Chapter 8: Speed, Delay, and Reliability

This chapter primarily focuses on how quickly transit is able to take its riders from point A to point B.

Speed isn’t about top-end speed, but instead about total time it takes to travel the entire distance from beginning to end, all stops, delays, transfers, and slowdowns included.

Delay is the biggest problem facing speed and reliability. Delay is when transit operations are slowed down or stopped.

Routine Delay: delay that is a typical part of the operations of a transit line.
Exceptional Delay: accidents, medical emergencies, extreme weather, work stoppages

3 categories of routine delay:

1. Traffic delay (interference of other vehicles)
2. Signal delay (stops and signals)
3. Passenger-stop delay (stops for passenger boarding and alighting)

3 classes of transit based on the types of delay experienced:

<table>
<thead>
<tr>
<th>Class</th>
<th>Other traffic</th>
<th>Cross Traffic</th>
<th>Traffic Delay</th>
<th>Signal Delay</th>
<th>Passenger-Stop Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Exclusive</td>
<td>Separated</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
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<td>Yes</td>
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<tr>
<td>C</td>
<td>Not Exclusive</td>
<td>Not Separated</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Rail and bus services can be in any of the three categories. In Atlanta, MARTA rail system is Class A rail while the Streetcar is Class C.

7 Deadly Delays

- Traffic Delay (2 types)
  - Congestion (entire street or lane is slowed down by vehicles moving below their ideal speed)
  - Friction (individual vehicles causing slowdowns)
- Signal Delay- can be eliminated by signal priority programs
- Passenger-stop delay (Add the first 3, multiplied by Stop Spacing)
  - Dwell due to boarding/alighting
- Dwell due to fare collection
- Acceleration/deceleration
- Stop Spacing

It’s a helpful exercise to measure the time spent on transit routes between ideal movement, traffic delays, signal delays, and passenger-stop delays.

Transit lanes are a good option to reduce delays caused by traffic and it might be difficult in environments with limited right of way. To argue for transit lanes, use a combination of arguments that shows the percentage of people using transit on the corridor, the time they are delayed, and rider increase projections if service is improved.

Don’t fall for the empty transit lane problem. Even though they might appear “empty”, their capacity is far greater and has just as much impact as a 3rd or 4th car lane.

Key discussion questions for Chapter 8:

- What are some examples in Atlanta of Class A, B, or C transit for both rail and bus?
- What are some of the biggest causes of delays for transit operations in Atlanta? Any specific examples?
- What is a specific improvement or route that can improve service and reliability by reducing delays?

Chapter 9: Density Distractions

Density is one of the main drivers of ridership, including service, walkability, and pricing.

Residential density is more important than jobs or other activities because it creates the largest demand and it’s how our representative political system works.

But it’s not everything- Paul Mees in Transport for Suburbia says that “Density is not destiny” and that transit advocates need to let go of the idea that good transit requires high density.

Average density across a wide area does not matter. The important thing is the density around the stops and stations, especially those that offer high mobility and frequency.

One way to measure is to calculate the percentage of citizens who live in a high density area.

Los Angeles might have a higher AVERAGE DENSITY than New York City, but less of its population lives in a high density area.

Low-density areas can impact transit service by lowering the quality of service to riders of higher density.
Topics for discussion:
Relevant: Activity Density for Atlanta region
Most vs least productive routes

Most=Route 39 (Buford Hwy) (42 people per bus per hour)

Least= Route 142 (East Holcomb Bridge Road (9 people per bus per hr)
Discussion questions:

- What are things we need to do to make sure our transit system is successful (as it relates to density)?
- Looking at the density maps of the regions, what areas surprise you for high density? Are they well connected to other nearby areas of high density by transit? How bad is the traffic in that area?
- What can be done to encourage people to live in a more dense area?
- What benefits are there from people living in more dense residential areas?