

THE ANATOMY OF THE CONTAINER TERMINAL LOGISTICS SUPPLY CHAIN CONGESTION ISSUES AT THE SAN PEDRO BAY PORTS DURING THE COVID-19 PANDEMIC



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The Impact of “Outside the Terminal” Logistics Constraints - Summary

- The terminal and vessel backlogs that occurred in San Pedro between July 2020 and March 2021 were the result of a cumulative collapse of the entire logistics supply chain.
- There was an unprecedented increase in TEU volume at San Pedro bay Ports starting in April 2020 and peaking in October 2020 and again in March 2021, and remaining at historical high levels from July 2020.
- ILWU labor hours increased in response this volume growth, also remaining at historical levels from July 2020, and production per ILWU hour began to decline, reflecting terminal congestion.
- Terminal dwell times also began increasing in July 2020 and remained at historical high levels through February 2021.
- Truck turn times (from pedestal to pedestal) reflecting queue time outside the gate, retrieval time in the terminal and exit, Reached Between 60 and 70 Minutes beginning in September 2020 and growing to record levels in October and November 2020, and remaining high through March 2021.

The Impact of “Outside the Terminal” Logistics Constraints - Summary

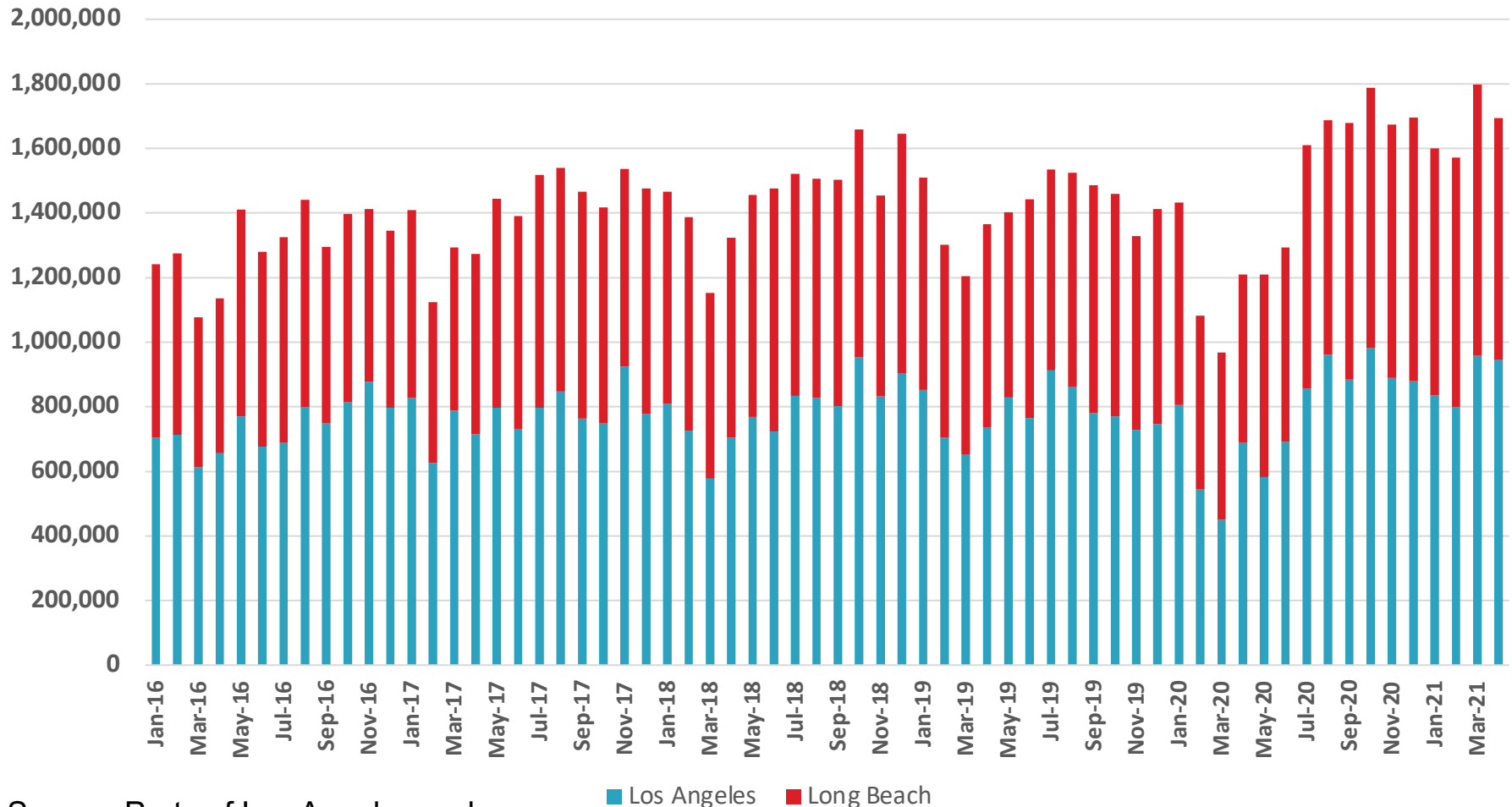
- This on-terminal congestion reflects the growth in on-street dwell time of trucks (measured in terms of chassis turns) moving to and from transload facilities, inferring congestion at the regional transload and distribution centers, as well as the declining and very limited vacancy rate of industrial warehouse property in Southern California and the Inland Empire.
- Further exacerbating the off-terminal congestion is the fact that rail capacity was curtailed through 2020 and early 2021, as reflected by the reduced number of intermodal trains moving daily through the Alameda Corridor, and the dwell time of intermodal containers has been escalating, reducing off-dock storage capacity of intermodal containers, and hence the flow of the containers through the San Pedro Bay Marine Terminals.
- It appears that labor actually responded to the terminal volume demand, but the breakdown in off-terminal logistics systems, primarily warehouse/transload capacity and intermodal rail service actually contributed to the terminal and vessel congestion. The percentage of container vessels at berth either cancelling labor gangs and/or not requesting labor increased to more than 40% per day in peak days in November 2020, and averaged more than 13% per day through March 2021, reflecting the outside the terminal congestion issues.

Key Data - Identify the Operational/Supply Chain Constraints in San Pedro Bay

- Container volume by month, by terminal
- Labor hours worked by terminal by month
- Number of labor gangs cancelled or not ordered per month by vessels at berth
- Container dwell time by month
- Truck turn time by terminal, by month
- On-street dwell time by month (indication of warehouse availability)
- Transload vacancy rate by quarter by region in Southern California
- Intermodal rail dwell time by month since records kept
- Average number of trains per day on the Alameda Corridor by month
- TEUS moved intermodally directly and from other rail yards by month

Total TEU Throughput Peaked in October 2020 and March 2021, and From July 2020 through April 2021, TEU Throughput Has Been at Sustained High Levels

