Transit Signal Priority Implementation

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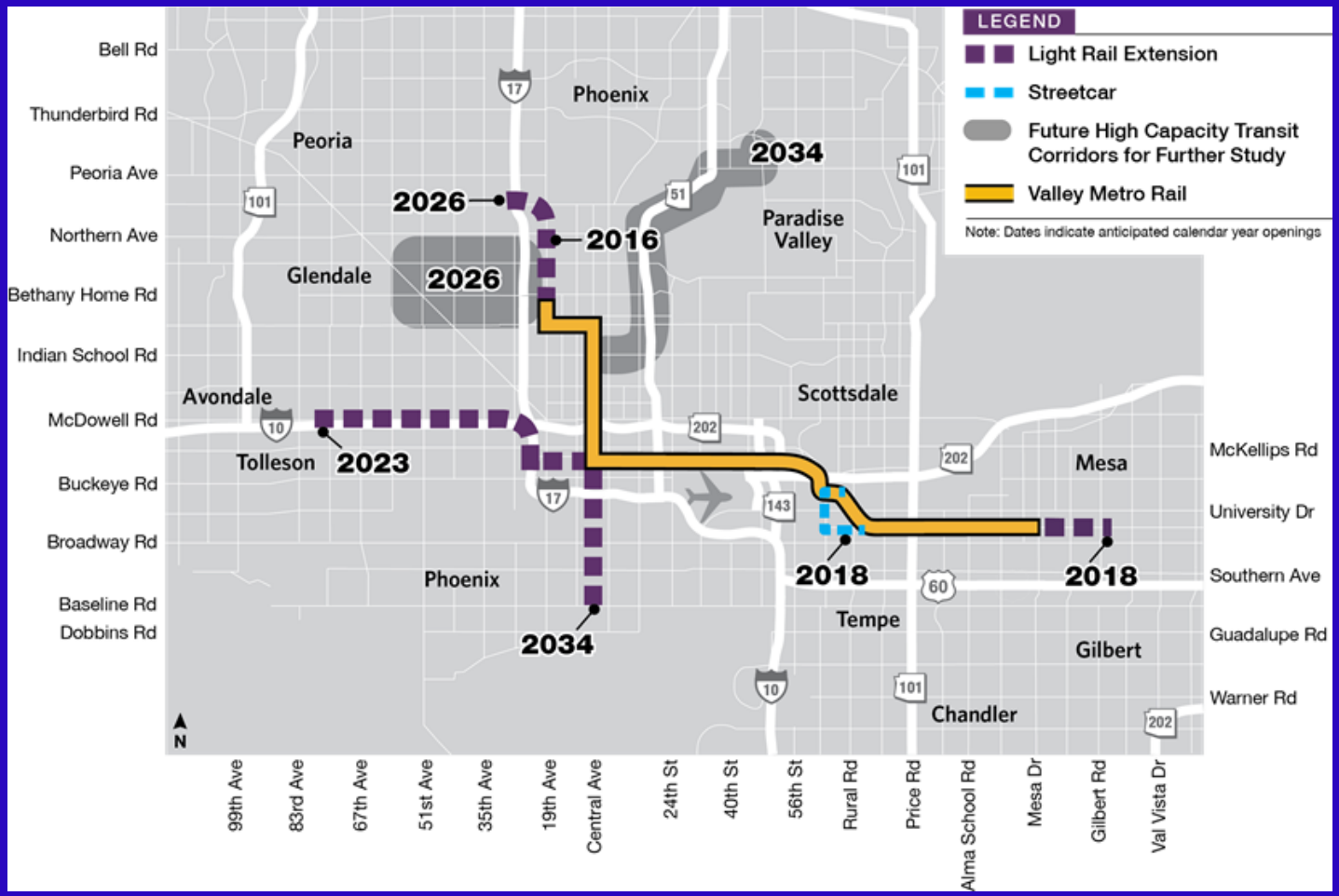
Key Presentation Take Aways

- Introduction
- Development of Signal Control Strategies
- Hardware/Software
- Communications Network
- Integration
- Operations Today

