PRT consulting

Innovations in Mobility

Ridesharing Methodology for Increasing PRT Capacity

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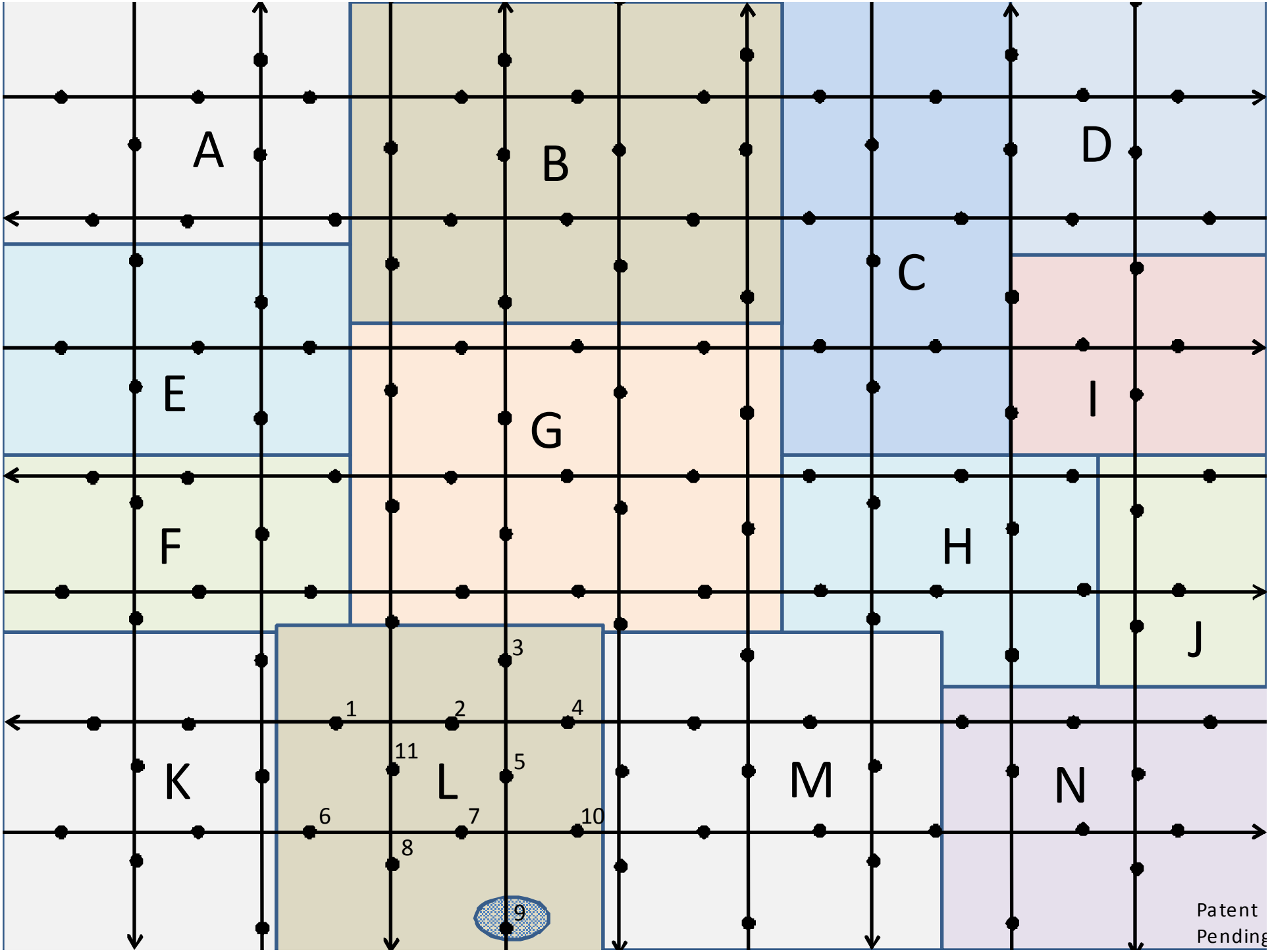
Outline

- Background
- Fixed zones
- Dynamic zones
- Preliminary operational analysis
- Advantages & disadvantages
- Conclusions