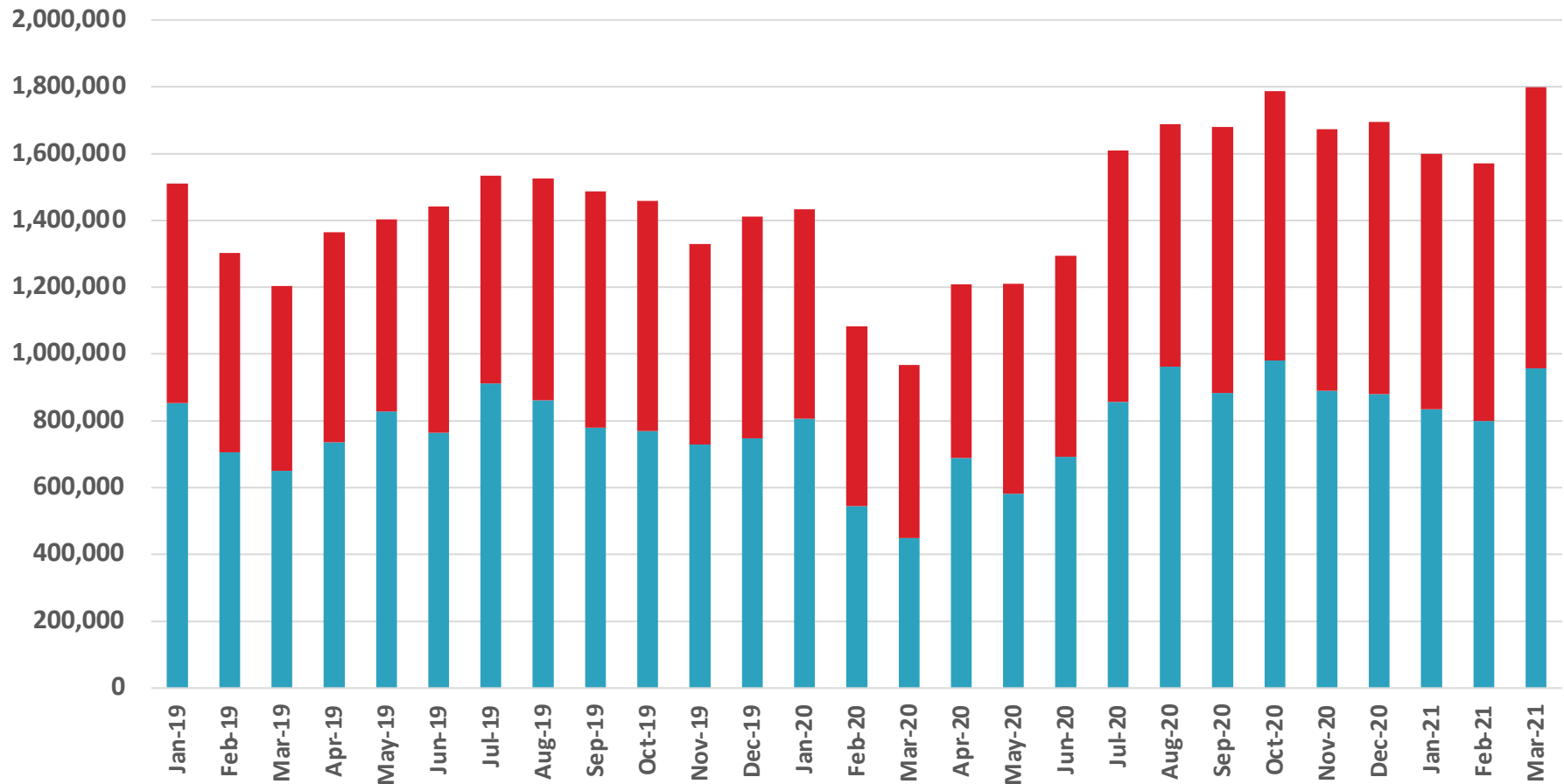
Total TEU Throughput At San Pedro Ports



Source: Ports of Los Angeles and Long Beach

Total TEU Throughput Peaked in October 2020 and March 2021, and From July 2020 through April 2021 TEU Throughput Has Been at Sustained High Levels

Total TEU Throughput At San Pedro Ports

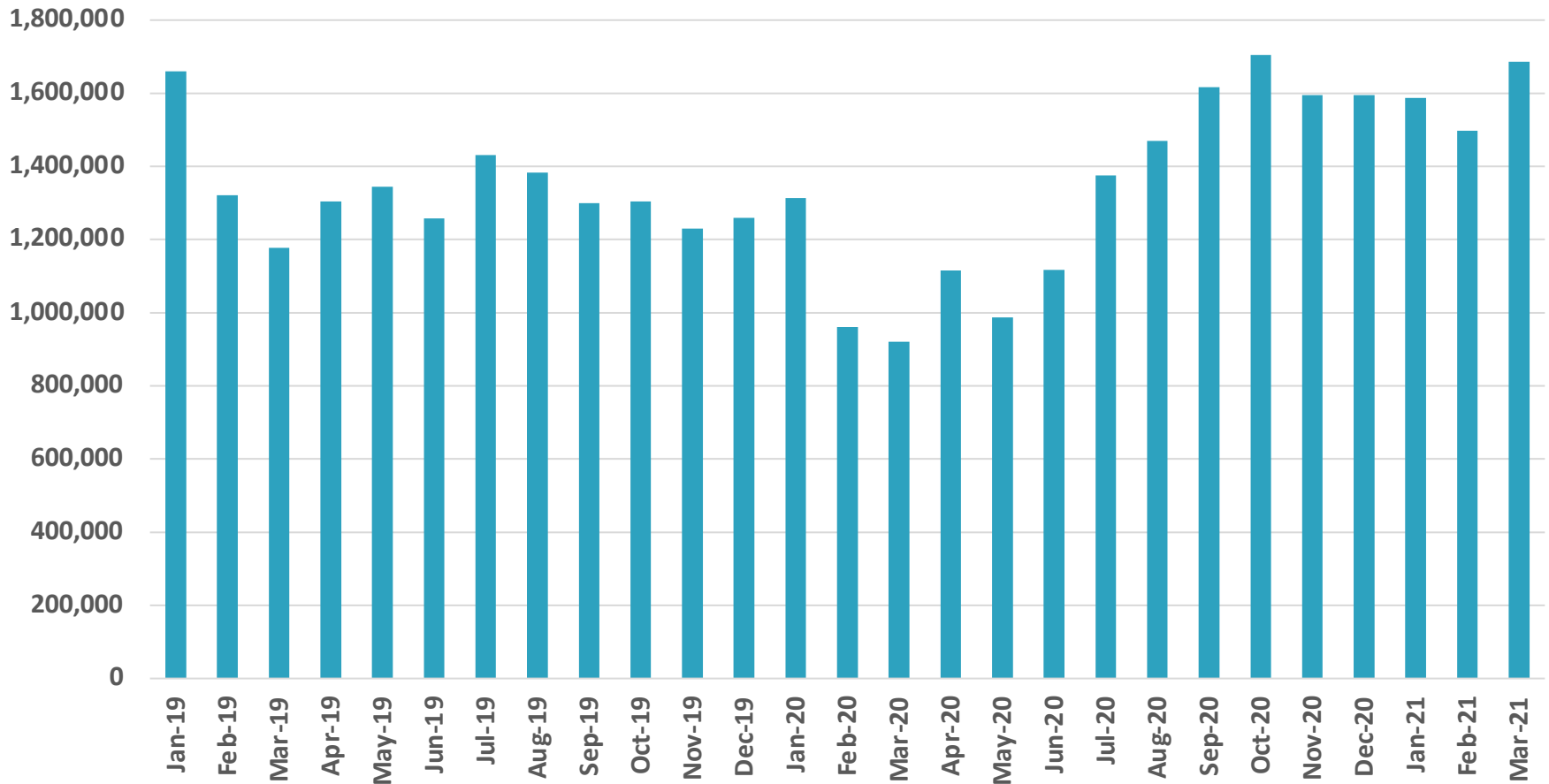


Source: Ports of Los Angeles and Long Beach

Los Angeles Long Beach

Labor Hours Worked at San Pedro Bay Have Responded to TEU Growth During the Pandemic, and Peaked in October 2020

