

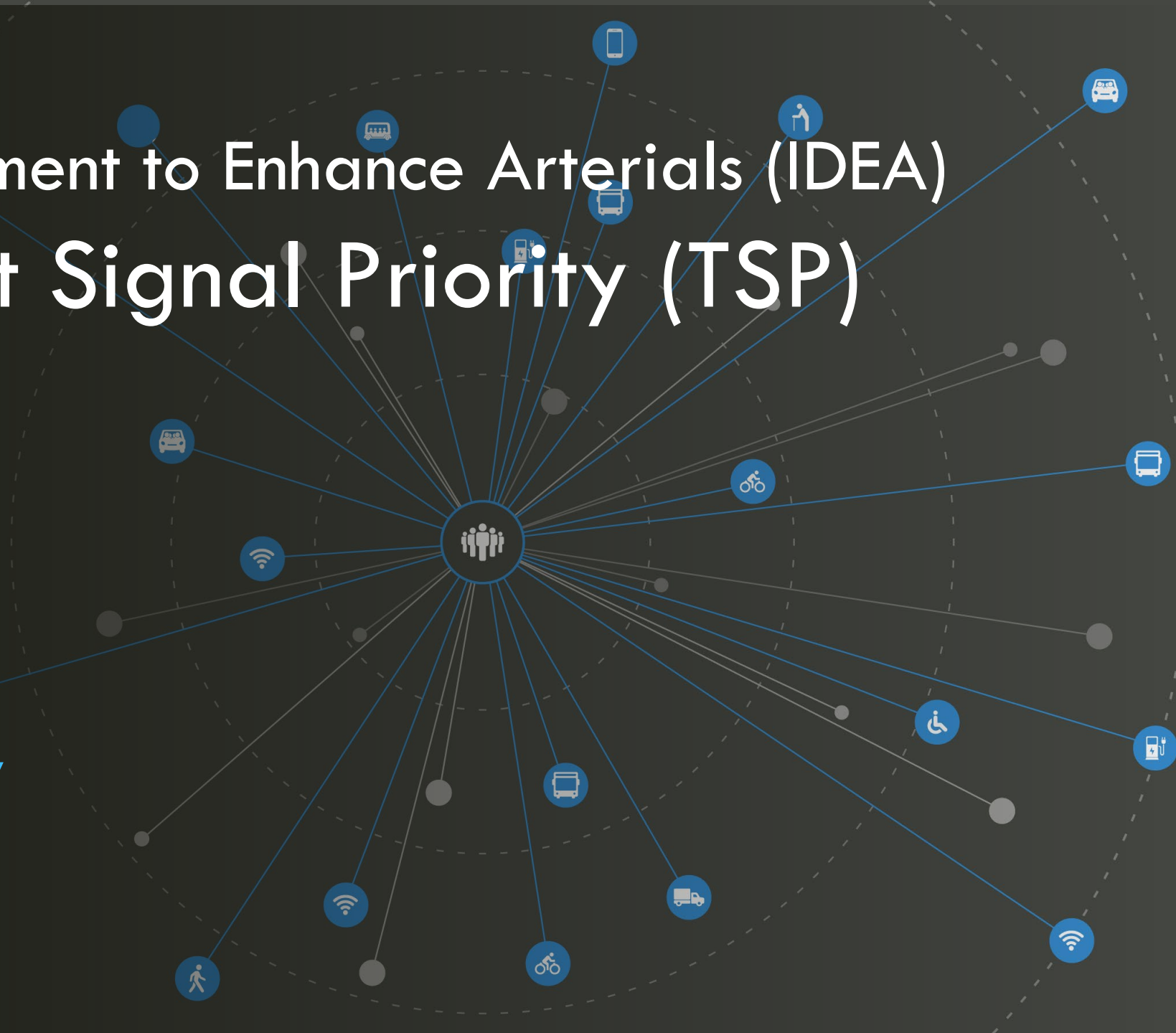
Innovative Deployment to Enhance Arterials (IDEA) Central Transit Signal Priority (TSP)

Presented by Hisham Noeimi, P.E.

Contra Costa Transportation Authority



CONTRA COSTA
transportation
authority



Partners and Roles



Responsible for procurement, deployment, operation and maintenance of the TSP system.