Background

- Extensive ridesharing runs counter to original PRT vision
- “Brick wall” stop criterion currently limits PRT capacity
- PRT implementations in countries like India need high capacity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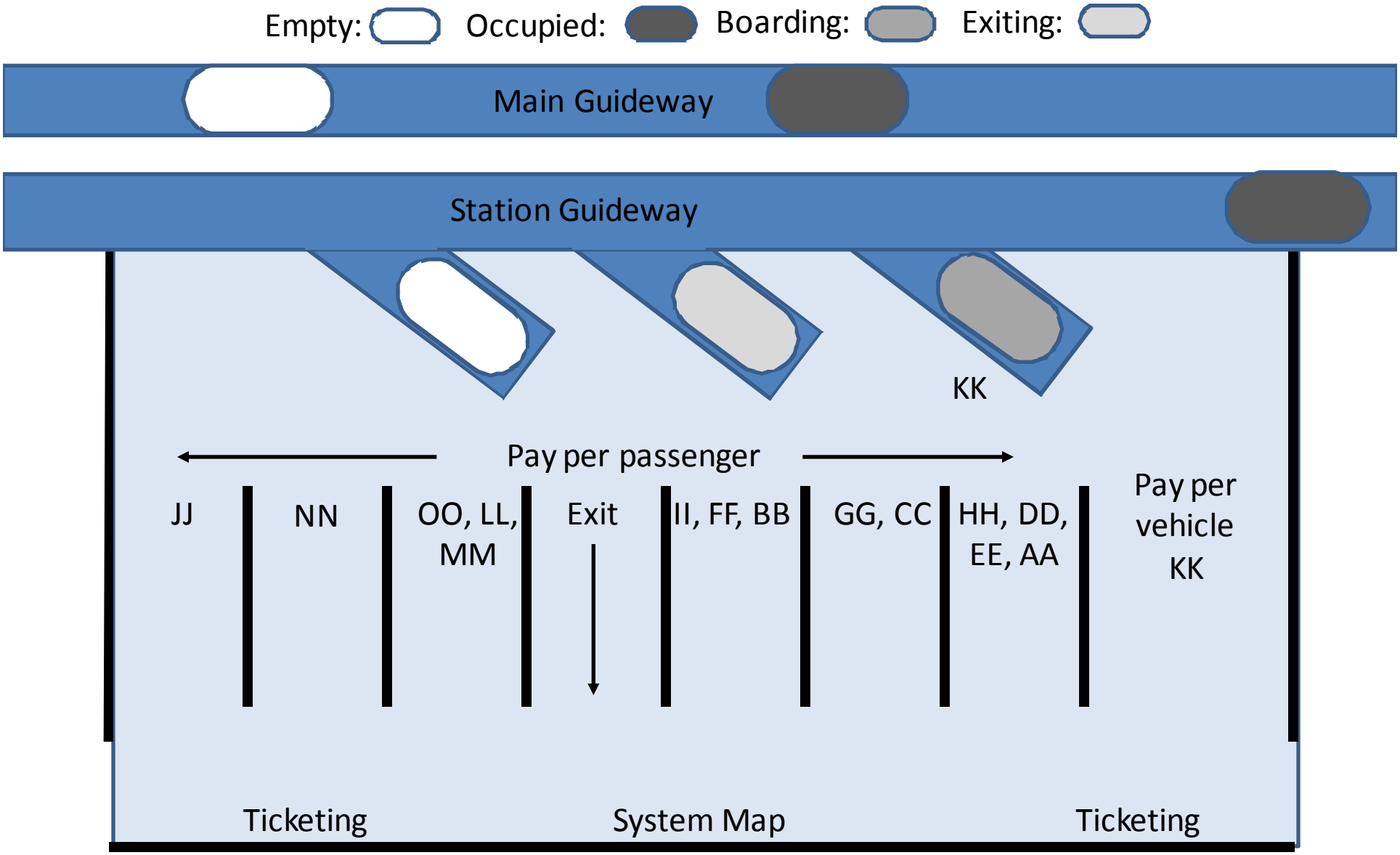
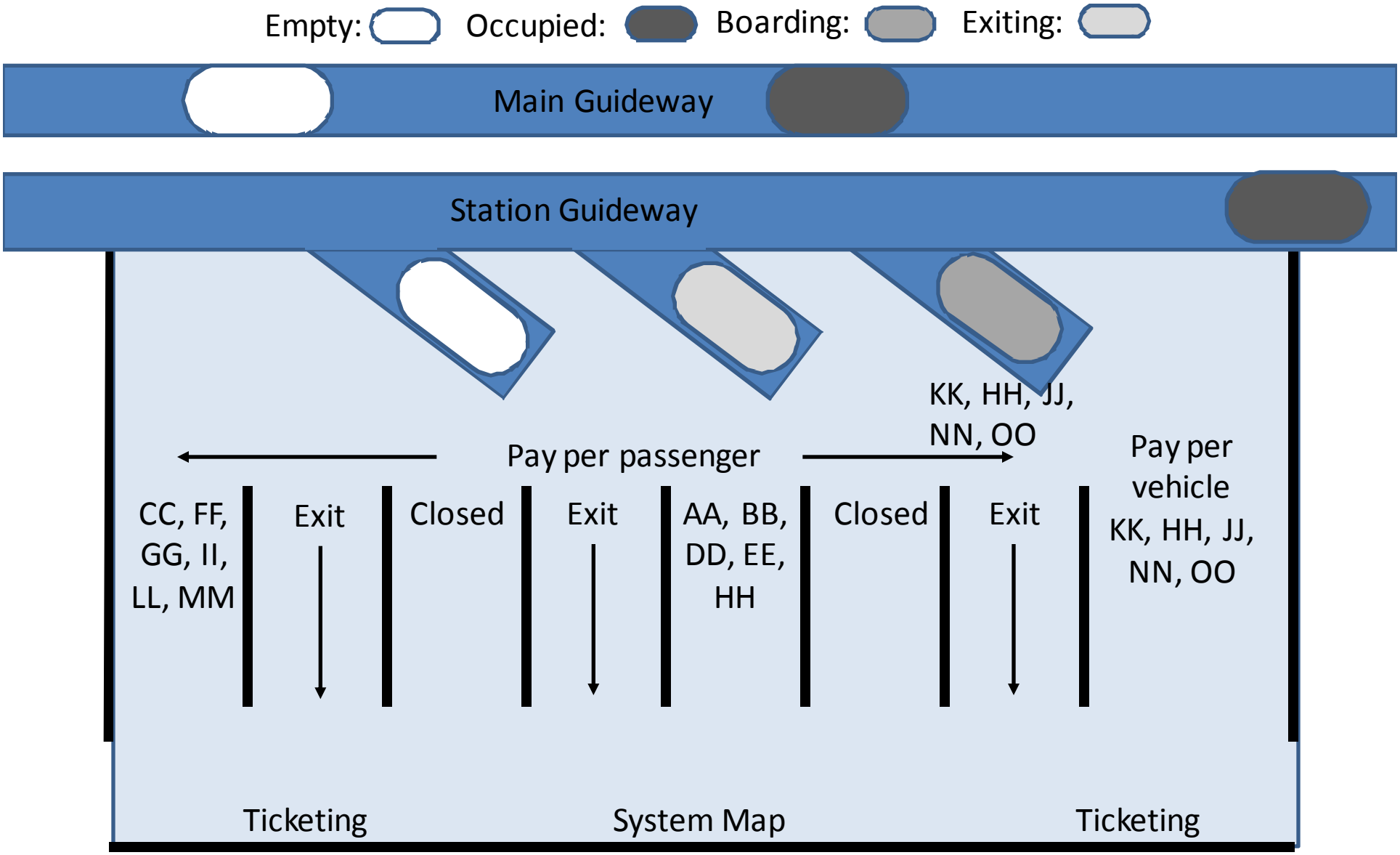
Urban Station L9 Morning (Outbound) Peak