ILWU Hours

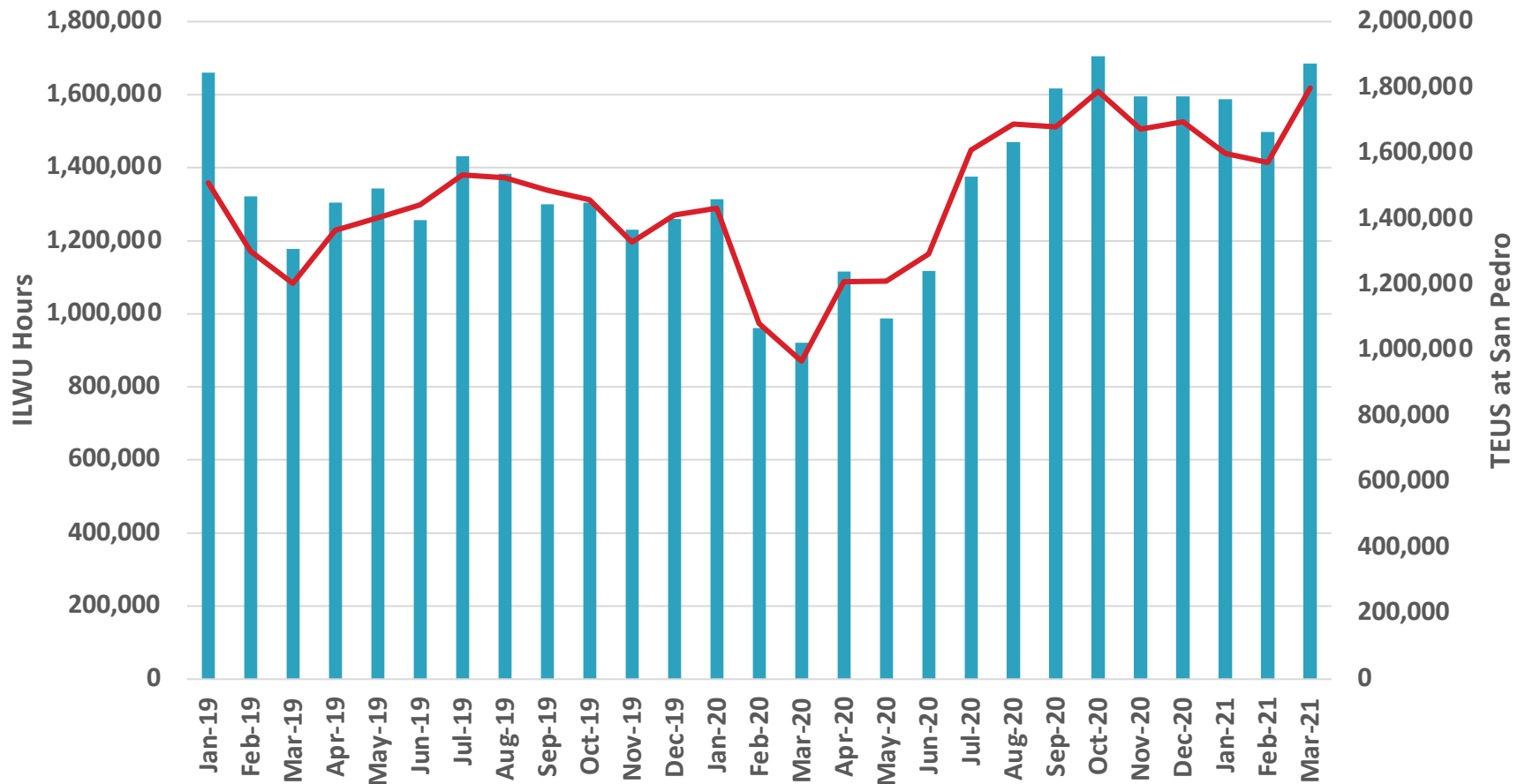


Source: Pacific Maritime Association

■ ILWU Hours

ILWU Hours Responded to TEU Throughput During the Pandemic

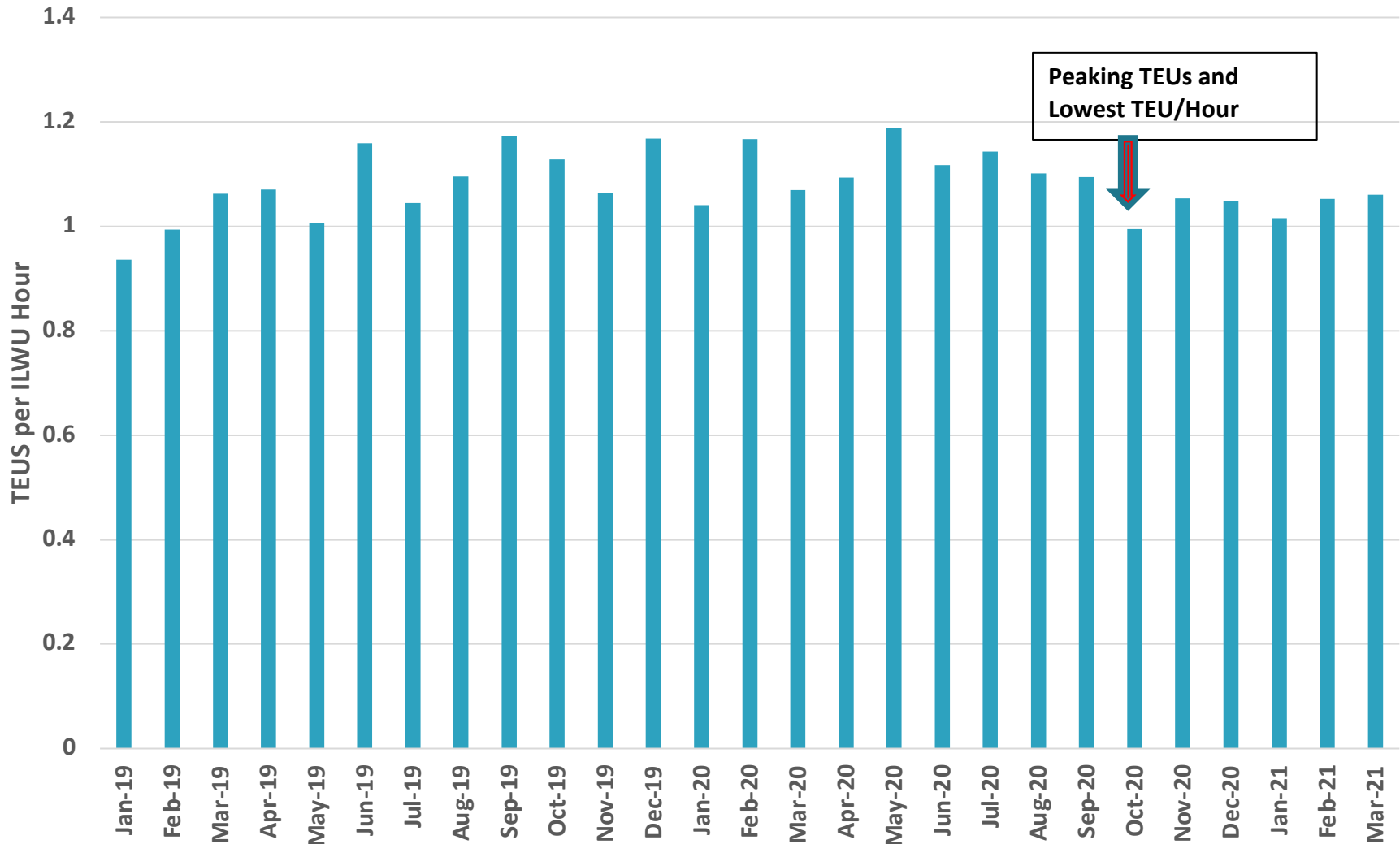
Comparison of TEU Levels and ILWU Hours at San Pedro Bay Ports



Source: Hours from Pacific Maritime Association, TEUS From Ports of Los Angeles and Long Beach

