User's Manual

KYTC Landslide Hazard Rating System Web Application

Charlie Sun and Christopher Van Dyke

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1. **INTRODUCTION**

The Kentucky Transportation Cabinet's (KYTC) Landslide Hazard Rating System web application[1] -- http://kylhrs.uky.edu/ is intended to be a platform for submitting landslide hazard information to KYTC centered database by KYTC personnel. The system is set up to automatically fill in hazard scores based on survey data input from the users and is intended to be used from **Info. & Rating** tab at the page settings. The user can submit their pictures and documents from **Attachments** tab as well.

It is anticipated that there will be two (2) primary users of the web application — KYTC Engineers and Officers engaged in repairing and administrating landslide hazards along the Kentucky highway. Primary users (Submitters) from districts or counties can submit landslide hazard surveys online, central office can accept surveys online, and communications circulate among submitters and central office when they submit or accept landslide hazard surveys.

To assist users of the web application, the following sections highlight many of its features and provide guidance on their use. The web application's various graphical user interfaces are illustrated and described.

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[1] Referred to hereafter in this guide as *web application*.

2. OVERALL WEB PAGE SETTING

All functioning web pages on the web application are divided into three sections — **Header**, **Main Content**, and **Footer** (Figures 1).

Figure 1. Overall web page setting: Links to other pages and LOGIN page are in Header Portion

2.1 Header

The **Header** is fixed at the top of each page and has two different settings for before and after login. The content present before *and* after login include web title, date and time, and links to **HOME** and **INSTRUCTIONS**. Before login, there are also links to **LOGIN** (upper right corner of the page), **REGISTER**, **FAQ**, and **CONTACT US**. After login, the user's first name appears on the top line and the **LOGIN** link is replaced with **LOGOUT** in the top right corner. Links for **EXISTING SITE, NEW SITE** and **MY ACCOUNT** appear for users who are registered as Submitters and Central Office Landslide Hazard Rating System manager. Additional link, **USER ADMIN** appears for Central Office Landslide Hazard Rating System manager.

2.2 Main Content

The **Main Content** section of each page hosts the different functioning pages, which are illustrated in detail later.

2.3 Footer

The **Footer** contains links to related web sites such as **KYTC Division of Maintenance**, **Kentucky Transportation Cabinet**, and **Kentucky Transportation Center**.

3. USER AS A NON-REGISTERED USER

Non-registered user can register as **Submitter** and receive instant approval from the web application's management system. The functions described below are available to non-registered users in the **Header** section.

3.1 HOME – Default Page of Web Application

The **HOME** link is the first link in the **Header**'s last line (Figure 1). Clicking this link loads the web application's home page (Figure 1). This is the web application's default page and briefly introduces the application.

3.2 REGISTER – Get Approval Instantly from Web Application Management System

The **REGISTER** link is the second link in the **Header**'s last line (Figure 1). After clicking this link, users are asked to supply personal information to create their account (Figure 2). If a red asterisk appears next to a field, the user must provide the required information to complete their registration. Required information includes **First Name**, **Last Name**, **Email** (which is used as the **Login ID** by the user and for all correspondence email sent by administrators), **Password** (created by the user), **Phone Number**, **Street Address**, **City**, **State**, **Zip Code**, **Country**, and **Organization**. *Submitter* is the only option for user **Designation** for now. If registrant's email domain contains "gmail" or "yahoo", or does not exist in current user database, they will be assigned as a **UserTBA** temporarily and wait further verification by administrator from web application. The **UserTBA** can view all the existing sites in different stages, such as **Surveyed, Submitted, Accepted,** and **All Existing Sites**. Some information (e.g., **Fax Number**, **Web Site**, and **Description**) is optional. Information supplied by the user is confidential and maintained in the web application management system. Passwords are encrypted and stored in the web application management system as well.

