9-1523-P2

INTRODUCTION TO THE PROTOTYPE ELECTRONIC APPRAISAL SYSTEM

Authors:
Zhanmin Zhang, R.S.
Carlos Caldas
Nadeem Moulvi
Zach Piepmeyer
Liang Liang

Project 9-1523: Electronic Appraisal Development Study

DATE: AUGUST 2006

Performing Organization:	**Sponsoring Organization:**
Center for Transportation Research The University of Texas at Austin 3208 Red River, Suite 200 Austin, Texas 78705-2650	Texas Department of Transportation Research and Technology Implementation Office P.O. Box 5080 Austin, Texas 78763-5080
Performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration.	

Chapter 1: Introduction

This document is an introduction to the prototype of the Electronic Appraisal System (EAS) developed to serve as a proof-of-concept for the EAS. The EAS proposed in project 9-1523 is a web-based system capable of capturing, transmitting, storing, managing, and analyzing the appraisal data, thereby improving the appraisal process and reducing the likelihood of inconsistent appraisal values. The prototype developed in this project demonstrates these features which are envisioned in the proposed EAS.

The prototype of the EAS is designed for use by three types of users: the appraiser, the reviewer, and the Right-of-Way (R/W) administrator. It has the capability to work on properties that are specific to "residential," "commercial" and "land only" properties. Also, the prototype EAS has the necessary functions to create detailed appraisals, short form appraisals and value finding appraisals based on the requirements of a particular subject property.

The purpose of this document is to provide an overview of the various features available in the prototype of the EAS. This document also presents a narrative description of the steps involved in using the developed Prototype for creating, reviewing, approving, and storing an appraisal. The Prototype of the EAS is available online and is accessible from standard web-browsers.

When an appraiser first accesses the system, the system "Home-Page" is displayed as shown in Figure 1.1. The prototype home-page contains a brief overview of the research project. The user can initiate a new session by clicking on the "Prototype EAS" button. This generates a login page. The user can now log on to the system using his/her "Username" and "Password." The features available to the different types of users are explained in subsequent chapters.

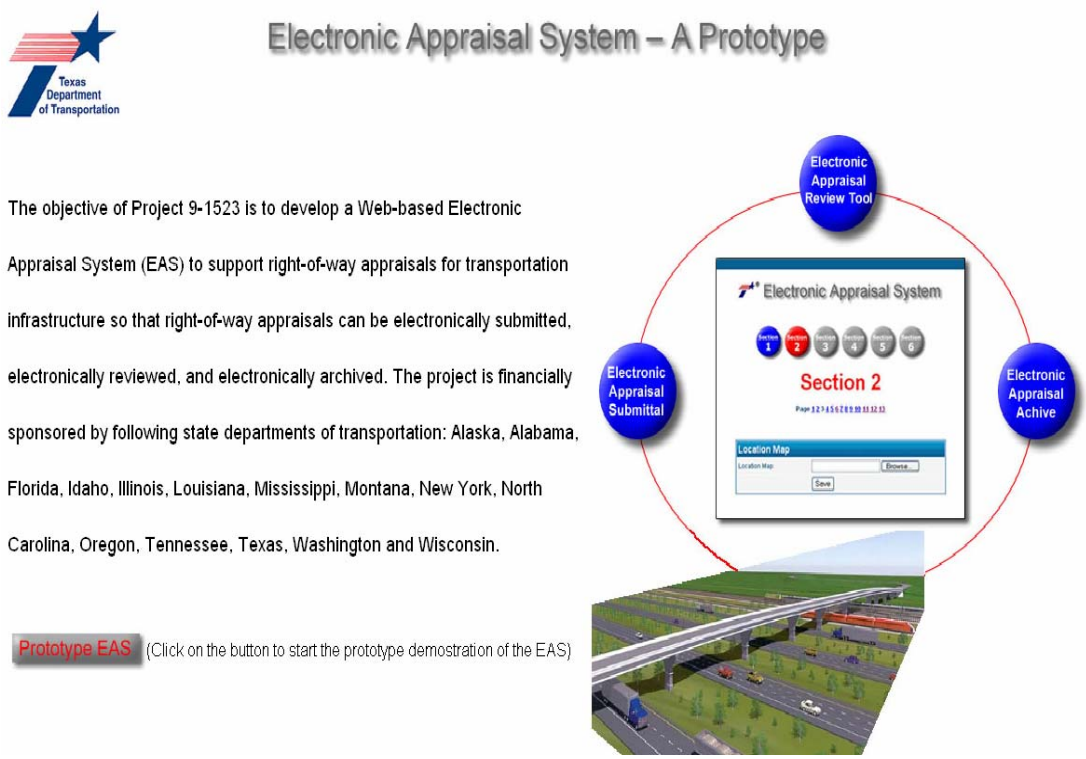


Figure 1.1: System Home-Page

1.1 Document Organization

This document which serves as an introduction to the prototype EAS and discusses features available to various users is organized as follows.

- Chapter 1 provides the introduction and outlines the proposed EAS and organization of the chapters in this document.
- Chapter 2 presents the various features available to the appraiser. It illustrates the login and registration process. It also provides a step-by-step procedure for all the stages involved in preparing an appraisal, including the creation, population and submission of an appraisal.
- Chapter 3 illustrates the functionalities available to the reviewer. It starts by presenting the registration and login mechanism. It then discusses the procedure to be followed to review an appraisal submitted by the appraiser. It also provides a description of the use of the SPC mechanism.

- Chapter 4 discusses the features offered to the R/W administrator. It provides a discussion of the registration and login process. Then, a narrative description of the approval process is presented.

Chapter 2: Features for the Appraiser

This chapter describes the features of the EAS Prototype that can be accessed by an appraiser. It also presents a detailed description of the various functionalities that can be employed by an appraiser. The following are the key features available to the appraiser:

1) Login and Registration
2) Creating an Appraisal
3) Populating an Appraisal
    a. General features of appraisal forms
    b. Required fields
    c. Using text boxes
    d. Using drop-down lists
    e. Saving an appraisal
    f. Loading photographs
    g. Loading other visuals
    h. Completing tables
4) Editing an Appraisal
5) Submitting an Appraisal
6) Accessing PDF Copy of the Report
7) Revising a Submitted Appraisal

These features are discussed in detail in the sections that follow.

2.1 Login and Registration

When the appraiser clicks the “Prototype EAS” button, a login page is generated as shown in Figure 2.1. The appraiser can now provide his/her username and password to access the system. If the correct information is provided by the appraiser, the “Appraiser Home-Page” corresponding to the appraiser, is retrieved. In the event that incorrect

information is provided, an error message is displayed informing the appraiser of the problem.

