



Smart Technology at Traffic Signals Feasibility Study

Date

Prepared by:
STC Traffic, Inc.



Presenters

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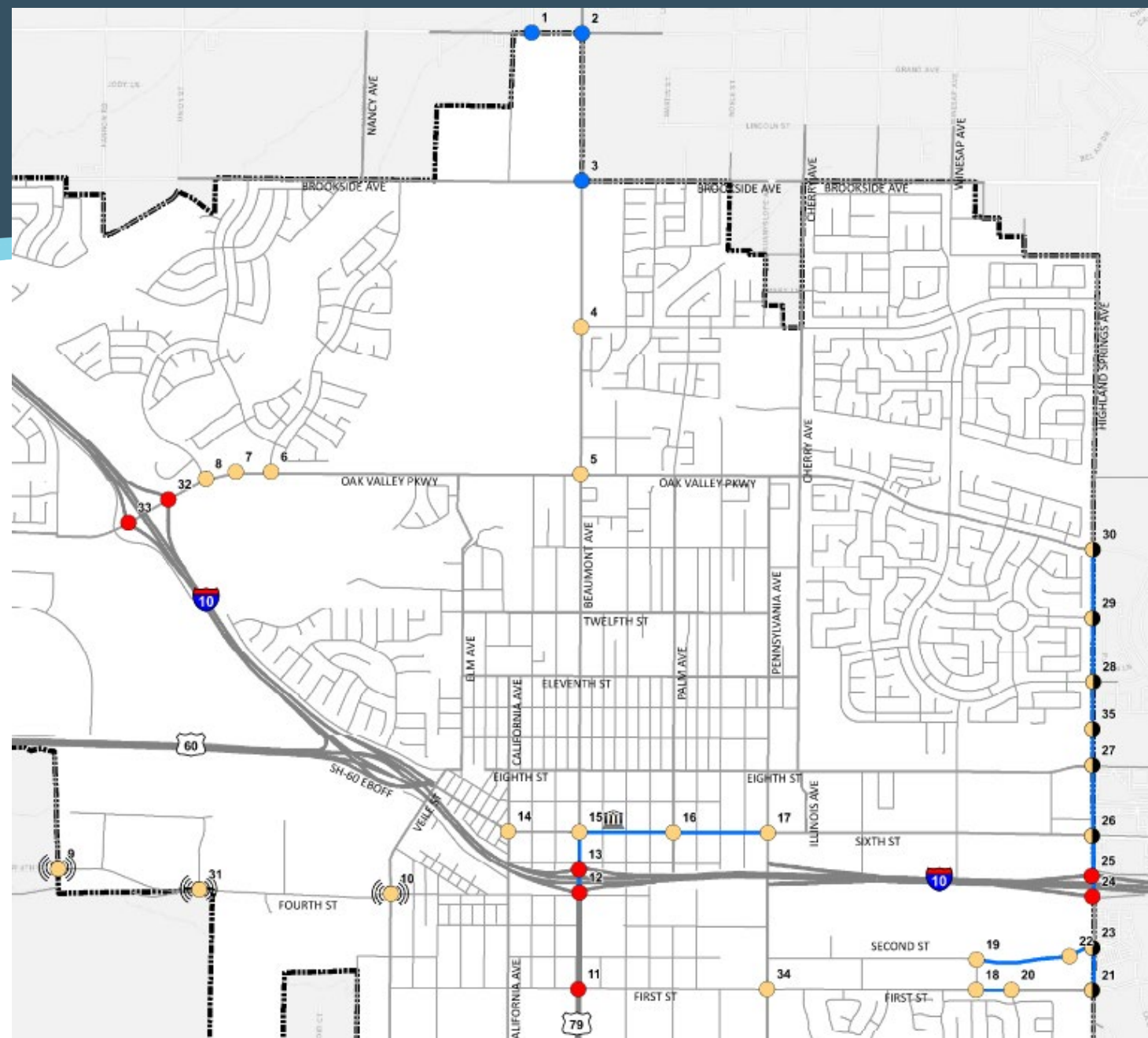
Presentation Agenda

- Purpose and Need
- Smart Tech Approach
- Traffic Systems Pyramid
- Smart Technology
- Example Deployments
- Implementation Phasing and Priority
- Next Steps