Urban Station L9 Evening (Inbound) Peak

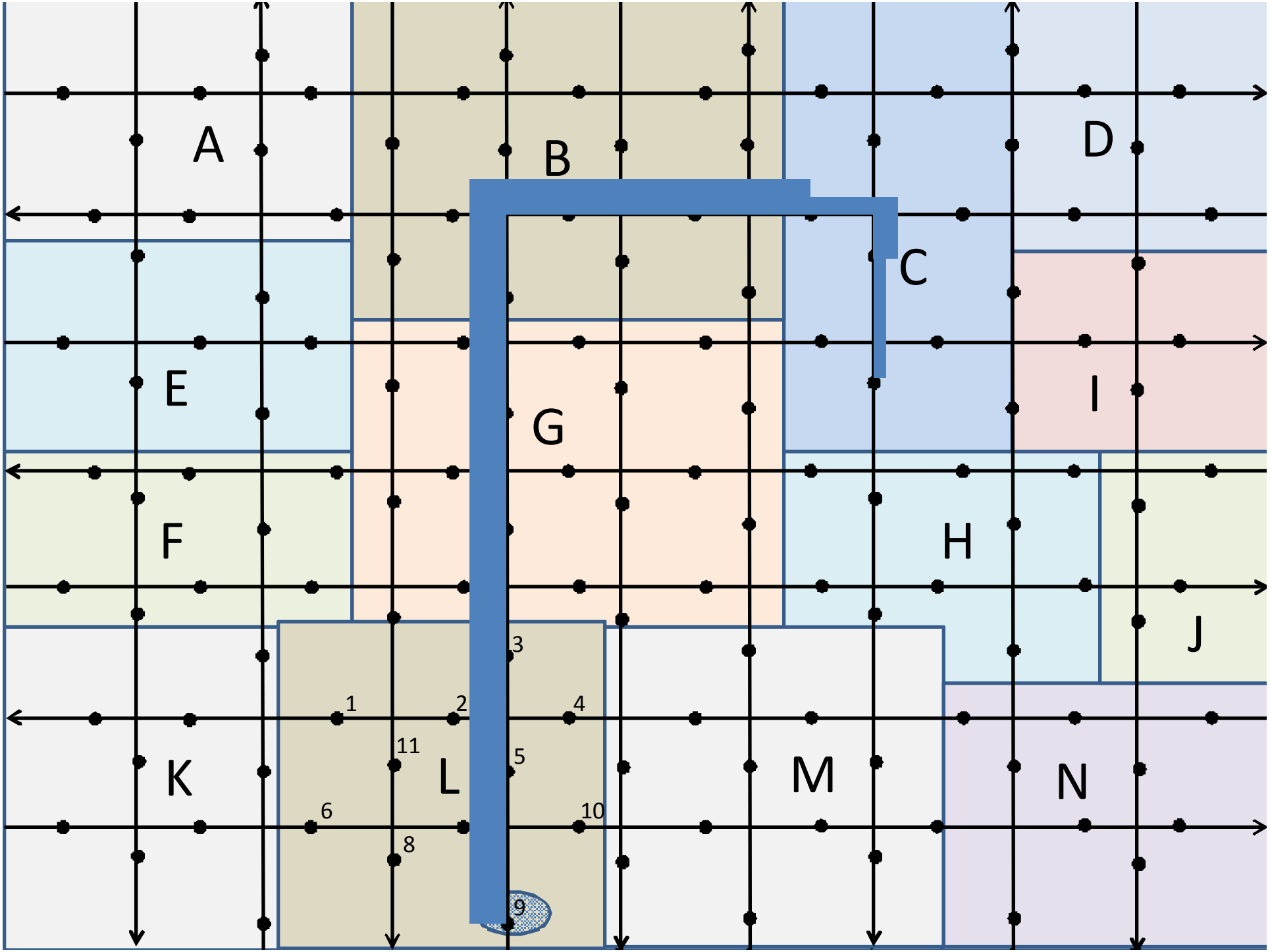


Dynamic Zones

- Determined in real time
  - All stations along route of first passenger
  - Can be expanded
- Pre-assembly still required
- Group members assigned a number matching an entrance lane number

Preliminary Operational Analysis

- Ridesharing for trips entirely within origin zone is impractical
- Ridesharing for trip portion in destination zone ~ ½ maximum
- Ridesharing for remainder of trip = maximum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Preliminary Operational Analysis

- Analysis results for 5 minute wait times
  - 85% - 167% improvement in average occupancy
  - More effective with higher demand
- Practical considerations need to be considered
  - Desire to rideshare
  - Detailed station logistics
  - System operational requirements

Advantages

- Fewer vehicles for same demand
  - Higher capacity
  - Lower costs and/or fares
- Price-dependent level of service
- Adaptable to varying demands
- Promotes orderly and efficient vehicle boarding

Disadvantages

- Added level of complexity
- Requires increased platform area
  - Offset by reduced need for station bays?
- Must trade extra wait time for lower fare

Conclusions

- Potentially significant benefit when
  - Demand is high
  - Large proportion low income
- Larger vehicles in denser communities?
  - Requires further analysis
- Close station spacing could reduce ridesharing efficiency
- Further research is needed

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