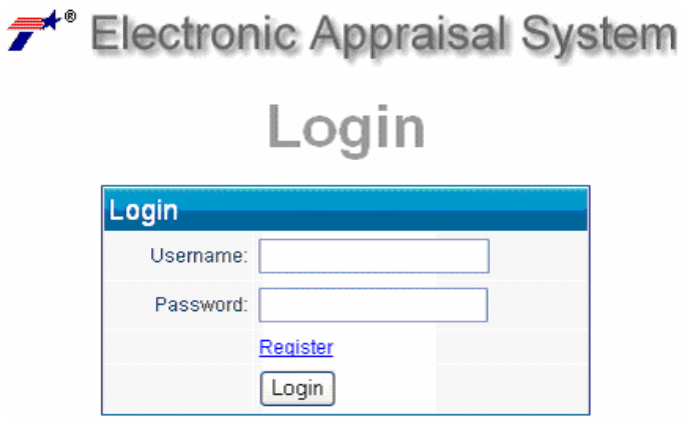


Figure 2.1: Login Page

New users accessing the system are required to register with the system in order to recognize the user type and also to provide a secure mechanism for the appraisal process. To register, the user has to click on the “Register” link provided on the login page. This generates the registration page as shown in Figure 2.2.

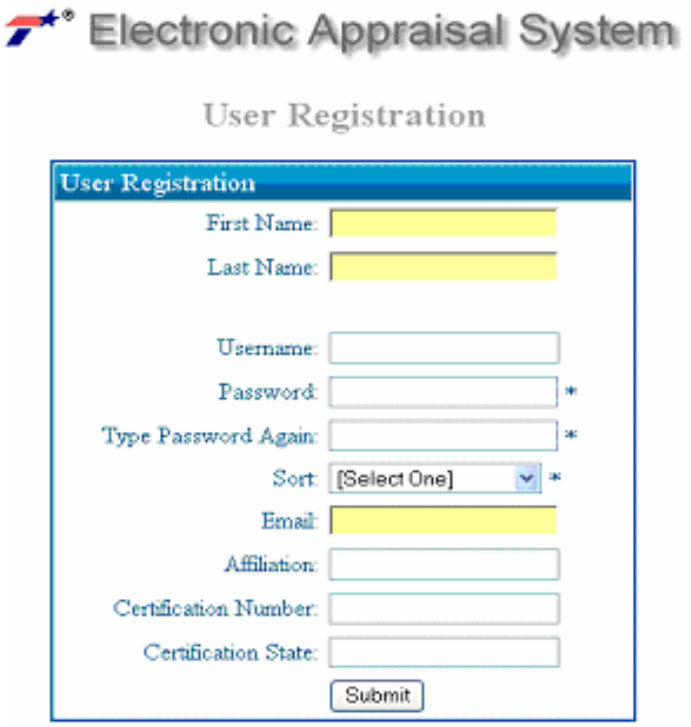


Figure 2.2: Registration Page

The registration process requires the user to provide information like his/her name, login ID and the "Sort." Sort is provided as a drop-down list and the user should select "Appraiser" from the available selections. The fields listed on the registration page are "required" fields and hence, supplying this information is mandatory. Once the user submits his/her information, a confirmation email is sent to the email address specified by the user. This email contains a link which is used for authentication purposes. By clicking on this link, the appraiser can activate his/her account. The appraiser is now authorized to log on to the system and access the system features.

Once the user logs into the system, the appraiser home page is generated as shown in Figure 2.3.

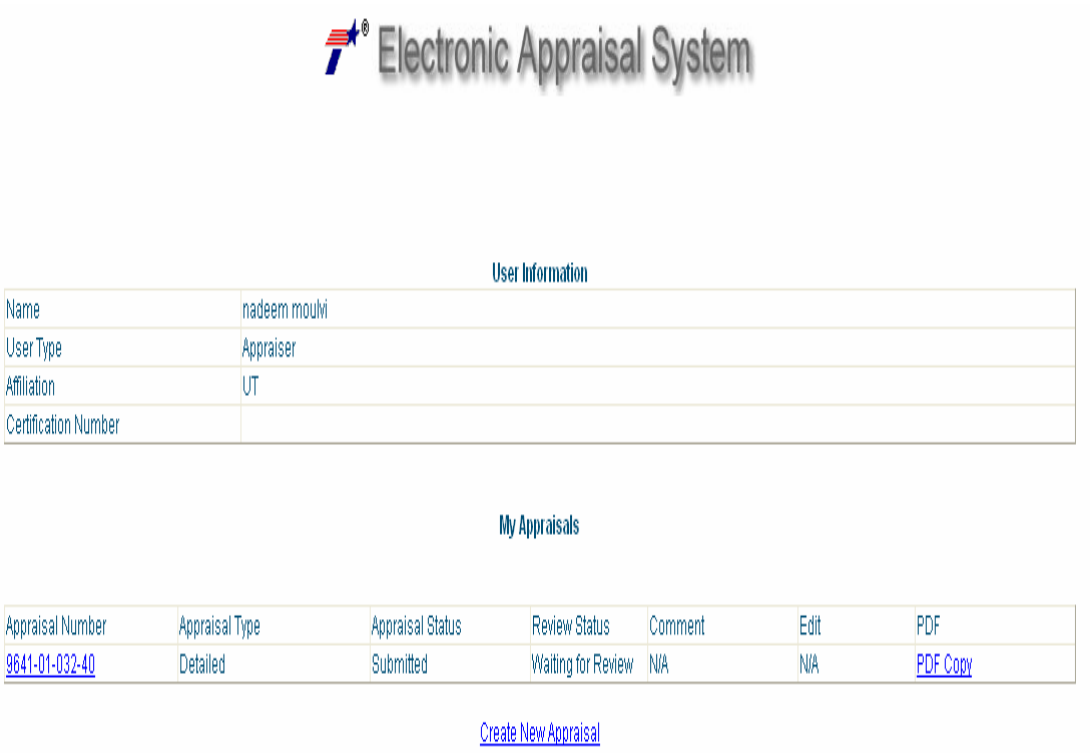


Figure 2.3: Sample Appraiser Home-Page

The appraiser home-page consists of a table which lists the appraisals relevant to the appraiser. They include both current appraisals the appraiser is working on and appraisals that have been submitted by the appraiser. The table contains columns specifying the type of appraisal (Detailed, Short Form or Value-Finding), the appraisal status (Incomplete, Submitted) and the review status (N/A, Waiting for Review, Recommended for Approval, Accepted, Revision Requested, and Not Accepted). The appraiser can view the HTML version of the appraisal reports by clicking on the appraisal number of the specific report. The PDF version of an appraisal can be viewed by clicking on the "PDF Copy" in cases of submitted appraisals and on "Convert to PDF" in cases of incomplete appraisals.

2.2 Creating an Appraisal

The appraiser can create a new appraisal by clicking on the “Create New Appraisal” link provided at the bottom of the appraiser’s home-page. When this link is clicked, a page as shown in Figure 2.4 is generated.

