

Autonomous Zero Emissions Freight Transportation





We built Parallel to transform the freight industry with
a cleaner and automated rail future.



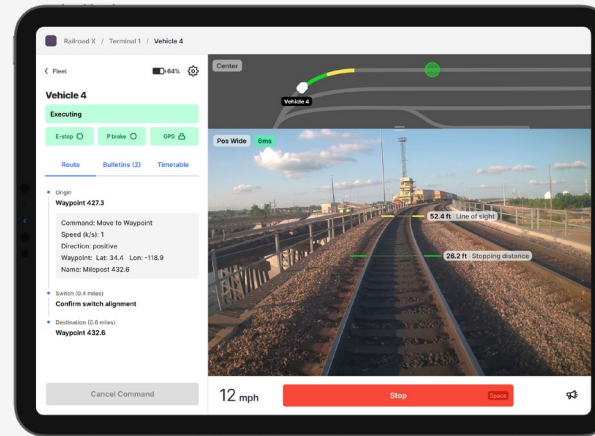
Parallel is developing technology to allow rail
to **serve more markets.**

Tools to Shift Trucking to Rail



Vehicles

Autonomous battery electric vehicles and charging equipment



Management

Tools for railroads that integrate into existing back-office controls



Terminals

Systems that enable lean, fully electric lift and drayage solutions



Parallel's Core Innovation



Eliminating the aggregation and sorting inherent in today's railroad operations

Reaching more locations directly with container service



Parallel Services

Expanded Line Haul Services

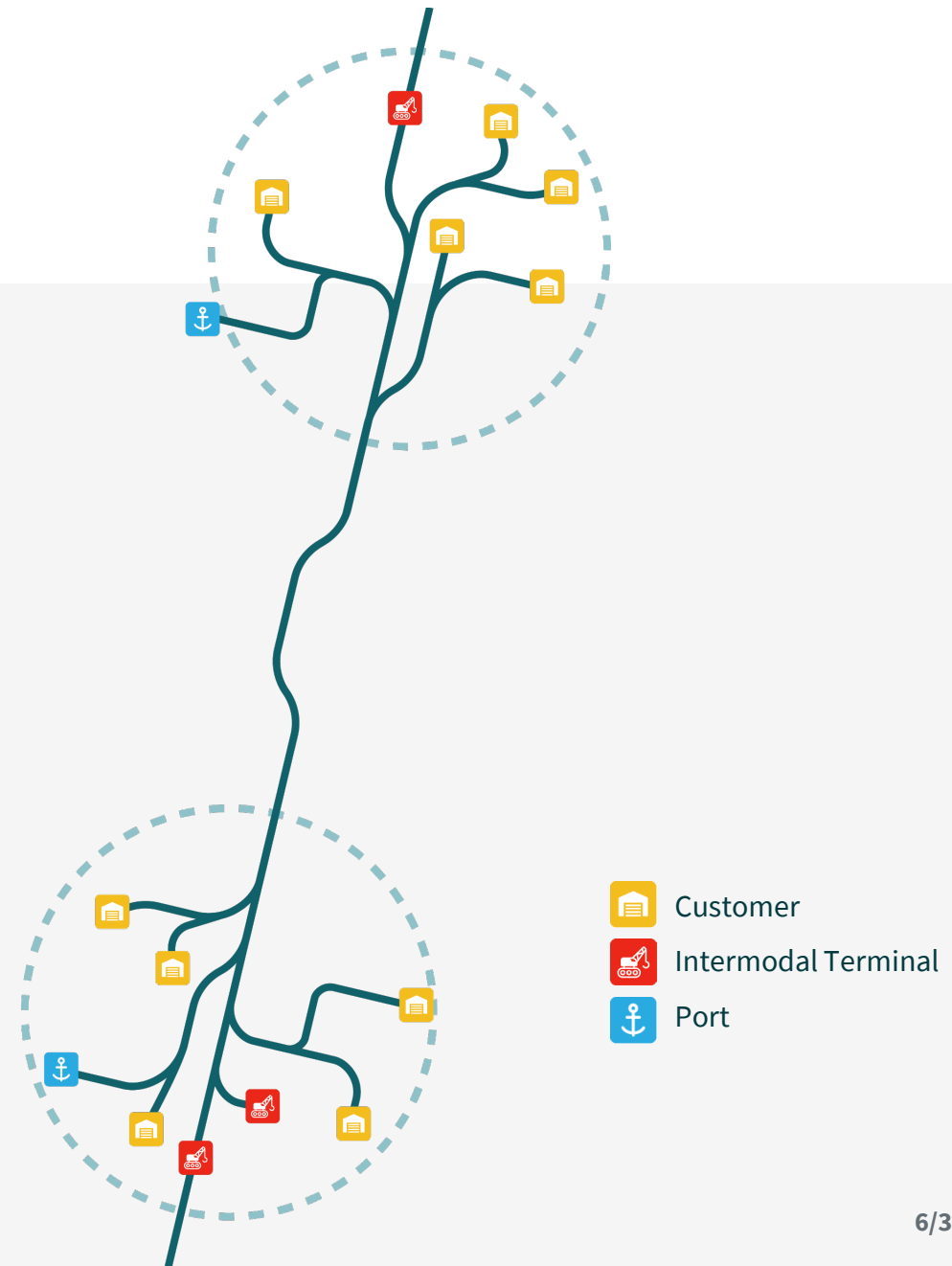
- OD pairs not yet connected by existing service
- 100-1,000 miles

