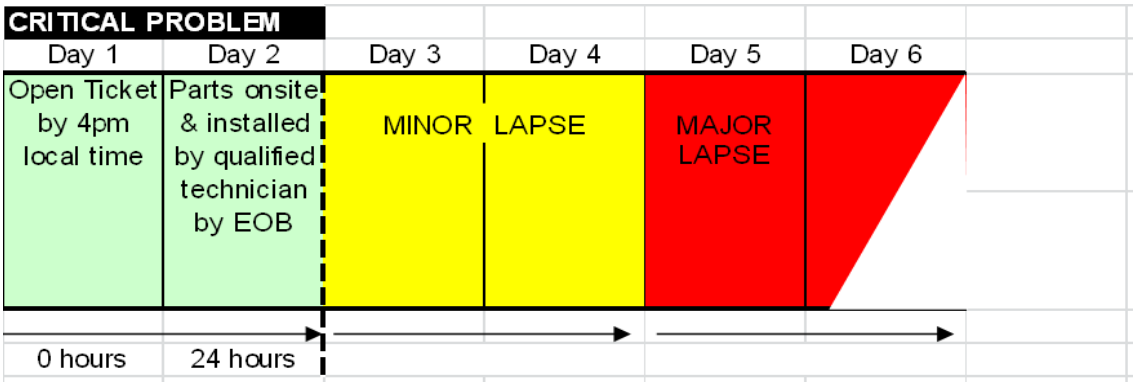
In the event a different model/part is used, the maintenance vendor will discuss any potential issues with the District. If adjustments are necessary for compatibility, then any potential charges will be discussed between both parties.

8.3.7 Service Metrics

Service Level Agreement (SLA) metrics are a way for the District to guarantee SMS IVR services are restored in a timely manner.

The service metrics in the chart below display the level of anticipated response/repair times.

Diagram 13 Service Metrics



In responding to this portion of the RFP, the District has a special interest in the following:

- ***Source of services.*** Are these services provided by company personnel or out-sourced? If out-sourced, to whom?
- ***Telephone support.*** Is first level telephone support available? Describe.
- ***Remote diagnostics.*** Can in-depth diagnostic checks be performed remotely? Via what method (i.e. dial vs. IP)?
- ***Response time.*** What on-site response time alternatives are available including the relative cost of each? Are technicians available locally in Fresno, or from where will they be dispatched?
- ***Sparing.*** What sparing levels of equipment, if any, are recommended, including related costs?
- ***Warranty alternatives.*** Describe how manufacturer warranties on given facility components are integrated into the maintenance and service alternatives offered by your firm. Include:
  - Clarification of what constitutes customer abuse, normal wear and tear, and acts of God.
  - A method of returning faulty equipment to vendor(s), and return of repaired items to the District. Include related costs.
  - Level of training District personnel will need to be accepted as "qualified technical assistants", if this option is included in your warranty program.
- ***Troubleshooting.*** How do your maintenance and service programs address troubleshooting situations that involve other entities, District SMS IVR support personnel, component manufacturers, etc.?
- ***Renewal options.*** Describe renewal or extension options of your maintenance and service offerings - including related costs.
- ***Payment options.*** What payment options are available? The District typically issues annual payments in advance for maintenance contracts.

9. TRAINING

Your response to this RFP should describe your organization's approach to training, its cost, and any alternative training program(s) your firm might suggest the District consider for this project.

9.1 Introductory/Overview

The District will require a single introductory level training for technical and non-technical District personnel that interact with the SMS IVR System on a daily basis. This training has to focus mainly on change of procedures related to the new system. This training is expected to take from several hours to one full day and take place at the District's Fresno office.

9.2 Equipment and Application

Vendor proposals must include a training plan for initial education of support staff on the operation of the proposed SMS IVR System. The plan should include:

- At least one class that covers support and maintenance of the new IVR system and any optional IVR system training programs recommended by vendor
- At least one class that covers SMS IVR application support; building of new and modification of current applications. The proposal should also include optional training classes related to application integration, speech recognition, etc.
- Optional on-site or off-site presentations, instructional videos, printing materials, etc.
- Detailed documentation of final product (and individual components: IVR, Application, Web)

10. BIDDERS CONFERENCE

In order to clarify any questions about this RFP, as well as allow prospective bidders the opportunity to see the District facilities, the District will convene a Bidders Conference on Tuesday, October 22, 2019, at 10:00 am. This conference will be conducted in the District's Fresno office located at 1990 E. Gettysburg Avenue, Fresno, California 93726. Directions to the office can be found on the District's web site www.valleyair.org. The meeting is anticipated to last approximately two hours.

Due to the technical interests to be discussed at this meeting, the District strongly recommends that bidders attend the bidders' conference and service personnel at the managerial level be in attendance as well.

The tentative agenda for this conference is as follows:

- Introduction of District staff involved with this project
- Brief review of the RFP
- Tour of the Fresno computer room
- Brief question and answer period

Please advise Aleksandr Krivobok no later than Friday, October 18, 2019 regarding your intention to attend this conference. Aleksandr Krivobok's address, and telephone number is on the Title Page of this RFP. An email response with the names and positions of the attendee(s) will be sufficient notification. Aleksandr Krivobok's email address is Aleksandr.Krivobok@valleyair.org

11. PROJECT COMPLETION AND PAYMENT SCHEDULE

The District intends to make payments during phases of the project, with the entire project paid for, once all punch list items have been resolved. Payments will be released according to a negotiated milestone completion schedule, based on the following staged implementation outline:

Table 4 Implementation Phases and Payment Schedule

Phase	Description	Payment
PHASE 1	Signing of the contract	20%
PHASE 2	Implementation of the IVR infrastructure and SMS application	20%
PHASE 3	Resolution of all outstanding punch list items	10%
PHASE 4	Cutover to Production	30%
PHASE 5	Training, Documentation, and Project Closure	20%

NOTE: Warranty to start after closure of phase 4

12. PROPOSAL DESCRIPTION

Each submitted proposal must include, at a minimum, the following sections:

1. Company profile
2. Technical proposal
3. Project management
4. Pricing summary

The District's evaluation process will primarily focus on responses as presented in these sections. Bidders need to include a title page reflecting their proposal title, company name, address, telephone number, email address, and contact information.

12.1 Company Profile

At a minimum, this section should include:

- Specific responses to each item in **5. SERVICES TO BE PROVIDED** of this RFP. This should include the Bidder's understanding of the item and how they propose to complete each task.
- At least three references who can provide a recommendation and insight into the Bidder's performance on implementation of a similar project(s). The District's intent is to visit sites of completed projects.

12.2 Technical Proposal

At a minimum, this section should provide detailed descriptions of:

- The systems and components being proposed for the IVR
- New SMS IVR application design
- Maintenance and service alternatives
- The specific training program(s), both in accordance with what is being requested in
- **9.** TRAINING and any alternative training program options that might be suggested for the District's consideration

12.3 Project Management

At a minimum, this section should include:

- A brief statement of the Bidder's understanding of the work to be done for this project.
- Descriptions of the relevant experience the Bidder has in the design, engineering, procurement, integration, and implementation of SMS IVR systems similar to what has been described in this RFP.

- Projected implementation milestones from receipt of contract to final test and acceptance. The Integrator will review the District proposed schedule and provide input as necessary.
- The Bidder's approach to the facility preparation phase of this project (if required).
- How the Bidder plans to manage the overall project.

12.4 Pricing and Financing Summary

At a minimum, this section must include the bidder's estimated cost that is being requested in this RFP – including options where indicated. Any alternative options the bidder might wish to propose, as far as the various subsystems, maintenance & service, training, etc., are concerned, are also encouraged.

Please note: Bidder acknowledges the District is a Government Agency and as such participates in prevailing wage laws.

To assist the District in its evaluation process, this section should be formatted to reflect:

- IVR system (Hardware, Software, Licensing, etc.)
- SMS IVR application programs
- PBX additions and modifications
- Training
- Maintenance

All-inclusive pricing proposals need to be summarized in a Pricing Detail Sheet that provides line item details as well as section and grand totals for the project. An example of the Pricing Detail Sheet is shown in **Appendix B Detailed Pricing Summary**.

12.5 Prohibited Interest

Each proposal must contain a statement disclosing to the District in writing any financial interest in proposer's business or in this transaction held by any District Board member or any District officer or employee. The District reserves the right to refuse any proposal if the District determines a conflict of interest exists. A conflict of interest may be determined to exist in any instance where a District officer or employee participates in or influences any decision-making process affecting a bid or contract in any way whatsoever.

Because the District receives Federal Grant monies, the District is prohibited from contracting with or making sub-awards to parties that are suspended or debarred or

whose principals are suspended or debarred. For all contracts that the District enters into with an entity, for over $25,000, the District **"must"** verify that the entity is not suspended or debarred or otherwise excluded. This verification process is accomplished by checking the *Excluded Parties List System (EPLS)* www.epls.gov.

13. PROPOSAL EVALUATION

The District will consider the following factors in selecting a system Integrator for this project:

- Completeness and clarity of the proposal.
- The Bidder's overall experience in the field of telecommunications.
- Project management experiences for this particular type of implementation: and, how the Bidder proposes to implement this project, assure end-to-end network integrity, and Bidder's overall project management approach to this task – including hardware, applications, and business services portions of this project.
- Scheduling, Integrator team composition, etc.
- Responses from references.
- On-going maintenance and service options offered, including pricing.
- Course content and method of presentation of training.
- Bidder's estimated pricing for this project as detailed in the Pricing Summary section of the proposal.

The evaluation process will be directed primarily at those capabilities clearly shown in the written proposal submitted. The District may request any or all firms submitting proposals to make oral presentations during the evaluation process and/or to provide additional information. As a part of the evaluation process, the District may also wish to visit facilities of some of the firms being considered.

The District shall be the sole judge of all proposals, particularly, which one best qualifies for acceptance. The District reserves the right to accept other than the lowest-priced proposal and to negotiate with respondents if it appears to be in the best interest of the District to do so. The District reserves the right to reject any and all proposals.

14. PROPOSAL DEADLINE

An electronic version of the Bidder's proposal must be submitted in response to this RFP. Optionally, in addition to an electronic copy, a printed proposal may be forwarded to:

Aleksandr Krivobok, Network Systems Analyst
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726
Aleksandr.Krivobok@valleyair.org

In order to be considered, the proposal must be received no later than 5:00 PM PST on Tuesday, November 19, 2019. After the submittal, bidders are required to request a separate confirmation e-mail of the receipt of their proposals from the District.

15. LIST OF APPENDICES

Appendix A District SMS IVR System Project Schedule

Appendix B Detailed Pricing Summary

Appendix C Call Flow Diagram

Appendix D SMS Database Details

Appendix E Current IVR Applications Details

Appendix F CHASM Service Details

Appendix G Reports

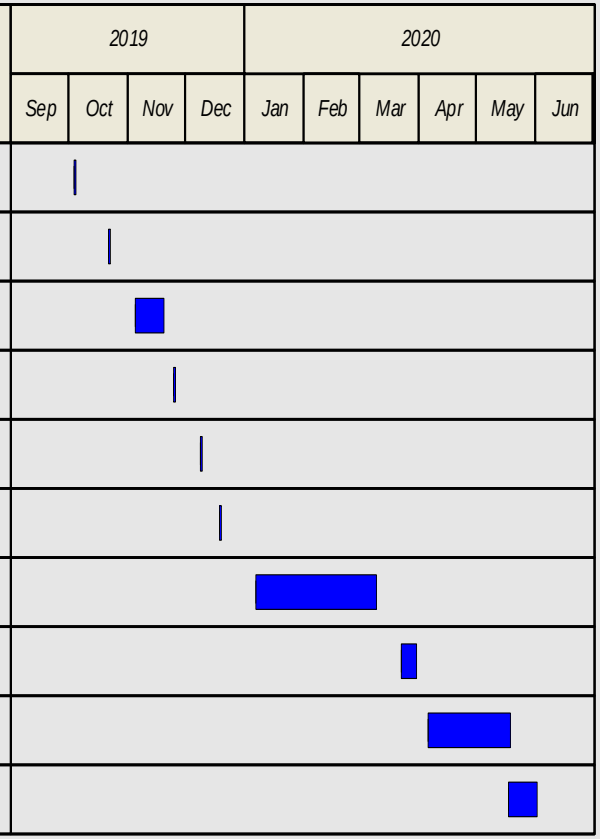
Appendix H Data retrieved by CTI process

Appendix I Burn Approval Process Diagram

Appendix J IVR Hardware

Appendix A District SMS IVR System Project Schedule

ID	Task Name	Start	Finish	Duration
1	RFP Released to Vendors	10/4/2019	10/4/2019	1d
2	RFP Bidders Conference	10/22/2019	10/22/2019	1d
3	RFP Due from Vendors	11/5/2019	11/19/2019	2w 1d
4	Vendor Selection	11/25/2019	11/25/2019	1d
5	Integration Contract Finalized with Winning Vendor	12/9/2019	12/09/2019	1d
6	Governing Board Meeting for Potential Approval	12/19/2019	12/19/2019	1d
7	Implementation of the IVR infrastructure and SMS application	1/7/2020	3/9/2020	9w
8	Cut-over to Production	3/23/2020	3/30/2020	1w 1d
9	Resolution of all outstanding punch list items	4/6/2020	5/18/2020	6w 1d
10	Training, Documentation and Project Closure	5/18/2020	6/1/2020	2w 1d



Appendix B Detailed Pricing Summary

This summary provides a sample of the cost breakdowns to be provided. There should be a summary section for the total project cost, with a separate detail section for each category in the proposal.

Project Pricing Summary

	SMS System		IVR System	
	Required	Optional	Required	Optional
Equipment				
Labor				
Facilities				
Sales Tax				
Shipping & Handling				
Training				

Project Detailed Pricing

SMS IVR SYSTEM

EQUIPMENT SECTION

Qty	Description	Unit Price	Ext. Price
	A		
	B		
	C		
	…		
		SALES TAX	
		SHIPPING & HANDLING	
		EQUIPMENT SECTION TOTAL	

LABOR SECTION

Qty	Description	Unit Price	Ext. Price
	A		
	B		
	C		
	…		
		SECTION TOTAL	

OTHER SECTION

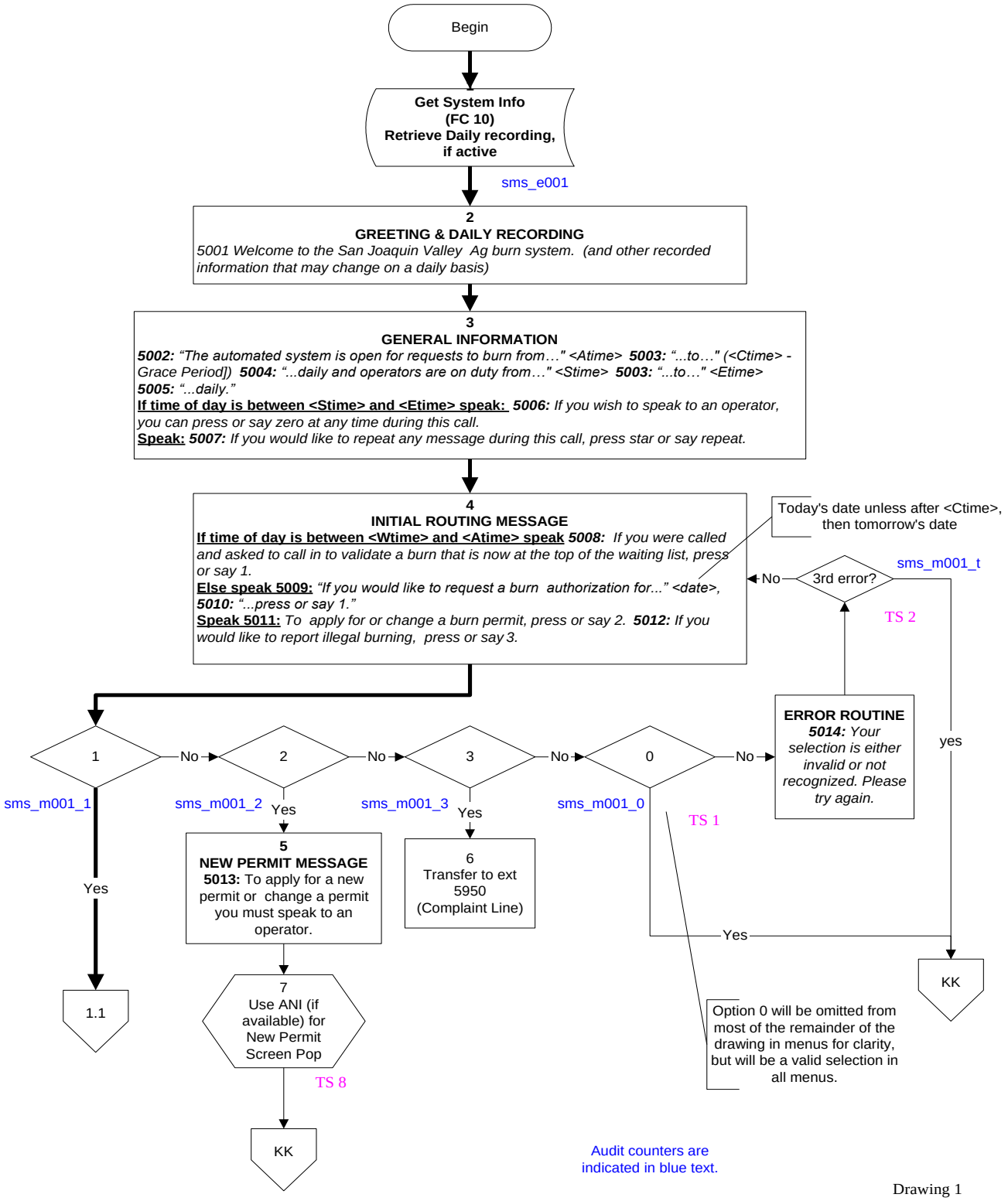
Qty	Description	Unit Price	Ext. Price
	A		
	B		
	C		
	…		
		SECTION TOTAL	