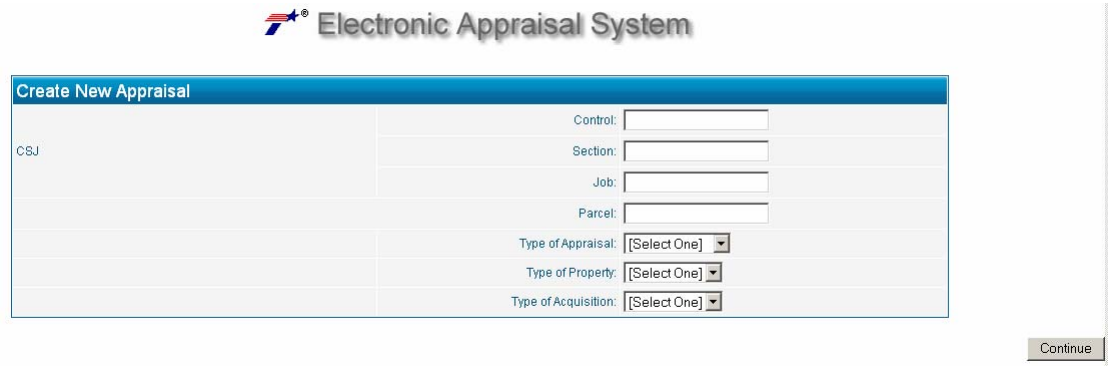


Figure 2.4: Creating a New Appraisal

The appraiser has to provide the relevant information for the property being valuated including the Control Section Job (CSJ) numbers, the parcel number, the type of appraisal, the type of property and the type of acquisition.

The prototype EAS allows the appraiser to perform three types of appraisals namely detailed, short-form, and value finding. The appraiser can select the desired appraisal type from the drop-down list provided. As mentioned earlier, the prototype EAS is capable of handling only residential, commercial and land-only properties. These choices are also provided in the form of a drop-down list. Finally, the appraiser can select the type of acquisition with available options being “Whole” acquisition and “Partial” acquisition.

Based on the CSJ numbers and the parcel number provided by the appraiser, the new appraisal is given an appraisal number for identification. After completing this page, the appraiser has to click the “Continue” button to load a blank appraisal form. Also, an entry is created on the appraiser’s home-page with the appraisal status listed as “Incomplete” as shown in Figure 2.5.

Appraisal Number	Appraisal Type	Appraisal Status
9641-01-032-40	Detailed	Submitted
1213-12-121-231	Detailed	Incomplete

Figure 2.5: New Appraisal in the Appraiser's Home-Page

2.3 Populating an Appraisal

Once a new appraisal is created, a series of data entry forms are provided to assist the appraiser in populating the appraisal. The appraisal forms have a user-friendly structure thus making the process of populating an appraisal easy and simple. The various features and steps involved in populating an appraisal are explained in the sections that follow.

a) General features of appraisal forms

The appraisal forms are organized into six sections. Links to these six sections are provided at the top of the page. The top portion of the page also has links to all the pages under the current section. The appraiser can use these links to navigate through the appraisal forms. The section on which the appraiser is currently working is designated by the red color. The incomplete and complete sections are represented by blue and green colors, respectively. An example of such appraisal forms is shown in Figure 2.6.

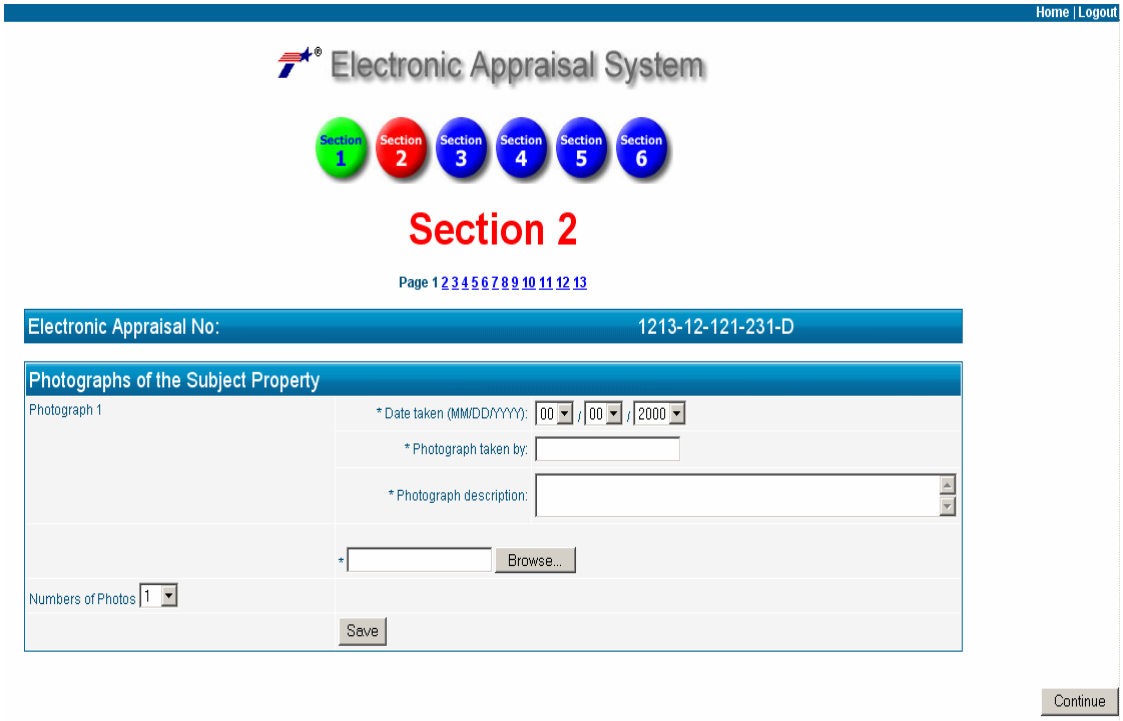


Figure 2.6: Sample Appraisal Form

b) Required fields

Some of the fields listed on the appraisal forms are “required fields” and as such, these fields should be filled compulsorily. These fields are marked by an asterisk symbol as shown in Figure 2.7.

Figure 2.7: Required Fields

When the appraiser completes the information on a page, he/she can now go to the next page by clicking on the “Continue” button provided at the end of the page. The next page is loaded if the required fields on the current page are accurately entered by the appraiser. In the event that the required fields are not entered, an error message is displayed in the top left corner of the screen as shown in Figure 2.8. The next page can be generated only after these errors are rectified.

