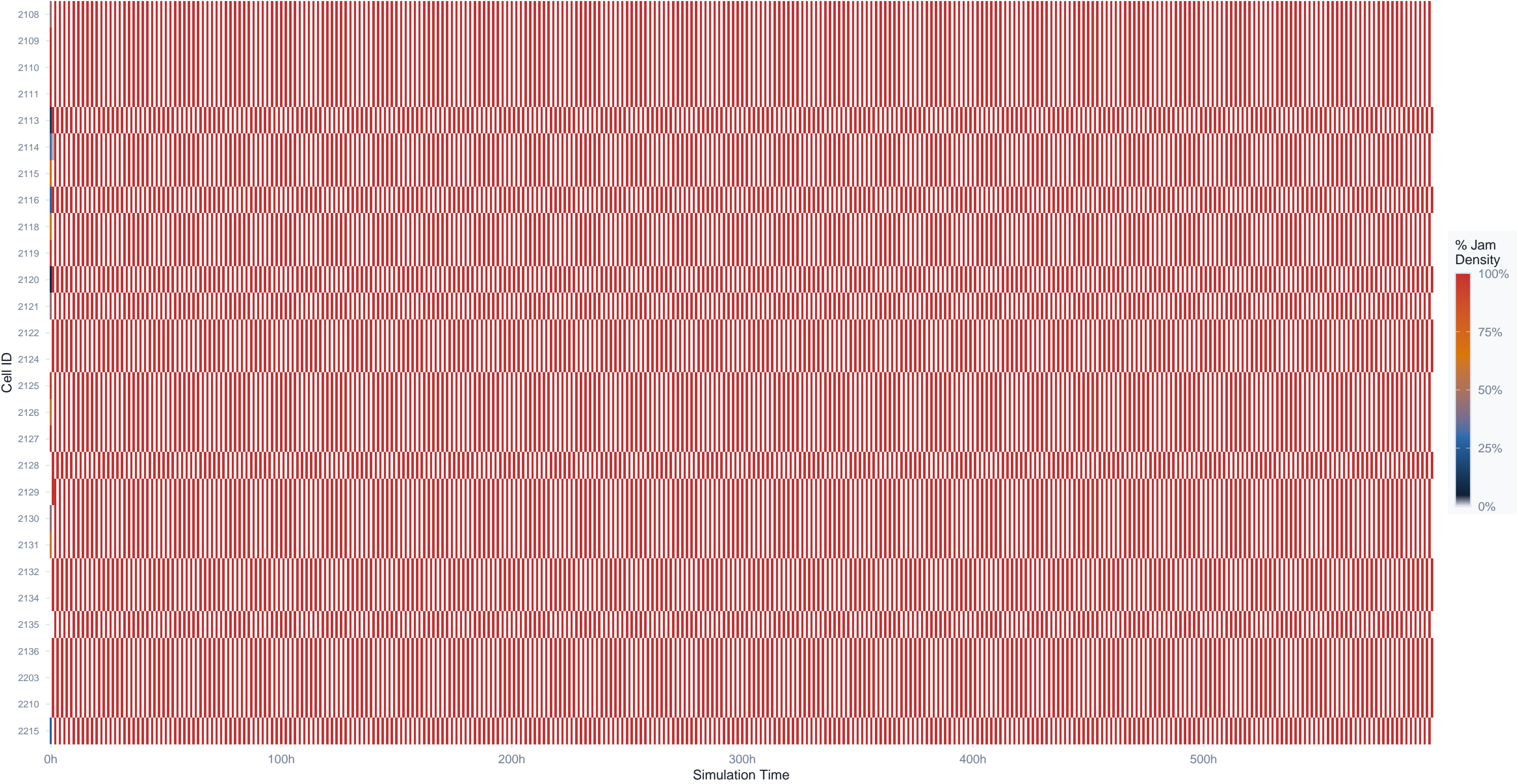