Measurements of Diesel Truck Traffic Associated with Goods Movement

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Statement of the Problem and Expectation

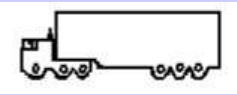
- Using traffic volumes as a measure of exposure can lead to large uncertainties if traffic counts are inaccurate
- Reliable, current surface street traffic counts are scarce
- Diesel/gasoline split often unknown for surface streets
- Expectation: Air pollutant exposure in port-adjacent communities will be driven predominately by heavy-duty diesel truck (HDDT) traffic emissions.

Overall Objectives and Site Selection

- Direct measurements of port truck traffic:
  - Wilmington and western Long Beach Aug.-Sept. 2006
  - Surface street measurements only
  - Daily variation in traffic volumes
  - Weekday vs. weekend
- Site selection process:
  - High truck volume intersections identified by previous traffic studies
  - Input from community leaders
  - Site surveys for safety and feasibility
  - Proximity to “sensitive” land uses such as schools, amenities

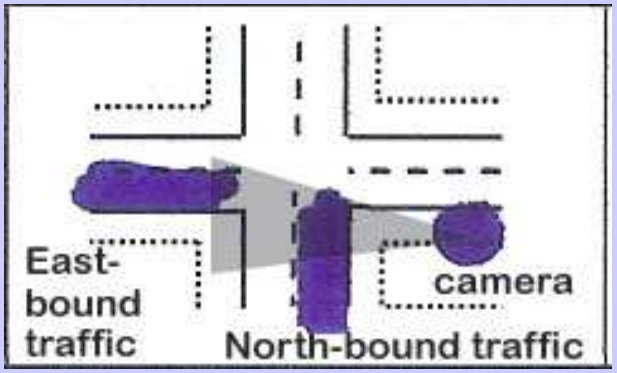
Count Collection Methods

- Data Collection and Reduction:
  - August 15, 2006 and September 19, 2006, period with highest historic container volumes
  - 11 count locations (13 observation days)
  - Videotaped intersection or segment traffic 07:30 - 18:00
  - 30 minute or 1 hour sampling intervals (5.5 hours/day)
  - Weekdays (T/W/TH) with one ‘long day’ and one Saturday count
  - Data Reduction: JAMAR electronic traffic counting boards to summarize counts by direction and vehicle class.
  - Port Diesels: Bobtail-only, chassis-only truck, and container trucks