After the user enters all the required information and clicks the **Register** button, the page shown in Figure 3 appears. This page informs the user: "*An activation link has been sent to your email address. Please follow the instructions in the email to activate your account.*"

Figure 2. **REGISTRATION** screen

Figure 3. Information after **Register** button is clicked

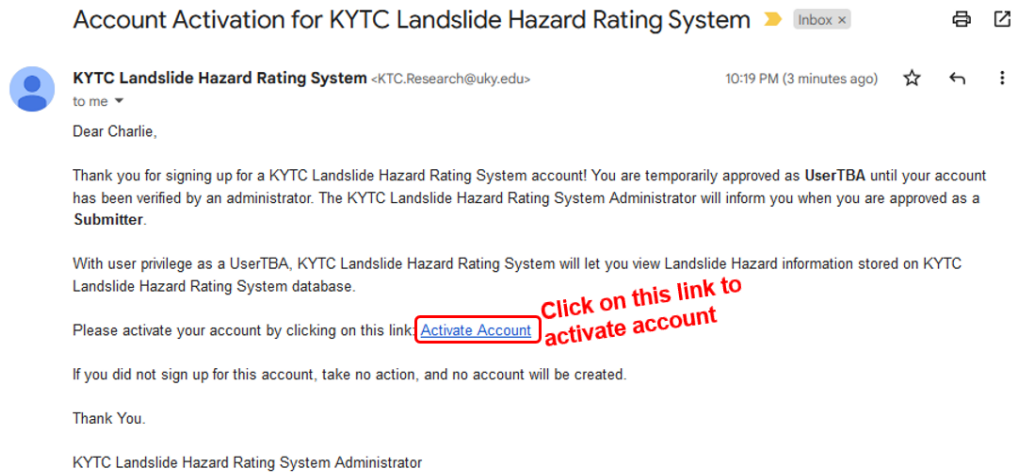Figure 4 is an image of the email sent to the user.

Figure 4. Email provides a link to activate user's account

A user can automatically activate their account by clicking on the link provided in the email. The **Activation** page (Figure 5) informs the new user of their account activation status. If activation is successful, the registered user may click on the **LOGIN** link, which is located on the upper right corner of the page, to log into the system by using **LOGIN** page (Figure 10).
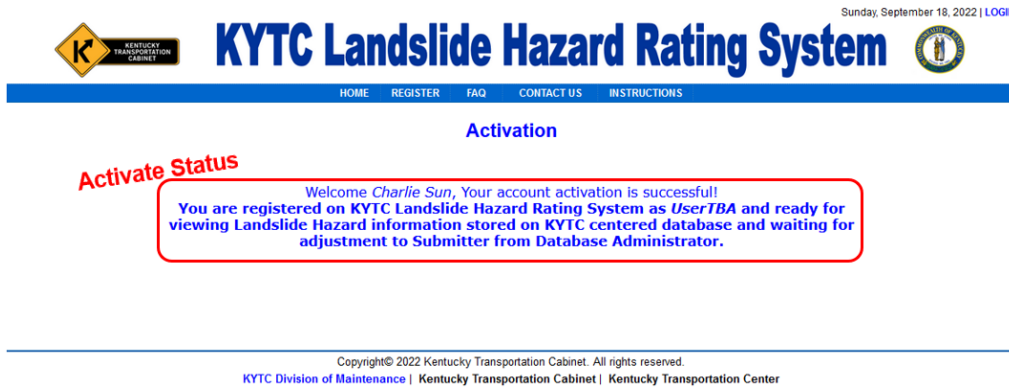
Figure 5. Screen after activating user's account

3.3 FAQ – Frequently Asked Questions

FAQ link is the third link in the **Header**'s last line (Figure 1). This link provides straightforward answers to frequently asked questions about the web application (Figure 6).
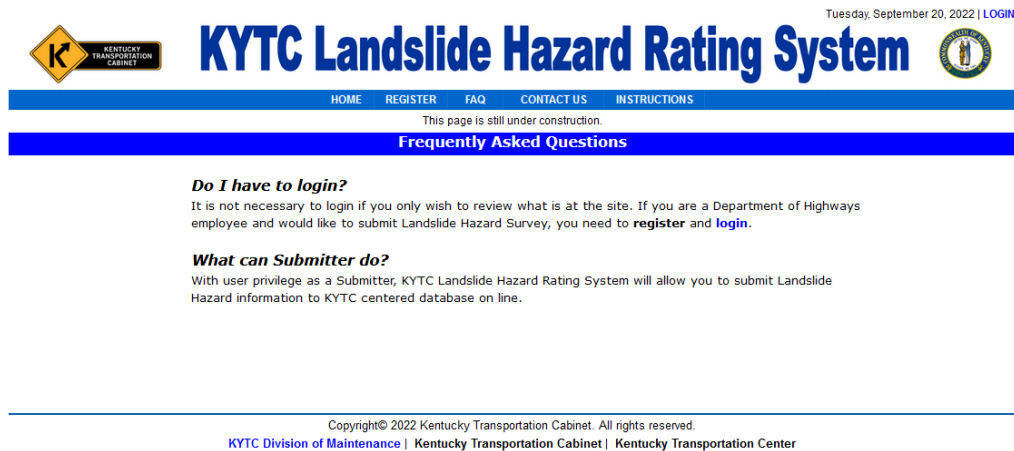
Figure 6. **FAQ** page provides straightforward answers to frequently asked questions about the web application

