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CITY OF REDLANDS PUBLIC WORKS DEPARTMENT

CALL LOG DATABASE STUDY

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree Master of Public Administration

> by Linda Carol Webster March 1998

CITY OF REDLANDS PUBLIC WORKS DEPARTMENT

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ABSTRACT

Public managers are looking for effective ways to management, store, and maintain the large quantities of data generated by the growing number of governmental regulations. Today, effective data management requires a computerized database system. Computerized data management has evolved, as all computer technology has. Starting with computerized file systems and advancing to the relational database model.

The simplicity of the design, and the user-friendly frontend systems offered by relational database management systems, make the relational model the standard in today's database design. The relational model was used to design and develop the Call Log database for the City of Redlands Public Works Department. The database will replace the user-unfriendly system now being used by the department.

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Chapter I

INTRODUCTION

Today, because of the growing number of governmental regulations, there is a need to store and maintain volumes of data. The increase in regulations has also increased the reporting requirements and need for good, effective decision making of public agencies. Reporting requirements often require data from many sources. Public managers also use these data sources to make decisions. The decisions of public managers affect private citizens and the business community. Because of this, the public manager must have current, complete, and accurate information to make good, effective decisions.

With the increase in storage and maintenance of data, reporting requirements, and effective decision making, there is a need for managed information. Public agencies, like private businesses, have begun to identify and organize data to meet information needs.

With the realization that data is a valuable resource to their agency, the public manager is looking for ways to efficiently manage so that it can be quickly accessed. Today, efficient data management requires the use of a computerized database. "A database is a shared, integrated

computer structure that houses a collection of raw facts" (Rob and Coronel 4), which are of interest to the end user. Data is stored in one location and can be shared by the entire agency.

Chapter II DATABASE CONCEPTS

Computer File Systems

The first computerized management of data was in the form of data file systems. Files were stored and maintained on the computer for use in different areas in the organization by data processing (DP) specialists. Programs were written to access these files and produce the required reports and information needs for each area.

As the file system grew in an organization there was a greater demand for the DP specialist's programming skills. When a new report format was needed the existing programs were either modified, or a new program written to produce the new information needs. If the structure of a data file or the data characteristics changed, such as adding a field to store new data, or changing a string field to a numeric field, all the programs that accessed that file would then have to be modified to accommodate the new structure (Rob and Coronel 11). Because all programs that access files are subject to change when the file structure or data characteristics change, the file system is said to be both structural and data dependent (Rob and Coronel 13-14). Because, data files were owned by different areas in an organization and not shared, the computer file system caused the storage of redundant data. Redundant data occurs when the same data is stored in more than one location within the system. Lack of data integrity or data inconsistency is caused by uncontrolled data redundancy. If an employee's phone number appears in more that one file and the phone number changes, the change would need to be made correctly in each file where the employee's phone number is stored. Having to make a change such as this in more than one location leaves room for errors to occur. The problems with the file system and the intensive programming necessary to maintain a file system make using a database system very desirable.

Database Systems

Unlike the file system with many unrelated files stored separately, a database system stores related files in a "single data repository" (Rob and Coronel 17). Thus, representing a change in how the data is accessed, stored, and managed (17). Database Management System (DBMS) software is used to implement and manage the database system. The DBMS interacts with the end user application and the database, performing functions that maintain the integrity and consistency of the data within the system.

Some of these functions include: data dictionary management; data storage management; data transformation and presentation; security management; and backup and recovery management (Rob and Coronel 23). Various database models have been developed, each leading to better data management.

A database model is a collection of logical forms used to represent the data structure and the relationship between the data within the database. There are two categories of database models, the conceptual model and the implementation model. The focus of the conceptual model is on what is represented in the database. During the development of the conceptual model the relationship between the data is determined. There are three relationships, one-to-one, oneto-many, and many-to-many. These relationships represent the logical association between data within the database. Unlike the conceptual model the implementation model focuses on how the data are represented or on how the data structures are implemented. Implementation models include hierarchical, network, and relational database models. Both the conceptual and implementation models are used to develop the database (Rob and Coronel 27).

The Hierarchical Database Model

North American Rockwell and IBM developed the hierarchical database model in the late 1960's. This was

the first commercial database model used, and it was the basis for further database development (Rob and Coronel 28). The database structure is a collection of records that can be perceived by the user as hierarchical or upside down tree structure as shown in Figure 2.1.



The hierarchical database model is said to have a parent-child relationship. Figure 2.1 depicts this relationship. The root level is the parent, lower levels are the children and may also be parents to lower levels. One parent may have many children but a child can only have one parent. Therefore, there can only be one-to-many and one-to-one relationships in this structure.

The advantages the hierarchical database model provided over the file system proved to be many. Because data is stored in a single related repository, data can be shared throughout the organization. With the parent-child relationship there is always a link between parent and child segments of the structure (Rob and Coronel 31). The hierarchical model also decreases the need for programming and program maintenance because data independence can be maintained.

Although the hierarchical database model proved to have many advantages over the file system, it still requires knowledge of the physical structure of the database. If a physical change is made in the structure of the database, changes are also required in all programs that access the database. And because the parent segment must be accessed first, programmers must know the hierarchical path to access data located in a child segment (Rob and Coronel 33). Another shortcoming of the hierarchical model is that many real world relationships do not conform to a one-to-one or one to-many relationship as required by the hierarchical model. In this model many-to-many relationships are difficult to implement, and may cause restructuring of the database. Also, because of the single-parent rule redundant data must be stored (McFadden and Hoffer 191).

The Network Database Model

The hierarchical database model greatly improved data management over the file system, but it does not effectively represent complex data relationships. The network database model was created to fill this need. The network database model is similar to the hierarchical model, but the network database model violates the single-parent rule (McFadden and Hoffer 197). In the network database model data is represented as sets of record types, each set contains an owner record type and member record types, as shown in Figure 2.2. Each set represents a one-to-many relationship. But unlike the hierarchical database model where a child can only have a single parent, a member may have more than one owner, as shown in Figure 2.3. This in turn reduces the storage of redundant data.



The network database model has many of the same advantages of the hierarchical database model, but improved some of its defaults. Because a member can have many owners the network database model implements many-to-many relationships more effectively. There is greater data access flexibility. Applications can access an owner record and all its members, if a member belongs to more than one owner it can be accessed through any owner (McFadden and Hoffer 205).

Even though the network database model improves on the hierarchical database model, it too has its downfalls. Although the network database model is data independent, it is structurally dependent. If the physical structure of the database changes, all applications accessing it must also be changed. And because the owner must be accessed before a member can be accessed, programmers must still know the physical structure of the database to create a path for data access. Also, the network database model does not have ad hoc query capabilities. Therefore, if a new data report format is needed, applications would have to be created to meet the new reporting needs. The network database model increased data integrity control and the efficiency of data management, but it was not a user friendly system because of its complexity.

The Relational Database Model

The complexity of the network database model and its lack of ad hoc capabilities lead to the development of the relational database model. The relational database model was developed by E.F.Codd in the 1970's and was a major breakthrough for both users and database designer (Rob and Coronel 38). According to C. J. Date the word to describe the relational database model is "simplicity" (4). The simplicity of the model provides both usability and productivity. Even those with limited computer skills can use the system to manage data and produce required reports. Which in turn increases productivity (Date 5). Because of the simplicity of the design there is no need to know the physical structure of the database. Also, the relational database model has the ability to produce ad hoc queries, limiting the need for extensive programming.

The relational database model eliminates the parentchild and owner-member structures used in the hierarchical and network database models. In the relational database model, the structure is perceived by the user as a collection of related tables containing rows and columns. Each table represents an entity. An entity is a person, place, thing, or event for which data is being stored. Each table stores a collection of related entities. Therefore, a

relational database table resembles a file. Each row within the table represents a single entity record. And each column represents an entity characteristic or attribute. Tables are related by sharing a common attribute, this is shown in Figure 2.4.

ID	Cus_N	lame	Cus_P	hone	Agent_
101	Sam Sm	iith	(909)795	4412	601
102	Bill Willi	ams	(909)792	1234	605
103	Mary Joi	nes	(909)880	8888	602
104	Allen Sa	nders	(909)884	-5678	603
105	Ron Wh	ite	(909)794	2424	601
106	Betty Sr	nith	(909)882	4000	602
	Amont ID	Aaa	nt Nome	0	
× (601	-igeni <u>i</u> ib	Tom	nc_name Dunn	338-4	922
602		Sally	Harry	794-1	236
20a	- Andre and an a former of a group	Frank	O'Mara	884-5	589
	وجروبه والمربق ويتبعون وتواعدوهم والمراوي والمراجع والمنام والمساح	******	n	TOT I	500
605		Kevin	DIOMU	192-4	999

The CUSTOMER table is related to the AGENT table through the Agent_ID number, which is contained in both tables. Although this is storing redundant data it is kept at a minimum, therefore, redundancy is controlled.

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Like the hierarchical and network database models, the relational database model is a single data repository. A major difference between the relational and the hierarchical and the network models is that the user does not need to be concerned with the underlying structure of the database. Because of this, the relational database model is both data and structural independent (Date 15-16).

The relational model offers many advantages over the hierarchical and network models. The data and structural independence is important for both the end-user and programmers. Structural independence allows the end-user direct access to the database. If there is a change in the physical structure of the database there is no need for programmers to make corresponding changes in the applications accessing the database (Date 15). Data independence means that, "users and user programs are independent of the logical structure of the database" (Date 16). If there is a change in the logical data structure existing programs accessing the database do not have to be modified or changed.

Relational systems provide "frontend products - ad hoc query subsystems, report writers, business graphics, spreadsheets, application generators" and "natural language

interfaces" (Date 17). These frontend products are easy to use and easy to learn by the end-user.

A prototype of the database can quickly be developed and shown to the "intended users" (Date 18). This allows the end-users to be involved in development of the system. This insures that the final application meets the end-users requirements.

The simplicity of the relational model leads to its disadvantages. Because the relational model hides most of its complexity from the user, it needs more powerful computers to perform all the data management tasks required to maintain the relational database. Also, "the easy-touse" environment can become a "liability" (Rob and Coronel 43). Because the relational database is structurally independent, the need for proper database design may be overlooked. A poorly designed database can slow down the system and cause the same problems that are related to the file system. Although the relational model has its downfalls, the advantages greatly outweigh the disadvantages. Because of this the relational model is the current standard in database design.

Chapter III

DATABASE DESIGN

The scope and boundaries of this project is to create a database for the City of Redlands Public Works Department. The database design will cover only the daily call log operation. And will be independent of any other database used by the city. The primary users of the database will be the Public Works Departments secretaries.