TRAINING SECTION

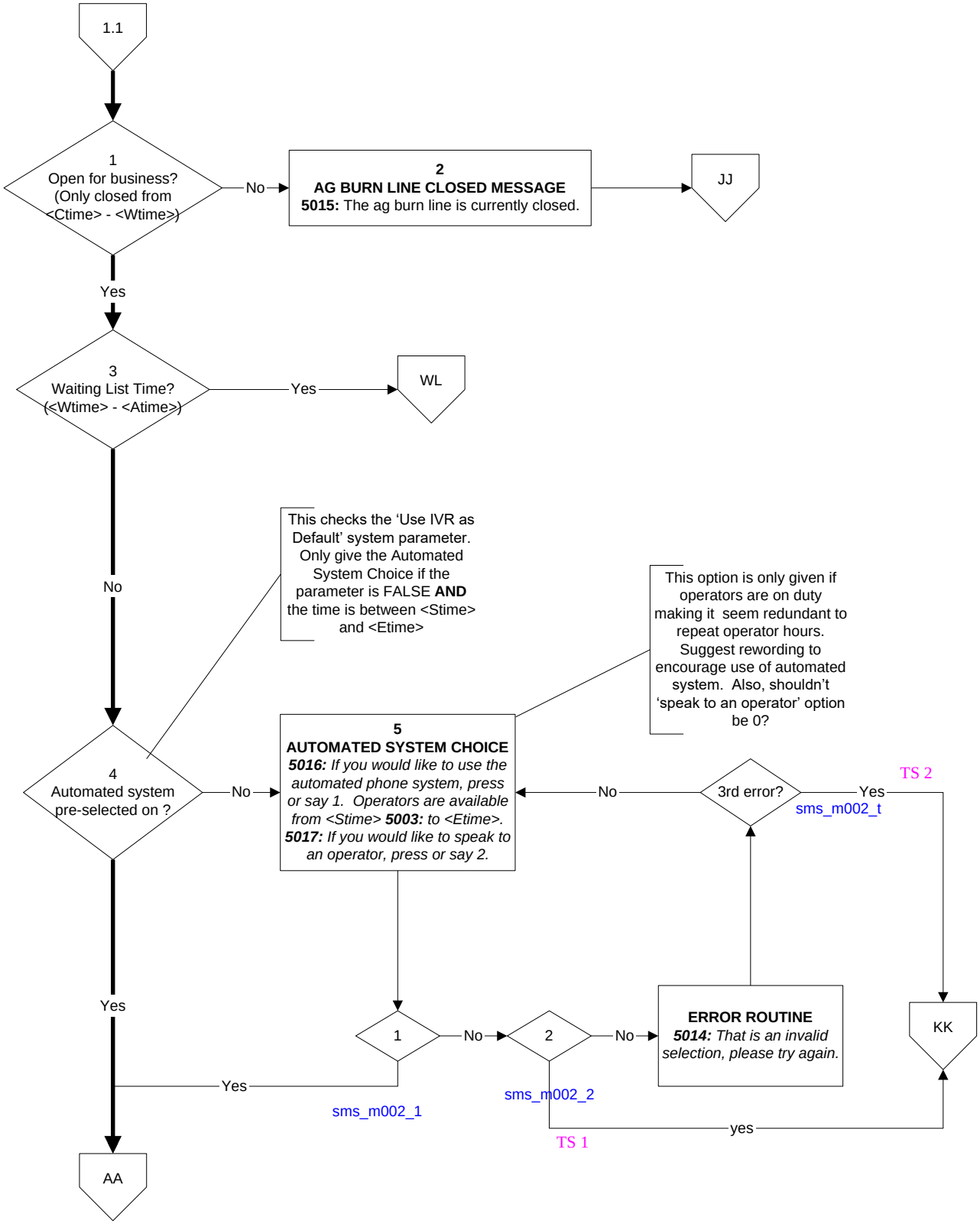
Qty	Description	Unit Price	Ext. Price

Appendix C Call Flow Diagram

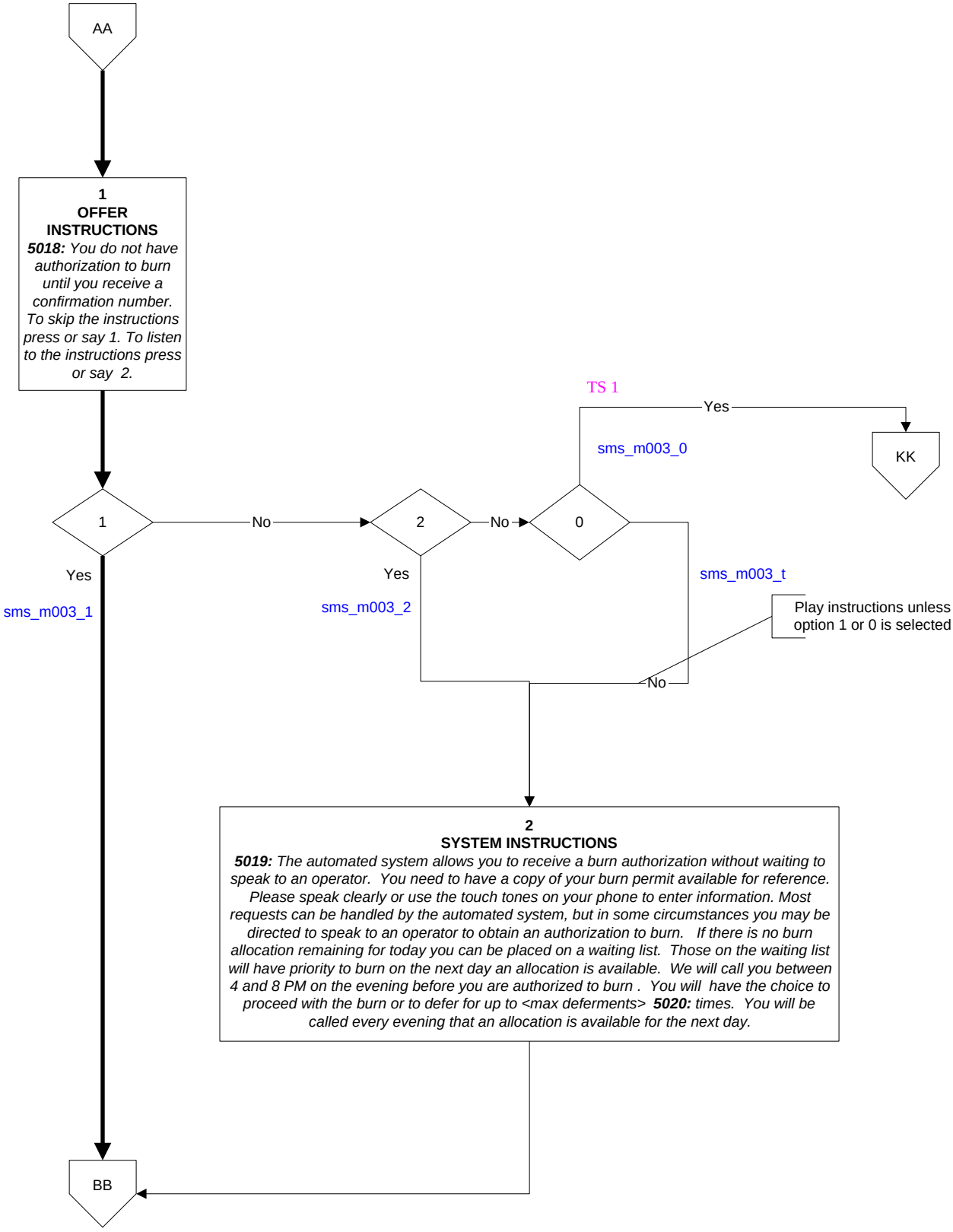
San Joaquin Valley Air Pollution Control District
Ag Burn Call Path Diagram



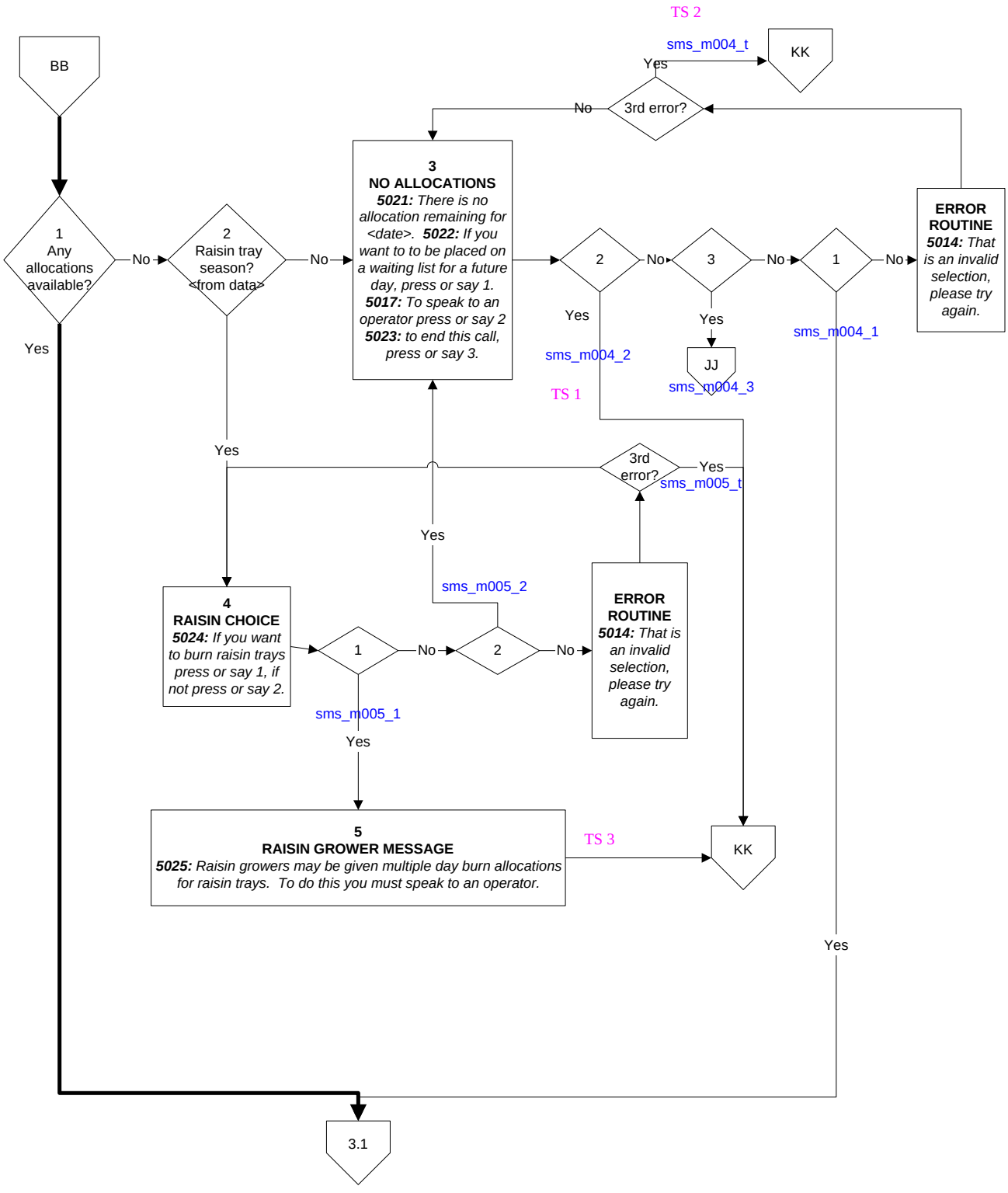
Drawing 1


1.1
1
Open for business?
(Only closed from
<Ctime> - <Wtime>)
No
2
AG BURN LINE CLOSED MESSAGE
5015: The ag burn line is currently closed.
JJ
Yes
3
Waiting List Time?
(<Wtime> - <Atime>)
Yes
WL
No
This checks the 'Use IVR as Default' system parameter. Only give the Automated System Choice if the parameter is FALSE AND the time is between <Stime> and <Etime>
This option is only given if operators are on duty making it seem redundant to repeat operator hours. Suggest rewording to encourage use of automated system. Also, shouldn't 'speak to an operator' option be 0?
4
Automated system
pre-selected on ?
No
5
AUTOMATED SYSTEM CHOICE
5016: If you would like to use the automated phone system, press or say 1. Operators are available from <Stime> 5003: to <Etime>.
5017: If you would like to speak to an operator, press or say 2.
No
3rd error?
Yes
sms_m002_t
TS 2
Yes
1
No
2
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
KK
Yes
sms_m002_1
sms_m002_2
TS 1
yes
AA

Drawing 1.1

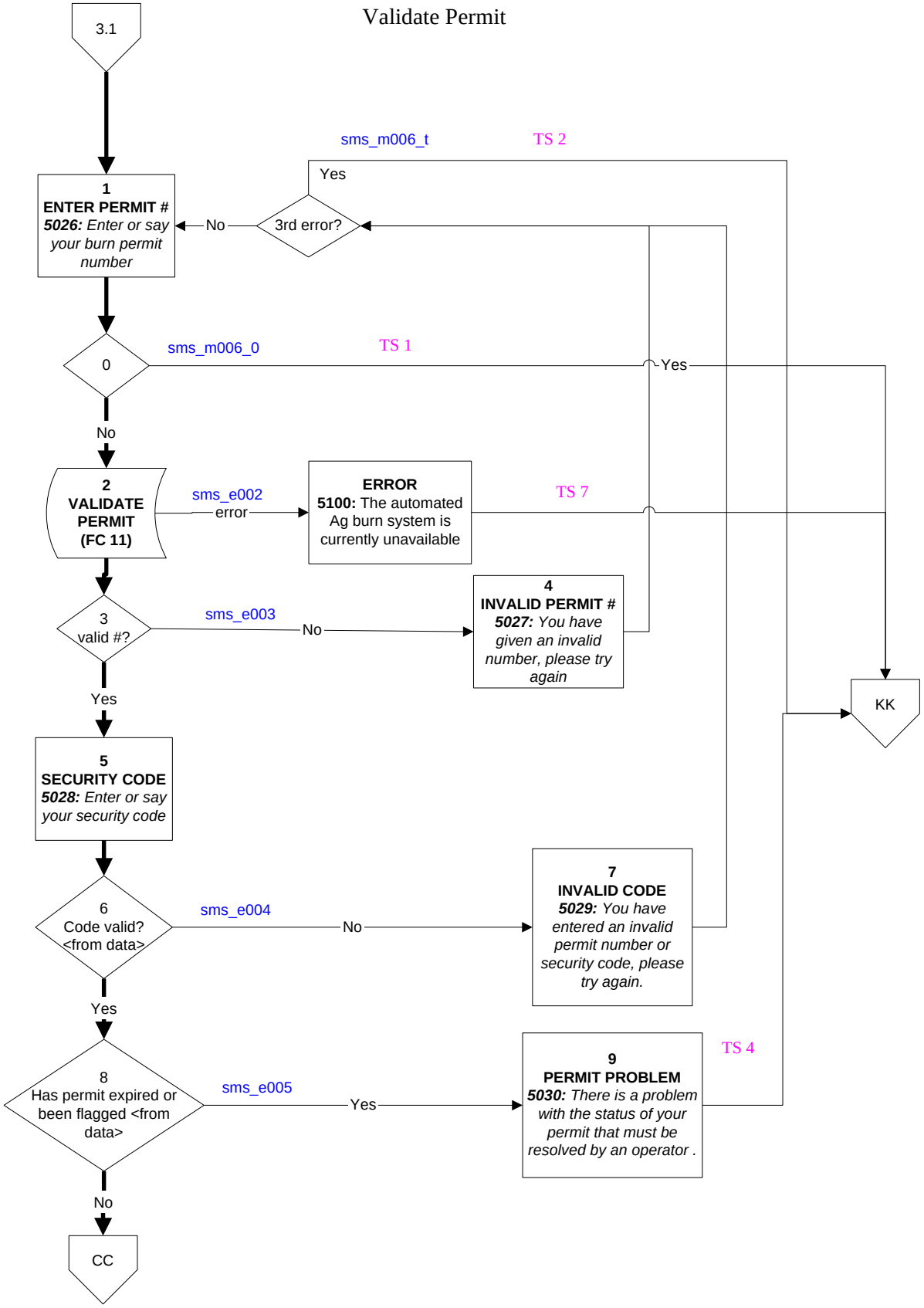

AA
1
OFFER
INSTRUCTIONS
5018: You do not have authorization to burn until you receive a confirmation number. To skip the instructions press or say 1. To listen to the instructions press or say 2.
TS 1
Yes
sms_m003_0
KK
1
No
2
No
0
Yes
sms_m003_1
Yes
sms_m003_2
sms_m003_t
Play instructions unless option 1 or 0 is selected
No
2
SYSTEM INSTRUCTIONS
5019: The automated system allows you to receive a burn authorization without waiting to speak to an operator. You need to have a copy of your burn permit available for reference. Please speak clearly or use the touch tones on your phone to enter information. Most requests can be handled by the automated system, but in some circumstances you may be directed to speak to an operator to obtain an authorization to burn. If there is no burn allocation remaining for today you can be placed on a waiting list. Those on the waiting list will have priority to burn on the next day an allocation is available. We will call you between 4 and 8 PM on the evening before you are authorized to burn . You will have the choice to proceed with the burn or to defer for up to <max deferments> 5020: times. You will be called every evening that an allocation is available for the next day.
BB

Drawing 2

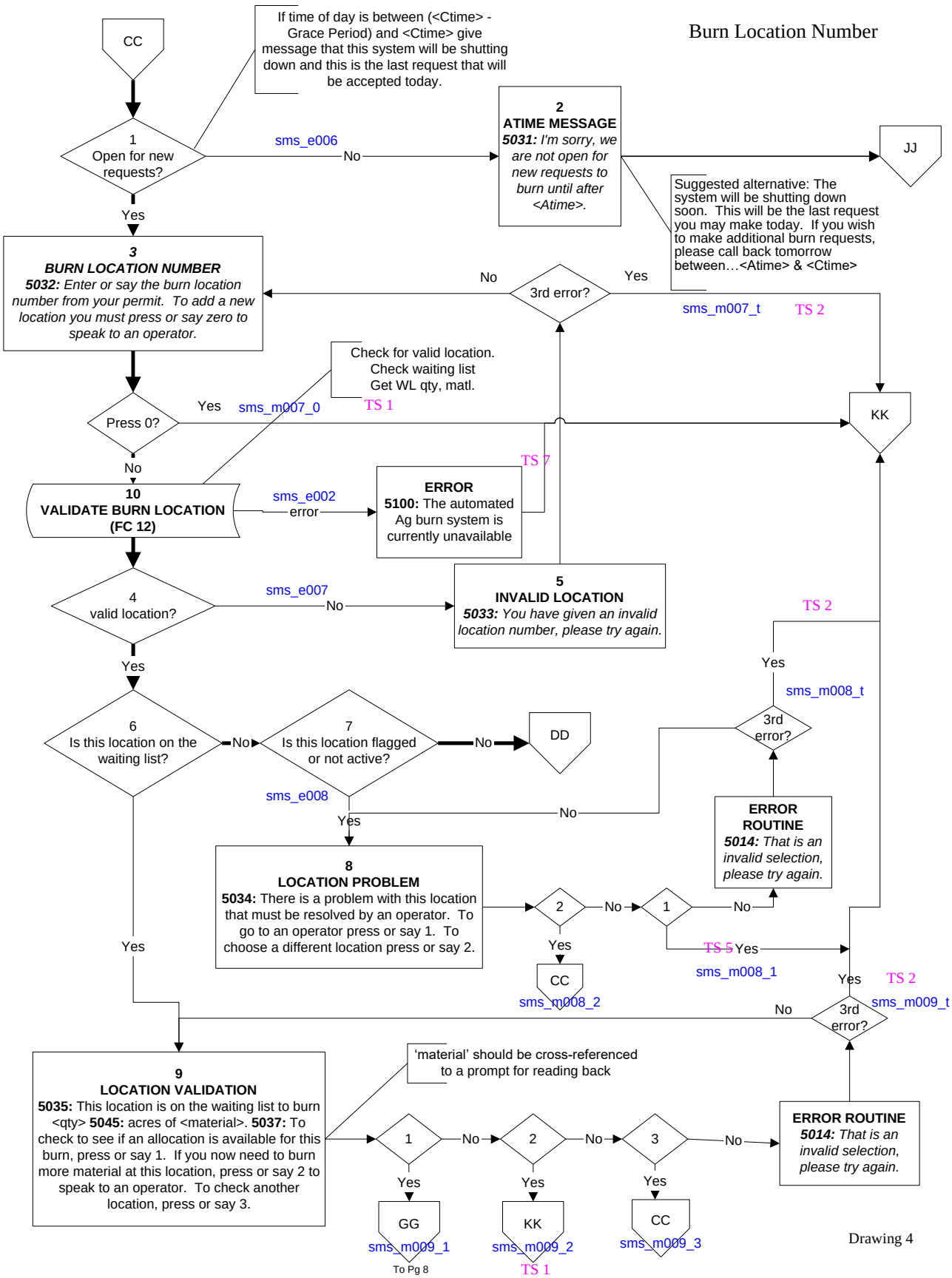

TS 2
sms_m004_t
KK
BB
Yes
No
3rd error?
3
NO ALLOCATIONS
5021: There is no allocation remaining for <date>. 5022: If you want to to be placed on a waiting list for a future day, press or say 1. 5017: To speak to an operator press or say 2 5023: to end this call, press or say 3.
ERROR ROUTINE
5014: That is an invalid selection, please try again.
1 Any allocations available?
No
2 Raisin tray season? <from data>
No
2
No
3
No
1
No
Yes
Yes
Yes
sms_m004_2
sms_m004_1
JJ
sms_m004_3
TS 1
Yes
3rd error?
Yes
sms_m005_t
Yes
sms_m005_2
4
RAISIN CHOICE
5024: If you want to burn raisin trays press or say 1, if not press or say 2.
1
No
2
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
sms_m005_1
Yes
5
RAISIN GROWER MESSAGE
5025: Raisin growers may be given multiple day burn allocations for raisin trays. To do this you must speak to an operator.
TS 3
KK
Yes
3.1