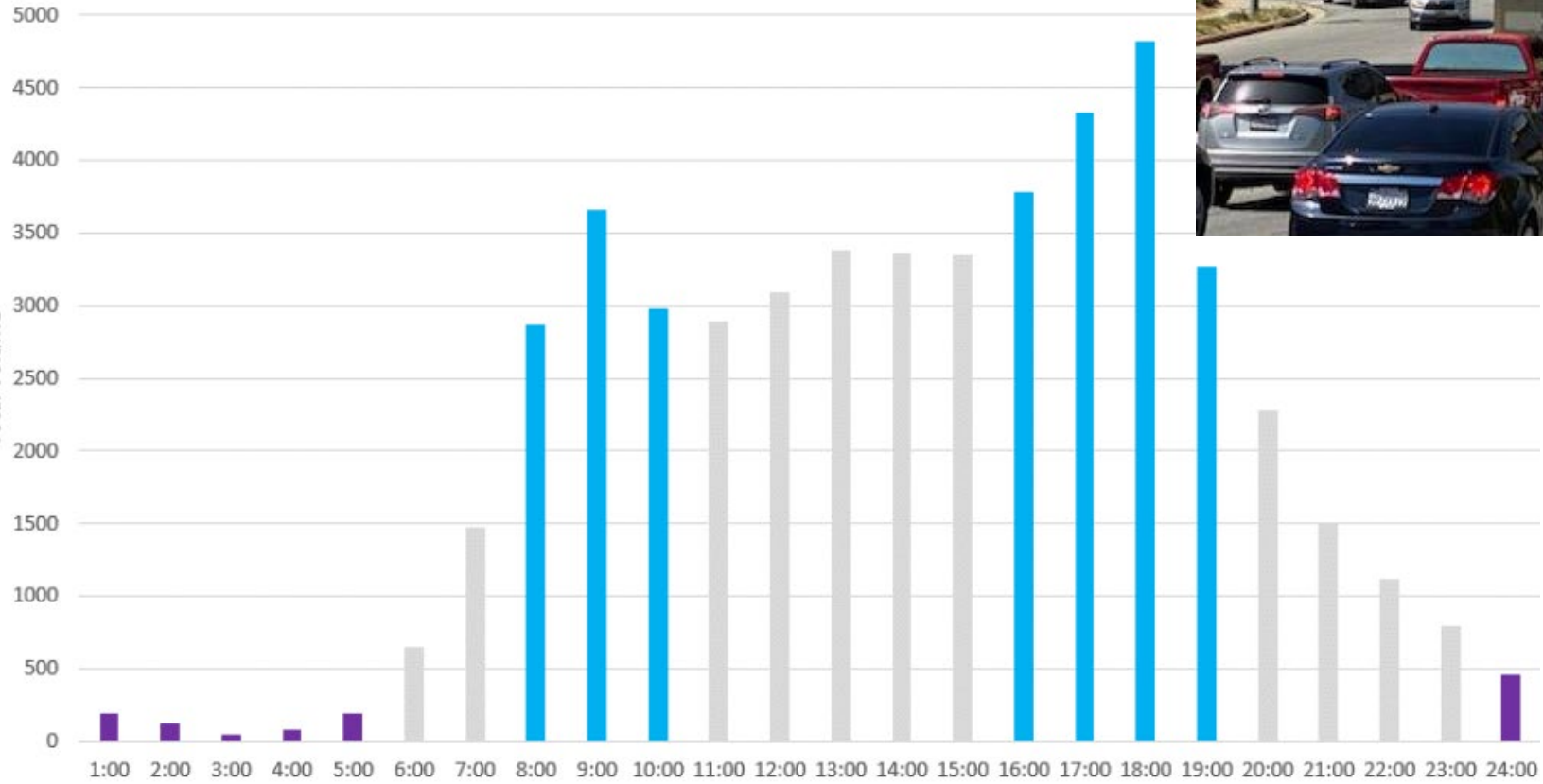
Purpose and Need

Traffic Conditions

- Freeway Access
- Arterial Network
- Growth



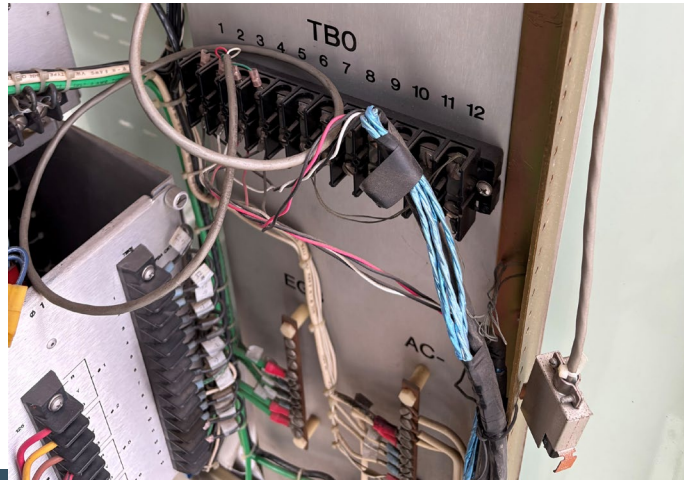
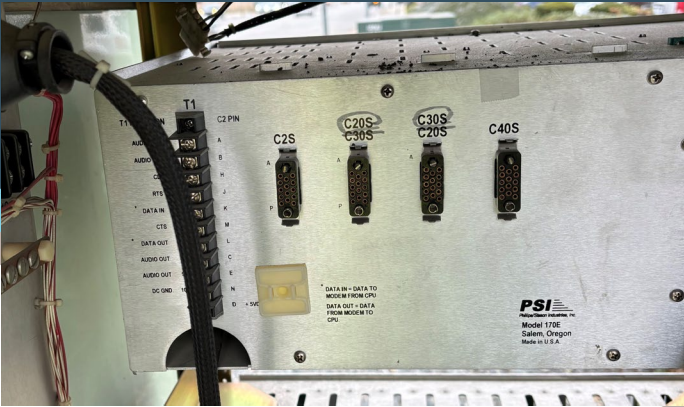
Purpose and Need