Mission Statement

Employees of the City of Redlands are committed to responding to the changing needs of our community, to providing excellent customer service through professionalism, integrity and efficient use of resources, and ensuring Redlands remains a distinctive place in which to live and work.

City of Redlands Mission Statement

Organizational Background

The Public Works Department is one of seven City departments providing service to the citizens of Redlands. The department is comprised of six divisions (see Appendix A, Exhibit 1, Organizational Chart) that are related, yet have specific and separate functions. These divisions include: Engineering Administration, Airport; Building Maintenance, Cemetery, Parks and Street Trees, Streets, and Electrical. Fifty-six full-time and 16 part-time employees with a variety of professional, technical, clerical, and labor backgrounds staff the department (Mutter).

There are currently two full-time secretaries in the Public Works Department. Their level of computer literacy is low, and their knowledge of computer applications is limited to WordPerfect 6.0 for MS-DOS. In order to help meet the objectives of the cities mission statement, the secretarial staff of the department takes calls from citizens and city employees regarding problems pertaining to:

- Building Maintenance
- Street Trees Planting and Trimming
- Palm Tree Trimming
- Concrete Maintenance
- Street Light Maintenance
- Street Maintenance
- Street Sweeping

The information is recorded in a Call Log (see Appendix A, Exhibit 2). The Call Log includes: location of problem, this may be a street address or general location; date call received, currently lists numeric month and day; description of problem; caller name and telephone number; and resolved, in which any special remarks are noted by the secretaries or persons receiving the call. Currently the department

receives 10 to 20 calls daily pertaining to problem areas within the city (Johnson).

Current System

The current system used for the Daily Call Log is automated. The information is entered into tables in individual WordPerfect file. Processing is a combination of real-time and batch, depending on who takes the call.

Daily, copies of the Call Log are distributed to the division superintendents specifying calls pertaining to their specific divisions. The superintendents use the Call Log as a guide to determine work assignments within their division. When a problem has been resolved the superintendent marks it off on the Call Log and may or may not indicate what was done and the date completed. The form is then returned to the department secretary. The secretary then enters any remarks made by the superintendents and black lines the complaint, indicating that the problem has been resolved (Johnson). See Appendix A, Exhibit 3 for Data Flow diagrams.

Current Hardware and Software

Hardware

2 IBM-compatible stand-alone PC's Intel 486[™] 66MHz Processors 400 MB Hard Disk Drives

Software

MS-DOS 5.0 Operating System WordPerfect 6.0 for

DOS

16 MB RAM

Mouse

Microsoft Window 3.11

14 inch VGA Monitors

Microsoft Word 6.0 Microsoft Access 2.0

2 HP Laser printers

Current System Problems

There are many problems with the current Call Log system

- Redundant information is maintained, which leads to data inconsistency.
- The system is hard to keep up-to-date because individual logs are maintained for each division.
 - It is hard to perform searches. Logs can only be search by phone number and street address. If the site of a problem is a location, such as corner of 6th and State Street, the file must be searched line-by-line. This also must be done if street name is misspelled.
 - The system does not allow ad hoc queries.
 - Historical data is hard to track because of the individual logs.
- Redundant information is given to division superintendents, because logs are printed by page, not by date.
 - System locks up on a regular basis.

Because of the problems with the current system the head of the Public Works Department would like a database designed for the specific purpose of maintaining the Call Log and producing documents pertaining to it.

The use of a relational database in maintaining the Call Log could solve these problems. Historical data could be tracked easily. Searches could be performed on various fields, and a relational database would reduce redundant data being stored and output to divisions. A relational database can produce a variety of reports. It would also provide easy accurate updating of files.

Constraints

Hardware and Software

- The new system must be developed with the existing hardware and software.
- The system is to be a stand-alone system.

Upgrade Capabilities

- The new system must allow conversion to a later version,
 - if necessary.

Information Needs and User Requirements

The general system requirements for the Public Works

Call Log database are as follows:

- 1. The system must be easy to use.
- 2. The system must have a graphical user interface.

- The system must be password protected to provide security.
- 4. The system must reduce redundant data entry and updates.
- 5. The system must have the ability to produce ad hoc queries.
- 6. The system must produce the following output
 - Daily Call Logs for building maintenance, concrete maintenance, street light maintenance, street maintenance, street sweeping, palm tree trimming, street tree trimming, and street tree planting.
 - Report by Division
 - Liability Report

The database currently being designed for the Public Works Call Log will be developed using Microsoft Access 2.0 for Windows. This choice has been made because of the constraints of the current system. If the system is upgraded at some time in the future the database can be converted to a newer version of Access.

Call Log Entities and Relationships

An entity is a person, place, thing, or event that data is stored about. The Entity Relationship diagram represents the entities and the relationship between them, one-to-one (1:1), one-to-many (1:N), and many-to-many (N:M). In a

relational database if a many-to-many relationship exits between two entities, redundant data will be stored in both tables. Therefore, to eliminate the storage of redundant data another table is created, called an intersection table, which makes the relationship one-to-many, as seen in Figure 3.1. One complaint can involve many divisions and one division may be involved in many complaints. Thus, a manyto-many relationship exists between the two entities COMPLAINT and DIVISION. To solve this problem an intersection table called INVOLVES was created. The addition of the intersection table not only eliminates the many-tomany relationship, but also, will keep a historic record of the divisions involved in each complaint.



Table Definitions

See Data Dictionary for attribute definitions (Appendix B, Exhibit 1).

COMPLAINT | CNum, Location, Problem, Cdate, RecBy, Lname,

Fname, Phone, NumCalls, JobComp, CompDate, Remarks, Claim

The COMPLAINT table will contain data pertaining to specific complaints. To include: Complaint number, location of complaint, problem, call date, call received by, caller first name, caller last name, number of calls, problem resolved, resolved date, remarks, claim (see Appendix B, Exhibit 2).

INVOLVES | CNum, DivName

The INVOLVES table will contain complaint number and division name. This table eliminates the many-to-many relationship between the COMPLAINT and DIVISION tables. It will also contain the historic data on which divisions were involved in specific complaints (see Appendix B, Exhibit 3).

DIVISION | DivName, SuperName

The DIVISION table will contain the names of the division names involved in specific complaints and the name of the division superintendent (see Appendix B, Exhibit 4). User Views

Because the users of this database have access to the entire database, there is only one user view, depicted in Figure 3.1.

Form Views

The Public Works Call Log database has seven form views.

- 1. Main Switchboard This form allows access to all other forms in the application. It acts like a main menu in other applications (See Appendix C, Exhibit 1 for user interface). This form also gives the user access to the database window (See Appendix C, Exhibit 8). This will allow the user access to ad hoc query functions and generate new reports.
- 2. Daily Call Log form This form will be used for data entry of complaint. Data entered into the form will be stored in the COMPLAINT and INVOLVES tables (see Appendix C, Exhibit 2 for user interface).
- 3. Update Call Log form This form will be used for updating data pertaining to complaints. No new records can be added to the database through this form. Updating of records can also be done in the Daily Call Log form. This form is included in the design for use in the event that the secretary's computers are networked (see Appendix C, Exhibit 3 for user interface).
- 4. Division form This form will be used for updating the superintendent name. And in the event that complaints are needed to be tracked for a new division, the new division

name and superintendent can be added to the database through this form. Data entered into this form will be stored in the DIVISION table (see Appendix C, Exhibit 4 for user interface).

5. Print Call Log form - This form will be used to print the Daily Call Log reports. The user will be prompted for a call date, only records that meet the call date criteria will be printed. The form allows both report preview and print options (see Appendix C, Exhibit 5 for user interface). Queries for the Daily Call Log reports include the following tables and attributes: COMPLAINT | CNum, Location, Problem, Cdate, Remarks,

JobComp = "NO", FName, LName, Phone

INVOLVES | DivName

DIVISION | SuperName

(See Appendix D, Exhibit 1 for report format).

6. Print Reports form - This form will be used to print the queried reports, Report by Division and the Liability Report. The user will be prompted for starting and ending dates. Only records that meet the date criteria will be printed. The form allows both report preview and print options (See Appendix C, Exhibit 6 for user interface). Report queries include the following tables and attributes:

Report by Division:

COMPLAINT | CNum, Problem, Cdate, CompDate INVOLVES | DivName

(See Appendix D, Exhibit 2 for report format).

Liability Report:

COMPLAINT | Location, Problem, Cdate, FName, LName, Phone, Claim = "YES"

(See Appendix D, Exhibit 3 for report format).

7. Back Up Dialog Box form - This form will be used for backup purposes. The form has options for backing up both the entire database or records only (see Appendix C, Exhibit 7 for user interface)

Storage Requirements

The following calculations were used to determine storage requirements. First, the record size was calculated. Each field in the file has a maximum length, that is the number of character allowed. The length of each field is listed below. Each character requires 1 byte of storage space, long integers require 4 bytes and short integers require 2 bytes of storage space. To calculate the record size, sum the length of each field contained in the record. Second, the number of records to be stored was determined. The secretaries in the Public Works Department take 10 to 20 calls a day regarding complaints. To calculate the number of records, the number of calls were multiplied by the record size. The maximum number of calls, 20, was used to calculate the number of records. Next, the total storage space required per month was calculated. To do this the record length was multiplied by the number of records per month.

To calculate the maximum number of records that can be stored on 3 ½ inch floppy diskette for backup, the total disk capacity (1,440,000 bytes) was divided by the record size.

The following is an estimate of data storage requirements for the Call Log database.