3.4 CONTACT US – Communicating with Web Application Administrator

The **CONTACT US** link is the fourth link in the **Header's** last line (Figure 1). The **CONTACT US** page offers a portal for users to communicate with a system administrator (Figure 7). The users may either use physics address to send regular mail; or they may supply the required information and click the **Send** button. Clicking the **Send** button generates an email that is sent by the system to both the sender and the web application administrator.

Figure 7. **CONTACT US** screen

3.5 INSTRCTIONS

The **INSTRUCTIONS** link is the **Header**'s final link (Figure 1). Under this link, users find a *Quick Start Guide* and a *User's Manual* (Figure 8). The *Quick Start Guide* presents a brief instruction for using this web application; the *Manual* provides more detailed instructions. Users can view it online or download a copy for printing.

Figure 8. **INSTRUCTIONS** screen

4. USER AS A SUBMITTER

Submitter is a registered user and belongs to a major group on the web application. They can instantly activate their account after registering and following directions shown on the screen. If the **Submitter** does not activate their account, the administrator can send them a notification email with the activating link or activate the account on their behalf. Personal information can be modified by clicking on the **MY ACCOUNT** link. Unlike non-registered users, a **Submitter** can access accepted landslide hazard sites as well as the landslide hazard surveys **Initiated, Submitted,** and **All Existing Sites** (Figure 9). A **Submitter** also can submit their landslide hazard surveys or share surveys with other submitters who are in the same group, submit their surveys online, and upload attachments.

Figure 9. Submitters can view all the surveys at different stages

4.1 LOGIN

Figure 10 displays the **LOGIN** page. This page is the gateway for registered users to access the web application. A **Submitter** may **Log In** by entering their email address, password into the appropriate fields in the **Login** area, and clicking on **Sign In** button.

Figure 10. **LOGIN** page

4.2 FORGOTTEN PASSWORD

If user forgets their login password, they can click **Forgotten Password** link shown in Figure 10. Clicking this link takes the user to a page where they can reset their password (Figure 11). On the **Forgotten Password** page, a user enters their registered email address and clicks the **Reset Password** button. This creates a temporary, randomly generated password and emails it to the user. An instance instruction is shown on screen (Figure 12) and the email is like one in Figure 13. Once the user logs in with their temporary password, the user is prompted to immediately proceed to the **MY ACCOUNT** page and update their password.

Figure 11. **Reset Password** screen

Figure 12. Brief instruction is shown on screen

Figure 13. Temporary password created and included in email

4.3 Starting Page after LOGIN

The **INSTRUCTIONS** page (Figure 9) appears following login. The **Submitter** has access to new links like **EXISTING SITE**, **NEW SITE**, and **MY ACCOUNT**. A submitter can edit their own and their group's existing surveys which have not been submitted from the site list; they can enter the new survey by clicking on **NEW SITE** link; and they can modify their personal information by clicking on **MY ACCOUNT** link.

4.4 EXISTING SITE

Sub-links for **Surveyed**, **Submitted**, **Accepted** and **All Existing Sites** will show up when a user mouse over the link **EXISTING SITE** (Figure 9). Each sub-link will open a corresponding list per site status. Figure 14 shows a list including all existing sites currently housed in the web application when the sub-link **All Existing Sites** is clicked. All titles of columns function like "**sort by**" key when any title is clicked. The list in Figure 14 is sorted by column of **County**, which is default sort order. The first clicking on any title will bring list sorted ascending by this column; the second clicking on same title will bring list sorted descending by this column. Keeping clinking on same title will bring the list sorted back and forth between ascending and descending by this column.

