Our Mission

We provide services to the transportation community through research, technology transfer and education. We create and participate in partnerships to promote safe and effective transportation systems.

We Value...

Teamwork -- Listening and Communicating, Along with Courtesy and Respect for Others
Honesty and Ethical Behavior
Delivering the Highest Quality Products and Services
Continuous Improvement in All That We Do
Lessons Learned System for Kentucky Transportation Projects

By

Paul M. Goodrum, Ph.D., P.E.
Assistant Professor of Civil Engineering

Mohammed F. Yasin, MSCE.
CE Graduate Research Assistant, Ph.D. Candidate

Donn E. Hancher, Ph.D., P.E.
Professor of Civil Engineering

Kentucky Transportation Research Center
College of Engineering, University of Kentucky

Transportation Cabinet Center
Collage of Engineering
University of Kentucky

The contents of this report reflect the views of the authors who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the University of Kentucky, the Kentucky Transportation Cabinet, nor the Federal Highway Administration. This report does not constitute a standard, specification or regulation. The inclusion of manufacturer names or trade names are for identification purposes and are not to be considered as endorsement.

August 2003
Lessons Learned System for Kentucky Transportation Projects (SPR-262-03)

Paul M. Goodrum, Mohammed F. Yasin, and Donn E. Hancher

Kentucky Transportation Center
College of Engineering
University of Kentucky
Lexington, Kentucky 40506-0281

Kentucky Transportation Cabinet
State Office Building
Frankfort, Kentucky 40622

Prepared in cooperation with the Kentucky Transportation Cabinet and the U.S. Department of Transportation, Federal Highway Administration

A system of collecting, archiving, and disseminating lessons learned is a critical component of experienced-based processes, such as the design and construction of roadway and bridges. This report examines the development of a centralized, web-based Lessons Learned System for the Kentucky Transportation Cabinet. The research developed a working prototype of a lessons learned system that functions off of centrally located databases making it easier to administer and update. The Lessons Learned System was designed to accept both text and attachments through file uploads while maintaining relationships between these items of information in terms of a lesson learned. The report describes how the Lessons Learned System can be integrated into both the existing post construction review process and the proposed constructability program within the Cabinet. Although the system was designed to support the post construction review and constructability processes, its architecture will support other processes within the Cabinet where the archiving of lessons learned is important. The project also developed a process for maintaining the lessons learned system that includes the role of a gatekeeper to insure the quality and accuracy of the submitted and stored lessons.

Lessons Learned, Constructability, Database Development, Project Development Process, and Information Technology

Unlimited with approval of the Kentucky Transportation Cabinet

Unclassified

155

Form DOT 1700.7 (8-72)    Reproduction of Completed Page Authorized
# Table of Contents

## Chapter I Introduction

1.1 Significance of Work  
1.2 Goal and Objectives of the Study  
1.3 Research Advisory Committee

## Chapter II Background

2.1 Constructability  
2.2 Lessons Learned  
2.3 Examples of Prior and Current Lessons Learned Systems  
2.4 Lessons Learned from Lessons Learned Systems

## Chapter III Research Methodology

3.1 Overview of System Usage  
3.2 Functional Capabilities  
   3.2.1 System Access  
   3.2.2 Data format  
   3.2.3 Database Selection  
   3.2.4 User Interface  
   3.2.5 Administration Interface

## Chapter IV Lessons Learned System Design

4.1 Server Requirements  
4.2 Database Structure  
4.3 Web Site Structure  
   4.3.1 Folders  
4.4 Idea Submission Process for the Lessons Learned Database  
4.5 Idea Submission Process for the Post Construction Database  
4.6 Editor Process  
4.7 Query Process  
4.8 Modifying Fields within the Lessons Learned System

## Chapter V Proposed Lessons Learned Process and Implementation
5.1 A General Process  
5.2 The Use of the Lessons Learned System for Existing and Proposed Processes within the KyTC  
5.3 System Implementation within Cabinet’s Technology Program  
  5.3.1 System Installation Options  
  5.3.2 System Connectivity with Existing Database Structures within KyTC  
  5.3.3 Linking System with Other Existing Systems within KYTC  
5.4 Introduction of the Lessons Learned System to the Cabinet  

Chapter VI Conclusion and Recommendations  

Appendices  
Appendix A-Source Code for the Lessons Learned System  
Appendix - References
Chapter I Introduction

Over time, those involved in construction have the opportunity to acquire a tremendous base of knowledge from professional experiences. Unfortunately, without a formal mechanism to retain this knowledge, much of this experience is not passed on from project to project, or from person to person. If this wealth of construction knowledge could be retained and used in planning and the execution of future projects, there are tremendous potential benefits to be gained in terms of improved cost, schedule, safety and quality.

Retaining lessons learned benefits any process where experience plays an important role. Archiving and disseminating lessons learned promotes and accelerates systemic improvement, since past mistakes are avoided. One process that hinges on retaining lessons learned is constructability. Constructability has been defined in a number of ways including, “A process that utilizes construction personnel with extensive construction knowledge early in the design stages of projects to ensure that the projects are buildable, while also being cost-effective, biddable, and maintainable” (AASHTO 2000). Constructability is also defined as “A measure of the ease or expediency with which a facility can be constructed” (O’Connor and Hugo 1989). Finally, constructability is often portrayed as “Integrating construction knowledge, resources, technology, and experience into the engineering and design of a project.”

Traditionally, lessons learned during the construction phase of a project are not effectively incorporated into the development of new projects. Constructability is knowledge that is not easily modeled through engineering and scientific formulas. Constructability design manuals do not exist. In the past, constructability knowledge has been transferred informally, which is obviously subject to variable implementation of constructability knowledge in new designs and can lead to recurring problems in
A formal mechanism to archive and disseminate lessons learned could reduce or eliminate time spent in trial and error during construction.

1.1 Significance of Work

This project worked closely with the project Constructability Issues on KYTC Projects (KYSPR-02-236). One of the biggest hurdles with constructability is capturing the construction knowledge to share with the designers and other parties in a systematic and reliable manner. Traditional methods of collecting and disseminating lessons learned have only enjoyed limited success due to:

1. Unreliable communication channels between construction experts and less experienced individuals;
2. An unmanageable format that limits access, retrieval, and updating of the potentially enormous volume of lessons;
3. The lack of a meaningful classification system;
4. Difficulty of integrating new systems into existing operations and procedures; and
5. A primary focus on failures or incidents, rather than a balance of positive and negative experiences with constructed facilities.

The research addressed these issues by developing a working prototype of a lessons learned system for the Kentucky Transportation Cabinet (herein referred to as Cabinet). The prototype is accessed through the Internet making it widely available. The system is also centrally located making its databases easier to administer and update and is capable of accepting a wide array of data format, since it accepts both text and attachments through file uploads. Finally, the system design integrates through both the existing post construction review process and the proposed constructability program within the Cabinet.
1.2 Goal and Objectives of the Study

The project developed a lesson learned system for the Kentucky Transportation Cabinet and identified how such a system can be integrated into a constructability process as well as other processes within the cabinet. The following objectives were identified for this study:

1. Identify lessons learned systems currently used by other transportation organizations and other industry organizations;
2. Define the desired functional capabilities of a lessons learned system for KyTC;
3. Develop a system design for a lessons learned system; and
4. Recommend a lessons learned system for integration into the KyTC’s design/construction process.

1.3 Research Advisory Committee

Meetings were held with the research advisory committee of this group at the University of Kentucky. Valuable input was received from these meetings, which were incorporated in the development of the Lessons Learned System. Members of the advisory committee were:

Chair: Robert Semones, Transportation Engineer II

James Ballinger, KyTC District 7 Design

Joette Fields, KyTC Value Engineering Section

Bob Lewis, Transportation Engineer Branch Manager

Fred Upchurch, KyTC Office of Technology
Chapter II Background

Chapter two gives a brief description of constructability and the general process of Lessons Learned. It also reviews efforts of other agencies in their development of lessons learned systems and the lessons learned from those efforts.

2.1 Constructability

“Constructability” is an often used but is not always a clearly understood term. It is by nature multidisciplinary and involves multiple contexts. Constructability can be easily defined as the integration of construction knowledge and experience during the planning, design, procurement, construction, and operation and maintenance of a project with the primary objective of improving construction operations and performance (Tatum, 1987; Vanegas and Williams, 1985). There are a wide variety of constructability benefits, which is partly dependent on when the improvement is implemented during the project development process (Figure 2.1). Prior research by the Construction Industry Institute (CII) shows owner organizations involved in constructability efforts experienced an average reduction in total project cost of 4.3% and reduction in project duration of 7.5% (CII, 1993).

Enhancing the constructability of construction projects is not a simple process, since there are usually no formal channels to communicate lessons learned from construction to design. Knowledge of efficient construction methods is most commonly learned from the more experienced construction personnel, practice oriented books, video tapes, or through trial and error. A more formalized method of disseminating such knowledge and experience could eliminate the need for or reduce time spent in trial and error and preserve the resources of project stakeholders.
2.2 Lessons Learned

Traditionally, constructability solutions developed to solve construction problems are not recorded for future use or the project-specific nature of such solutions. In addition, the existing methods of gathering and using lessons learned are not successful for a variety of reasons including limited communication of lessons learned among project participants, limited availability of resources for a lessons learned program, and lack of understanding of constructability solutions. A lesson does not have to be learned only from mistakes. It can also be realized anytime a decision is made using knowledge not considered common practice. Both positive and negative feedback are essential parts of the learning process, and learning is the key to improving skills.

There have been many efforts of outlining a lessons learned process. Most processes follow a general path as shown in Figure 2.2.
The first step is to **Collect Information**. A system should be easily accessible to collect information from all project participants including project managers, designers, crafts people, subcontractors, and owners. Information on lessons learned should be collected continuously not just at the end of a project. Secondly, information is **Captured and Analyzed**. This includes acknowledging the receipt of the information in order to make the contributor understand that his/her input is valuable. This step also includes categorizing the information usually in accordance with standard specifications of the owner organization. The information should also be prioritized in terms of the value it adds to the organization. Thirdly, the information undergoes **Implementation** in a knowledge base. Owners of the process need to determine the type of improvements required by their agency in order to implement the lesson learned. Will it require systemic changes within their organization, training, and/or changes in policy? Finally, the lesson learned becomes one of the organization’s **Best Practice’s**. This involves communicating the lesson to interested parties and maintaining a database of lessons learned knowledge.

Other industry groups have designed lessons learned processes that are much more intensive but also more complex (see Figure 2.3). One problem with such a process, as shown in Figure 2.3, is providing the resources required to implement, champion, and maintain such an effort. If the resources are available, an intensive lessons learned process can lead to outstanding results, however there is a risk. If system participants perceive that the process requires excessive input of resources to run the process versus their perception of the benefit to be gained from the output, the process will inevitably break down and stall. Therefore, one lesson that has been learned from past efforts in
creating lesson learned systems is that the process must be efficient with minimal resource requirement.

Figure 2.3: Lessons Learned Flowchart (Ref. CII 1997)
Lessons learned systems have traditionally been driven by databases that organize the stored data for accelerated storage and retrieval of information. Databases are designed to facilitate storage, retrieval, editing, and deletion of data in addition to other data processing operations. Databases are typically composed of a file or sets of files. Information in the files are stored in tables, with each table broken down by fields, which are the basic building block of databases since they describe only a single attribute of the a database entity. Keywords and sort commands allow a user to search and find data matching a set of user defined search criteria.

2.3 Examples of prior and current Lessons Learned Systems

A number of lessons learned systems exist throughout the engineering and construction industry, each meeting varying degrees of success in implementation. For example, the Environmental Division of the U.S. Army Corps of Engineers (USACE) has employed a lessons learned system in order to share problems and solutions among USACE personnel and their contractors involved in hazardous, toxic and radioactive waste remediation. The National Aeronautics and Space Administration (NASA) has developed a public access lessons learned system in order to share mishaps and successes across multiple divisions, contractors, and consultants employed by the federal agency. In regards to construction, the Department of Civil Engineering at Purdue University created a multimedia lessons learned database for the Indiana Department of Transportation (see Figure 2.4). The system archived sixty-three lessons learned and required proprietary software to be installed on individual personal computers. The system contained excellent graphical capabilities, but the maintenance of the system was expensive. There were extensive supporting software and hardware resource requirements to load and properly run the software. The software was not easily updatable, since it required an individual with significant skills in coding software. Since the software was installed on individual personal computers, the system required redistribution of software updates in order to ensure all parties were using the same version of the lessons learned system.
The Construction Industry Institute (CII) has been actively involved in constructability research since 1984 when its first research team to examine constructability for industrial construction projects was launched. Recognizing that different owner organizations want to create their own unique lessons learned systems to complement their unique constructability program, CII created the Lessons Learned Wizard. The Lesson’s Learned Wizard contains a pre-designed database structure to allow users to begin storing their own lessons learned (see Figure 2.5).
The CII Lessons Learned Wizard does save time for organizations wishing to implement a lessons learned system. However, the user and database interfaces and functionality are preset, so the system designer has very little flexibility in modifying the structure of the system to match his/her organizational needs. The Lessons Learned Wizard is also designed to be installed individually on personal computers and does not support network access to the database. Furthermore, the system requires the purchase of multiple site licenses to install on individual personal computers.

Recognizing the need for simplicity, the Center for Transportation Research (CTR) at The University of Texas at Austin designed the Constructability Lessons Learned Database (LLDB) (see Figure 2.6). The LLDB was designed using Microsoft (MS) Access and was primarily used to collect constructability lessons learned for the Texas Department of Transportation on the Dallas North Central Expressway Project.
Since the LLDB was designed using MS Access, the system avoids the use of proprietary software to install on most personal computers, however Access is required to run the LLDB. The system is updatable by the user and accepts both text and multimedia data. Although the LLDB could be modified to support network connectivity, it was designed as a standalone application to be run separately on individual personal computers.

There have been many other efforts of creating lessons learned systems. For example, the Constructability Lessons Learned Program (CLLP) was an international effort of creating a lessons learned system, which used Lotus Notes software for the MS Windows environment. The software environment of the CLLP did allow network connectivity to the system. The CLLP’s design allowed contractors to store their constructability lessons learned with a focus on concrete and site work (Kartam et al, 1997). The Advanced Construction Technology System, developed at the University of Michigan, possessed the function of being used as an online database that serves as indexing and retrieving detailed technological lessons (Ioannu, 1993). The Constructability Lessons Learned for Infrastructure Rehabilitation (CL2IR), developed at Georgia Tech, was designed to
handle multimedia data for archiving constructability knowledge for users of different
design disciplines involved in infrastructure rehabilitation (Vanegas et al, 1993).

2.4 Lessons Learned from Lessons Learned Systems

From these and other related efforts, a series of lessons have been acquired in creating
and implementing a lessons learned system:

1. Lessons Learned Systems require a champion – A champion needs to be assigned
to promote and manage the system. The champion should be experienced and
capable of dedicating resources when needed. Other characteristics of a
champion include:
   a. Knowledgeable of organizational work processes;
   b. Visible at the management of the training and orientation of the lessons
      learned system;
   c. Able to establish accountability and authority;
   d. Have exceptional people skills;
   e. Have superior communication skills; and
   f. Respected in the organization for fairness and impartiality.