TABLE	ATTRIBUTE	SIZE	STORAGE
COMPLAINT	CNum	Long Integer	4 bytes
	Location	Char(255)	255 bytes
	Problem	Char(255)	255 bytes
	Cdate	Short Integer	2 bytes
	RecBy	Char(2)	2 bytes
	LName	Char(15)	15 bytes
	FName	Char(15)	15 bytes
	Phone	Char(8)	8 bytes
	NumCalls	Char(2)	2 bytes
	JobComp	Char(3)	3 bytes
	CompDate	Short Integer	2 bytes

and the second			
	Remarks	Char(255)	255 bytes
	Claim	Char(3)	3 bytes
Total record	length:		821 Bytes
Estimated num	ber of records	per month:	620
Total space r	equired:		509020 bytes or 499 KB
INVOLVES	CNum	Long Integer	4 bytes
	DivName	Char(25)	25 bytes
Total record	length:		29 bytes
Estimated num	620		
Total space r	equired:		17980 bytes or 18 KB
DIVISION	DivName	Char(25)	25 bytes
	SuperName	Char(25)	25 bytes
Total row len	gth:		50 bytes
Number of row	S •		9
Total space r	equired:		450 bytes or .44 KB
Total require	d storage space	e per month:	527450 bytes
Maximum numbe	r of records st	ored on	OL JIO KB
3 ½ inch disk	ette for backup):	1,694 records

It is the department policy to backup the Call Log database once a week. This backup will be used for recovery purposes in case of a system failure. Backup of completed records is done once a month. Records in the COMPLAINT

table where JobComp equals "YES", and records with corresponding CNum in the INVOLVES table will be removed from the database and stored on a 3 ½ inch floppy diskette. Call Log Database Implementation

As stated earlier, because of system constraints, the Public Works Call Log database was created using Access 2.0, using macros and event procedures to perform routine and repetitive tasks, such as printing Daily Call Log reports (see Appendix E). The database contains three related tables COMPLAINT, INVOLVES, and DIVISION (see Appendix B, Exhibit 1, data dictionary for table attributes and properties). Prototypes of the database were developed and shown to the end-users, resulting in adjustments in the final design.

The final database has been tested and evaluated for data entry and updating; backup and recovery; and security. The database has proven to perform properly in all instances.

Call Log Database Operation

The Call Log database was put into operation on January 16, 1998. The new system is running parallel with the old system. All new calls are entered into the Call Log database. The old system will be maintained until all calls currently stored in it have been resolved.

A user manual was also developed to accompany the Call Log database (see Appendix F). The manual describes the form functions and application instructions, such as steps to backing up the database. The manual also contains the macros and event procedures used in the database.

A three hour training session for the department secretaries was scheduled on the day of installation. The training consisted of a demonstration of the database and hands on training for each secretary. During the hands on portion of the training the secretaries entered data into the various forms, made updates, performed searches, backed up the database, and printed reports.

Chapter IV CONCLUSION

With the volumes of data necessary to maintain effective reporting and decision making requirements, public managers are looking to computerized data management. The use of a computerized database is the most efficient way to store, maintain, and manage large quantities of data. The use of computer databases also allows data to be shared by the entire agency. Which reduces the need to store redundant data, and preserves computer resources.

Like all other computer technology, computerized management of data has evolved. Starting with the computerized file systems which proved to be inefficient because the unrelated files caused data inconsistency, and the intensive programming necessary to maintain these systems. Database systems, unlike the file system with unrelated files stored separately, stores related data in a single repository. The hierarchical database model offered many advantages over the file system, but it lacked the ability to handle complex data relationships effectively. The network database model was created to fill this need. The network model had the ability to handle more complex data relationships. But provides an unfriendly user work environment. The relational model was considered a major
break through for both users and database designers. Because of the simplicity of the design there is no need to know the physical structure of the database. The relational model offers a user-friendly environment, in which even those with limited computer skills can manage data and produce required reports. Because of this the relational model is considered the standard in database design.

After an analysis of the current system used by the City of Redlands Public Works Department to maintain their call log, which was maintained in separate WordPerfect files, it was decided that they would benefit by a relational database. The relational model will provide the current information needs more efficiently and meet current user requirements. The relational model provides ad hoc query capabilities, which will allow the secretaries to produce reports other than the queried reports available in the database. The relational model provides an easy to use, easy to learn, user-friendly environment. This was necessary because of the limited computer skills of the endusers. Because of current system constraints, the Call Log database was developed in Microsoft Access 2.0. In the event that there is a system upgrade, the database can be converted to later versions of Access.

A P P E N D I X A ORGANIZATIONAL CHART CURRENT CALL LOG DATA FLOW DIAGRAMS



EXHIBIT

PALM TREE TRIMMING CALL LOGS FOR 1997

LOCATION	DATE	PROBLEM	NAME/PHONE #	RESOLVED	
C/O Monterey & La Cresta Dr.	01.30	Palm Fronds			
Fawn Ct.	01.29	Palm fronds		н Т	
510 Fountain Ave.	01.29	Palm fronds			
109 Cajon St.	01.28	Palm trees need to be trimmed. People have sli fell because of the large amount of berries on t	oped and he ground.		• .
1640 Arbor Dr.	01.28	Paim fronds		C U F	
1344 E. Palm Ave;	01.27 01.23	Pelm fronds:		RE Picked up 1-27-97 NT	r a i
715 E High	01.22	Palm trees needs to be trimmed.	*****************	DA	[HX
1527 Ridge St.	01.22	Palm fronds in empty lot		ILY	EBIT
411 Brookside Ave.	01.15	Palm fronds in the alley.		CALL	N
6th & Vine to Cajon	01.14	Palm trimming			
				рС рС	
On Cook & Grove behind 1255 East Citrus/Countrywood Apts.	01.02, 12.17	Palm trees need trimmed			
Dearborn from Lisa to Citrus	12.31	Palm trees (not tall) need trimmed - fronds slap the face	people in		
1026 Cedar Avenue	12.23	Palm fronds/skirt down at parkway - hit her nev she's not sure if it's scratched or dented. I gav Finance Dept.'s phone number	v van, but e her	Radio'd 471	

EXHIBIT 3









DIAGRAM 0

A P P E N D I X B DATA DICTIONARY AND TABLE STRUCTURES

EXHIBIT 1

DATA DICTIONARY

ATTRIBUTE	DATA TYPE	SIZE	DEFINITION	INTEGRITY RULES
CNum	Counter		Complaint number Primary Key in the COMPLAINT Table. Concatenated Key INVOLVES table. Caption Complaint Number	Required field, computer will generate.
Location	Text	255 char	Location of complaint. Location may be either an address or description, i. e, 2 W Fern, or third light from corner of Fern and Cajon. COMPLAINT table.	Required field
Problem	Text	255 char	Description of problem. COMPLAINT table.	Required field
Cdate	Date/Time		Date Call receive, computer will generate current date. Caption Date. COMPLAINT table.	Required field MM/DD/YY
RecВу	Text	2 char	Initials of person receiving the call. Caption Received By. COMPLAINT table.	Input Mask: >CC, data entered will automatically be capitalized.
LName	Text	15 char	Last name of caller. Caption Last Name. COMPLAINT TABLE	
FName	Text	15 char	Callers first name. Caption First Name. COMPLAINT table	
Phone	Text	8 char	Caller Phone number. May be a phone number or extension, i.e., 793- 3333 orx3333. COMPLAINT table	
NumCalls	Text	2 char	Number of calls received regarding a specific complaint. COMPLAINT table	
JobComp	Text	3 char	Has complaint been resolved, Caption Resolved. COMPLAINT table.	Input Mask >CCC Valid text Yes/No. Default value NO
CompDate	Date/Time		Date complaint resolved. Caption Date Resolved. COMPLAINT table	MM/DD/YY

ATTRIBUTE	DATA TYPE	SIZE	DEFINITION	INTEGRITY RULES
Remarks	Text	255 char	Remarks regarding problem as deemed necessary by person taking call. And any remarks made by superintendent regarding resolution of problem. COMPLAINT table	
Claim	Text	3 char	Probable liability claim. COMPLAINT table	Input Mask >CCC Valid text Yes/ No Default value NO.
DivName	Text	25 char	Name of division involved in complaint. Caption Division Name. Primary Key DIVISION table, Concatenated Key INVOLVES table	Required field Valid text: Concrete Maintenance, Building Maintenance, Street Light Maintenance, Street Maintenance, Street Street Sweeping, Palm Tree Trimming, Street Tree Trimming, Street Tree Planting.
SuperName	Text	25 char	Name of division superintendent. Caption Superintendent Name.	

EXHIBIT 1 DATA DICTIONARY, continued

EXHIBIT 2

COMPLAINT TABLE

	Complaint Numbe	Location	Problem	Date	Remarks
462	18	Treasurer Office	Light out in office and	7/22/97	
	19	2255 W State Stree	Palm frons down bloc	1/14/98	called 408
	20	Redlands Blvd. Cor	Street Light out	11/8/97	and searches in the property of the second
	21	567 W Sterling	Wants to know what	11/9/97	Al gave him a list of
	23	14 East South Ave	Sidewalk raised 2-3"	1/1/98	n n a m ar antesian en nan autor agentesian españologia.
- 58	24	200 Delaware	When is the gravel b	1/1/98	called 412
3 I.Y.	25	891 E Colton	Tree cut down after :	1/1/98	and the strength of the second s
	26	233 Anita Ct.	Tree cut down after :	1/1/98	A production of the product of the second state of
	27	125 Hastings	Ash tree blew over.	1/1/98	an an ann a' a chuir an ann an
	28	1215 Colgate	S/W raised by roots	1/1/98	en als added to the second device second devices and a second second second second second second second second
	40	9556 W. Palm	Sidwalk raised by tree	1/15/98	Called Interstate
*	(Counter)			and the second	and a second of the second

Resolved	Date Resolved	Number of Calls	First Name	Last Name	Phone
YES	1/14/98	1	Peggie		87657
NO		1	Sam	Hill	792-0999
NO		1	Jim	agan ((and - g, dyne - d, and gd, again) i reachadright af randomination (4)	x3457
YES	1/14/98	1	Tom	Sentmen	793-8765
NO		1	Bob	Engel	335-0202
NO	where, Participant (Section of the state of the section of the sec	1	Sam	Collins	794-8989
NO	and the second se	1	Pat	Darling	793-2277
NO	an a	1	Diana	Jones	792-4765
NO		1	Sally	Ennis	792-3308
INO	No artista estado i a cicia analista da service para destra da regara da casa da casa da casa da casa da casa d	1	Shirlene	Mobley	792-0585
INO	C formula careta farma per pidojungo-majon jungang pidojung		Tom	Miller	793-3333
NO	•	1		an man ann an san an san an san an san an a	protection of the size of the sendence protection of the

Received By	Claim
LW	NO
LW	NO
<u>,</u> LW	NO
LW	NO
LW	NO
LW	YES
LW	NO
	NO

EXHIBIT 3

INVOLVES TABLE

	and a second	این از اینکامی ایک ایک ایک ایک ایک ایک ایک ایک ایک ای
		이 같은 것을 알 수 있는 것이 같이 같이 같이 같이 않는 것이 같이 않는 것이 같이 했다.
	CNum	Division Name
		Building Maintenance
6	1 (Palm Tree Trimming
	21) Street Light Maintenance
	2	Street Tree Planting
	2	B Concrete Maintenance
	2	B Street Tree Trimming
	2	Concrete Maintenance
	2!	Street Tree Planting
	26	Street Tree Planting
2.00	27	Street Tree Planting
	28	Concrete Maintenance
	28	Street Tree Trimming
124	4	Concrete Maintenance
總公		Street Sweeping
1995	4(Street Tree Trimming
*		1
-	and the second	and a second

EXHIBIT 4

DIVISION TABLE

and a second

1933	Division Name	Superintendent
	Building Maintenance	Gary Banks
	Concrete Maintenance	Tom Smith
	Palm Tree Trimming	AlWeber
	Street Light Maintenance	Tom Smith
	Street Maintenance	Tom Smith
	Street Sweeping	Tom Smith
	Street Tree Planting	
1	Street Tree Trimming	AlWeber
**	[1] 영국 영국 이상 지수는 것이 같은 것이 없는 것이 없다.	