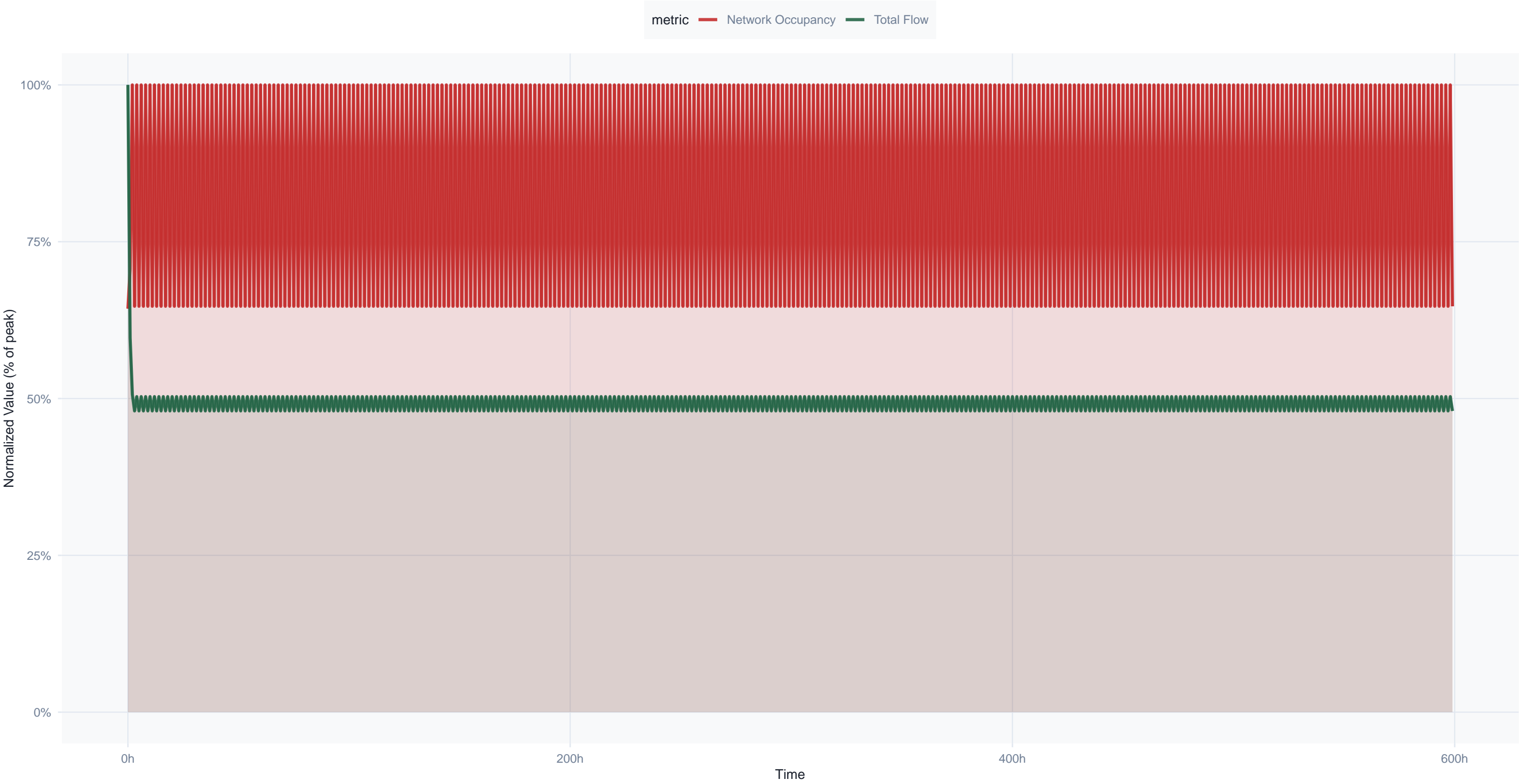# Space–Time Congestion Map