Introduction

- Transit 2000
- 23 Miles of Light Rail
- 22 Miles In-Street Running
- 170 Intersections

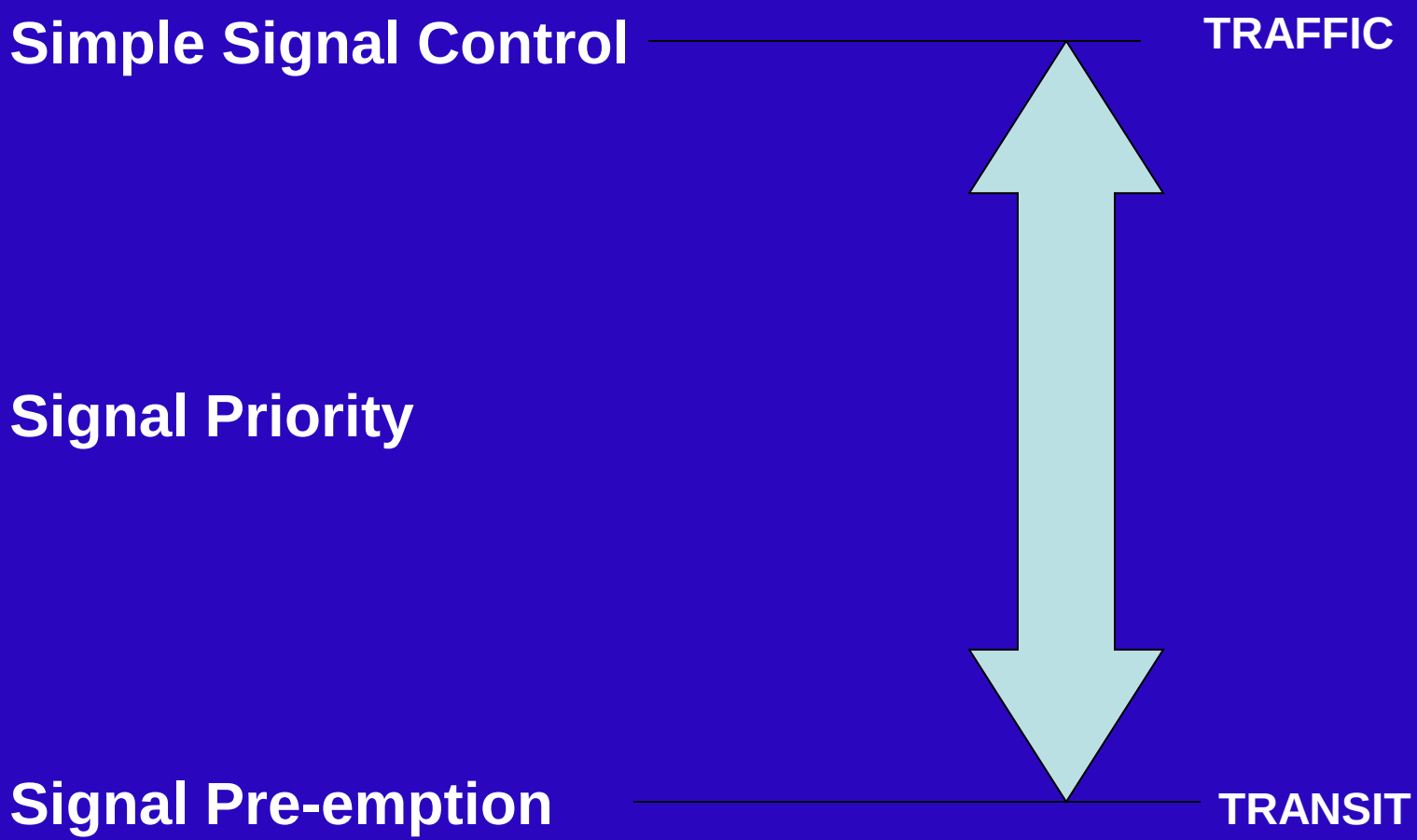
Route Map


LEGEND
Light Rail Extension
Streetcar
Future High Capacity Transit Corridors for Further Study
Valley Metro Rail
Note: Dates indicate anticipated calendar year openings
Bell Rd
Thunderbird Rd
Peoria Ave
Northern Ave
Bethany Home Rd
Indian School Rd
McDowell Rd
Buckeye Rd
Broadway Rd
Baseline Rd
Dobbins Rd
McKellips Rd
University Dr
Southern Ave
Guadalupe Rd
Warner Rd
Phoenix