A P P E N D I X C USER INTERFACES

EXHIBIT 1 MAIN SWITCHBOARD

	Form: Main Switchboard
	PUBLIC WORKS CALL LOG DATABASE Designed by Linda Webster
	Daily Call Log
Currows	Division Backup
	Print Daily Call Logs Print Reports
Exit	Display Database Window

EXHIBIT 2 DAILY CALL LOG FORM

; <u>c</u> uit	VICW	<u>n</u> ccorus	Псіћ			
i safati nin	1.1		Form	nî Dailý Call Log 👋	2011年1月1日日 (1994年1月) 1月1日日 - 1月1日日 (1994年1月) 1月1日日 - 1月1日日 (1994年1月)	e - Martin State - State
Complaint M	lumber: [21		Date:	11/9/97	
ocation:	567 W SI	terling		Problem:	Wants to know what varity of tree to plant in parkway	,
7emarks:		an an trad that state in the sec		n den som det den der Generaliser	 Division Name Street Tree Planting 	
	 		and the same		I Record: 1	of 1
First Name:	Tom		Last Name:	Sentmen	7	
		alinen andre aline Alinen <u>alinen a</u> rtek aline		1111		
-none: [79	3-8760	1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 - 1998 -	Heceived B	w		
Number of	Calls:	T Re:	solved: NO	Date Resolved	Claim:	NO
						Close
					-	
Becord	14	of 12		n general services and the service of the service o	<u>e e na ser en </u>	an na sa san na sa

UPDATE CALL LOG FORM EXHIBIT 3

and Alexandrian (Section 1), 1985 - Frenhalt - Energy Print Parks) - Alexandrian - Brits Parks		hal a	l ni jo	Hecold: 1
		PINES.		<u> </u>
Close				
	bevlozeň ele		Bevlozefi	Nnuper of Calls:
	water - Alexandria	-94 (B)		
		Ceived By: LW	ษ	Phone: x7657
		ame N Is	n	Fist Name: Peggie
	मि			
Some N moisivi A Some N moisivi				Remarks:
moothsa	suam	•		
out in office and in the	Problem: [Light	L t	Office	Location: Treasurer
	6/77// J -919/1		81	Complaint Number:
	<u>orcerz</u> j – t d			and she that the second
	ere Call Log	Form: Upds		· · · · ·
e de la companya de l		d d	<u>Records H</u> el	waiV tib∃ a

EXHIBIT 4 DIVISION FORM

· CALLER AL ALERS	Form: Division
Superintendent:	Gary Banks
Division Name:	Building Maintenance Close
I∢ Record: 1 c	f 8 🖹 🕅



Deby Calling	nt Call Log
Concrete Maintenance	Preview Report
Building Maintenance Palm Tree Trimming	Print Report
Street Light Maintenance Street Maintenance	Close
C Street Sweeping	
C Street Tree Planting C Street Tree Trimming	



🖽 Print Reports	n prede internationale di	and the second	化化学 化油油	×
	Reports to Print			
	Report b	y Division		
	C Liability i	Report	a la contractor	
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Print Preview	r Print Ri	eport	Close	
	ш ——————		anne an Star	

EXHIBIT 7 BACK UP DIALOG BOX



EXHIBIT 8 DATABASE WINDOW

Elle Edit View Security Window Help	-				N	Aicrosoft #	ccess				÷♦
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Rejdy

A P P E N D I X D REPORT FORMATS

Street Tree Planting Call Log

50

	Date	Name/Phone #	Problem	Remarks
25 891 E Colton	1/1/98	Pat Darling 793-2277	Tree cut down after storm. Want Crepe Myrtle planted	t en la seconda de la seconda seconda de la seconda de la seconda seconda de la seconda d
26 233 Anita Ct.	1/1/98	Diana Jones 792-4765	Tree cut down after storm. Want Oleander tree.	s an
27 125 Hastings	1/1/98	Sally Ennis 792-3308	Ash tree blew over. Wants Crept Myrtle planted	

1/19/98

EXHIBIT 1

CALL LOG REPORT

DAILY

Al Weber

Report by Division

Concrete Maintenance	Problem	Call Date	Date Resolved	
	S/W raised by roots	1/1/98		
	When is the gravel between the curb & pavement going to be compleded on Delaware? Wife fell in gravel area and is going to the doctors today.	1/1/98		
	Sidewalk raised 2-3", sewer affected by tree roots, street lifting and toxic cesspool in	1/1/98		
	street.	0.11 0.44	Data Developed	ਸ ਸ
Street Light Maintenance	Problem	Call Date	Date Resolved	0
$\frac{1}{2} \sum_{i=1}^{n} \frac{1}{i} \sum_{i=1}^{n} \frac{1}$	Street Light out	11/8/97		
Street Tree Planting	Problem	Call Date	Date Resolved	- 2
- - -	Ash tree blew over. Wnads Crepe Myrtle planted	1/1/98	t, t	ATC.
	Tree cut down after storm. Wandt an Oleander tree.	1/1/98		DTC
	Tree cut down after storm. Wandt Crepe Myrtie planted	1/1/98		rs l
	Wants to know what varity of tree to plant in parkway	11/9/97	1/14/98	NO.
Street Tree Trimming	Problem	Call Date	Date Resolved	
	S/W raised by roots	1/1/98		
	Sidewalk raised 2-3", sewer affected by tree roots, street lifting and toxic cesspool in street.	1/1/98		

Street

L _ П -1 Э ა

Liability Report

1/19/98

1/19/98

1/19/98

52

DateLocation1/1/98200 Delaware

Problem When is the gravel between the curb & pavement going to be compleded on Delaware? Wife fell in gravel area and is going to the doctors today. Name/Phone # Sam Collins 794-8989

1/19/98 2 West State Street

234 Fern Ave

562 La Marido

Tree lime fell on customers car.

Bill Morgan 793-2255

Sam Miller

793-9999

Tree roots in sewer lines

S/W raised by tree roots

May Thompson 792-7654

EXHIBIT 3 LIABILITY REPORT

A P P E N D I X E MACROS AND EVENT PROCEDURES

AutoEx	а с			l Loavey, Janua	Page
		······			
lies			•		
eated:	1/4/98	7:25:33 PM	Last Updated:	1/4/98 7:25:33 PM	
	admin				
					· .
	·				
6	2				1. A.
	Condition	Action	Argument	Value	
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Rur Hid	is automatically wh e database windov	RunCommand	Command:	2	
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Rur Hid	is automatically wh	RunCommand V OpenForm	Command: Form Name: View: Filter Name:	2 Main Switchboard Form	
Rur Hid	is automatically wh	RunCommand V OpenForm	Command: Form Name: View: Filter Name: Where Condition:	2 Main Switchboard Form	
Hid	ns automatically wh	RunCommand V OpenForm	Command: Form Name: View: Filter Name: Where Condition: Data Mode:	2 Main Switchboard Form Edit	
Hid	ns automatically wh	RunCommand V OpenForm	Form Name: View: Filter Name: Where Condition: Data Mode: Window Mode:	2 Main Switchboard Form Edit Normal	
Rur Hid	ns automatically wh le database window bens Main Switchb	RunCommand V OpenForm oard form	Command: Form Name: View: Filter Name: Where Condition: Data Mode: Window Mode:	2 Main Switchboard Form Edit Normal	
Hid	ns automatically wh le database window bens Main Switchb	RunCommand V OpenForm oard form	Command: Form Name: View: Filter Name: Where Condition: Data Mode: Window Mode:	2 Main Switchboard Form Edit Normal	

User Permissions

admin

Group Permissions

Admins Users

Macro: Mair	N Switchboard Button	· · · · · · · · · · · · · · · · · · ·		· · · ·	Tu	esday, January	13, 1998 Page: 1
							·
Properties						× .	
Date Create	d: 12/31/97	4:59:42 PM	Last Update	ed:	1/11/98 5:1	3:25 PM	
Owner:	admin						
		· · · ·					
		, * -	a de la composición d				1.15
Actions							1.1
Name	Condition	Action	Argume	nt		Value	5
Database \	Window		-		0.6-1-1-1		
		SetValue	item:		[VISIDIE]	•	
			Expression:		NO		
	Hide Main Switchboard		<u></u>		<u></u>		
		SelectObject	Object Type:		Form		
			Object Name:	-	Vee		
i i	Display Database Windo	W		UW.	109		

User Permissions

admin

Group Permissions

Admins Users

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Macro: Pri	nt Call Log Reports			Sunday, January 11, 1998 Page: 1
Propertie Date Crea	5 ted: 12/28/97 edmin	7 2:48:38 PM	Last Updated:	1/8/98 12:55:10 PM
JW1 KJ1.				
Actions	Condition	Action	Aroument	Value
	Attach to Print Button o	n Print Call Log Dial	og Box	
Dalat				
Phnt		SetValue	ltem: Expression:	[Visible] No
	Hide Print Call Log Dia	log Box.		
	[Daily Call Log]=1	OpenReport	Report Name: View: Filter Name:	Building Maintenance Print
1	Print Building Mainten	ance Call Log	Where Condition:	
	[Daily Call Log]=2	OpenReport	Report Name: View:	Concrete Maintenance Print
	Print Concrete Mainte	nance CallLog	Where Condition:	
	[Daily Call Log]=3	OpenReport	Report Name: View: Filter Name:	Palm Tree Timming Print
	Print Palm Tree Trimm	ning Call Log	Where Condition:	
	[Daily Call Log]=4	OpenReport	Report Name: View:	Street Light Maintenance Print
	Print Street Light Mai	ntenance Call Log	Where Condition:	
	[Daily Call Log]=5	OpenReport	Report Name: View:	Street Maintenance Print
			Filter Name: Where Condition:	
	Print Street Maintena	nce Call Log		0
	[Daily Call Log]=6	OpenReport	Report Name: View: Filter Name:	Street Sweeping Print
•	а. — — — — — — — — — — — — — — — — — — —		Where Condition:	