Each row = one cell · color = % of jam density · dark = free–flow · red = gridlock
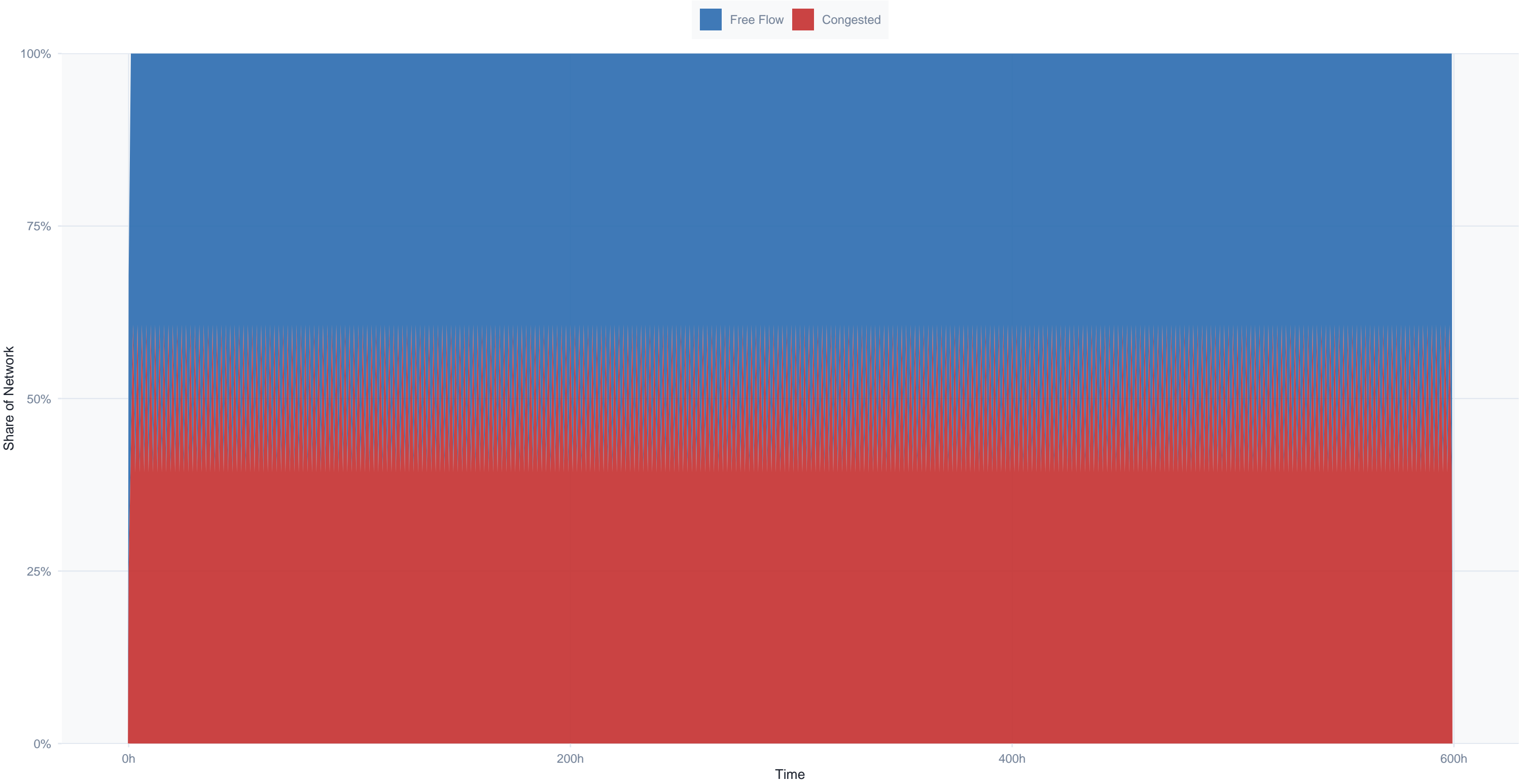
Network Pulse