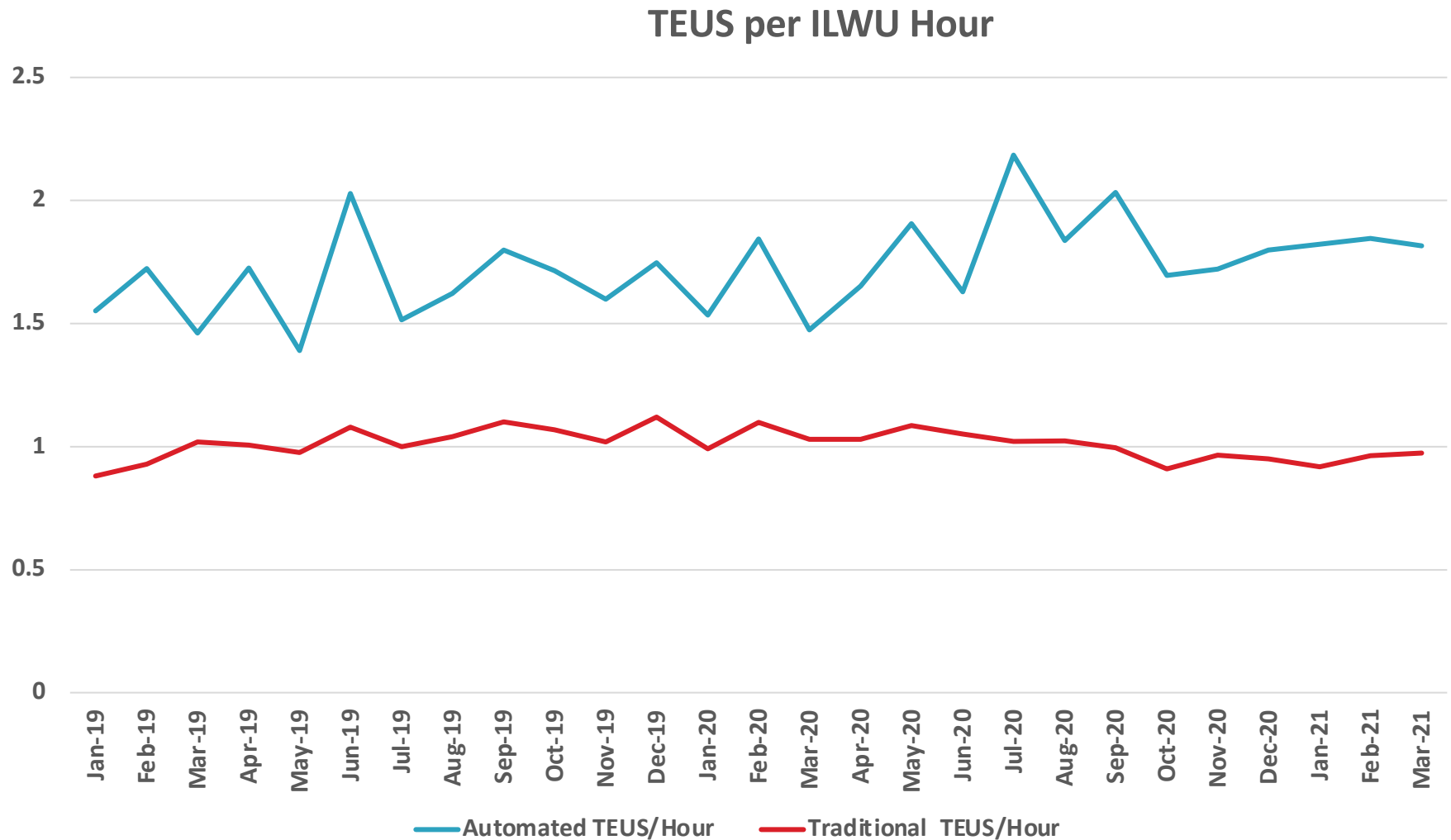
ILWU Hours TEUS

TEUS Per ILWU Hour Declined Through the Pandemic Beginning in May 2020 Reaching a Low Point in October 2020, Reflecting Terminal Congestion and Peak TEU Throughput in that Same Month



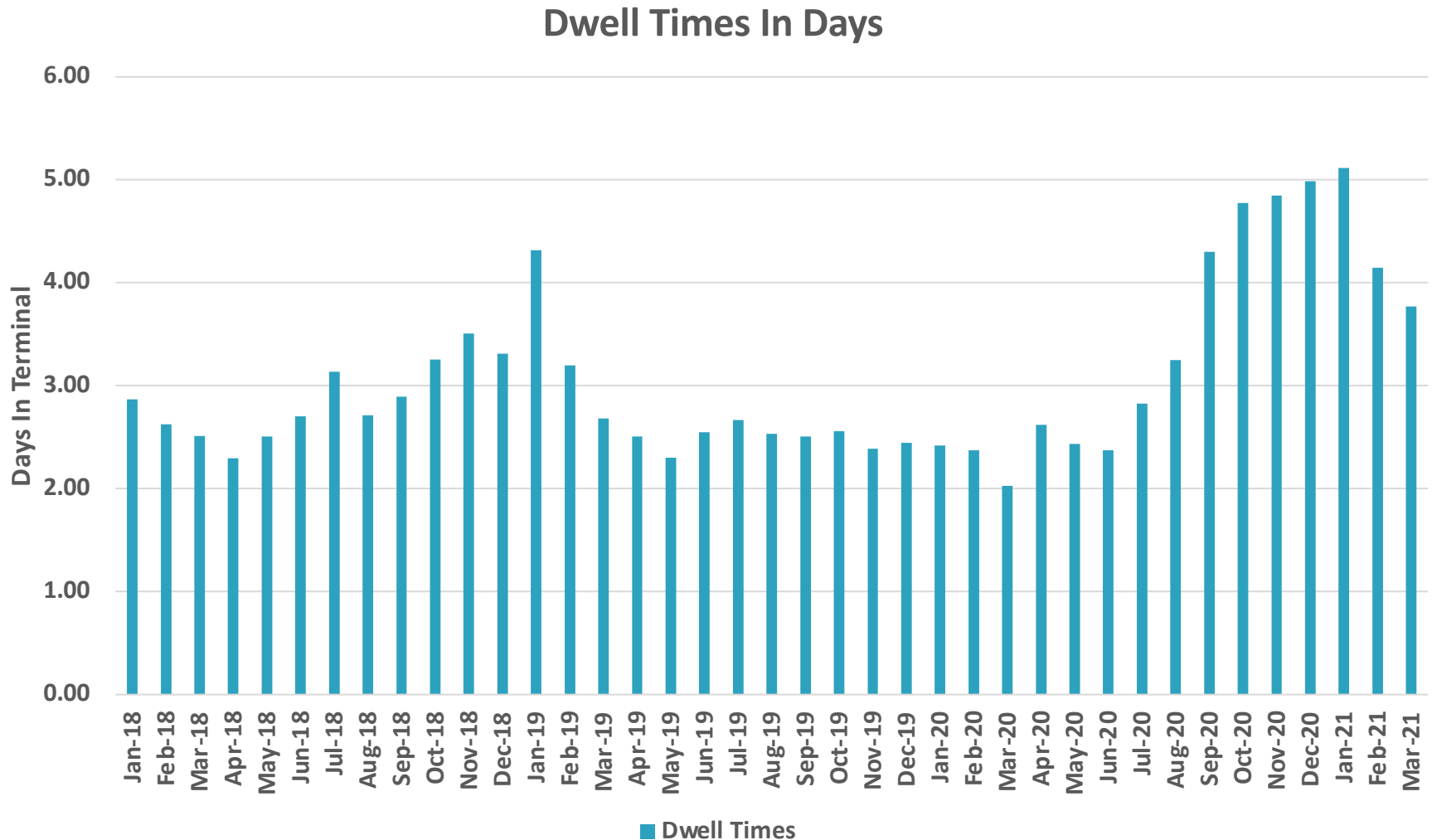
Source: Pacific Maritime Association

Automated Terminals TUES Per Hour Continued an Upper Trend During the Pandemic Compared to Traditional Terminals