ALLLOG.N o: Print Ca	NDB all Log Reports			Sunday, January 11, 199 Page: 2
Print	t Street Sweeping C	all Log		
(Dail	ly Call Log]=7	OpenReport	Report Name:	Street Tree Planting
•			View:	Print
· · ·			Filter Name:	
			Where Condition:	
Prin	t Street Tree Plantin	g Call Log		
(Dai	iy Call Log]=8	OpenReport	Report Name:	Street Tree Trimming
			View:	Print
			Filter Name:	
	4 Odan o 4 Tana a Tainan		Where Condition:	
	t Street Tree Trimm	ing Cai Log		
		Close	Object Type:	
	1		Object Name:	Print Call Log
1.1	4 · · · ·		Save:	
Clo	se Print Reports Dia	alog Form		
Atta	ach to Print Preview	Button on Print Cal	Log Dialog Box	
nt Preview	V	Cath Islue	ltem:	[Visible]
		Servaine	Everession:	No
Hic	de Print Call Log Die	alog Box.	Exp(685)011.	
	aily Call Loo]=1	OpenReport	Report Name:	Building Maintenance
			View:	Print Preview
			Filter Name:	
			Where Condition:	
Pn	eview Building Main	tenace Call Log		
	aih: Call cal=2	OpenReport	Report Name:	Concrete Maintenance
Į Di		Opornitoport	View	Print Preview
			Filter Name	
			Million Condition	
0		intenence Cell I or	AAUGIG CONTINUE.	
<u> - Pr</u>				Dulas Transition
[D	aily Call Log]=3	OpenReport	Report Name:	
			View:	Print Preview
1.12			Filter Name:	
		a di seconda di second	Where Condition:	
Pr	eview Palm Tree Tr	imming Call Log		
	aily Call Loo]=4	OpenReport	Report Name:	Street Light Maintenance
			View:	Print Preview
			Filter Name:	· .
			Where Condition:	
.	muiau Straat Linht L	Asintenance Call I o		- -
Pr 	eview Suber Light h			
		OpenReport	Report Name:	Street Maintenance
(D	ally Call Logj=5	Obeintebert	Toport runner	and the second

LOG.MDB Print Call Log Reports	• •		Sunday, January 11, 199 Page:
Preview Street Mainte	enance Call Log	Filter Name: Where Condition:	
[Daily Call Log]=6	OpenReport	Report Name: View: Filter Name: Where Condition:	Street Sweeping Print Preview
Preview Street Swee	ping Call Log		
[Daily Call Log]=7 Preview Street Tree I	OpenReport Planting Call Log	Report Name: View: Filter Name: Where Condition:	Street Tree Planting Print Preview
[Daily Call Log]=8	OpenReport	Report Name: View: Filter Name: Where Condition:	Street Tree Trimming Print Preview
Preview Street Tree	Timming Call Log		· · · · · · · · · · · · · · · · · · ·
	Close	Object Type: Object Name: Save:	Form Print Call Log

User Permissions

admin

Group Permissions

Admins Users

Totacilies bits Created: admin 12/31/87 7:22:00 PM admin Last Updated: 11/88 6:24:47 PM Actions Name Condition Action Argument Value Marin Condition Action Argument Value Attach to Print Builton on Print Reports Form Mailed Expression: No No Hidde Print Reports SetValue Item: Expression: Mailed Expression: No Hidde Print Reports Form Report Name: Liability Report Print Print Report by Division Report Name: Liability Report Print Reports to Print =1 OpenReport Report Name: Liability Print Reports Torm Close Object Type: Service Form Attach to Print Reports Form Close Object Type: Service Form Attach to Print Reports Form Expression: No No Print Reports to Print Report Diableg Form Expression: No No Print Preview SetValue Item:: Expression: No No Print Reports Form Expression: No No Print Preview SetValue Expression: No	cro: Pri	nt Rpt			Tuesday, Janua	Page: 1
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	Preview Liability Report	Where Condition:	
	Close	Object Type: Object Name:	Form Print Reports
	Close Print Reports Form	Save:	

User Permissions

admin

Group Permissions

Admins Users

 				Tuesday, January 13, 1996 Page: 1
acro: Backu	up Complaint			
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operties	4 •			4/44/09 5:13:00 PM
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Name	Condition	Action	Arguman	
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A	ttached to Backup Red	ords button on Be	ckup Dialog Box	and the second secon
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		MsaBox	Message:	Please insert a disk into the A drive
	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -		Beep:	Yes
			Type:	None
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	Dianious massage box			
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		OpenQuery	Query Name:	Append
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í.			Ouest Name	Delete
		OpenQuery	Query Harno.	Datasheet
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•	Opens Delete query, o	ieletes old record:		
		MsaBox	Message:	Records have successfully been
			- 	copied to the A drive.
			Beep:	Yes
		•	Туре:	None
			Title:	
	Displays message bo	X	,	

User Permissions

admin

Group Permissions

Admins Users

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				Tuesday, January 13, 1998
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Date Crea	ted: 1/4/98 8	:04:38 PM	Last Updated:	1/11/98 7:26:01 AM
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Name	Condition			
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	Backup entire database	IUA.BRUFUU		
		MedBox	Message:	Please Insert a disk into the A drive
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			Type:	None
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	Backups Division table	9	and the second secon	
	· · · · · · · · · · · · · · · · · · ·	MsgBox	Message:	Backup is complete
		-	Beep:	Yes
			Туре:	None
		· .	Title:	Backup complete
	Displays message bo	X		

User Permissions

admin

Group Permissions

Admins

A-ICALLIOG MOB		Tuesday, January 13, 1998	
Macro: Backup Database	의 가지 않는 것을 가 있는 것이다. 이 가지 않는 것 같은 것이 같이 있는 것이 있는	Page: 2	
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이 이 아들은 바람 관계를 모고 말 가 같다.	한 이상 감정하는 것		
		홍승 전 것 같아. 같아.	
한 것은 것 같은 것은 가슴을 가운 것을 받았다.			
그는 그는 것은 것이 아님께서 가장 것이 없는 것이 없다.	이 아이는 것을 하는 것이다.		
그는 그는 아님이는 것 같아? 옷을 가로 흔들었다.			
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가 있는 것이다. 이 가지 않는 것이다. 이 것이 가 있었다. 이 가지 않는 것이다. 같은 것이다. 이 가지 않는 것이다. 이 가지 않는 것이 없는 것이다. 이 것이다.			
· 전망 전에 가는 것 같은 것 같은 것은 것 같은 것 같은 것 같은 것 같이 있다. 것 같은 것은 것은 것은 것 같은 것 같은 것 같은 것 같은 것 같은			
	같은 것이 같은 것이 있다. 같은 것이 같은 것이 같은 것이 같은 것이 같이		
이 같은 것이 같은 것이 같은 것이 같아요. 이 같아요. 이 가지 않는 것이 같이 같아요. 이 가지 않는 것이 있			
김 씨는 이번에 대응한 방법에 가지 않는 것이다.			
이는 것 같은 것 같		방문 영화 중 있는 것 같은 것 같이 다. 같은 방문 방안 가장 있는 것	이 없는 것은 말을 알았다.
같은 그는 것은 것은 것을 가지 않는 것을 하는 것을 하는 것을 수 있는 것을 수 있다.		영상은 이번 것으로 가지지. 영상은 이번 것으로 가지지지.	
요즘 이 것은 것 같아요. 이 가슴에 가슴을 받았는 것 같아. 아이는 것이 아이는 것이 않아. 아이는 것이 아이는 것이 가 있다. 아이는 것이 이 아이는 것이 아이	요즘 옷을 감독했다.		
사실 이 가지 않는 것 같아요. 이 가지 않는 것 같아요. 이 같이 가 있는 것 같아요. 이 가 있다. 이 가지 않는 것 같아요. 이 가 있는 것 같아요.			
그는 사람은 가 있다. 정말 아직도 많은 것 같은 것 아파가 감독했다. 사람은 아파가 같은 것 같은 것이 같은 것은 것이 같은 것이 같은 것이 같은 것이다.		문화 이 가 물 같은	
화장에서 다시는 비밀가 잘 가지 않는 것이 없다.	가지가 가지 않는 것이다. 이 가지 않는 것이 같은 것이 있는 것이 있 같은 것이 같은 것이 같은 것이 있는 것이 없는 것이 없는 것이 없다. 같은 것이 있는 것이 없는 것이 없는 것이 없는 것이 같은 것이 같은 것이 같은 것이 있는 것이 있는 것이 없는 것이 있는 것이 없는 것이 없다. 것이 없는 것이 없는 것이 없는 것이 않 같은 것이 같은 것이 있는 것이 있는 것이 없는 것이 않는 것이 없는 것이 않는 것이 없는 것이 않는 것이 없는		
에는 것이 있는 것이 같은 것이 있다. 것이 있는 것이 있는 것이 있는 것이 있는 것이 있다. 같은 것은 것이 같은 것은 것은 것이 있는 것이 같은 것이 같은 것이 있는 것이 있는 것이 있는 것이 있는 것이 없다. 것이 있는 것이 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이 같은 것이 같은 것이 같은 것이 같은 것이 없는 것이 같은 것이 없는 것이 않는 것이 없는 것이 않			
는 가지에 있는 것은 것을 위해 가지에 가지 않는 것을 알았다. 가지는 것은 것은 것은 것은 것을 가지 않는 것을 수요. 이렇게 같은 것을 것을 수요. 이렇게 같은 것을 것을 수요. 이렇게 있는 것을 가지 않는 것을 가지 않는 것을 것을 것을 것을 것을 수요. 이렇게 있는 것을			
	20月1日 建合金合金		
이는 가지 않는 것을 알려요. 이는 것은 것은 것은 것은 것은 것을 가지 않는 것을 가 같은 것은 것은 것은 것은 것은 것을 알려요. 것은 것을 알려요. 것은 것은 것은 것을 것을 것을 수 있는 것을 것을 하 같은 것은 것은 것은 것은 것은 것은 것은 것을 같은 것을			
이는 말 모양한 것이 지지 않는 것이지 않는 것이 같다.			
	가 있는 것 같은 것 같		
2016년 1월 2017년 - 2018년 1월 2018 1월 2019년 1월 2019년 1월 2019년 1월 2019년 1월 2018년 1월 2 1월 2019년 1월 2019년 1월 2018년 1월 2			
이는 것은 것은 것이다. 이 것은 것이 가지 않는 것이 있는 것이다. 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이다.			
가는 것에 가장되었다. 이렇게 가장 바랍니다. 전쟁이 가지 않는 것은 사람이 있는 것이 있었다. 이는 것은 것은 것은 것은 것은 것은 것이 있는 것이 가지 않는 것이 같이 있는 것이 같이 있다. 것이 같이 있는 것이 같이 있는 것이 같이 있는 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는	황영화 김 사람이 같은		
이 방법을 만들어야 한 것이 같은 것을 받을 것	63		
	·주토 (19월2), 2015년 (111) - 112 - 112 - 112월 (111) - 112 - 112 - 112월 (111) - 112		
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			A second s	
Macro: Div	ision Menu			Tuesday, January 13, 1998 Page: 1
Properties	<u>8</u>	7.00 DNA	Lost Lindstert	1/11/98 4:40:47 PM
Date Creat	ted: 1/8/98 4:0	/:20 PM		
Owner:	admin			
Actions	Condition	Action	Argument	Value
Division	Menu Displays menu items for	Update Super form		
		AddMenu	Menu Name: Menu Macro Name: Statue Bar Tavit	&File Division Menu_File
	Displays File menu items	8		
		AddMenu	Menu Name: Menu Macro Name:	&Edit Division Menu_Edit
			Status Bar I ext:	
	Desplays Edit menu ten	ns 		
		AddMenu	Menu Name: Menu Macro Name: Status Bar Text:	&Help Division Menu_Help
	Desplays Help menu			