2. Recognition for input into a lessons learned system is needed – Recognition needs
to be given to the submitter either in the form of a letter or email within ten days
of receipt of a lessons learned.

3. Lessons learned systems should not be used to criticize mistakes.

4. Lessons learned systems should be designed for simplicity.

5. The most significant factors regarding the success of past lessons learned systems
have been:
   a. Quantity of lessons learned stored;
   b. Quality of lessons learned stored;
   c. Diversity of lessons learned; and
   d. Availability of resources required to maintain and update the system.

6. The most common deficiencies of previous lesson learned systems include:
a. Being too expensive to maintain;
b. Being too complex to be used effectively; and/or
c. Required skills beyond that were available within an organization to operate and maintain.

This project makes a series of recommendations regarding the implementation of a Lessons Learned System for the Cabinet. The experiences from previous efforts have been considered in these recommendations.
Chapter III: Research Methodology

This chapter describes the architecture of the system. It provides details on the functional capabilities of the system as well as the interface between the system and the different users whether they are administrators, gatekeepers, or end users.

3.1 Overview of System Usage

There are three classes of users who will interact with the Lessons Learned System, and each class will interact with different aspects of the system architecture. The first class is the administrators of the system. The administrators include those individuals who are involved in providing the technical support in maintaining and updating the system as needed. The second class of individuals is the gatekeepers. The gatekeeper is in charge of keeping the system operational as well as maintaining the lessons learned retained in the database. The duties of the gatekeeper include removing duplicate issues, removing issues that are really just complaints, approving relevant items, and removing resolved issues. The gatekeeper is provided the technical assistance, as needed, by the system administrator. The third class of people who will be involved with the system are, most importantly, the end users. It is envisioned that users of the system will include Cabinet employees (any employee involved in the design, construction, operation, and maintenance of Cabinet facilities) and any employee involved in contract work with the cabinet including construction and design.

The system is designed to both collect and provide information for any number of processes within the cabinet including construction, design, or other processes where archiving of lessons learned is worthwhile. The process of collecting and disseminating information is subdivided into three main stages. As discussed in chapter one, the system first collects information on lessons learned from the users via any web-connected computer. During this process, the user completes the documentation form. This form has
multiple entries that are either open-ended or multiple-choice questions. After the user fully describes the issue, the user uploads any related material in the form of a file attachment, which can be in any format including documents, drawings, illustrations, or scanned documents. After the user completes the different entries and is satisfied with their entry, the user is uploads the lessons learned entry to the server.

Once the submission is made, the gatekeeper receives an email notifying him/her of the new entry. After being notified via email, the gatekeeper begins reviewing the entry to verify that it is appropriate for archiving.

Next, the gatekeeper has three courses of action:

1. He/She can either email the user requesting more details or explanations about the entry while keeping it in the pending queue;
2. He/She can consult with other personnel within the Cabinet regarding a suitable solution; or
3. He/She can approve the entry and publish the lessons learned.

If the gatekeeper approves the submission, the entry is included in the system’s query database. If necessary, changes within the Cabinet’s processes occur as described by the lessons learned suggested solution. Another responsibility of the gatekeeper is to search for outdated entries and remove them from the system.

3.2 Functional Capabilities

3.2.1 System Access

The system has three levels of access as shown in Figure 3.1. The first is referred to as “User”, which can be accessed by all KyTC staff as well as contractors, specialty contractors, and consultants. People with this access privilege are able to add and query new entries to and in the database. Further restrictions can be added to this group by having a password protected access to the system, although this level of protection was not implemented in the prototype of the Lessons Learned System. The second level of
access, “Gatekeeper”, involves the ability to review, query, delete, and edit entries in the Lessons Learned Database. Members of this group will mainly be composed of Cabinet employees in the Value Engineering Section. This type of access is protected by a password. The third category is “Administration”. Members of this group have total access to all the database entries with privileges to change and delete any of them as well as change the system’s architecture. This group will be composed of the Cabinet employees in the Office of Technology. The password provided for members of this group overrides all other passwords. Members of this group will be able to reset and change all passwords of other groups. Figure 3.1 demonstrates the different security levels vs. type of users.

![Figure 3.1 Security Access Level vs. Type of Users for the Lessons Learned System.](image)

3.2.2 Data format
The data fields included in the database were selected after a survey was conducted, as part of KyTC’s constructability project to identify the important and relevant entries that needed to be included in the database. The survey was sent out to resident engineers in the Cabinet, contractors, and consultants to identify the important entries to include in the system. With the input collected from the survey and the literature review that was
conducted prior to sending out the survey, the research committee identified the fields to include in the Lessons Learned System Submission Form. The fields were intended to give the end user a quick reference of the details of the project described as well as the issues and difficulties faced while constructing the project. Other fields describe the lesson that was learned from this issue and its suggested fix so that future operations will not face the same problems. The last fields of the Submission Form give the user the ability to rate the impact that the issue has on the overall schedule, cost, and quality of a project on a scale of 1 to 5, with 5 having the greatest impact. Below are illustrations of the Submission Form (Figure 3.2). Note the user is able to scroll up or down using the scroll bar on the right side of the screen in order to complete the form.

![Figure 3.2 Submission Form for the Lessons Learned Database.](image-url)
Figure 3.2 continued: Submission Form for the Lessons Learned Database.
3.2.3 Database Selection

After conducting the literature review, it was determined that one reason why some prior lessons learned systems were not fully utilized, and even abandoned, was simply because of compatibility and access issues. The committee took this into consideration when deciding on which platform to build the system. The committee narrowed the database languages down to three; Microsoft (MS) Access, MySQL, and Oracle. A comparison was conducted between the three database environments to reveal which one would be most appropriate for the application at hand. Below is Table 3.1, which summarizes some of the criteria used to choose between the three different languages;

<table>
<thead>
<tr>
<th>Field</th>
<th>Access</th>
<th>MySQL</th>
<th>Oracle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator friendly</td>
<td>Friendly</td>
<td>Friendly</td>
<td>Complex</td>
</tr>
<tr>
<td>Price</td>
<td>$95-$200</td>
<td>Free</td>
<td>Expensive $40,000</td>
</tr>
<tr>
<td>Availability</td>
<td>Comes Prepackaged with Microsoft Office</td>
<td>Available for downloading over the internet</td>
<td>Restricted Access</td>
</tr>
<tr>
<td>Size</td>
<td>2000 entries</td>
<td>&gt;2000 entries</td>
<td>&gt;2000 entries</td>
</tr>
<tr>
<td>File Sharing</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td>Concurrent users</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
</tr>
</tbody>
</table>

After reviewing the pros and cons of each of the different languages, the committee decided to employ MS Access as a development environment for the Lessons Learned Prototype, for three main reasons;

1. Microsoft Access is available on KyTC and University of Kentucky computers, since it is preinstalled with the rest of MS Office products. This means that neither
KyTC nor UK would have to invest in new software to support the newly developed lessons learned system.

2. The use of MS Access would not raise compatibility issues with the previous post-construction database that was already developed in Access to store and display post-construction reviews conducted on KyTC projects.

3. The Lessons Learned Advisory Committee decided that a database that is Internet based will best serve the overall purpose of the system and allow employees to access the database anywhere and anytime. Maintaining the database on a web server also insures that users are accessing updated information. Choosing MS FrontPage as the front-end development tool in order to publish the database on the web encouraged the committee to choose MS Access, since it does not pose any compatibility issues with MS FrontPage.

3.2.4 User Interface
Since the Lessons Learned System is web based, the user does not need any special software to query or add new entries into the database. Any web browser has the ability to display the database and its entries in addition to the ability to edit and delete the entries in support of the gatekeeper’s responsibilities. The users can also copy and paste information to and from different fields with different Windows applications. Site navigation is based on the system’s architecture as shown in the following figure (Figure 3.3). The first view the user sees when he/she enters the web site is the home page (Figure 3.4). This page provides a description of the project and the background behind its development.
Figure 3.3 General Architecture of the Lessons Learned System
At the left corner of this page, the user has the options to view either:

1. **Goals and objectives page.** This page introduces the goals and the objectives of the committee for creating the lessons learned system.

2. **Members page.** This introduces the Lessons Learned Advisory Committee’s members for further reference and enquiries if the need arises.

3. **Databases page.** This is the main page for the user to review, add, and query the Lessons Learned Database (LLDB). In addition to the ability to use the LLDB, the user can also access the Post Construction Database, which has the same functionality and is based on the same system architecture as the LLDB.
4. **Contact information page.** This page is intended to provide the user with contact information in case the need arises to ask for help or further information regarding the Lesson Learned System.

3.2.5 Administration Interface

The system administrator has the ability to view all of the pages that the user can view as well as access to the raw data. The administrator can also view data in the MS Access tables, as well as view the Hyper Text Modeling Language (html), Active Server Pages (ASP), and Java code of the different pages in the web site. These privileges are password protected. The administrator has the ability to override all passwords and reset them as well using his/her own passwords. The system administrator has a unique responsibility to constantly monitor the database to verify that it is working properly.
Chapter IV: Lessons Learned System Design

This chapter describes the process used to develop the Lessons Learned System. The website/database application was developed using Microsoft FrontPage version 2002. The pages are programmed using multiple aids and languages including HTML language combined with Active Server Pages (ASP) and Java Script.

4.1 Server Requirements

Due to the fact that the system was coded with the aid of MS FrontPage 2002, the server has certain requirements that need to be fulfilled in order for the system to work properly. The hosting site must use the Windows environment as well as have FrontPage 2002 server extensions installed, so that all the features of FrontPage are utilized and functional. FrontPage server extensions are a set of server-side applications that enables the designer to incorporate the following advanced features without having to code complex server-side programs;

- Collaborate simultaneously with other users on the same web site;
- Create a web page directly on a web server;
- Save directly to a web server when using office programs; and
- Allowing the execution of certain advanced features in FrontPage designed web sites.

In addition to the Server extensions, the following capabilities must be available on the web server hosting the site:

- Microsoft Active Server Pages (ASP);
- Microsoft Data Access Components (MDAC); and
- Microsoft Simple Mail Transfer Protocol (SMTP) service
4.2 Database Structure

The data is structured in a MS Access database table. The table is referred to as “results” table, and it includes all the categories of each of the entries. The use of relational database tables was minimized due to the fact that MS FrontPage does not support more than one table at a time, and the use of multiple tables for this application would only complicate the prototype application without any significant increase in its capabilities.

The web site contains two main databases; the first one has the file name _form.mdb_ (shown in figure 4.1), which contains the entries of the Lessons Learned Database. The table that contains the entries is referred to as “results”. The second database that is contained in the web site is the Post-Construction database named _KYTC new DB.mdb_. The table that contains the Post-Construction entries is referred to as “results” as well.

![Figure 4.1 Table contained in form.mdb](image)
4.3 Website Structure

The web site was generated utilizing FrontPage tools to create html and ASP script. The root folder contains 13 folders, which are described in the next section and shown in Figure 4.2.

Figure 4.2 Folders Contained within the Lessons Learned System Root Folder

4.3.1 Folders
Figure 4.1 demonstrates the different folders in the root folder. Below is a listing of the folders with a description of the content of each;

1- _Private: This folder contains the script file named `schema.ini`, which is used to read from text files and to send them to database table. This folder contains two other files:
form_results.txt, which is a file containing the data entered by the user to complete the Lessons Learned Database form; and form_results2.txt, which contains the information and data entries entered by the user to fill out the form for the Post-Construction Database.

2- cgi-bin: This folder contains files that are used to assist the administrator if he/she decides to include a hit counter in the web site and has minimal importance to the Lessons Learned Database System.

3-Files: This folder contains all of the attachments that are uploaded to be included in the Lessons Learned Database.

4-Files2: This folder contains all the attachments that are uploaded to be included in the Post-Construction Database.

5- form1_interface: This folder contains the data editor as well as the query page used to edit and query the Lessons Learned Database.

6-fpdb: This folder contains the two databases, the Lessons Learned Database, which is name as form.mdb, and the Post-Construction Database, which is named as KYTC new DB.mdb.

7-graphics: This folder contains images that are used to aid in the design of the site.

8-images: This folder contains additional images that are used in the site design.

9-KYTCnewDB_interface: This folder contains the editing pages used to edit the Post-Construction Database as well as the query page for that particular database.

10-Scripts: This folder contains scripts to test the ability of the site and to generate email messages as well.
**11-Stats**: This folder contains logs of the administrator’s date and time of access to the site as well as the uploads and changes made to the site.

**12-upload function backup**: This folder contains a backup of the files that provide the function to upload attachment files from the user’s computer to the system’s databases.

**13-VIA_Welcome**: This folder contains an introduction page on the services and help connects the administrator to the Internet provider “VIA networks”, in case he/she needs technical assistance.

**4.4 Idea Submission Process for the Lesson Learned Database**

The idea submission process is the most important component of the system. There are systematic steps that the user follows to complete this operation successfully:

1. The user logs into the KyTC Lessons Learned System Homepage;
2. The user clicks on the button **Databases** on the left part of the screen;
3. A new page opens giving the user two choices for either using the Lessons Learned Database (LLDB) or Post-Construction Database (PCD). Figure 4.3 displays the database entry page.
4. Next, there are four options for the user to choose from;
   a. Instructions on how to add new entry.
   b. View database results.
   c. Add new entry to the database.
   d. Edit database entries.

5. After choosing option c, **Add new entry to the database**, the user is taken to a new page which is named **form.htm** This page provides the submission form for the user to enter a new lessons learned. To complete the form, the user follows the instructions below to guarantee a successful entry:
The user enters the keywords that are relevant to the issue he/she is about to enter in the “keywords” field;

The user chooses from the drop down menu the description of the type of work involved in the field “lls_type”;

The user enters the comments title he/she is about to enter in the field “comm_title”;

The user includes the specification section that involves the issue at hand in the field “specs”;

The user enters the reference number of the project in the field “reference_num”. The Mars, PCN, and project ID numbers can be used to complete this field;

The user includes the drawing number (if applicable) that is related to the issue in the field “d_num”;

Figure 4.4 Continued: Submission Form for the LLDB
• The user enters the submitters name in the field “name” and email address in the field “user_email.” The system will not accept a user’s submission if these fields are left blank. This assures contact information is given in case there are questions regarding a lesson learned;

Figure 4.4 Continued: Submission form for the LLDB

• The user chooses from the drop down menu the location where the issue occurred, whether it occurred in one of the 12 districts or at the central office, in the field name “district_num”;
• The user adds the lessons learned statement in the designated box in the field “lls”;
• The user describes the issue in a way that all readers can understand regardless of their technical background in the field “issue”;
• The user describes the suggested solution for this problem so that it can be revented in the future in the designated field “fix1”;
• The user rates the impact that this issue has on cost, quality, and schedule. Rate from 1-5, 5 being the highest rating in the fields “cost_imp”, “quality_imp”, and “schedule_imp” respectively;

• The user uploads any relevant attachment to the entry in the field “attach”;

• The user enters the date of the submission in the field “Timestamp2”

• The user must click OK to submit the entry if he/she is finished. If not, he/she can click the RESET button to clear all the entries and complete the form again;

After clicking the OK button, the submittal process begins. FrontPage’s “File Upload” component cannot be used with the Send to Database component in FrontPage 2002,
because the former requires a page with an .htm file extension, and the later requires .asp (Bryant 2001). Specifically, the File Upload component is processed on the server by the Shtml.dll file. When the user requests a page with an .asp file extension from the server, this indicates to the server that the page contains server-side ASP code and must be processed by the Asp.dll file. The server cannot process the page through both dll files before sending the results to the client, so a software code was developed to allow the “File Upload” and “Send to Database” components to simultaneously occur.