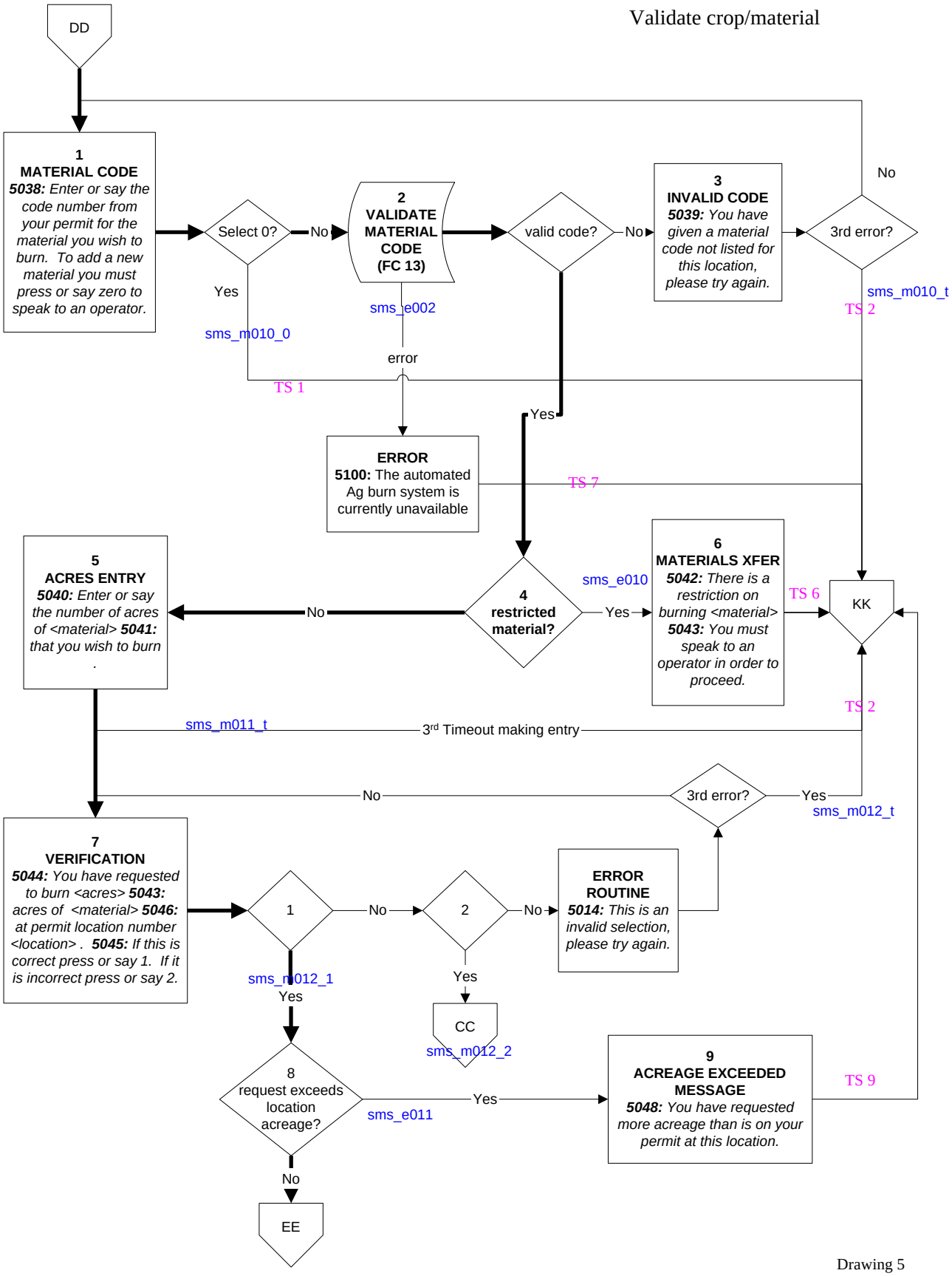
Drawing 3

Validate Permit

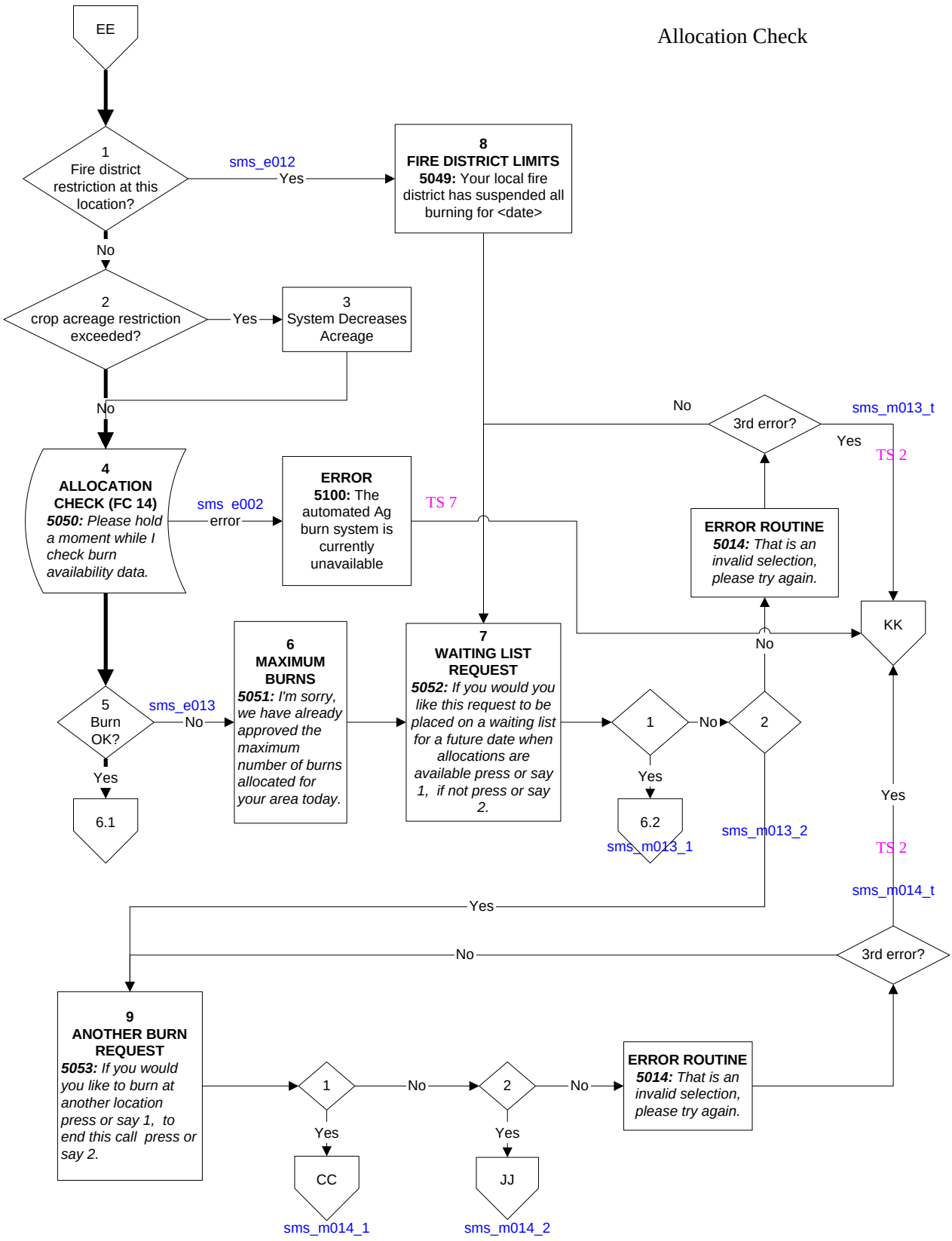


Drawing 3.1


Burn Location Number
CC
If time of day is between (<Ctime> - Grace Period) and <Ctime> give message that this system will be shutting down and this is the last request that will be accepted today.
1
Open for new requests?
sms_e006
No
2
ATIME MESSAGE
5031: I'm sorry, we are not open for new requests to burn until after <Atime>.
JJ
Suggested alternative: The system will be shutting down soon. This will be the last request you may make today. If you wish to make additional burn requests, please call back tomorrow between…<Atime> & <Ctime>
Yes
3
BURN LOCATION NUMBER
5032: Enter or say the burn location number from your permit. To add a new location you must press or say zero to speak to an operator.
No
3rd error?
Yes
sms_m007_t
TS 2
Check for valid location.
Check waiting list
Get WL qty, matl.
Press 0?
Yes
sms_m007_0
TS 1
KK
No
TS 7
10
VALIDATE BURN LOCATION (FC 12)
sms_e002
error
ERROR
5100: The automated Ag burn system is currently unavailable
4
valid location?
sms_e007
No
5
INVALID LOCATION
5033: You have given an invalid location number, please try again.
TS 2
Yes
Yes
sms_m008_t
6
Is this location on the waiting list?
No
7
Is this location flagged or not active?
No
DD
3rd error?
sms_e008
No
Yes
ERROR ROUTINE
5014: That is an invalid selection, please try again.
8
LOCATION PROBLEM
5034: There is a problem with this location that must be resolved by an operator. To go to an operator press or say 1. To choose a different location press or say 2.
2
No
1
No
Yes
TS 5
Yes
CC
sms_m008_2
sms_m008_1
Yes
TS 2
sms_m009_t
No
3rd error?
Yes
9
LOCATION VALIDATION
5035: This location is on the waiting list to burn <qty> 5045: acres of <material>. 5037: To check to see if an allocation is available for this burn, press or say 1. If you now need to burn more material at this location, press or say 2 to speak to an operator. To check another location, press or say 3.
'material' should be cross-referenced to a prompt for reading back
1
No
2
No
3
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
Yes
Yes
Yes
GG
sms_m009_1
KK
sms_m009_2
CC
sms_m009_3
To Pg 8
TS 1
Drawing 4

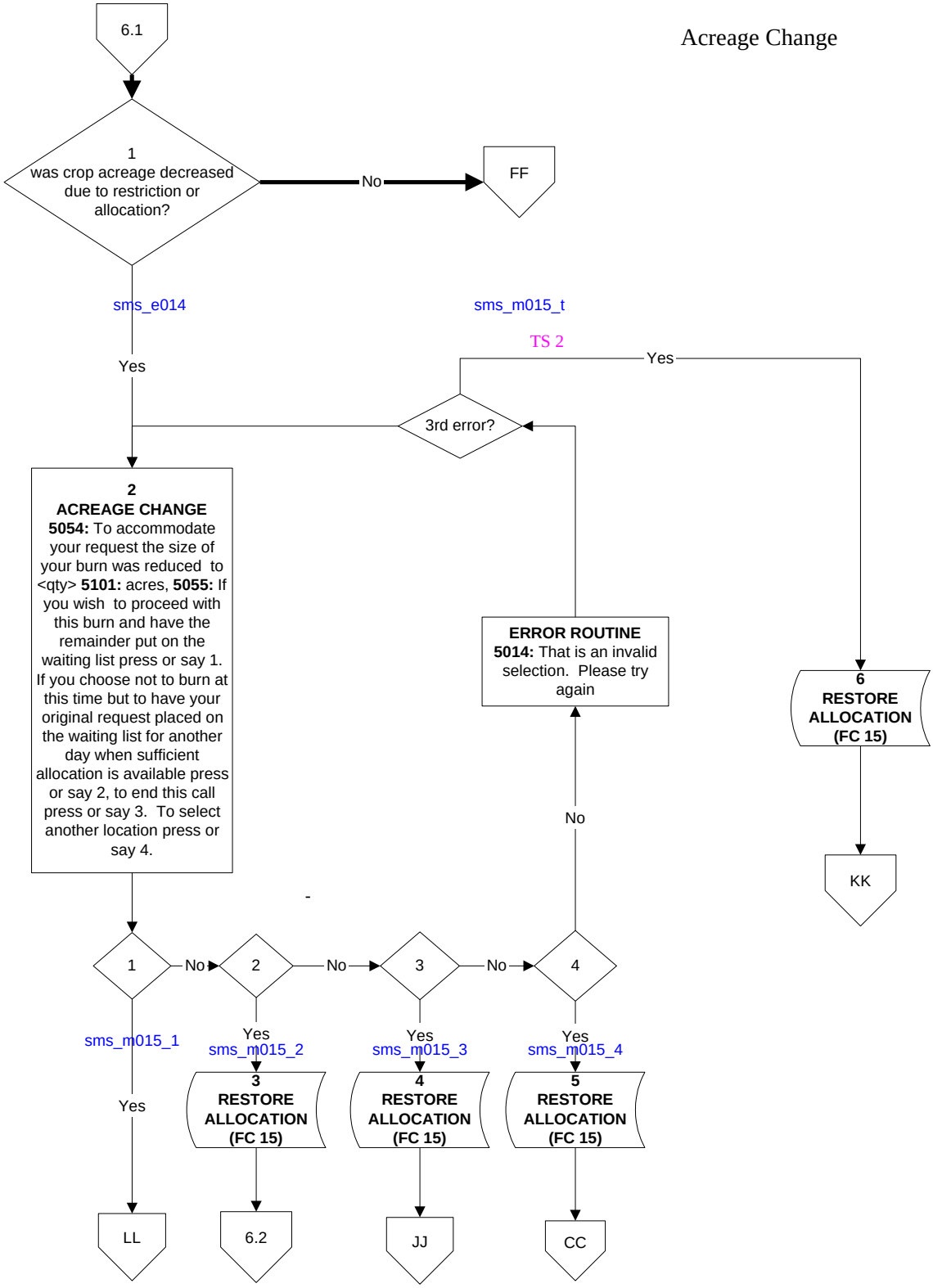

DD
1
MATERIAL CODE
5038: Enter or say the code number from your permit for the material you wish to burn. To add a new material you must press or say zero to speak to an operator.
Select 0?
No
Yes
sms_m010_0
2
VALIDATE MATERIAL CODE (FC 13)
sms_e002
error
valid code?
No
3
INVALID CODE
5039: You have given a material code not listed for this location, please try again.
3rd error?
No
sms_m010_t
TS 2
TS 1
Yes
ERROR
5100: The automated Ag burn system is currently unavailable
TS 7
4
restricted material?
No
Yes
sms_e010
6
MATERIALS XFER
5042: There is a restriction on burning <material>
5043: You must speak to an operator in order to proceed.
TS 6
KK
5
ACRES ENTRY
5040: Enter or say the number of acres of <material> 5041: that you wish to burn .
sms_m011_t
3rd Timeout making entry
TS 2
No
3rd error?
Yes
sms_m012_t
7
VERIFICATION
5044: You have requested to burn <acres> 5043: acres of <material> 5046: at permit location number <location> . 5045: If this is correct press or say 1. If it is incorrect press or say 2.
1
No
2
No
ERROR ROUTINE
5014: This is an invalid selection, please try again.
sms_m012_1
Yes
Yes
CC
sms_m012_2
8
request exceeds location acreage?
Yes
sms_e011
9
ACREAGE EXCEEDED MESSAGE
5048: You have requested more acreage than is on your permit at this location.
TS 9
No
EE

Drawing 5

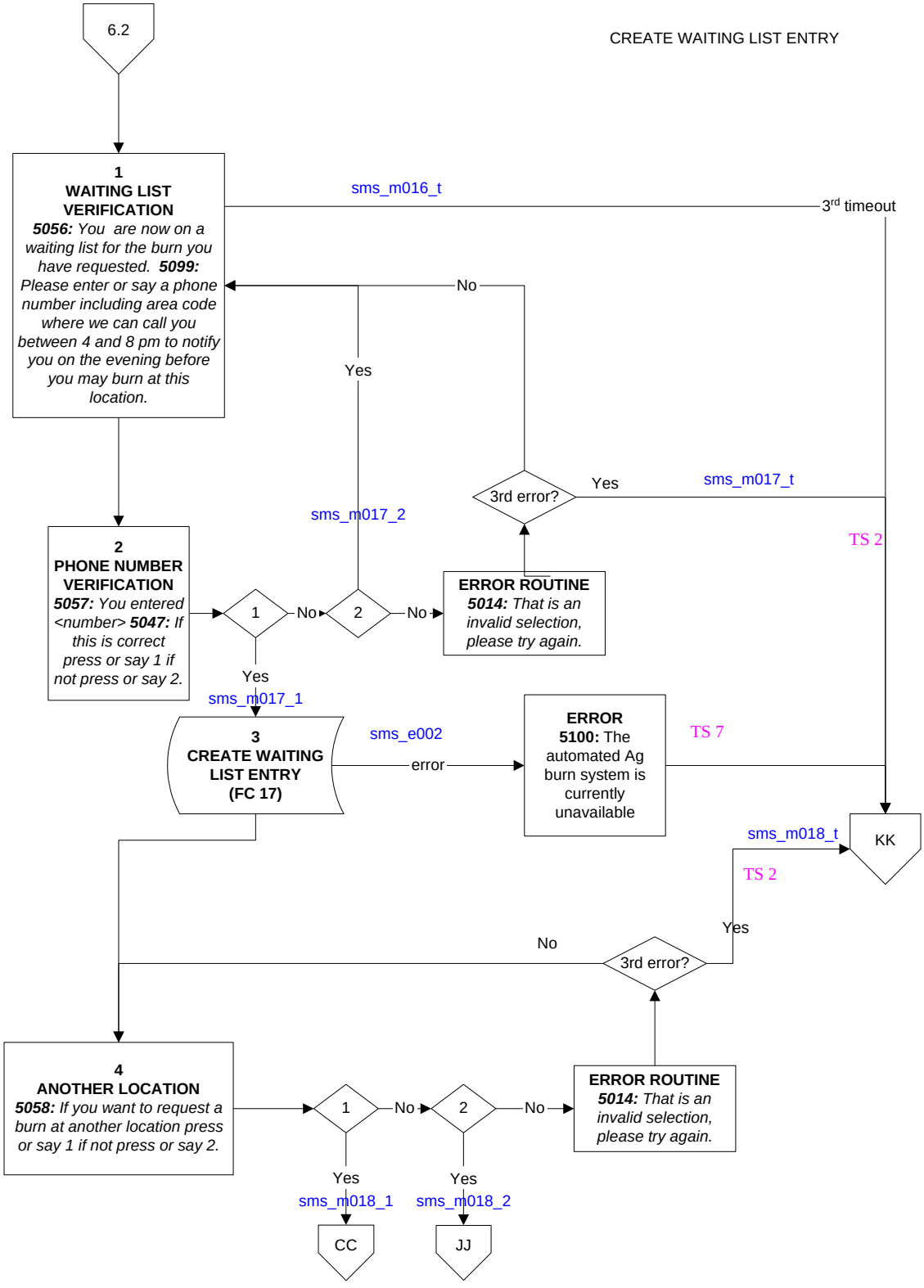

Allocation Check
EE
1
Fire district restriction at this location?
sms_e012
Yes
8
FIRE DISTRICT LIMITS
5049: Your local fire district has suspended all burning for <date>
No
2
crop acreage restriction exceeded?
Yes
3
System Decreases Acreage
No
4
ALLOCATION CHECK (FC 14)
5050: Please hold a moment while I check burn availability data.
sms_e002
error
ERROR
5100: The automated Ag burn system is currently unavailable
TS 7
No
3rd error?
sms_m013_t
Yes
TS 2
ERROR ROUTINE
5014: That is an invalid selection, please try again.
KK
No
5
Burn OK?
sms_e013
No
6
MAXIMUM BURNS
5051: I'm sorry, we have already approved the maximum number of burns allocated for your area today.
7
WAITING LIST REQUEST
5052: If you would you like this request to be placed on a waiting list for a future date when allocations are available press or say 1, if not press or say 2.
1
No
2
Yes
6.2
sms_m013_1
sms_m013_2
Yes
6.1
Yes
TS 2
sms_m014_t
Yes
No
3rd error?
9
ANOTHER BURN REQUEST
5053: If you would you like to burn at another location press or say 1, to end this call press or say 2.
1
No
2
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
Yes
Yes
CC
JJ
sms_m014_1
sms_m014_2