Traffic Conditions

Purpose and Need

Dated Technology

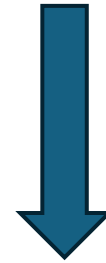


Smart Tech Approach

- Ad-Hoc to Systematic
- Match Tech with Complexities
- Automation
- Safety and Efficiency
- High Return



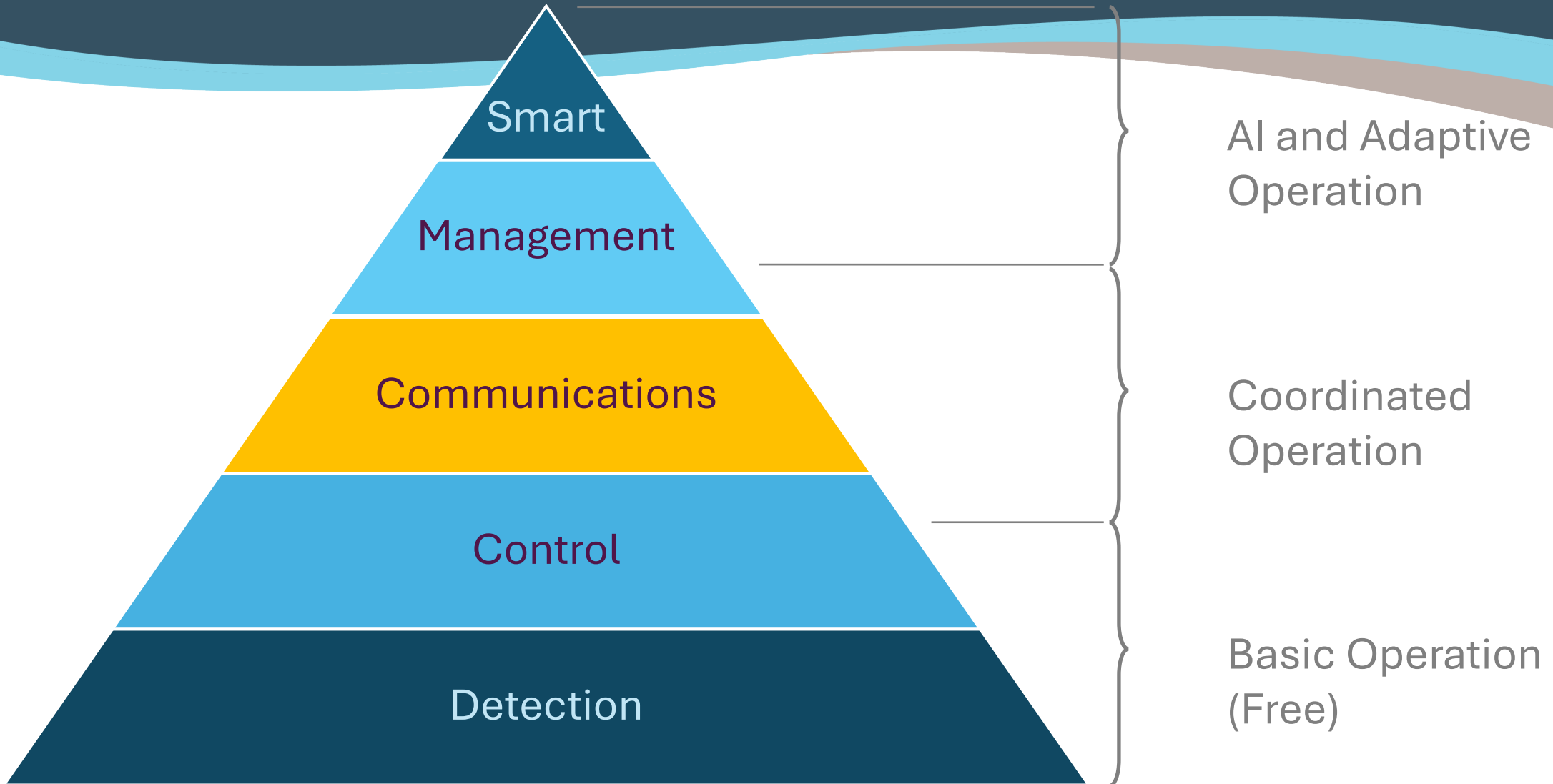
Reactive



Proactive



Traffic Signal System Pyramid



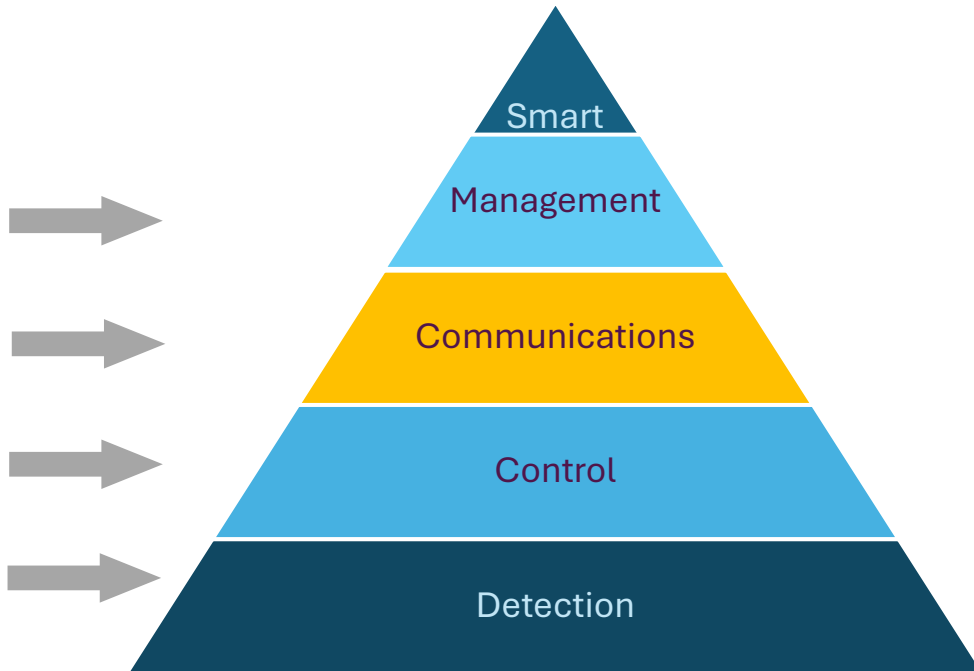
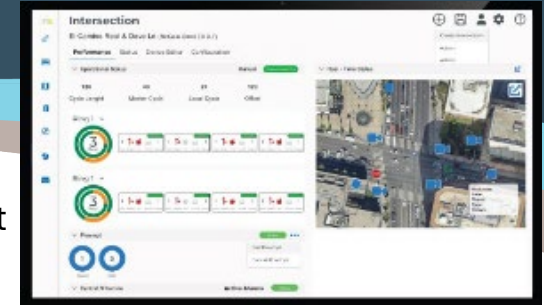
Traffic Signal System Pyramid