The complete code for the file upload process is in Appendix A. However, the following is an explanation of how the file attachments and form results are simultaneously uploaded. Five pages are created initially (form.htm, confirmation.htm, Process1.asp, process2.asp, and display.asp). This set of pages works together to collect information about lessons learned and to display an attachment on the results page. The first page is the form page “form.htm”. It contains both the Hypertext Markup Language (HTML) form that collects the information and the File Upload form component. Data collected in “form.htm” is sent to a text file “form_results.txt” and the attachment is sent to the folder ”Files”. “Schema.ini” establishes the database connection between “form.htm” and “form_results.txt.” The second page is a custom confirmation page that bears the name ”confirmation.htm”. It uses a META refresh tag to send the user to page 3 “process1.asp” as shown in Figure 4.5. “process1.asp” uses custom ASP code to pull the information temporarily stored in “form_results.txt” into the corresponding fields in “process2.asp” for user verification. Once the user verifies their submission, “process2.asp” uses an INSERT SQL statement in its database results region to write the data to a Microsoft Access database. Finally, the fifth page “display.asp” contains another Database Results region that displays this information.

After this process is complete, the data is saved in a MS Access database table ready to be reviewed by the gatekeeper who will then decide to approve it for the general viewing of the public users or deny and delete it from the system. A confirmation email is automatically generated in “form.htm” and sent to the gatekeeper so that he/she can begin reviewing the submission (Figure 4.6). The administrator can change the email address that the confirmation email is sent to by choosing the file “form.htm”
and then right clicking on any place in the page in order to access the “form properties” dialogue box. Next, the Administrator can change the email address that is in the entry “E-mail address” as depicted in Figure 4.7.
4.5 Idea Submission Process for the Post Construction Database

If the user chooses to use the Post-Construction Database (PCD), he/she should follow these steps:

1. User logs in to the KyTC Lessons Learned Home page;
2. The user clicks on the button **Databases** on the left part of the screen.
3. A new page opens giving the user two choices for either using the Lessons Learned Database (LLDB) or Post-Construction Database (PCD) as shown in Figure 4.3 (page 35).
4. In order to add a new entry to the Post-Construction Database, the user chooses “C. Add new entry to the database”
5. When this option is clicked the user is taken to a new page, which is named *form1.htm*. As with the submission form for the LLDB, this page provides the submission form to enter a new report into the Post-Construction Database. To complete the form for the Post-Construction Reviews, the user follows the instructions below to guarantee a successful entry (see Figures 4.8).

- The user enters the District where the project was constructed in field “district”;
- The user enters the County where the project was constructed in field “county”;
- The user enters the Route name in field “route”;
- The user specifies the type of the project in field “typeofproject”;
- The user enters the name of the designer of this project in field “designer”;
- The user enters the item number in field “itemnumber” and project number 1 and 2 in fields “projectnumber1” and “projectnumber2” as well as the federal numbers of the project 1 & 2 in fields “federalnumber1” and “federalnumber2”;
- The user describes the review type in field “reviewtype”;
- The user enters the review date in field “reviewdate”;
- The user includes the names of all the people who attended the Post-Construction meeting in field “attendees”;
- The user specifies comments relevant to this entry in field “comments”;
- The user adds any other comments that are relevant for this entry in field “othercomments”;

37
Figure 4.8 Post Construction Form

Figure 4.8 Continued Post-Construction form.
The user includes key words that best describe this entry in field “keywords”;

The user specifies the specification conditions in field “specificationconditions” as well as the discipline area for this entry in field “disciplinearea”;

The user uploads any relevant attachment to the entry in field “attachment1”. The Post Construction Database uses the same code as described for the Lessons Learned Database to upload and record attachments in the database field. For further information refer to Appendix A;

If this entry requires any follow up the user chooses ‘Yes’, if not the user must leave it as ‘No’ in field “requiresfollowup”;

If the answer for the previous question was ‘Yes’ then the user enters the anticipated follow up date in field “anticipatedfollowupdate”;

If the follow up for this entry was completed, the user chooses ‘Yes’. If not, the user must keep it as ‘No’ in field “followupcompleted”;

If the user answers the previous question with ‘Yes’, then the user must include the date that the follow up was completed in field “followupcompleteddate”;

The user clicks **SUBMIT** if the entry is complete. If not, he/she clicks the **RESET** button to clear all the entries, as in Figure 4.8.
Figure 4.9 Confirmation page (Process12.asp) for the Post-Construction Database

After the user clicks **SUBMIT** on page “*form2.htm*”, the user is sent to page “*Process12.asp*” for final confirmation on his/her entries (Figure 4.9). After the user selects Submit on page “*Process12.asp*” the form results and file attachment are archived into the Post Construction Database.

4.6 Editor Process

The gatekeeper is able to add, edit, and delete entries through the Database Editor. From the page **archive.htm**, the gatekeeper selects d. **Edit Database entries**. After clicking on that option, the user is taken to the login page, **login.asp**, as displayed in Figure 4.10.
The system uses the code in the files “login.asp”, “login_validate.asp”, and “login_check.asp” to verify that the user name and password to allow access to the editor. The user name and password are identified for the Lesson Learned System in “login.asa.” The code for these files are included in appendix A, as well as the editor’s code page.

This page “database_editor.asp” (Figure 4.11) is divided in two sections. In the top half of the screen, the editor displays a summery of the entries. Next to each entry is an “ID”
number, which is a hyperlink that will display the full entry in the lower portion of this window if it is clicked by utilizing the code in page “detail.asp” (included in Appendix A). While viewing the stored entry, the gatekeeper has three options:

1. The user can view and print the entry;
2. The user can delete an entry by activating the code in “delete.asp” (included in Appendix A); or
3. The user can edit the stored information utilizing the code in “updated.asp” (included in Appendix A).
If the user needs to print an entry, he/she can do this by clicking on “file” then “print page“ and specify “the current page”. If the user wants to delete the entry, he/she can delete it either by clicking the button at the lower half of the page that is entitled DELETE, which activates the code in “delete.asp.” After clicking this button, the system generates a message to ask the user if he/she really wants to delete the entry. If the user wants to delete the entry, he/she can confirm this choice by clicking the OK button (Figure 4.12). After confirming the delete command, the lesson learned is permanently deleted from the system.

If the user wants to edit a stored lesson, he/she needs to click the EDIT button, which activates the code in “edit.asp”. Next, the system sends the user to a new page that
displays all the stored entries with the ability to enter and modify any data as needed (Figure 4.13). After the editing session is completed, the user clicks on the SUBMIT button for the system to update the entry by activating the code in “update.asp.”

Figure 4.13: Database Editing Screen

4.7 Query Process

The query process operates by a search engine connected to each database separately. The search engines employed to query the databases were generated using the Database wizard in Microsoft FrontPage 2002.
For the user to be able to query the databases, he/she needs to first open the page “archive.htm”; and choose b. View database results for either the Lessons Learned Database (LLDB) or Post-Construction Database (PCD).

If the user chooses to query the Lessons Learned Database, he/she will view the “results_page.asp“ shown in Figure 4.14. (The code for this page is shown in Appendix A). As Figure 4.14 illustrates, the user can search the database via keywords, comments title, work type, entry date, and district number in which the issue occurred. The user can
type in the field he/she is interested in querying and then press the **SUBMIT QUERY** button which activates ASP code within “*results_page.asp.*” Key words, comments title, and work type search engine are designed to match any contained words that the user enters. For example if the user enters ‘tra’ in the keyword section and submits the query, the system will return any word that contains the three letters ‘tra’ in that combination. This could include entries that have “traffic” as a key word, as the example in figure 4.15 demonstrates.

![KyTC Lessons Learned & Post Construction Data Base](image)

**Figure 4.15 Search Results for Key Words in the LLDB**
If the user decides to combine two search categories, the search engine will display all the entries that contain both of the two search categories. For example if the user decided that he/she is interested in viewing all the entries that has a comment type of “traffic” and has a key word “traffic phasing”, the output of the system will be entries that contain both two words in their prospective category.

If the user elects to query the Post-construction Database he/she will view the page displayed in figure 4.16 after choosing **b. View database results** from the archive.htm

![Figure 4.16 Post-Construction Database Query Page.](image)

Page. The user can query the Post-Construction Database using the following categories:
• District
• County
• Route
• Type of project
• Designer
• Project Number 1
• Federal Number 1
• Keywords

All these search categories will search for the exact spelling and sequence. Like the search engine for the Lessons Learned Database, the search engine will search for keywords that contain the entered phase or word. Figures 4.18 and 4.19 displays the
Figure 4.18 Post-Construction Database Query Part 1

ability of the Post-Construction search engine to search for a key word that contains the letters ‘tra’. The query results in a couple of outputs including with one entry with the keyword entrance.
Other processes in the Post Construction Database, including submitting and editing entries, use similar code as described for the Lessons Learned Database.

4.8 Modifying Fields within the Lessons Learned System

As mentioned previously, the Lessons Learned System was developed to support other processes within the Cabinet besides the current Post Construction Review and proposed Constructability programs. As such, the Cabinet may want to modify, add, and/or delete fields within the system. This section describes which files would require modification if using MS Frontpage 2002 and Access in order for changes to occur:
1. The first file to modify is “Schema.ini,” which lists all of the field names as shown below in order to write the form results to the text file “form_results.txt.” “Schema.ini” is located in the directory named private.

```
[form_results.txt]
ColNameHeader=True
Format=CSVDelimited
MaxScanRows=25
CharacterSet=OEM
Col1=key1 Char Width 255
Col2=lls_ty Char Width 255
Col3=comm_title Char Width 255
Col4=specs Char Width 255
Col5=d_num Char Width 255
Col6=reference_num Char Width 255
```

Field names can be changed, added, and deleted in this file to reflect new needs in the archived data.

2. Next, the fields in “form.htm” should be changed. The fields can be modified directly using the editing functions through “normal” view in MS Frontpage. Once “form.htm” has been modified, create a new database. If using MS Access, this can be done as follow:
   a. Save “form.htm” with a new name. Frontpage and Access will use the file name in creating the new database. For example if you change the name to “happy.htm”, the new database name will be “happy.mdb”.
   b. Right-click anywhere in the form, and then click Form Properties on the menu that appears.
   c. Click Send to database.
   d. Click Options.
e. Click **Create Database**.

f. When you see a message indicating the database has been created, click **OK**. In the **Options for Saving Results to Database** dialog box, click **Cancel**.

3. The field names should next be modified in "**Process1.asp**," which uses the field names to pull the data down from "**form_results.txt**" to allow the user to modify the fields before final submission.

```vbscript
<%
'//////////////////////////////////////////////////////////////////////
'// The first two lines of code are calling the connection
'//////////////////////////////////////////////////////////////////////
Set Conn = Server.CreateObject("ADODB.Connection")
Conn.Open Application("text_ConnectionString")
'//////////////////////////////////////////////////////////////////////
'// Next you create a record set object, execute the
'//////////////////////////////////////////////////////////////////////
Set RS = Conn.Execute ("SELECT * From form_results.txt")
'//////////////////////////////////////////////////////////////////////
'// You then use code to loop through the database and
'//////////////////////////////////////////////////////////////////////
Dim iCnt
Do Until RS.EOF
  iCnt = iCnt + 1
  key1 = RS("key1")
  lls_ty = RS("lls_ty")
  comm_title = RS("comm_title")
  specs = RS("specs")
  reference_num = RS("reference_num")
  d_num = RS("d_num")
  name = RS("name")
  user_email = RS("user_email")
  district_num = RS("district_num")
  lls = RS("lls")
  issue = RS("issue")
  fix1 = RS("fix1")
  e_order = RS("e_order")
  cost_imp = RS("cost_imp")
  quality_imp = RS("quality_imp")
Modify field names as needed

52
```
4. Next, field names in the database results region in “Process2.asp” needs to be changed. To access the region, right click on the database results region and select database result properties. This will bring up the database results wizard. Click next on page 1 of the wizard. In step two of the wizard, click Custom query, and then click Edit. This will bring up a dialogue box with the INSERT INTO command as shown below.

```
INSERT INTO Results (key1, comm_title, lls_ty, specs, reference_num, d_num, name, user_email, district_num, lls, issue, fix1, c_order, cost_imp, quality_imp, schedule_imp, attach, resolved, followup, Timestamp2) VALUES ('::key1::', '::comm_title::', '::lls_ty::', '::specs::', '::reference_num::', '::d_num::', '::name::', '::user_email::', '::district_num::', '::lls::', '::issue::', '::fix1::', '::c_order::', '::cost_imp::', '::quality_imp::', '::schedule_imp::', '::attach::', '::resolved::', '::followup::', '::Timestamp2::')
```

The field names should be changed in both the “Results” and “Values” section of the INSERT INTO command. To finish modifying “Process2.asp,” click Next on steps 3, 4, and 5 of the wizard.

5. Next, update the database connections in “Results_page.asp”, “database_editor.asp”, “delete.asp”, “detail.asp”, “edit.asp”, and “list.asp”, which are found in the form1_interface/Results/editor directory. This is done by selecting the new database created from the modified form.htm in step 1 of the database wizard.
6. In order to test the connections and modified fields, the pages need to be running on a server that supports ASP pages. The modified pages will not work properly if tested on a local computer.
Chapter V Proposed Lessons Learned Process and Implementation

The Lessons Learned System is a tool that requires implementation within a process before it can be useful and effective in improving the performance within the Cabinet. This chapter outlines a general process of how the System can capture lessons learned. Next, the process of integrating the Lessons Learned System within the Cabinet’s proposed constructability program is described. This is followed by descriptions of how the Lessons Learned System can be integrated within the Cabinet’s Post Construction Review and Value Engineering programs. Finally, system installation within the Cabinet’s technology program is discussed.

5.1 A General Process

A continuous cycle is needed if the lessons learned system is to have an impact on improving the performance of the Cabinet (see Figure 5.1).

Figure 5.1 Lessons Learned Cycle
The Lessons Learned Cycle begins with the user submitting information regarding the issue and proposed solution through the Lessons Learned System. Once the entry is made, a confirmation email is sent to the gatekeeper (Figure 4.6 – page 35). The gatekeeper is responsible for various administrative aspects of the Lessons Learned System at the Cabinet level and is critical for maintaining the knowledge integrity of the lessons learned stored in the system database through:

1. Reviewing a user’s entry and clarifying the entry via email with the user if necessary.
2. Removing duplicate issues, which may already be stored in the Lessons Learned System.
3. Edits the user’s submission by:
   a. Removing slang, which may be inappropriate;
   b. Ensuring the submission is written in conversational language using active verbs;
   c. Avoiding long or cumbersome sentences;
   d. Ensuring objects and pronouns are clear; and
   e. Avoiding acronyms and technical terms that may be unclear to other users.
4. Consults with other cabinet personnel regarding a proposed solution if needed.

