



City of Pittsburgh - SmartPGH

October 20, 2022



2022

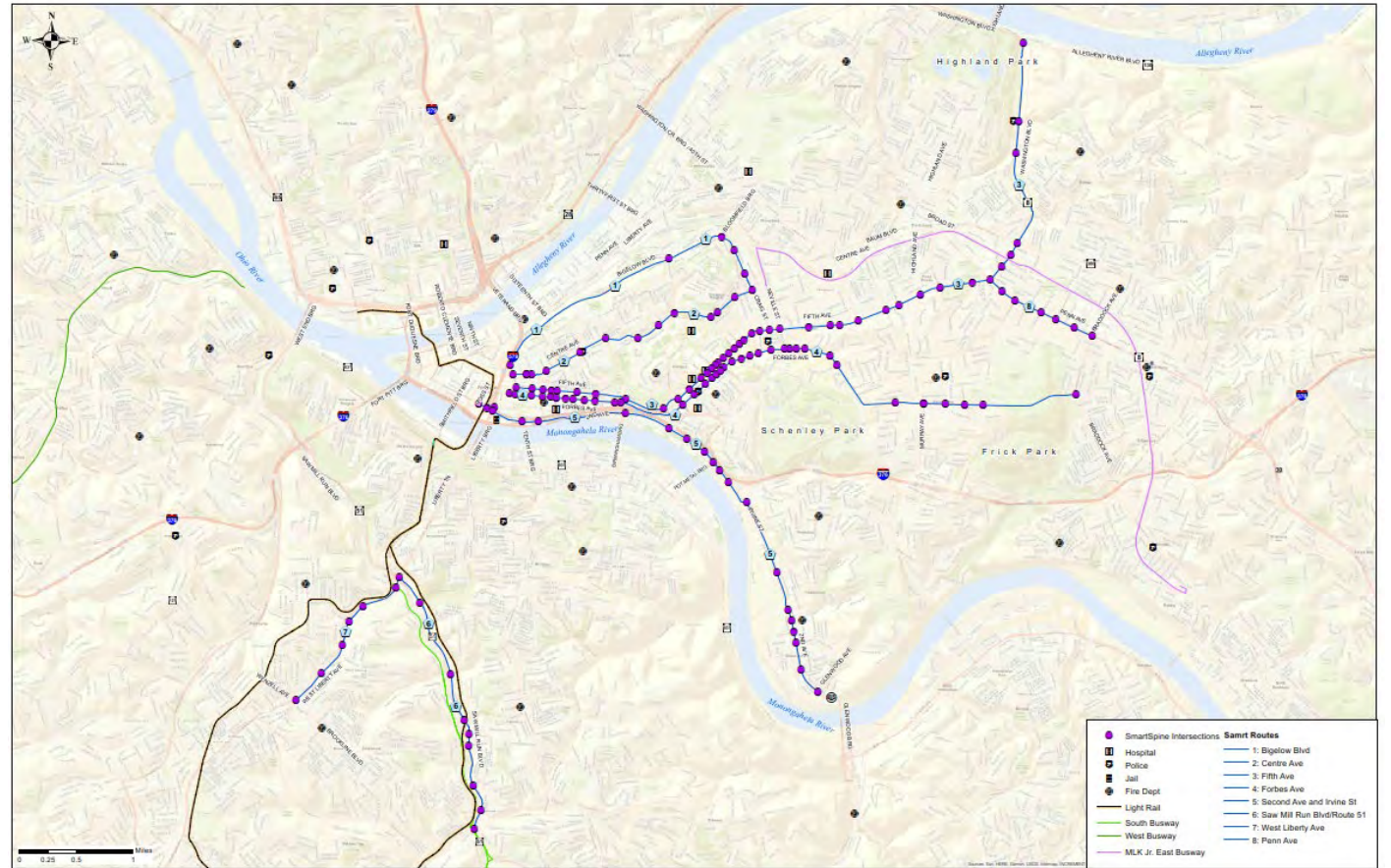
SPC Transportation Operations
and Safety Forum

Scott Thompson-Graves, P.E., PTOE
WRA



Project Background

- Bigelow Blvd
- Centre Ave
- Fifth Ave/Washington Blvd
- Forbes Ave
- Second Ave/Irvin St
- Saw Mill Run Blvd (SR 51)
- West Liberty Ave
- Penn Ave