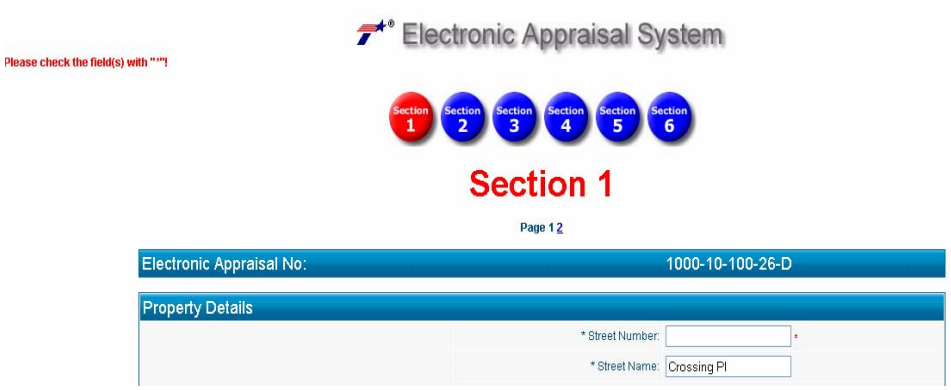


Figure 2.8: Required Field Error Messages

c) Using text boxes

The appraisal forms primarily consist of a number of text boxes. Each text box corresponds to a particular data element. The appraiser can provide the relevant information for the particular data element in the provided data boxes. In the event that the appraiser experiences space shortages, he/she can use the text boxes provided as the "Remarks" data element of that section.

The text boxes have a particular data format associated with them. If the data provided by the appraiser is in a format which is different from the specified format, the user is not permitted to proceed to the next page and an error message is displayed in the top left corner of the screen as shown in Figure 2.9. For example, if the appraiser provides a numerical value for the "City," a message specifying the error will be displayed.

Figure 2.9: Data Format Error Message

d) Using drop-down lists

Drop-down lists have been used extensively to standardize the data entry process. The appraiser is required to select the most applicable choice from the set of alternatives provided. The appraiser can view the options by clicking on the arrow button provided beside the data element. A sample drop-down list is provided in Figure 2.9.

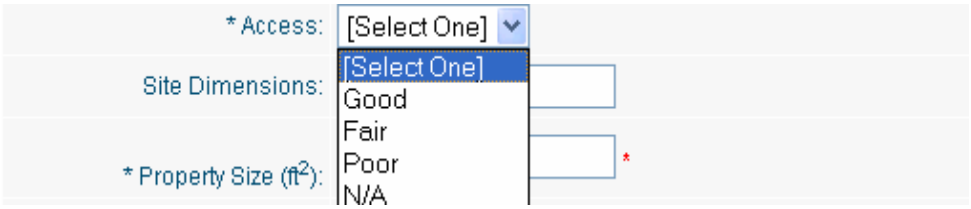


Figure: 2.9: Sample Drop-down List

e) Saving an appraisal

At any point during the process of populating an appraisal, the appraiser may choose to save the incomplete appraisal and return to edit it at his/her convenience. The appraisal can be saved by clicking the "Save" button provided at the bottom of the page. The appraisal form is also saved when the "Continue" button is pressed to proceed to the next page. This is shown in Figure 2.10.

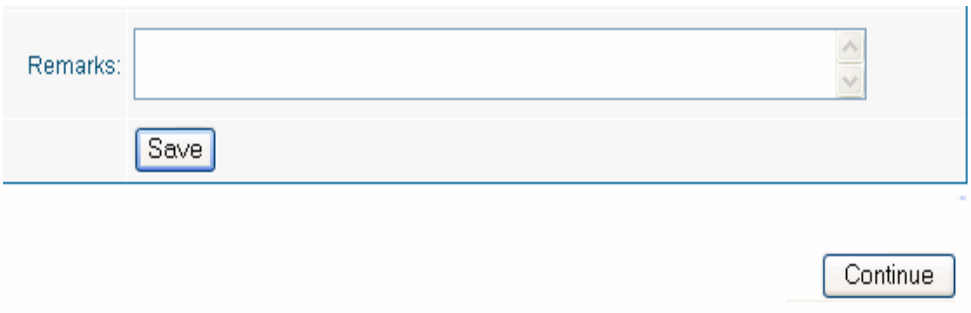


Figure 2.10: Saving an Appraisal

f) Loading photographs

While completing the appraisal, the appraiser might desire to upload pictures on the appraisal report. Photographs of the property can be uploaded from the hard drive of the appraiser's computer by clicking the "Browse" button provided in section 2, page 1 of the appraisal forms. The appraiser can also specify the number of photographs that he/she wishes to upload. This is achieved by selecting the desired number from the drop-down list provided alongside the "Number of Photos" data field as shown in Figure 2.10. The appraiser can also verify the photograph that was added to the report by clicking on the link provided alongside the loaded picture.

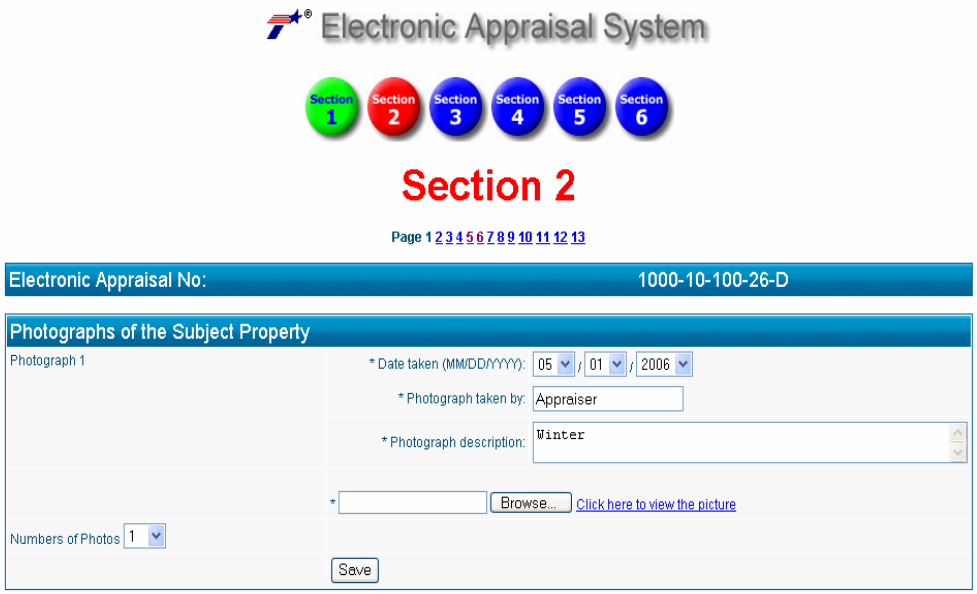


Figure 2.10: Uploading Pictures

g) Loading other visuals

The appraisal form provides the appraiser with an opportunity to add other visuals associated with the property such as location map, neighbourhood maps, aerial map, zoning map, and flood plain map. The appraiser can upload these visuals by clicking on the browse button provided beside the respective data element and selecting the desired visuals from the

hard drive of his/her computer. Adding these visuals is not mandatory. A sample page is shown in Figure 2.11 that follows.

