User Manual: Rural AV Readiness Assessment Tool

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1 Introduction

This user manual provides comprehensive instructions on using the Rural AV Readiness Assessment Tool. The application consists of three main interfaces: Map View, Comparison View, and Documentation, each designed to facilitate different aspects of rural autonomous vehicle readiness assessment.

2 System Requirements

- Operating System: Windows 10 or later, MacOS X Sierra or later, Linux Ubuntu 16.04 or later
- Python version 3.6 or higher
- Internet connection for map functionality
- Required Python libraries: Dash, Plotly, GeoPandas, Pandas

3 Installation Guide

1. Ensure Python 3.6+ is installed on your system.
2. Install all required Python libraries using pip:

```
    pip install dash dash-bootstrap-components plotly geopandas pandas

```

3. Download the application code from [GitHub link or other source].
4. Extract the contents to your preferred directory.

4 Getting Started

4.1 Running the Application

To run the application, navigate to the application directory in your terminal or command prompt and execute the following command:

```
python app.py
```

This will start the Dash server, and the application can be accessed at `http://127.0.0.1:8050` in your web browser.

5 User Interface

5.1 Map View

The Map View is the default tab that opens when launching the application. It features:

- **Choropleth Map:** Visualizes various readiness scores across rural counties using different colors to represent different levels of readiness.
- **Control Panel:** Allows users to adjust the weights of different readiness indicators, which dynamically updates the map to reflect these changes.
- **Data Filters:** Users can filter the map view by county, type of infrastructure, or other parameters to focus on specific areas or metrics.

- **Interactivity:** Hovering over a county on the map displays a tooltip with detailed metrics such as Physical Infrastructure, Digital Infrastructure, and Social Vulnerability Index scores.

5.2 Comparison View

The Comparison View enables detailed comparison between different counties or regions:

- **County Selection:** Users can select two counties to compare their AV readiness scores across various metrics.
- **Radar Chart:** Displays a radar (or spider) chart that visually compares the selected metrics between the two chosen counties.
- **Narrative Insights:** Provides textual insights and analysis based on the comparison, highlighting strengths, weaknesses, and potential areas for improvement.

5.3 Documentation

The Documentation tab provides a built-in PDF viewer that displays a comprehensive user guide or documentation directly within the application. This document is intended to help new users understand how to interact with the application and make the most of its features.

6 Troubleshooting

- **Issue: Application does not start**
  Solution: Check if all required Python packages are installed and the Python version is correct.
- **Issue: Map does not load**
  Solution: Ensure you have an active internet connection and that no firewall settings are blocking the application.

7 Contact Information

For support or to report bugs, please contact [obalaka@aggies.ncat.edu].