Status Updates



Upcoming Procurements

- Central Priority System
- Advanced Multimodal Adaptive Signal System
- Detection System

Ongoing Design

- Phase 1 (Second Avenue and South Hills)
- Pittsburgh TMC

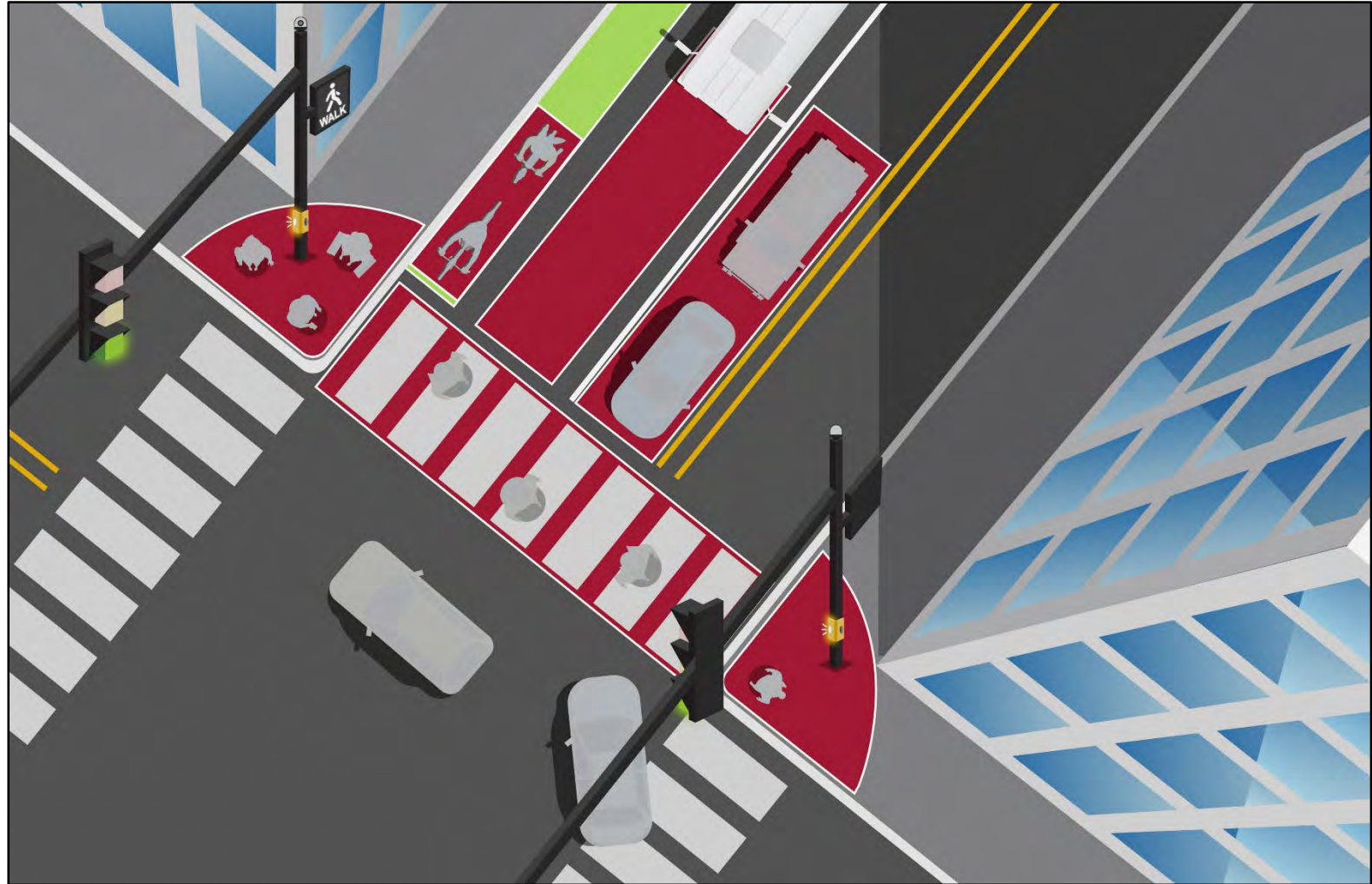
Ongoing System Development

- Connected Vehicle Hardware/Applications