Once the gatekeeper approves a user’s submission, the entry is included in the query database, thereby making the submission available to the general public. The gatekeeper should then send either a letter or email to the submitter expressing their appreciation and acknowledgement of their entry.

Lessons that become widely adopted throughout the cabinet should become recognized as a best practice. If there is any action on behalf of the cabinet in reaction to a submitted lessons learned, it is important to note the action as a follow-up in the lessons learned entry. Lessons may become a best practice through changes in specifications, standard drawings, and/or policy. As the best practice becomes executed on all Cabinet projects,
efforts should be made to analyze the results of their implementation and provide feedback to the lessons learned system and gatekeeper about whether the best practice should be modified for successful implementation. At this point the lessons learned cycle begins again with another user submitting an entry into the Lessons Learned System.

Without a process of review, dissemination, and adoption, such as described by the lessons learned cycle, the Lessons Learned System will risk becoming a warehouse of data that has little relevance on the Cabinet’s performance. Responding to submitted lessons learned will give outstanding credibility to the Lessons Learned System and will serve as a strong motivator for other users to submit lessons learned. In addition, it is recommended that the Cabinet periodically issue a newsletter describing recent additions to the Lessons Learned System and the status of any follow-up. This too will give the Cabinet an opportunity to acknowledge the importance of receiving the lessons learned.

5.2 The Use of the Lessons Learned System for Existing and Proposed Processes within the Kentucky Transportation Cabinet

As discussed, capturing lessons learned is extremely important for a constructability program. A related research project, Constructability Issues on KYTC Projects (KYSPPR-02-236), examined the major constructability issues on roadway projects and outlined a process of constructability reviews to occur through the project development process within the Cabinet. Although lessons learned should be queried and submitted into the Lessons Learned System anytime they are needed, there are gates in the project development process when, at a minimum, the Lessons Learned System should be queried and submissions made. These gates are indicated in bold print in the following outline of the process (Table 5.1).
Table 5.1 Project Development Process with Opportunities for Constructibility Input and Use of the Lessons Learned System.

<table>
<thead>
<tr>
<th>“Phases of Current Project Development Process”</th>
<th>Opportunities for Constructibility Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <strong>Planning Phase [Phase I Design]</strong></td>
<td>- Get construction experts involved in public meeting to attend in ‘observation mode.’</td>
</tr>
<tr>
<td>• Determine project purpose and needs.</td>
<td>- Some projects must perform a detailed study of the issues by including input from “Construction Branch.”</td>
</tr>
<tr>
<td>• Conduct Environmental overview.</td>
<td>-</td>
</tr>
<tr>
<td>• Establish project timing requirements</td>
<td>-</td>
</tr>
<tr>
<td>• Identify project special problems and limitations.</td>
<td>-</td>
</tr>
<tr>
<td>• Conduct public meeting.</td>
<td>-</td>
</tr>
<tr>
<td>- <strong>Preliminary Line and Grade (PL&amp;G) Phase [Phase I Design]</strong></td>
<td>-</td>
</tr>
<tr>
<td>• Determine if project objectives (purpose &amp; needs) being met.</td>
<td>- Bring on In-house constructibility consultant.</td>
</tr>
<tr>
<td>• Environmental Document developed</td>
<td>- Solicit input from outside contractor (retired construction contractors) that is dependent on project size and need.</td>
</tr>
<tr>
<td>• Identify critical ROW issues.</td>
<td>- Use KHCA as a source to obtain construction personnel.</td>
</tr>
<tr>
<td>• Identify special problems with utilities, railroads, etc.</td>
<td>- Geotech review of PL&amp;G (either consultant or retired geotech).</td>
</tr>
<tr>
<td>• Public involvement required.</td>
<td>- Suggested checklist to use:</td>
</tr>
<tr>
<td>• Select corridor (line and grade).</td>
<td>- Preliminary Design checklist</td>
</tr>
<tr>
<td>• Compatibility study for future projects where feasible.</td>
<td>- Clearing/Grubbing/Excavation checklist</td>
</tr>
<tr>
<td></td>
<td>- Removal/Demolition checklist</td>
</tr>
<tr>
<td></td>
<td>- Environmental checklist</td>
</tr>
<tr>
<td></td>
<td>- Query the Lessons Learned Database as needed</td>
</tr>
</tbody>
</table>
Table 5.1 Continued: Project Development Process with Opportunities for Constructibility Input and Use of the Lessons Learned System.

<table>
<thead>
<tr>
<th>“Phases of Current Project Development Process”</th>
<th>Opportunities for Constructibility Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ROW Plans Development Phase [Phase II Design]</td>
<td>• Early In-house input; if needed bring in external consultant for VE study.</td>
</tr>
<tr>
<td>• Critical review of project objectives (purpose &amp; needs).</td>
<td>• Solicit utility coordination input (KU).</td>
</tr>
<tr>
<td>• Review preliminary quantities of project objectives.</td>
<td>• Constructibility input requested from construction, traffic &amp; maintenance, geotech branch, bridge design, utilities, and ROW experts.</td>
</tr>
<tr>
<td>• Identify Signalization, Maintenance of Traffic, phasing needs.</td>
<td>• Suggested checklist to use:</td>
</tr>
<tr>
<td>• Construction Erosion Control plans.</td>
<td>• Structures checklist</td>
</tr>
<tr>
<td>• Develop ROW and Utilities Plan plus RR.</td>
<td>• Utilities checklist</td>
</tr>
<tr>
<td>• Final ROW.</td>
<td>• Drainage checklist</td>
</tr>
<tr>
<td>• Finalize drainage, structure, geotech design.</td>
<td>• Maintenance of Traffic checklist</td>
</tr>
<tr>
<td>• Critical review of bridge requirements (understand the context of project design).</td>
<td>• Schedule/Phasing/Access checklist</td>
</tr>
<tr>
<td></td>
<td>• Site survey/plan/profile checklist</td>
</tr>
<tr>
<td></td>
<td>• Query the Lessons Learned Database as needed</td>
</tr>
</tbody>
</table>
Table 5.1 Continued: Project Development Process with Opportunities for Constructibility Input and Use of the Lessons Learned System.

<table>
<thead>
<tr>
<th>“Phases of Current Project Development Process”</th>
<th>Opportunities for Constructibility Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Final Design Phase [Phase II Design]</td>
<td>• Get resident and construction engineer input.</td>
</tr>
<tr>
<td>• Review project objectives (purpose and needs) and criteria.</td>
<td>• Constructibility input requested from construction, traffic &amp; maintenance, utilities, and ROW experts.</td>
</tr>
<tr>
<td>• Review Bridge Design(s) and requirements.</td>
<td>• Suggested checklist to use:</td>
</tr>
<tr>
<td>• Finalize final Maintenance of Traffic plans, signalization, signs and striping plans.</td>
<td>• Drawing/Title page checklist</td>
</tr>
<tr>
<td>• Review Special Notes requirements (blasting, environmental, historical, etc.).</td>
<td>• Claims prevention checklist</td>
</tr>
<tr>
<td>• Finalize construction restrictions (timing, work restrictions, etc.).</td>
<td>• Query the Lessons Learned Database as needed</td>
</tr>
<tr>
<td>• Review traffic and community impact studies.</td>
<td></td>
</tr>
</tbody>
</table>


Table 5.1 Continued: Project Development Process with Opportunities for Constructibility Input and Use of the Lessons Learned System.

<table>
<thead>
<tr>
<th>“Phases of Current Project Development Process”</th>
<th>Opportunities for Constructibility Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Final Bid Document Phase [Phase II Design]</td>
<td>• In-house personnel conducts final bid document phase.</td>
</tr>
<tr>
<td>• Review of documents for bidibility (timing restrictions, specifications, materials, etc.).</td>
<td>• Suggested checklist to use:</td>
</tr>
<tr>
<td>• Obtain right of entry on all ROW parcels.</td>
<td>• Pre-bid checklist</td>
</tr>
<tr>
<td>• Review all bid items to see if they are current.</td>
<td>• Submit lessons learned to the Lessons Learned Database</td>
</tr>
<tr>
<td>• Review and update necessary permits obtained (environmental, water, historical, etc.).</td>
<td></td>
</tr>
<tr>
<td>• Check to be sure utilities are relocated or utility impact notes are reviewed and updated.</td>
<td></td>
</tr>
</tbody>
</table>
It is intended that during the initial phases of the project development process, the Lessons Learned System will primarily be used to identify constructability issues through its query function of the online databases in order to assist the proposed constructability program. The Lessons Learned System should be utilized during reviews throughout the project development process beginning with the Preliminary Line and Grade Phase (Phase I Design) and continuing through the Right-of-Way (ROW) Plans Development Phase (Phase II Design).

The Lessons Learned System will experience long-term success only by receiving valuable lessons learned. As has been stressed before, lessons learned should be submitted whenever they are realized, but it is envisioned that this may not occur until the

<table>
<thead>
<tr>
<th>Post Construction Review Phase</th>
<th>Bring In-house personnel to conduct post construction review that should include project manager, consultants, resident engineers, general and sub-contractors.</th>
</tr>
</thead>
</table>
| • Performed before or at 90% of project completion.  
• Conducted by the Districts on all projects. | • Have multiple post construction reviews if feasible.  
• Submit lessons learned to the Lessons Learned Database  
• Reports submitted to the Post Construction Review Database in the Lessons Learned System. |
Final Bid Document Phase (Phase II Design) when enough of the project’s design has been developed and the project team may realize areas of improvement for future projects. The Post Construction Review Phase should provide a windfall of new submissions into the Lessons Learned System. Two actions regarding the system occur in this phase:

1. Lessons identified during the construction review are submitted into the Lessons Learned Database; and

2. Post Construction Reports, which are currently produced once a year in each district, are submitted into the Post Construction Review Database.

Finally when new entries are made, the Lessons Learned Cycle should be used by adopting new lessons as a best practice, when necessary, to ensure the lessons are effective at improving the performance of future KYTC projects.

5.3 System Implementation within the Cabinet’s Technology Program

5.3.1 System Installation Options

As already noted, the Lessons Learned System prototype has been designed for a server with the following installed extensions and software:

- Microsoft FrontPage 2002 Server Extensions;
- Active Server Pages (ASP);
- Microsoft Data Access Components (MDAC); and
- Microsoft Simple Mail Transfer Protocol (SMTP) service.

These software packages could be installed on the KYTC servers to support the Lessons Learned System. This will require the software to be updated and maintained to support
future updates of both Microsoft products and the Lessons Learned System. One option is to install the Lessons Learned System on an outside commercial server. This provides the advantages of transferring responsibility to an outside party of maintaining the necessary support software on the server as well as providing other technical support. At the time of the report’s publication, the following commercial server providers are capable of supporting all functions of the Lessons Learned System:

- EPI Internet Direct – 800.689.9034
- Definition 6, Inc. – 877.973.3266
- ACME Internet – 800.332.0990
- ValueWeb – 800.934.6788
- VIA NET.WORKS USA – 800.749.1706
- myhosting.com – 416.957.7400
- VitalStream, Inc. – 800.254.7554
- iNNerhost, Inc. – 800.621.8309
- Interland Inc. – 800.627.6839

The Lessons Learned System prototype was installed on the VIA NET.WORKS USA server at a cost of $25 per month, which included 200 MB of server space and 10GB of bandwidth per month.

5.3.2 System Connectivity with Existing Database Structures within KYTC

The Lessons Learned System prototype currently uses Microsoft Access for both the submission and query databases. In order to fully implement the system within the Cabinet’s database structure, it should be integrated with the Oracle database structure
currently used by the Cabinet. It is suggested that the submission database be maintained in MS Access, but the query database be transferred to the Oracle system. There are a number of reasons for this:

1. A MS Access database is capable of only handling 2000 records (e.g. lessons learned), and the number of records that can be stored in an Oracle database is only limited by the storage capacity of the residing server. It is envisioned that eventually the Lessons Learned System will retain more than 2000 records and will require the Oracle’s extended capability to handle the large volume of data. The submission database will primarily be used for the gatekeeper to review and edit submitted lessons learned before transferring the lessons learned into the query database for public dissemination. Therefore at any point in time, the submission database will handle far fewer records and should be easily handled by MS Access. The process of transferring lessons learned from the submission database in MS Access to the query database in Oracle may require technical support of the Cabinet’s Office of Technology.

2. It is also envisioned that once the Lessons Learned System is fully implemented and becomes integrated into the project processes of the Cabinet, simultaneous users will need to access the query database. Oracle offers a much better platform for, and is specifically designed to support, simultaneous users.
3. Currently the Lessons Learned System will be used to capture lessons learned for the proposed constructability process. It is possible that other processes within the cabinet, such as environmental reviews, will want to use the architectural framework developed for the Lessons Learned System to capture their own lessons learned. This may ultimately lead to the creation of separate databases. Therefore in the future, users will most likely want to query across multiple databases, which is a feature that is easily supported by Oracle.

5.3.3 Linking System with other Existing Systems within KYTC

The research team recommends that the Cabinet’s Value Engineering Section perform the gatekeeper functions of the Lessons Learned System. Currently, the Cabinet’s Value Engineering website is [http://www.kytc.state.ky.us/design/value/value.htm](http://www.kytc.state.ky.us/design/value/value.htm). It is recommended that the Value Engineering’s website provide introductory information regarding the Lessons Learned System in order to help publicize its availability and use. Furthermore, it is recommended that a hyperlink be added to the Value Engineering’s webpage to the Lessons Learned System.

5.4 Introduction of the Lessons Learned System to the Cabinet

Currently, a representative from the Value Engineering Section visits each district to assist in conducting post construction reviews and record corresponding minutes and
issues. After the post construction reviews are completed, the Value Engineering Section enters data into the post construction review database. Once the Lessons Learned System is fully implemented, it is envisioned that this task will be performed directly by district personnel who will be able access, via the Internet, the Post Construction Review Database currently incorporated within the Lessons Learned System. It is recommended, during the first year of system implementation, that the Value Engineering Section visit each district in its normal routine of conducting post construction reviews in order to introduce and demonstrate how the Lessons Learned System can be used. It is also recommended that the Value Engineering Section, at the same time, introduce the Lessons Learned Database and encourage district personnel to submit lessons as a result of a post construction review or whenever lessons are realized. In order to further help publicize the implementation of the Lessons Learned System, it is also recommended that the Lessons Learned System be demonstrated at the Annual Resident Engineers’ Meeting and other annual meetings involving Cabinet personnel and other parties involved in the project development process.
Chapter VI Conclusions and Recommendations

The following conclusions from the research and development of the prototype of the Lessons Learned System can be made:

1. A system of collecting, archiving, and disseminating lessons learned is a critical component of experienced based processes, such as constructability.

2. A web-based lessons learned system will greatly improve the effectiveness of a lessons learned system by making it widely available to all interested parties and easily updated, since the knowledge resides in one central receptacle.

3. A lesson learned system that can accept multiple data formats should help increase its longevity.

4. The most important success factor for the successful implementation of a lessons learned system resides in the quantity, quality, and diversity of data stored within the system.

5. Ultimately, the true goal of any lessons learned system is to improve an organization’s best practices as a result of lessons learned.