Legacy

New

Foundational Improvements

Central Management System



POTS



5G Cell



10Kbps



100Mbps



Loops

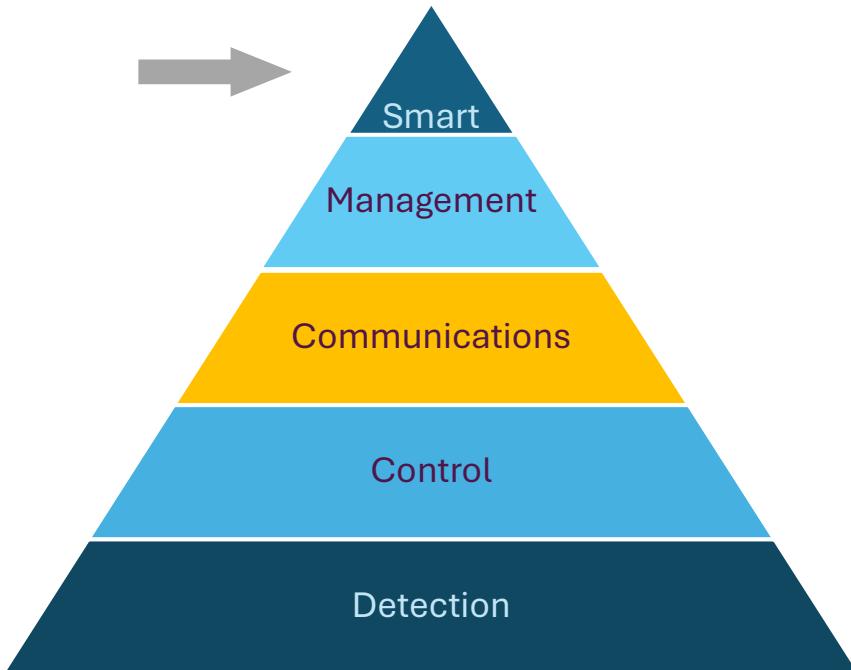


Video



Smart Technology

AI and Adaptive Overlay



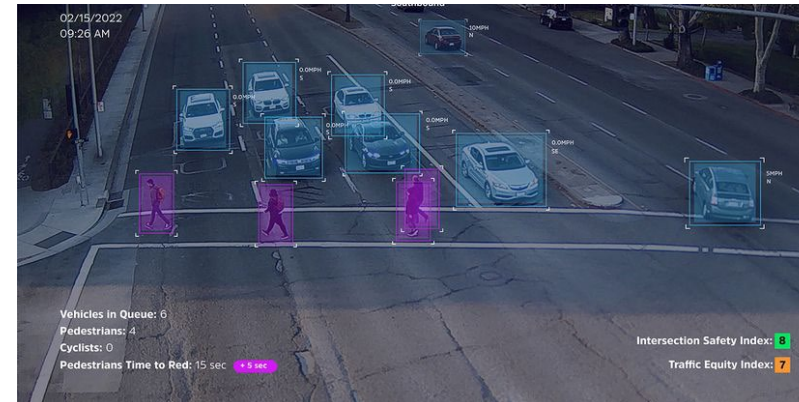