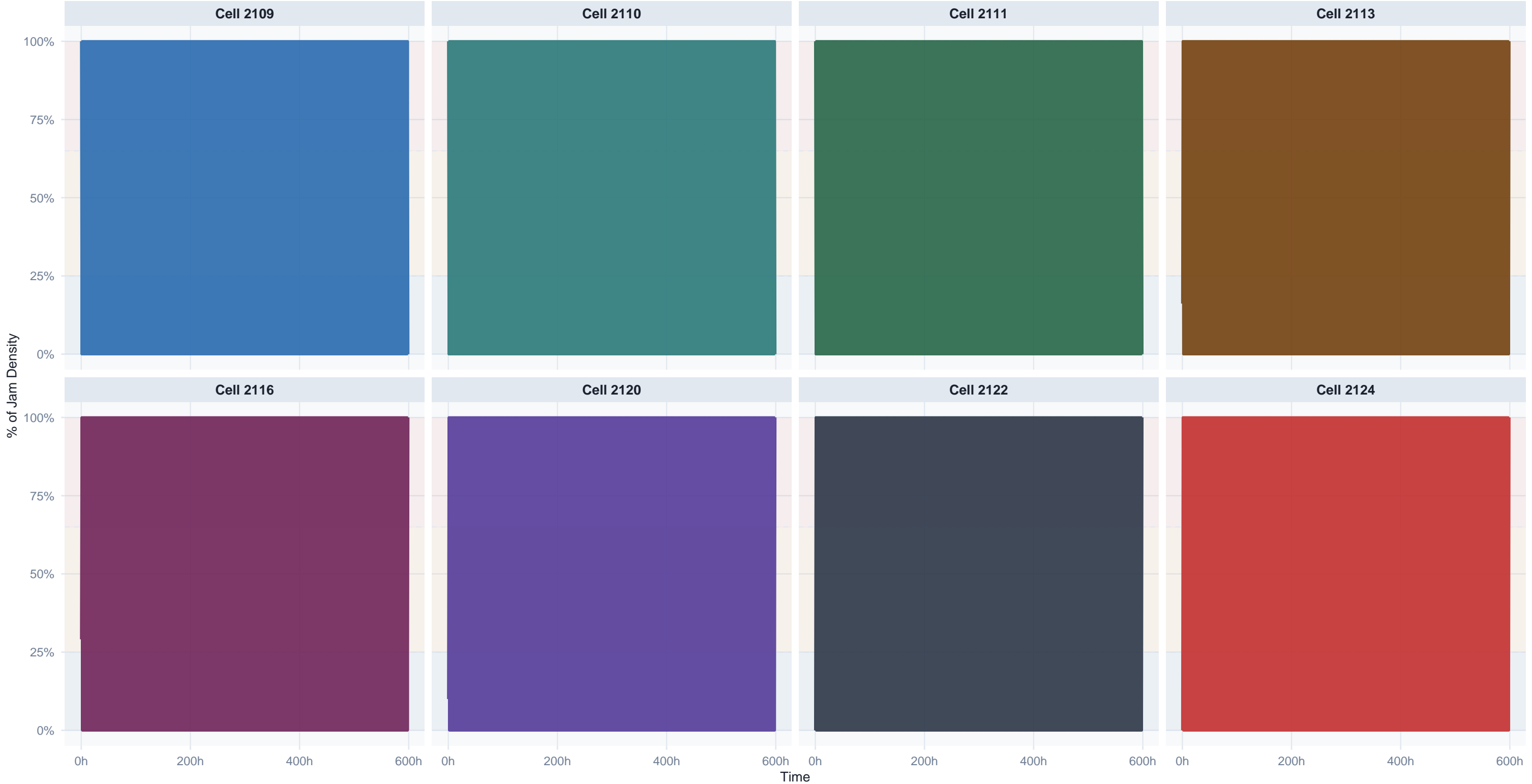Normalized occupancy vs. flow — divergence signals bottleneck formation