6. The prototype described in this report will support both full implementation of the design as well as implementation of new functions in the future.
The concept of archiving lessons learned is not new, but stronger encouragement is needed for designers and contractors to critically assess the implications of any aspect of a design in the construction of a project. One way to accomplish this is to provide designers with a tool that can be used to allow them to see the impact their designs have upon construction performance. The Lessons Learned System will help facilitate this.

A procedure should be developed for soliciting, approving, and implementing new functions into the Lessons Learned System. Through the Office of Technology, the Cabinet has the knowledge to do this but will need the resources (time and money) to support this ongoing mission.
APPENDIX A

Source Code of selected pages in the Lessons Learned System

Table of Code

<table>
<thead>
<tr>
<th>Code File</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schema.ini</td>
<td>71</td>
</tr>
<tr>
<td>Form.htm</td>
<td>73</td>
</tr>
<tr>
<td>Confirmation.htm</td>
<td>78</td>
</tr>
<tr>
<td>Process1.asp</td>
<td>79</td>
</tr>
<tr>
<td>Process2.asp</td>
<td>81</td>
</tr>
<tr>
<td>Display.asp</td>
<td>83</td>
</tr>
<tr>
<td>Login.asp</td>
<td>89</td>
</tr>
<tr>
<td>Login_validate.asp</td>
<td>91</td>
</tr>
<tr>
<td>Login_check.asp</td>
<td>92</td>
</tr>
<tr>
<td>Database_editor.asp</td>
<td>93</td>
</tr>
<tr>
<td>Detail.asp</td>
<td>117</td>
</tr>
<tr>
<td>Delete.asp</td>
<td>129</td>
</tr>
<tr>
<td>Update.asp</td>
<td>141</td>
</tr>
<tr>
<td>Results_page.asp</td>
<td>144</td>
</tr>
</tbody>
</table>
[form_results.txt]
ColNameHeader=True
Format=CSVDelimited
MaxScanRows=25
CharacterSet=OEM
Col1=key1 Char Width 255
Col2=key2 Char Width 255
Col3=key3 Char Width 255
Col4=comm_title Char Width 255
Col5=lls_ty Char Width 255
Col6=specs Char Width 255
Col7=d_num Char Width 255
Col8=reference_num Char Width 255
Col9=name Char Width 255
Col10=user_email Char Width 255
Col11=district_num Char Width 255
Col12=lls Char Width 255
Col13=issue Char Width 255
Col14=fix1 Char Width 255
Col15=c_order Char Width 255
Col16=cost_imp Char Width 255
Col17=quality_imp Char Width 255
Col18=schedule_imp Char Width 255
Col19=attach Char Width 255
Col20=resolved Char Width 255
Col21=followup Char Width 255
Col22=Timestamp2 Char Width 255

[form_results2.txt]
ColNameHeader=True
Format=CSVDelimited
MaxScanRows=25
CharacterSet=OEM
Col1=District Char Width 255
Col2=County Char Width 255
Col3=Route Char Width 255
Col4=TypeofProject Char Width 255
Col5=Designer Char Width 255
Col6=ItemNumber Char Width 255
Col7=ProjectNumber1 Char Width 255
Col8=ProjectNumber2 Char Width 255
Col9=FederalNumber1 Char Width 255
Col10=FederalNumber2 Char Width 255
Col11=ReviewType Char Width 255
Col12=ReviewDate Char Width 255
Col13=Attendees Char Width 255
Col14=OtherComments Char Width 255
Col15=Comment Char Width 255
Col16= Keywords Char Width 255
Col17=SpecificationConditions Char Width 255
Col18=DisciplineArea Char Width 255
Col19=Attachment1 Char Width 255
Col20=Requiresfollowup Char Width 255
Col21=Anticipatedfollowupdate Char Width 255
Col22=FollowupCompleted Char Width 255
Col23=Followupcompletedate Char Width 255
Form.htm

<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>new LLDB</title>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<meta name="Microsoft Theme" content="radial 111, default">
<meta name="Microsoft Border" content="tlb, default">
</head>

<body>
<table width="100%" align=left>
<tr>
<td width="50%">
<p><b><font size=+3 color="#000080"> Submission Form </font></b></p>
</td>
<td width="50%" align=right>
<table>
<tr>
<td><a target="_top" href="form1_interface/Results/results_page.asp">Results Page</a> | Submission Form | <a target="_top" href="form1_interface/Results/editor/database_editor.asp">Database Editor</a></td>
</tr></table>
</td>
</tr>
</table>
<p><br clear="all">
</p>
<form METHOD="POST" action="--WEBBOT-SELF--" name="FrontPage_Form1" enctype="multipart/form-data">
</form>
</body>
</html>
<p>Key Word 1</p>

<p>Key Word 2</p>

<p>Key Word 3</p>

<p>Work Type</p>

<p>Comment Title</p>

<p>Specification Number</p>
Reference Number (PCN, Mars#, Project ID..)
<input type="text" name="reference_num" size="20" value="N/A"></p>

Drawing Number (If Applicable)
<input type="text" name="d_num" size="64" value="N/A"></p>

Submitter Name
<input type="text" name="name" size="20" value="N/A"></p>

Submitter Email Address
<input type="text" name="user_email" size="20" value="N/A"></p>

Location of Lessons Learned (Select District No. or Central Office)
<select size="1" name="district_num">
  <option selected>1</option>
  <option>2</option>
  <option>3</option>
  <option>4</option>
  <option>5</option>
  <option>6</option>
  <option>7</option>
  <option>8</option>
  <option>9</option>
  <option>10</option>
  <option>11</option>
  <option>12</option>
  <option>Central Office</option>
</select></b><br>
</p>

Lessons Learned Statement
<textarea rows="10" name="lls" cols="64">N/A</textarea><br>
<p><b>Issue</b><br>&nbsp;&nbsp;<!--webbot bot="Validation" s-display-name="issue" s-data-type="String" b-value-required="False" i-maximum-length="0" --><textarea rows="10" name="issue" cols="64">N/A</textarea><br></p>

<p><b>Suggested Solution</b><br>&nbsp;&nbsp;<!--webbot bot="Validation" s-display-name="fix" s-data-type="String" b-value-required="False" i-maximum-length="0" --><textarea rows="10" name="fix1" cols="64">N/A</textarea><br></p>

<p><b>Change Order Number</b><br>&nbsp;&nbsp;<!--webbot bot="Validation" s-display-name="c_order" s-data-type="String" b-value-required="False" i-maximum-length="255" --><input name="c_order" size="64" value="N/A" maxlength="255"/><br></p>

<p><b>Cost Impact (1-5), 5 having the highest impact</b><br><select size="1" name="cost_imp"> <option>1</option> <option>2</option> <option>3</option> <option>4</option> <option>5</option> </select><br></p>

<p><b>Quality Impact (1-5), 5 having the highest impact</b><br><select size="1" name="quality_imp"> <option>1</option> <option>2</option> <option>3</option> <option>4</option> <option>5</option> </select><br></p>

<p><b>Schedule Impact (1-5), 5 having the highest impact</b><br><select size="1" name="schedule_imp"> <option>1</option> <option>2</option> <option>3</option> <option>4</option> <option>5</option> </select><br></p>
<p><b>Attachment</b><br/>
<input type="file" name="attach" size="90" value="&lt;none selected at this time&gt;" />
</p>

<p><b>Entry Date (mm/dd/yyyy)</b><br/>
<input type="text" name="Timestamp2" size="20" value="11/22/3333" />
</p>

<p><input type="submit" value="OK" /><input type="reset" value="Reset" /></p>
</form>

</body>
</html>
<html>
<% 
'////////////////////////////////////////////////////////////////////////////////////////
'// The first two lines of code are calling the connection
'// object for the text file that is stored in the
'// global.asa file.
'////////////////////////////////////////////////////////////////////////////////////////

Set Conn = Server.CreateObject("ADODB.Connection")
Conn.Open Application("text_ConnectionString")
'////////////////////////////////////////////////////////////////////////////////////////
'// Next you create a record set object, execute the
'// database connection and a SQL query.
'////////////////////////////////////////////////////////////////////////////////////////

Set RS = Conn.Execute("SELECT * From form_results.txt")
'////////////////////////////////////////////////////////////////////////////////////////
'// You then use code to loop through the database and
'// select the last record entered.
'////////////////////////////////////////////////////////////////////////////////////////

Dim iCnt
Do Until RS.EOF
iCnt = iCnt + 1
key1 = RS("key1")
key2 = RS("key2")
key3 = RS("key3")
comm_title = RS("comm_title")
lls_ty = RS("lls_ty")
specs = RS("specs")
d_num = RS("d_num")
name = RS("name")
user_email = RS("user_email")
district_num = RS("district_num")
lls = RS("lls")
issue = RS("issue")
fix1 = RS("fix1")
c_order = RS("c_order")
cost_imp = RS("cost_imp")
quality_imp = RS("quality_imp")
schedule_imp = RS("schedule_imp")
attach = RS("attach")}
RS.MoveNext
Loop

'////////////////////////////////////////////////////////////////////////////////
'//  Close the record set and the connection.
'////////////////////////////////////////////////////////////////////////////////

RS.Close
Conn.Close

%>

<form method="POST" action="../Process2.asp">
<p><input type="text" name="key1" size="20" value="<%=key1%>"></p>
<p><input type="text" name="key2" size="20" value="<%=key2%>"></p>
<p><input type="text" name="key3" size="20" value="<%=key3%>"></p>
<p><input type="text" name="comm_title" size="20" value="<%=comm_title%>"></p>
<p><input type="text" name="lls_ty" size="20" value="<%=lls_ty%>"></p>
<p><input type="text" name="specs" size="20" value="<%=specs%>"></p>
<p><input type="text" name="d_num" size="20" value="<%=d_num%>"></p>
<p><input type="text" name="name" size="20" value="<%=name%>"></p>
<p><input type="text" name="user_email" size="20" value="<%=user_email%>"></p>
<p><input type="text" name="district_num" size="20" value="<%=district_num%>"></p>
<p><input type="text" name="lls" size="20" value="<%=lls%>"></p>
<p><input type="text" name="issue" size="20" value="<%=issue%>"></p>
<p><input type="text" name="fix1" size="20" value="<%=fix1%>"></p>
<p><input type="text" name="c_order" size="20" value="<%=c_order%>"></p>
<p><input type="text" name="cost_imp" size="20" value="<%=cost_imp%>"></p>
<p><input type="text" name="quality_imp" size="20" value="<%=quality_imp%>"></p>
<p><input type="text" name="schedule_imp" size="20" value="<%=schedule_imp%>"></p>
<p><input type="submit" value="Submit" name="B1"></p>
<p><input type="reset" value="Reset" name="B2"></p>
<input type="hidden" name="attach" value="<%=attach%>">
</form>

</html>
<html>
<head>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<% ' FP_ASP -- ASP Automatically generated by a Frontpage Component. Do not Edit. 
FP_CharSet = "windows-1252"
FP_CodePage = 1252 %>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>New Page 1</title>
<meta name="Microsoft Theme" content="radial 111, default">
<meta name="Microsoft Border" content="tlb, default">
</head>

<body>
<!--webbot bot="DatabaseRegionStart" s-columnnames s-columntypes s-dataconnection="form1" b-tableformat="FALSE" b-menuformat="FALSE" s-menuchoice s-menuvalue b-tableborder="TRUE" b-tableexpand="TRUE" b-tableheader="TRUE" b-listlabels="FALSE" b-listseparator="FALSE" i-listformat="0" b-makeform="FALSE" b-recordsource s-displaycolumns s-criteria s-order s-sql="INSERT INTO Results (key1, key2, key3, comm_title, dog, specs, d_num, name, attach, lls, issue, fix, c_order, cost_imp, quality_imp, schedule_imp) VALUES ('::key1::', '::key2::', '::key3::', '::comm_title::', '::dog::', '::specs::', '::d_num::', '::name::', '::attach::', '::lls::', '::issue::', '::fix::', '::c_order::', '::cost_imp::', '::quality_imp::', '::schedule_imp::')" b-procedure="FALSE" clientside suggestedext="asp" s-defaultfields="key1=&key2=&key3=&comm_title=&amp;amp;dog=&specs=&amp;amp;d_num=&amp;amp;name=&amp;amp;attach=&amp;amp;amp;lls=&amp;amp;issue=&amp;amp;amp;fix=&amp;amp;amp;c_order=&amp;amp;amp;cost_imp=&amp;amp;amp;quality_imp=&amp;amp;amp;schedule_imp=" s-norecordsfound="Your Lessons Learned Statement has been accepted!" i-maxrecords="256" i-groupsizer="0" botid="0" u-dblib="../_fpclass/fpdblib.inc" u-dbrgn1="../_fpclass/fpdbrgn1.inc" u-dbrgn2="../_fpclass/fpdbrgn2.inc" tag="BODY" preview="&lt;table border=0 width=100%&gt;&lt;tr&gt;&lt;td bgcolor=FFF000&gt;&lt;align=left&gt;&lt;font color=#000000&gt;&lt;This is the start of a Database Results region.&lt;/font&gt;&lt;/td&gt;&lt;/tr&gt;&lt;/table&gt;&gt;&lt;!--#include file="../_fpclass/fpdblib.inc"--&gt;
<% if 0 then %>

<SCRIPT Language="JavaScript">
document.write("&lt;div style=background: yellow; color: black;&gt;The Database Results component on this page is unable to display database content. The page must have a filename ending in '.asp', and the web must be hosted on a server that supports Active Server Pages.&lt;/div&gt;")
</SCRIPT>
</body>
</html>
Display.asp

<html>
<head>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<% ' FP_ASP -- ASP Automatically generated by a Frontpage Component. Do not Edit. 
FP_CharSet = "windows-1252" 
FP_CodePage = 1252 %>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>ID</title>
<meta name="Microsoft Theme" content="radial 111, default">
<meta name="Microsoft Border" content="tlb, default">
</head>

<body>
<!--webbot bot="DatabaseRegionStart" s-columnnames="ID,key1,key2,key3,comm_title,dog,specs,d_num,name,lls,issue,fix,c_order,cost_imp,quality_imp,schedule_imp,attach,Remote_computer_name,User_name,Browser_type,Timestamp" s-columntypes="3,202,202,202,202,202,202,202,202,202,202,202,202,202,202,202,135" s-dataconnection="form1" b-tableformat="FALSE" b-menuformat="FALSE" b-menumode="TRUE" b-tableexpand="TRUE" b-tableheader="TRUE" b-listlabels="TRUE" b-listseparator="TRUE" i-listformat="0" b-makeform="TRUE" s-recordsource="Results" s-displaycolumns="ID,key1,key2,key3,comm_title,dog,specs,d_num,name,lls,issue,fix,c_order,cost_imp,quality_imp,schedule_imp,attach,Remote_computer_name,User_name,Browser_type,Timestamp" s-criteria s-order s-sql="SELECT * FROM Results" b-procedure="FALSE" clientside suggestedext="asp" s-defaultfields s-norecordsfound="No records returned." i-maxrecords="256" i-groupsize="1" botid="0" u-dblib="../../fpclas/fpdblib.inc" u-dbrgn1="../../fpclas/fpdbbrgn1.inc" u-dbrgn2="../../fpclas/fpdbbrgn2.inc" tag="BODY" preview="&lt;table border=0 width=100% align=left; bgcolor=#FFFF00; font color=#000000;" This is the start of a Database Results region.&lt;/font&gt;&lt;/td&gt;&lt;/tr&gt;&lt;/table&gt;" startspan --&gt;<!--#include file="../../fpclas/fpdblib.inc"-->
&lt;% if 0 then %&gt;