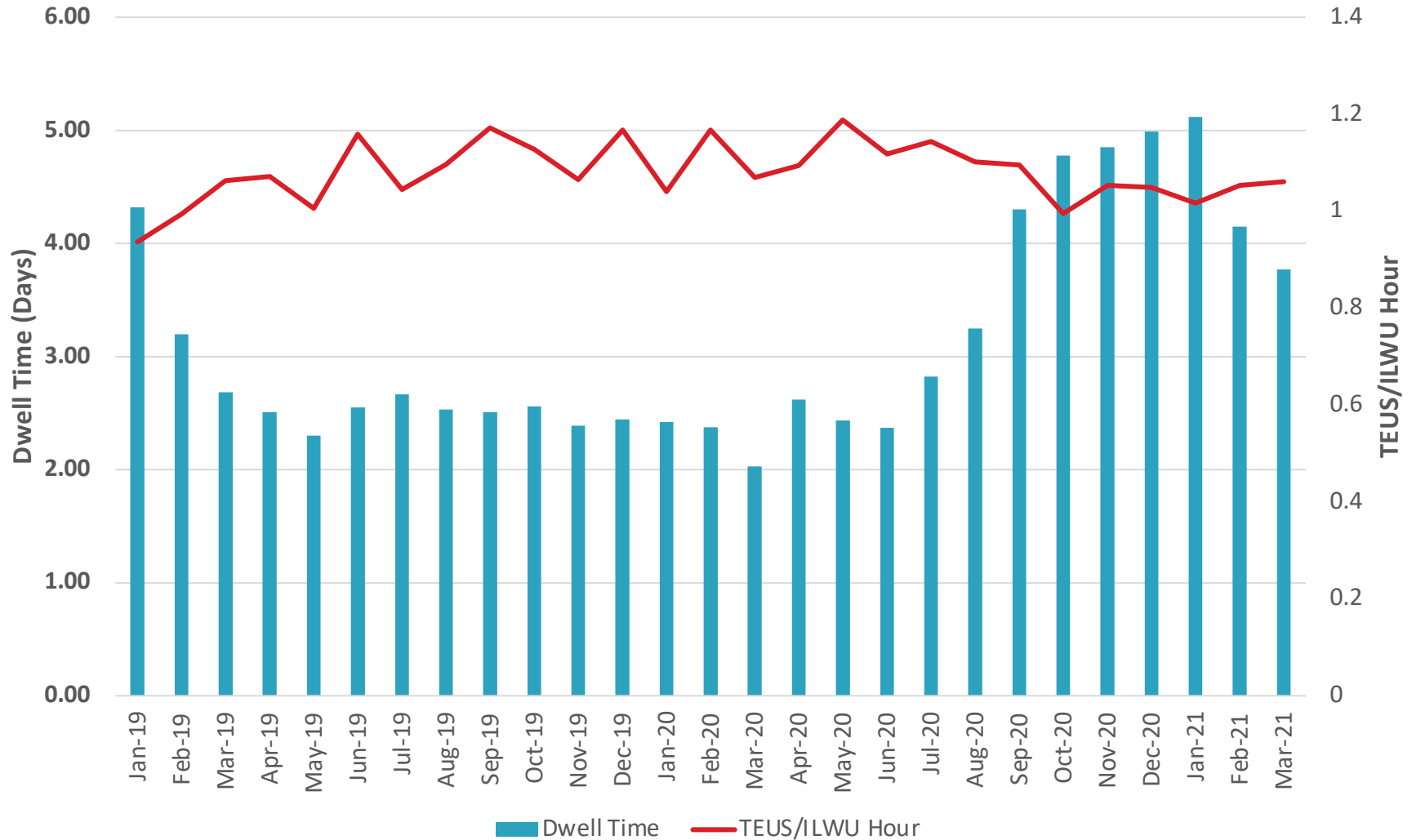
Source: Pacific Maritime Association

Terminal Dwell Times Began Increasing in April 2020, and Peaked in January 2021

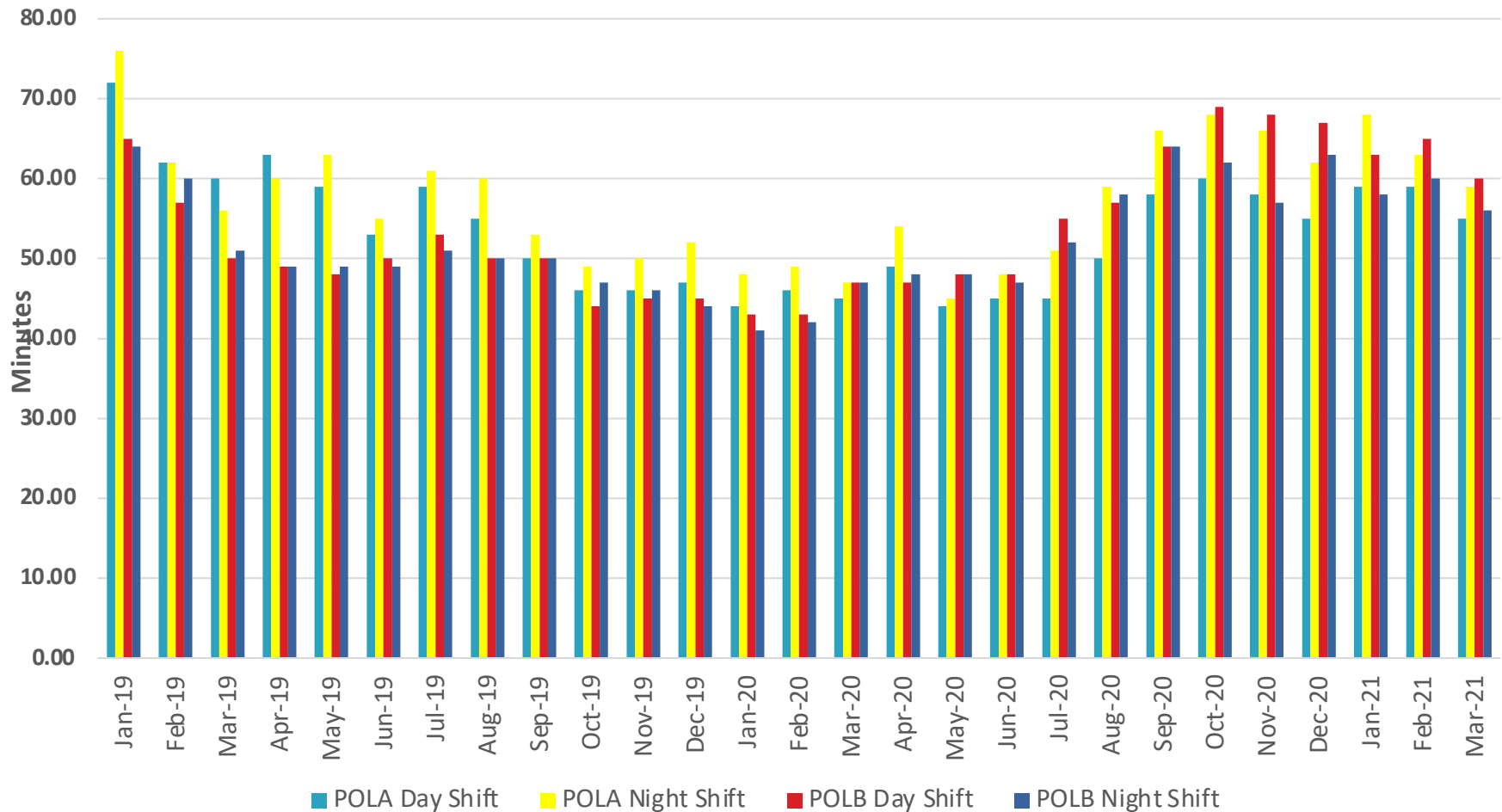


Source: PMSA

The Increase In Terminal Dwell Time/Terminal Congestion Resulted in Lower TEUS Moved per ILWU Hour During the Pandemic

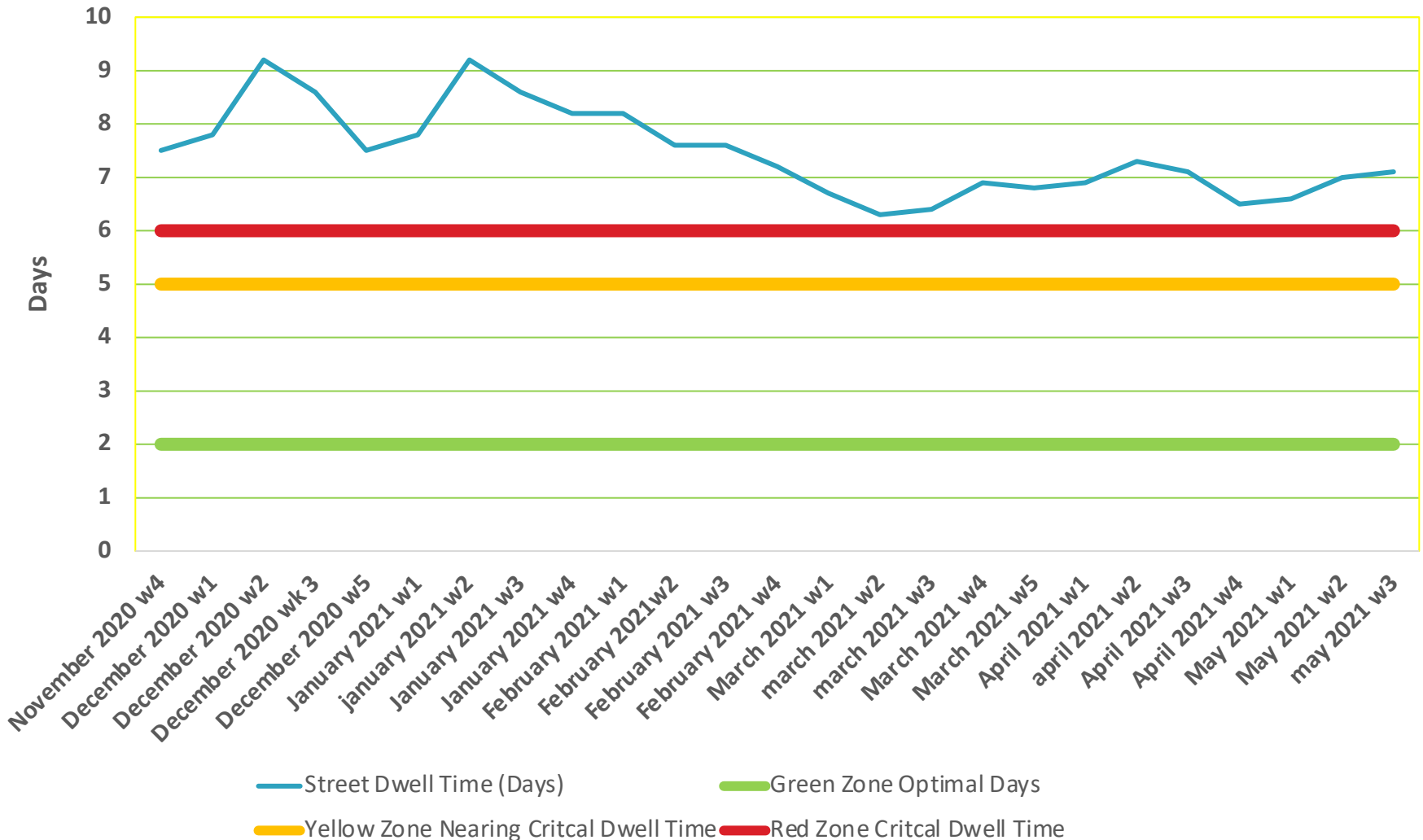


Truck Turn Times at San Pedro Bay Ports Reached Between 60 and 70 Minutes Beginning in September 2020 and Building to Record Levels in October 2020 and November 2020, but Remaining High Through March 2021.



