# Use Case Model



Sign-up

Update Data by System

Subscribe to Alerts

Update Data by User

Unsubscribe to Alerts

Filter Road Activity

View all Paths

Enter Roads Travelled

Analyze Road Activity

Edit Path

Notification System

Remove Path

Current Road Activities

Sign In

Sign Out

ODOT

User

System

User

*Note: User is the same actor and duplicated to connect lines easier.

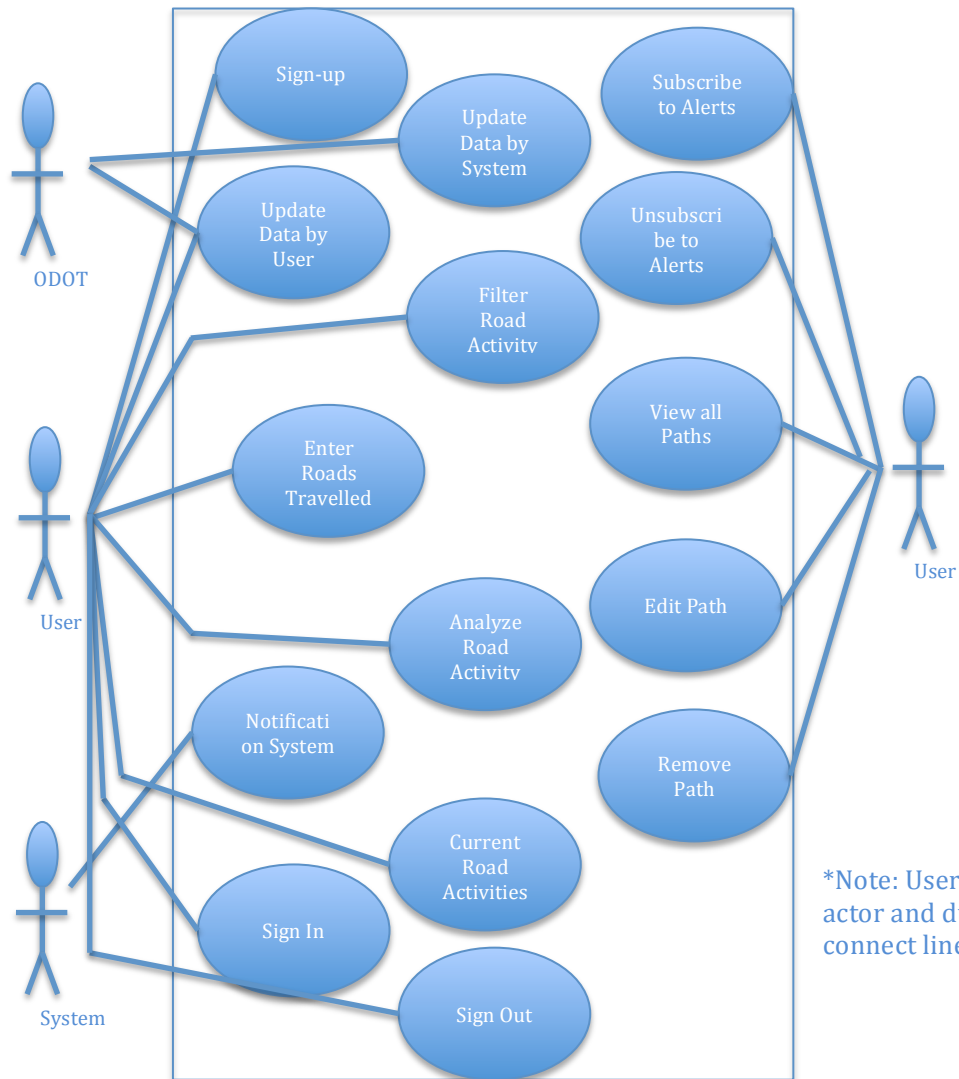**Use Case 1:** Sign-Up
**Primary Actor:** User
**Stakeholders and Interest:**
- User: Wants to be able to quickly sign-up to use the web application
- ODOT: Wants to provide real-time accurate data to satisfy the residents of Ohio.

**Preconditions:** User does not have a validated account.
**Postconditions:** User successfully creates a validated account that allows him\her to login to the system.
**Summary:** User navigates to the website, clicks on the Sign-Up link, enters his\her username and password, submits this information to the system, and the system enters and stores this username and password as a new user.

**Basic Flow:**
1. User navigates to website.
2. User clicks on the Sign-Up link.
3. User enters their email address and his\her password.
4. User submits this information to the system.
5. System checks that the username has the correct format and the user does not exist yet.
6. System checks that the password meets the minimum requirements.
7. The system stores this information and creates this user.
8. The system redirects to the Sign-In page to allow the User to sign in if they wish.

