Delaware DOT
Truck Parking Information System (TPIS)

Project Overview, Status, and Next Steps

December 2021

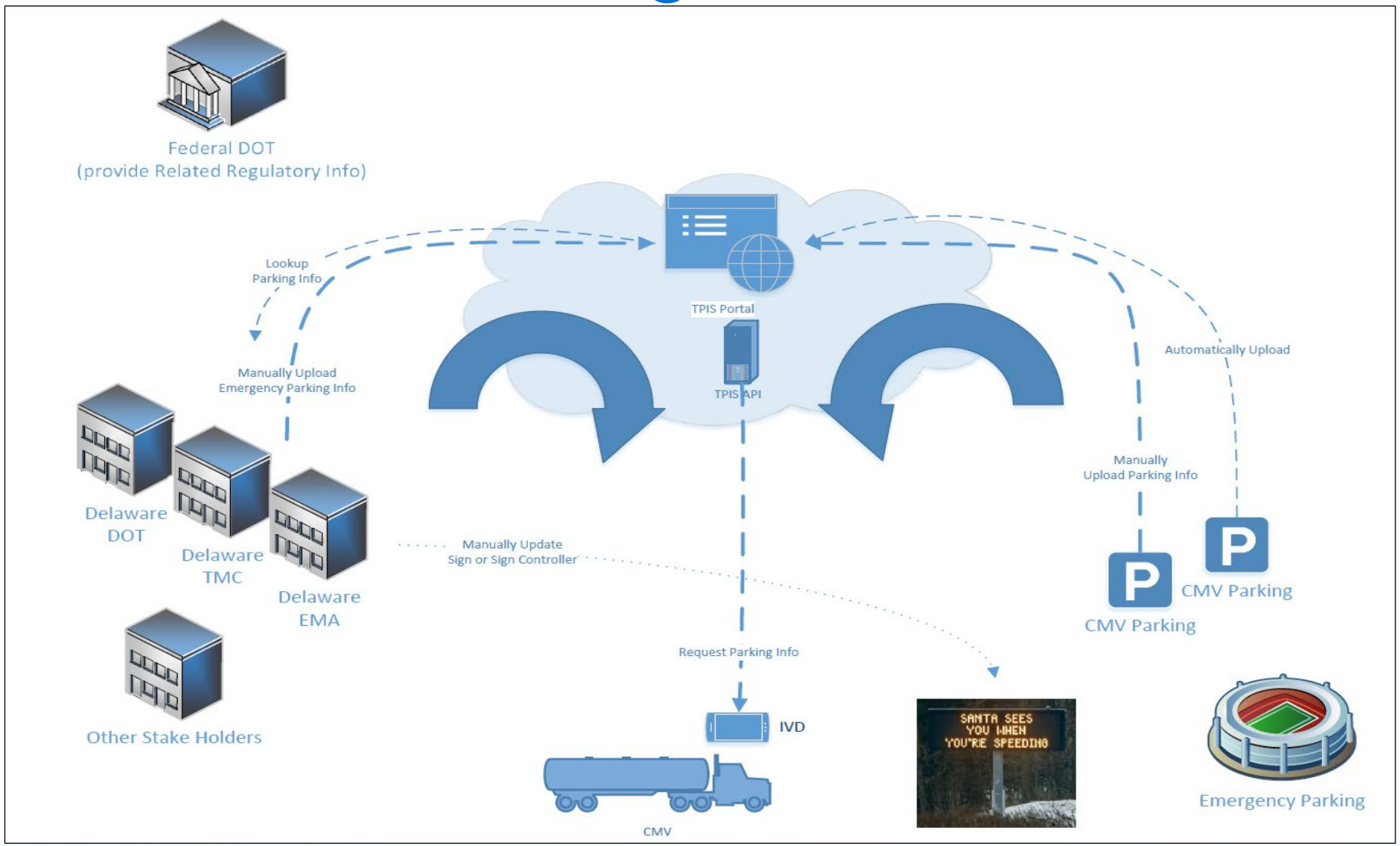
Project Background

- Goal: Identify potential truck parking locations in Delaware and pilot a system that provides parking availability information at these location(s) to CMV drivers in a safe and non-intrusive manner.
  - Identify at least two potential truck parking locations in Delaware;
  - Develop a truck parking database system and related capabilities to allow the system to share real-time parking space data with a variety of truck driver accessible systems;
  - Conduct a TPIS demonstration;
  - Assist DelDOT in developing an associated outreach program; and
  - Develop recommendations for subsequent system integration with regional or national CMV vehicle parking information systems.

