

Clear Roads

CR 21-06: Calculating Plow Cycle Times from AVL Data

User Guide: Sample Cycle Time Dashboard

Introduction

The primary aim of this dashboard is to empower users to analyze cycle times for different routes across various jurisdictions (districts or sheds) during winter storm events. By providing valuable insights, this tool facilitates better planning for future winter maintenance events. The Cycle Time Dashboard is a powerful tool designed for users to analyze plow/treatment cycle times during winter maintenance events. This guide will walk you through the step-by-step process of using the dashboard to extract valuable insights from the available demo data.

The available data for this demonstration was extracted from the New Hampshire Department of Transportation's January 2023 Road GIS dataset. A subset selection of snow and ice routes, road centerlines, district boundaries, DOT facilities, and fuel facilities are included. **The Sample Cycle Time Dashboard contains a limited set of data for selection, including data for District 3, Shed 324, and Route B on January 23 to the 25th. All other options are vacant and for visualization purposes only.**

Getting Started

1. Login:

- <https://austindss.maps.arcgis.com/apps/dashboards/18588461d4f648439d42ec224d6e1b4f>
- Username: **dssviewer**
- Password: **dssviewer2023**

Went you login, the following is the launch page you should see.

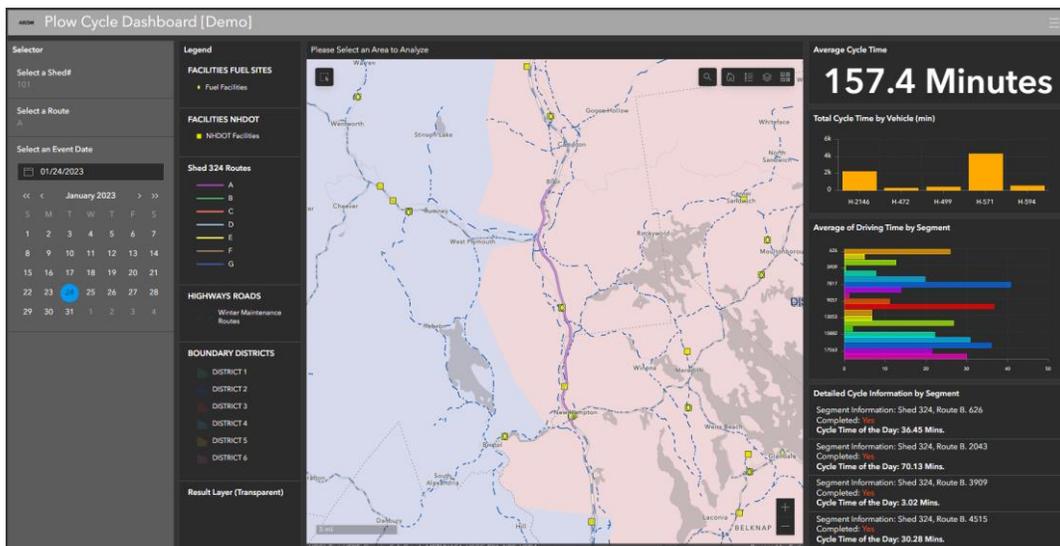


Figure 1: Sample Dashboard Screenshot

2. Selector Section:

- Locate the top-left section of the screen containing a "Selector" (Figure 2).
- From the dropdown list, select "**Shed 324**" as it contains the available data.

3. Selecting a Route:

- Just below the Selector, locate the "Select a Route" section.
- Choose "**Route B**" as the demo data is tailored for this route.

4. Selecting an Event Date:

- Below the Route selection, find the "Select an Event Date" section.
- Utilize the monthly calendar to select **either January 23rd or January 24th, 2023**, for analysis.

The screenshot displays the 'Selector' section of the Cycle Time Tool interface. It features three main selection areas: 'Select a Shed#' with the value '101', 'Select a Route' with the value 'A', and 'Select an Event Date'. The date selection is shown as a calendar for January 2023, with the date '01/24/2023' highlighted in a blue circle. The calendar grid shows days of the week (S, M, T, W, T, F, S) and dates from 1 to 31.

Figure 2: High-level Architecture of Cycle Time Tool

Dashboard Sections Overview

1. Legend Section:

- Located to the right of the Selector, this section provides a key to the various map elements:
 - Facilities Fuel Sites
 - Facilities NHDOT
 - Shed 324 Routes
 - Highways Roads
 - Boundary Districts

2. Interactive Map:

- In the middle of the page, you'll find an interactive map (Figure 3).
- This map enables the user to define an area of interest for analysis.
- Utilize the drawing tool to select road segments, which will generate detailed metrics.