Port Shuttles

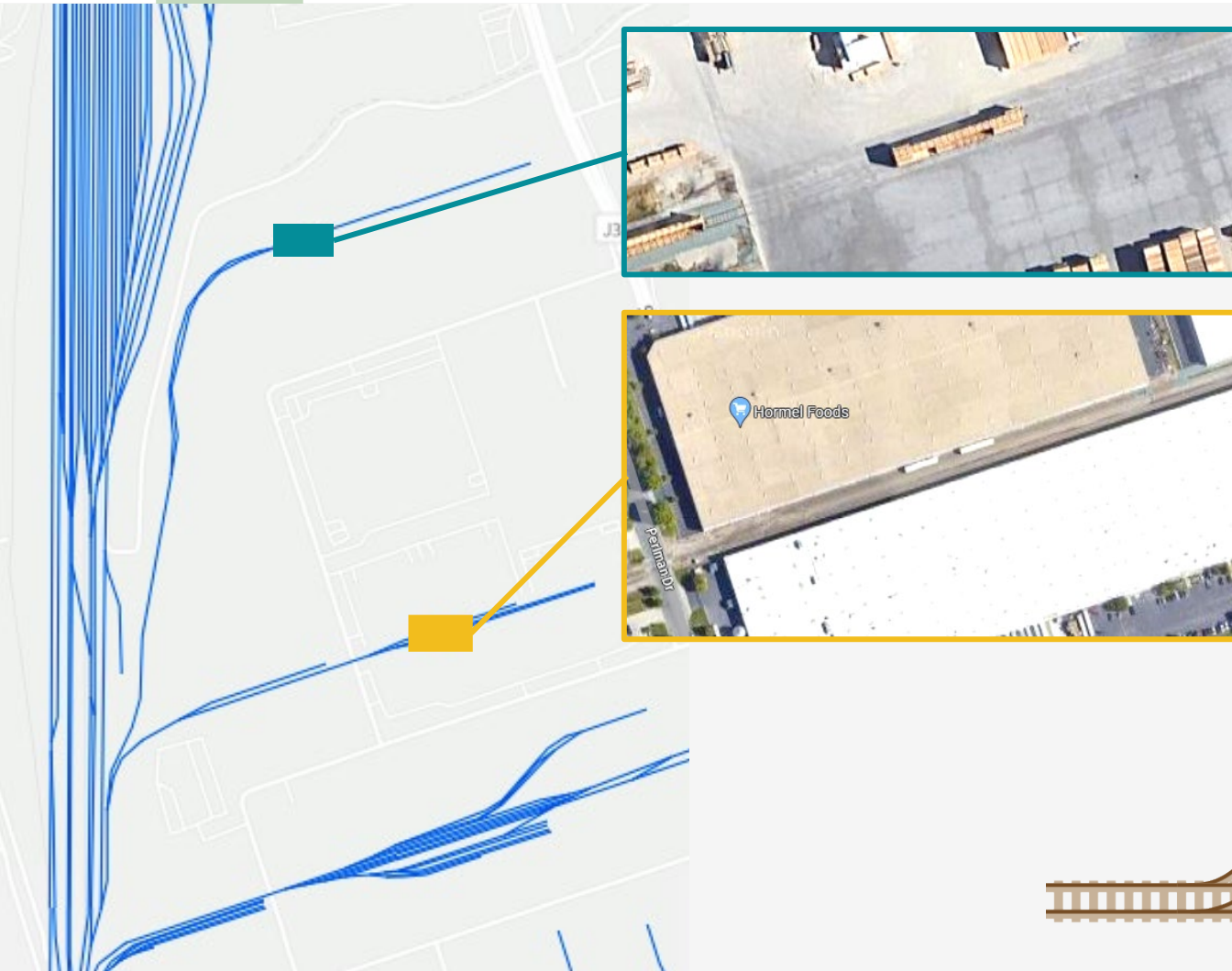
- Captive & dedicated assets
- Off-port container yard or intermodal terminal