- Advanced Performance Metrics Suite



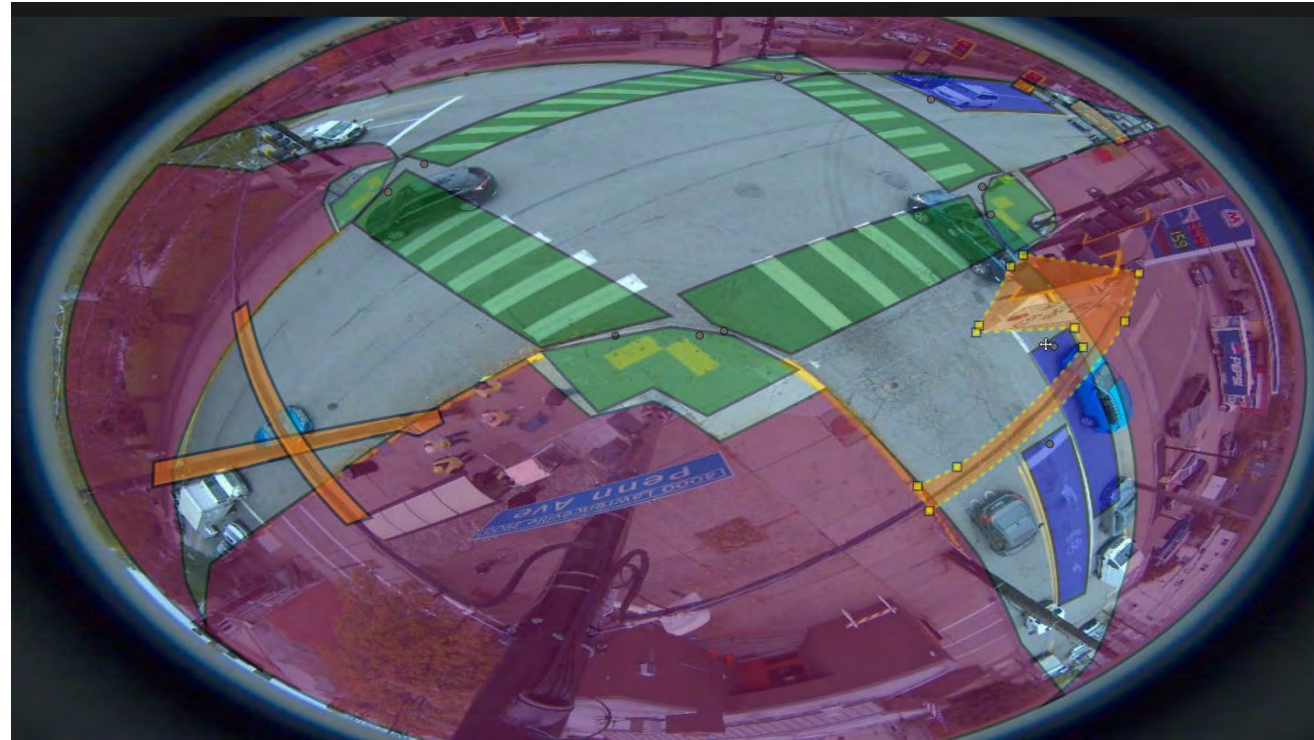
Passive Detection Evaluation - PITT

- Most signals in Pittsburgh operate in Pedestrian Recall
- Safety Goals
 - Reduce Jaywalking
 - Reduce Delay for All Modes
 - Improve Pedestrian and Bike Safety