Drawing 6

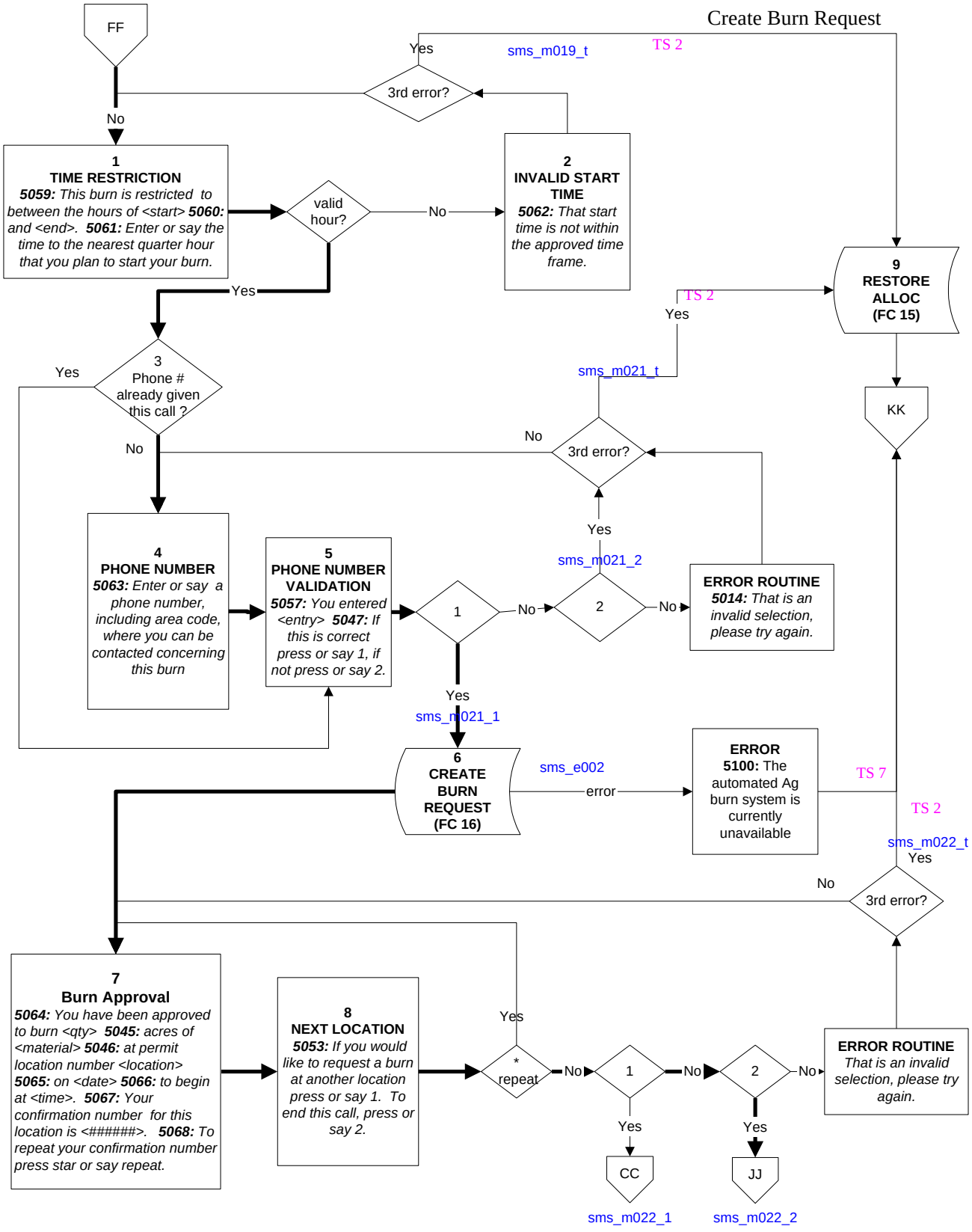
Acreage Change



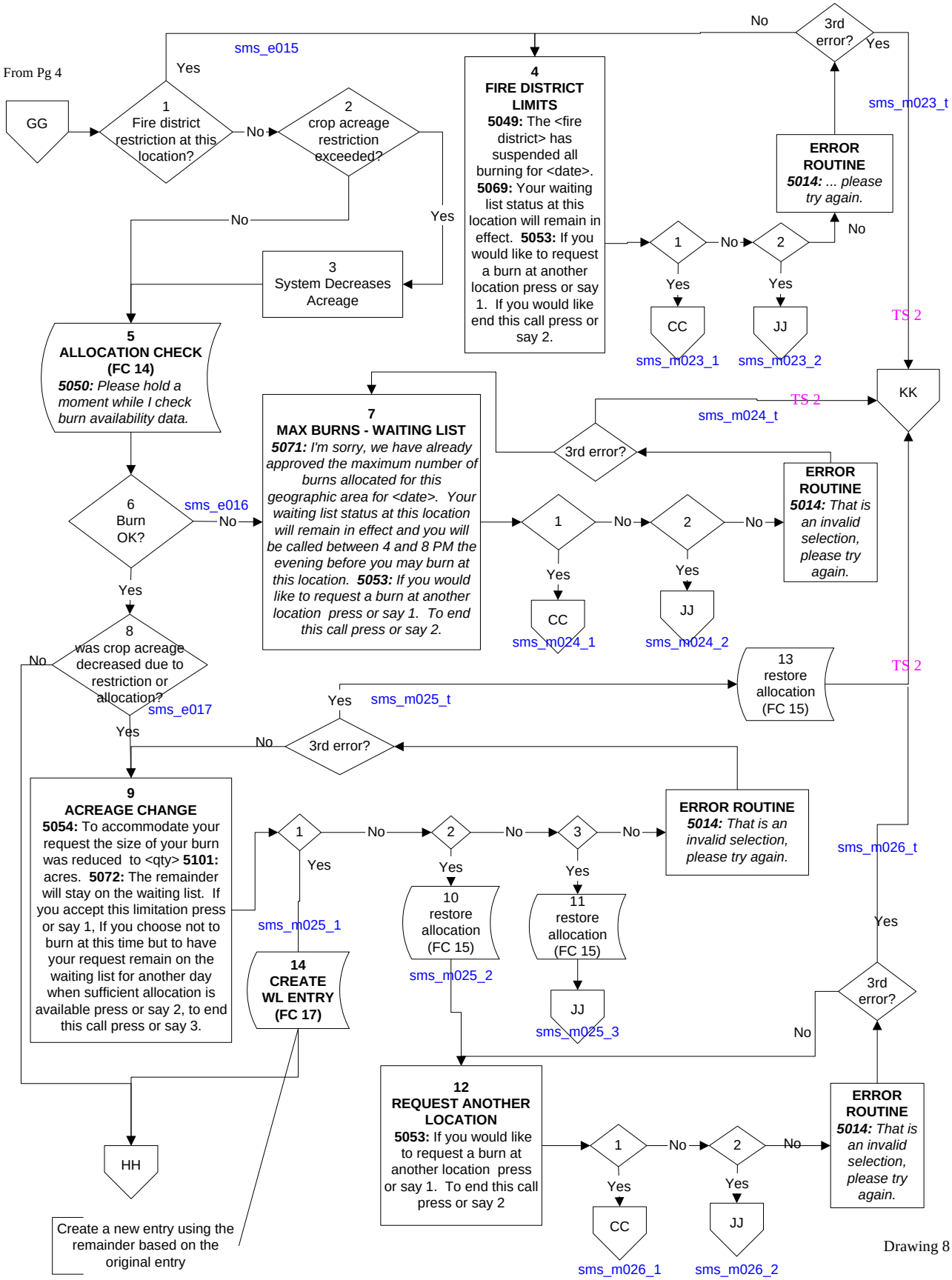
Drawing 6.1

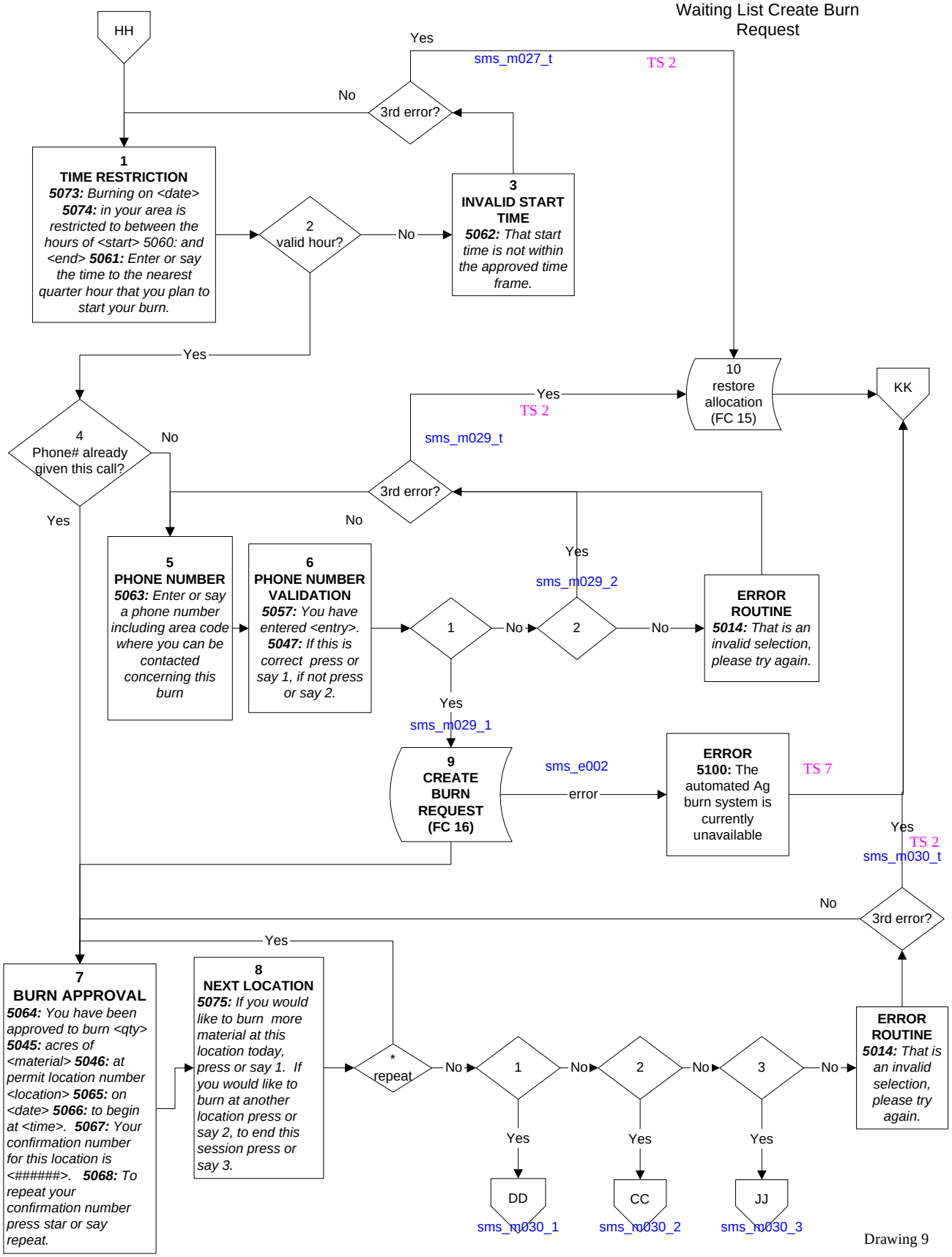

6.2
CREATE WAITING LIST ENTRY
1
WAITING LIST VERIFICATION
5056: You are now on a waiting list for the burn you have requested. 5099: Please enter or say a phone number including area code where we can call you between 4 and 8 pm to notify you on the evening before you may burn at this location.
sms_m016_t
3rd timeout
No
Yes
3rd error?
Yes
sms_m017_t
TS 2
sms_m017_2
2
PHONE NUMBER VERIFICATION
5057: You entered <number> 5047: If this is correct press or say 1 if not press or say 2.
1
No
2
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
Yes
sms_m017_1
3
CREATE WAITING LIST ENTRY (FC 17)
sms_e002
error
ERROR
5100: The automated Ag burn system is currently unavailable
TS 7
sms_m018_t
KK
TS 2
Yes
No
3rd error?
4
ANOTHER LOCATION
5058: If you want to request a burn at another location press or say 1 if not press or say 2.
1
No
2
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
Yes
Yes
sms_m018_1
sms_m018_2
CC
JJ

Drwaing 6.2


Create Burn Request
FF
No
1
TIME RESTRICTION
5059: This burn is restricted to between the hours of <start> 5060: and <end>. 5061: Enter or say the time to the nearest quarter hour that you plan to start your burn.
valid hour?
No
2
INVALID START TIME
5062: That start time is not within the approved time frame.
Yes
sms_m019_t
TS 2
3rd error?
Yes
9
RESTORE ALLOC (FC 15)
TS 2
Yes
sms_m021_t
KK
3 Phone # already given this call ?
Yes
No
3rd error?
No
Yes
4
PHONE NUMBER
5063: Enter or say a phone number, including area code, where you can be contacted concerning this burn
5
PHONE NUMBER VALIDATION
5057: You entered <entry> 5047: If this is correct press or say 1, if not press or say 2.
sms_m021_2
1
No
2
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
Yes
sms_m021_1
6
CREATE BURN REQUEST (FC 16)
sms_e002
error
ERROR
5100: The automated Ag burn system is currently unavailable
TS 7
TS 2
sms_m022_t
Yes
No
3rd error?
7
Burn Approval
5064: You have been approved to burn <qty> 5045: acres of <material> 5046: at permit location number <location> 5065: on <date> 5066: to begin at <time>. 5067: Your confirmation number for this location is <######>. 5068: To repeat your confirmation number press star or say repeat.
8
NEXT LOCATION
5053: If you would like to request a burn at another location press or say 1. To end this call, press or say 2.
Yes
* repeat
No
1
No
2
No
ERROR ROUTINE
That is an invalid selection, please try again.
Yes
Yes
CC
JJ
sms_m022_1
sms_m022_2

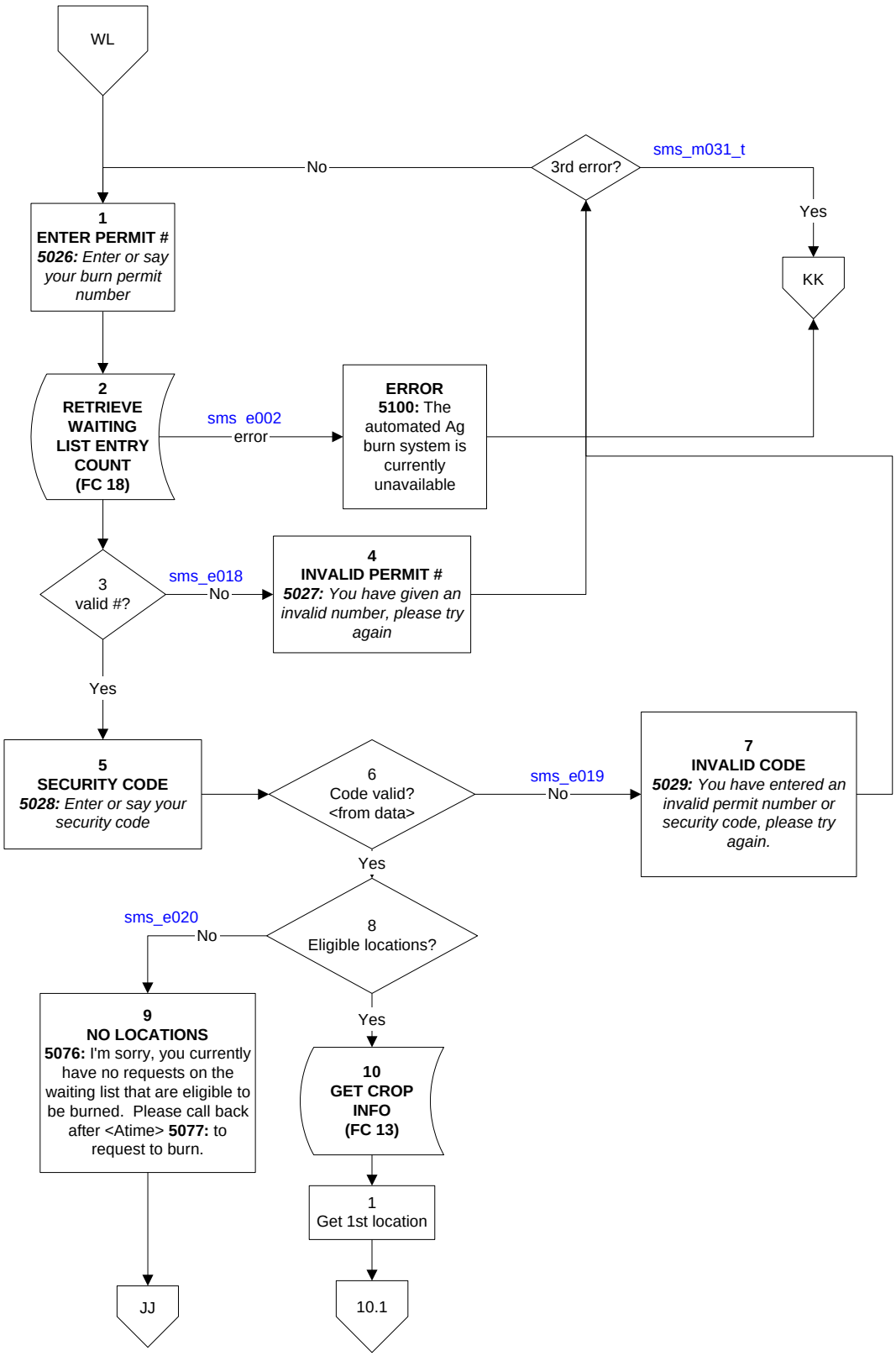
Drawing 7


From Pg 4
GG
1
Fire district restriction at this location?
Yes
No
2
crop acreage restriction exceeded?
Yes
No
3
System Decreases Acreage
sms_e015
4
FIRE DISTRICT LIMITS
5049: The <fire district> has suspended all burning for <date>.
5069: Your waiting list status at this location will remain in effect. 5053: If you would like to request a burn at another location press or say 1. If you would like end this call press or say 2.
1
2
CC
sms_m023_1
JJ
sms_m023_2
ERROR ROUTINE
5014: ... please try again.
3rd error?
sms_m023_t
TS 2
KK
5
ALLOCATION CHECK (FC 14)
5050: Please hold a moment while I check burn availability data.
6
Burn OK?
sms_e016
7
MAX BURNS - WAITING LIST
5071: I'm sorry, we have already approved the maximum number of burns allocated for this geographic area for <date>. Your waiting list status at this location will remain in effect and you will be called between 4 and 8 PM the evening before you may burn at this location. 5053: If you would like to request a burn at another location press or say 1. To end this call press or say 2.
3rd error?
sms_m024_t
ERROR ROUTINE
5014: That is an invalid selection, please try again.
CC
sms_m024_1
JJ
sms_m024_2
8
was crop acreage decreased due to restriction or allocation?
sms_e017
13
restore allocation (FC 15)
sms_m025_t
9
ACREAGE CHANGE
5054: To accommodate your request the size of your burn was reduced to <qty> 5101: acres. 5072: The remainder will stay on the waiting list. If you accept this limitation press or say 1, If you choose not to burn at this time but to have your request remain on the waiting list for another day when sufficient allocation is available press or say 2, to end this call press or say 3.
3rd error?
ERROR ROUTINE
5014: That is an invalid selection, please try again.
sms_m025_1
14
CREATE WL ENTRY (FC 17)
10
restore allocation (FC 15)
sms_m025_2
11
restore allocation (FC 15)
JJ
sms_m025_3
sms_m026_t
3rd error?
12
REQUEST ANOTHER LOCATION
5053: If you would like to request a burn at another location press or say 1. To end this call press or say 2
CC
sms_m026_1
JJ
sms_m026_2
ERROR ROUTINE
5014: That is an invalid selection, please try again.
HH
Create a new entry using the remainder based on the original entry
Drawing 8