Peoria
Glendale
Avondale
Tolleson
Scottsdale
Paradise Valley
Mesa
Tempe
Gilbert
Chandler
2016
2018
2018
2023
2026
2026
2034
2034
N
99th Ave
83rd Ave
67th Ave
51st Ave
35th Ave
19th Ave
Central Ave
24th St
40th St
56th St
Rural Rd
Price Rd
Alma School Rd
Mesa Dr
Gilbert Rd
Val Vista Dr

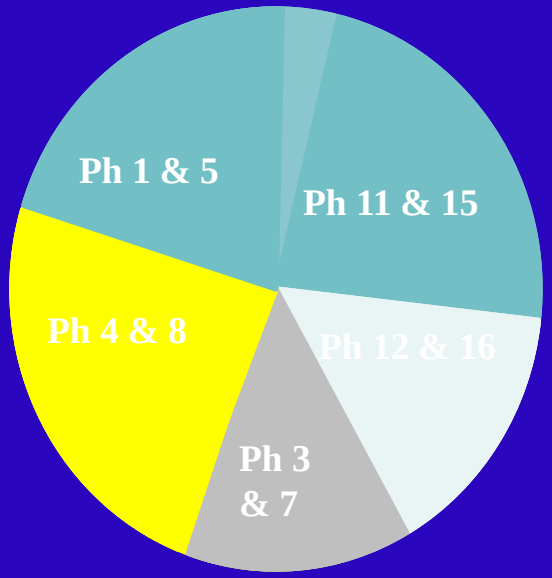
Development Objectives

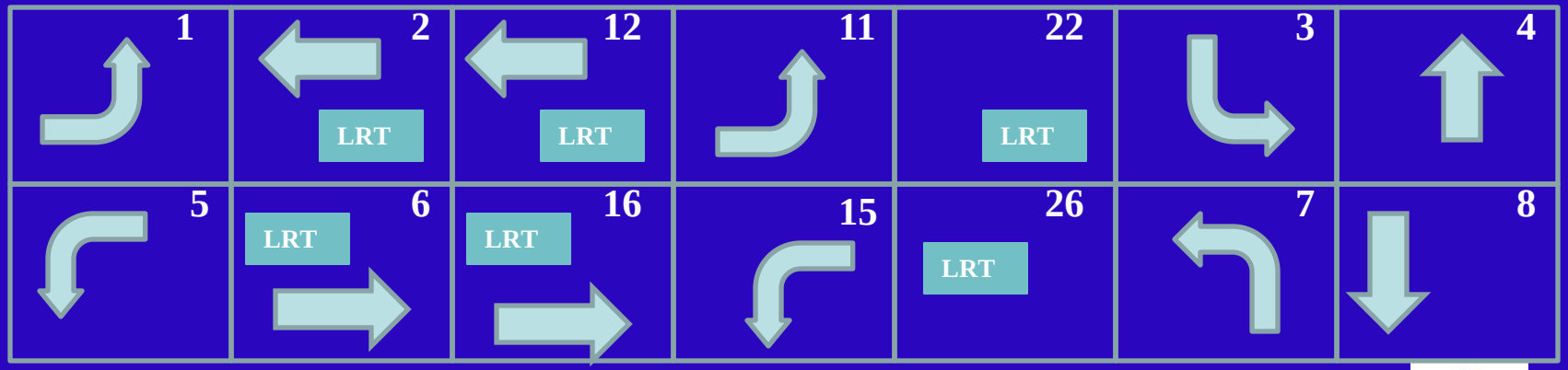
- Provide Safe LRT & Auto interfaces
  - Apply Lessons from Houston and Salt Lake City
- Maintain cross-street coordination with minimal LRT delay