Concord

Owns, operates, and maintains the **35 signals** in the Concord project area.



Walnut Creek

Owns, operates, and maintains the **31 signals** in the Walnut Creek project area.



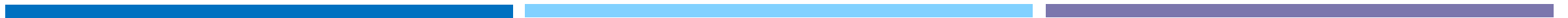
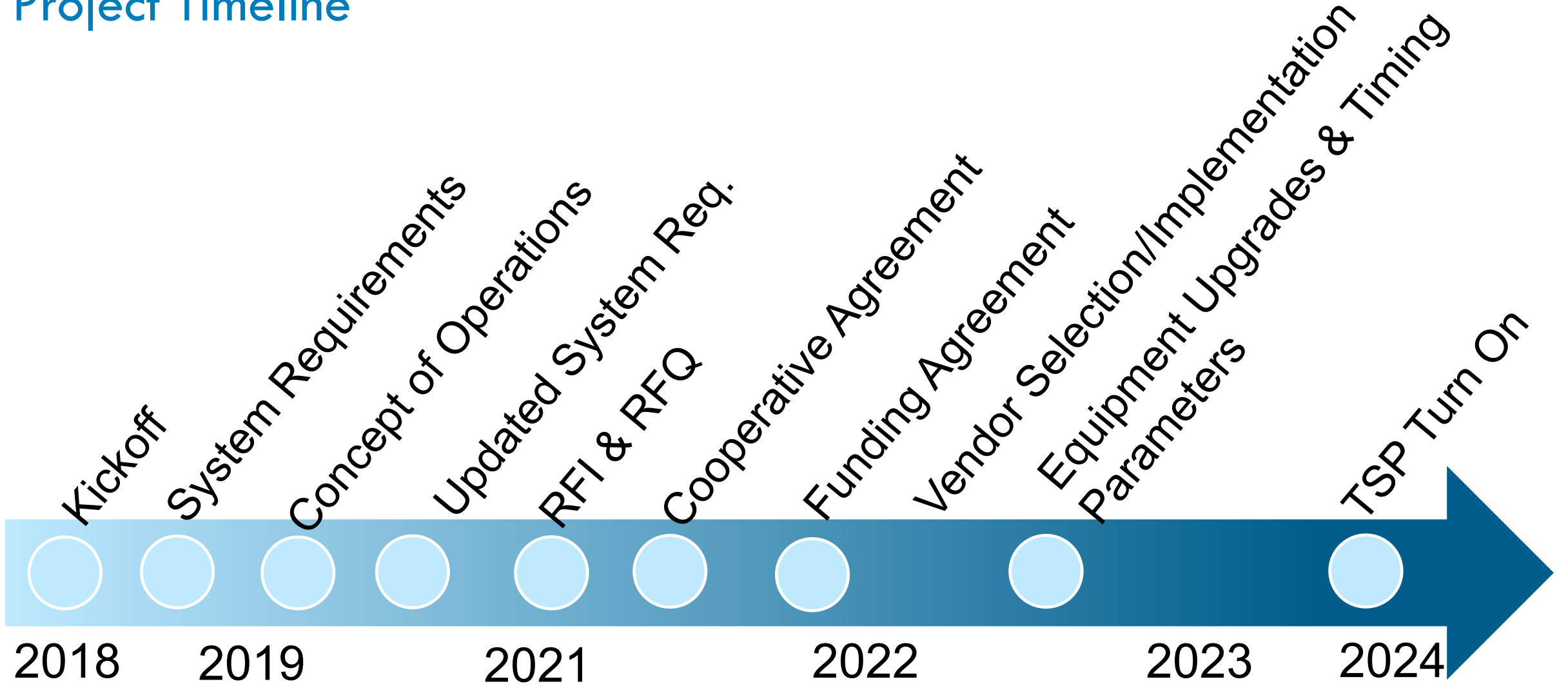
Funding agency and Systems Engineering contract manager.

County Connection

Operates transit service in the project area.