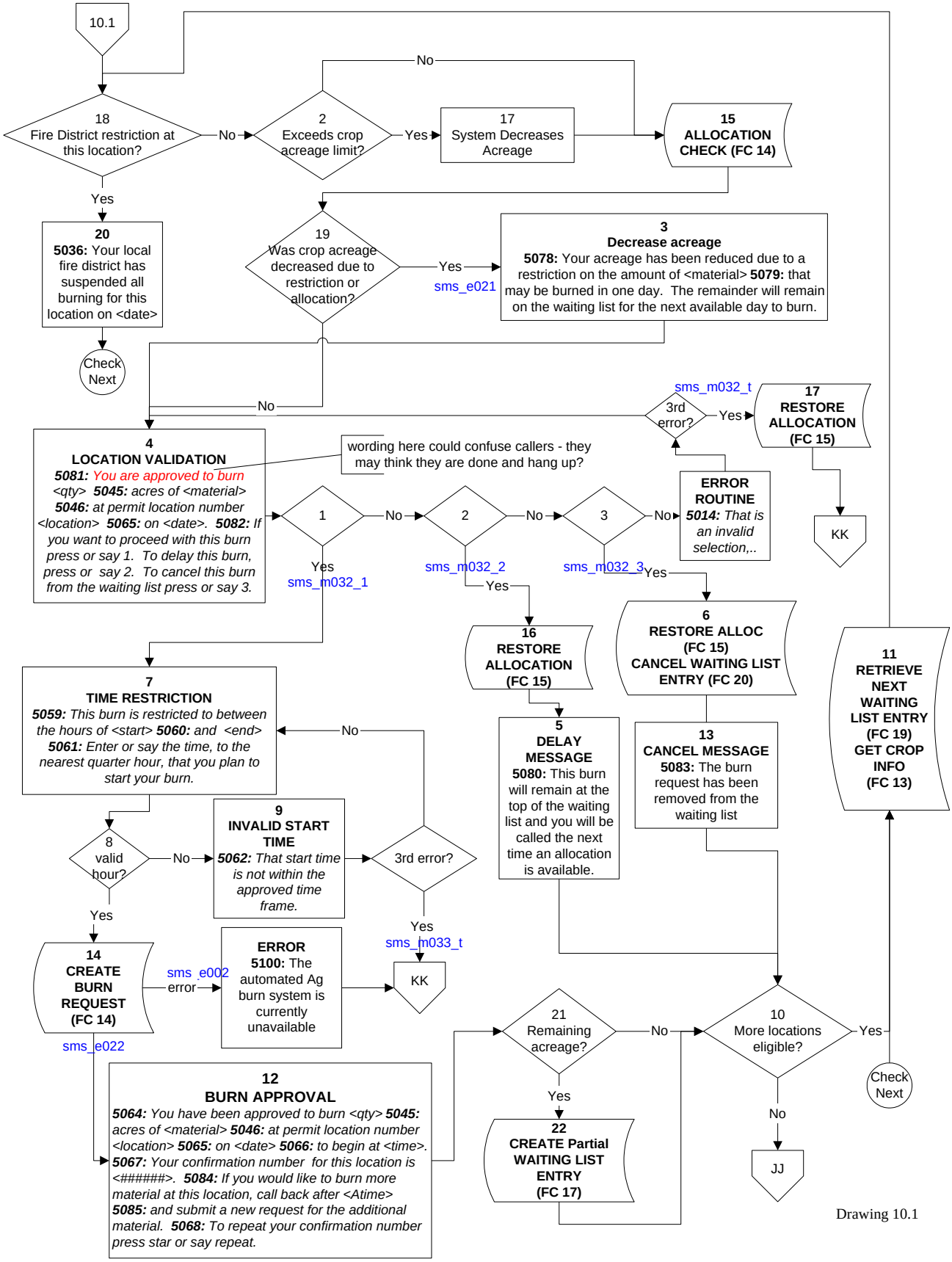

Waiting List Create Burn Request
HH
Yes
sms_m027_t
TS 2
No
3rd error?
1
TIME RESTRICTION
5073: Burning on <date> 5074: in your area is restricted to between the hours of <start> 5060: and <end> 5061: Enter or say the time to the nearest quarter hour that you plan to start your burn.
2
valid hour?
No
3
INVALID START TIME
5062: That start time is not within the approved time frame.
Yes
10
restore allocation (FC 15)
KK
Yes
TS 2
sms_m029_t
4
Phone# already given this call?
No
3rd error?
Yes
No
5
PHONE NUMBER
5063: Enter or say a phone number including area code where you can be contacted concerning this burn
6
PHONE NUMBER VALIDATION
5057: You have entered <entry>. 5047: If this is correct press or say 1, if not press or say 2.
1
No
Yes
sms_m029_2
2
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
Yes
sms_m029_1
9
CREATE BURN REQUEST (FC 16)
sms_e002
error
ERROR
5100: The automated Ag burn system is currently unavailable
TS 7
Yes
TS 2
sms_m030_t
No
3rd error?
Yes
7
BURN APPROVAL
5064: You have been approved to burn <qty> 5045: acres of <material> 5046: at permit location number <location> 5065: on <date> 5066: to begin at <time>. 5067: Your confirmation number for this location is <######>. 5068: To repeat your confirmation number press star or say repeat.
8
NEXT LOCATION
5075: If you would like to burn more material at this location today, press or say 1. If you would like to burn at another location press or say 2, to end this session press or say 3.
*
repeat
No
1
No
2
No
3
No
ERROR ROUTINE
5014: That is an invalid selection, please try again.
Yes
Yes
Yes
DD
sms_m030_1
CC
sms_m030_2
JJ
sms_m030_3

Drawing 9

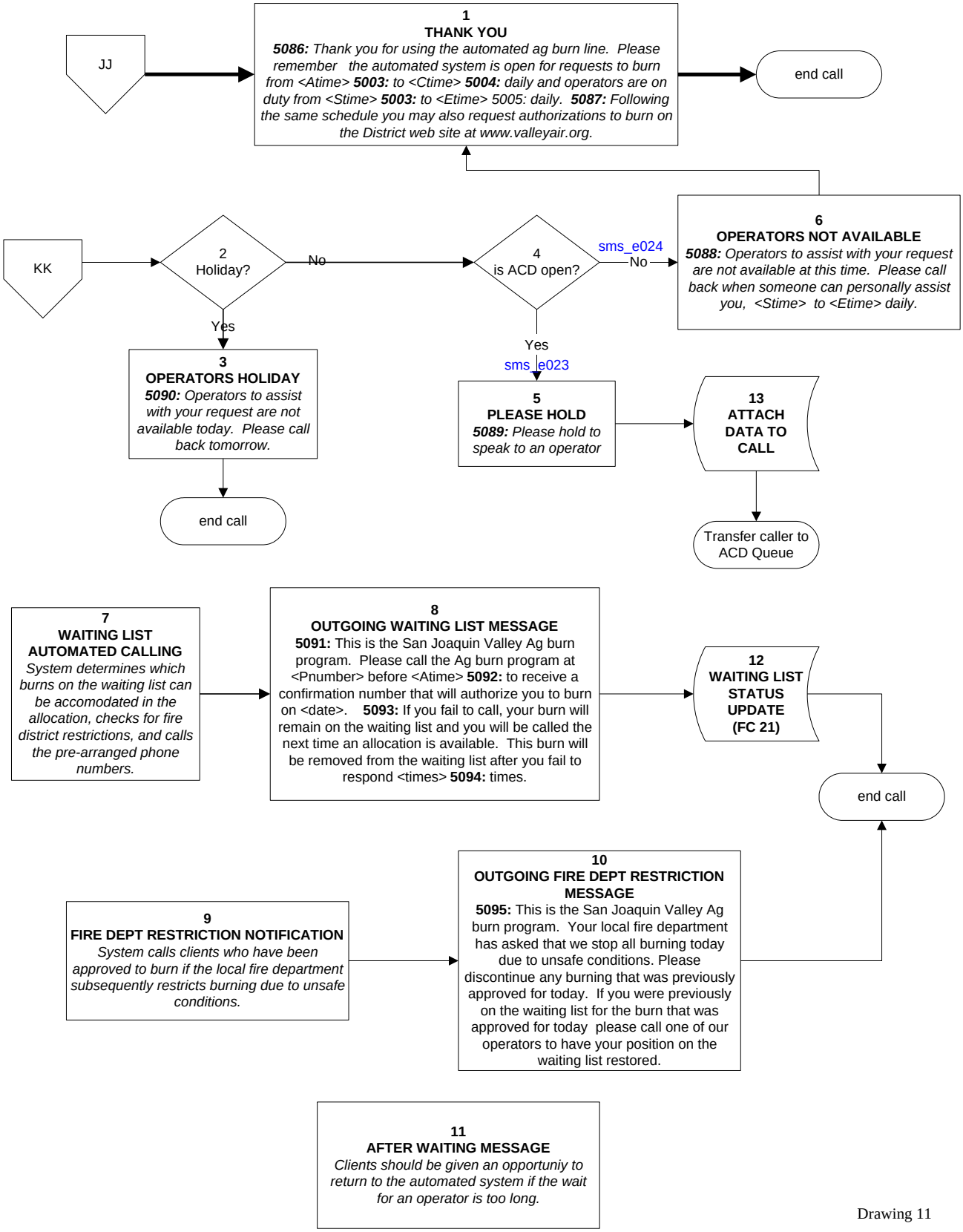
Waiting List



Drawing 10

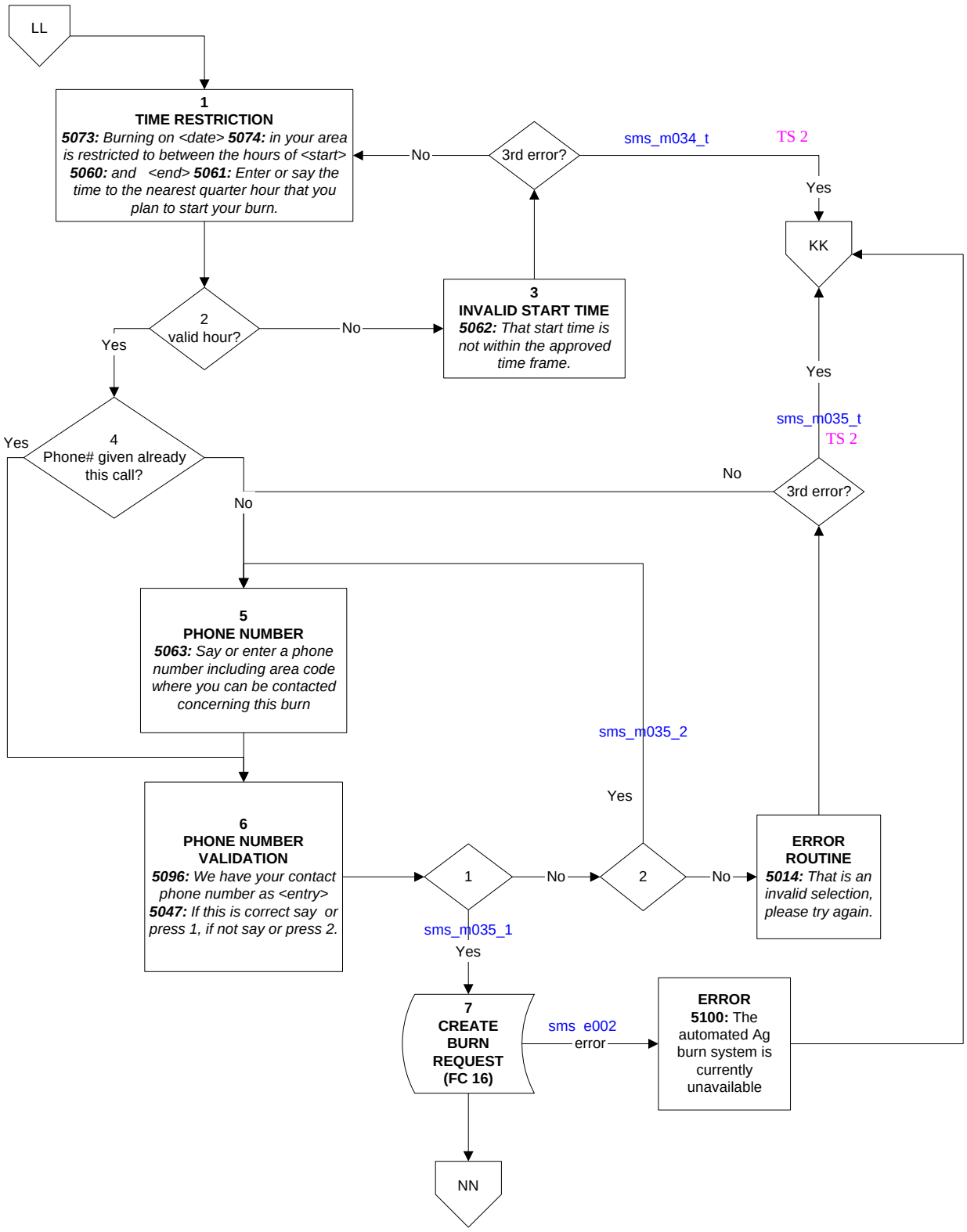

10.1
18
Fire District restriction at this location?
No
2
Exceeds crop acreage limit?
Yes
17
System Decreases Acreage
No
15
ALLOCATION CHECK (FC 14)
Yes
20
5036: Your local fire district has suspended all burning for this location on <date>
Check Next
19
Was crop acreage decreased due to restriction or allocation?
Yes
sms_e021
3
Decrease acreage
5078: Your acreage has been reduced due to a restriction on the amount of <material> 5079: that may be burned in one day. The remainder will remain on the waiting list for the next available day to burn.
No
sms_m032_t
3rd error?
Yes
17
RESTORE ALLOCATION (FC 15)
KK
4
LOCATION VALIDATION
5081: You are approved to burn <qty> 5045: acres of <material> 5046: at permit location number <location> 5065: on <date>. 5082: If you want to proceed with this burn press or say 1. To delay this burn, press or say 2. To cancel this burn from the waiting list press or say 3.
wording here could confuse callers - they may think they are done and hang up?
1
No
2
No
3
No
ERROR ROUTINE
5014: That is an invalid selection,..
Yes
sms_m032_1
sms_m032_2
Yes
sms_m032_3
Yes
16
RESTORE ALLOCATION (FC 15)
6
RESTORE ALLOC (FC 15)
CANCEL WAITING LIST ENTRY (FC 20)
11
RETRIEVE NEXT WAITING LIST ENTRY (FC 19)
GET CROP INFO (FC 13)
7
TIME RESTRICTION
5059: This burn is restricted to between the hours of <start> 5060: and <end> 5061: Enter or say the time, to the nearest quarter hour, that you plan to start your burn.
No
5
DELAY MESSAGE
5080: This burn will remain at the top of the waiting list and you will be called the next time an allocation is available.
13
CANCEL MESSAGE
5083: The burn request has been removed from the waiting list
8
valid hour?
No
9
INVALID START TIME
5062: That start time is not within the approved time frame.
3rd error?
Yes
sms_m033_t
KK
Yes
14
CREATE BURN REQUEST (FC 14)
sms_e002
error
ERROR
5100: The automated Ag burn system is currently unavailable
sms_e022
21
Remaining acreage?
No
10
More locations eligible?
Yes
Check Next
Yes
22
CREATE Partial WAITING LIST ENTRY (FC 17)
No
JJ
12
BURN APPROVAL
5064: You have been approved to burn <qty> 5045: acres of <material> 5046: at permit location number <location> 5065: on <date> 5066: to begin at <time>. 5067: Your confirmation number for this location is <######>. 5084: If you would like to burn more material at this location, call back after <Atime> 5085: and submit a new request for the additional material. 5068: To repeat your confirmation number press star or say repeat.

Drawing 10.1

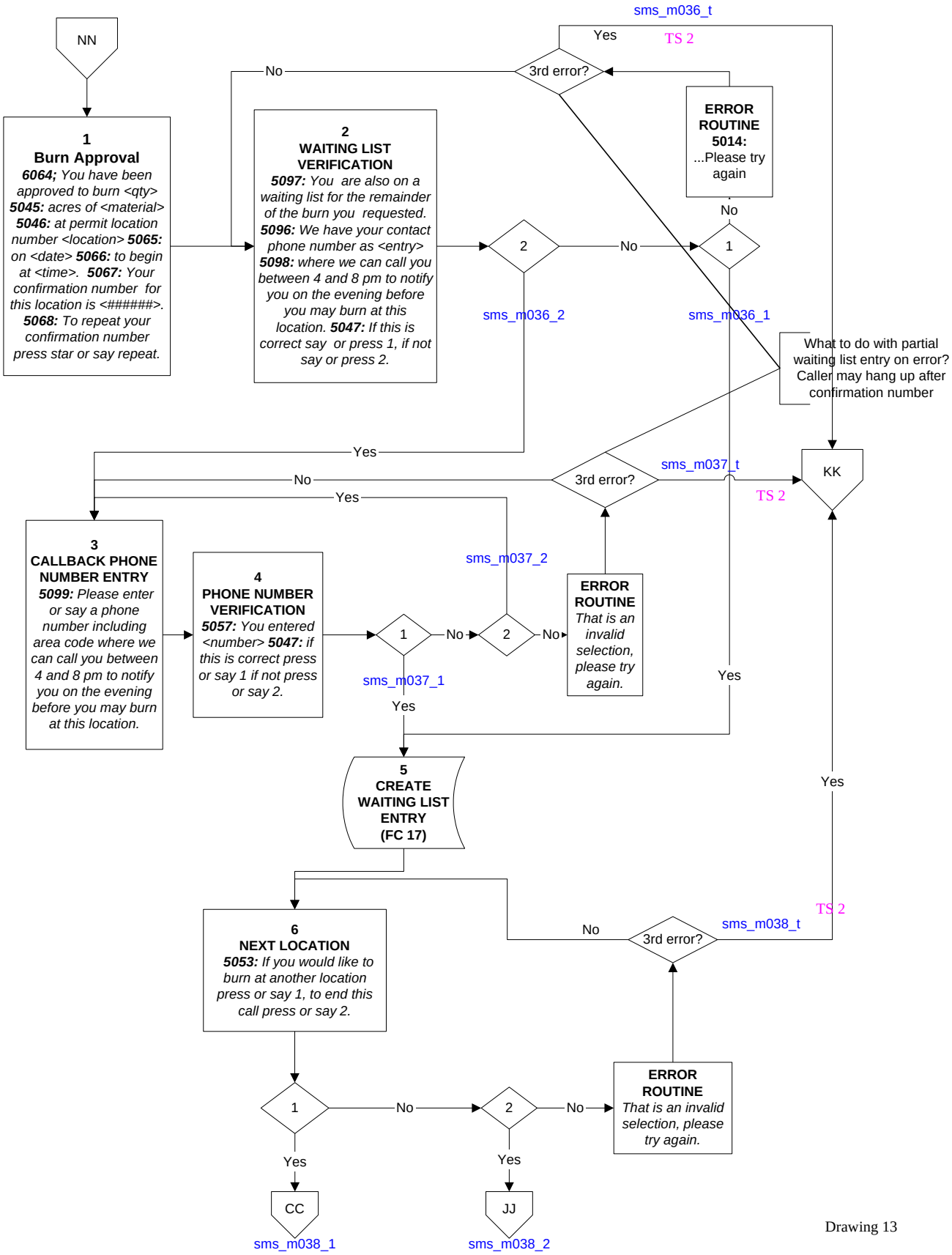

JJ
1
THANK YOU
5086: Thank you for using the automated ag burn line. Please remember the automated system is open for requests to burn from <Atime> 5003: to <Ctime> 5004: daily and operators are on duty from <Stime> 5003: to <Etime> 5005: daily. 5087: Following the same schedule you may also request authorizations to burn on the District web site at www.valleyair.org.
end call
KK
2
Holiday?
No
Yes
4
is ACD open?
sms_e024
No
Yes
sms_e023
6
OPERATORS NOT AVAILABLE
5088: Operators to assist with your request are not available at this time. Please call back when someone can personally assist you, <Stime> to <Etime> daily.
3
OPERATORS HOLIDAY
5090: Operators to assist with your request are not available today. Please call back tomorrow.
end call
5
PLEASE HOLD
5089: Please hold to speak to an operator
13
ATTACH DATA TO CALL
Transfer caller to ACD Queue
7
WAITING LIST AUTOMATED CALLING
System determines which burns on the waiting list can be accomodated in the allocation, checks for fire district restrictions, and calls the pre-arranged phone numbers.
8
OUTGOING WAITING LIST MESSAGE
5091: This is the San Joaquin Valley Ag burn program. Please call the Ag burn program at <Pnumber> before <Atime> 5092: to receive a confirmation number that will authorize you to burn on <date>. 5093: If you fail to call, your burn will remain on the waiting list and you will be called the next time an allocation is available. This burn will be removed from the waiting list after you fail to respond <times> 5094: times.
12
WAITING LIST STATUS UPDATE (FC 21)
end call
9
FIRE DEPT RESTRICTION NOTIFICATION
System calls clients who have been approved to burn if the local fire department subsequently restricts burning due to unsafe conditions.
10
OUTGOING FIRE DEPT RESTRICTION MESSAGE
5095: This is the San Joaquin Valley Ag burn program. Your local fire department has asked that we stop all burning today due to unsafe conditions. Please discontinue any burning that was previously approved for today. If you were previously on the waiting list for the burn that was approved for today please call one of our operators to have your position on the waiting list restored.
11
AFTER WAITING MESSAGE
Clients should be given an opportuniy to return to the automated system if the wait for an operator is too long.