System Overview—Description

- Two potential locations were considered—Delaware House and Smyrna Rest Area.
  - The Smyrna Rest Area was selected for the pilot TPIS.
- The pilot TPIS consists of:
  - A TPIS Database capable of supporting difference types of parking information:
    - Static truck parking information (capacity only)
    - Static emergency parking information (capacity with ability to manually activate or deactivate)
    - Accounts for third-party parking information (manual entry of capacity and availability)
    - An application programming interface (API) for dynamic third-party parking information (capacity and automatic availability)
    - Dynamic DelDOT parking sensors (capacity and automatic availability)
    - API for Query
  - In-Ground Sensors (PNI)
  - Video Sensors (UncannyVision and WiseMoving)

System Overview—Diagram



Project Progress Web Meeting

- On May 27, 2021, the Volpe project team presented a TPIS status update to DelDOT consisting of:
  - Live demonstrations of the TPIS Database System, video sensor outputs, and in-ground sensors.
- Participants discussed the challenges associated with in-ground sensors:
  - Smyrna Rest Area is mixed use (tractor trailers, personal vehicles, other). At least three sensors per parking space are required to fully determine space occupancy.
  - Calibrating the sensitivity of the sensors is tricky.
  - These sensors are battery powered and need to be replaced every 3-5 years.