Figure 2.11: Uploading Other Visuals

h) Completing tables

Sections 3, 4, 5 and 6 predominantly consist of tables. These tables are used to determine the property valuation using various available techniques (sales comparison approach, cost approach, and income approach). The appraiser should provide the necessary information specified in the tables. The required mathematical calculations are performed automatically by the system when the appraiser clicks the "Save" button of the respective page. These numerical values are also automatically populated in other relevant sections, thus simplifying and reducing the work of an appraiser. A sample table is shown in Figure 2.12.

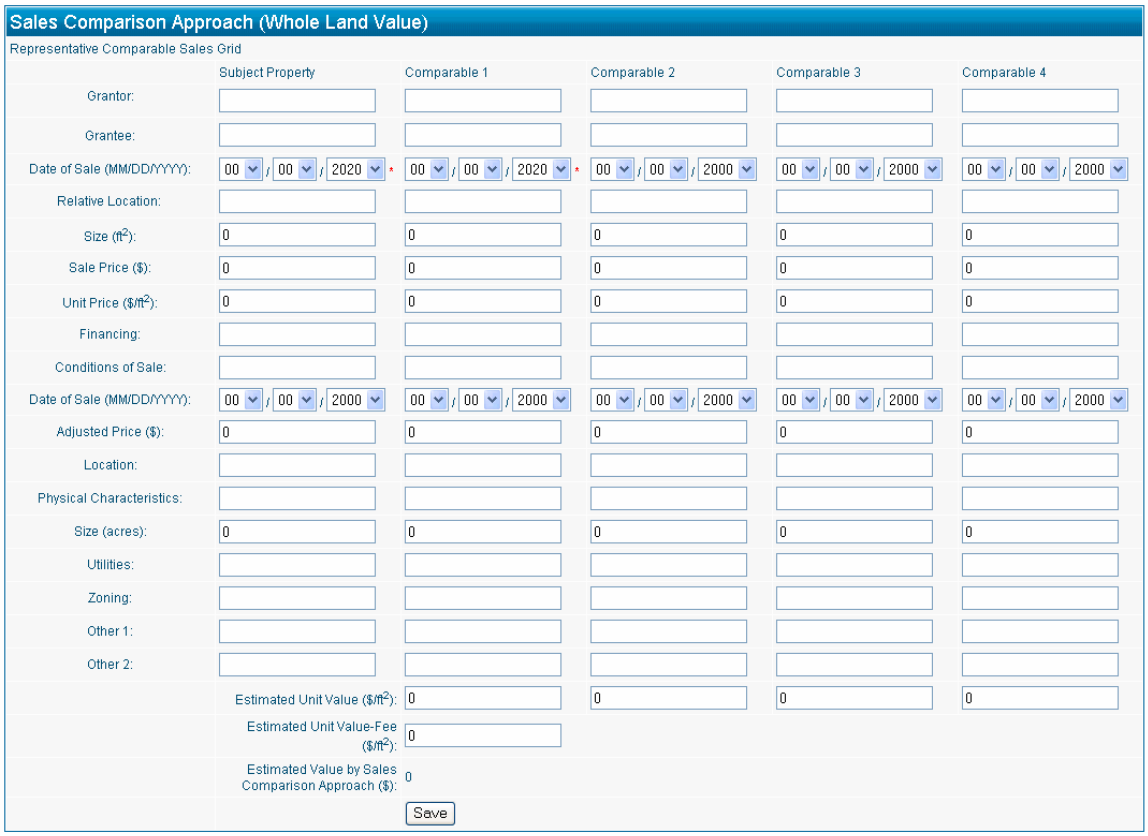


Figure 2.12: Populating Tables

2.4 Editing an Appraisal

An existing appraisal (which has not yet been submitted by the appraiser) can be edited by the appraiser. In order to edit an appraisal, the appraiser should access his/her home-page and click on the "Edit" link provided in the row corresponding to the subject appraisal. This retrieves the populated appraisal forms of the submitted appraisal, allowing the appraiser to edit or add further information to the appraisal. The edit function is shown in Figure 2.13.

Figure 2.13: Editing an Appraisal

2.5 Submitting an Appraisal

Once an appraisal is completed, the appraiser can submit it by clicking the "Submit" button provided at the bottom on section 6. When this button is pressed, a PDF version of the appraisal report is generated in a separate window and a message is displayed asking the appraiser to verify the contents of the appraisal report before confirming the submission. This is shown is Figure 2.14 that follows.

Figure 2.14: Appraisal Submission

If the appraiser confirms the appraisal, the appraisal status is changed from "Complete" to "Submitted." The submitted appraisal can no longer be edited by the appraiser. An email notification is sent to the appraiser and the reviewer informing them of the submission. On the contrary, if the appraiser decides to cancel the submission, the appraisal status on the appraiser's home-page remains unchanged and the appraiser is free to edit the appraisal. The appraiser can also check the review status on his/her home-page to track the review and approval process of the subject appraisal.

2.6 Revising a Submitted Appraisal

A submitted appraisal can only be edited when requested by the reviewer. If the reviewer requests revisions, the Edit button present in the "My Appraisal" table available on the appraiser's home-page is activated. The appraiser can now make the necessary changes requested by the reviewer. The requested changes from the reviewer can be seen by the appraiser by clicking on the "Reviewer Comment," present beside the "Edit" button. This is shown in Figure 2.15.

Figure 2.15: Revising an Appraisal

Upon completion of the necessary changes, the appraiser can resubmit the appraisal following the procedure outlined in section 2.5 of this document. An email is generated again to confirm the submission and to inform the reviewer of the revised appraisal.

Chapter 3: Features for the Reviewer

This chapter presents the features available to a reviewer to review an appraisal. It presents the step by step process of reviewing an appraisal including the use of the Statistical Process Control (SPC) mechanism. The following are the key features provided to a reviewer:

1) Login and Registration
2) General Features for the Reviewer
3) Appraisal Review
    a. Accessing PDF copy of the report
    b. Compiling review comments
    c. Employing SPC mechanism to assist the review
    d. Submitting review comments and decision

3.1 Login and Registration

The reviewer can access the login page by clicking on the "Prototype EAS" button provided on the system home-page. Existing users can then proceed to provide their username and password information and upon authentication, the "Reviewer Home-Page" is retrieved. The login page is shown in Figure 3.1.