Drawing 11

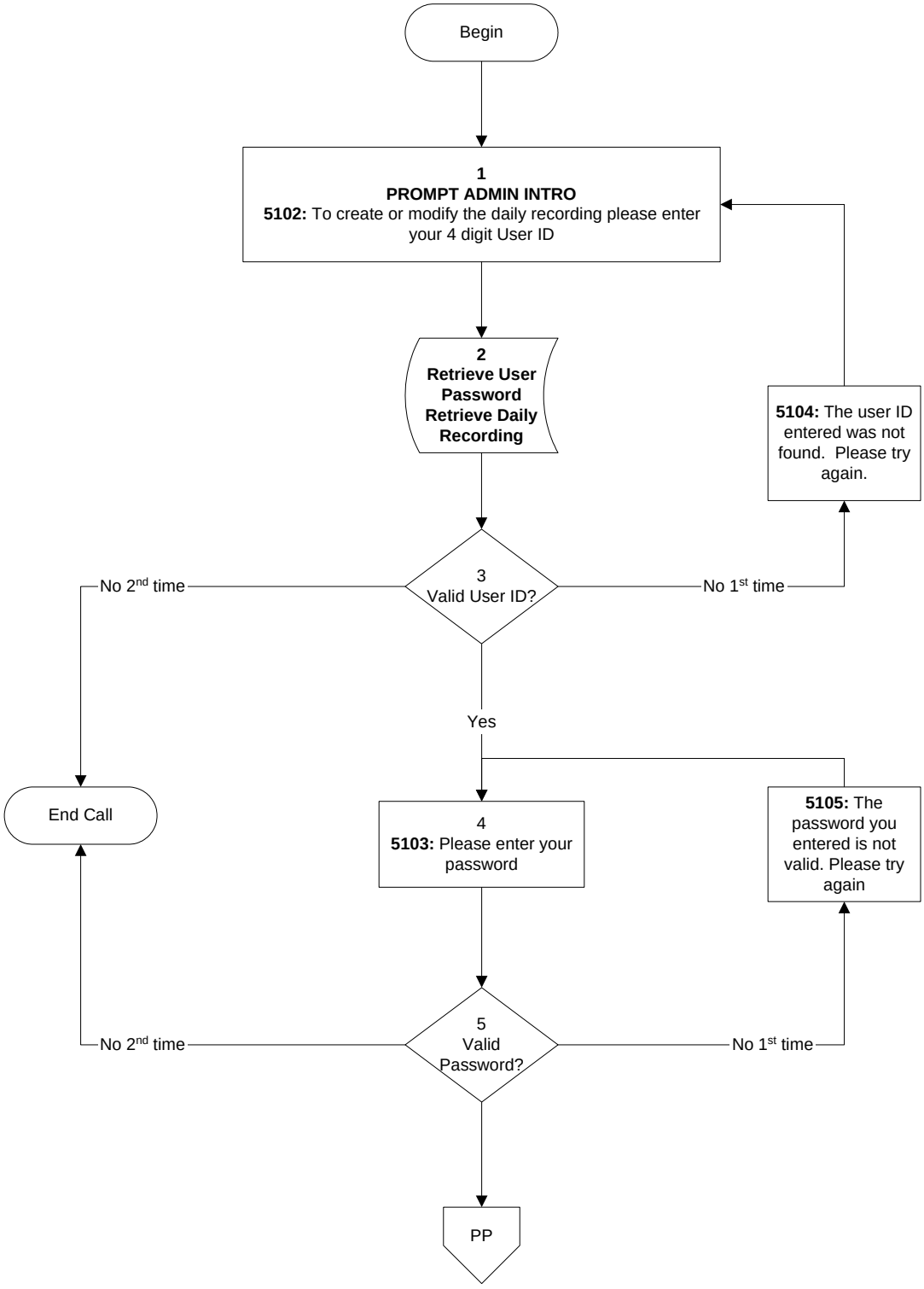
From pg 6.1



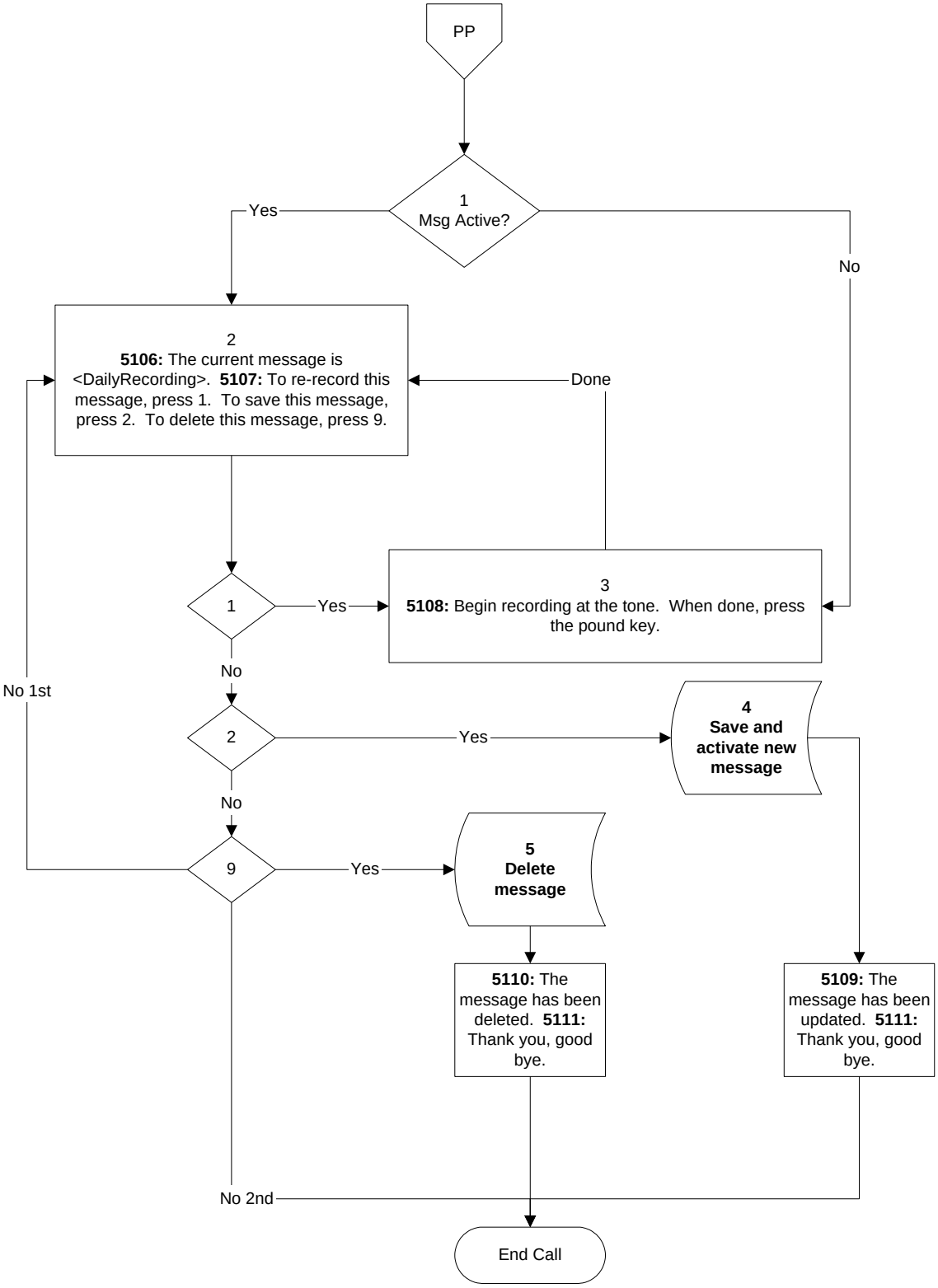
Drawing 12


NN
1
Burn Approval
6064; You have been approved to burn <qty> 5045: acres of <material> 5046: at permit location number <location> 5065: on <date> 5066: to begin at <time>. 5067: Your confirmation number for this location is <######>. 5068: To repeat your confirmation number press star or say repeat.
2
WAITING LIST VERIFICATION
5097: You are also on a waiting list for the remainder of the burn you requested. 5096: We have your contact phone number as <entry> 5098: where we can call you between 4 and 8 pm to notify you on the evening before you may burn at this location. 5047: If this is correct say or press 1, if not say or press 2.
2
No
1
sms_m036_2
sms_m036_1
sms_m036_t
Yes
TS 2
3rd error?
No
ERROR ROUTINE 5014: ...Please try again
No
What to do with partial waiting list entry on error? Caller may hang up after confirmation number
Yes
3rd error?
No
sms_m037_t
TS 2
KK
Yes
3
CALLBACK PHONE NUMBER ENTRY
5099: Please enter or say a phone number including area code where we can call you between 4 and 8 pm to notify you on the evening before you may burn at this location.
4
PHONE NUMBER VERIFICATION
5057: You entered <number> 5047: if this is correct press or say 1 if not press or say 2.
sms_m037_2
1
No
2
No
ERROR ROUTINE
That is an invalid selection, please try again.
sms_m037_1
Yes
Yes
5
CREATE WAITING LIST ENTRY (FC 17)
Yes
TS 2
6
NEXT LOCATION
5053: If you would like to burn at another location press or say 1, to end this call press or say 2.
No
3rd error?
sms_m038_t
1
No
2
No
ERROR ROUTINE
That is an invalid selection, please try again.
Yes
Yes
CC
JJ
sms_m038_1
sms_m038_2

Drawing 13

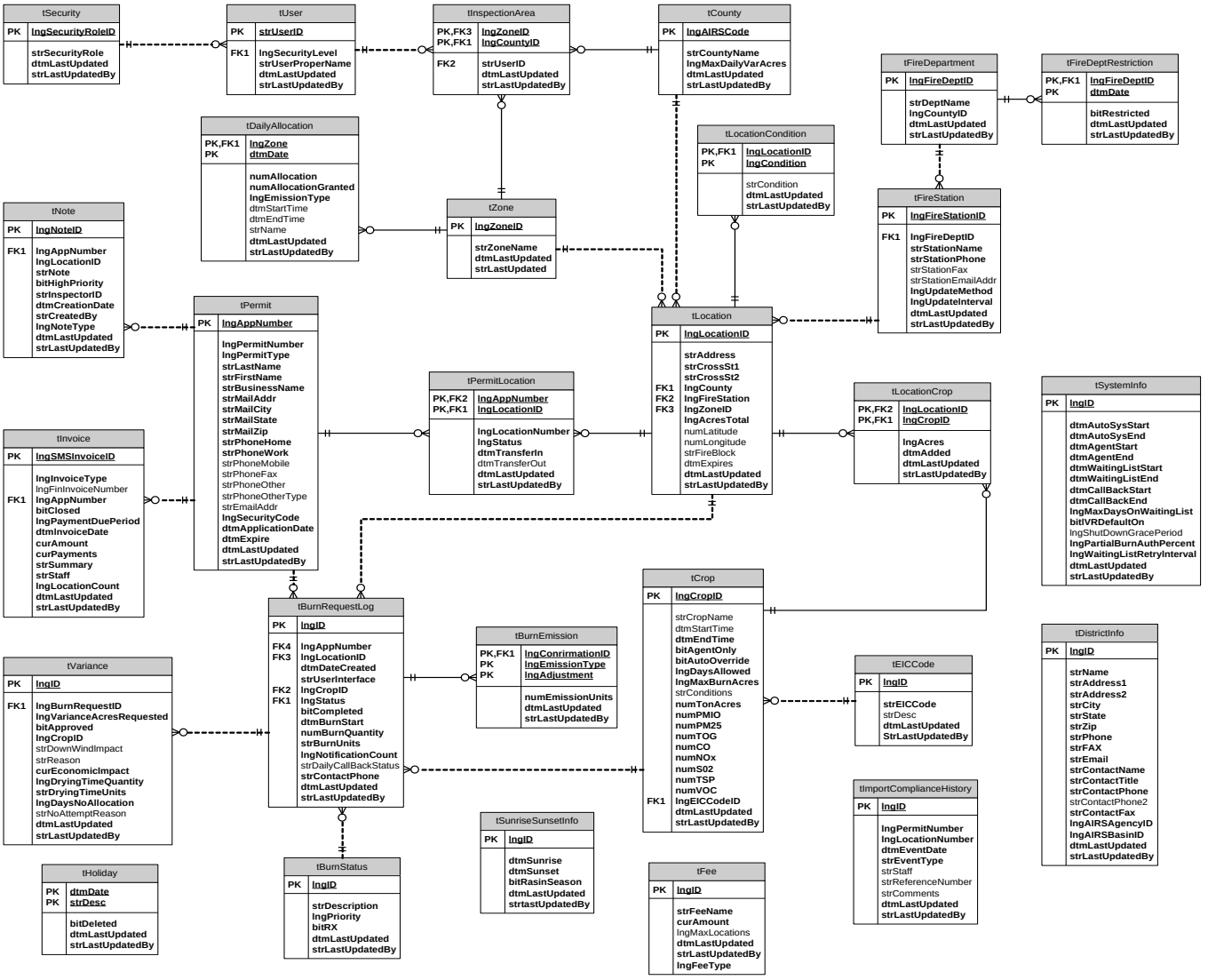

Begin
1
PROMPT ADMIN INTRO
5102: To create or modify the daily recording please enter your 4 digit User ID
2
Retrieve User Password
Retrieve Daily Recording
5104: The user ID entered was not found. Please try again.
3
Valid User ID?
No 2nd time
No 1st time
Yes
End Call
4
5103: Please enter your password
5105: The password you entered is not valid. Please try again
5
Valid Password?
No 2nd time
No 1st time
PP

Drawing 14


PP
1
Msg Active?
Yes
No
2
5106: The current message is <DailyRecording>. 5107: To re-record this message, press 1. To save this message, press 2. To delete this message, press 9.
Done
1
Yes
3
5108: Begin recording at the tone. When done, press the pound key.
No
No 1st
2
Yes
4
Save and activate new message
No
9
Yes
5
Delete message
5110: The message has been deleted. 5111: Thank you, good bye.
5109: The message has been updated. 5111: Thank you, good bye.
No 2nd
End Call

Drawing 15

Appendix D SMS Database Details



Appendix E Current IVR Applications Details

Current IVR application and configuration files (e.g. chrysalis.ini) can be provided upon request. Application details presented below are for reference only. They describe various details of the applications.

SMS Inbound Application

The SMS Inbound Application (*SMS_Main_SR*) provides the Smoke Management System functionality. The notes contained in this document will reference particular points in the IVR call flow (**Appendix C Call Flow Diagram**) along with the major containers in the application PeriProducer source file (the file can be provided upon request).

Referral Blocks

The application makes extensive use of *referral* blocks and *parameterized containers*. The Main page includes a Container titled “Refers”, which includes all of the basic *referral* blocks. The referral blocks in the “Refers” container are described below:

1.1.1.1 ChrysUtil

This block is used whenever the Chrysalis Call function is required.

Data and function codes are passed to and from the call function via the Chrysalis.IO folder.

folder.datacard	format	Comment
Chrysalis.IO.fncode	num	Function code to execute (input)
Chrysalis.IO.noinbufs	num	Number of input buffers (input)
Chrysalis.IO.inout.input	char(32)	Array of input buffers (max 40 input)
Chrysalis.IO.inout.output	char(32)	Array of output buffers (max 40 output)
Chrysalis.IO.nooutbufs	num	Number of output buffers (output)
Chrysalis.IO.replycode	num	Reply code (result) of function (output)

The input buffers must be defined prior to executing the ChrysUtil block. The results of the operation will be returned in the outputs. It is necessary to unload the outputs following any transaction as the data will be overwritten on the next function call.

1.1.1.2 smsChas

This block is used whenever the CHASM (see **Appendix F CHASM Service Details**) database access function is required. Data and function codes are passed to and from the process via the ctermParms folder.

folder.datacard	format	Comment
ctermParms.name	char(16)	Name of process (sms_chas) (input)
ctermParms.prompt	char(16)	Prompt to play while executing (not used)
ctermParms.fnCode	num	Function code to execute (input)
ctermParms.numInputBuffers	num	Number of input buffers (input)
ctermParms.inputBuffers	char(80)	Array of input buffers (max 40 input)
ctermParms.outputBuffers	char(80)	Array of output buffers (max 40 output)
ctermParms.numOutputBuffers	num	Number of output buffers (output)
ctermParms.replyCode	num	Reply code (result) of function (output)

The input parameters must be defined prior to executing the smsChas block. The results of the operation will be returned in the outputs. It is necessary to unload the outputs following any transaction as the data will be overwritten on the next function call.

1.1.1.3 genSMSchas

This container includes smsChas block along with error handling. Data and function codes are passed to and from the process via the ctermParms folder and must be set prior to executing this container.

1.1.1.4 restoreAlloc

This container will use the settings from **LocalParams.SMS.PermitData** to execute function 15 (Restore Zone Allocation). It is not necessary to set parameters prior to using this referral.

1.1.1.5 BurnRequest

This container will use the settings from **LocalParams.SMS.PermitData** to execute function 16 (Create Burn Request). It has one parameter that must be provided; Request status.

1.1.1.6 WaitList

This container will use the settings from **LocalParams.SMS.PermitData** to execute function 17 (Create Waiting List Entry). It has 2 parameters that must be provided; the number of acres and P_Flag.

1.1.1.7 chkTime

This container checks the entered time **LocalParams.SMS.PermitData.burnStartTime** and confirms that it is within the authorized time as dictated by the SMS system. It has one parameter that must be provided, EndTime minus 2, which is the ending time for burns minus 2 hours. The container will return a result code of 1 if the time is not valid and zero if the entered time is valid.

1.1.1.8 TimeChange

This container performs time calculations to subtract 2 hours from the burn EndTime value and checks the burn StartTime and CurrentBurnDay values. If the CurrentBurnDay is 'today' and the StartTime has passed, make the StartTime the current time of day.

Updates values in **LocalParams.SMS.PermitData**

1.1.1.9 crop2prompt

Convert material/crop code to voice prompt. This procedure is used throughout to lookup the prompt to play when referring to the crop. The container requires the CropID as an input parameter and will return the CropPrompt.

		Format	Comment
Function Name	chrysutil		
Function Code	101		
Input 1	'chrysalis.ini'		filename
Input 2	'material'		section
Input 3	wlCropID		field
Input 4	'null'		default
Output 1	promptVar	voice prompt	
Reply Code 0	success		
Reply Code 9	fail		

1.1.1.10 chkPhone

This container checks the input phone number **LocalParams.SMS.PermitData.ContactPhone** to ensure it is 10 digits.

Returns TRUE if the number is 10 digits, otherwise, returns FALSE

1.1.1.11 sysError

This container is used if the system encounters an error with the SMS_Chas service. Plays the appropriate message and transfers the call if the call center is open, otherwise ends the call.

attachData

Use C-Pop to bind data to the call - Max 8 fields per request.

The container requires 2 input parameters: application name (BurnReq or Permit), and Text string (up to 40 characters)

		Comment
Function Name	cpufn	
Function Code	11	
attachedData_Id(1)	“APPL”	
attachedData_Data(1)	“BurnReq”	or “Permit” depending on caller choice
attachedData_Id(2)	“TEXT”	
attachedData_Data(2)	Text String	See CTI Data below
attachedData_Id(3)	“PERMIT”	
attachedData_Data(3)	PermitNumber	Caller input – may be blank
attachedData_Id(4)	“LOCATION”	
attachedData_Data(4)	LocationNumber	Caller input – may be blank
attachedData_Id(5)	“CROP”	
attachedData_Data(5)	CropID	Caller input – may be blank
attachedData_Id(6)	“ACRES”	
attachedData_Data(6)	RequestedAcres	Caller input – may be blank
attachedData_Id(7)	“START”	
attachedData_Data(7)	burnStartTime	Caller input – may be blank – ANI digits if APPL = “Permit”
attachedData_Id(8)	“PHONE”	

attachedData_Data(8)	ContactPhone	Caller input – may be blank – ANI digits if APPL = “Permit”
Reply Code 0	success	
Reply Code 1	fail	

		Comment
Function Name	cpufn	
Function Code	11	
attachedData_Id(1)	“NAME”	
attachedData_Data(1)	PermitHolderName	
Reply Code 0	success	
Reply Code 1	fail	

CTI Data

When a call is transferred to an operator, the data collected during the course of the call will be attached. Some of the fields may be blank depending on how far the caller progressed through the call prior to being transferred. Also, a text string indicating a description for the operator assisted call will be included. The data will also include an indicator of the call type – either ‘BurnReq’ for burn request related calls, or ‘Permit’ for new permits or changes.