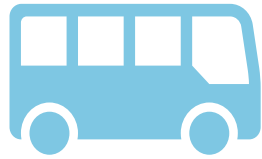
Project Timeline



Project Goals



Improve transit reliability and travel time along the four bus routes in Walnut Creek and Concord



Increase transit mode share (i.e., ridership and person throughput) and improve mobility



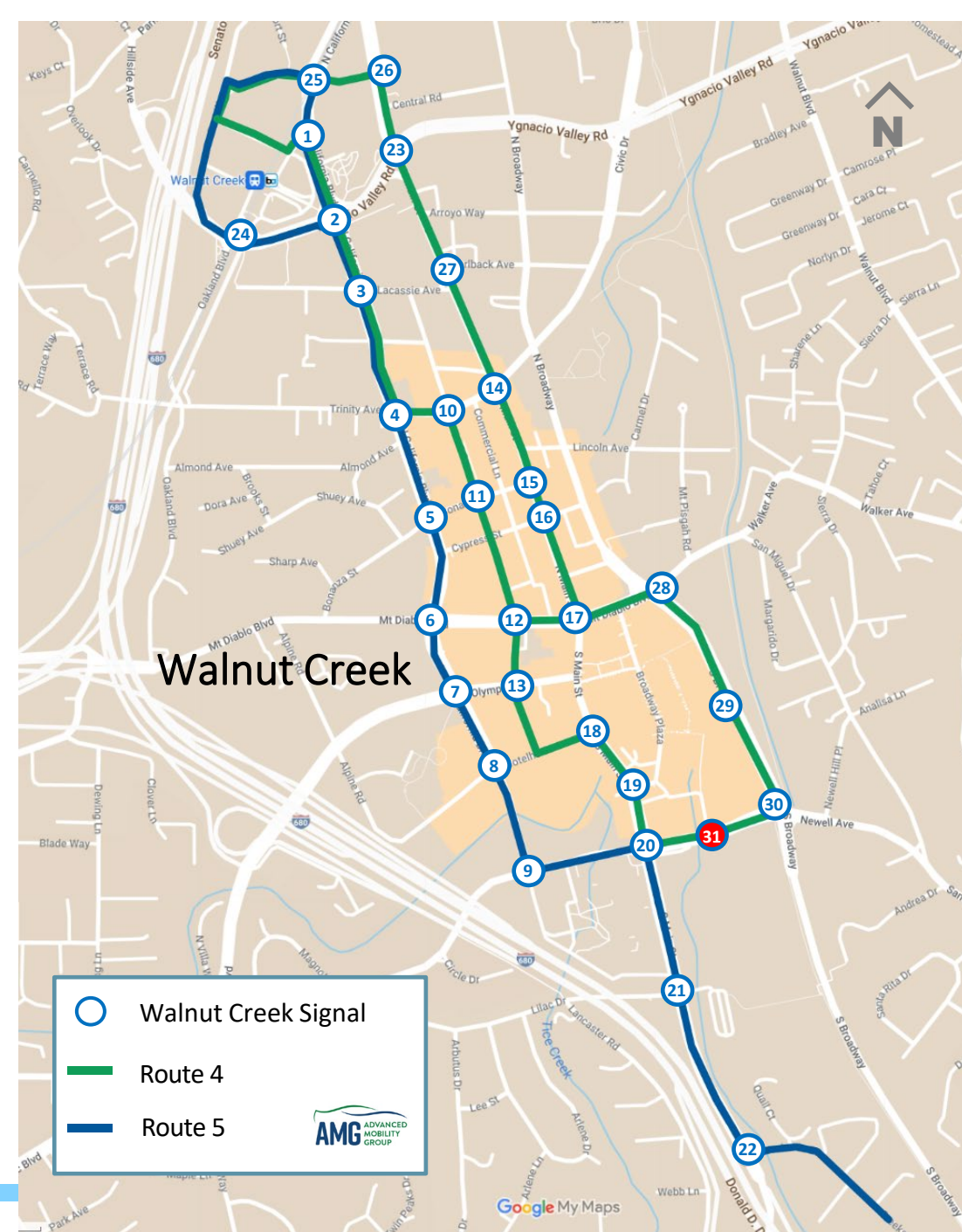
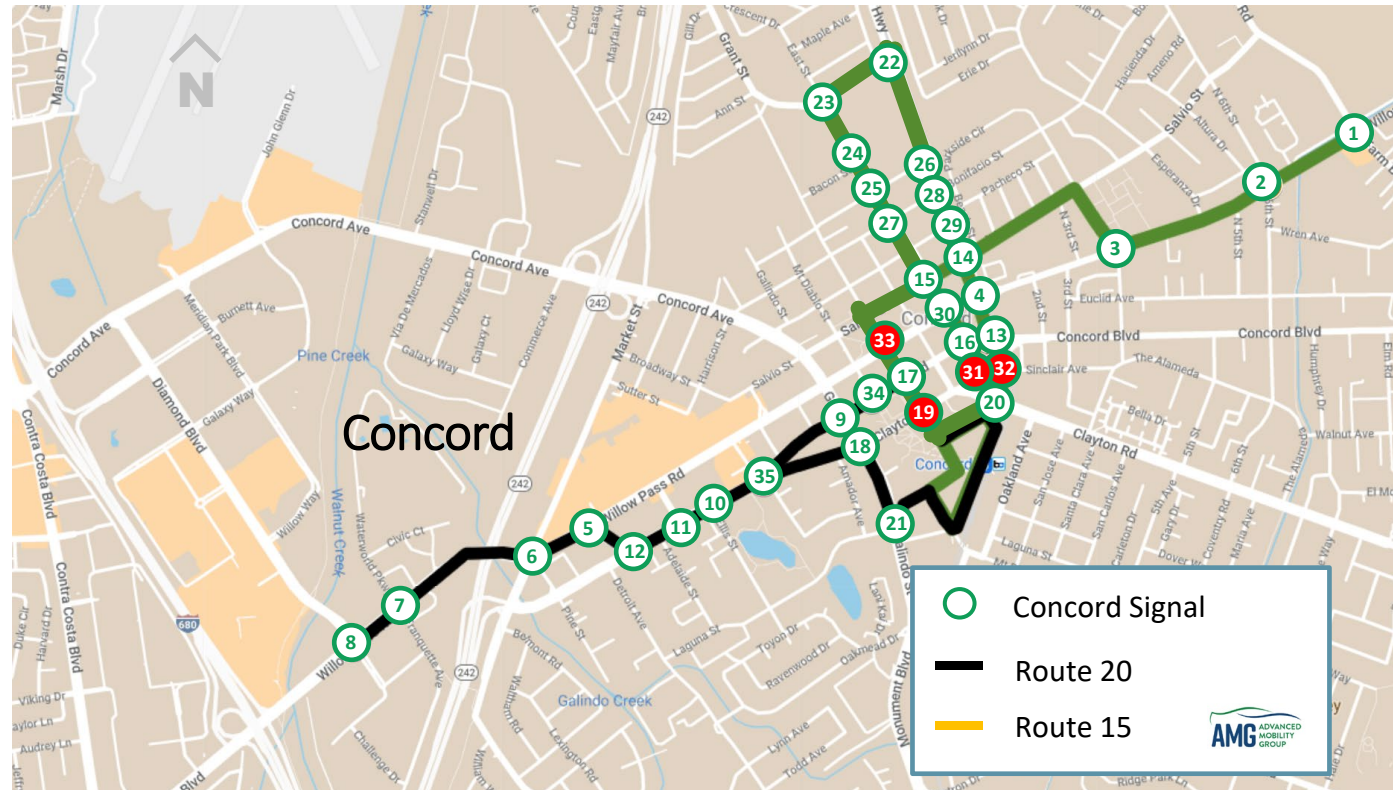
Reduce the fuel use and carbon footprint related to bus operations