TPIS Database System—Example Static – Capacity Only

Company: Source AllStays Name: Filter

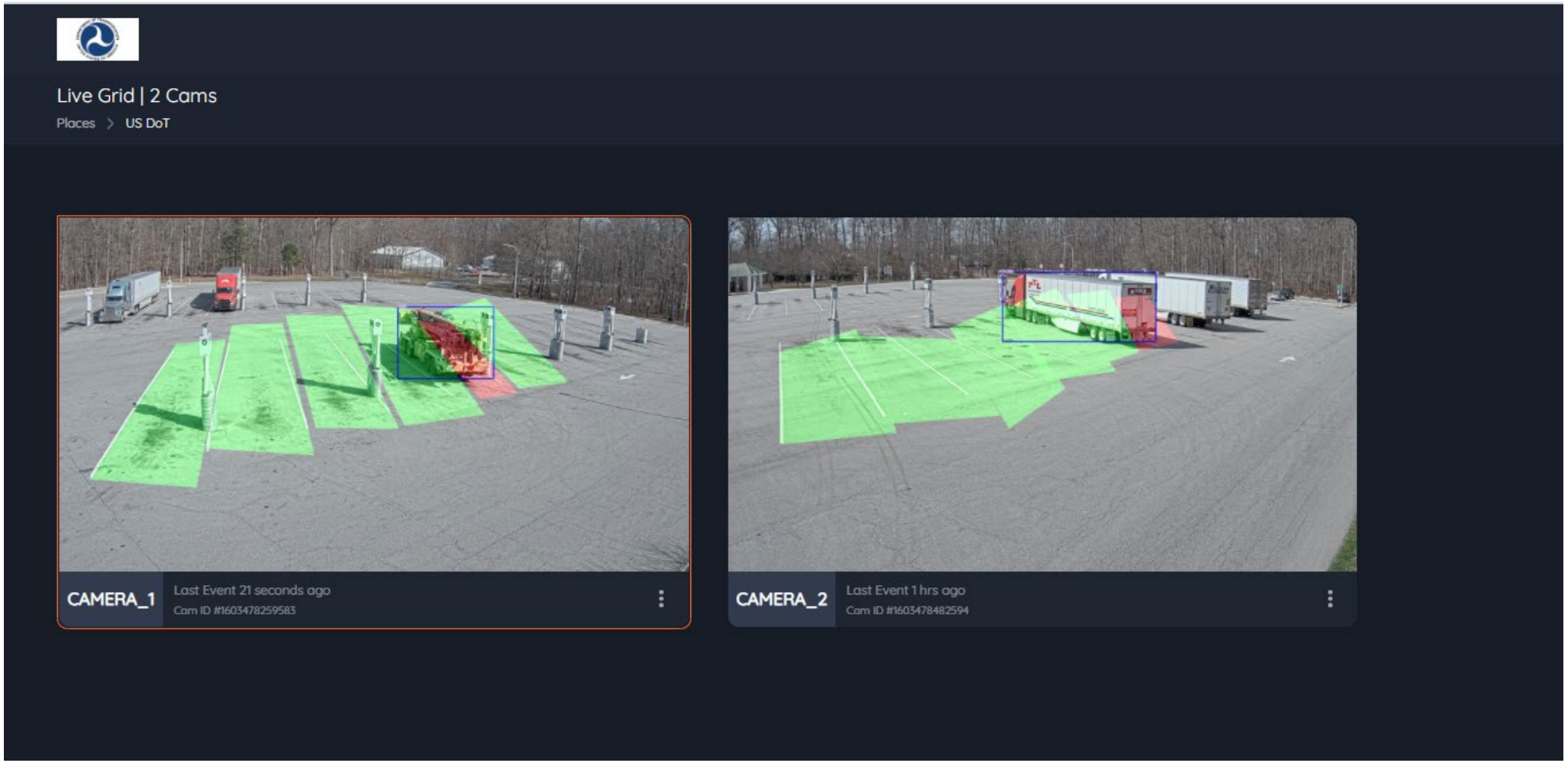
Company	Name	Address	Areas	Total Spaces	Available Spaces	Occupied Spaces	Offline Spaces	Unknown Spaces	Update Time	
Source AllStays	301 Plaza 920 Middletown Warwick Road	920 Middletown Warwick Road, Middletown DE 197	0	25	0	0	0	25	5/5/2021 2:25:29 PM	Edit | Details | Delete
Source AllStays	Careys Diesel	Rt-9, 168 Denny St, leipsic DE 19901	0	0	0	0	0	0	5/5/2021 2:23:24 PM	Edit | Details | Delete
Source AllStays	Delaware Sunoco Plaza and Center	I-95 MM 2, 530 JFK Memorial Highway, Newark DE 19702	0	10	0	0	0	10	5/5/2021 2:31:27 PM	Edit | Details | Delete
Source AllStays	Delaware Truck Plaza US13/US40, 196 S Dupont Hwy	US13/US40, 196 S Dupont Hwy, New Castle DE 19720	0	40	0	0	0	40	5/5/2021 2:28:32 PM	Edit | Details | Delete
Source AllStays	GP Fuel	US301, 1228 Middletown Warwick Rd, Middletown DE 19709	0	0	0	0	0	0	5/5/2021 2:24:06 PM	Edit | Details | Delete