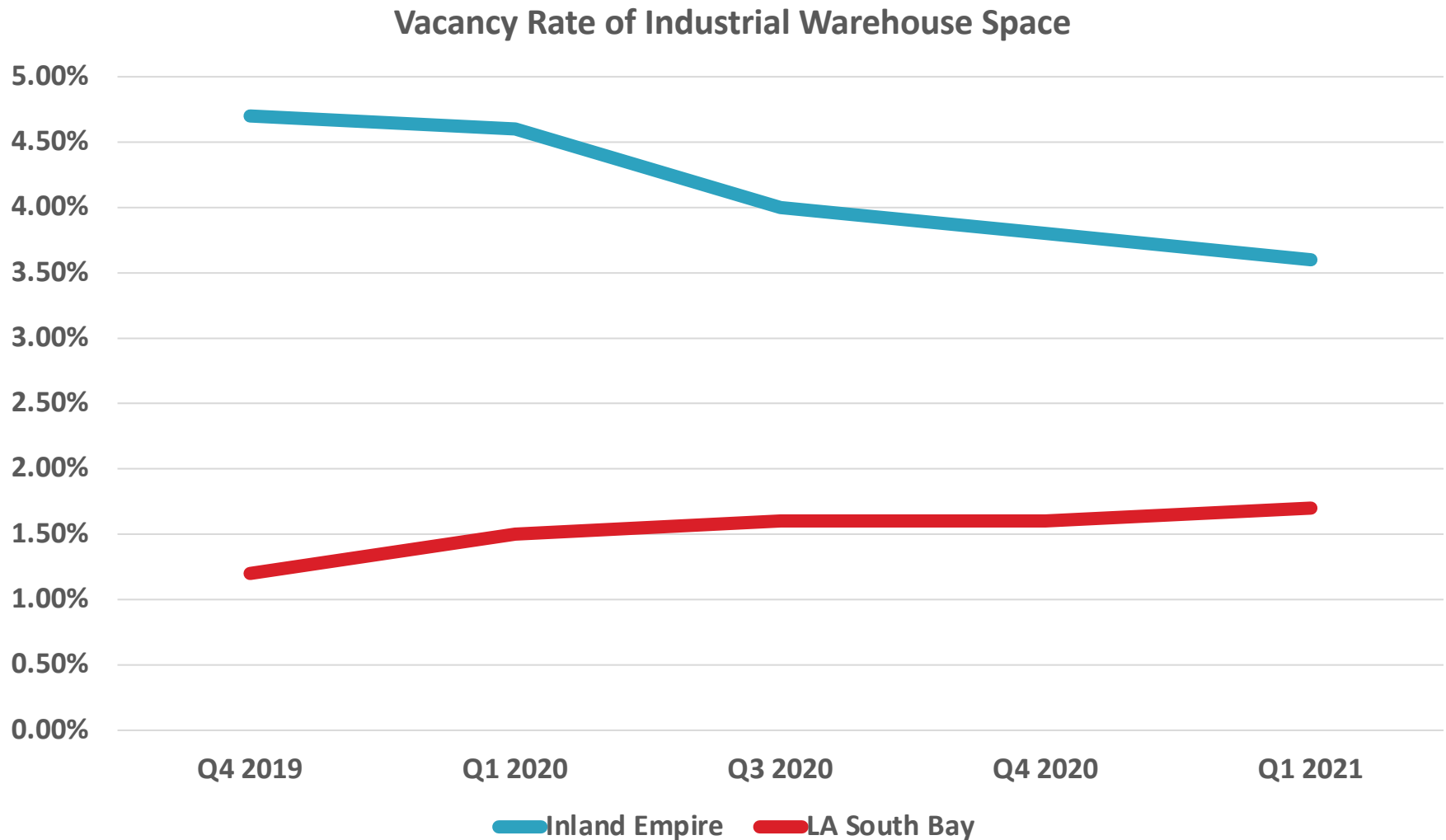
Source: GeoStamp, Harbor Trucking Association and Ports of Los Angeles and Long Beach

Street Dwell Times from the Last Week In November 2020 through May 2021 – Early December and Early January Were Peak Street Dwell Times for Chassis - Corresponding to Peak Terminal Dwell Times and Transload/Warehouse Congestion and Scarcity of Supply. This Suggests that Chassis Are “out of service “ for 7 or More Days. This Exceeds the Red Zone Designation by the POP for Street Dwell Time of More than 6 Days



Source: Pool of Pools and Harbor
Trucking Association

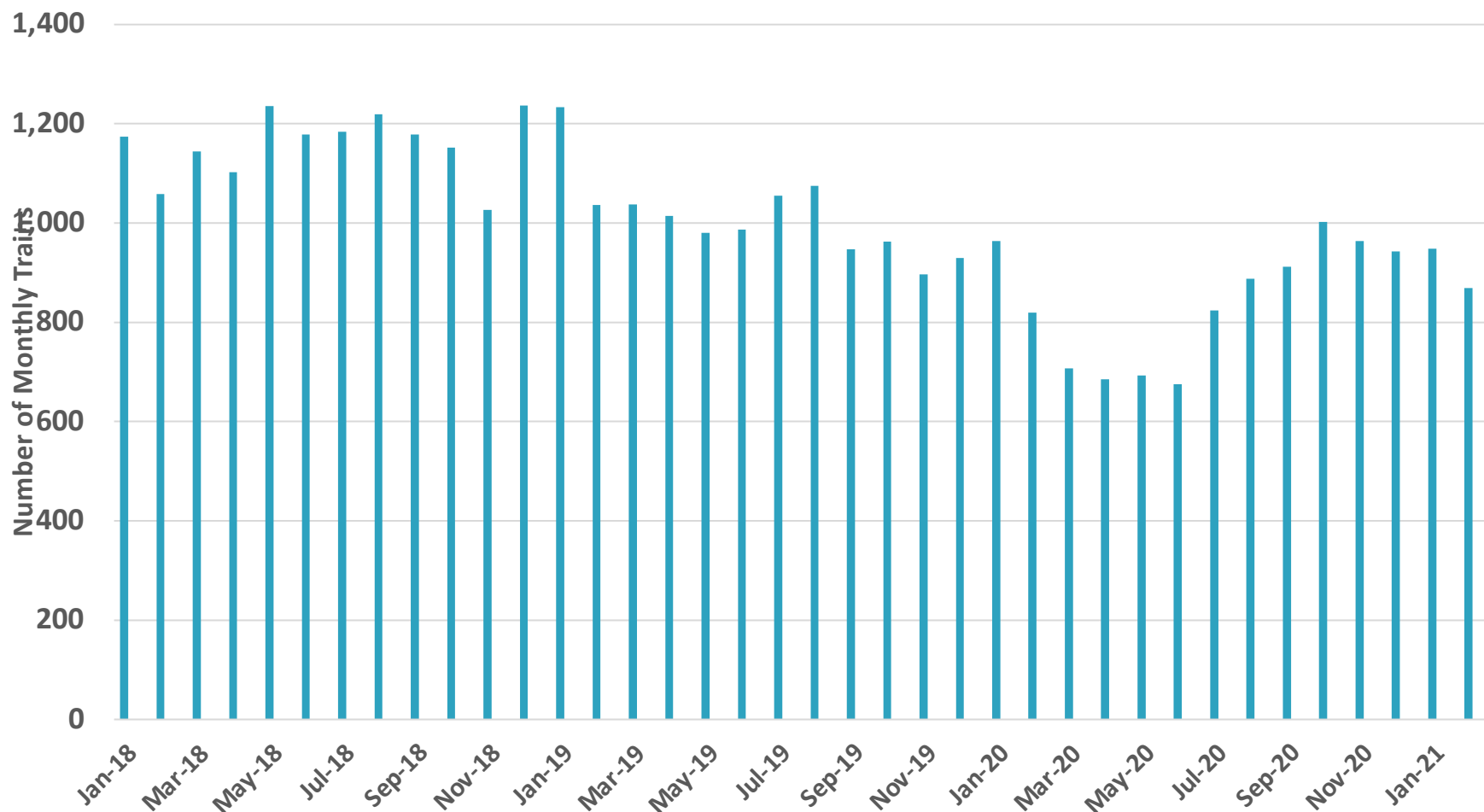
The Vacancy Rate of Industrial Warehouse Space Has Been Declining in the Inland Empire, and Is Below 2% in the Los Angeles South Bay Area. This Suggests a Critical Warehouse/Transload Shortage in the Region