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User Permissions

admin

Group Permissions

Admins Users

Macro: Division Me	Tuesday, January 13, Iu_Edit	1998 396: 1
	사람이 지금은 것 같은 것을 알았는 것 수 있는 것을 감독하는 것을	
Properties	그는 것은 것이 있는 것이 같은 것이 물질하는 것이 없는 것이 것이다.	1, 2, 2, 2, 2
Date Created:	1/8/98 4:07:27 PM Last Updated: 1/6/98 4:0/:28 PM	
Owner:	admini a seconda de la construcción	e dit i
Actions	그는 지수는 것을 알았는 것을 하는 것이 것 같아요. 나는 것 같아요.	
Name	condition Action Argument Value	·
&Undo	그는 것이 같은 것이 못 했는 것이 같은 것이 것 같은 것이 같은 것이 없는 것이 같이 없다. 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 없다. 같은 것이 같은 것이 같은 것이 같이 없다.	
	RunCommand Command: 292	
a de la composición d	이는 이상은 고양이 가슴을 가지 않는 것이 같은 것이 같은 것이 같이 같이 않는 것이 같이 않는 것이 같이 않는 것이 같이 않는 것이 없다. 나는 것이 같이 많이 있는 것이 없는 것이 없는 것이 없다. 나는 것이 없는 것이 없 않 않이 않	
Undo Current Re		
	RunCommand Command: 292	
and the second second		1997 - 1997 1998 - 1997
-		· ~.
0.9	물건에 가슴 옷을 벗어나는 가지, 것이 상황한 감독을 했다.	
Dereiete	BunCommand Command: 337	
<u> </u>		
	그는 그는 것 같은 것 같은 것 같은 것 같아. 그는 것 같아. 것 같아.	
•		
	이 아이들은 것은 것은 것은 것은 것을 하는 것을 하는 것을 하는 것을 하는 것이다.	
&Find	- 2018년 1월 1일 -	
	RunCommand Command: 30	
Sarah da baran da ba		a fi
&Replace	그는 해방법은 영양 관계가 가지 않는 것이라고 있는 것이다.	
	RunCommand Command: 29	
•	en e	
	이 같은 방법에서 있는 것이 가슴에 가슴을 가슴다. 것이 많이 많이 나는 것이 없다.	es, is
	· 같은 사람이 있는 것 같은 것 같	
•		
	그는 그는 것 같아요. 그는 것 같아요. 이는 것 같아요.	

User Permissions

admin

Group Permissions
Macro: Divi	XG.MDB ision Menu_Edit					·			Tuesda	iy, January	/ 13, 1998 Page: 2
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Mac	ro: Divisio	n Menu F	ile	ing in the be					Tuesday, January 13, 1998 Page: 1
Pro Date Own	<u>perties</u> e Created: ner:		1/8/98 admin	4:07:26 PM		Læst l	Jpdated:	1/11/	98 4:42:11 PM
		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -							
<u>Act</u>	ame	Cond	lition	A	tion	<u> </u>	rgument		Value
Div	ision Mei	nu_File							
E&	xit —			RunCo	mmand (Command:		3	

admin

Group Permissions

Admins Users

			Tuesday, January 13, 1998 Page: 1
Macro: Division Menu_Help			
Properties Date Created: 1/8/94	8 4:07:28 PM	Last Updated:	1/8/98 4:07:29 PM
Actions Name Condition	Action	Argument	Value
&Contents	RunCommand	Command:	235
&Search	RunCommand	Command:	100
C&ue Cards	BunCommend	Command:	235
•	Runoutanana		
&Technical Support	RunCommand	Command:	235
&About Microsoft Access.	RunCommand	Command:	35

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Group Permissions

Admins

Users

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Macro: MS	Menu	•		Tuesday, January 13, 1998 Page: 1		
		1				
Properties	а. В	5 - F 5 - F	and the second second			
Date Creat	ted: 1/8/98 4:	13:35 PM	Last Updated:	1/11/98 4:43:50 PM		
Owner:	admin					
				·		
Actions						
Name	Condition	Action	Argument	Value		
MSMenu						
	Displays Main Switchbo	ard Menu Items				
	<u>, , , , , , , , , , , , , , , , , , , </u>	AddMenu	Menu Name:	&File		
			Menu Macro Name:	MSMenu_File		
	$e^{-i\omega t}$		Status Bar Text:			
	Desplays File menu ite	ns				
		AddMenu	Menu Name:	&Help		
		2	Menu Macro Name:	MSMenu_Heip		
	· · · ·		Status Bar Text:			
	Displays Help menu		· · · · · · · · · · · · · · · · · · ·			

admin

Group Permissions

		· · · ·		т	uesday, January 13, 1998 Page: 1
Macro: MSMenu_Fil	8				
	· · ·				с. Холог Алаган
Properties Date Created:	1/8/98	4:13:36 PM	Last Updated:	1/11/98 4	:44:18 PM
Owner:	admin	· · ·			
Name C	ondition	Action	Argument		Value
MSMenu_File					• •
Egxit		RunCommand	Command:	3	

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Group Permissions

Macro: MSMenu	_Help			Ţ	uesday, January 13 F	3, 1998 Page: 1			
		<u> </u>	<u> </u>						
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Properties Date Created:	1/8/98 4:	13:37 PM	Last Updated:	1/8/98 4:1	3:37 PM				
Owner:	admin								
Actions Name	Condition	Action	Argument		Value				
&Contents		RunCommand	Command:	235					
&Search		RunCommand	Command:	100					
C&ue Cards		RunCommand	Command:	235					
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&Technical S	upport	RunCommand	Command:	235	·				
		,							
&About Micro	osoft Access	RunCommand	Command:	35	· ·				

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Group Permissions

Admins Users

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Aacro: New				
roperties	4/0/09 4/	0.50 DM	Lest Lindated	1/11/98 4:47:01 PM
ate Create	50: 1/6/96 4:	J2:52 FM	Last opciato.	
wner:	aurin			
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ctions	,	1		
Name	Condition	Action	Argument	
lew Menu	ıbar			
	Displays menu items on	Call Log Data Er	ntry form	
-		AddMenu	Menu Name:	&File
		7 43 41 10 11 4	Menu Macro Name:	New Menubar_File
			Status Bar Text:	
	Displays File menu item	S		
· ·		A. J19.4	Monu Nome:	&Edit
		Addivienu	Menu Marro Nama	New Menubar_Edit
			Status Bar Text	
	Disalawa Edit monu itor	ne	Status Dar row.	
		AddMenu	Menu Name:	Alkecords
			Menu Macro Name:	New Monubal_Necolds
	_ ·		Status Bar Text:	
	Displays Records men	u koms		
		AddMenu	Menu Name:	&Help
			Menu Macro Name:	New Menubar_Help
			Status Bar Text:	
	Displays Help menu		•	

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Group Permissions

				Tuesda	y, January 13, 1998 Page: 1
Vacro: New M	enubar_Edit	<u>في المحمد ال</u>			
	en de la construction de la constru La construction de la construction d				
Properties					
Date Created:	1/8/98 4	:02:53 PM	Last Updated:	1/8/98 4:02:54 1	7 M
Owner:	admin				
an a					
Actions			Amument		Value
Name	Condition	Action			
&Undo		BunCommand	Command:	292	
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	nt Pogord				
Undo Currei		RunCommand	Command:	292	
D&elete					
		RunCommand	Command:	337	
-					
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&Find					
	an a	RunCommand	Command:	30	
· · · · · · · · · · · · · · · · · · ·					
&Replace.			Command:	29	
	14	RunCommand			
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Admins Users

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). 		Tuesday, January 13, 1998
Macro: New Me	nubar_File			Page: 1
Properties Date Created:	1/8/98	4:02:53 PM	Last Updated:	1/8/98 4:02:53 PM
Owner:	admin			$\frac{1}{2} = \frac{1}{2} \left(\frac{1}{2} - \frac{1}{2} \right) \left(\frac{1}{2}$
Actions				Maka
	Condition	Action	Argument	
E&xit		RunCommand	Command:	3

admin

Group Permissions

Macro: New Menubar_Help		16. 16.		Ти	esday, January 13, 1998 Page: 1
Properties Date Created: 1/8/98 4:02	2:56 PM	Last Up	odated:	1/8/98 4:02	56 PM
Owner: admin					
Actions Name Condition	Action	Arg	ument	. <u></u>	Value
&Contents	RunCommand	Command:	1 19 - 19 - 19 10 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	235	
&Search	RunCommand	Command:		100	
C&ue Cards	RunCommand	Command:		235	
ETechnical Support					
	RunCommand	Command:		235	
&About Microsoft Access	RunCommand	Command:		35	