Direct to Customer

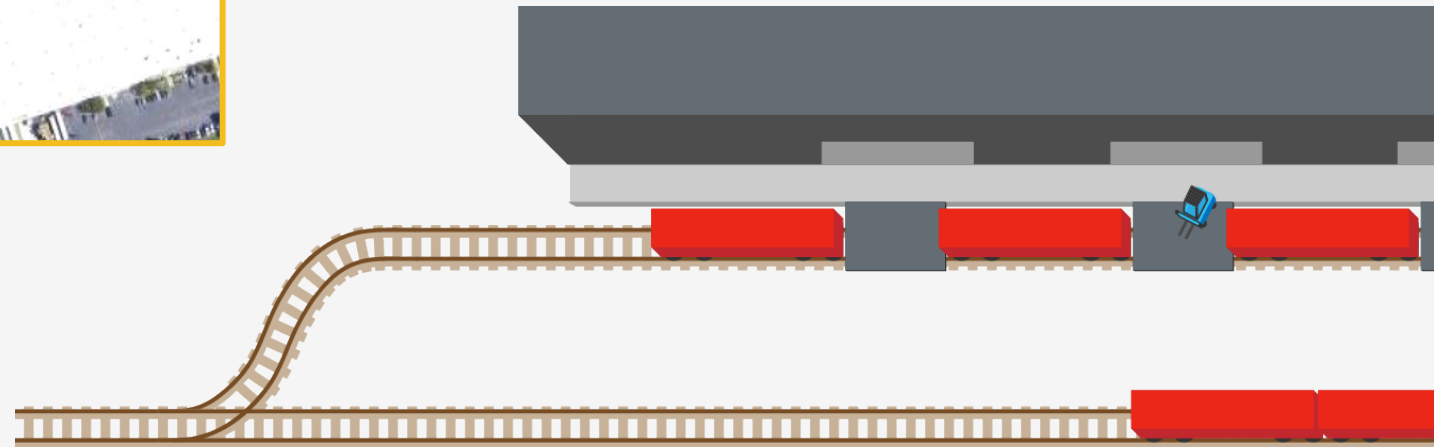
- Rail vehicle delivering containers direct to warehouse dock
- Micro-terminals to be developed within industrial districts



Access Point: Rail-Served Industrial Sites



- Eliminate dray entirely with live load/unload
- Bridge plate to enable fork truck access
 - From dock with 90-degree angle at enclosed sites
 - From ground level with ramp at open sites



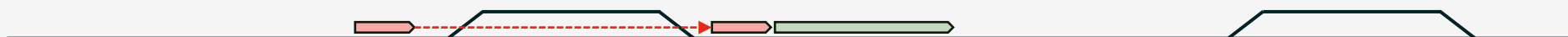
Access Point: Micro-Terminal



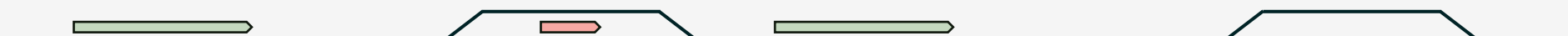
- Maximize inbound and outbound lane options and minimize dray
- Single track, single RTG, minimal parking
- Hostler tractor and small chassis pool captive to the adjacent distribution center campus
- Intra-day container turnaround
- Fully reserved service
- Option 1: Rail shuttle from port or nearby intermodal terminal
- Option 2: Linehaul platoon from any point

