

## Weekday vs Weekend Anomaly

- Weekends behave inconsistently across services.
- Example: School and Peak Service collapse on weekends, while Rapid Route retains weekday-like activity.
- Implication: Mixed commuter and non-commuter patterns exist.
- Plot: Insert Weekday vs Weekend plot here

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...	0
Peak Service	251.413869
School	3293.619708
Light Rail	4061.291606
Rapid Route	9450.227007
Local Route	10023.835401

`dtype: float64`

## Structural Breaks (Regime Shifts)

- Each transport type has ~3 major shifts due to mid-month surges, holidays, or operational changes.
- Implication: Highlights underlying calendar effects influencing demand.
- Plot: Insert rolling mean / regime shift plot here

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```
... {'Local Route': ['2024-09-24', '2020-03-09', '2024-09-25'],
      'Light Rail': ['2024-09-25', '2024-09-24', '2019-12-25'],
      'Peak Service': ['2023-11-17', '2023-11-10', '2020-03-09'],
      'Rapid Route': ['2019-12-25', '2024-09-24', '2024-09-25'],
      'School': ['2020-02-06', '2020-02-05', '2021-02-04']}
```

## Leading Indicators

- Local Route demand leads Rapid Route and Peak Service by ~2 days.
- Implication: Changes in local transport demand can predict shifts in longer-distance routes.
- Plot: Insert lead-lag correlation plot here

## Volatility Ranking

- Rapid Route and Peak Service show high variance → demand is unstable.
- Light Rail is most predictable.
- Implication: Planning buffers needed for high-variance services.
- Plot: Insert volatility ranking plot here

```
...
          0
Local Route  5258.086918
Rapid Route  5022.710006
Light Rail   2256.838334
School       1779.231729
Peak Service 133.470361
dtype: float64
```

## Demand Composition Drift

- Over time, Local Route's share increases, Light Rail declines.
- Implication: Long-term shift toward road-based public transport.
- Plot: Insert demand composition plot here

...	Local Route	Light Rail	Peak Service	Rapid Route	School	grid icon	line icon
Date							
2024-09-25	0.525000	0.0	0.025	0.250000	0.200000		
2024-09-26	0.818182	0.0	0.000	0.000000	0.181818		
2024-09-27	0.315789	0.0	0.000	0.684211	0.000000		
2024-09-28	0.200000	0.0	0.000	0.800000	0.000000		
2024-09-29	0.250000	0.0	0.000	0.750000	0.000000		