TPIS Database System—Example – Dynamic Third Party

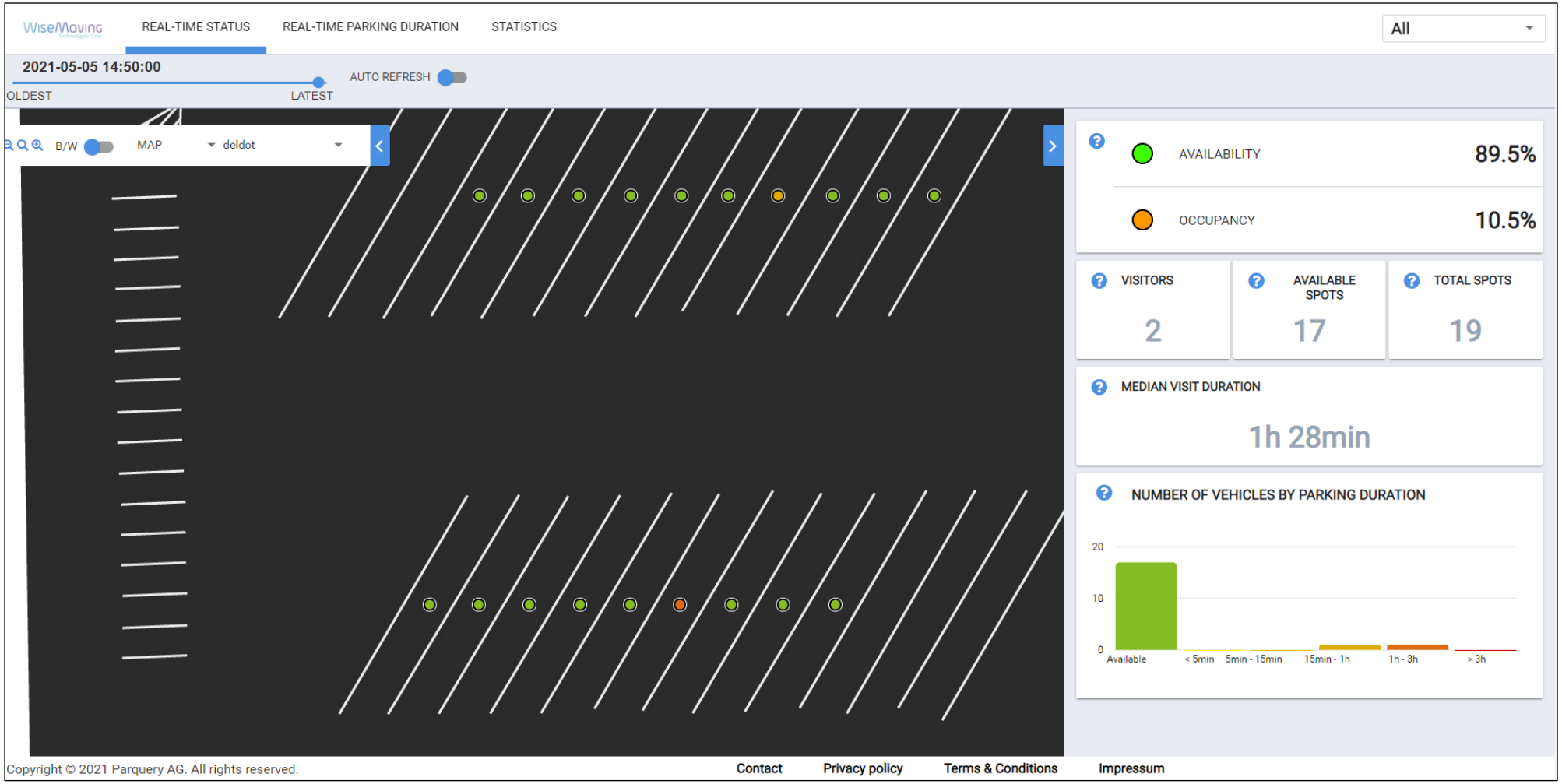
Company: VDOT Name: Filter

Company	Name	Address	Areas	Total Spaces	Available Spaces	Occupied Spaces	Offline Spaces	Unknown Spaces	Update Time	
VDOT	Carson Safety Rest Area		0	35	7	1	0	27	11/23/2021 10:46:48 AM	Edit | Details | Delete
VDOT	Dale City Safety Rest Area		0	37	2	2	0	33	11/23/2021 10:46:53 AM	Edit | Details | Delete
VDOT	Ladysmith Safety Rest Area		0	30	12	2	0	16	11/23/2021 10:46:46 AM	Edit | Details | Delete
VDOT	New Kent East Coast Safety Rest Area and Welcome Center		0	70	22	1	0	47	11/23/2021 10:46:52 AM	Edit | Details | Delete
VDOT	New Kent West Coast Safety Rest Area and Welcome Center		0	22	2	1	0	19	11/23/2021 10:46:55 AM	Edit | Details | Delete

Video Sensor—UncannyVision Screenshot



Video Sensor—WiseMoving Screenshot



Project Progress Web Meeting—Results

- Based on meeting discussions, DelDOT decided to:
  - Discontinue in-ground sensor testing.
  - Continue testing both video-based space counter systems.
  - Explore the option to install taller poles at Smyrna Rest Area to improve coverage and accuracy of the video-based counter systems.
    - Add two more cameras for full coverage of 24 spots, if taller poles are not installed.
- The Volpe team will conduct a live TPIS demonstration sometime between February-April 2022.

Next Steps and Recommendations

- For the TPIS Database System:
  - Plan transition to DelDOT servers
  - Test API with DelDOT applications
- For the Smyrna Video Sensors:
  - Plan transition to DelDOT network

Questions?

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