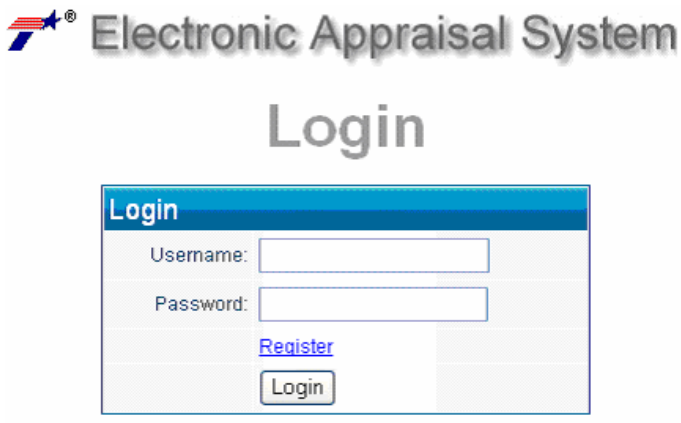


Figure 3.1: Login Page

If a reviewer accesses the system for the first time, he/she can obtain a user-name and password by registering with the system. This is achieved by clicking on the "Register" link provided on the login page. A registration page is shown in Figure 3.2 that follows.

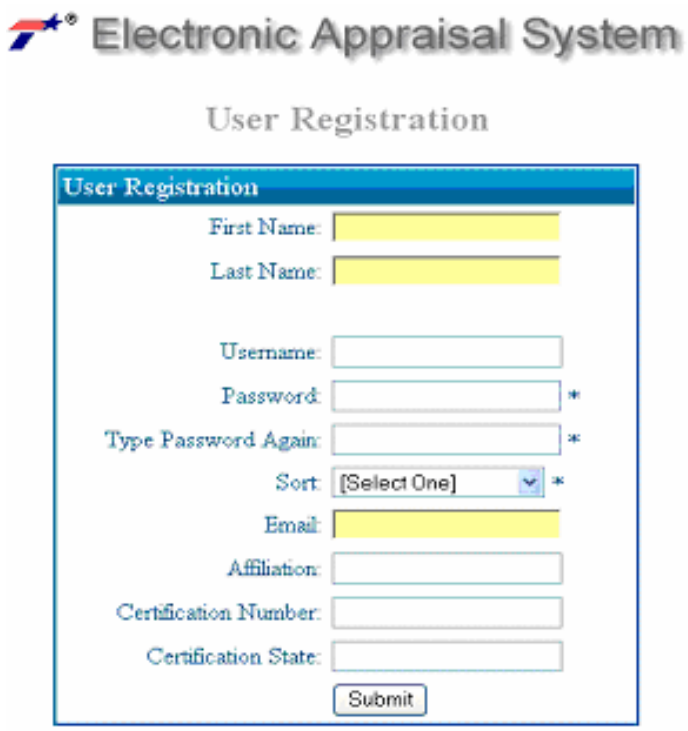


Figure 3.2: Registration Page

The reviewer should provide the information listed on the registration form. He/she should select "Reviewer" from the choices available under the drop-down list corresponding to the "Sort" data element. The fields listed on the registration page have to be compulsorily filled by the user. After completing the form, the "Submit" button should be pressed. On submitting the registration form, an automated email is sent to the email address specified by the reviewer. This email contains a link that has to be clicked by the reviewer to authenticate the email address and to activate the account. The user can now access the system.

3.2 General Features for the Reviewer

When a reviewer logs into the system, the reviewer home-page is loaded. This page consists of two tables. The first table provides the background information of the reviewer while the second table lists the appraisal history for the reviewer including the current appraisals. The table also comprises of a column for the review status which can be one of the following: Waiting for Review, Accepted, Recommended for Approval, Approved, Revisions Requested, and Not Accepted. The other important column in this table presents the comments made by the Administrator (if any). A sample reviewer home-page is shown in Figure 3.3.

User Information

Name	Zhanmin Zhang
User Type	Reviewer

Appraisal Reports

Appraisal Number	Appraisal Type	Appraisal Status	Review Status	Comments		Review	PDF
9640-01-032-40	Detailed	Submitted	Approved	Reviewer	Administrator	N/A	PDF Copy
9641-01-032-40	Detailed	Submitted	Accepted	Reviewer	N/A	N/A	PDF Copy
1000-10-100-1	Detailed	Submitted	Revision Requested	Reviewer	N/A	N/A	PDF Copy
1000-10-100-2	Detailed	Submitted	Waiting for Review	N/A	N/A	Review	PDF Copy

Figure 3.3: Sample Reviewer Home-Page

3.3 Appraisal Review

The primary function of the reviewer in the R/W acquisition process is to assess the information and the property valuations provided by the appraiser in order to assure that the recommendations made by the appraiser are reasonable. The reviewer has access only to appraisals that have been officially submitted by the appraisers.

a) Accessing PDF copy of the report

To access the relevant appraisal report, the reviewer should log into his/her home-page and click on the link “PDF Copy” provided in the row

corresponding to the appraisal number to be reviewed. This is shown in Figure 3.4 that follows.

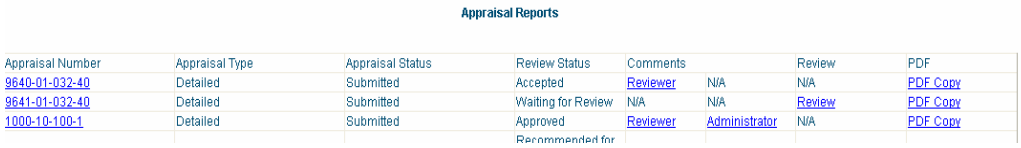


Figure 3.4: PDF Copy of the Report

The PDF copy of the appraisal report can be printed by the appraiser if he/she desires to conduct the review with a hard copy. The appraiser can also access the HTML version of the appraisal report by clicking on the appraisal number.

b) Compiling review comments

After having scrutinized the appraisal report, the reviewer can now compile his/her review comments by clicking on the "Review" link corresponding to the appraisal being examined to access the review form. A sample review form is shown in Figure 3.5.

Figure 3.5: Sample Review Form

c) Employing SPC mechanism to assist the review

To support the reviewer in the review process, a mechanism to assist the reviewer in recognizing inconsistencies in the subject appraisal is provided in the EAS. This mechanism is referred to as the Statistical Process Control (SPC) mechanism. The reviewer can activate the SPC mechanism by clicking on the "SPC" button provided on the top section of the review form. This creates a new window with the SPC results. A sample SPC result is shown in Figure 3.6.