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Group Permissions

Admins

Users

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			<u></u>	Tuesday, January 13, 1998 Page: 1
Aacro: New	Menubar_Records			
and Antonio de la		and the second second		
roperties				
Date Create	d: 1/8/98 4:0	2:54 PM	Last Updated:	1/8/98 4:02:55 PM
Swner:	admin	e di Aleren de		
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Actions	•	1		
Actions	Oradition	Action	Aroument	Value
Name	Condition			•
B.Data Ent	Y	RunCommand	Command:	78
LGo To		AddMenu	Menu Name: Menu Macro Name: Status Bar Text:	&Go To New Menubar_Records_Go To
-				
&Refresh		RunCommand	Command:	18
1 13 14 -				
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Group Permissions

Admins Users

Macro: New	Menubar_Records_Go	То		· · ·	Tues	day, January 13, 1998 Page: 1
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Properties Date Create	d: 1/8/98 4:0	02:55 PM	Last Updated:		1/8/98 4:02:5	5 PM
Owner:	admin					
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Actions			.			Value
Name	Condition	Action	Argument			• • • • • • • • • • • • • • • • • • • •
&First		RunCommand	Command:		67	· · · · · · · · · · · · · · · · · · ·
· -	14 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -					
&Last	: 	RunCommand	Command:		68	
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&Next		· ·	··· · ·		0E	
	· · · · · ·	RunCommand	Command:		60	
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&Previous		RunCommand	Command:	1	66	
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Natw						
14001		RunCommand	Command:		28	· ·

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Admins Users

Macro: Up	date			Tuesday, January 13, 1998 Page: 1
Propertie	1		· · · · ·	
Date Crea	ted: 1/8/98 4:04:	59 PM	Last Updated:	1/11/98 4:48:54 PM
Owner:	admin	and the second		
		ana ang ang ang ang ang ang ang ang ang		
Actions				
Name	Condition	Action	Argument	Value
Update	Displays Update Call Log m	enu bar		
•	A	ddMenu	Menu Name: Menu Macro Name: Status Bar Text:	&File Update_File
	Displays File menu items			
	A	ddMenu	Menu Name: Menu Macro Name:	&Edit Updæte_Edit
	Displays Edit menu items		Status Bar Text:	
	A	vddMenu	Menu Name: Menu Macro Name:	&Records Update_Records
	Displays Record menu iten	ns	Status Bar Text:	
		AddMenu	Menu Name: Menu Macro Name: Stotus Bos Text:	&Help Update_Help
	Displays Help menu			

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Group Permissions

Admins Users

Maami Llada	ta Eila			Tue	asday, January 13, 1998 Page: 1
Properties Date Creater Owner:	d: 1/8/98 4 admin	:04:59 PM	Last Updated:	1/8/98 4:05	00 PM
					e Alexandra
Actions Name	Condition	Action	Argument		Value
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E&xit		RunCommand	Command:	3	

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Group Permissions

lacro: Update_Help		· · · · · · · · · · · · · · · · · · ·	Page:
roperties		Last Lindated:	1/8/98 4:05:03 PM
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Actions			
Name Condition	Action	Argument	Value
&Contents	RunCommand	Command:	235
• Cooreb			
	RunCommand	Command:	100
C&ue Cards		· · · · · · · · · · · · · · · · · · ·	
	RunCommand	Command:	235
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&Technical Support			
	RunCommand	Command:	235
&About Microsoft Access			
	RunCommand	Command:	35

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Group Permissions

Admins

Users

Aerro Lindate Edit			Tuesday, January 13, 1998 Page: 1
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roperties Date Created:	1/8/98 4:05:00 PM	Last Updated:	1/8/98 4:05:00 PM
wner:	admin	2 - Carlos Anna Anna Anna Anna Anna Anna Anna Ann	
Actions Name Con	dition Action	Argument	Value
LUndo	RunCommand	Command:	292
Undo Current Reco	rd RunCommand	Command:	292
D&elete	RunCommand	Command:	337
- 			
&Find	RunCommand	Command:	30
&Replace			29
	RunCommand	Command:	
•			

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Group Permissions

Admins Users

Mecro: Linda	te Records			Tuesday, January 13, 1998 Pace: 1
		<u> </u>	<u></u>	
Properties	4. 1/9/09	AIDEIDI DM	Lest Lindated	1/8/98 4:05:01 PM
Owner:	admin	4.00.01 (14)	LBS: Optimol.	
Actions				Makas
Name	Condition	Action	Argument	
&Go To		AddMenu	Menu Name:	&Go To
:			Menu Macro Name:	Update_Records_Go To
		· · · · · · · · · · · · · · · · · · ·	Status Bar Text:	
&Refresh		RunCommand	Command:	18
• . –	<u></u>			
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_		· · · · · · · · · · · · · · · · · · ·		

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Group Permissions

Macro: Update_Records_Go To				Tuesday, January 13, 1998 Page: 1
Properties Date Created: 1/8/98 4:0	5:02 PM	Last Update	xd: 1/8/9	8 4:05:02 PM
Owner: admin				
Actions Name Condition	Action	Argume	nt	Value
&First	RunCommand	Command:	67	
&Last				
	RunCommand	Command:	68	
RNort				
	RunCommand	Command:	65	
&Previous				

66 Command: RunCommand

User Permissions

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Group Permissions

Event Procedures

Option Compare Database

'Use database order for string comparisons

Sub Backup_Click () On Error GoTo Err_Backup_Click

> Dim DocName As String Dim LinkCriteria As String

DocName = "BACKUP" DoCmd OpenForm DocName, , , , LinkCriteria

Exit_Backup_Click: Exit Sub

Err_Backup_Click: MsgBox Error\$ Resume Exit_Backup_Click

End Sub

Sub Daily_Call_Log_Click () On Error GoTo Err_Daily_Call_Log_Click

> Dim DocName As String Dim LinkCriteria As String

DocName = "Daily Call Log" DoCmd OpenForm DocName, , , , LinkCriteria

Exit_Daily_Call_Log_Click: Exit Sub

Err_Daily_Call_Log_Click: MsgBox Error\$ Resume Exit_Daily_Call_Log_Click

End Sub

Sub Division_Click () On Error GoTo Err_Division_Click

> Dim DocName As String Dim LinkCriteria As String

DocName = "Division" DoCmd OpenForm DocName, , , , LinkCriteria

Exit_Division_Click: Exit Sub

Err_Division_Click:

MsgBox Error\$ Resume Exit_Division_Click

End Sub

Sub Exit_Click () On Error GoTo Err_Exit_Click

DoCmd Quit

Exit_Exit_Click: Exit Sub

Err_Divisions_Click: MsgBox Error\$ Resume Exit_Exit_Click

End Sub

Sub Print_Daily_Call_Log_Click () On Error GoTo Err_Print_Daily_Call_Log_Click

> Dim DocName As String Dim LinkCriteria As String

DocName = "Print Call Log" DoCmd OpenForm DocName, , , , LinkCriteria

Exit_Print_Daily_Call_Log_Click: Exit Sub

Err_Print_Daily_Call_Log_Click: MsgBox Error\$ Resume Exit_Print_Daily_Call_Log_Click

End Sub

Sub Print_Other_Reports_Click () On Error GoTo Err_Print_Other_Reports_Click

> Dim DocName As String Dim LinkCriteria As String

DocName = "Print Reports" DoCmd OpenForm DocName, , , , LinkCriteria

Exit_Print_Other_Reports_Click: Exit Sub

Err_Print_Other_Reports_Click: MsgBox Error\$ Resume Exit_Print_Other_Reports_Click End Sub

Sub Update_Call_Log_Click () On Error GoTo Err_Update_Call_Log_Click

> Dim DocName As String Dim LinkCriteria As String

DocName = "Update Call Log" DoCmd OpenForm DocName, , , , LinkCriteria

Exit_Update_Call_Log_Click: Exit Sub

Err_Update_Call_Log_Click: MsgBox Error\$ Resume Exit_Update_Call_Log_Click

End Sub

A P P E N D I X F USER MANUAL

OF REDLANDS

PUBLIC WORKS CALL LOG DATABASE USER MANUAL

Designed by Linda Webster

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INTRODUCTION

The Call Log database was created in Microsoft Access® 2.0, a relational database management system for Microsoft® Windows™, permitting a graphical user interface, and a user-friendly work environment.

This manual will cover the Call Log database form views, and tasks that can be achieved through each. The Microsoft Access User's Guide and Microsoft Access Building Applications manual accompanying Microsoft Access 2.0 are referenced in this manual. All macros and event procedures used in this application are located in appendix B.

Relationships

The Call Log database contains three related tables. Each table represents and entity set. Each row in the tables represents an individual record. The following Entity Relationship Diagram depicts the table relationships.



There is a one-to-many relationship between COMPLAINT and INVOLVES, and a one-to-many relationship between DIVISION and INVOLVES.

- COMPLAINT table: Contains information pertaining to specific calls.
- The INVOLVES table: Used to eliminate a many-to-many relationship between the COMPLAINT and DIVISION tables. It will maintain historic data on the divisions involved in specific complaints.

• Division table: Contains the division's complaints are track for, and the current superintendent of each division.

Table Structure

The following table structure is used in the Call Log database. For attribute (field) definitions see the Data Dictionary in Appendix A.



EXECUTING THE DATABASE

To execute the Call Log database double click the Call Log database icon in the Microsoft Office group, located in the Windows Program Manager window. Items in your Office group may differ from this example.



Logon

To access the database you must enter a logon name and password. When the logon window appears enter **Admin** in the Name text box and your password in the password text box. Click OK to continue.



THE MAIN SWITCHBOARD

Once you have logged on the Main Switchboard screen appears. This screen is used as the main access to the Call Log database.

and a start of the second s	Form: Main Switchboard
	PUBLIC WORKS CALL LOG DATABASE Designed by Linda Webster
	Deily Call Log Update Call Log Division Backup
	Print Daily Call Logs Print Reports
	Display Database Window

The Main Switchboard acts like a main menu in other applications. It allows you access to form views by clicking command buttons. The following forms and functions are accessed through the Main Switchboard.

- Call Log
- Update Call Log
- Division
- Backup
- Print Daily Call Logs
- Print Reports
- The Database Window
- Exit Microsoft Access

DATA ENTRY

Adding New Records

New records will be added to the database using the Daily Call Log form. To access this form, click the Daily Call Log command button on the Main Switchboard.

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e <u>L</u> uit	Licw	Leculus	For	n: Daily Call Lag		
			N. W. S. Marine	in: Gairy Cair Log		
Complaint Nun	nber: 🦳	21		Date:	11/4/4	
Location: 50	7W Ste	ating		Problem	n: Wants to know what varity of tree to plant in parkway	• Central and a
, an 1997. The second s						an a
Remarks:	i e e e				Division Name: Street Tree Planting	4
<u> </u>					I Record 1 o	
First Name: T	OM San Maria	er en zenzez a	Last Name	Sentmen		
Phone: 793-8	765		Received I	Bur LW		
1						
Number of Ca	ls: 🔽 1	Re	ON theylog	Date Resolved	: Claim: NO	
					CI	ose
448 414		<u>) ()</u>	IN THE			

The Daily Call Log form has a blank record, which follows the last existing record. If there are no existing records to display, the blank record is the only record. New data is entered in to the blank record.