Network State Composition Over Time

Share of cells in each congestion regime at each timestep
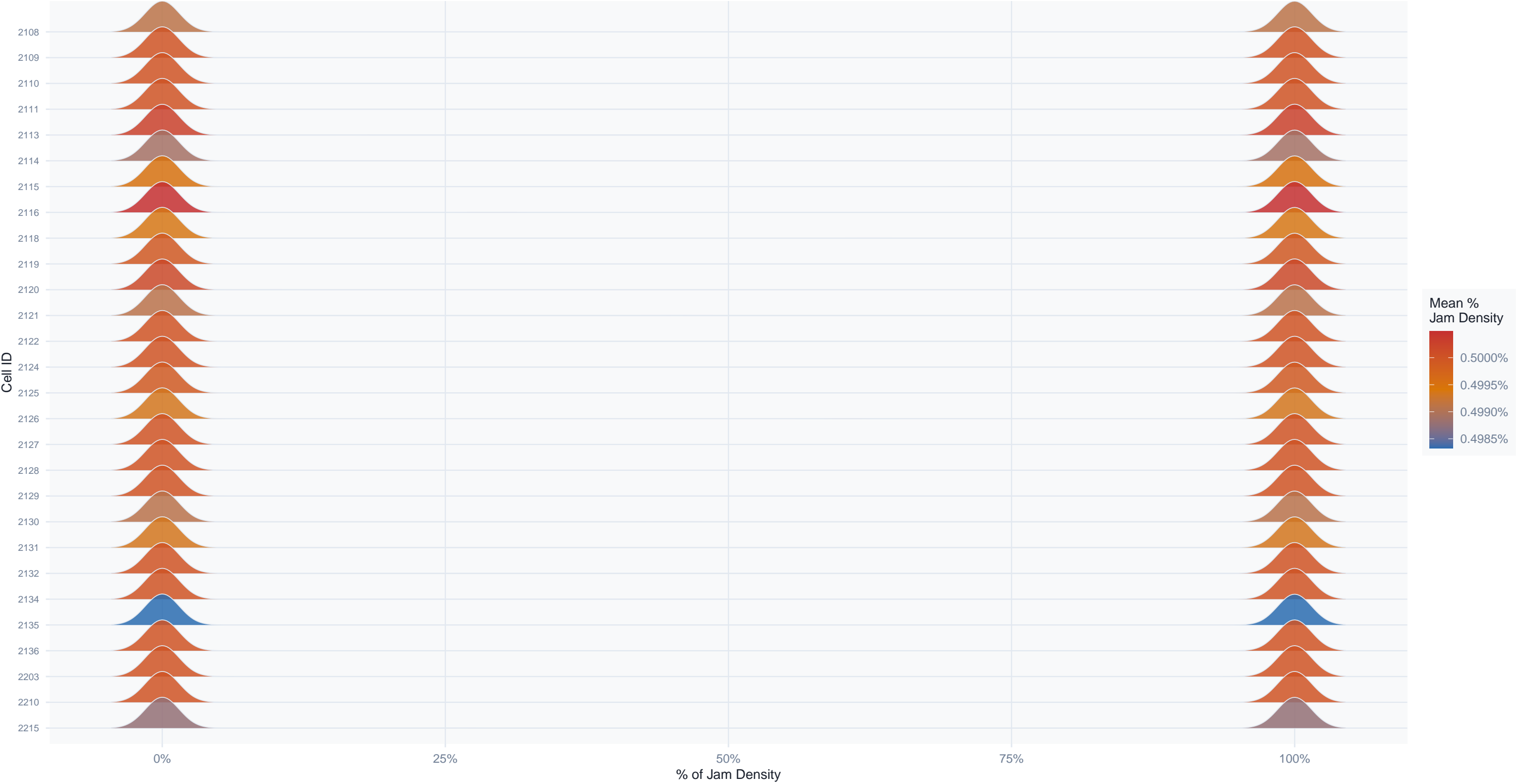
Congestion Trajectory — Top Busiest Cells