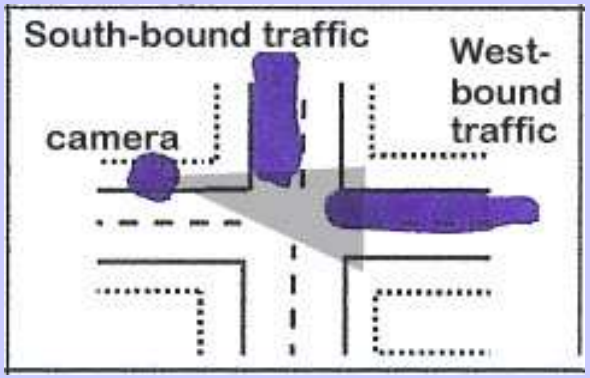


Count Collection Methods

Sample Video Camera Positions



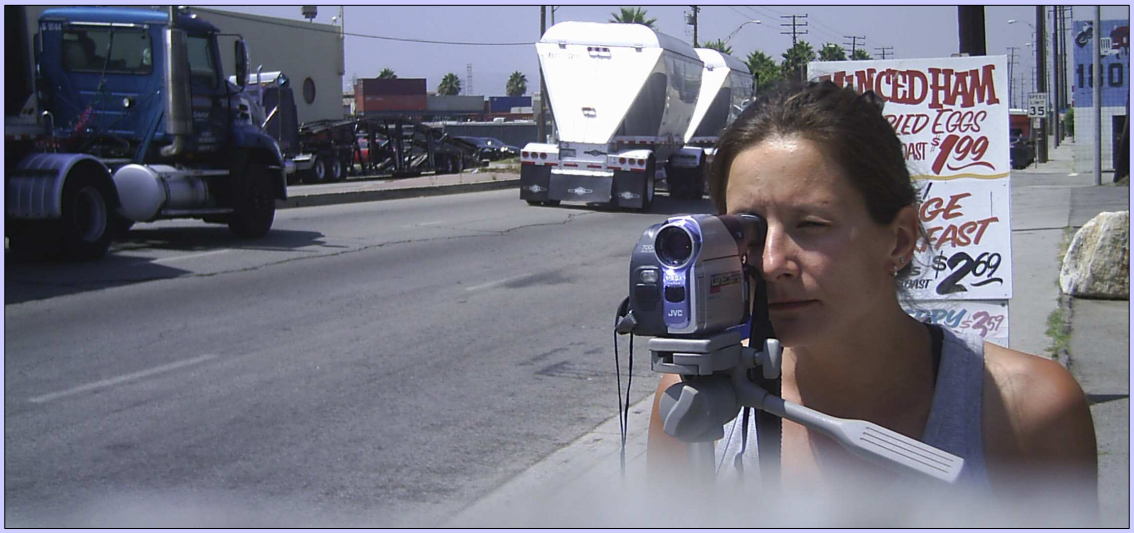
Camera #1Position