Keyword	Value	
APPL	“BurnReq”	or “Permit”
TEXT	Text String (see below)	
PERMIT	PermitNumber	caller input
LOCATION	LocationNumber	

CROP	CropID	
ACRES	RequestedAcres	
START	StartTime	
PHONE	ContactPhone	if APPL = Permit, this is ANI digits

The text strings listed will be referenced in the call flow drawings by number. The format will be TS 1 (see call flow) for text string 1, etc.

	Text String	Comment
1	Caller requested operator assistance	any menu select 0
2	Invalid/unrecognized selection	any menu 3rd error
3	Raisin Grower	
4	Permit problem	
5	Location problem	
6	Restricted material	
7	System error	
8	New Permit/Change Permit	
9	Acreage Exceeded	
10		

SR_Menu

Speech recognition (SR) programming on a MPS system requires a significant amount of code to implement. This container includes all of the parameters and logic required to return the caller's selection - either by touch-tone or voice input. Prior to calling SR_Menu, the following parameters must be set in the **menu_data** folder.

folder.datacard	format	Comment
menu_data.ValidMenuChoices	char	list of valid choices separated by space. e.g. "1 2 3" If the function is only for an announcement, where no input is required, enter a single space " ". Zero is always supported and should not be entered.

menu_data.retries	num	number of retries for an invalid entry
menu_data.promptCount	num	number of prompts in speak array
menu_data.speak-array	char	array of speak elements (see below)
menu_data.ShortWait	bool	If TRUE, the wait after speaking the prompts is set to 1 second. This would be used if the speak only supports the 'repeat' or 'operator', as in a announcement without options. A False setting provides 5 seconds for caller response.
Chrysalis.menuChoice	char	**returned** caller input or "X" if invalid

menu_data.speak-array contains each prompt to be spoken to the caller. Each vocabulary item must be specified in a separate array entry. **menu_data.promptCount** indicates the number of entries to speak.

The format for array elements is:

- "1234" To speak vocabulary item (prompt) 1234
- "@@N<"+datacard To speak a datacard as TYPE. Do not include any spaces
  For example, to read a DATE, use "@@D<" appended by the datacard containing a date value.

- TYPE is defined as:
- @@D< = DATE
- @@T< = TIME
- @@C< = NUMBER
- @@N< = Non Conversational

Caller input is governed by the MENU grammar rules. (see Grammars)

The choice made by the caller is returned in **Chrysalis.menuChoice**. If the choice was invalid, an "X" is returned.

SR_Gdat

Speech recognition (SR) programming on a MPS system requires a significant amount of code to implement. In a touch tone only application, a simple READ block is used to play prompts and ask the caller for input, however, the additional programming is required to support speech input. A custom parameterized container has been developed that provides the functionality of a READ block called SR_Gdat. This container includes all of the parameters and logic required to return the caller's input - either by touch-tone or voice input. There are 3 input parameters and 1 output parameter for this container:

- Grammar Input grammar name. This governs the expected input
- Minimum Length The minimum length of the requested input
- Maximum Length The maximum length of the requested input
- returnString The datacard for the returned data

Prior to calling SR_Gdat, the following parameters must be set in the **menu_data** folder.

folder.datacard	format	Comment
menu_data.ValidMenuChoices	char	list of valid choices separated by space. e.g. "1 2 3" If the function is only for an announcement, where no input is required, enter a single space " ". Zero is always supported and should not be entered.
menu_data.retries	num	number of retries for an invalid entry
menu_data.promptCount	num	number of prompts in speak array
menu_data.speak-array	char	array of speak elements (see below)
menu_data.ShortWait	bool	If TRUE, the wait after speaking the prompts is set to 1 second. This would be used if the speak only supports the 'repeat' or 'operator', as in a announcement without options. A False setting provides 5 seconds for caller response.
Chrysalis.menuChoice	char	**returned** caller input if "0" or invalid

menu_data.speak-array contains each prompt to be spoken to the caller. Each vocabulary item must be specified in a separate array entry. **menu_data.promptCount** indicates the number of entries to speak.

The format for array elements is:

- "1234" To speak vocabulary item (prompt) 1234
- "@@N<"+datacard To speak a datacard as TYPE. Do not include any spaces
  For example, to read a DATE, use "@@D<" appended by the datacard containing a date value.

- TYPE is defined as:
- @@D< = DATE
- @@T< = TIME
- @@C< = NUMBER
- @@N< = Non Conversational

If the caller enters zero or otherwise makes an invalid input, this will be returned in **Chrysalis.menuChoice**. If the choice was invalid, an "X" is returned. If the choice was zero, a "0" is returned.

Grammars

The **SR_Gdat container** requires parameters that define the specific **grammar** to be implemented, the **minimum and maximum length** of the requested data input and the **destination datacard** for the result. Grammars are designed to allow specific input from a caller. The SMS_Numbers.grammar file contains the following grammars defined for the application:

Grammar Name	Description
MENU	Predefined for SR_Menu block. Does not need to be specified. This grammar accepts input for a single touch tone digit and also supports repeat and operator requests.
NUM_STRING	This grammar accepts input for a series of up to 12 digits such as an account number. The digits will be returned as a string of the input digits. Also supports repeat and operator requests.
PIN	This grammar accepts input for up to 4 digits which will be returned as a string of digits. Also supports repeat and operator requests.
NUMBER	This grammar accepts input for a numeric input such as a number of acres. Also supports repeat and operator requests.
CROP	This grammar accepts input for a 3 digit only crop code. Also supports repeat and operator requests.
PHONE	This grammar accepts input for a 10 digit phone number. Also supports repeat and operator requests.
TIME	This grammar accepts input for a Time of day. Also supports repeat and operator requests.

Repeat requests are returned by the following utterances:

- star (please)
- repeat (please)
- again (please)

Operator requests are returned by the following utterances:

- help (please)
- operator (please)
- assistance (please)
- zero

The repeat command is not limited to the number of times it will be recognized.

The input data will be returned in the datacard specified. It is necessary to evaluate the Chrysalis.menuChoice datacard for possible invalid (timeout) or operator request.

Init Call Records

Event handlers are set up. If an error condition is detected, the application will attempt to transfer the call to the call center. Should that fail, the call will be terminated. On disconnect, the application will restore the allocation for any pending burn requests that were not completed, free the OSCAR resource and write the call audit information to the audit files.

Speech recognition parameters are set up. The application checks the UseSpeechRec key in the [oscar] section of chrysalis.ini. If the returned value is 0, speech recognition will not be enabled for the application. If the returned value is 1, the ThresholdSnr key in the [oscar] section will be read. This setting is used with barge-in to reduce the likelihood of false speech detection. The usable range for this setting is 6-20. the default is 10. Barge-in is enabled to allow speech recognition during prompt playback.

Call audit data is initialized.

MainMenu

The welcome prompt is played prior to accessing the database to get the system information. The prompt plays while the data is retrieved to mask any delay the procedure may induce.

If the procedure is not successful, the call is sent to the call center, if open, or the caller will be asked to call back later.

Check the AdminMsg key in the [messages] section of chrysalis.ini. If set to 1, the AdminMsg prompt is played.

The choices and prompts to play in the initial menu are determined by the value of LocalParams.SMS.OperatorOpen.

BurnReq

Gives the steps to make an initial burn request

- Instructions Caller is offered instructions. Check for allocations available. Check raisin tray season.
- getPermit Ask for permit number and security code. Validate in database.
- Location Ask for the burn location and validate. Check the Grace time. If location is on the waiting list, give option to check for WL burn request. This is also the re-entry point for additional burn requests
- Crop Ask for the crop code. Convert the crop code to a prompt number for playback.
- GetAcres Ask for the number of acres for the burn request. Play back information for verification.
- AllocCheck Check fire restriction. Check acreage exceeded - if yes, adjust acres. Execute allocation check function. Check for success or maximum burns.
- AcreageChange If the acreage was decreased, give options to have remaining put on waiting list, all put on waiting list or try another location. Any choice other than partial burn will restore the allocation taken in the previous step.
- CreateBurnReq Get the start time for the burn request. Get the contact phone for the permit holder. Create the burn request and give the confirmation information.

On WL

When a caller's location entry is on the waiting list . The crop ID and the number of requested acres is provided from the waiting list entry. If there is sufficient allocation, the steps for burn approval will be completed.

burn&WL

When a caller requests more acreage than can be currently approved, they may choose to burn part of the acreage and put the remaining on the waiting list.

WaitingList

Callers that are on the waiting list and have been called informing them that there is now allocation available. This will only be entered during the waiting list callback timeframe.

- getPermit Asks the caller for their permit info. Retrieves the waiting list information.
- chkEntry Retrieves the location & crop info and performs an allocation check. Gives the option to proceed with, delay, or delete the burn request.
- StarTime Gets the burn start time
- getPhone Gets the phone number
- burnItallGets the burn approval and reads back the confirmation info.
- chkNext Checks for additional locations on the waiting list. If there are more locations, loop back to chkEntry.

FinalTreatment

Looks up the transfer extension based on the Transfer key from the [transfer} section of chrysalis.ini. If the call center is open, attaches the data to the call and transfers to an agent. If the call center is closed or it is a holiday, plays the appropriate message and disconnects.

Waiting List Outbound Application (WaitingList.vex)

The waiting list outdialing application is initiated when a list of phone numbers is generated by the SMS database and the file is transferred onto the IVR in a predefined location. The callback server daemon (*cb_server*) scans for the presence of this file. The list of numbers is then processed, line-by-line to dial each number and play the message stating the burn request that is on the waiting list is now ready for approval.

Outbound applications are not assigned to lines. The application is launched via a *vengine* command executed by *cb_server*.

setup

Sets the error handles. The handles include the treatments for CPD along with the end of call logic. Sets the environment - Call Progress Detection (CPD) functions. Makes a call to *cb_server* (FC 1) to retrieve the callback information for the call. Gets the default information from the SMS database (FC 10)

callEm

Checks the current time of day and ensures it is within the time frame dictated by the SMS database. If the current time of day is before the callback start time, the call is rescheduled in RetryInterval minutes. If the time of day is *after* the callback end time, the call will be cancelled - no further attempts will be made to call the number. If the time is okay, the number will be dialed. If the call is answered, the file */home/chrysalis/newcall.out* will be updated with the call information. If the call is not answered or is busy, it will be rescheduled in RetryInterval minutes.

menus

Plays the message to the caller two times and disconnects

Upon call completion, the application will update *cb_server* with the status of the call and update the SMS database that the call has been completed (sms_chas FC 21).

Statistics collection & Report

The waiting list outbound application is configured to generate statistics including the start time of the outbound campaign, the number of successful and unsuccessful calls and details for each number dialed. Statistics files are located in */home/chrysalis/cb_server/report_1*. The results of the statistics are used to create a formatted report. The Unix shell script *cb_rep.sh* is used to create the custom report format. This script will run daily via the crontab. See Waiting List Callback Report

Fire Restriction Outbound Application (FireRestMsg.vex)

The fire restriction message outdialing application is initiated when a list of phone numbers is generated by the SMS database and the file is transferred onto the IVR in a predefined location. The callback server daemon (*cb_server*) scans for the presence of this file. The list of numbers is then processed, line-by-line to dial each number and play the message stating all burns should be discontinued. For detailed information on the *cb_server* process, refer to the *Callback Server for Periphonics Developer's Guide*.

Outbound applications are not assigned to lines. The application is launched via a *vengine* command executed by *cb_server*.

setup

Sets the error handles. The handles include the treatments for CPD along with the end of call logic. Sets the environment - Call Progress Detection (CPD) functions. Makes a call to *cb_server* (FC 1) to retrieve the callback information for the call. Gets the default information from the SMS database (FC 10)

callEm

Dials the phone number. If the call is answered, the file */home/chrysalis/newcall.out* will be updated with the call information. If the call is not answered or is busy, it will be rescheduled. The number of reschedule attempts and the reschedule interval are set in cb_server.ini.

menus

Plays the message to the caller two times and disconnects.

Upon call completion, the application will update *cb_server* with the status of the call.

Daily Recording Admin (sms_admin.vex)

The *sms_admin* application is designed for IVR administrators to create, modify or delete the Daily Recording. The application is accessed by dialing the associated CDN as listed in the [answer] section of chrysalis.ini.

The application will ask the caller to enter a 4 digit user ID and passcode. The valid user ID's and associated passwords are found in the [admin_users] section of chrysalis.ini. The user Ids must be 4 digits in length. The passwords may be any length up to 10 digits.

			Comment
Function Name	chrysutil		
Function Code	101		Read from ini file
Input 1	'chrysalis.ini'		filename
Input 2	'admin_users'		section
Input 3	userID		field
Input 4	0		default
Output 1	passcode		
Reply Code 0	success		
Reply Code 1	fail		

After a user has signed in, an entry will be created in */home/chrysalis/admin.log*

			Comment

Function Name	chrysutil		
Function Code	19		create CSV log entry
Input 1	‘admin.log’		filename
Input 2	Chrysalis.userID		
Input 3	‘user logged in’		
Input 4	‘vpsChn’		
Input 5	System.SystemNumber		
Input 6	System.LineNumber		
Reply Code 0	success		
Reply Code 1	fail		

The *sms_admin* application includes a Recordings folder that is used to pass data to the *adminmsg* application, which handles the actual recording and playback routines. Prior to entry into the *adminmsg* app, the following parameters are set:

Recordings.MessageName = “AdminMsg” - The vocabulary name of the recording

Recordings.MenuPrompt = “5106” - Intro prompt number

The *adminmsg* sub-application will check the AdminMsg key in the [messages] section of chrysalis.ini.

			Comment
Function Name	chrysutil		
Function Code	101		Read from ini file
Input 1	‘chrysalis.ini’		filename
Input 2	‘messages’		section
Input 3	‘AdminMsg’		field

Input 4	0		default
Output 1	value		
Reply Code 0	success		
Reply Code 1	fail		

If the value is 0, the message is not active and the caller is prompted to record a new recording. If the value is 1, the message is active. The current message is played and the option to re-record, save (as is), or delete is given to the caller.

If the message is re-recorded, it is played back for review and the above options will be given. A log entry is created stating the action taken on the recording - either recorded, reviewed, or deleted the message.

The *adminmsg* sub-application updates the AdminMsg key in the [messages] section of chrysalis.ini.

			Comment
Function Name	chrysutil		
Function Code	102		write to ini file
Input 1	'chrysalis.ini'		filename
Input 2	'messages'		section
Input 3	'AdminMsg'		field
Input 4	value		value
Reply Code 0	success		
Reply Code 1	fail		

The recorded message (AdminMsg) is contained in the AdminMsg.mmf vocabulary. This is currently the only prompt in this vocabulary. Actual recording is never actually *deleted*, but only activated or deactivated by the configuration file setting.

Answer Incoming Call (answer.vex)

The *answer* application is assigned to all incoming IVR lines. The purpose of this application is to answer incoming calls, collect the call information via C-Pop, and link to the appropriate application based on the digits that were dialed. The dialed digits are cross referenced to the application name using the [answer] section of the chrysalis.ini file. In addition, the *answer* application will update a file */home/chrysalis/newcall.ans*. This file indicates the last line on which a call was answered.

Post Call

Create newcall.ans file. This file is not a log. The file is updated for each call.

		Format	Comment
Function Name	chrysutil		
Function Code	102		write to ini file
Input 1	'newcall.ans'		filename
Input 2	'newcall'		section
Input 3	"LastCallLine"		field
Input 4	LineNumber		value
Reply Code 0	success		
Reply Code 1	fail		

CPop

Checks the CpopCfg key in the [chrysalis] section of the chrysalis.ini file. If the setting is "Y", the phone information will be retrieved.

			Comment
Function Name	chrysutil		
Function Code	101		Read from ini file
Input 1	'chrysalis.ini'		filename

Input 2	‘chrysalis’		section
Input 3	‘CPopCfg’		field
Input 4	‘N’		default
Output 1	Chrysalis.cpop_config		
Reply Code 0	success		
Reply Code 1	fail		

Use C-Pop to retrieve phone information. Cpop is executed as a Call function from a SYSTEM block. The data is returned in the cpufnParams folder.

			Comment
Function Name	cpufn		
Function Code	1		
Input	none		
Output 1	cpufnparms.ani		ANI DIGITS
Output 2	cpufnparms.dnis		DNIS DIGITS
Output 3	cpufnparms.destDN		Destination DN
Output 4	cpufnparms.callId		Call ID
Reply Code 0	success		
Reply Code 1	fail		

The call information may be copied to a log file (debug.log) for diagnostic purposes. This provision is controlled by the DebugDN setting in the [chrysalis] section of the chrysalis.ini file.

			Comment
Function Name	chrysutil		
Function Code	101		Read from ini file
Input 1	'chrysalis.ini'		filename
Input 2	'chrysalis'		section
Input 3	'DebugDN"		field
Input 4	'N'		default
Output 1	Chrysalis.debugDN		
Reply Code 0	success		
Reply Code 1	fail		

If Chrysalis.debugDN is returned as "Y", log the call information to file *debug.log*

			Comment
Function Name	chrysutil		
Function Code	60		add entry to debug.log
Input 1	'ReplyCode'		
Input 2	cpufnParms.replyCode		
Input 3	'DestDN'		
Input 4	cpufnParms.destDN		
Input 5	'DNIS'		

Input 6	cpufnParms.dnis		
Input 7	‘ANI’		
Input 8	cpufnParms.ani		
Input 9	‘CallID’		
Input 10	cpufnParms.callId		
Input 11	‘LineNumber’		
Input 12	System.LineNumber		
Input 13	‘VPS’		
Input 14	System.SystemNumber		
Output 1	none		
Reply Code 0	success		
Reply Code 1	fail		

GetLinkApp

Lookup the default application name in the [answer] section of chrysalis.ini

			Comment
Function Name	chrysutil		
Function Code	101		Read from ini file
Input 1	‘chrysalis.ini’		filename
Input 2	‘answer’		section
Input 3	‘default’		field
Input 4	‘null’		default
Output 1	Chrysalis.Constants.default_app		

Reply Code 0	success		
Reply Code 1	fail		

Use DestDN (Destination DN) to lookup application name. If the field (DestDN) specified is not found, the setting for the default field will be used.

			Comment
Function Name	chrysutil		
Function Code	101		Read from ini file
Input 1	‘chrysalis.ini’		filename
Input 2	‘answer’		section
Input 3	cpufnparms.destDN		field
Input 4	Chrysalis.Constants.default_app		from above
Output 1	Chrysalis.application_name		
Reply Code 0	success		
Reply Code 1	fail		

Appendix F CHASM Service Details

The following sections describe the supported functions and the input and output parameters for the CHASM database access service.

All parameters passed to and from the service are contained in the ctermParms folder.

Get System Information

Retrieve the system default information from the SMS database.

All of the input and output datacards are defined in the folder **LocalParams.SMS**

		Format	Comment
Name	SMS_CHAS		
Function Code	10		
Input	none		
Output 1	Atime	HHMM	tSystemInfo.dtmAutoSysStart
Output 2	Ctime	HHMM	tSystemInfo.dtmAutoSysEnd
Output 3	Stime	HHMM	tSystemInfo.dtmAgentStart
Output 4	Etime	HHMM	tSystemInfo.dtmAgentEnd
Output 5	Wtime	HHMM	tSystemInfo.dtmWaitingListStart
Output 6	Xtime	HHMM	tSystemInfo.dtmWaitingListEnd
Output 7	IVRonly	0/1	tSystemInfo.bitIVRDefaultOn
Output 8	GracePeriodTime	HHMM	Ctime – GracePeriod
Output 9	MaxDeferments		tSystemInfo.lngMaxDaysOnWaitingList
Output 10	Holiday	0/1	1 = holiday
Output 11	AllocAvail	0/1	1 = anything available in any zone
Output 12	RaisinTray	0/1	1 = Raisin tray season
Output 13	CurrentBurnDay	MMDDYY	

Output 14	AutoSysOpen	0/1	1 = TOD = Atime to GracePeriodTime
Output 15	OperatorOpen	0/1	1 = TOD = Stime to Etime
Output 16	CallBackOpen	0/1	1 = TOD = Wtime to Atime[1]
Output 17	WL_RetryInt	minutes	tSystemInfo.lngWaitingListRetryInterval This value is used for the Waiting List outbound application. The number of minutes to wait after a call was not completed
Output 18	FDRestrCBcnt		Fire restriction callback count - This is the limit to the number of times the Fire Restriction outbound application will retry when a busy or no-answer condition is detected. (MaxRescheds)
Reply Code 0	success		
Reply Code 9	fail		

Validate Permit

Send the entered permit number and security code to the database for validation

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	11		
Input 1	PermitNumber		
Input 2	SecurityCode		

Output 1	PermitExpiredFlag	0/1	based on tPermit.dtmExpire 1 = permit is expired
Output 2	PermitStatusFlag	0/1	inactive/active 1 = active
Output 3	PermitHolderName	string	used for screen pop
Reply Code 0	success		
Reply Code 1	permit not found/bad PIN		
Reply Code 9	error/fail		

Validate Burn Location

Send the entered Location Number to the database for validation

The LocationID value will be used for subsequent transactions with the database.

