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Insights :

1. Rapid Route is the Most Utilized Service Across All Time Periods

2. School Services Exhibit Strong Seasonality and Weekday Dependence

3. Weekend Usage is Significantly Lower Across Most Services

4. Top Peak Load Days Reflect Special Events or Seasonal Trend

5. 'Other' Service Type Shows Negligible Usage

**To forecast the next 7 days of ridership data for the following public transport services:**

* Local Route
* Light Rail
* Peak Service
* Rapid Route
* School

### **Chosen Algorithm: Facebook Prophet**

Prophet is an open-source forecasting tool developed by Facebook’s Core Data Science team. It is designed for daily time series data with multiple seasonalities and robust to missing data, outliers, and trend changes, making it ideal for public transport forecasting.

### **Why Prophet?**

* Handles weekly seasonality, holidays, and trend shifts automatically
* Minimal parameter tuning needed; easy to interpret and production-ready
* Performs well with real-world noisy data, such as public transport journeys
* Flexible — supports custom seasonalities and holiday regressors if needed