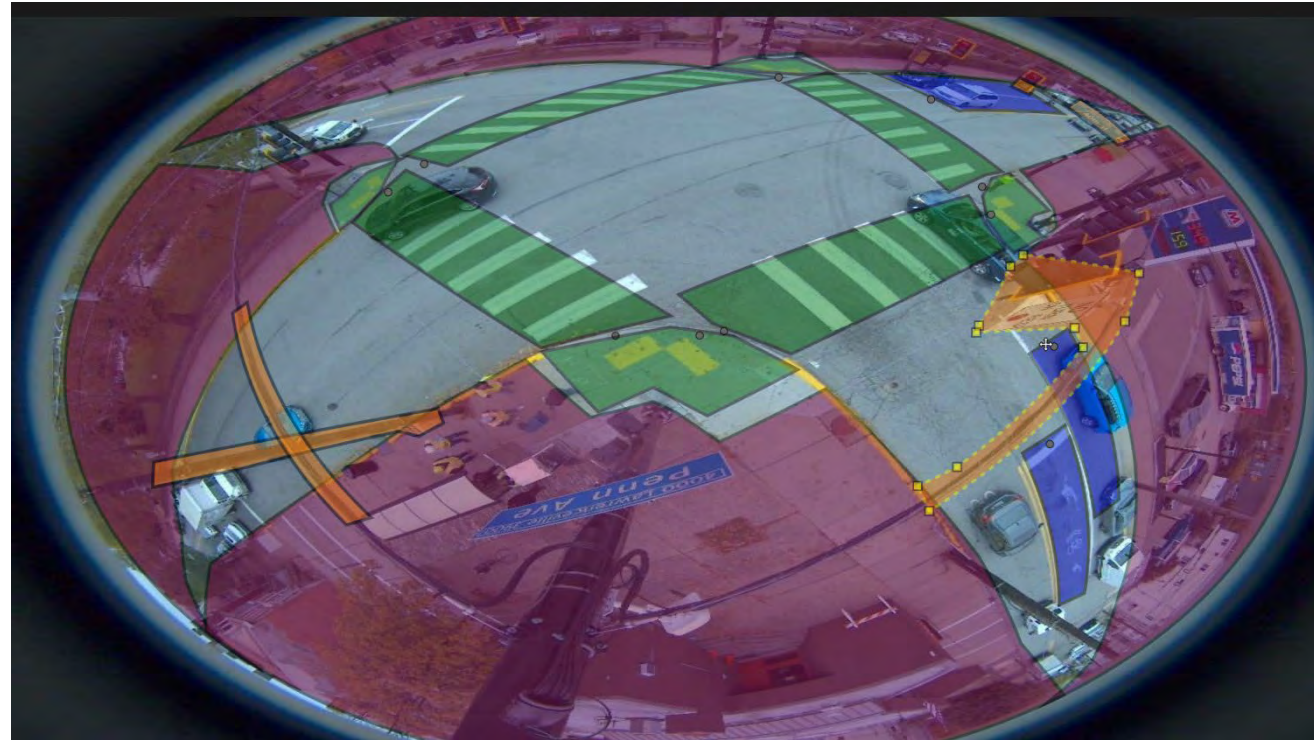
Passive Detection

- Challenges
 - Small radii
 - Locking Ped Calls
- Advances
 - Ped Cancel
 - Ped in Crosswalk - Extend Adjacent Phase
- Ongoing Tests
 - 2 setups
 - 2 cameras with small radii
 - 1 camera with large radii



Passive Detection – Ped Cancel Function

- Ped Call Rules
 - Ped Phase 2 and 6 call each other (main street call)
 - Ped Phase 4 and 8 call each other (side street call)
- At corners with close ADA Landings
 - A ped arriving at any corner calls main and side street peds
 - The next ped phase in order will be called
 - If no peds remain then subsequent call is “cancelled”
 - New function and logic for Intelight Controllers