Video



Edge GPU



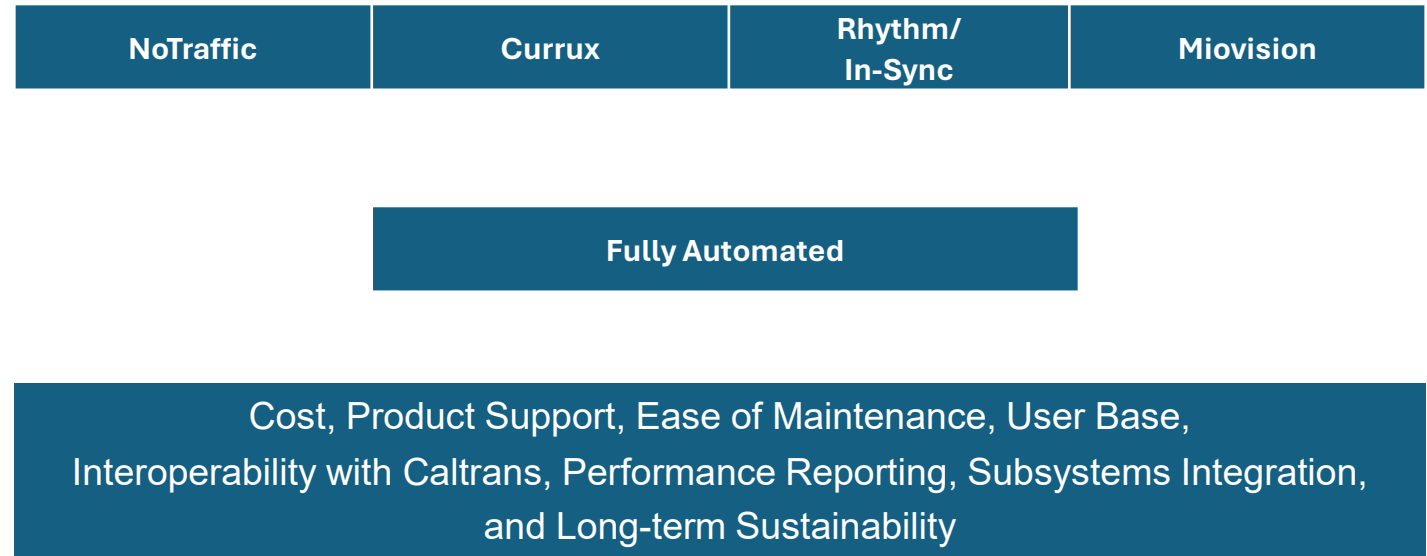
AI Detection and Decentralized Adaptive



Smart Technology

AI and Adaptive Overlay

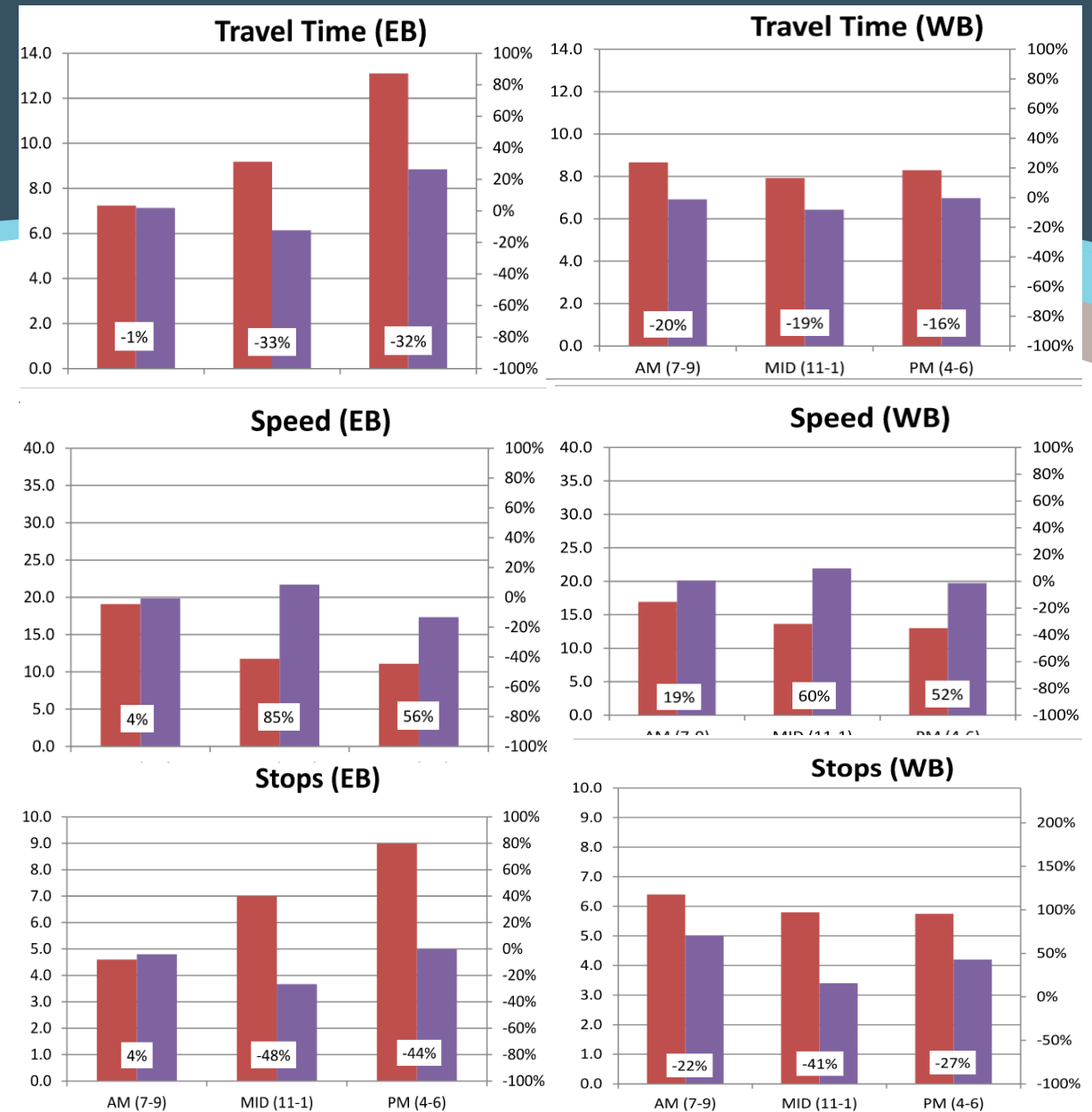
- Systems Reviewed
- Functional Requirements
- Comparison Factors