You can reach the blank record by advancing one record at a time by clicking the right arrow button at the bottom of the screen, or clicking the arrow button with the "|", this button will advance you to the blank record.

If you want to add records and don't want to view existing records, you can use the Data Entry command. Only records you add are then available in the form view. Existing records are not available for view using the Data Entry command.

To Add Records Using The Data Entry Command

- 1. Choose Data Entry from the Records menu. The insertion point appears in the Location field of the form.
- 2. Type values for each field, press TAB to move to the next field.
- 3. After you fill in all the fields, press TAB, or use the right arrow button at the bottom of the form to move to the new blank record

When you move to the next record, Microsoft Access saves the record you added to the database. When you finish adding records, just close the form using the Close button. You do not have to save your work.

Required Fields

The following fields must contain data on the Daily Call Log form. That is, they can not be left blank.

- Complaint Number: This number is automatically generated.
- Date: This field is automatically generated and will contain the current date.
- Location: You must enter a location.
- Problem: You must enter what the problem is.
- Division: You must enter the division(s) name

Fields Set To Default Values

The following fields contain default values on the Daily Call Log form. These values may be changed if necessary.

- Number of Calls: Default value "1".
- Resolved: Default value "NO"
- Claim: Default value "NO"

Adding a New Division

A new division can be added to the database through the use of the division form. To access this form, click the Division command button on the Main Switchboard.

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	Sup	erintendent	Gar	y Banks							
			(L						<u>ر</u>		n N
	Divi	sion Name:	i j <u>Bull</u>	ding Mai	ntenanc	e Viikini			C	lose	
								1. J. J. A.	میں میں اور	5.753072 	
44	Record:	h i she	of 8								

- 1. Advance to a blank record. You can reach a blank record by advancing one record at a time clicking the right arrow button at the bottom of the screen, or clicking the arrow button with the "|", this button will advance you to the blank record.
- 2. Enter the new division in the Division text box.
- 3. Enter the superintendent's name in the Superintendent text box.

When you move to the next record, Microsoft Access saves the record you added to the database. When you finish adding records, just close the form using the Close button. You do not have to save your work.

UPDATING THE DATABASE

Updating Records

Updating records in the database will be done through the Update Call Log form. To access this form, click the Update Call Log command button on the Main Switchboard. To add new records use the Daily Call Log form.

e <u>E</u> dit <u>Y</u> iew <u>R</u>	ecords <u>H</u> elp	Microsoft Access	P	
arta da ante	For For	m: Update Call Log		
Complaint Number: 1	a	Date:	7/22/97	
Location: Treasurer Off	ice 🔒	Problem:	Light out in office and in the mens restroom	
			1 	
Remarks:			Division Name:	
			[I4] 4 [Record:]10f_1]	
First Name: Peggie	Last Narr	ne:	-	
Phone: x7657		d By: LW		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1411. 		
Number of Calls: 1	Resolved: NO	Date Resolved	Claim: NO	
			Close	
4 Becord 1	of 10			

When a complaint has been resolved and you want to update the record to indicate this, use the Find command to locate the complaint number.

The Find Command

- 1. Place the insertion point in the Complaint Number text box.
- 2. Select Find from the Edit menu.
- 3. In the Find What text box enter the complaint number you want to find
- 4. Click the Find First button.

The Find command can be used with any field on the form. For more information regarding the Find command see Microsoft Access User's Guide, pages 84-90.

Updating Superintendent's Name

To change the name of an exiting superintendent use the Division form. To access this form, click the Division command button on the Main Switchboard.

ŋ			Form: Division			
	Superint	endent: Ga	ry Banks			
	Division	Name: Buil	lding Maintenance	•	Close	ן ר
1	IRecord:11	lof 8				

To change the name of a superintendent who appears in one or more records use the Find and Replace command.

Find and Replace Command

1. Select Replace from the Edit menu.

2. Place the insertion point in the Superintendent text box.

3. Enter the name to be changed in the Find What text box.

4. Enter the new name in the Replace With text box.

5. Click the Replace All button.

The name will be replaced in all locations. For more information regarding the Find and Replace command see *Microsoft Access User's Guide*, pages 87-90.

PRINTING REPORTS

Printing Daily Call Log Reports

To print Daily Call Log report(s) click the Print Daily Call Log Reports command button on the Main Switchboard.



1. Select the report you want to print.

2. Click the Print Report button.

3. Enter the call date when prompted, click OK. The report will then be sent to the printer

Preview A Report

To view a report on the screen.

1. Select the report you want to preview.

2. Click the Preview Report button.

3. Enter the call date when prompted, click OK. The report will be displayed on the screen.

Printing Report by Division and Liability Report

To print the Report by Division and Liability Report click the Print Reports command button on the Main Switchboard.

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Print Preview	Print Report	Close	
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- 1. Select the report you want to print from the Print Reports form.
- 2. Click the Print Report button.
- 3. Enter the beginning and ending date when prompted.
- 4. Click OK.

The report will then be sent to the printer

Preview A Report

To view a report on the screen.

- 1. Select the report you want to preview from the Print Reports form.
- 2. Click the Preview Report button.
- 3. Enter the beginning and ending date when prompted.
- 4. Click OK.

The report will be displayed on the screen.
BACKING UP DATA

Backing Up The Database

The Back Up Dialog Box is used to backup the database. To access this form, click the Backup command button on the Main Switchboard.

Back Up Dialog Box
To back up the entire database click Backup Database.
To backup records only click Backup Records.
Close

To Backup The Entire Database

- 1. Click the Backup Database button.
- 2. You will be prompted to enter a disk in the A drive. Place the **BACKUP DATABASE** disk in the A drive.
- 3. Click OK.
- 4. Microsoft Access will warn you that the Make-table query will modify data. And ask if you want to continue.
- 5. Click OK to continue.
- 6. You will be prompted when the backup is complete.

Backing Up Records

To backup the completed records to the A drive and delete them from the hard drive:

1. click the Backup Records button.

- 2. You will be prompted to enter a disk in the A drive. Place the **BACKUP RECORDS** disk in the A drive.
- 3. Click OK.
- 4. Access will warn you that the Append query will modify data. And ask if you want to continue.

5. Click OK to continue.

6. You will be prompted when backup is complete

THE DATABASE WINDOW

To access the database window click the Display Database Window command button on the Main Switchboard.

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Creating Queries

You may want to view or display data in the database in another form other than the available predefined queries that accompany this application. You can do this by creating ad hoc queries.

To create a query you must be in the database window.

- 1. Click the query tab from the database window.
- 2. Click the New button.
- 3. Refer to Chapter 11 Designing Select Queries in the Microsoft User's Guide page 227, to create a new query.

Creating Reports

The predefined reports that are available in this application are the reports that you use most frequently. There may be a time when you need to create new reports. To create a new report you must be in the database window.

- 1. Create a new query. See Creating Queries above.
- 2. Click the Reports tab from the database window.
- 3. Click the New button.
- 4. You must indicate the data source, click the \checkmark arrow and select from the list.
- 5. Refer to Chapter 20 Report Basics, in the Microsoft User's Guide, page 485.

SECURITY

Passwords

When this application was installed you entered your password. For security purposes it is recommended that you change you password on a regular basis.

Changing Passwords

1. You must be in the database window.

2. Choose Change Password from the Security menu.

Refer to Microsoft *Building Applications* To change your password, page 338.

For other security measures refer Chapter 14 Securing Your Application in Microsoft Building Applications manual.

RESTORING THE DATABASE

In the case of a system failure data may be lost. If this happens you can restore the database from the **BACKUP DATABASE** disk. Remember that the data contained on this disk is from your last backup. Any new data entered from the time of the last backup to the time of failure will not be restored.

To Restore The Database

1. Reinstall Microsoft Access if necessary.

2. Insert the BACKUP DATABASE disk into the A drive.

3. Start Microsoft Access.

4. Select Open Database from the File menu.

5. Select the A drive from the Drive text box.

6. Select bkupdb.mdb form the file name window.

7. Click OK.

8. Select the Query tab from the database window.

9. Select and run the listed queries in the order they are listed.

10. Select Exit from the File menu.

11. Start the Call Log database.

If it is necessary to reinstall Microsoft Access you will need to set reactivate the Logon window. To do this, refer to Chapter 14, Securing Your Application in the Microsoft *Building Applications* manual.

ACCESSING OLD RECORDS

You can access the old records that have been removed from the database from the database window.

1. Select Open Database from the File menu.

2. Insert the BACKUP RECORDS disk in the A drive.

3. Select the A drive from the Drive text box.

4.Select oldrec.mdb form the File Name window.

5. Click OK.

To view the records

1. Click the table tab if necessary.

2. Select the Open button from the database window.

3. Record will be displayed in datasheet view.

	J.		Table: Old Complaints	
	÷.	Complaint_CNun	Location 🔌 Problem 🛛 Cdate 🖉 Remark	\$
		15	Smiley Library Tree limb down in t 7/18/97	
		22	2945 Mill Creek Rd limb down 12/31/97	
	*	(Counter)		
5 H		and we are a supported and a support of the support		

You may print the records in datasheet view by selecting Print from the file menu. Or you can perform a query on the table for specific data. To create a query, see Microsoft User's Guide Chapter 11, Designing Select Queries page 227.

To return to the Call Log database

1. Select Open Database from the file menu.

2. Select the C drive from the Drive text box.

3. Select calllog.mdb form the File Name window.

4. Click OK

For more in-depth coverage of items in this manual or items not covered by this manual, refer to the Microsoft User's Guide and Building Applications manual.

A P P E N D I X A

DATA DICTIONARY

See Appendix B of paper for Data Dictionary.

A P P E N D I X B MACROS AND EVENT PROCEDURES

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See Appendix E of paper for macros and event procedures.

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Johnson, Lauri, Secretary. Public Works Department, City of Redlands; Personal Interview: Date: January 16, 1997 Time: 4:00 p.m. Date: March 10, 1997 Time: 1:00 p.m. Date: July 16, 1997 Time: 8:00 a.m. Date: November 12, 1997 Time: 8:00 a.m. Date: January 6, 1998 Time: 8:00 a.m.