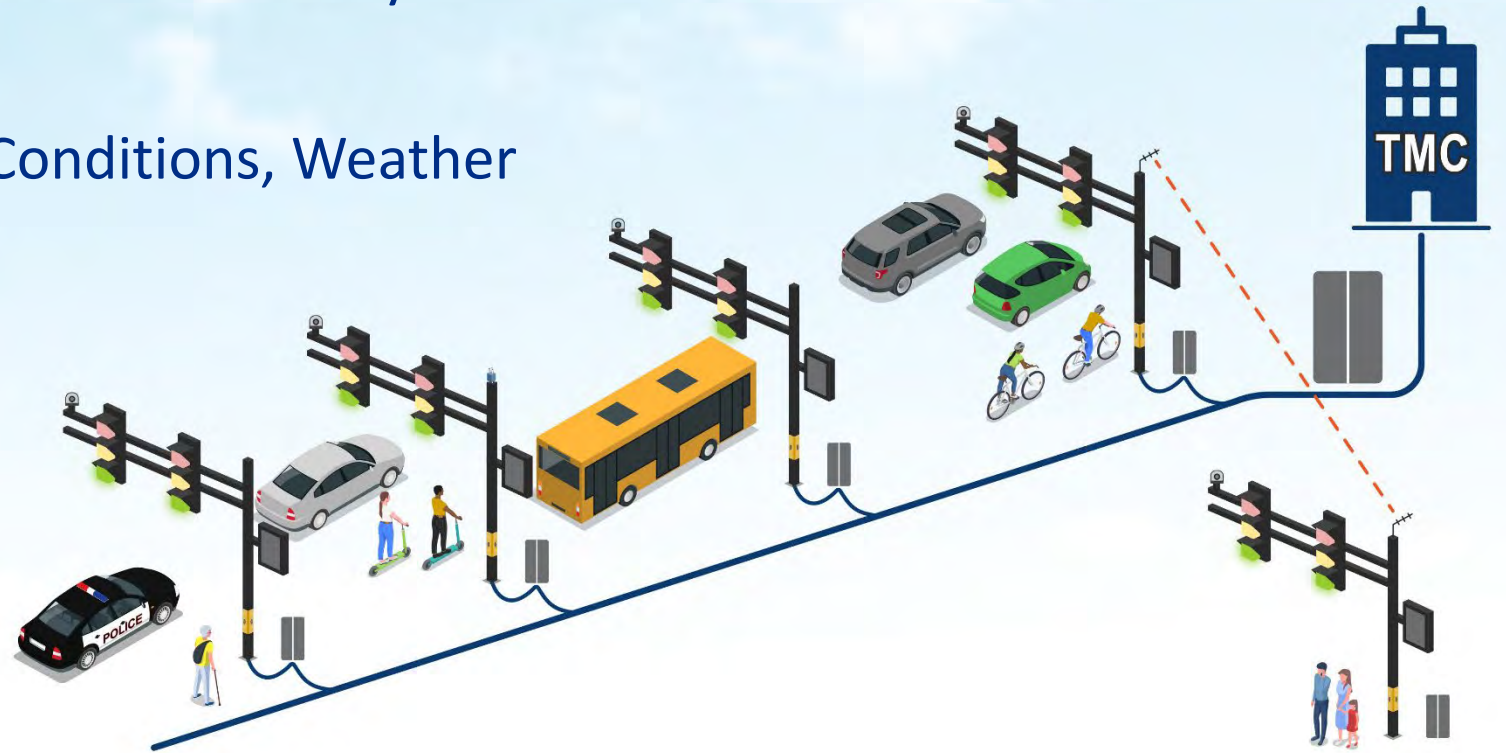
Passive Detection with Enhanced Data

- Detection Requirement - Provide Open-Source Data
 - Use for Performance Metrics
 - Use for Near Miss Tracking
 - Use by OEM's and Tier 1's
 - Use by Researchers