Demonstrate innovative TSP applications that can expand to other cities in the County.

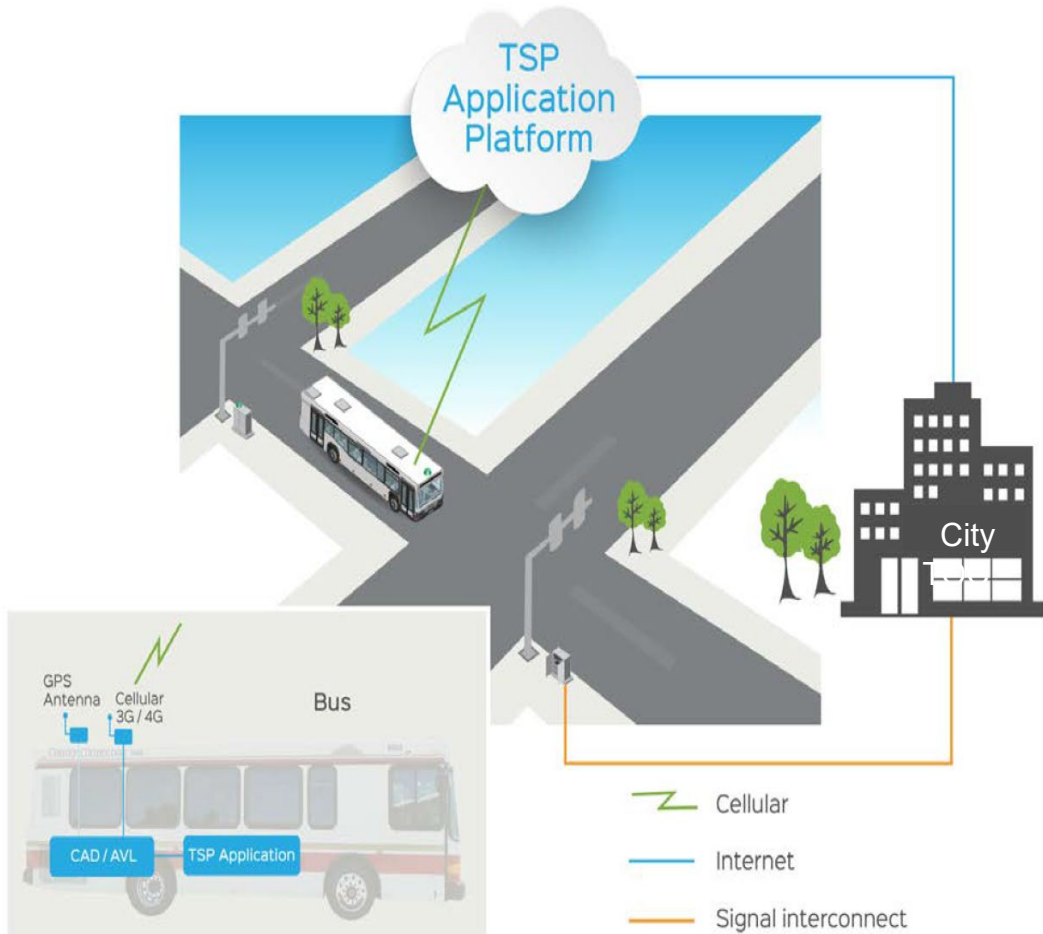


Project Area



- 4 Routes
- 31 Intersections in Walnut Creek
- 35 Intersections in Concord
- 31 Buses will be TSP ready

Why Central TSP?