Smart Technology

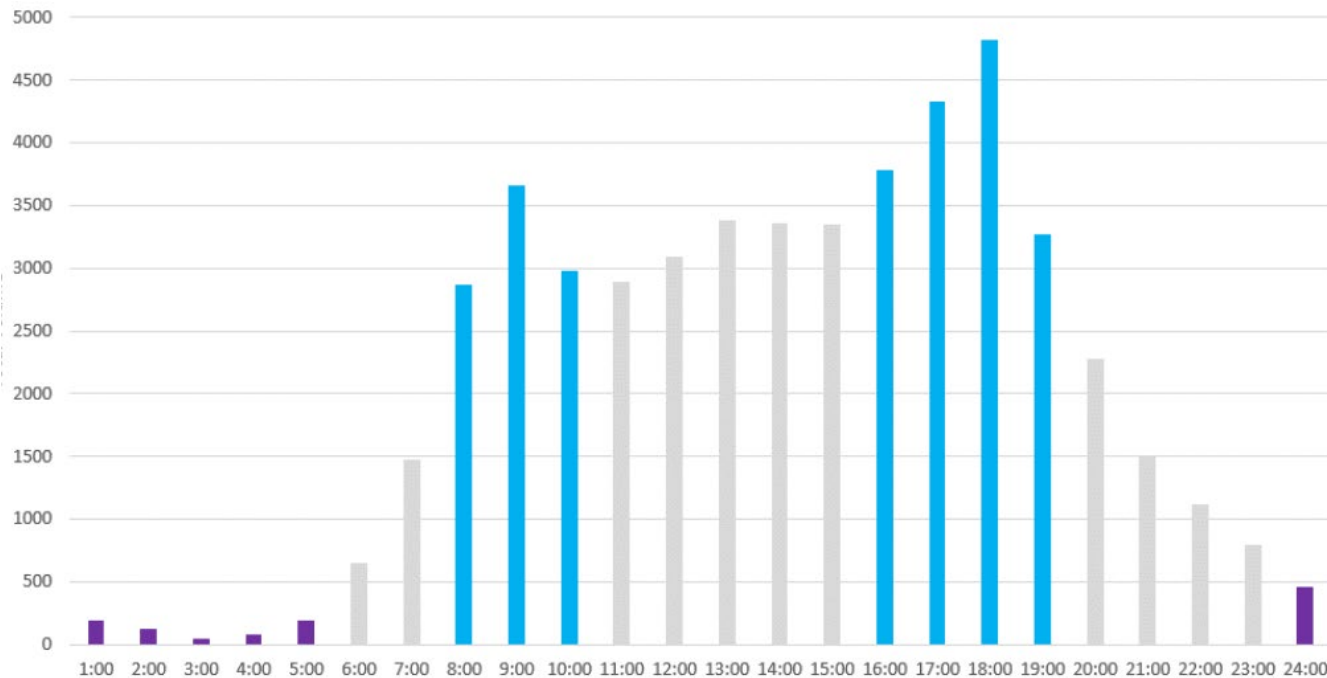
Benefits Examples

- Temecula – Winchester Rd
- San Diego
- Eastvale
- Many Others



Smart Technology

Expectations

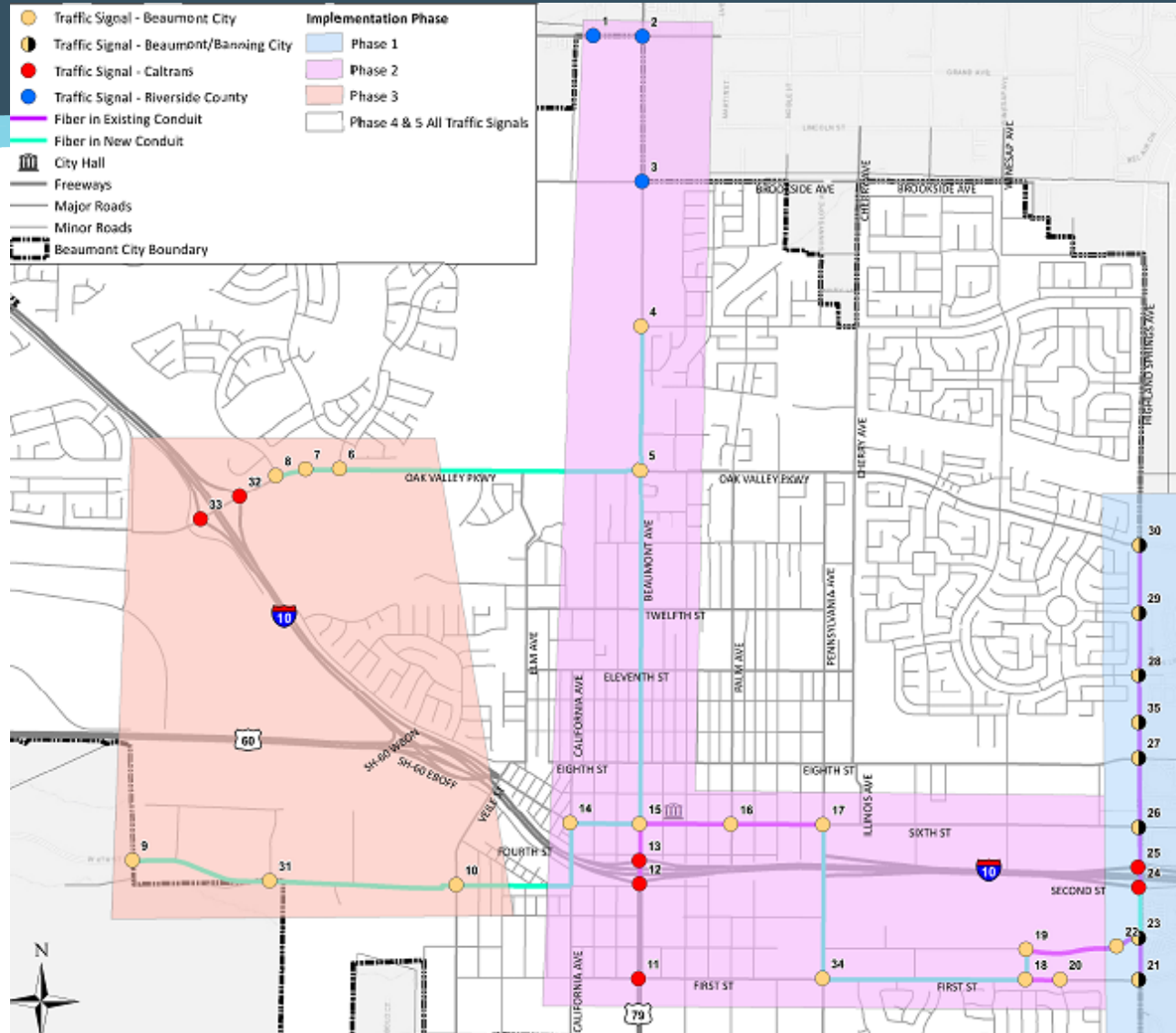


- More greens vs reds
- Stops where expected
- Peak period congestion management
- Off-peak flexibility
- Establish the baseline

Implementation Phasing and Priority

Corridor Approach

- Rapid deployments
- Build the foundation
- Smart tech overlay
- 5-year plan



Phase 1: Highland Springs Ave			
Year	Item #	Description	Int. ID#
1	1	2070LX Controller w/ OMNI	21,23
	2	Swap 2070E CPU w/ 1C ATC CPU w/ OMNI	26,27,28,29,30,35
	3	Cellular Radios	23,26
	4	Ethernet-Over-Copper VDSL Modem	Corridor wide
	5	Cloud-Based MyCity Software Suite	City Hall
	6	CMU Upgrades	Corridor wide
	7	AI/ ASCT	Corridor wide
	8	MCE	Corridor wide
Phase 2: Beaumont Ave, First St, Second St, & Sixth St			
Year	Item #	Description	Int. ID#
2	1	2070LX Controller w/ OMNI	4,14,15,16,18,19,20,34
	2	Swap 2070E CPU w/ 1C ATC CPU w/ OMNI	5,17
	3	Cellular Radios	4,5,14,15,34
	4	Ethernet-Over-Copper VDSL Modem	15,16,17,18,19,20,22
	5	Cloud-Based MyCity Software Suite	City Hall
	6	CMU Upgrades	Corridor wide
	7	AI/ ASCT	Corridor wide
	8	MCE	Corridor wide
	9	Layer 2 Network Switch	4,5,14,34