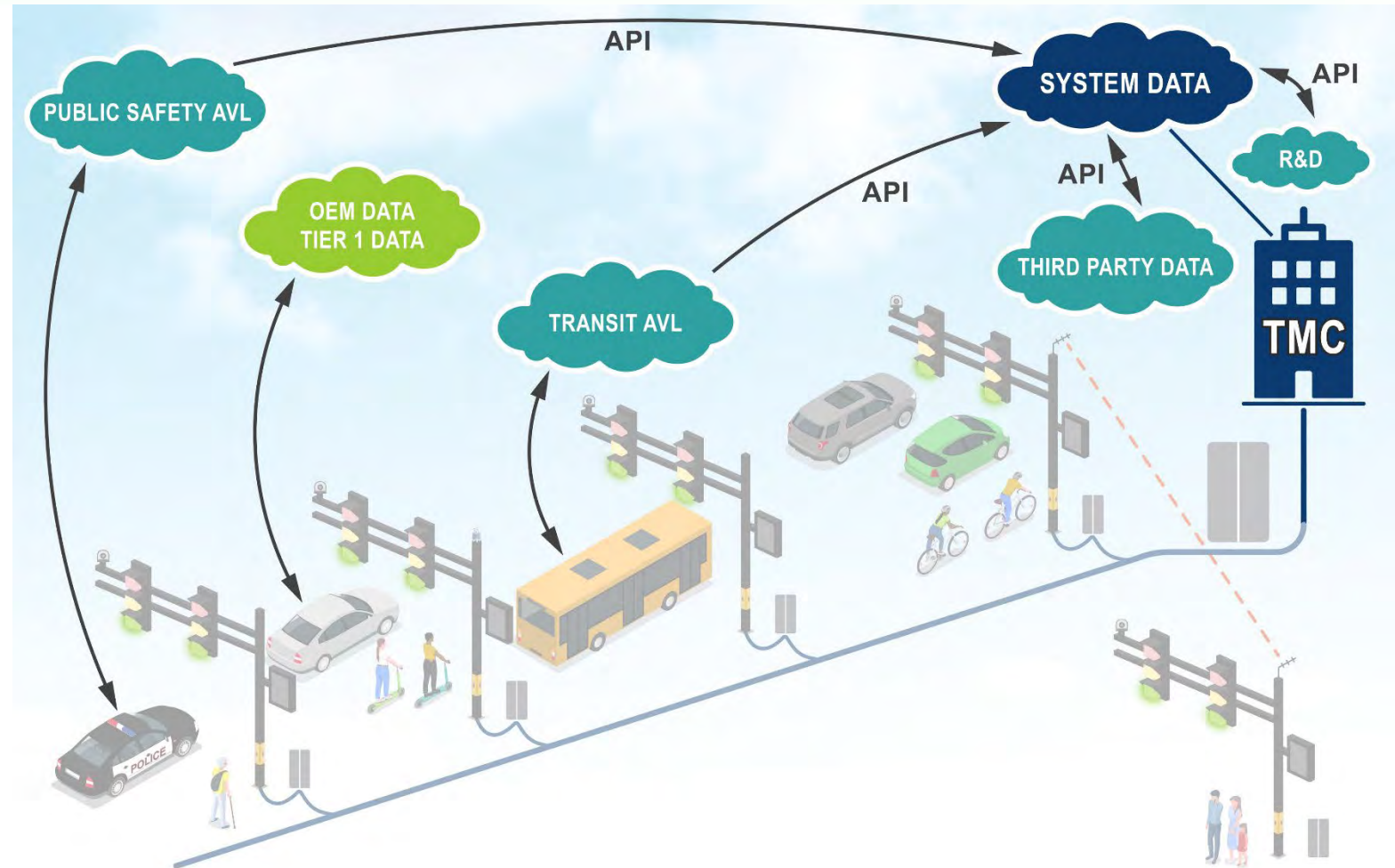
Performance Measures - System Data

- Automated Traffic Signal Performance Metrics (ATSPM)
- Bus, Bike (+), Ped, Auto, Truck Count and Delay
- O-D Flows and Speeds
- Air Quality, Pavement Surface Conditions, Weather