<SCRIPT Language="JavaScript">
document.write("&lt;div style='background: yellow; color: black;'>The Database Results component on this page is unable to display database content. The page must have a filename ending in '.asp', and the web must be hosted on a server that supports Active Server Pages.&lt;/div&gt;");

</SCRIPT>

83
<table>
<thead>
<tr>
<th>key2</th>
<th>Timestamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>key3</td>
<td>comm_title</td>
</tr>
<tr>
<td>dog</td>
<td>specs</td>
</tr>
</tbody>
</table>

```
<p><b>c_order:</b> <%=FP_FieldVal(fp_rs,"c_order")%></p>
<p><b>cost_imp:</b> <%=FP_FieldVal(fp_rs,"cost_imp")%></p>
<p><b>quality_imp:</b> <%=FP_FieldVal(fp_rs,"quality_imp")%></p>
<p><b>schedule_imp:</b> <%=FP_FieldVal(fp_rs,"schedule_imp")%></p>
Login.asp

<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>Results -- Login</title>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
</head>
<body bgcolor="#FFFFFF">
<table width="100%" align=left>
<tr>
<td width="50%">
<b><font size=+3 color="#000080">Database Editor Login</font></b>
</td>
<td width="50%" align=right>
<table>
<tr>
<td>
<a href="../results_page.asp" target="_top">Results Page</a> | <a href="../submission_form.asp" target="_top">Submission Form</a> | Database Editor
</td>
</tr>
</table>
</td>
</tr>
</table>
<br clear=all>
<hr>
<form action="Login.Validate.asp" method="post">
<p>&nbsp;<h3>Database Editor Login</h3><br>
<br>
<TABLE BORDER=0>
<tr>
<TD ALIGN="right">Username:</TD>
</tr>
</table>
</form>
</body>
</html>
<TD><INPUT TYPE="text" NAME="login" size="10"
VALUE='"'+Request.Cookies("ADMIN")("login")+'"'></INPUT></TD>
</TR>
<TR>
   <TD ALIGN="right">Password:</TD>
   <TD><INPUT TYPE="password" NAME="password" size="10"
VALUE='"'+Request.Cookies("ADMIN")("pass")+'"'></INPUT></TD>
</TR>
<TR>
   &nbsp;
</TR>
<TR>
   &nbsp;
</TR>
</TR>
</TABLE>
</FORM>

<p><!--webbot bot="PurpleText" PREVIEW="You may change your Database Editor
username and password by editing the file:
KYTCnewDB_interface/Results/editor/login.asa" --></p>

</body>
</html>
<!--#include file="login.asa"-->

<%
' if any of the variables do not match, create error message
if Request.Form("login") <> Username or Request.Form("password") <> Password then
    MsgErr = "<h3>Authorization Failed.</h3>& "& "<br>& "& "<a href=login.asp>Please try again.</a>"
    Response.Write MsgErr

' if correct, set cookie on workstation and proceed
Else
    Response.Cookies ("ADMIN")("pass") = Request.Form("password")
    Response.Cookies ("ADMIN")("login") = Request.Form("login")

' cookie expiration (can be changed) we don't use this field here because we only
' want the cookie to exist for this session
'    Response.Cookies ("ADMIN").Expires = DATE + 1

' redirect to default page.
    Response.Redirect "database_editor.asp"
End if
%

<body bgcolor="#FFFFFF">
Login_check.asp

<!--#include file="login.asa"-->

<%
' Security check for cookie on local workstation vs. login and password

' if cookie do not match, redirect user
If Request.Cookies("ADMIN")("login") <> Username or Request.Cookies("ADMIN")("pass") <> Password Then
    ' redirect user to login page
    Response.Redirect"login.asp"
End If
' End security check, proceed with browsing
%>
<!--#include File='Login_Check.asp'-->

<html>
<head>
<% ' FP_ASP -- ASP Automatically generated by a Frontpage Component. Do not Edit. 
FP_CharSet = "windows-1252"
FP_CodePage = 1252 %>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>Results -- List</title>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<meta name="Microsoft Theme" content="radial 111, default">
<meta name="Microsoft Border" content="tlb, default">
</head>
<body>
<script Language="JavaScript"><!--
    var sAction = "form";
    var NoRecordsChecked = true;

    function OnClickBtn( el )
    {
        if( el.name != "form_list" )
        {
            if( el.value == "Add New Record" )
            {
                document.form_list.target = "detail";
                document.form_list.action = "new.asp";
                sAction = "btn";
            } else if( el.value == "Delete Selected Records" )
            {
                for (i=0;i<document.form_list.elements.length;i++)
                {
                    if (document.form_list.elements[i].checked)
                    {
                        NoRecordsChecked = false;
                    }
                }
            }
        }
    }
</script>
if (NoRecordsChecked)
{
    sAction = "form";alert("Select the records you wish
to delete and then choose Delete Selected
Records.");
    return;
}

document.form_list.target = "detail";
document.form_list.action = "delete.asp";
sAction = "btn"
}

else
{
    if( sAction != "btn" )
    {
        document.form_list.target = "_self";
        document.form_list.action = "list.asp";
    }
    
    sAction = "form";
}

-->
</script>

<table width="100%" align=left>
<tr>
<td width="50%">
<font size="+3" color="#000080"><b>Post-Construction</b></font>
<br>
<font size="+3" color="#000080">Database Editor</font>
</td>
<td width="50%" align=right><table>
<tr>
<td>
<a href="../results_page.asp" target="_top">Results Page</a> |
<a target="_top" href="../../Form2.htm">Submission Form</a> |
Database Editor</td>
</tr>
</table></td>
</tr>
<tr>
</tr>
</table>

<br clear=all>
<form name="form_list" target="_self" action="list.asp" method="POST"
OnClick="OnClickBtn(this)">
    <table>
        <td>&nbsp;</td>
        <td>
            <input name="btnAction" type="submit" value="Delete Selected Records"
OnClick="OnClickBtn(this)" style="font-family: Arial; font-weight: bold">
        </td>
    </table>
    <hr>
    <table border="0">
        <thead>
            <tr>
                <td></td>
                <td bgcolor="black"><font color="white" size="2"><b>ID</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>District</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>County</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Route</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Type of Project</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Designer</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Item Number</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Project Number 1</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Project Number 2</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Federal Number 1</b></font></td>
                <td bgcolor="black"><font color="white" size="2"><b>Federal Number 2</b></font></td>
            </tr>
        </thead>
    </table>
</form>
<table>
<thead>
<tr>
<th>Review Type</th>
<th>Review Date</th>
<th>Keywords</th>
<th>Specification Conditions</th>
<th>Discipline Area</th>
<th>Attachment</th>
<th>Requires follow up</th>
<th>Anticipated follow up date</th>
<th>Follow up completed</th>
<th>Follow up complete date</th>
</tr>
</thead>
</table>

</tr>
</thead>
</tbody>
The Database Results component on this page is unable to display database content. The page must have a filename ending in '.asp', and the web must be hosted on a server that supports Active Server Pages.

```plaintext
<% fp_sQry="SELECT * FROM Results ORDER BY ID ASC"
fp_sDefault="" fp_sNoRecords=""<tr><td colspan=24 align=left width="100%">No records returned.</td></tr>"
fp_sDataConn="KYTCnewDB"
fp_iMaxRecords=500 fp_iCommandType=1 fp_iPageSize=6 fp_fTableFormat=True fp_fMenuFormat=False fp_sMenuChoice="" fp_sMenuValue="" fp_iDisplayCols=24 fp_fCustomQuery=False BOTID=0 fp_iRegion=BOTID %>

<tr>
  <td><input type="checkbox" name="<%=FP_FieldURL(fp_rs,"ID")%>" value="ON"></td>
  <td><a href="detail.asp?ID=<%=FP_FieldURL(fp_rs,"ID")%>" target="detail">--webbot bot="DatabaseResultColumn[18]" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="ID" b-tableformat="TRUE" b-hasHTML="FALSE" clientside startspan b-makelink b-MenuFormat preview="" value="" </a></td>
</tr>
```

<table>
<thead>
<tr>
<th>ID</th>
<th>District</th>
<th>County</th>
<th>Route</th>
<th>TypeofProject</th>
<th>Designer</th>
<th>ItemNumber</th>
<th>ProjectNumber1</th>
<th>ProjectNumber2</th>
<th>FederalNumber1</th>
<th>FederalNumber2</th>
<th>ReviewType</th>
<th>ReviewDate</th>
<th>Attendees</th>
<th>OtherComments</th>
<th>Comment</th>
<th>Keywords</th>
<th>SpecificationConditions</th>
<th>DisciplineArea</th>
<th>Attachment1</th>
<th>Requiresfollowup</th>
<th>Anticipatedfollowupdate</th>
<th>Followupcompleted</th>
<th>Followupcompletedate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>District</td>
<td>County</td>
<td>Route</td>
<td>Type of Project</td>
<td>Designer</td>
<td>Item Number</td>
<td>Project Number 1</td>
<td>Project Number 2</td>
<td>Federal Number 1</td>
<td>Federal Number 2</td>
<td>Review Type</td>
<td>Review Date</td>
<td>Attendees</td>
<td>Other Comments</td>
<td>Comment</td>
<td>Keywords</td>
<td>Specification Conditions</td>
<td>Discipline Area</td>
<td>Attachment 1</td>
<td>Requires Followup</td>
<td>Anticipated Followup</td>
<td>Followup Completed</td>
<td>Followup Completed Date</td>
</tr>
<tr>
<td>----</td>
<td>----------</td>
<td>--------</td>
<td>-------</td>
<td>----------------</td>
<td>----------</td>
<td>-------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>------------</td>
<td>----------</td>
<td>----------------</td>
<td>---------</td>
<td>----------</td>
<td>----------------------</td>
<td>----------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>----------------</td>
<td>----------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vendor</td>
<td>Application</td>
<td>Attestation</td>
<td>Aerial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>------------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABC</td>
<td>XYZ</td>
<td>123</td>
<td>ABC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Comment:**

- Vendor: ABC
- Application: XYZ
- Attestation: 123
- Aerial: ABC

---

**Keywords:**

- Vendor: ABC
- Application: XYZ
- Attestation: 123
- Aerial: ABC

---

**Specification Conditions:**

- Vendor: ABC
- Application: XYZ
- Attestation: 123
- Aerial: ABC

---

**Discipline Area:**

- Vendor: ABC
- Application: XYZ
- Attestation: 123
- Aerial: ABC

---

**Anticipated Followup:**

- Vendor: ABC
- Application: XYZ
- Attestation: 123
- Aerial: ABC
| ID | District | County | Route | Type of Project | Designer | Item Number | Project Number1 | Project Number2 | Federal Number1 | Federal Number2 | Review Type | Review Date | Attendees | Other Comments | Comment | Keywords | Specification Conditions | Discipline Area | Attachment1 | Requires Follow-up | Anticipated Follow-up Date | Follow-up Completed | Follow-up Completed Date |
|----|----------|--------|-------|----------------|----------|-------------|----------------|----------------|----------------|---------------|-------------|------------|-----------|-----------|----------------|---------|-----------|------------------------|----------------|------------|----------------|--------------------------|----------------|-----------------------|
|    |          |        |       |                |          |             |                |                |                |               |            |           |           |            |              |         |           |                        |                |           |                |                          |               |                       |
|    |          |        |       |                |          |             |                |                |                |               |            |           |           |            |              |         |           |                        |                |           |                |                          |               |                       |
|    |          |        |       |                |          |             |                |                |                |               |            |           |           |            |              |         |           |                        |                |           |                |                          |               |                       |

100
<table>
<thead>
<tr>
<th>ID</th>
<th>District</th>
<th>County</th>
<th>Route</th>
<th>Type of Project</th>
<th>Designer</th>
<th>Item Number</th>
<th>Project Number 1</th>
<th>Project Number 2</th>
<th>Federal Number 1</th>
<th>Federal Number 2</th>
<th>Review Type</th>
<th>Review Date</th>
<th>Attendees</th>
<th>Other Comments</th>
<th>Comment</th>
<th>Keywords</th>
<th>Specification Conditions</th>
<th>Discipline Area</th>
<th>Attachment</th>
<th>Requires followup</th>
<th>Anticipated followup date</th>
<th>Followup completed</th>
<th>Followup completed date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>District</td>
<td>County</td>
<td>Route</td>
<td>Type of Project</td>
<td>Designer</td>
<td>Item Number</td>
<td>Project Number1</td>
<td>Project Number2</td>
<td>Federal Number1</td>
<td>Federal Number2</td>
<td>Review Type</td>
<td>Review Date</td>
<td>Attendees</td>
<td>Other Comments</td>
<td>Keywords</td>
<td>Specification Conditions</td>
<td>Discipline Area</td>
<td>Attachment1</td>
<td>Requires followup</td>
<td>Anticipated followup</td>
<td>Followup completed</td>
<td>Followup completed date</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>--------</td>
<td>-------</td>
<td>-----------------</td>
<td>----------</td>
<td>-------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>-------------</td>
<td>----------</td>
<td>----------------------</td>
<td>----------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;SpecificationConditions&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;DisciplineArea&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Attachment1&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Requiresfollowup&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Anticipatedfollowupdate&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Followupcompleted&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Followupcompletedate&quot;)%&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

102
<table>
<thead>
<tr>
<th>Attachment1</th>
<th>Requiresfollowup</th>
<th>Anticipatedfollowupdate</th>
<th>Followupcompleted</th>
<th>Followupcompletedate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is the end of a Database Results region.

This is the end of a Database Results region.
<html>
<head>
<% ' FP_ASP -- ASP Automatically generated by a Frontpage Component. Do not Edit.
FP_CharSet = "windows-1252"
FP_CodePage = 1252 %>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>Results -- Home</title>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<meta name="Microsoft Theme" content="radial 111, default">
<meta name="Microsoft Border" content="tlb, default">
</head>
<body>
<!--webbot bot="PurpleText" PREVIEW="-Important- If you modify this Database Results region using the Database Results Wizard, then your Database Editor will no longer work. If you accidentally open the Database Results Wizard, simply click Cancel to exit without regenerating the Database Results region." -->
<!--webbot bot="DatabaseRegionStart" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-columntypes="3,202,202,202,202,202,202,202,202,202,202,202,202,202,202,202,202,202,202,202,202,11,202,11,202" s-dataconnection="KYTCnewDB" b-tableformat="FALSE" b-menuformat="FALSE" s-menuchoice s-menuvalue b-tableborder="TRUE" b-tableexpand="TRUE" b-tableheader="TRUE" b-listlabels="TRUE" b-listseparator="FALSE" i-ListFormat="5" b-makeform="FALSE" s-RecordSource="Results" s-displaycolumns="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-criteria="{ID} EQ {ID} +" s-order s-sql="SELECT * FROM Results WHERE ID = ::ID::" b-procedure="FALSE" clientSide SuggestedExt="asp" s-DefaultFields="ID=0" s-NoRecordsFound="No records returned." i-MaxRecords="1" i-GroupSize="0" u-dbllib="../../_fpclass/fpdblib.inc" u-dbrgn1="../../_fpclass/fpdbg1.inc" u-dbrgn2="../../_fpclass/fpdbg2.inc" Tag="BODY" startspan BOTID="0" preview="&lt;table border=0

105
<table>
<thead>
<tr>
<th>ID</th>
<th>District</th>
<th>County</th>
<th>Route</th>
<th>Type of Project</th>
<th>Designer</th>
<th>Item Number</th>
<th>Project Number1</th>
<th>Project Number2</th>
<th>Federal Number1</th>
<th>Federal Number2</th>
<th>Review Type</th>
<th>Review Date</th>
<th>Attendees</th>
<th>Other Comments</th>
<th>Comment</th>
<th>Keywords</th>
<th>Specification Conditions</th>
<th>Discipline Area</th>
<th>Attachment1</th>
<th>Requires Followup</th>
<th>Anticipated Followup Date</th>
<th>Followup Completed</th>
<th>Followup Completed Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>District</td>
<td>County</td>
<td>Route</td>
<td>Type of Project</td>
<td>Designer</td>
<td>Item Number</td>
<td>Project Number1</td>
<td>Project Number2</td>
<td>Federal Number1</td>
<td>Federal Number2</td>
<td>Review Type</td>
<td>Review Date</td>
<td>Attendees</td>
<td>Other Comments</td>
<td>Comment</td>
<td>Keywords</td>
<td>Specification Conditions</td>
<td>Discipline Area</td>
<td>Attachment1</td>
<td>Requires Followup</td>
<td>Anticipated Followup Date</td>
<td>Followup Completed</td>
<td>Followup Completed Date</td>
</tr>
<tr>
<td>2</td>
<td>District</td>
<td>County</td>
<td>Route</td>
<td>Type of Project</td>
<td>Designer</td>
<td>Item Number</td>
<td>Project Number1</td>
<td>Project Number2</td>
<td>Federal Number1</td>
<td>Federal Number2</td>
<td>Review Type</td>
<td>Review Date</td>
<td>Attendees</td>
<td>Other Comments</td>
<td>Comment</td>
<td>Keywords</td>
<td>Specification Conditions</td>
<td>Discipline Area</td>
<td>Attachment1</td>
<td>Requires Followup</td>
<td>Anticipated Followup Date</td>
<td>Followup Completed</td>
<td>Followup Completed Date</td>
</tr>
</tbody>
</table>

107
<table>
<thead>
<tr>
<th><strong>Route</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Project:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Designer:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Item Number:</strong></td>
<td></td>
</tr>
<tr>
<td>ItemNumber</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Number 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Number 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
<tr>
<td>Federal Number 1:</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;FederalNumber1&quot;)%&gt;</td>
</tr>
<tr>
<td>Column</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Review Type</td>
</tr>
<tr>
<td>Review Date</td>
</tr>
<tr>
<td>Attendees</td>
</tr>
<tr>
<td>Other Comments</td>
</tr>
<tr>
<td>ID</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Comment:

Keywords:
<td><b><font size="2">Specification Conditions:</font></b></td>

<td>
<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypoofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="SpecificationConditions" b-tableformat="TRUE" b-hasHTML="FALSE" clientside startspan b-makelink b-MenuFormat preview="&lt;font size=&amp;-1&gt;&lt;/font&gt;SpecificationConditions"-->
&lt;%=FP_FieldVal(fp_rs,"SpecificationConditions")%&gt;&lt;!--webbot bot="DatabaseResultColumn"--&gt;
</td>
</tr><tr>
<td><b><font size="2">Discipline Area:</font></b></td>

<td>
<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypoofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="DisciplineArea" b-tableformat="TRUE" b-hasHTML="FALSE" clientside startspan b-makelink b-MenuFormat preview="&lt;font size=&amp;-1&gt;&lt;/font&gt;DisciplineArea"-->
&lt;%=FP_FieldVal(fp_rs,"DisciplineArea")%&gt;&lt;!--webbot bot="DatabaseResultColumn"--&gt;
</td>
</tr><tr>
<td><b><font size="2">Attachment:</font></b></td>

<td>
<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypoofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="Attachment1" b-tableformat="TRUE" b-hasHTML="FALSE"-->
</td>
</tr>
<table>
<thead>
<tr>
<th>Requires follow up:</th>
<th>Requiresfollowup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipated follow up date:</td>
<td>Anticipatedfollowupdate</td>
</tr>
<tr>
<td>Follow up completed:</td>
<td>Followupcompleted</td>
</tr>
</tbody>
</table>
This is the start of a Database Results region.