Camera #2 Position

JAMAR count board

Data Collection

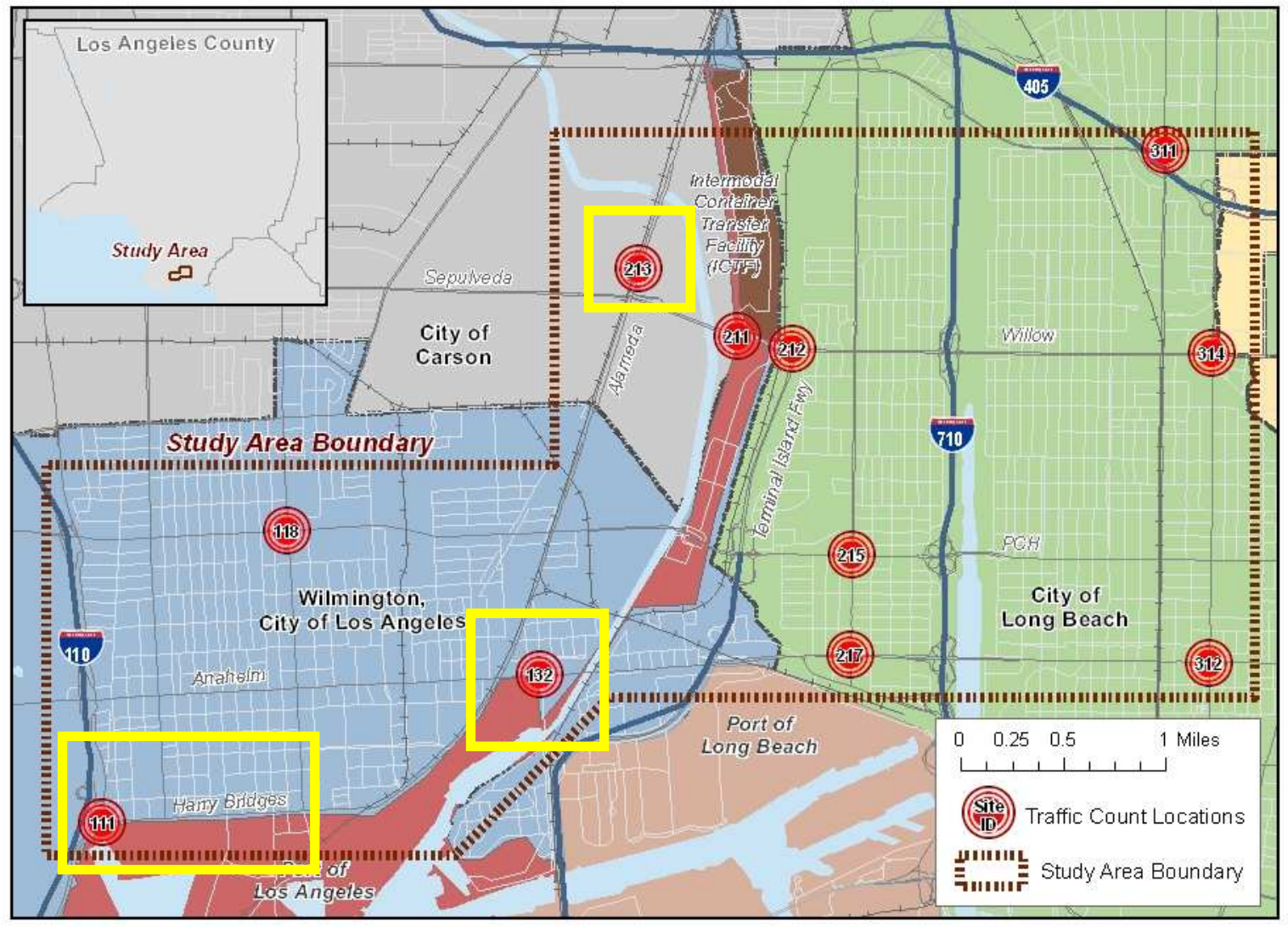


Site 111 Port Truck Traffic

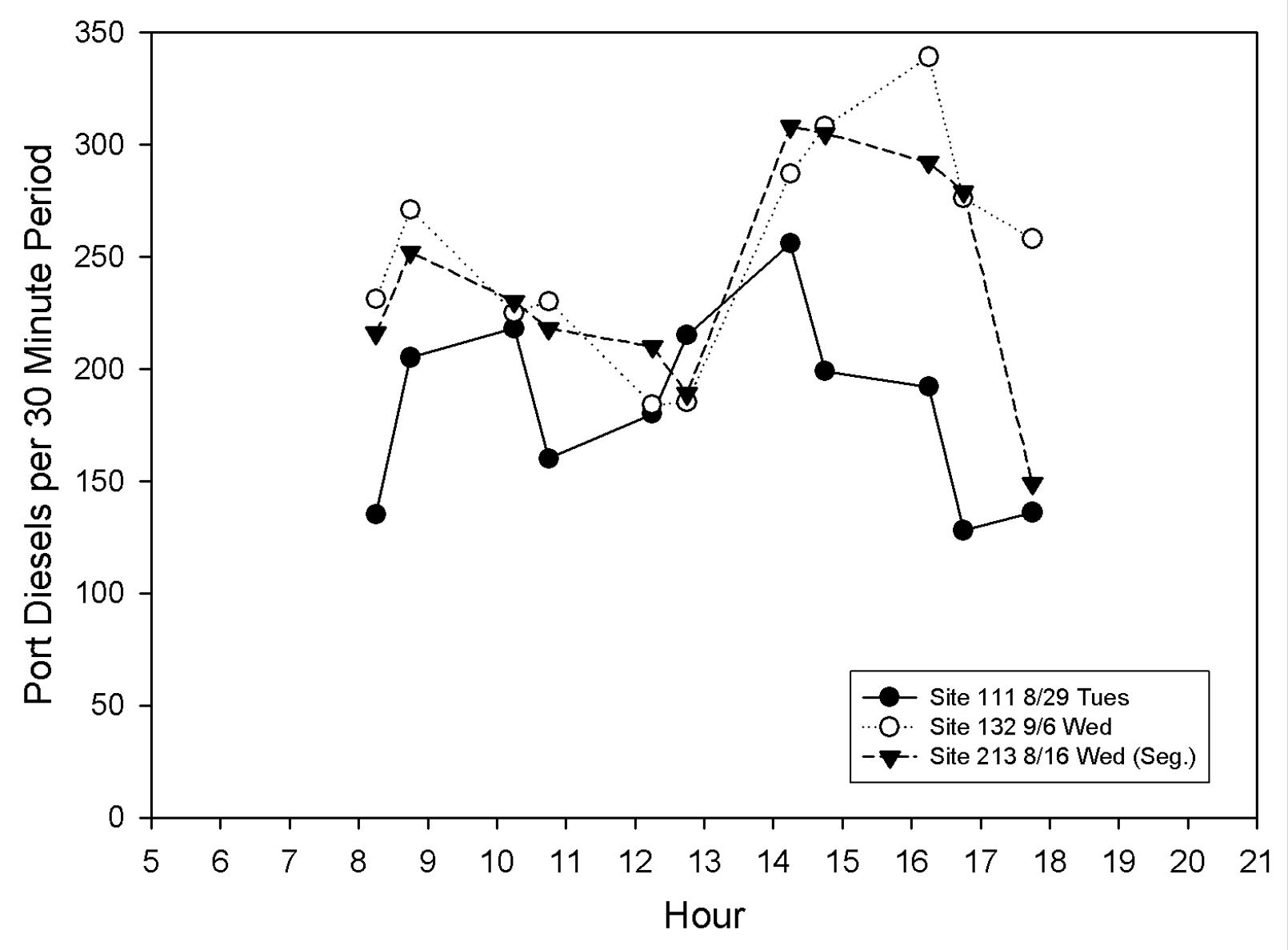