Source: Avison Young and Lee & Associates

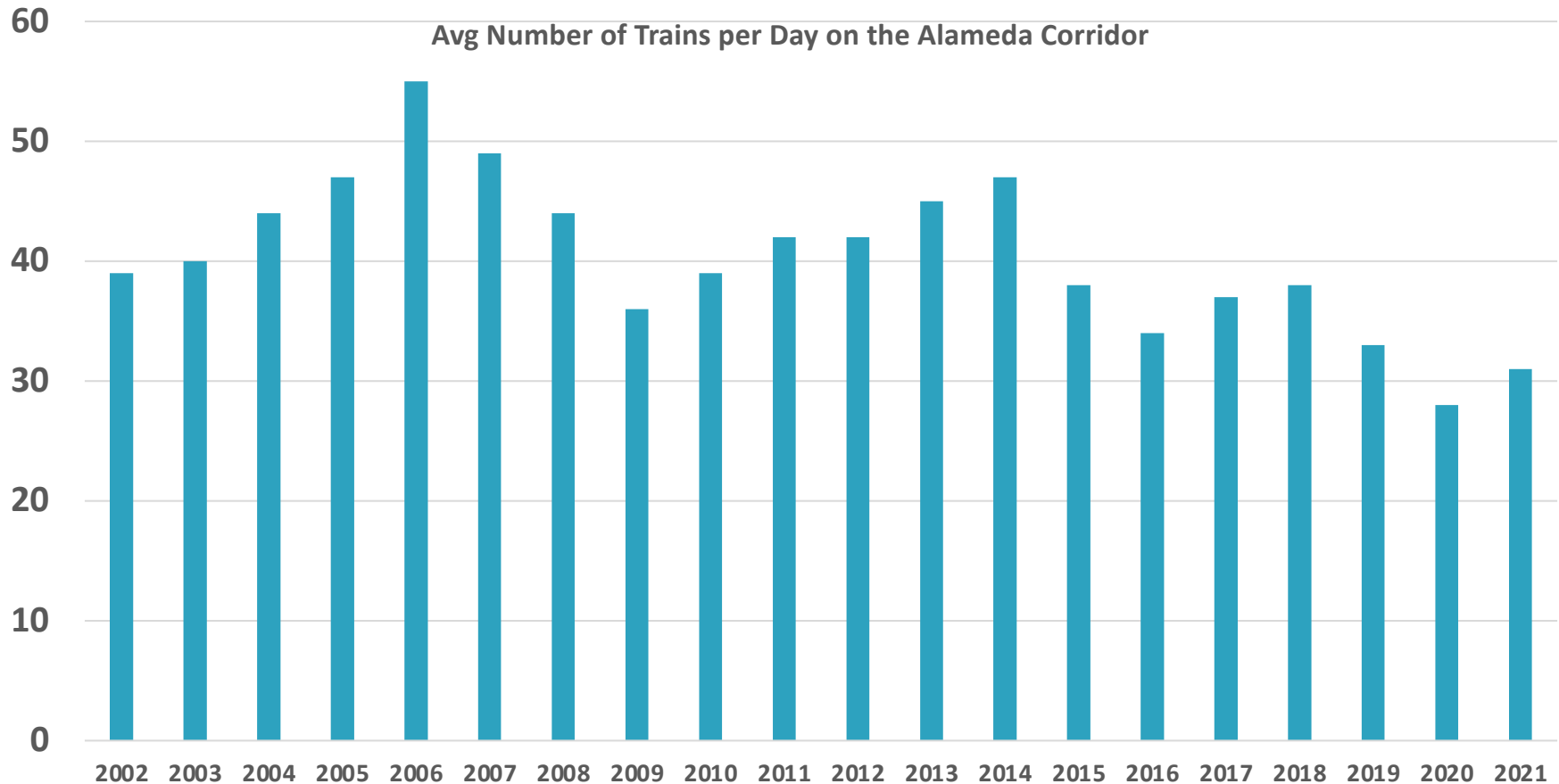
During the Height of COVID-19 Induced TEU Throughput, the Number of Intermodal Trains per Month Through the Alameda Corridor Declined from Previous Levels

Number of Trains Per Month On the Alameda Corridor



Source: Alameda Corridor Transportation Authority

During 2020 and “To Date” in 2021, the Average Number of Daily Trains Through the Alameda Corridor Was at Historically Low Levels, Reflecting Potential Rail Car Shortages