Figure 14. List of all existing sites sorted by County when the sub-link **All Existing Sites** is clicked

Users can view site detail information by clicking on an item in any column, such as **District**, **County**, **Route No.**, **AADT**, **Hazard Score**, **Consequence Score**, **Total Score**, or **Total Repair Cost** from the list in Figure 14. Two (2) tabs are visible to users on the view site page —**Info. & Rating** and **Attachments**.

4.4.1 Info. & Rating – Shows site information and rating

Figure 15 displays contents under the first tab, **Info. & Rating**. This tab contains detailed information, including Site Information, Hazard Factor Rating, Consequence Factor Rating, and Overall Score and Comments. The button, Print Survey Form can print survey information on screen in PDF format.

Figure 15. Landslide hazard site detail information and rating

4.4.2 Attachments – Shows uploaded attachments by submitter

On the **Attachments** tab, the user may view or download attachments about this site uploaded by the submitter (Figure 16). Clicking on a file name will view this attachment.

Figure 16. Layout under **Attachments** Tab

4.5 NEW SITE – Create and Submit a New Landslide Hazard Survey

The **Submitter** can enter a new landslide hazard site information by clicking the **NEW SITE** link. The page displayed in Figure 17 appears once a user clicks this link. The tab, **Info. & Rating** is visible once the link is opened.

Figure 17. Screen for inputting a new site information

The tabs contain three kinds of entry fields:

1. Required Fields are denoted with *
   - Required fields must be completed to view scores or save their site.
2. Field with gray background
   - Ignorable fields will be automatically filled by program when user inputs corresponding information.
3. Fields without any mark:
   - Optional fields — information can be entered in them, or they can be left blank.

4.5.1 Info. & Rating – Entering Site Information, Hazard and Consequence Factors

When the **NEW SITE** is clicked, some fields are pre-selected or have default values. The default values for "Survey By" is user's name; "Survey Date" is today's date; hazard and consequence factors in dropdown lists are pre-selected as "Unknown". Clicking on the **Based on data 6/2021 - 5/2022** hot link aside "Annual Precipitation" opens NOAA National Centers for Environmental Information web page, where users can find most updated annual precipitation data. Clicking on the **KYTC Traffic Count** hot link opens KYTC's Traffic Count Reporting System web page, where users can gather AADT data.

The **District** and **Annual Precipitation** fields are automatically populated after making a **County** selection. Annual precipitation amount is based on the data June 2021 – May 2022 from NOAA web page. All the hazard and consequence factor scores are automatically filled after entering the corresponding factors. "Hazard Score", "Consequence Score" and "Total Score" are automatically posted when corresponding factors are entered.

Figure 18 shows an example of data entered for a new site.

Figure 18. Example of data entered for a new site

4.5.2 Save Button

Clicking the **Save** button saves a landslide hazard survey after all required data have been entered. One more tab, one dropdown list, and three more buttons are brought up after the **Save** button is clicked (Figure 19). Users can upload attachments to the server by using functions on the **Attachments** tab. They can save the design *as Update* or *as New Site* by choosing the appropriate option in the dropdown list. Users can delete the current design by clicking **Delete**, submit surveys by clicking **Submit**, and print out the Landslide Hazard Survey Form by clicking **Print Survey Form**.

Figure 19. More functions show up after **Save** Button is clicked

4.5.3 Attachments – Uploading and managing Attachments

After saving a landslide hazard site information, Submitters can upload attachments (e.g., pictures; .PDF, .doc, or .zip files) using the page shown in Figure 20 and following these steps:

1. Click **Browse** to identify a file to upload.
2. Click **Upload** to send the selected file to the web application server.

Figure 20. Upload and manage attachments under **Attachment** Tab

4.5.4 Save Option Dropdown List

The **Save Option Dropdown List** contains two save options — *as Update* and *as New Site*. Save *as New Site* creates a new site when a user begins it with some common data as the current site.

4.5.5 Delete Button

Clicking the **Delete** button deletes the current site information. It begins a new landslide hazard survey after deleting.