Figueroa, I-110
Entrance Ramp

Harry Bridges Blvd

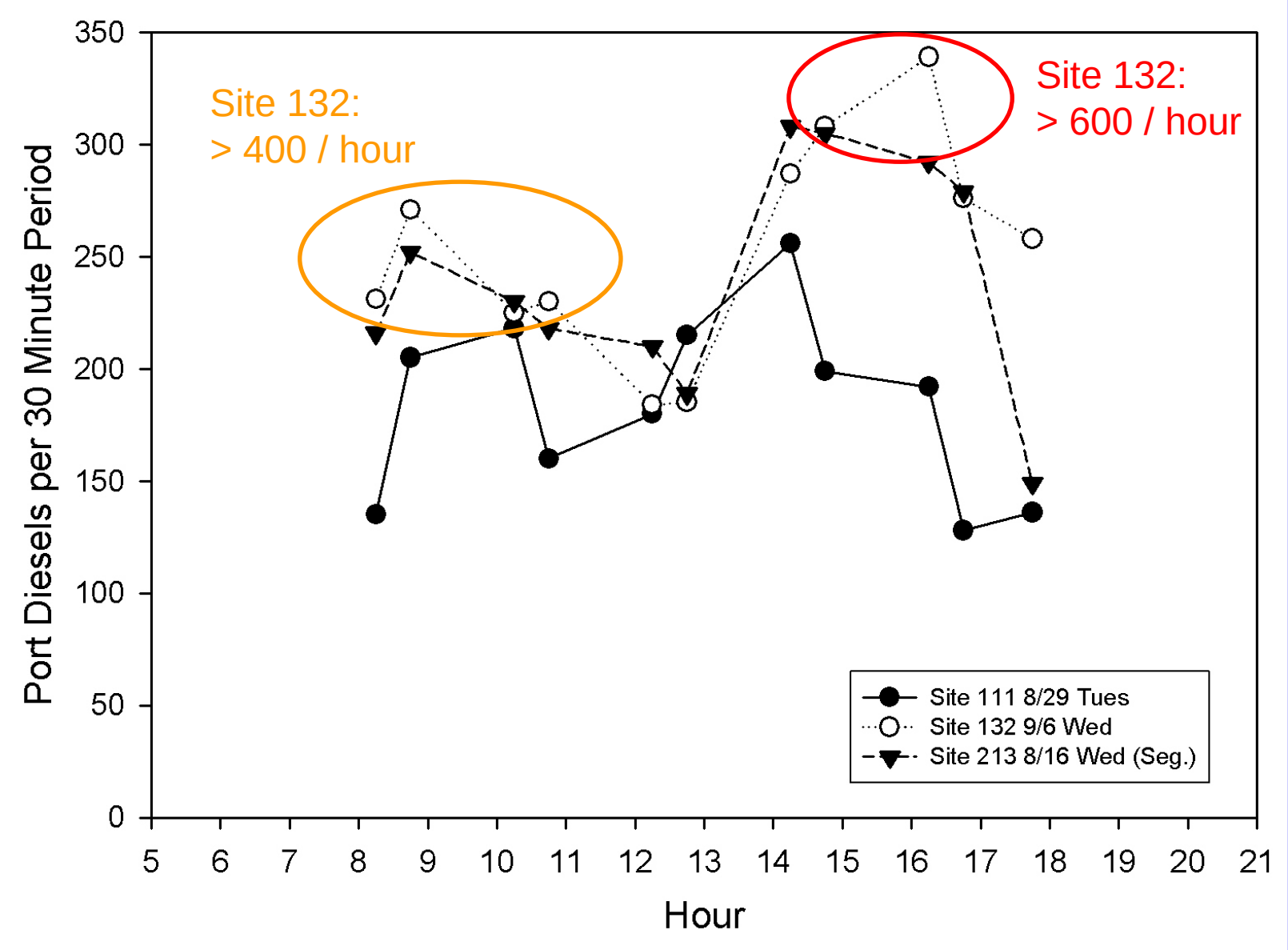
Study Area and Traffic Count Locations