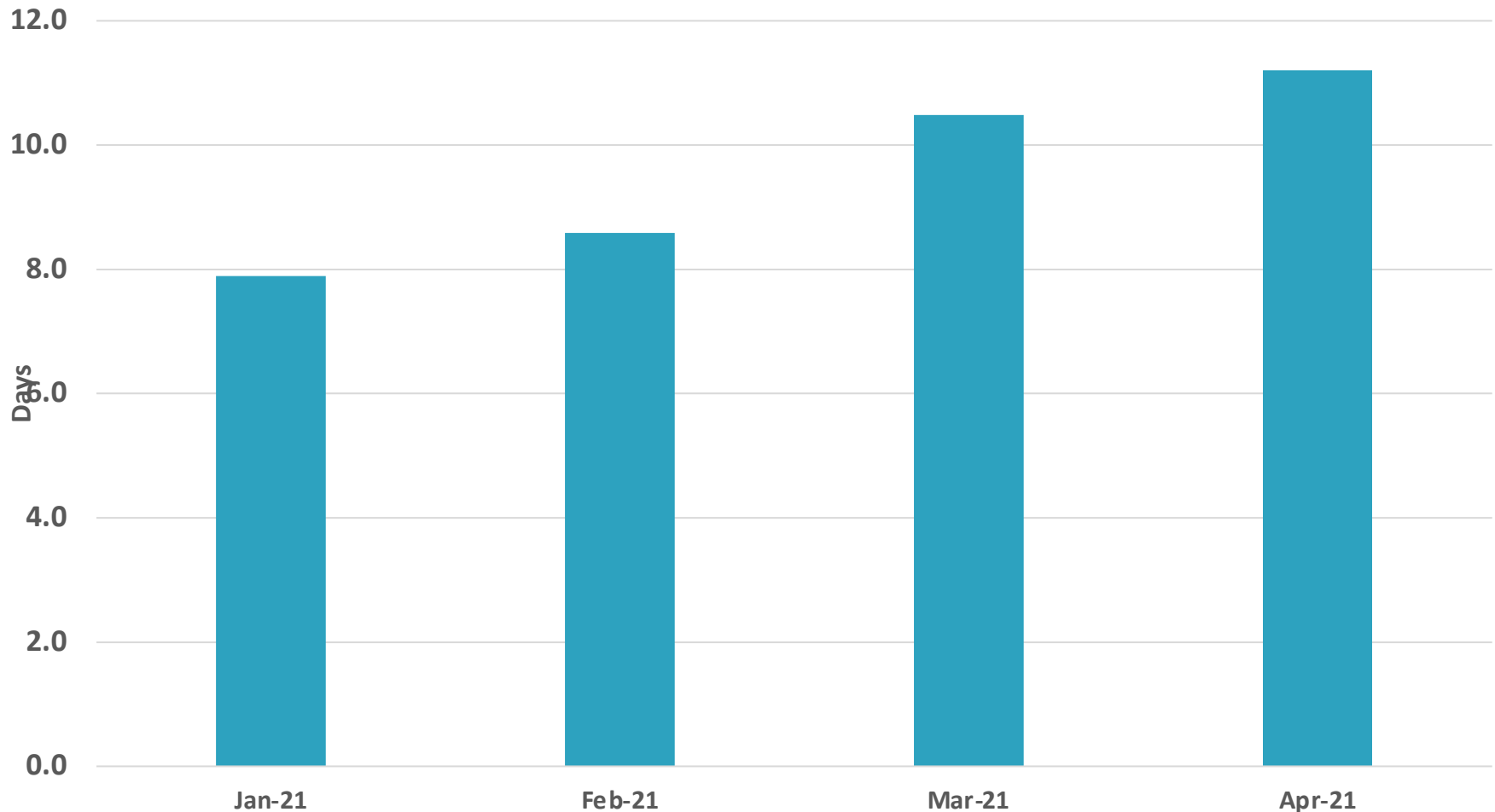


Source: Alameda Corridor Transportation Authority

■ Avg Number of Trains per Day

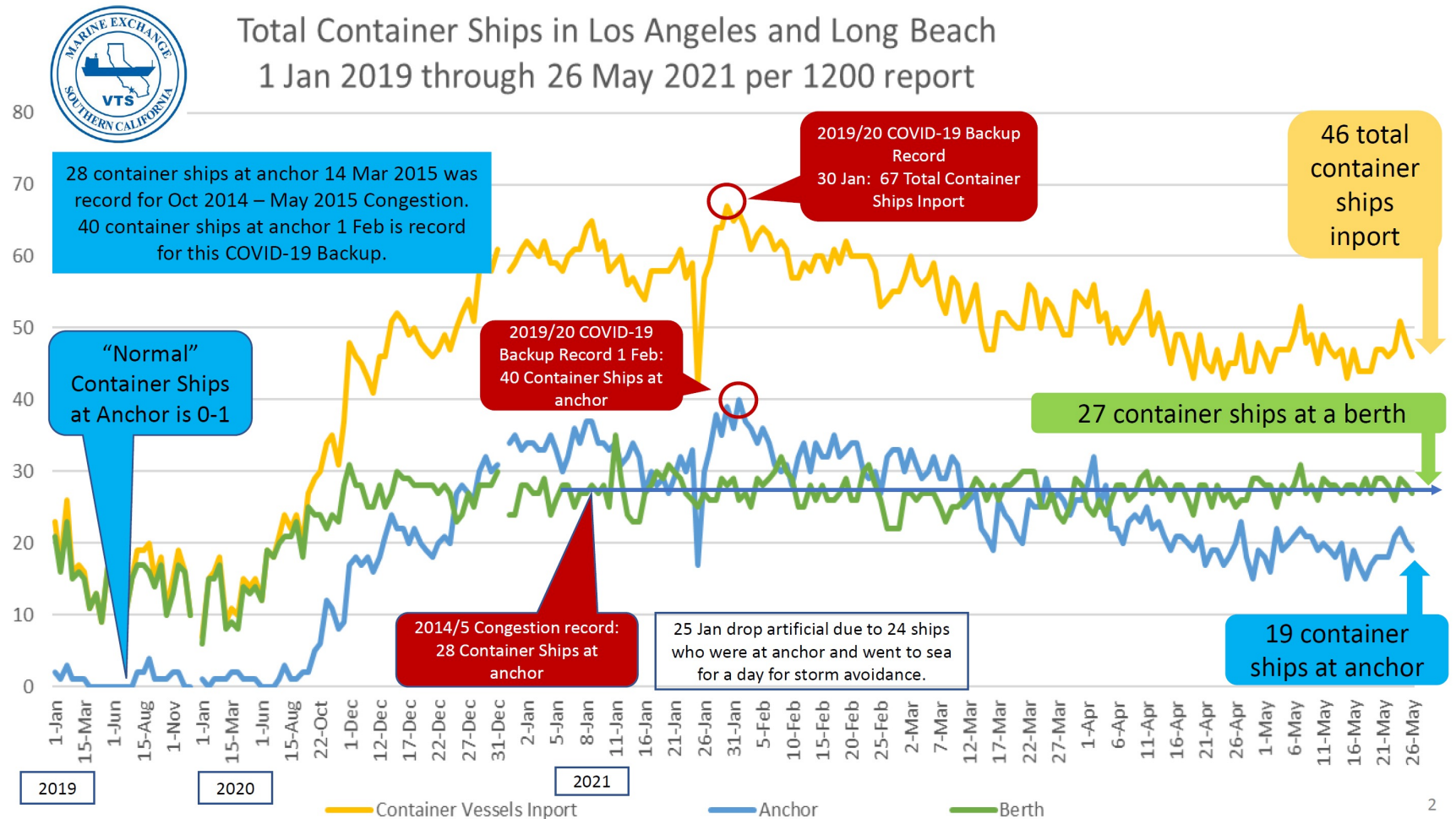
While Only Recently Collected by PMSA, Intermodal Container (Those Containers Waiting for a Rail Car) Dwell Time Is Steadily Increasing, Further Exacerbating Terminal Congestion

Days of Dwell For Intermodal Rail Containers



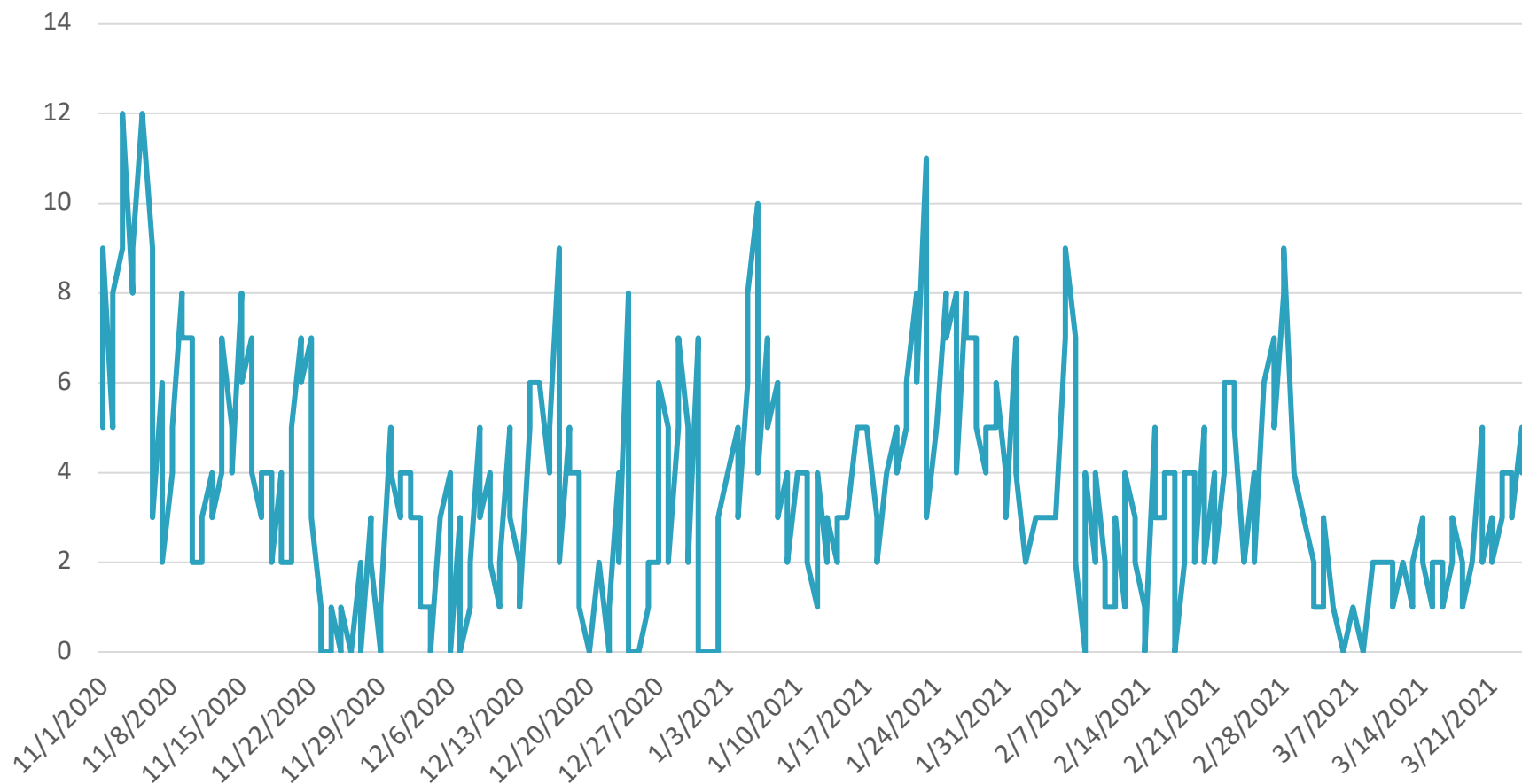
Source: PMSA

Container Ships at Berth and Anchored in San Pedro Bay Ports



Daily Ships At Berth at San Pedro Bay Ports that Either Did Not Order Labor or Cancelled Labor After Ordered, Suggesting Yard Was Too Congested to Discharge.

Container Ships at Berth Daily That Cancelled or Did Not Hire Labor



Source: Pacific Maritime Association

The Number of Container Vessels at Berth that Canceled Labor or Did Not Order Labor Typically Ranged Between 10% and 40% of Container Vessels at Berth Daily through February 2021. Between the Beginning of November 2020, though March 2021, an Average of 13.3% of Container Vessels at Berth Either Cancelled or Did Not Hire Labor On a Daily Basis

Daily Share of Container Ships At Berth Not Using Labor