```javascript
<SCRIPT Language="JavaScript">
document.write("<div style='background: yellow; color: black;'>The Database Results component on this page is unable to display database content. The page must have a filename ending in '.asp', and the web must be hosted on a server that supports Active Server Pages.</div>);
</SCRIPT>"
</% end if %>

<% fp_sQry="SELECT * FROM Results WHERE ID = ::ID::" fp_sDefault="ID=0" fp_sNoRecords="No records returned." fp_sDataConn="KYTCnewDB" fp_iMaxRecords=1 fp_iCommandType=1 fp_iPageSize=0 fp_fTableFormat=False fp_fMenuFormat=False fp_sMenuChoice="" fp_sMenuValue="" fp_iDisplayCols=24 fp_fCustomQuery=False BOTID=0 fp_iRegion=BOTID
</%>

<!--#include file="../../_fpclass/fpdblib.inc"-->

<!--webbot bot="DatabaseRegionStart" endspan i-checksum="16918" --> <table BORDER=0>
<tr><td><b><font size="2">ID:</font></b></td><td>
```

<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="ID" b-tableformat="TRUE" b-hasHTML="FALSE" clientside
```
<table>
<thead>
<tr>
<th>ID</th>
<th>District</th>
<th>County</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>District 1</td>
<td>County 1</td>
<td>Route 1</td>
</tr>
<tr>
<td>2</td>
<td>District 2</td>
<td>County 2</td>
<td>Route 2</td>
</tr>
</tbody>
</table>

---

119
<table>
<thead>
<tr>
<th>Column Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Route&quot;)%&gt;</td>
</tr>
<tr>
<td>Type of Project</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;TypeofProject&quot;)%&gt;</td>
</tr>
<tr>
<td>Designer</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Designer&quot;)%&gt;</td>
</tr>
<tr>
<td>Item Number</td>
<td></td>
</tr>
</tbody>
</table>

120
<table>
<thead>
<tr>
<th>ItemNumber</th>
<th>Project Number 1</th>
<th>Project Number 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Project Number 1:

Project Number 2:
<table>
<thead>
<tr>
<th><strong>Federal Number 1:</strong></th>
<th>&lt;%=FP_FieldVal(fp_rs,&quot;FederalNumber1&quot;)%&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Number 2:</strong></td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;FederalNumber2&quot;)%&gt;</td>
</tr>
<tr>
<td><strong>Review Type:</strong></td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;ReviewType&quot;)%&gt;</td>
</tr>
<tr>
<td>Client</td>
<td>District</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<tr><td><b><font size="2">Review Date:</font></b></td><td><%=FP_FieldVal(fp_rs,"ReviewDate")%></td></tr>
<tr><td><b><font size="2">Attendees:</font></b></td><td><%=FP_FieldVal(fp_rs,"Attendees")%></td></tr>
<tr><td><b><font size="2">Other Comments:</font></b></td><td></td></tr>
<table>
<thead>
<tr>
<th>ID</th>
<th>District</th>
<th>County</th>
<th>Route</th>
<th>Type of Project</th>
<th>Designer</th>
<th>Item Number</th>
<th>Project Number 1</th>
<th>Project Number 2</th>
<th>Federal Number 1</th>
<th>Federal Number 2</th>
<th>Review Type</th>
<th>Review Date</th>
<th>Attendees</th>
<th>Other Comments</th>
<th>Comment</th>
<th>Keywords</th>
<th>Specification Conditions</th>
<th>Discipline Area</th>
<th>Attachment 1</th>
<th>Requires Followup</th>
<th>Anticipated Followup</th>
<th>Followup Completed</th>
<th>Followup Completed Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment:

Keywords:
<table>
<thead>
<tr>
<th>Requires follow up</th>
<th>Anticipated follow up date</th>
<th>Follow up completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requires followup</td>
<td>Anticipatedfollowupdate</td>
<td>Followupcompleted</td>
</tr>
</tbody>
</table>

---

**Requires follow up:**

- Requires followup: [value]
- Anticipated followup date: [value]
- Follow up completed: [value]

---

Clientside startspan b-makelink="TRUE" b-MenuFormat preview="&lt;font size=&quot;1&quot;&gt;&amp;quot;Attachment1&amp;quot;&lt;/font&gt;" --&gt;&lt;%&lt;%=FP_FieldLink(fp_rs,"Attachment1") &amp; FP_FieldVal(fp_rs,"Attachment1")&gt;&lt;/a&gt;%&gt;<!--webbot bot="DatabaseResultColumn" endspan i-checksum="47761" --&gt;&lt;/td&gt;

</tr><tr><td><b><font size="2">Requires follow up:</font></b></td>
<td>
<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="Requiresfollowup" b-tableformat="TRUE" b-hasHTML="FALSE" clientside startspan b-makelink b-MenuFormat preview="&lt;font size=&quot;1&quot;&gt;&amp;quot;Requiresfollowup&amp;quot;&lt;/font&gt;" --&gt;&lt;%=FP_FieldVal(fp_rs,"Requiresfollowup")%&gt;<!--webbot bot="DatabaseResultColumn" endspan i-checksum="43789" --&gt;&lt;/td&gt;

</tr><tr><td><b><font size="2">Anticipated follow up date:</font></b></td>
<td>
<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="Anticipatedfollowupdate" b-tableformat="TRUE" b-hasHTML="FALSE" clientside startspan b-makelink b-MenuFormat preview="&lt;font size=&quot;1&quot;&gt;&amp;quot;Anticipatedfollowupdate&amp;quot;&lt;/font&gt;" --&gt;&lt;%=FP_FieldVal(fp_rs,"Anticipatedfollowupdate")%&gt;<!--webbot bot="DatabaseResultColumn" endspan i-checksum="3893" --&gt;&lt;/td&gt;

</tr><tr><td><b><font size="2">Follow up completed:</font></b></td>
<td>
<form method="POST" action="delete.asp?ID=<%=FP_FieldURL(fp_rs,"ID")%>">
  <p><input type="submit" value="Delete" name="B1"></p>
</form>
</table></td></tr></table></td></tr></table>

<!-webbot bot="DatabaseRegionEnd" b-tableformat="FALSE" b-menuformat="FALSE" u-dbrgn2=" ../../../_fpclass/fpdbrgn2.inc" i-groupsize="0" clientside Tag="BODY" startspan preview=" &lt;table border=0 width="100%"&gt;&lt;tr&gt;&lt;td bgcolor="#FFFF00" align="left"&gt;&lt;font color="#000000">This is the end of a Database Results region.&lt;/font&gt;&lt;/td&gt;&lt;/tr&gt;&lt;/table&gt;" --></html>
Delete.asp

<!--#include File='Login_Check.asp'-->

<% Response.Buffer = True %>

<html>
<head>

<% ' FP_ASP -- ASP Automatically generated by a Frontpage Component. Do not Edit. 
FP_CharSet = "windows-1252"
FP_CodePage = 1252 %>

<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>Results -- Delete</title>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
</head>

<body bgcolor="#FFFFFF">

<%    If Request("btnAction") = "New" Then 
Response.Redirect ""
End If 
%>

<%    If Request.QueryString("ID") = "" Then 
fp_sMyQry = ""
nCount = 0
For Each Field In Request.Form
    If Request.Form(Field) = "ON" Then 
        If nCount = 0 Then 
            fp_sMyQry = "" & Field & ""
        Else 
            fp_sMyQry = fp_sMyQry & "%20OR%20ID=" & Field & ""
        End If 
        nCount = nCount + 1
    End If
Next 'Field
If Len(fp_sMyQry) > 0 Then 
    sRedirect = "delete.asp?ID=" & fp_sMyQry
    Response.Redirect sRedirect
End If 
End If 
%>
<% if Len(Request("ConfirmDelete")) = 0 then %>

<!-webbot bot="PurpleText" PREVIEW="-Important- If you modify this Database Results region using the Database Results Wizard, then your Database Editor will no longer work. If you accidentally open the Database Results Wizard, simply click Cancel to exit without regenerating the Database Results region." -->

<table border="0">
<thead>
<tr>
<td bgcolor="black"><font color="white" size="2"><b>ID</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>District</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>County</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Route</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>TypeofProject</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Designer</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>ItemNumber</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>ProjectNumber1</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>ProjectNumber2</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>FederalNumber1</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>FederalNumber2</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>ReviewType</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>ReviewDate</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Keywords</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>SpecificationConditions</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>DisciplineArea</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Attachment1</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Requiresfollowup</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Anticipatedfollowupdate</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Followupcompleted</b></font></td>
<td bgcolor="black"><font color="white" size="2"><b>Followupcompletedate</b></font></td>
</tr>
</thead>
<tbody>
<!--webbot bot="DatabaseRegionStart" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" -->

</tbody>
</table>
<table>
<thead>
<tr>
<th>ID</th>
<th>District</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Columns**: ID, District, County, Route, Type of Project, Designer, Item Number, Project Number 1, Project Number 2, Federal Number 1, Federal Number 2, Review Type, Review Date, Attendees, Other Comments, Comment, Keywords, Specification Conditions, Discipline Area, Attachment 1, Requires Followup, Anticipated Followup Date, Followup Completed, Followup Completed Date.
<table>
<thead>
<tr>
<th>Route</th>
<th>TypeofProject</th>
<th>Designer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 1</td>
<td>Type of Project 1</td>
<td>Designer 1</td>
</tr>
<tr>
<td>Route 2</td>
<td>Type of Project 2</td>
<td>Designer 2</td>
</tr>
</tbody>
</table>

133
<table border="1" cellspacing="0" cellpadding="4">
  <thead>
    <tr>
      <th>Column</th>
      <th>Value</th>
      <th>Column</th>
      <th>Value</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>FederalNumber2</td>
      <td><%#FederalNumber2%></td>
      <td>ReviewType</td>
      <td><%#ReviewType%></td>
    </tr>
    <tr>
      <td>ReviewDate</td>
      <td><%#ReviewDate%></td>
      <td>Keywords</td>
      <td><%#Keywords%></td>
    </tr>
  </tbody>
</table>
<p>| ID | District | County | Route | TypeofProject | Designer | ItemNumber | ProjectNumber1 | ProjectNumber2 | FederalNumber1 | FederalNumber2 | ReviewType | ReviewDate | Attendees | OtherComments | Comment | Keywords | SpecificationConditions | DisciplineArea | Attachment1 | Requiresfollowup | Anticipatedfollowupdate | Followupcompleted | Followupcompletedate |
|----|----------|--------|-------|---------------|----------|------------|---------------|----------------|----------------|---------------|-------------|------------|-----------|-----------|----------------|---------|----------|------------------------|---------------|------------|------------------|--------------------|-----------------|-------------------|
|   |          |        |       |               |          |            |               |                |                |               |            |           |           |            |               |         |          |                        |               |            |                  |                    |                 |                   |</p>
<table>
<thead>
<tr>
<th>Requiresfollowup</th>
<th>Anticipatedfollowupdate</th>
<th>Followupcompleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Requiresfollowup&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Anticipatedfollowupdate&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Followupcompleted&quot;)%&gt;</td>
</tr>
<tr>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;Followupcompletedate&quot;)%&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
hasHTML="FALSE" clientside startspan b-makelink b-MenuFormat preview="&lt;font size=&quot;1&quot;&gt;&amp;lt;&amp;amp;lt;&amp;gt;&amp;amp;gt;&amp;lt;/font&gt;Followupcompletedate&lt;/font size=&quot;1&quot;&gt;&amp;lt;&amp;amp;lt;&amp;gt;&amp;amp;gt;&amp;lt;/font&gt;" --&gt;&lt;%=FP_FieldVal(fp_rs,"Followupcompletedate")%&gt;&lt;!--webbot bot="DatabaseResultColumn" endspan i-checksum="58384" --&gt;&lt;/td&gt;