Diurnal Patterns of Measured Port Diesel Traffic



Peak Volumes > 600 HDDT Per Hour



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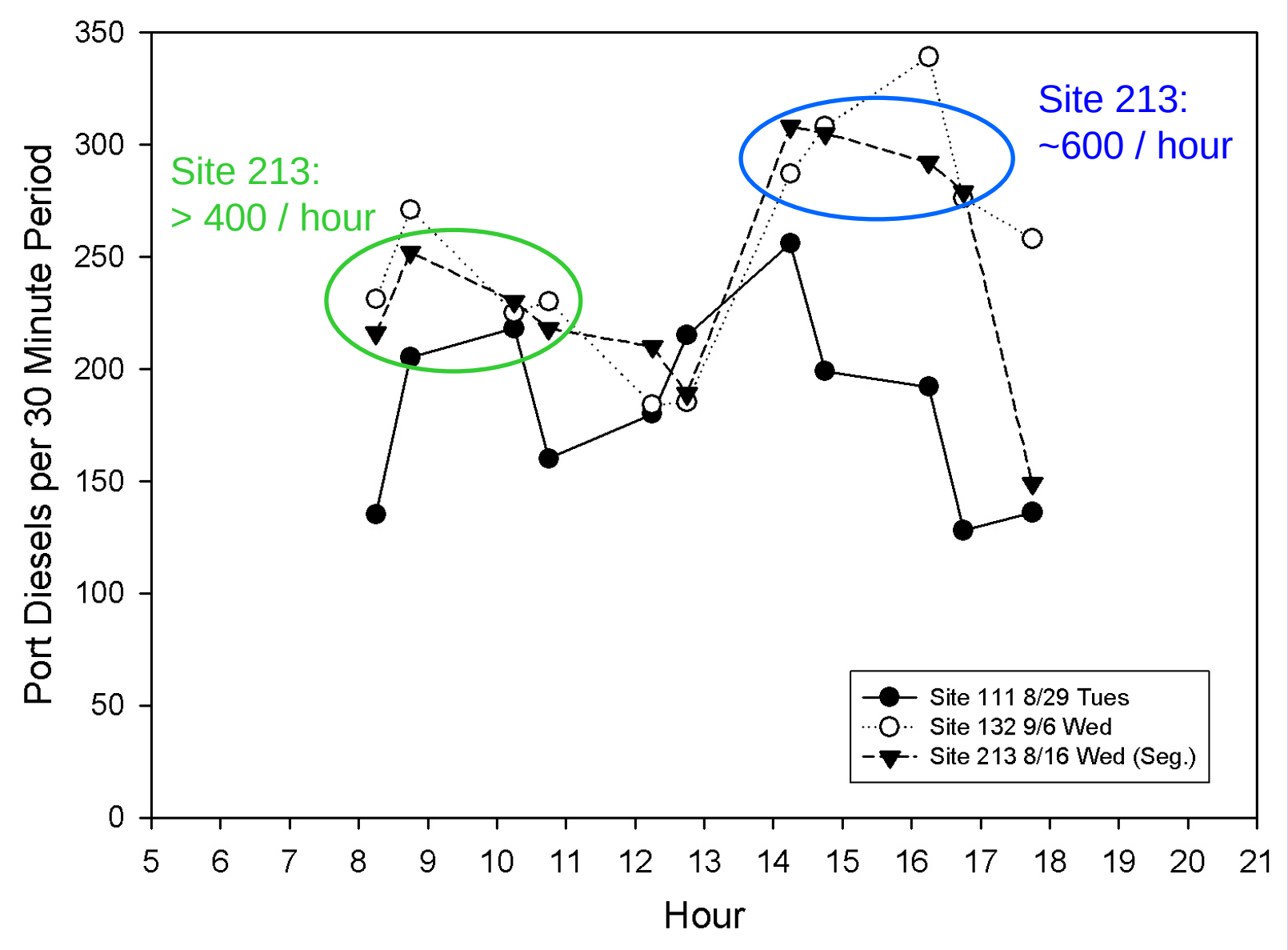