Phase 3: Oak Valley Pkwy & Fourth St			
Year	Item #	Description	Int. ID#
3	1	2070LX Controller w/ OMNI	6,8
	2	Swap 2070E CPU w/ 1C ATC CPU w/ OMNI	9,10,31
	3	Cellular Radios	6,7,8,10
	5	Cloud-Based MyCity Software Suite	City Hall
	6	CMU Upgrades	Corridor wide
	7	AI/ ASCT	Corridor wide
	8	MCE	Corridor wide
	9	Layer 2 Network Switch	6,7,8,9,10,31
	Phase 4: All Traffic Signals		
Year	Item #	Description	Int. ID#
4	10	APS Pushbuttons	City Wide except 4
	11	BBS Upgrades	City Wide except 9,10,17,20,28,29,31,34,35
	12	CCTV	City Wide except 16,17
	13	EVPE Upgrades	City Wide except 9,10,27,28,29,30,31,35
Phase 5: All Traffic Signals			
Year	Item #	Description	Int. ID#
5+	14	Fiber Optic Improvements	City Wide
	15	352I ATC Cabinet Upgrades	City Wide

Implementation Phasing and Priority

Costs

Phase	Year	Location	Cost
1	1	Highland Springs Ave	\$683,250
2	2	Beaumont Ave, First St, Second St, Sixth St	\$1,018,500
3	3	Oak Valley Pkwy and Fourth St	\$382,500
4	4	Citywide	\$1,613,750
5	5 +	Citywide	\$5,586,250
Total			\$9,284,250

Next Steps

- Contractor and Vendor Bid Documents
- Caltrans Permitting and Coordination

Design and
Specification
Documents

Bid and
Award

Procurement

Installation

Validation

Operation and
Performance
Monitoring

Questions

Thank You!