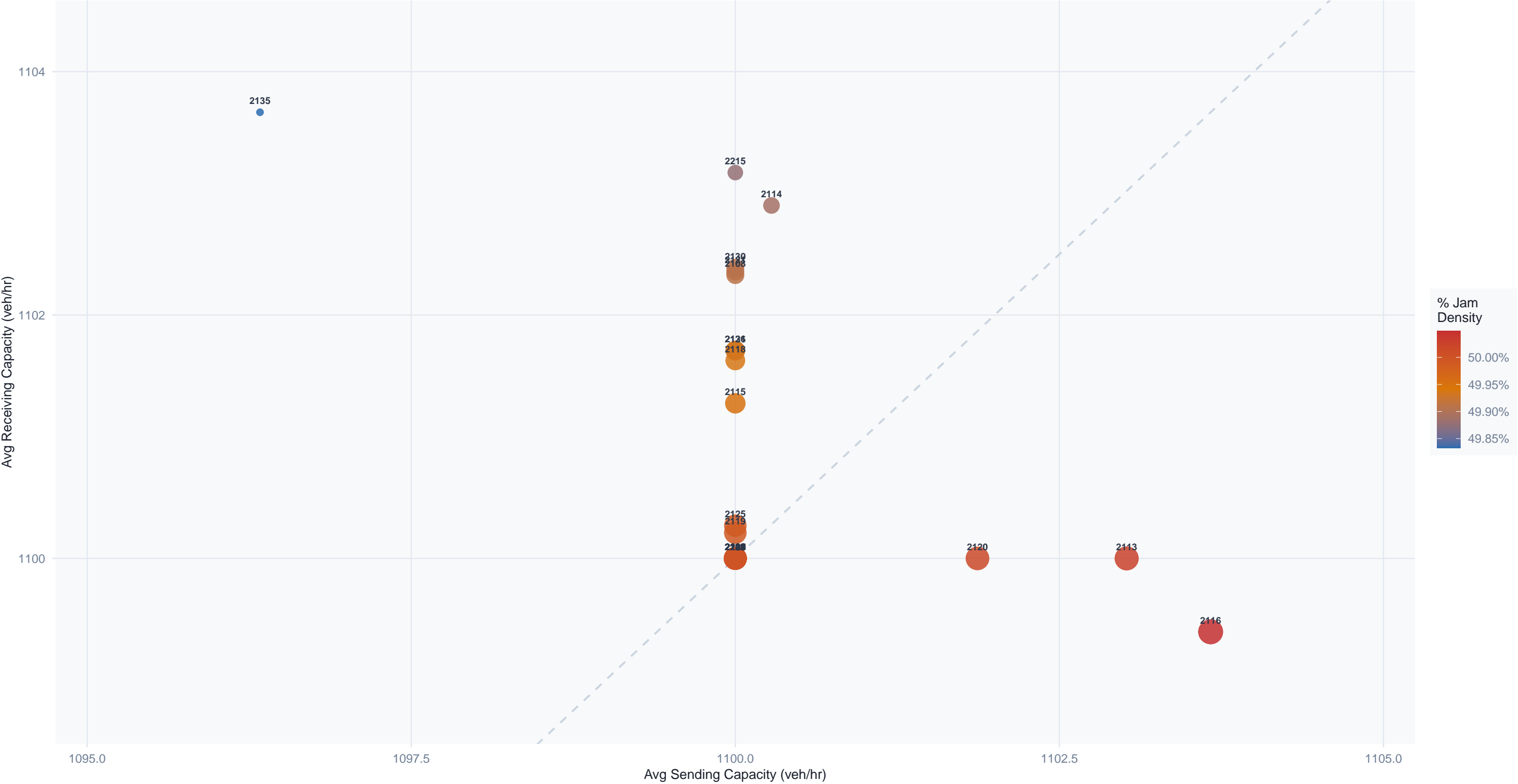% of jam density over time · shaded bands = free/transitional/congested regimes