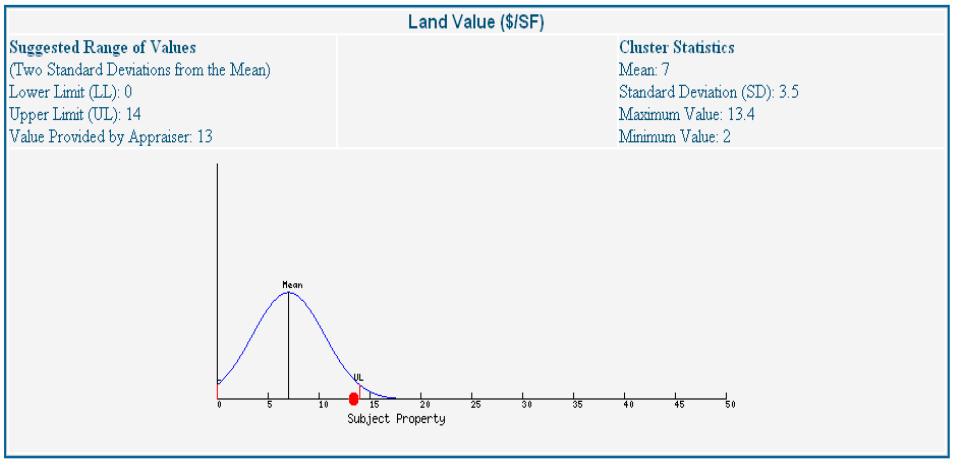


Figure 3.6: Sample SPC Result

In Figure 3.6, the normal distribution curve gives the distribution of the properties similar to the subject property. The red dot on the *x*-axis represents the subject property. In order to help the reviewer with the review process, the suggested Upper Limit (UL) and Lower Limit (LL) are provided. These limits serve as boundaries for the valuation of the subject property. A property outside this range is normally considered inconsistent. Other statistical information like mean, standard deviation, etc., are also provided in order to assist the reviewer. The SPC information is provided only as reference to the reviewer; the final decision about the consistency of the appraised value rests with the reviewer.

d) Submitting review comments and decision

The review form consists of a box area where the reviewer can provide his/her comments based on the assessment of the appraisal report. These comments are also made available to the appraiser. The review form provides the reviewer with four options as seen in Figure 3.5. The reviewer can recommend an appraisal for approval which will make the appraisal available to the R/W administrator to provide his/her consent to the approval. The reviewer can also accept an appraisal as satisfactory, but not recommend it for approval. This is normally done in cases where there are two or more appraisals for the same property from different appraisers and the reviewer might prefer the other valuation for extending an offer to the concerned property owner. If the reviewer finds some errors in the appraisal report, he/she may request revisions from the appraiser by selecting the "Revision Requested" option. This would enable the appraiser to edit the appraisal under review. Finally, an appraisal found inconsistent with expected values can be determined as "Not Accepted" by the reviewer. After making a decision, the reviewer must click on the "Submit" button to confirm his selection and update the status of the appraisal on his/her home-page. The status is also updated on the appraiser's home-page.

Chapter 4: Features for the Right-of-Way Administrator

This chapter discusses the functions available to a right-of-way (R/W) administrator. It provides the process involved in approving an appraisal. The major features available to an administrator are as follows:

1) Login and Registration
2) General Features for the R/W administrator
3) Approving an Appraisal
    a. Accessing PDF copy of the report
    b. Opening the approval window
    c. Submitting comments and decision

4.1 Login and Registration

An R/W administrator can access the appraisals recommended for approval by the reviewer by logging into the system. The login page is generated when the administrator clicks the "Prototype EAS" button located on the system home-page. The login page is shown in Figure 4.1 that follows.

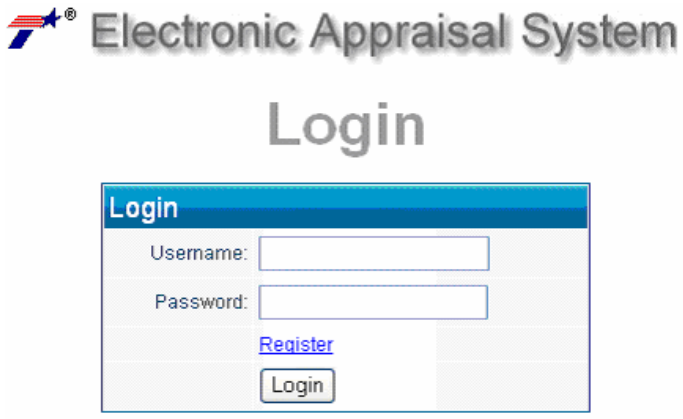


Figure 4.1: Login Page

The R/W administrator should now provide his/her login information to access the "R/W Administrator Home-Page". If the R/W administrator is a new user, he/she can

secure access to the system by registering with the system. This can be accomplished by clicking on the "Register" link provided on the login page and completing the information required on the registration page that is generated. The registration page is shown in Figure 4.2.

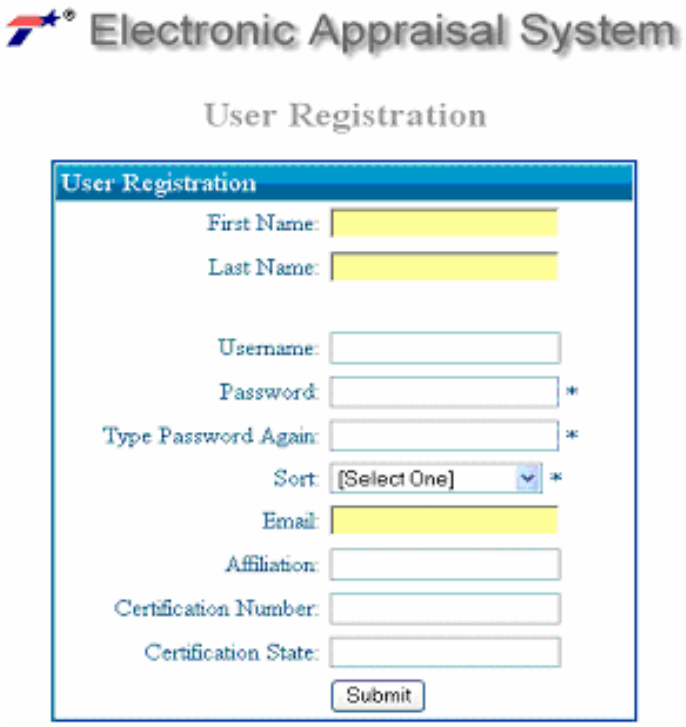


Figure 4.2: Registration Page

The registration form requires the user to supply personal information like name, affiliation, certification etc. The fields listed on the registration page have to be compulsorily filled by the user. The R/W administrator should select the "R/W Administrator" from the alternatives available under the drop-down list corresponding to the "Sort" data element. Finally, this information can be submitted by pressing the "Submit" button. This generates an email which is sent the email address provided by the R/W administrator. The email contains a link which, once clicked, allows the user to validate the email address and activate the user account. The user can now log in as an administrator and access the appraisals waiting for approval.

4.2 General Features for the R/W Administrator

The R/W administrator can access the appraisals recommended for approval by the reviewer after he/she has logged into the system. A sample R/W administrator's home-page is shown in Figure 4.3.