Also return waiting list information if applicable

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	12		
Input 1	PermitNumber		
Input 2	LocationNumber		
Output 1	LocStatusFlag	0/1	inactive or expired = 0 active = 1
Output 2	LocTotalAcres		

Output 3	FireRestrictFlag	0/1	restricted = 1
Output 4	LocOnWaitList	0/1	on waiting list = 1
Output 5	wlBurnQty		null if LocOnWaitList = 0
Output 6	wlCropID		null if LocOnWaitList = 0
Output 7	wlContactPhone		null if LocOnWaitList = 0
Output 8	Location ID		use for future transactions
Reply Code 0	success		
Reply Code 1	location not found		
Reply Code 9	error/fail		

Validate Material Code

Send the entered material/crop code to the database for validation

The CropStatusFlag may be returned as a 1 if the requested material requires agent assistance.

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	13		
Input 1	PermitNumber		
Input 2	LocationID		
Input 3	CropID		
Output 1	CropStatusFlag	0/1	1 = agent only
Output 2	MaxBurnAcres		0 or greater
Output 3	CropTotalAcres		tLocationCrop.lngAcres

Output 4	StartTime	HHMM	min start time for burn
Output 5	EndTime	HHMM	end time for burn
Reply Code 0	success		
Reply Code 1	crop not found		
Reply Code 9	error/fail		

The IVR will subtract 2 hours from the EndTime value when asking for a burn start time input from the caller.

The IVR will retrieve the corresponding Crop Prompt from the material section of chrysalis.ini.

Burn Zone Allocation Check

Check for allocation for the burn request (Burn authorization). OverrideAgtAssist is used if the allocation check is for a request that is on the waiting list.

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	14		
Input 1	PermitNumber		
Input 2	LocationID		
Input 3	CropID		
Input 4	RequestedAcres		
Input 5	OverrideAgtAssist	0/1	1 = override the agent-only flag that may be associated with the crop
Output 1	AllocatedAcres		may be different from requested

Reply Code 0	success		
Reply Code 1	Insufficient allocation available		
Reply Code 9	error/fail		

Restore Zone Allocation

Restore the allocation from procedure 14

This procedure is used whenever necessary to restore the allocated acreage if a burn request is not granted.

This procedure is defined in referral block **Refers.restoreAlloc**

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	15		
Input 1	PermitNumber		
Input 2	LocationID		
Input 3	CropID		
Input 4	AllocatedAcres		AlocatedAcres from FC 14
Output 1	none		
Reply Code 0	success		
Reply Code 9	error/fail		

Create Burn Request

Get a burn authorization number

This procedure is defined in Refers.BurnRequest. The Status flag must be specified as an input parameter to the referral.

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	16		
Input 1	PermitNumber		
Input 2	LocationID		
Input 3	CropID		
Input 4	AllocatedAcres		
Input 5	StartTime	HHMM	
Input 6	ContactPhone		
Input 7	Status		1 = request granted on first call. 11 = WL burn request granted
Output 1	ConfirmNum		confirmation number
Reply Code 0	success		
Reply Code 9	error/fail		

The status field will be 1 if the caller gets a burn authorization on the first call into the system. The field will be set to 11 if the caller is getting an authorization for a request that was on the waiting list

Create Waiting List Entry

The P_Flag will be set to 0 for this procedure since it is an initial entry to the waiting list.

This procedure will create a new waiting list entry using the remaining acreage from a partial burn confirmation. The P_Flag will be set to 1 to indicate the status.

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	17		
Input 1	PermitNumber		
Input 2	LocationID		
Input 3	CropID		
Input 4	RequestedAcres		
Input 5	CallbackPhone		
Input 6	P_Flag	0/1	1 = partial or priority
Output 1	none		
Reply Code 0	success		
Reply Code 9	error/fail		

Retrieve Waiting List Entry Count

Given a permit number, return the number of locations eligible to be burned from the waiting list.

Also return the first location entry data

Note that the procedure returns the LocationNumber value, not Location ID. The LocationID value is returned by a subsequent call to FC 12.

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	18		
Input 1	PermitNumber		
Input 2	SecurityCode		
Output 1	LocCount		Number of eligible locations
Output 2	LocationNumber		
Output 3	CropID		
Output 4	RequestedAcres		
Reply Code 0	success		
Reply Code 1	No entries found		
Reply Code 9	error/fail		

Retrieve Next Waiting List Entry

Given a permit number and index, return the location entry data

This is only used when the LocCount value returned from FC 18 is greater than 1. The ListIndex value must be input as greater than 1 and less than or equal to LocCount.

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	19		
Input 1	PermitNumber		
Input 2	ListIndex		
Output 1	LocationNumber		
Output 2	CropID		
Output 3	RequestedAcres		
Reply Code 0	success		
Reply Code 1	No entries found		
Reply Code 9	error/fail		

Cancel Waiting List Entry

Set the BurnStatus for the permit and location to Rejected

All of the input and output datacards are defined in **LocalParams.SMS.PermitData**

		Format	Comment
Function Name	SMS_CHAS		
Function Code	20		
Input 1	PermitNumber		
Input 2	LocationID		
Input 3	CropID		
Output 1	none		
Reply Code 0	success		
Reply Code 9	error/fail		

Update Waiting List BurnStatus

This procedure is used for the **Waiting List Callback (outgoing) application** to update the burn status for the given permit AppNumber.

The Contact Phone Number is obtained from the callback list.

Status may be set as one of the following:

1 = Call Back Answered

0 = Call back no Answer

This will also update the BurnRequestLog.DailyCallBackStatus and increment BurnRequestLog.NotificationCount

		Format	Comment
Function Name	SMS_CHAS		
Function Code	21		
Input 1	Contact Phone Number		
Input 2	BurnStatus		
Output 1	none		
Reply Code 0	success		
Reply Code 9	error/fail		

Appendix G Reports

========= IVR Performance Report for 06/07/19 =========

	Total Incoming Calls	Total Time in IVR System	Average Time per Call	Max Time in IVR System
Totals period:				
06:00-17:59	114	03:58:27	00:02:05	00:06:24
06:00-06:14	3	00:11:35	00:03:51	00:04:46
06:15-06:29	8	00:15:12	00:01:54	00:03:18
06:30-06:44	8	00:26:09	00:03:16	00:05:54
06:45-06:59	6	00:16:44	00:02:47	00:05:35
07:00-07:14	5	00:06:27	00:01:17	00:02:37
07:15-07:29	6	00:21:19	00:03:33	00:04:36
07:30-07:44	7	00:21:26	00:03:03	00:04:57
07:45-07:59	3	00:11:26	00:03:48	00:06:24
08:00-08:14	5	00:09:42	00:01:56	00:04:54
08:15-08:29	4	00:11:15	00:02:48	00:05:18
08:30-08:44	7	00:19:15	00:02:45	00:06:00
08:45-08:59	2	00:03:30	00:01:45	00:02:21
09:00-09:14	1	00:00:06	00:00:06	00:00:06
09:15-09:29	1	00:00:41	00:00:41	00:00:41
09:30-09:44	3	00:04:15	00:01:25	00:02:57
09:45-09:59	5	00:04:57	00:00:59	00:03:08
10:00-10:14	3	00:07:19	00:02:26	00:03:05
10:15-10:29	3	00:01:30	00:00:30	00:00:35
10:30-10:44	3	00:01:20	00:00:26	00:00:37
10:45-10:59	1	00:01:26	00:01:26	00:01:26
11:00-11:14	1	00:00:23	00:00:23	00:00:23
11:15-11:29	2	00:03:38	00:01:49	00:03:01
11:30-11:44	1	00:03:28	00:03:28	00:03:28
11:45-11:59	4	00:05:47	00:01:26	00:03:16
12:00-12:14	2	00:04:19	00:02:09	00:03:31
12:15-12:29	0	00:00:00	00:00:00	00:00:00
12:30-12:44	2	00:03:17	00:01:38	00:02:34
12:45-12:59	0	00:00:00	00:00:00	00:00:00
13:00-13:14	3	00:06:31	00:02:10	00:04:08
13:15-13:29	0	00:00:00	00:00:00	00:00:00
13:30-13:44	2	00:01:05	00:00:32	00:00:41
13:45-13:59	1	00:00:58	00:00:58	00:00:58

SMS Transfer to Queue Report

=-=-=-=-=-= Report for 06/07/2019 6:00 AM - 6:00 PM =-=-=-=-=-=

	Total Incoming Calls	Total Calls Transfered To Queue	% of Total Incoming Calls
Summary:	114	45	39.47%

Transfer Source	# of Calls
Press Zero	11
@ Initial	0
@ Permit Number	3
@ Location	6
@ Material Code	1
@ Acreage	0
@ Start Time	1
New Permit	24
Complaint Line	1
Invalid Permit/Security Code	1
Permit Expired/Flagged	2
Invalid Location	1
Location Inactive/Flagged	0
Invalid Material Code	0
Restricted Material	0
Invalid Acreage	5
Invalid Start Time	0
Completed Burn Request	51
Waiting List Callback	0
DataBase Access Error	0

SJVAPCD 06/21/19 01:20

IVR Waiting List Callback Detail Report

Report for:	06/20/19		
Start Time:	16:13	End Time	16:26
1st Run End Time:	16:24	Total Calls:	47
Total Answered:	45	Total Not Answered:	0
Total Busy:	0	Total Error:	2

NUMBER	TIME	STATUS
2095811648	16:15:24	Answered
2095997502	16:15:16	Answered
2096078343	16:15:12	Answered
2096633963	16:15:14	Answered
2096782207	16:15:41	Answered
5592467943	16:15:43	Answered
5592554627	16:19:23	Answered
5592595905	16:15:36	Answered
5592693734	16:16:56	Answered
5592699829	16:17:05	Answered
5592811676	16:16:54	Answered
5592845801	16:16:02	Answered
5592850050	16:17:15	Answered
5592851018	16:20:54	Answered
5592853249	16:17:41	Answered
5592882906	16:17:44	Answered
5593187814	16:18:52	Answered
5593331058	16:18:34	Answered
5593499928	16:18:34	Answered
5593512370	16:19:37	Answered
5593513680	16:19:09	Answered
5593591506	16:20:27	Answered
5594791679	16:20:20	Answered
5595533593	16:20:50	Answered
5596473019	16:20:01	Answered

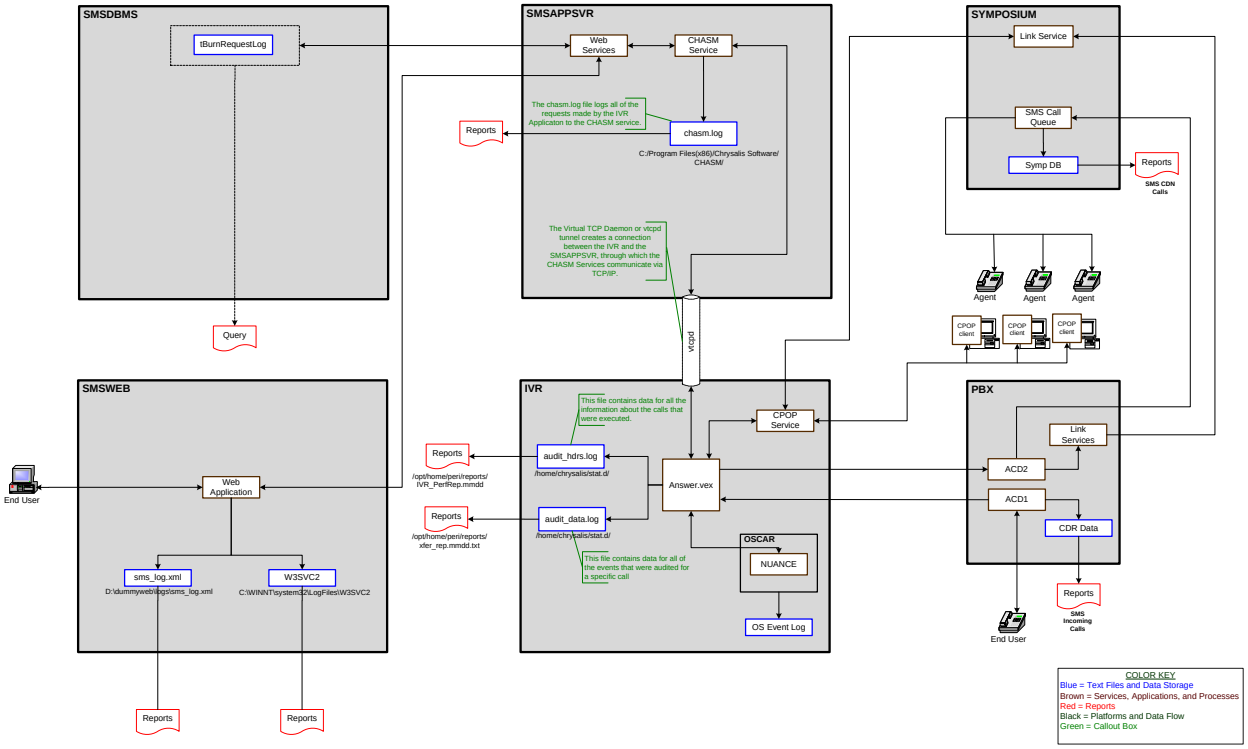
Appendix H Data retrieved by CTI process

Keyword	Value	
APPL	“BurnReq”	or “Permit”
TEXT	Text String (see below)	
PERMIT	PermitNumber	caller input
LOCATION	LocationNumber	
CROP	CropID	
ACRES	RequestedAcres	
START	StartTime	
PHONE	ContactPhone	

The text strings listed is referenced in the call flow drawings by number as shown in the table below:

	Text String	Comment
1	Caller requested operator assistance	any menu select 0
2	Invalid/unrecognized selection	any menu 3rd error
3	Raisin Grower	
4	Permit problem	
5	Location problem	
6	Restricted material	
7	System error	
8	New Permit/Change Permit	
9	Acreage Exceeded	
10		

Appendix I Burn Approval Process Diagram



Appendix J IVR Hardware

Qty	Ref. #	Description
		MPS Telephony Hardware
2	NTV715AAAA	MPS Announcement Storage Expansion for Telephony Media Server, 128MB memory provides additional 16,000 seconds of speech storage expansion for a TMS. Maximum of 3 per TMS. Each 128MB provides 250 minutes of memory based speech storage.
		MPS Chassis Connectivity
1	NTV720ACAB	MPS Ethernet Switch 470, 1RU, 24 port, 115/230VAC
		MPS500 Common Hardware
1	NTV780BBAA	MPS500 25 RU Cabinet 230VAC
1	NTV781AAAC	MPS500 T1/E1 Enclosure (RJ48C), 115/230VAC
1	NTV782TBAA	MPS500 Telephony Media Server, Speech Processing Enabled, T1, includes onboard echo cancellation.
1	NTV783AAAA	MPS500 TMS, 12DSP Expansion Card MDM, (TMS slot 1 or 3)
		MPS 3.0 (Solaris Processors & Upgrades)
1	NTV750DAAA	MPS AP, Sun Fire V120, V210, Sun Fire V240, or Netra 240 upgrade to Solaris 10. S/W License only. Can be used only on new servers from Nortel.
		Sunfire
2	NTV752CAAAE5	MPS AP Memory, 2Gb (2x1Gb), RoHS SunFire V210/V240/Netra 240. Equip max 2, total 8G.
1	NTV750ACACE5	MPS AP, SunFire V240 (RoHS), UltraSPARC IIIi, 2x1.5GHz, 2x1Gb mem, 2x73Gb SCSI disk, DVD Read Only, 4 x 10/100/1000 Gigabit Ethernet, dual feed 115/230VAC.
1	NTV703BAAA	MPS Terminal Server for SunFire remote support, 115/230VAC. Required for 25RU cabinets for terminal and modem support with SunFire AP's. Includes North America approved internal Modem. International customers requiring dial-up access must provide a locally approved external Modem.
1	NTV705ABAA	MPS DDS-4 DAT Tape Drive, 1U enclosure, cabinet mounting, 115/230VAC.
1	NTV802BAAA	MPS Solaris Factory Disk Mirroring V240, factory only configuration of Solaris Disk Mirroring on SunFire V240 only. Primary operating system (OS) drive and secondary drive only. Applicable to new Nortel supplied system builds from factory. MMF partion is configured on third drive and requires one NTV799AAKK.

		MPS 3.0 (Windows 2003 Processors & Upgrades)
1	NTV761ACAA	MPS Windows Server, Keyboard/Video/Mouse Assembly, 115/230VAC with 16 portswitch
1	NTV760ACBAE5	MPS Windows Server, Intel Dual (IBM X336), Windows 2003 Standard Server, 2x3.6GHz, 2Gb mem (2x1Gb), 73Gb, CD R/W, DVD Read only, 2 x 10/100/1000 Gigabit Ethernet, 115/230VAC (dual power)
1	NTV760ACDAE5	MPS Windows Server, Intel Dual (IBM X336), 2Gb (2x1Gb) memory extension to 4Gb (4x1Gb).
1	NTV760ACEAE5	MPS Windows Server, Intel Dual (IBM X336), Recovery Disk Drive, 73G
		MPS Speech Server AP Interface Software Licenses
1	NTV880AAAA	MPS, Speech Server Interface Enablement, Base Package per AP, Solaris.
48	NTV880CAAA	MPS, Speech Server Interface Enablement, per port license, Solaris or Windows.
		Speech Server Interface Software Licenses
1	NTVU00AAAF	Speech Server, MPS Speech Interface, Base Software license, per Speech Server processor.
48	NTVU00AAAG	Speech Server, MPS Speech Interface, per Speech Server speech channel license.
		Nuance 8.5 Global Software Speech Options
48	NTVU01DDAA	License, software; Nuance 8.5 recognizer, TierB, Language 1, global (per port). Enables a single system port to run the Nuance recognizer with recognition vocabularies including those with more than one unique item per utterance. This includes broad yes/no (yes, yup, sure, ok, nope, etc.), natural numbers, alphanumeric strings, dates, times, currency, and any number of items in an application with one or more unique items per caller utterance. An alphanumeric grammar supports recognition of a continuous stream of mixed single alphabetic characters (from A to Z) and numeric digits (0 to 9) as well as spelling. Nuance Tier B is configured with one license per concurrent incoming telephone port that will utilize the Nuance Tier B license. This License does not include any recognition grammars, or Nuance Verification, which must be licensed separately; nor does it include the cost for the development and tuning of the customizable grammar items. Solutions based on the Nuance Recognizer require at least one recognition grammar, and these grammars must be licensed, contracted for, or developed separately. It is not permitted to secure and release (e.g., do not GET and FREE within PeriProducer) the Nuance resource on a per utterance (recognition) basis within a call. During a call, an application may, for specific purposes, re-secure a Nuance resource (lvr-a) if call control must be transferred to an agent or a touch-tone application and then needs to return to the speech application. Must specify language. Supports Speech Server 6.0 with MPS 2.1 on Windows 2000 or MPS 3.0 on Windows 2003 or VPS/is release 5.4.2 (OSCAR 5.5 w/Windows 2000). Usage of SayAnything™ within the TierB recognizer requires a minimum of 2Gb memory on each OSCAR.
		Nuance Language identifiers (global 8.0 & 8.5) Section
48	NTVU21AAAA	Language identifier, Nuance, (per port), US/Canadian English (8.0 & 8.5)