</tr>

</table>

</center>

<form method="POST">

<%select case fp_iCount %>

<%case 0:%>
<p>&lt;b&gt;&lt;font size="4"&gt;Click OK to refresh.&lt;/font&gt;&lt;/b&gt;&lt;/p&gt;
&lt;p&gt;&lt;input type="submit" value="OK" name="ConfirmDelete"&gt;&lt;/p&gt;

<%case 1:%>
<p>&lt;b&gt;&lt;font size="4"&gt;Are you sure you want to delete this record?&lt;/font&gt;&lt;/b&gt;&lt;/p&gt;
&lt;p&gt;&lt;input type="submit" value="OK" name="ConfirmDelete"&gt; &lt;input type="submit" value="Cancel" name="ConfirmDelete"&gt;&lt;/p&gt;

<%case else:%>
<p>&lt;b&gt;&lt;font size="4"&gt;Are you sure you want to delete these records?&lt;/font&gt;&lt;/b&gt;&lt;/p&gt;
&lt;p&gt;&lt;input type="submit" value="OK" name="ConfirmDelete"&gt; &lt;input type="submit" value="Cancel" name="ConfirmDelete"&gt;&lt;/p&gt;

<%end select%&gt;

</form>
<% Response.end%
ElseIf Request("ConfirmDelete") = "Cancel" Then
    Response.Clear
    Response.Redirect "detail.asp"
End If
%

<script Language="JavaScript">
<!--[if !IE]-->
    top.list.location.href = top.list.location.href;
    // -->
</script>

<!--[if !IE]-->
<SCRIPT Language="JavaScript">
    document.write("<div style='background: yellow; color: black;'>The Database Results component on this page is unable to display database content. The page must have a filename ending in .asp, and the web must be hosted on a server that supports Active Server Pages.</div>");
</SCRIPT>
<!--[endif]-->

<% if 0 then %>
  <SCRIPT Language="JavaScript">
    document.write("<div style='background: yellow; color: black;'>The Database Results component on this page is unable to display database content. The page must have a filename ending in .asp, and the web must be hosted on a server that supports Active Server Pages.</div>");
  </SCRIPT>
  <% end if %>

<% fp_sQry="DELETE FROM Results WHERE ID = ::ID::"
fp_sDefault=""
fp_sNoRecords="Record deleted from table."
fp_sDataConn="KYTCnewDB"
fp_iMaxRecords=1
fp_iCommandType=1
This is the DELETE query.
<!--#include File='Login_Check.asp'--> 

<html> 
<head>  
%% FP_ASP -- ASP Automatically generated by a Frontpage Component. Do not Edit.  
FP_CharSet = "windows-1252"  
FP_CodePage = 1252 %>

<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">  
<title>Results -- Updated Record</title>  
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">  
<meta name="ProgId" content="FrontPage.Editor.Document"> 
</head>  

<body bgcolor="#FFFFFF">  
<!--webbot bot="PurpleText" PREVIEW="-Important-  If you modify this Database 
Results region using the Database Results Wizard, then your Database Editor will no 
longer work.  If you accidentally open the Database Results Wizard, simply click Cancel 
to exit without regenerating the Database Results region." -->

<script Language="JavaScript">  
<!--
top.list.location.href = top.list.location.href;
// -->
</script>  

<!--webbot bot="DatabaseRegionStart" s-columnnames s-columntypes s-
dataconnection="KYTCnewDB" b-tableformat="FALSE" b-menuformat="FALSE" s-
menuchoice s-menuvalue b-tableborder="TRUE" b-tableexpand="TRUE" b-
tableheader="TRUE" b-listlabels="FALSE" b-listseparator="FALSE" i-ListFormat="0"
 b-makeform="FALSE" s-RecordSource s-displaycolumns s-criteria s-order s-
sql="UPDATE Results SET District = '::District::' , County = '::County::' , Route =
'::Route::' , TypeofProject = '::TypeofProject::' , Designer = '::Designer::' , ItemNumber =
'::ItemNumber::' , ProjectNumber1 = '::ProjectNumber1::' , ProjectNumber2 =
'::ProjectNumber2::' , FederalNumber1 = '::FederalNumber1::' , FederalNumber2 =
'::FederalNumber2::' , ReviewType = '::ReviewType::' , ReviewDate = '::ReviewDate::' ,
Attendees = '::Attendees::' , OtherComments = '::OtherComments::' , Comment =
'::Comment::' , Keywords = '::Keywords::' , SpecificationConditions =
'::SpecificationConditions::' , DisciplineArea = '::DisciplineArea::' , Attachment1 =
'::Attachment1::' , Requiresfollowup = '::Requiresfollowup::' , Anticipatedfollowupdate =
'::Anticipatedfollowupdate::' , Followupcompleted = '::Followupcompleted::' , -->

141
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>PC results</title>
<meta name="GENERATOR" content="Microsoft FrontPage 5.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<meta name="Microsoft Theme" content="radial 111, default">
<meta name="Microsoft Border" content="tlb, default">
</head>

<body><table width="100%" align=left>
<tr>
<td width="50%">
<b><font size=+3 color="#000080"> Post-Construction Results Page</font></b>
</td>
<td width="50%" align=right>
<table>
<tr>
<td>Results Page</td>
| <a target="_top" href="../../Form2.htm">Submission Form</a>
| <a href="editor/database_editor.asp" target="_top">Database Editor</a> </td>
</tr>
</table>
</td>
</tr>
</table>
<p>
<br clear="all">
<hr>
<p>
<form BOTID="0" METHOD="POST" ACTION="results_page.asp"
name="FrontPage_Form1">
<table BORDER="0">
<tr>
<td><b>District</b></td>
<td>
<!--webbot bot="Validation" s-data-type="Integer" s-number-separators="x" --
><input NAME="District" VALUE="<%=Request("District")%>" size="20"></td>
</tr>
</table>
</form>
</p>
</body>
</html>
| **County** | <input TYPE="TEXT" NAME="County" VALUE="<%=Request("County")%>" size="20"/> |
| **Route** | <input TYPE="TEXT" NAME="Route" VALUE="<%=Request("Route")%>" size="20"/> |
| **Type of Project** | <input TYPE="TEXT" NAME="TypeofProject" VALUE="<%=Request("TypeofProject")%>" size="20"/> |
| **Designer** | <input TYPE="TEXT" NAME="Designer" VALUE="<%=Request("Designer")%>" size="20"/> |
| **Project Number 1** | <input TYPE="TEXT" NAME="ProjectNumber1" VALUE="<%=Request("ProjectNumber1")%>" size="20"/> |
| **Federal Number 1** | <input TYPE="TEXT" NAME="FederalNumber1" VALUE="<%=Request("FederalNumber1")%>" size="20"/> |
| **Keywords** | <input TYPE="TEXT" NAME="Keywords" VALUE="<%=Request("Keywords")%>" size="20"/> |
The database query component on this page is unable to display database content. The page must have a filename ending in '.asp', and the web must be hosted on a server that supports Active Server Pages.
<%}
fp_sQry="SELECT * FROM Results WHERE (District = '::District::' OR County = '::County::' OR Route LIKE '::Route::%' OR TypeofProject LIKE '::TypeofProject::%' OR Designer = '::Designer::' OR ProjectNumber1 = '::ProjectNumber1::' OR FederalNumber1 = '::FederalNumber1::' OR Keywords LIKE '::Keywords::%') ORDER BY District ASC"
fp_sDefault="District=^&County=^&Route=^&TypeofProject=^&Designer=^&ProjectNumber1=^&FederalNumber1=^&Keywords=^"
fp_sNoRecords="No records returned."
fp_sDataConn="KYTCnewDB"
fp_iMaxRecords=0
fp_iCommandType=1
fp_iPageSize=0
fp_fTableFormat=False
fp_fMenuFormat=False
fp_sMenuChoice=""
fp_sMenuValue=""
fp_iDisplayCols=24
fp_fCustomQuery=False
BOTID=0
fp_iRegion=BOTID%

<!--#include file="../../_fpclass/fpdbrgn1.inc"-->
<!--webbot bot="DatabaseRegionStart" endspan i-checksum="19933" -->

<p><b>ID:</b>&nbsp;<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="ID" b-tableformat="FALSE" b-html="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;font size=&quot;1&quot;&gt;&amp;amp;gt;&lt;/font&gt;ID&lt;/font&gt;&quot; startspan --><%=FP_FieldVal(fp_rs,"ID")%>&gt;&lt;/b&gt;&lt;b&gt;&lt;/b&gt;&lt;b&gt;--&gt;&lt;/p&gt;

<p><b>District:</b>&nbsp;<!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="District" b-tableformat="FALSE" b-html="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;font size=&quot;1&quot;&gt;&amp;amp;gt;&lt;/font&gt;District&lt;/font&gt;&quot; startspan --><%=FP_FieldVal(fp_rs,"District")%>&gt;&lt;/b&gt;&lt;b&gt;--&gt;&lt;/p&gt;

<p>&lt;/SCRIPT&gt;
&lt;% end if %&gt;

"/>
<p>County: &nbsp;&nbsp; <!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedated" s-column="County" b-tableformat="FALSE" b-hashtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;script type="text/javascript" src=""></script&gt;&lt;%=FP_FieldVal(fp_rs,"County")%&gt;--&gt;&lt;/p&gt;</p>

<p>Route: &nbsp;&nbsp; <!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedated" s-column="Route" b-tableformat="FALSE" b-hashtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;script type="text/javascript" src=""></script&gt;&lt;%=FP_FieldVal(fp_rs,"Route")%&gt;--&gt;&lt;/p&gt;</p>

<p>Type of Project: &nbsp;&nbsp; <!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedated" s-column="TypeofProject" b-tableformat="FALSE" b-hashtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;script type="text/javascript" src=""></script&gt;&lt;%=FP_FieldVal(fp_rs,"TypeofProject")%&gt;--&gt;&lt;/p&gt;</p>

<p>Designer: &nbsp;&nbsp; <!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedated" s-column="Designer" b-tableformat="FALSE" b-hashtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;script type="text/javascript" src=""></script&gt;&lt;%=FP_FieldVal(fp_rs,"Designer")%&gt;--&gt;&lt;/p&gt;</p>
<table>
<thead>
<tr>
<th>Federal Number 1</th>
<th>Federal Number 2</th>
<th>Review Type</th>
<th>Review Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;FederalNumber1&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;FederalNumber2&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;ReviewType&quot;)%&gt;</td>
<td>&lt;%=FP_FieldVal(fp_rs,&quot;ReviewDate&quot;)%&gt;</td>
</tr>
<tr>
<td>Column</td>
<td>Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendees</td>
<td>%FP_FieldVal(fp_rs,&quot;Attendees&quot;)%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Comments</td>
<td>%FP_FieldVal(fp_rs,&quot;OtherComments&quot;)%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment</td>
<td>%FP_FieldVal(fp_rs,&quot;Comment&quot;)%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keywords</td>
<td>%FP_FieldVal(fp_rs,&quot;Keywords&quot;)%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

151
<p><b>Requires followup:</b> <!--webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="Requiresfollowup" b-tableformat="FALSE" b-hashhtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;fmt size=&quot;-1&quot;&gt;&amp;amp;lt;&amp;amp;gt;&amp;amp;lt;/fmt&gt;&quot; startspan --&gt;&lt;%=FP_FieldVal(fp_rs,"Requiresfollowup")%&gt;&lt;/webbot&gtr;&lt;p&gt;&lt;/p&gt;&lt;/b&gt;&nbsp;&lt;/webbot bot="DatabaseResultColumn"&gt;&lt;/b&gt;&lt;/p&gt;</p>

<p><b>Anticipated follow up date:</b> &nbsp;&lt;/webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="Anticipatedfollowupdate" b-tableformat="FALSE" b-hashhtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;fmt size=&quot;-1&quot;&gt;&amp;amp;lt;&amp;amp;gt;&amp;amp;lt;/fmt&gt;&quot; startspan --&gt;&lt;%=FP_FieldVal(fp_rs,"Anticipatedfollowupdate")%&gt;&lt;/webbot&gtr;&lt;p&gt;&lt;/p&gt;&lt;/b&gt;&nbsp;&lt;/webbot bot="DatabaseResultColumn"&gt;&lt;/b&gt;&lt;/p&gt;</p>

<p><b>Follow up completed:</b> &nbsp;&lt;/webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="Followupcompleted" b-tableformat="FALSE" b-hashhtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;fmt size=&quot;-1&quot;&gt;&amp;amp;lt;&amp;amp;gt;&amp;amp;lt;/fmt&gt;&quot; startspan --&gt;&lt;%=FP_FieldVal(fp_rs,"Followupcompleted")%&gt;&lt;/webbot&gtr;&lt;p&gt;&lt;/p&gt;&lt;/b&gt;&nbsp;&lt;/webbot bot="DatabaseResultColumn"&gt;&lt;/b&gt;&lt;/p&gt;</p>

<p><b>Follow up complete date:</b> &nbsp;&lt;/webbot bot="DatabaseResultColumn" s-columnnames="ID,District,County,Route,TypeofProject,Designer,ItemNumber,ProjectNumber1,ProjectNumber2,FederalNumber1,FederalNumber2,ReviewType,ReviewDate,Attendees,OtherComments,Comment,Keywords,SpecificationConditions,DisciplineArea,Attachment1,Requiresfollowup,Anticipatedfollowupdate,Followupcompleted,Followupcompletedate" s-column="Followupcompletedate" b-tableformat="FALSE" b-hashhtml="FALSE" b-makelink="FALSE" clientside b-MenuFormat preview="&lt;fmt size=&quot;-1&quot;&gt;&amp;amp;lt;&amp;amp;gt;&amp;amp;lt;/fmt&gt;&quot; startspan --&gt;&lt;%=FP_FieldVal(fp_rs,"Followupcompletedate")%&gt;&lt;/webbot&gtr;&lt;p&gt;&lt;/p&gt;&lt;/b&gt;&nbsp;&lt;/webbot bot="DatabaseResultColumn"&gt;&lt;/b&gt;&lt;/p&gt;</p>
References


CII (1986). Constructability: A Primer, Construction Industry Institute, Research Summary 3-1, July 1986, Austin, Texas