Platoon-with-Trains Scenarios

Platoon catches and joins a platoon or train



Platoon sandwiched between two trains



Platoon overtakes a train



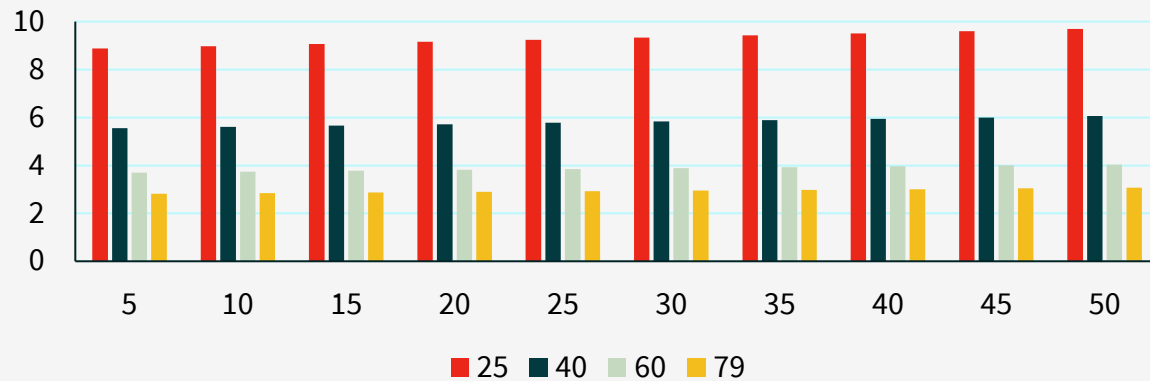
Platoon overtakes by reversing after meet



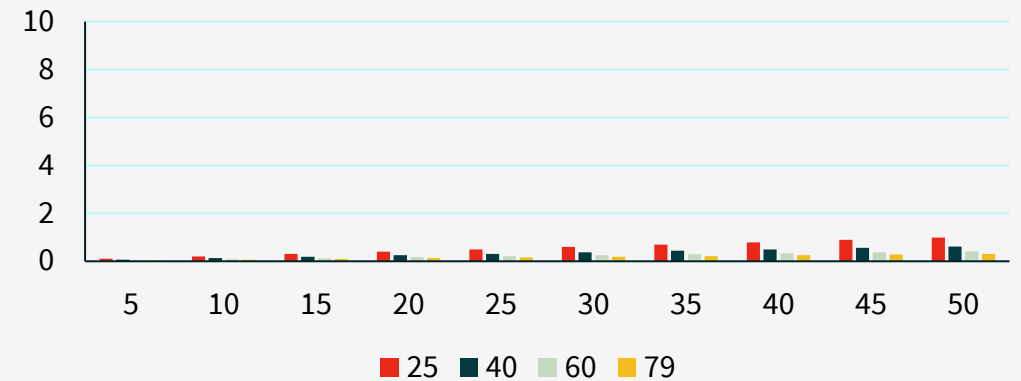
Platoon Capacity Consumption Scenarios

- Parallel vehicles have higher power-to-weight ratios than conventional trains
- A platoon will catch up to the conventional train it follows, and run away from a conventional train following it
- When sandwiched between two conventional trains, a platoon minimizes its capacity footprint by ‘platooning’ with the train ahead
- Parallel is developing several unique control capabilities that enable this
- The graphs below depict the capacity consumed by a Parallel platoon when sandwiched between two conventional trains

Platoon Follows Conventional Train at 4 Miles



Platoon Follows Conventional Train at 25 Feet



X axis: number of vehicles in platoon

Y axis: minutes of route capacity consumed by the “sandwiched” platoon

Columns: max authorized speed on the route