4.5.6 Submit Button

Users will send landslide hazard site information to Central Office Landslide Hazard Rating System (LHRS) Manager after they click the **Submit** button. When users successfully submit their survey form, emails with the **Survey Form** attached as a PDF file are sent to the **Central Office LHRS Manager** and **Submitter**. The message "*Your pavement design has been successfully submitted. Thank you.*" appears onscreen. All the information for the current site is locked. No one can make changes.

4.5.7 Print Survey Form Button

Clicking the **Print Survey Form** button creates a PDF version of the **Landslide Hazard Survey Form** (Figure 21). Users can save this file on their local hard drive or open it onscreen using software for viewing PDFs (e.g., Adobe Reader or Acrobat) and save it later. The printed form is identical to the form sent to **Central Office LHRS Manager**.

KYTC Landslide Hazard Rating System

KENTUCKY TRANSPORTATION CABINET
DIVISION OF MAINTENANCE

Site Information:

Survey By __Charlie Sun__   Survey Date __2022-09-25__
County __Wolfe__   District __10__
Route No. __KY 1486__   Direction __Eastbound__
Speed Limit __45__ MPH   Site Description **Wolfe County; Route: KY 1486; Eastbound**
MP from __6.6__ to __14.53__   Latitude __36.8965444__ Longitude __-83.118613__

Hazard Factor Rating:

Annual Precipitation (in.) **57.16**   Annual Precipitation Score __27__
Influence of Surface Water **Contact with River or Reservoir**   Influence of Surface Water Score __81__
Pavement Damage **Extensive Cracking: > 6 in. offset**   Pavement Damage Score __81__
Failure Frequency **Movement observed annually**   Failure Frequency Score __27__
Slope (Rise : Run) **(Rise : Run) 1 : 1**   Slope Score __81__
Height of Slope (ft.) __38__   Height of Slope Score __81__

Consequence Factor Rating:

Depth to Slide Plane (ft.) __40__   Depth to Slide Plane Score __81__
Road Width Affected **>75%**   Road Width Affected Score __81__
Length of Highway Affected (ft.) **596**   Length of Highway Affected Score __27__
AADT **2453**   AADT Score __9__
Detour Options **Offsite, < 5 mi.**   Detour Options Score __27__
Annual Maintenance Costs **$5000.00**   Annual Maintenance Costs Score __3__

Overall Score and Comments:

Hazard Score: __378__   Consequence Score: __228__   Total Score: __86184__
Total Repair Costs **$50000.00**

This survey has not been submitted yet.

Figure 21. **Landslide Hazard Survey Form** in PDF format

4.6 MY ACCOUNT -- Modify Personal Information

Clicking **MY ACCOUNT** brings up the page depicted in Figure 22. A registered user can update their profile and change their password or contact information on this page (except for their email address, which serves as the user ID).

Figure 22. Update user's account from **MY ACCOUNT** link

5. USER AS A CENTRAL OFFICE LHRS MANAGER

The **Central Office LHRS Manager** has the most user privileges in the web application. In addition to the links **Submitters** can access, the **Central Office LHRS Manager** sees the following links on the **Header** after logging in: **USER ADMIN → (User Admin, User List** and **Groups**) – see Figure 23. The **Central Office LHRS Manager** has final authority to accept or request changes for survey. **USER ADMIN → (User Admin, User List** and **Groups**) links to pages for maintaining all the information of registered users and groups. On these pages, new users can be added and information for existing users can be modified. On all pages listing existing sites, the **Central Office Manager** can activate or archive sites. Attachments can be managed on the **Attachments** tab. To learn how to navigate privileges available to **Submitters**, refer to the following sections:

4.3 Starting Page after LOGIN
4.5 NEW SITE – Create and Submit a New Landslide Hazard Survey
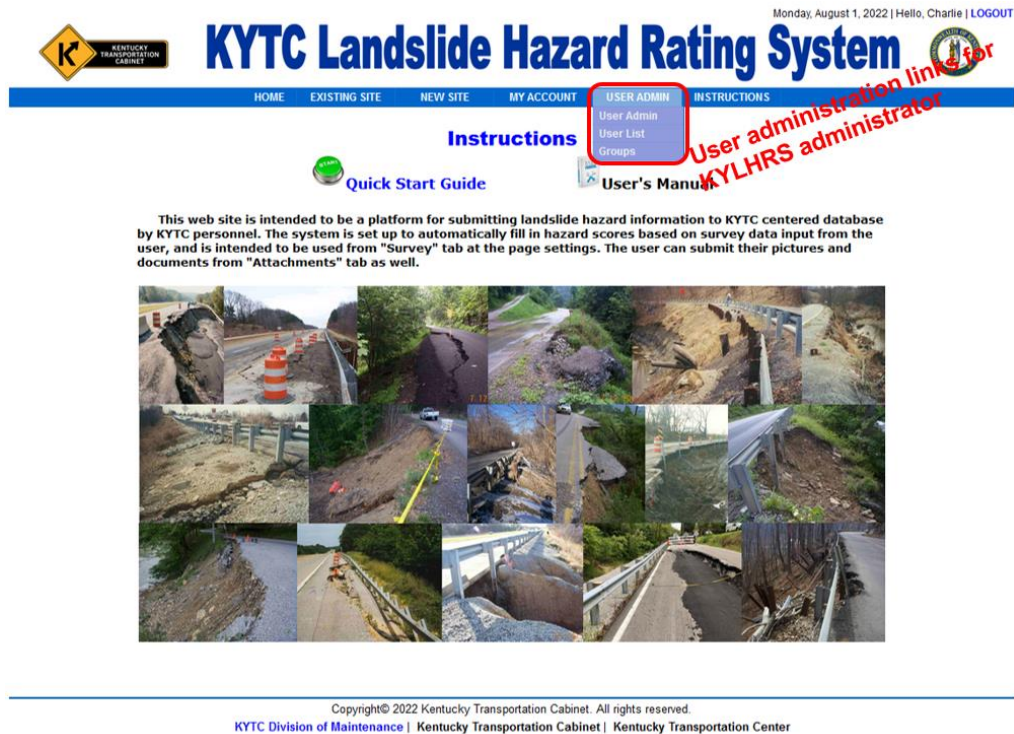
Figure 23. **Header** – after a **Central Office LHRS Manager** logs in

5.1 Screen for Managing Existing Project List

On the page listing existing sites, the **Central Office LHRS Manager** can archive or activate a landslide hazard survey site by checking or unchecking the archive checkbox and clicking the **Update** Button (Figure 24). The **Central Office LHRS Manager** can click on **Retrieve Archive** or **Retrieve All** to view different groups of landslide hazard survey sites.

Figure 24. Archive/active sites by a **Central Office LHRS Manager**

5.2 Screen for Managing Attachments

The **Central Office LHRS Manager** can review or download attachments that have been uploaded by the **Submitter** on the survey site page's **Attachment** tab. Following review, they can decide whether to delete the attachment by checking the appropriate box. Once a **Central Office LHRS Manager** has made their selection(s), they should click the **Update Attachments** button (Figure 25).

Figure 25. Manage attachments by **Central Office LHRS Manager**

5.3 Accept or Request Changes – Central Office LHRS Manager's Decision

After the **Central Office LHRS Manager** logs in, if a landslide hazard survey site is awaiting their acceptance, the portion of **Central Office LHRS Manager's Decision** under **Accept** tab will be active (Figure 26). After deciding to **Accept** or **Request Changes**, the **Central Office LHRS Manager** fills out the corresponding information and clicks the **Submit** button. Once submitted, individual emails containing the **Landslide Hazard Survey Form** in PDF format are sent to the **Submitter** who submitted the survey site. A copy of this email is sent to the **Central Office LHRS Manager** for recordkeeping purposes.

If the **Central Office LHRS Manager** requests changes, emails which include the suggestions or modifications for further consideration are sent to the **Submitter**.

Figure 26. **Central Office LHRS Manager** submits their decision

5.4 USER ADMIN – User Administration

In the **Header** section, the **Central Office LHRS Manager** has access to **USER ADMIN** → **User Admin**. Clicking on this link brings up the **User Administration** page. This page contains three tabs — **Pending Submitter**, **All Existing Users**, and **Add New User**. Figure 27 displays the **Pending Submitter** tab, which lets the **Central Office LHRS Manager** approve or delete pending requests for **Submitter** by clicking the corresponding buttons.