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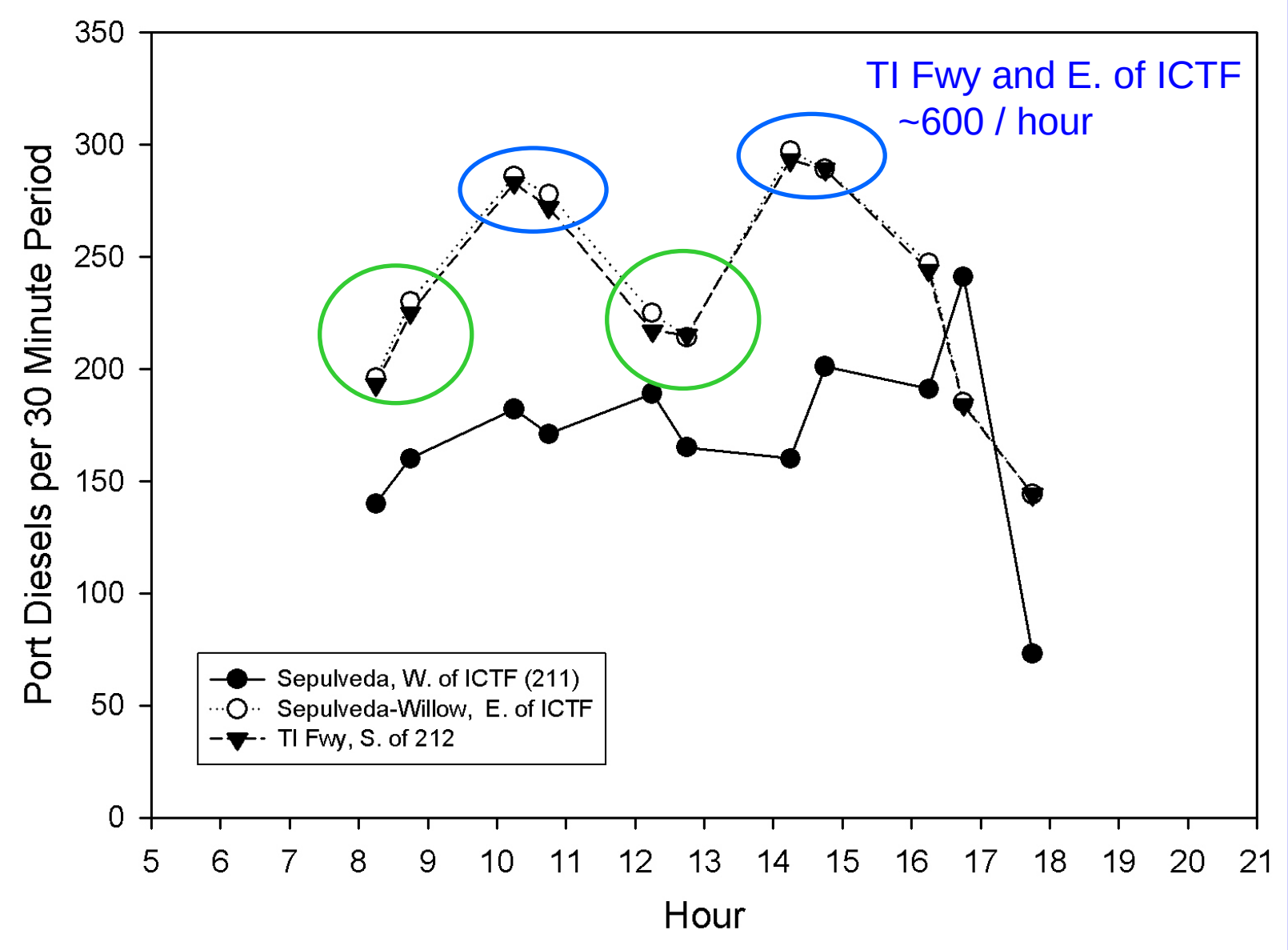
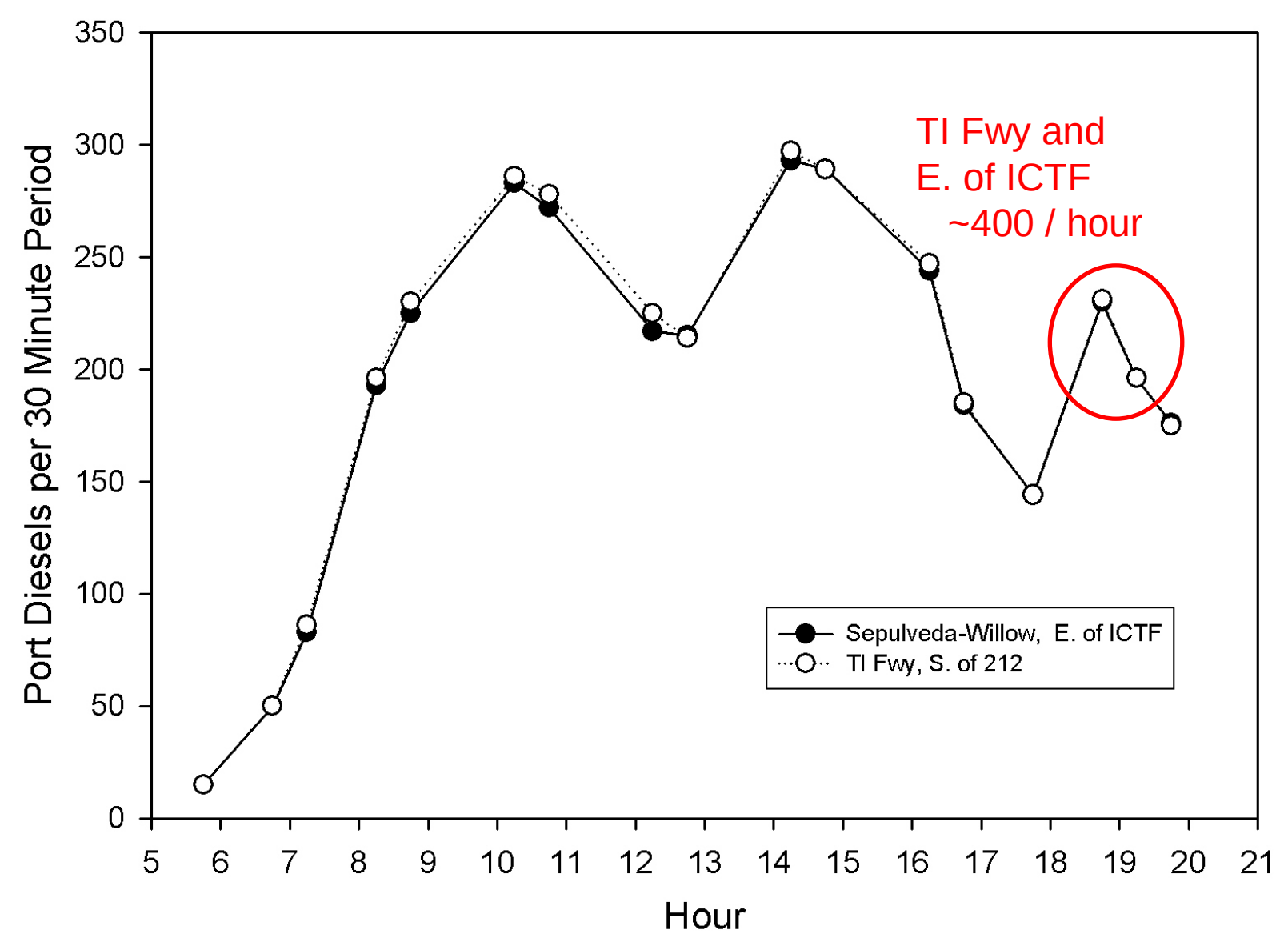


Third Peak in Early Evening



Key Findings

- Up to 600-700 HDDT per hour at most heavily impacted intersections and line segments in port-adjacent communities
- Many HDDT observed to be smoky and highly polluting
- HDDT travel on surface streets with substantial pedestrian traffic and numerous shops/facilities, as well as near-by schools
- On-road, in-vehicle and near-roadway exposures are expected to be very high for the intersections and line segments we studied

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