**Alternative Flows:**
5a. User email address already exists as an account
    1. System signals error, rejects the creation of the same user, and system provides a way to request his\her forgotten password.
5b. User email address does not meet the minimum requirements
    1. System signals error, rejects the creation of the user, and the system remains on the same page to allow the user to enter a new password.
6a. User password does not meet the minimum requirements.
    1. System signals error, rejects the creation of the user, and the system remains on the same page to allow the user to enter a new password.

**Use Case 2:** Update Data by System
**Primary Actor:** System
**Stakeholders and Interest:**
- System: Needs to have the most up to date data to most accurately display and notify users.
- User: Wants to be able to see the most up to date data.
- ODOT: Wants to provide real-time accurate data to satisfy the residents of Ohio.

**Preconditions:** System has the pre-defined update interval stored and also the webpage to pull the real-time data.
**Postconditions:** System successfully updates its database with the most relevant data.
**Summary:** The system grabs the latest xml data from the ODOT website at the stored interval, updates the database, and finally updates the information on the webpage so this data can be used.

**Basic Flow:**
1. At a stored interval, the system accesses the stored ODOT website.
2. The system parses the XML file and stores it to the database.
3. The system updates the information it is displaying based on this new data.

**Alternative Flows:**
1a. The ODOT website is down and not accessible.
   1. System signals error to log file and not to the user and the system does not insert new data into the database.
2b. XML file does not have data in predefined format
   1. System signals error to log file and not to the user and the system does not insert new data into the database.

**Use Case 3:** Update Data by User
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to have the most up to date data to most accurately display and notify users.
- User: Requests new information so the user can see the most up to date data.
- ODOT: Wants to provide real-time accurate data to satisfy the residents of Ohio.

**Preconditions:** User has a valid account. System has the webpage to pull the real-time data.
**Postconditions:** System successfully updates its database with the most relevant data upon user request.
**Summary:** The user requests new data, then the system grabs the latest xml data from the ODOT website, updates the database, and finally updates the information on the webpage so this data can be used.

**Basic Flow:**
1. The User submits a request for new data.
2. The system accesses the ODOT website (the URL is stored in the web app).
3. The system parses the XML file and stores it to the database.
4. The system updates the information it is displaying based on this new data.

**Alternative Flows:**
2a. The ODOT website is down and not accessible.
1. System signals error to log file and to the user and the system does not insert new data into the database.
3b. XML file does not have data in predefined format
1. System signals error to log file and to the user and the system does not insert new data into the database.

**Use Case 4:** Filter Road Activity
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to have the most up to date data to most accurately display data.
- User: Wants to find where the most road activity takes place.

**Preconditions:** User has a valid account and has navigated to the correct webpage.
**Postconditions:** User is able to accurately display road activity based on filters that the user selects.
**Summary:** The user selects different filters to request data to be shown from a specific date/time window and for specific road activity (i.e. Accident, Snow\Ice, Planned, Disabled Vehicle, All, etc.)

**Basic Flow:**
1. The User selects a time frame for the data they want displayed.
2. The User selects the road activity they wish to display – options for this are Accident, Roadwork – Planned, Roadwork – Unplanned, Flooding, Snow/Ice, Debris, Disabled Vehicle, Other, or All.
3. The system displays the data based on the time frame and road activity selected.

**Alternative Flows:**
3a. The data requested by the user does not exist.
2. System signals no data to the user.

**Use Case 5:** Enter roads travelled
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to track and store roads travelled that the user enters.
- User: Wants to enter the roads the user travels.

**Preconditions:** User has a valid account and has navigated to the correct webpage.
**Postconditions:** User successfully enters user specific road information to system.
**Summary:** The user selects roads and mile markers that the user travels on and the time and day the user travels on these roads, and successfully submits this data to the system.

**Basic Flow:**
1. The User enters the road, days the user will be travelling on this road, the start and stop mile marker, and the start and end time the user uses the road.
2. The User enters this information into the system.

**Use Case 6:** Notification System
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to email the user when a new alert occurs.
- User: Wants to be notified of new alerts.

**Preconditions:** User has a valid account and has navigated to the correct webpage.
**Postconditions:** User successfully receives alerts as they become available.
**Summary:** The system monitors the travel paths that the user has entered to be monitored, and when a new road activity is present along this travel path, the user is updated via email on that condition

**Basic Flow:**
1. The system monitors road activity for any new data that corresponds to a user's travel path.
2. If a new road activity is present, the system emails these new road activities to the user.

**Use Case 7:** Current Road Activities
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to have the most up to date data to most accurately display the current road activities.
- User: Wants to easily see the current road activities.

**Preconditions:** User has a valid account and has navigated to the correct webpage.
**Postconditions:** User reviewed the road activities that are currently happening.

**Summary:** The user navigates to the correct webpage and changes the Start Date to the current date. This will correctly show the user the current road activities.