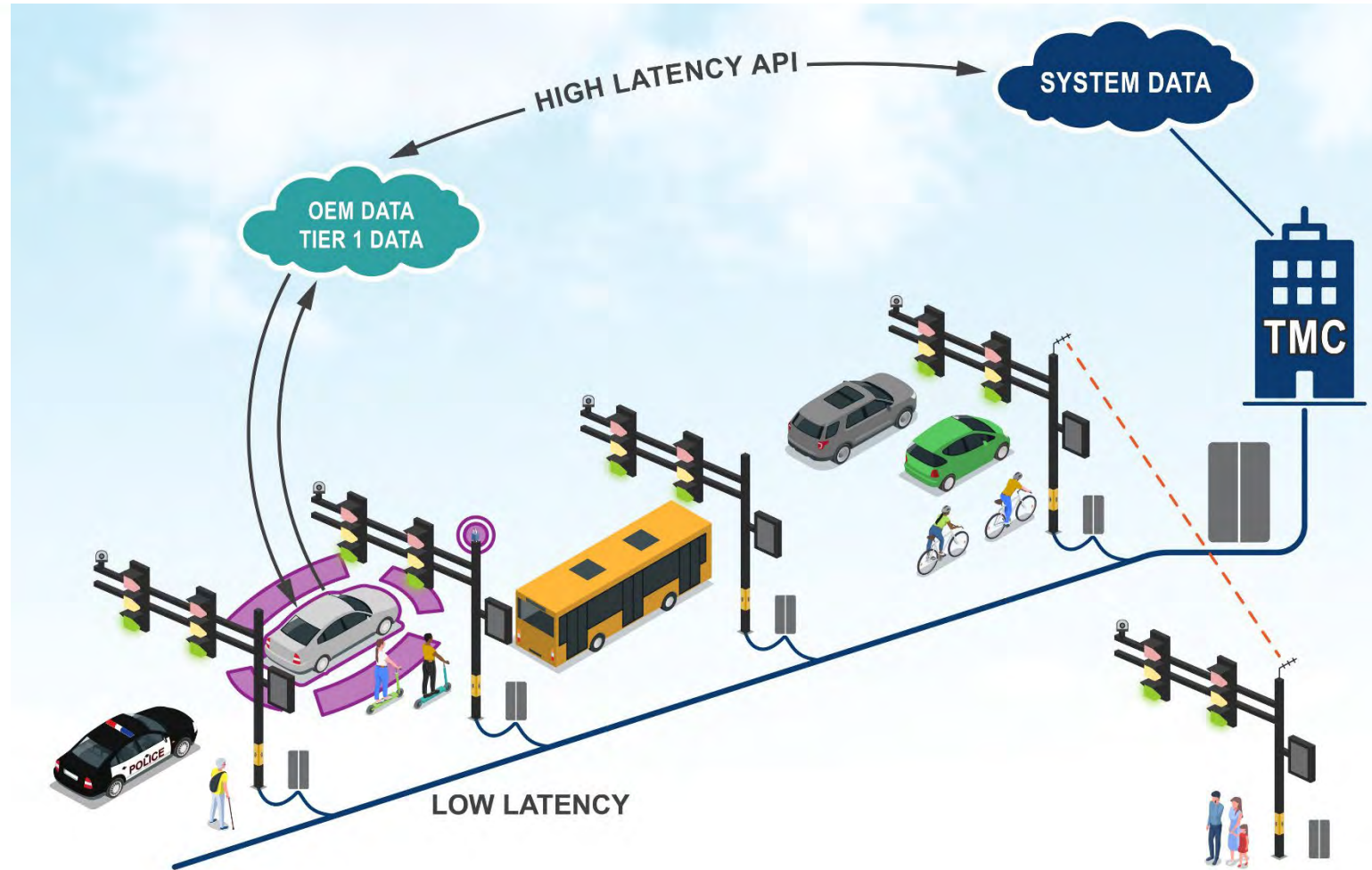
Performance Measures API's and Outside Data

- Transit AVL
 - Travel Time
 - On-Time Performance
 - Boarding Counts
 - Door Open/Closed
- Public Safety AVL
 - Travel Time
- Public Agency Third Party Data
 - PennDOT Crash Information Tool
 - Autonomous Parking Meters
 - 311



Connected Vehicle Data

- High Latency Data
 - OEM/Tier 1/WEJO/INRIX Signal IQ
 - Navigation
 - Environment
 - Congestion
 - MAP
 - SPAT
- Low Latency RSU Data
 - Object Tracking
 - SPAT
 - MAP
 - BSM



Turning Data into Information

- Performance Measures that Assist with Day-to-Day Operations
- Performance Measures that Help Improve the System Year-Over-Year
- Performance Measure that are Meaningful for Decision Makers and the Public

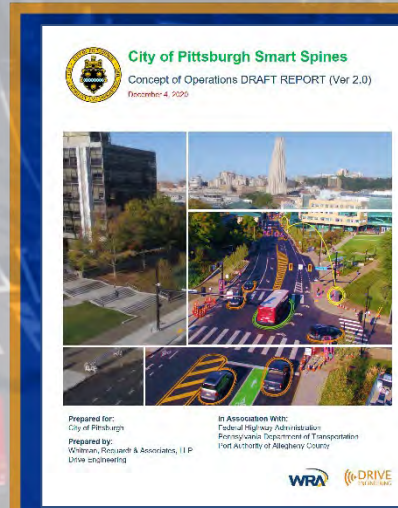
Year 1 AM Peak Hour Delay





2022

FLPRITE Annual Meeting



Questions?

Thanks to our Project Team:

- City of Pittsburgh DOMI
- PennDOT District 11-0
- PennDOT BOMO
- WRA
- Drive Engineering
- Econolite