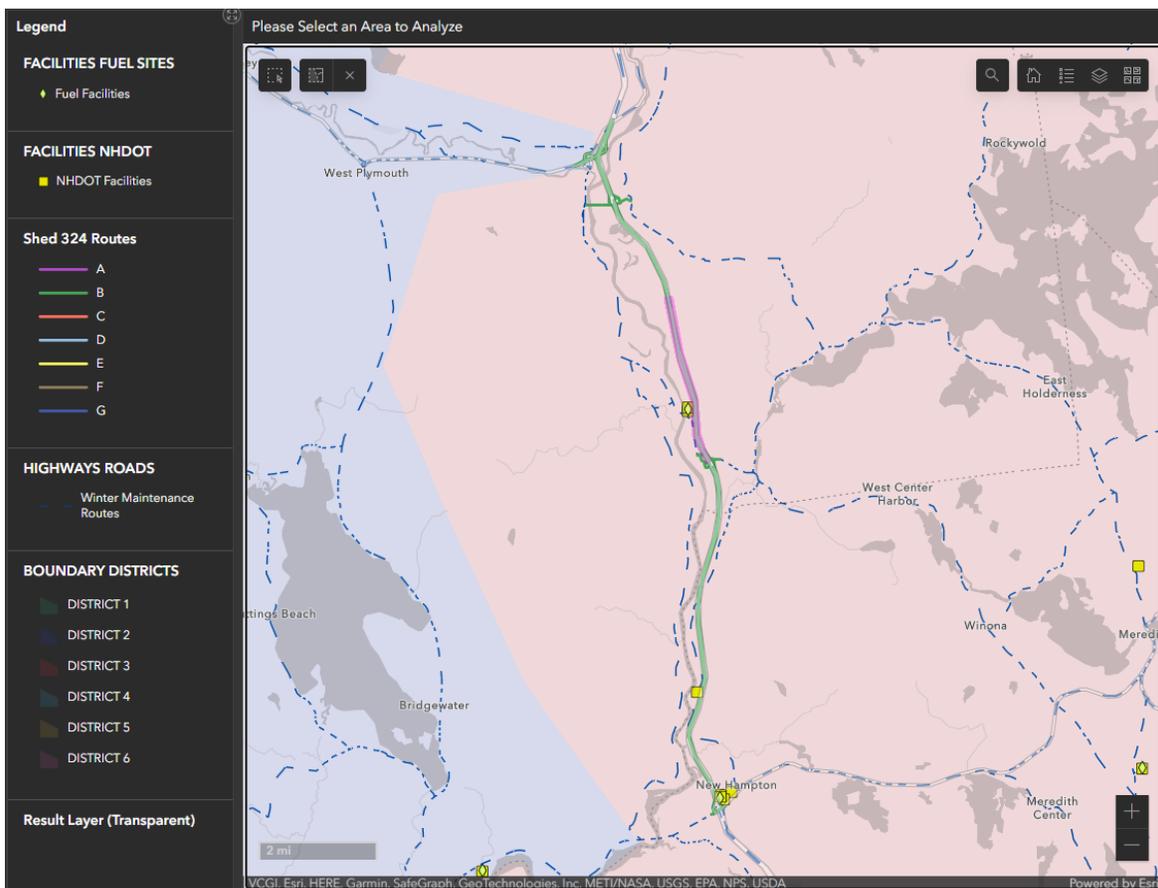


Figure 3: Cycle Time Dashboard Interactive Map Frame and Legend

Metric Sections (Right Side):

- These sections offer various metrics based on the selected variables.
- Average Cycle Time (minutes):**
 - Located at the top, this displays the total time taken to treat and plow a route by one or multiple vehicles.
 - Total Cycle Time by Vehicle (min):**
 - This section provides a bar graph with vehicle names on the x-axis and total cycle time (in minutes) on the y-axis.
 - Average of Driving Time by Segment:**
 - Another bar graph, with road segments on the y-axis and time (in minutes) on the x-axis.
 - Detailed Cycle Information by Segment:**
 - In the bottom-right corner, this section offers detailed information:
 - Segment #
 - Shed #
 - Route #
 - Cycle Completion Status (Yes/No)
 - Cycle Time of the Day (in minutes)

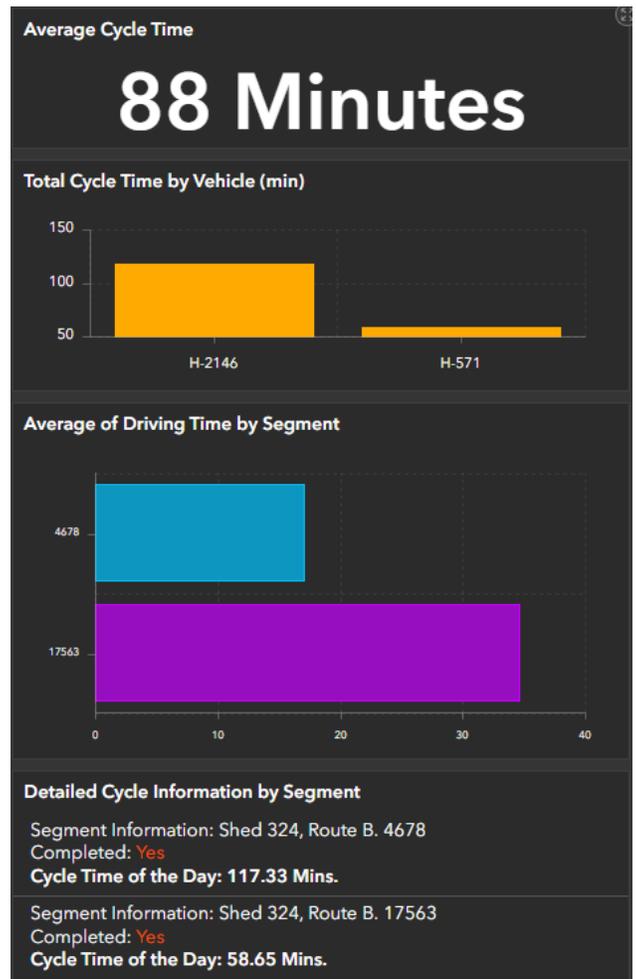


Figure 4. Dashboard Metrics: Average Cycle Time, Average Driving Time by Segment, and Detailed Cycle Information

With this comprehensive guide, you are now equipped to effectively utilize the Cycle Time Dashboard for your winter maintenance needs. For further assistance, please refer to the dashboard's documentation or reach out to the support team. Happy analyzing!