**Basic Flow:**
1. Select the current date for the Start Date
2. Leave the End Date blank
3. User views current road activity

**Alternative Flows:**
    1a. User selects a Start Date that is not today.
        1. System displays all road activities that started on or after the date selected.
    2a. User selects an End Date in the future
        1. System displays all road activity that started on or after the Start Date and that happened before or on the End Date. This might not show the user all current road activities if a current road activity is ending after the End Date selected.
    2b. User Selects an End Date in the past
        1. System will not display any activities since it cannot find any activities between the Start Date of today and End Date of the past.

**Use Case 8:** Sign In
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to maintain user email address and passwords.
- User: Wants to log in to view road activity and the user specific information/roads to them

**Preconditions:** User has a valid account and is not logged into the system.
**Postconditions:** User is logged into the system.

**Summary:** The user navigates to the sign in page, types in their email address, types in their password, and then presses the Sign In button to be signed into the website.

**Basic Flow:**
1. Navigate to the Sign In page
2. Enter email address
3. Enter password
4. Click the Sign In button
5. The user is logged in

**Alternative Flows:**
    1a. User types in the wrong email address
        1. When the Sign In button is pressed, system signals error and does not allow the user to log in.

1b. User does not enter email address in correct format (does not use the @ symbol)
1. When the Sign In button is pressed, system signals error and does not allow the user to log in
3a. User types in the wrong password
1. When the Sign In button is pressed, system signals error and does not allow the user to log in.

**Use Case 9:** Sign Out
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to log user out to ensure the user can no longer get to specific user-defined information and data.
- User: Wants to log out of system to ensure no one can get to their user specific information.

**Preconditions:** User is logged into the system.
**Postconditions:** User is logged out of the system.
**Summary:** The user clicks on the Sign-Out page and the system signs the user out and redirects the user to the home page.

**Basic Flow:**
1. Click the Sign Out link.
2. System logs user out of system.

**Use Case 10:** Subscribe to Alerts for Travel Path
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to allow a user to subscribe to alerts
- User: Wants to be able to subscribe to alerts.

**Preconditions:** User has a valid account.
**Postconditions:** User has subscribed to receive email updates of new alerts.
**Summary:** The user selects to subscribe to email updates

**Basic Flow:**
1. Navigate to the Roads Travelled page
2. Go to settings
3. Select the Subscribe Radio button and then submit this request

**Use Case 11:** Unsubscribe to Alerts for Travel Path
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to allow a user to unsubscribe to alerts
- User: Wants to be able to unsubscribe to alerts.

**Preconditions:** User has a valid account.
**Postconditions:** User has unsubscribed to receive email updates of new alerts.
**Summary:** The user selects to unsubscribe to email updates

**Basic Flow:**
1. Navigate to the Roads Travelled page
2. Go to settings
3. Select the Unsubscribe Radio button and then submit the request

**Use Case 12:** View all Travel Paths
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to store user specific travel paths and display this information to the user;
- User: Wants to easily see the travel paths that the user added.

**Preconditions:** User has a valid account.
**Postconditions:** User reviewed the Travel Paths.
**Summary:** The user navigates to the correct webpage and views the travel paths that the user added.

**Basic Flow:**
1. Navigate to the Roads Travelled page
2. View the Roads Travelled that the user entered.

**Use Case 13:** Edit Travel Path
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to have user specific roads travelled information.
- User: Wants to edit a travel path that the use has already added.

**Preconditions:** User has a valid account and has navigated to the correct webpage.
**Postconditions:** User edits the road data.
**Summary:** The user navigates to the correct webpage and submits the data the user changed to the system.

**Basic Flow:**

1. Select the road data that the user wishes to edit.
2. Edit the data the user wants to change;
3. Submit the new information to the system.

**Alternative Flows:**
   3a. User cancels out of the edit.
      1. System does not update any information that was updated.

**Use Case 14:** Remove Travel Path
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to maintain and allow a user to remove a travel path.
- User: Wants to be able to remove roads the user no longer wants to monitor for road alerts.

**Preconditions:** User has a valid account.
**Postconditions:** User has removed the travel path they do not wish to monitor any more.
**Summary:** The user navigates to the web page that lists the Roads Travelled and removes the Travel Path.

**Basic Flow:**
1. Navigate to the Roads Travelled page
2. Click the Delete button next to the Travel Path the user wishes to delete.

**Use Case 15:** Analyze Road Activity
**Primary Actor:** User
**Stakeholders and Interest:**
- System: Needs to maintain the roads a user wishes to analyze.
- User: Wants to be able to add a road they want to travel along with the days, hours, and mile start and end they want to monitor this road.

**Preconditions:** User has a valid account.
**Postconditions:** User has successfully added roads they want to analyze.

**Basic Flow:**
1. Navigate to the Analyze webpage
2. Add a road the user wishes to analyze along with the days, times, and mile start and end they wish to analyze.
3. Review the data