Figure 27. **User Administration** page with **Submitter** in pending

5.4.1 Pending Submitter -- Approve/Reject Pending Submitter

The area on this tab depends on whether **Submitter** requests are pending. These situations arise only when a user has registered on web application management system but not activated their account yet. If there are users who have not activated their accounts, dropdown lists appear. When the dropdown list under **Submitter Requests Unverified** is clicked and a user is selected, the user information appears as seen in Figure 27.

The **Central Office LHRS Manager** may approve a **Submitter**'s request by clicking the **Approve Submitter** button. They can reject or delete a request by clicking the **Delete Submitter** button. If a **Submitter** is approved, the web application management system sends an email to the **Submitter** notifying them of the approval. If there are no requests pending, "No Approval pending" appears under **Submitter Requests Unverified**.

5.4.2 All Existing Users -- Maintain All Registered User's Information

A second tab — **All Existing Users** — provides the **Central Office Manager** with a dropdown list of all existing registered users. When a user is selected from the dropdown list, their personal information appears beneath the dropdown list, which the **Central Office LHRS Manager** can modify (Figure 28). The **Central Office LHRS Manager** can save changes to a user's profile by clicking the **Update** button; change their status by clicking the **Change Status** button; or reset their password by clicking the **Reset Password** button. Clicking the **Reset Password** sends the selected user an email with a new password automatically generated by the system.

Figure 28. User info appears when user is selected on **All Existing Users** tab

5.4.3 Add New User -- Add/Invite New User

Clicking the **Add New User** button lets the **Central Office LHRS Manager** registering and activating a new user on their behalf (Figure 29). This user does not need to activate their account and can directly login to the web application management system via the **LOGIN** link. This page looks nearly identical to the **Registration** page seen in Figure 2 except the **Central Office LHRS Manager** can select **User Type** and **Group** for the invited user directly. No activation from user's side is needed. After clicking **Register**, the web application management system instantly sends an email to the invited user that includes the **LOGIN** link.

Figure 29. **Add New User** tab lets **Central Office LHRS Manager** to add/invite new users

5.5 USER List

The **Central Office LHRS Manager** has access to the **USER ADMIN → User List** link in the **Header**. Clicking this link takes the **Central Office LHRS Manager** to the **User List** page (Figure 30). On this page, the **Central Office LHRS Manager** can search users by using any string included in any fields. All titles of columns function like "**sort by**" key when any title is clicked. The **Central Office LHRS Manager** can copy users' email addresses by selecting the checkboxes in the front of users and clicking the button of **Copy Selected Email Addresses**. They can go to user detail page and modify their data by clicking on a user.

Figure 30. **USER ADMIN → User List** page provides Central Office Manager an interface maintaining user information and copy user email addresses

5.6 GROUP ADMIN – Group Administration

The **Central Office LHRS Manager** has access to the **USER ADMIN → Groups** link in the **Header**. Clicking this link takes the **Central Office LHRS Manager** to the **User Group List** page (Figure 31). On this page, the **Central Office LHRS Manager** can modify existing groups' information and add new groups.

Figure 31. **USER ADMIN → Groups** page provides **Central Office LHRS Manager** an interface maintaining group information

6. USER AS AN ADMINISTRATOR

An **Administrator** is an assistant to the **Central Office LHRS Manager** in the web application. The **Administrator** can perform all functions available to the **Central Office LHRS Manager** except receiving email when the submitter submits a landslide hazard site survey. Only the Central office LHRS Manager will get this email.

7. LOGOUT

The **LOGOUT** link appears in the upper right corner of every page of the web application. When a user clicks a **LOGOUT** link, the system deletes all session variables, and a fresh session begins. The user is then redirected to the original **HOME** page. To reenter the site, the user must click the **LOGIN** link in the upper right corner of the page and enter their **Email Address** and **Password**.

If you have questions or need assistance with the KYTC Landslide Hazard Rating System web application, please contact:

Brian Schroeder, Email: brian.schroeder@ky.gov; Phone: (502) 564-4556

Charlie Sun, Email: charlie.sun@uky.edu; Phone: 859-257-7330