Density Distribution by Cell

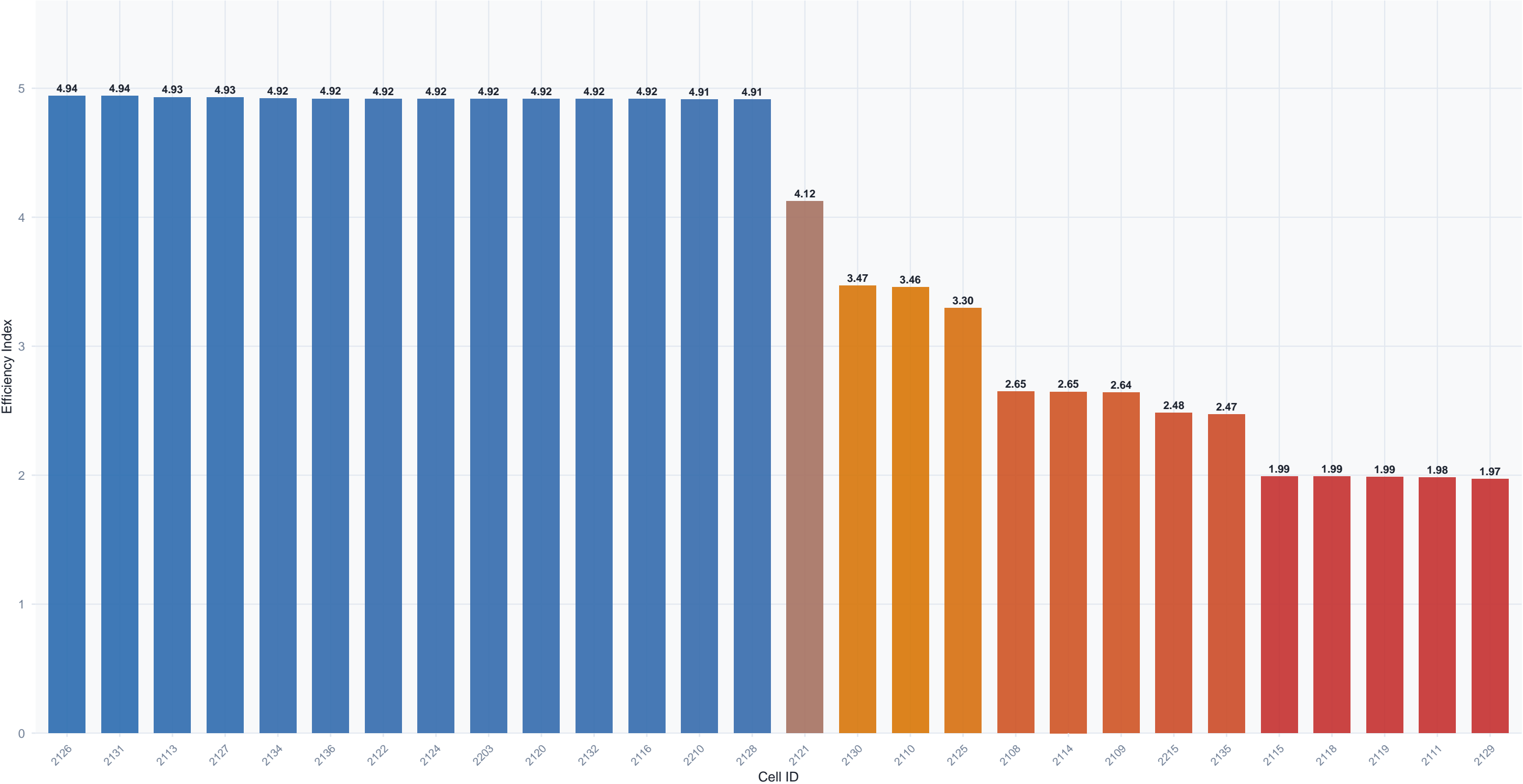Spread of occupancy states across simulation — color = chronic congestion level

Sending vs. Receiving Capacity

Points below diagonal = bottlenecks · color = congestion · zoomed to data range

Cell Throughput Efficiency

Total outflow / (avg vehicles × timesteps) — higher = more efficient throughput

Cumulative Origin–Destination Flow Matrix

Total vehicles exchanged between cell pairs · empty cells = no direct connection · labels on top 25% flows