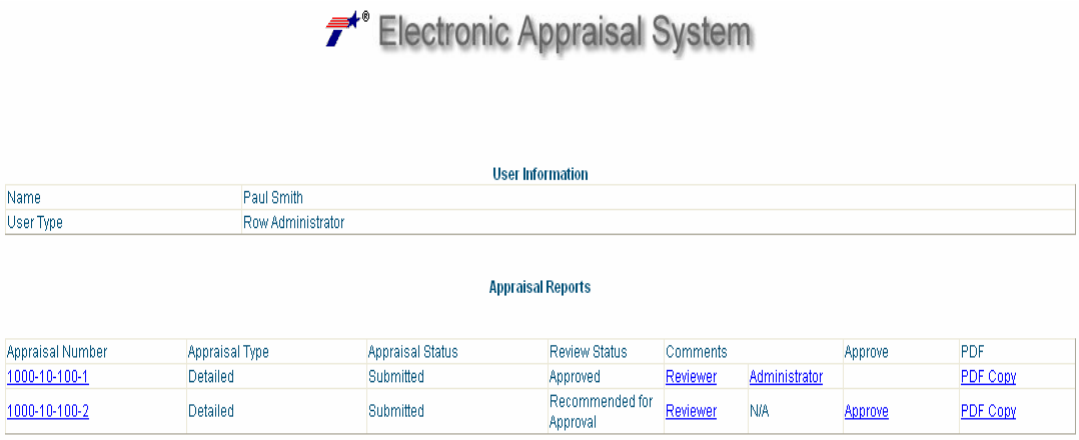


Figure 4.3: Sample R/W Administrator Home-Page

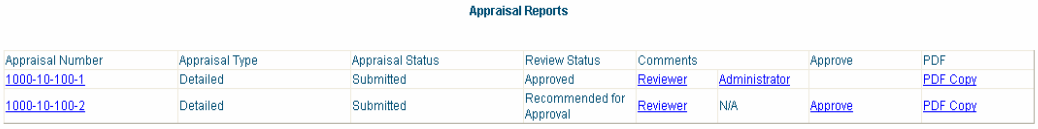
The home-page consists of tables which list the background information of the R/W administrator and the appraisals that require the attention of the R/W administrator. The appraisal history is also recorded in the table listing the comments made the administrator while arriving at a decision about a particular appraisal. The table also consists of a column which informs the R/W administrator about the status of the listed appraisals. The R/W administrator can evaluate an appraisal by clicking on the "PDF Copy" provided in the row corresponding to the appraisal under consideration. The R/W administrator can also read the comments offered by the reviewer by clicking on the "Reviewer" link provided under the "Comments" column.

4.3 Approving an Appraisal

The primary responsibility of the R/W administrator is to giver his/her consent to approve the appraisals that have been recommended for approval by the reviewer. The assent of the R/W administrator is the final stage in the appraisal process before an offer is extended to the property owner. The R/W administrator has access only to appraisals that are recommended for approval by the reviewer.

a) Accessing PDF copy of the report

The R/W administrator can access the PDF copy of an appraisal report by clicking on the "PDF Copy" link provided in the row corresponding to the appraisal under consideration. This retrieves the PDF version of the appraisal report in a separate window. This is shown in Figure 4.4 that follows.



Appraisal Reports

Appraisal Number	Appraisal Type	Appraisal Status	Review Status	Comments		Approve	PDF
1000-10-100-1	Detailed	Submitted	Approved	Reviewer	Administrator		PDF Copy
1000-10-100-2	Detailed	Submitted	Recommended for Approval	Reviewer	N/A	Approve	PDF Copy

Figure 4.4: PDF Copy of the Report

The R/W administrator can print the report if desired. The user can also view the HTML version of the appraisal report by clicking on the appraisal number of the subject appraisal.

b) Opening the approval window

The R/W administrator can approve the appraisal by clicking on the "Approve" link corresponding to the appraisal being considered. This generates an approval page as shown in Figure 4.5.

c) Submitting comments and decision

The R/W administrator can provide his/her approval/disapproval comments that are made available to the reviewer. He/she can either approve or not approve the appraisal by making the appropriate selection from the options provided at the bottom of the approval page shown in Figure 4.5. After making the selection, the "Submit" button can be pressed to update the status of the appraisal. The R/W administrator can also press the "Clear" button to delete the comments he/she has made. The decision made by the R/W administrator is not viewable by the appraiser.

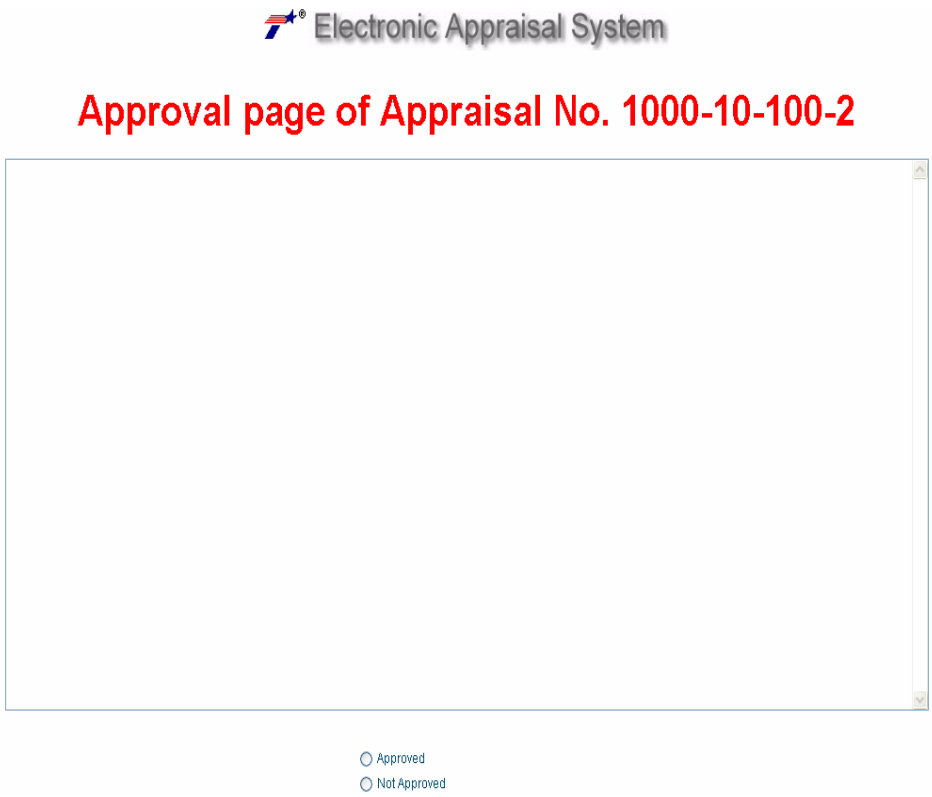


Table 4.5: Sample Approval Page