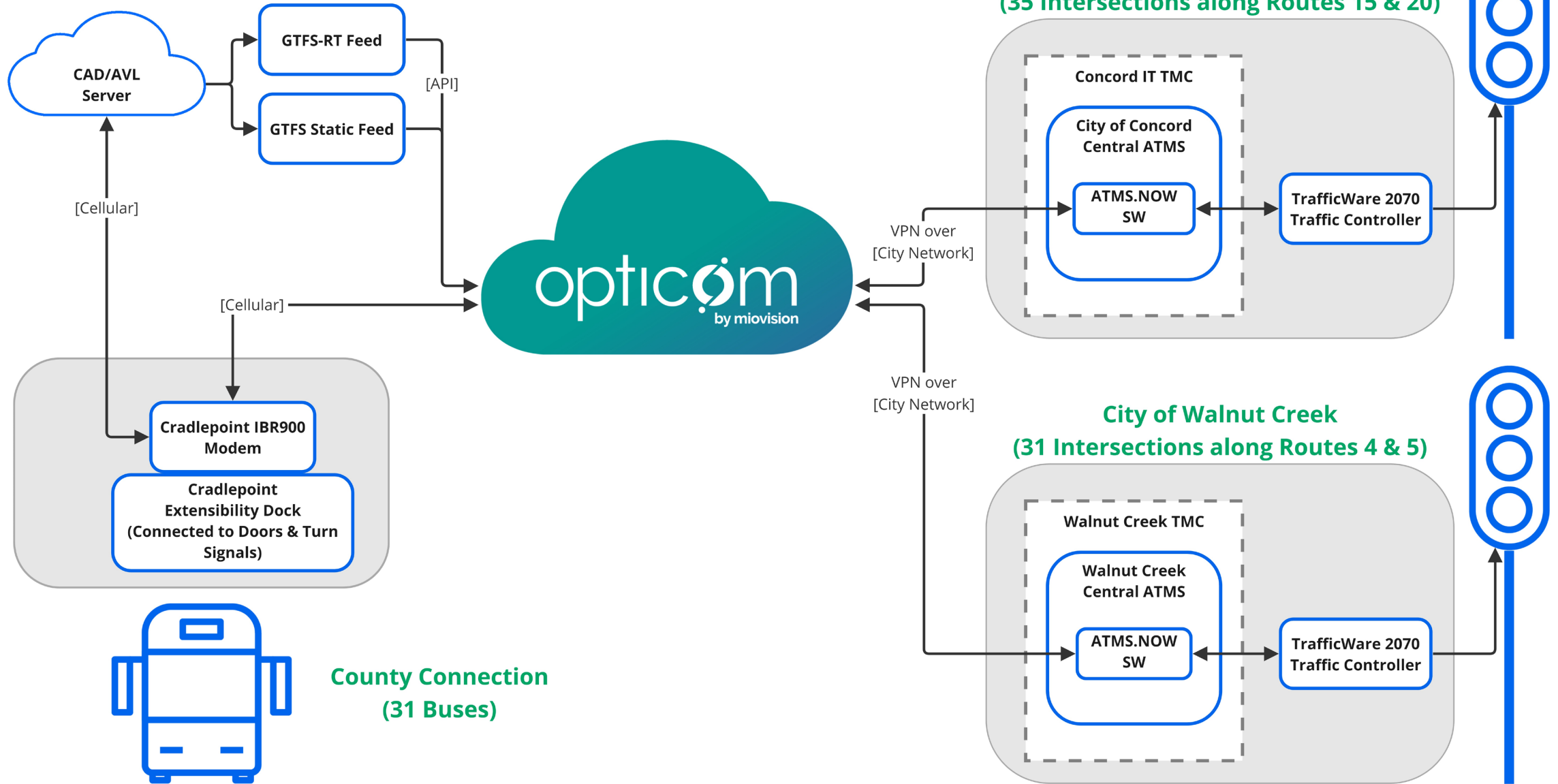
Pros

- Fewer components to deploy, maintain, and upgrade
- Less equipment
- Agencies invest in multi-purpose infrastructure
- Can be more easily scaled according to need

Cons

- Requires good communication and vehicle tracking systems
- Integration with cloud systems can create cybersecurity risk
- Requires adherence to technology standards, or a customized integration effort

System Architecture



Current Progress & Next Steps



- ✓ Communication & Functionality Testing
- ✓ Enabled TSP on March 27th , 2024
- ✓ 30-day Acceptance Period (March 28 - April 28)
- ❑ Evaluation Study – Sept 2024
- ❑ 3-year O&M Warranty (March 2027)

Challenges

- Supply Chain Issues – Traffic Controllers Hardware
 - Allow time for controller testing
- NTCIP 1211 Compliance
 - Verify before you select
- Construction Detours
 - Impacts to bus routes & intersections
- Bus Route Detours
 - Permanent roadway closures
- Network Reliability
 - Send TSP requests repeatedly



Challenges

- Cradlepoint Subscription
 - Plan ahead
- Modem/GPS antenna reliability
 - Ensure spares are available
- Utilization of TSP enabled buses on TSP enabled intersections
 - Better dispatch process
 - Ensure more buses are TSP configured
- GTFS data feed
 - Decide on source (CleverCAD, Swiftly, 511.org)
 - Data format issues



Challenges

- Security
 - Involve IT at cities early and often
 - Secure VPN connections
 - Management Process for IP addresses
- Communication Protocols
 - Multi-agency involvement
 - Identify roles of each agency
 - Plan ahead for various scenarios