Signal Control Strategies

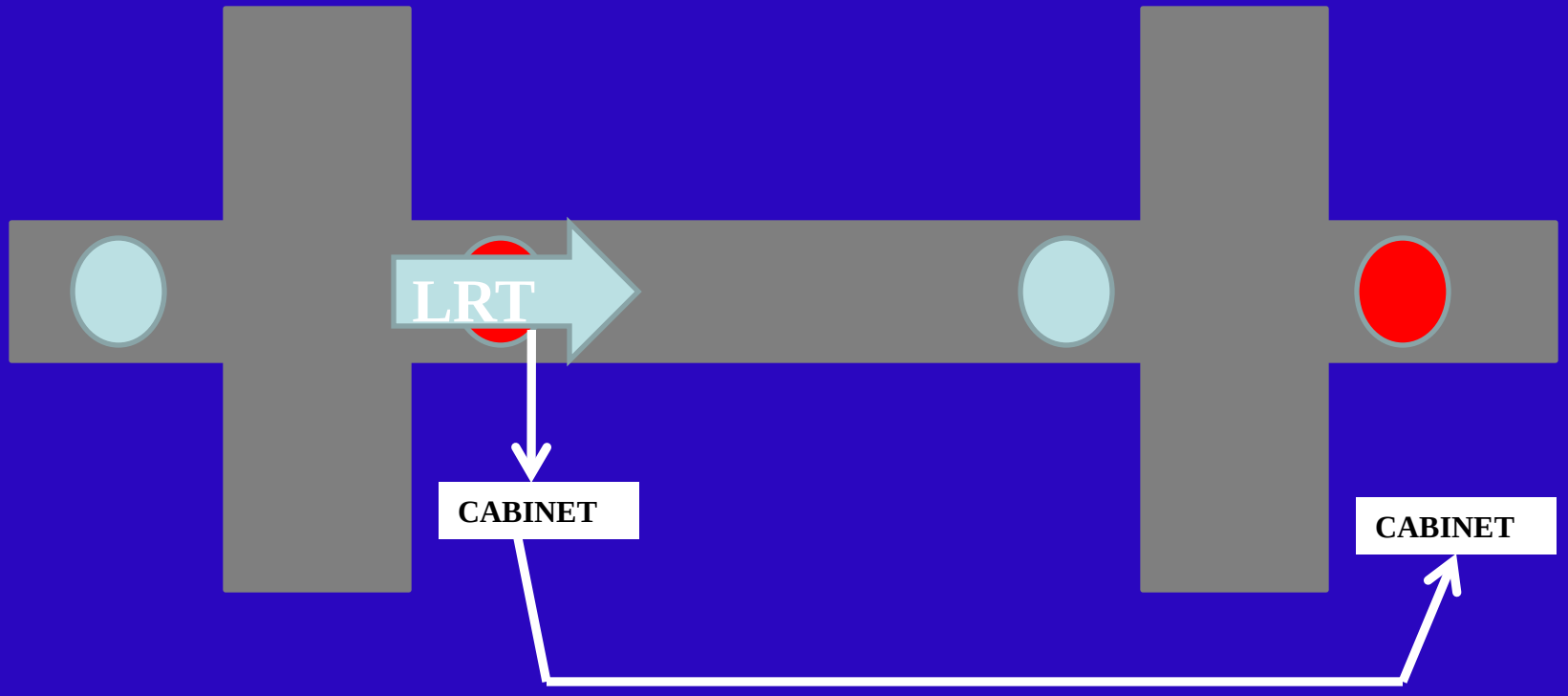


Predictive Priority





Peer to Peer Communication



CHECK-IN DETECTOR

CHECK-OUT DETECTOR

Hardware/Software Options

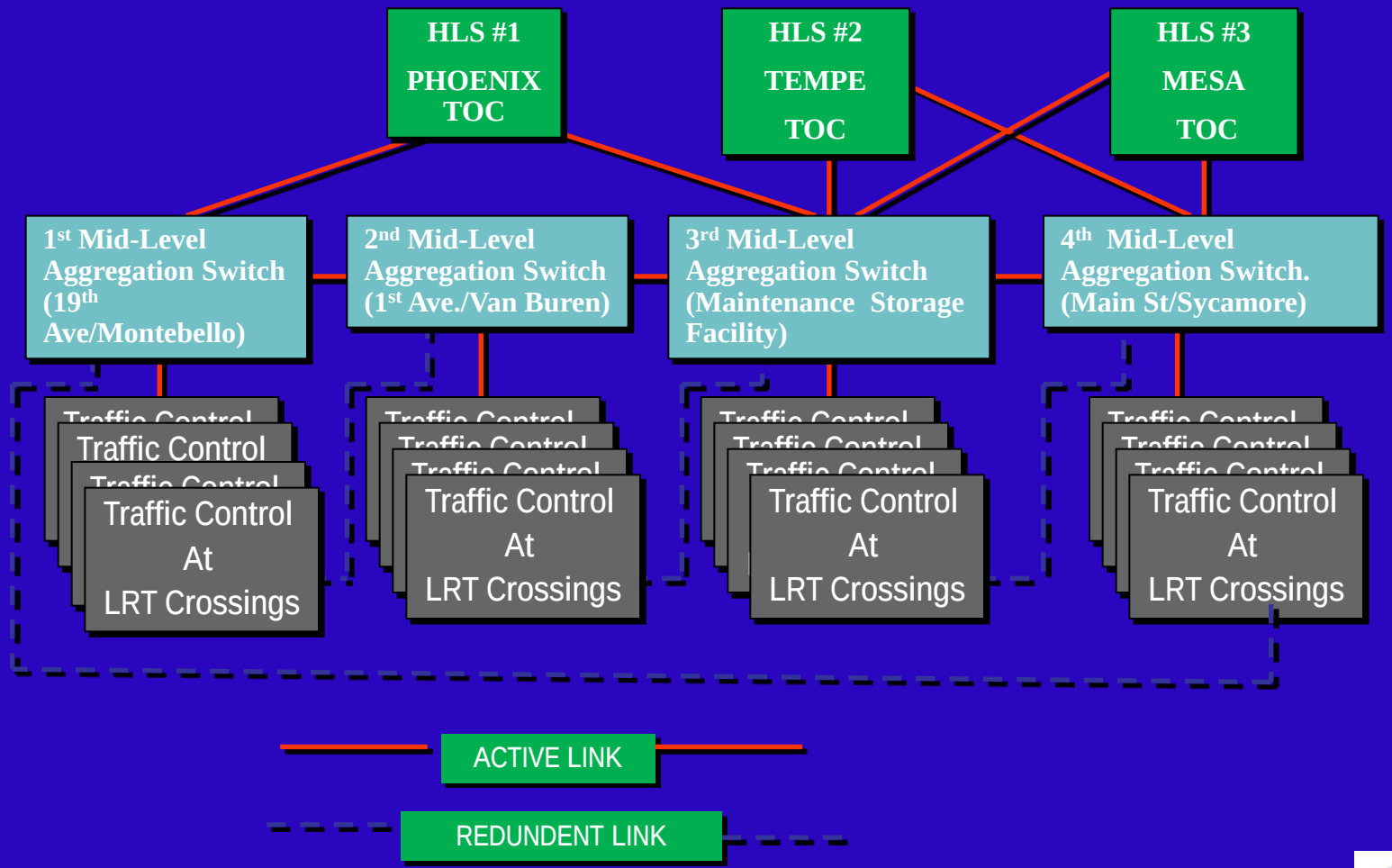
- Only Two Off-the-Shelf Packages
  - VSPlus and NextPhase
- NEMA Controller would not run Off-the-Shelf
- NextPhase was written for 2070 controller

Hardware Solution

Final Hardware Configuration

- TS-2 Cabinet
- ASC/3 – 20701B controller running NextPhase
- Field Ethernet Switch

Fiber Optic Architecture



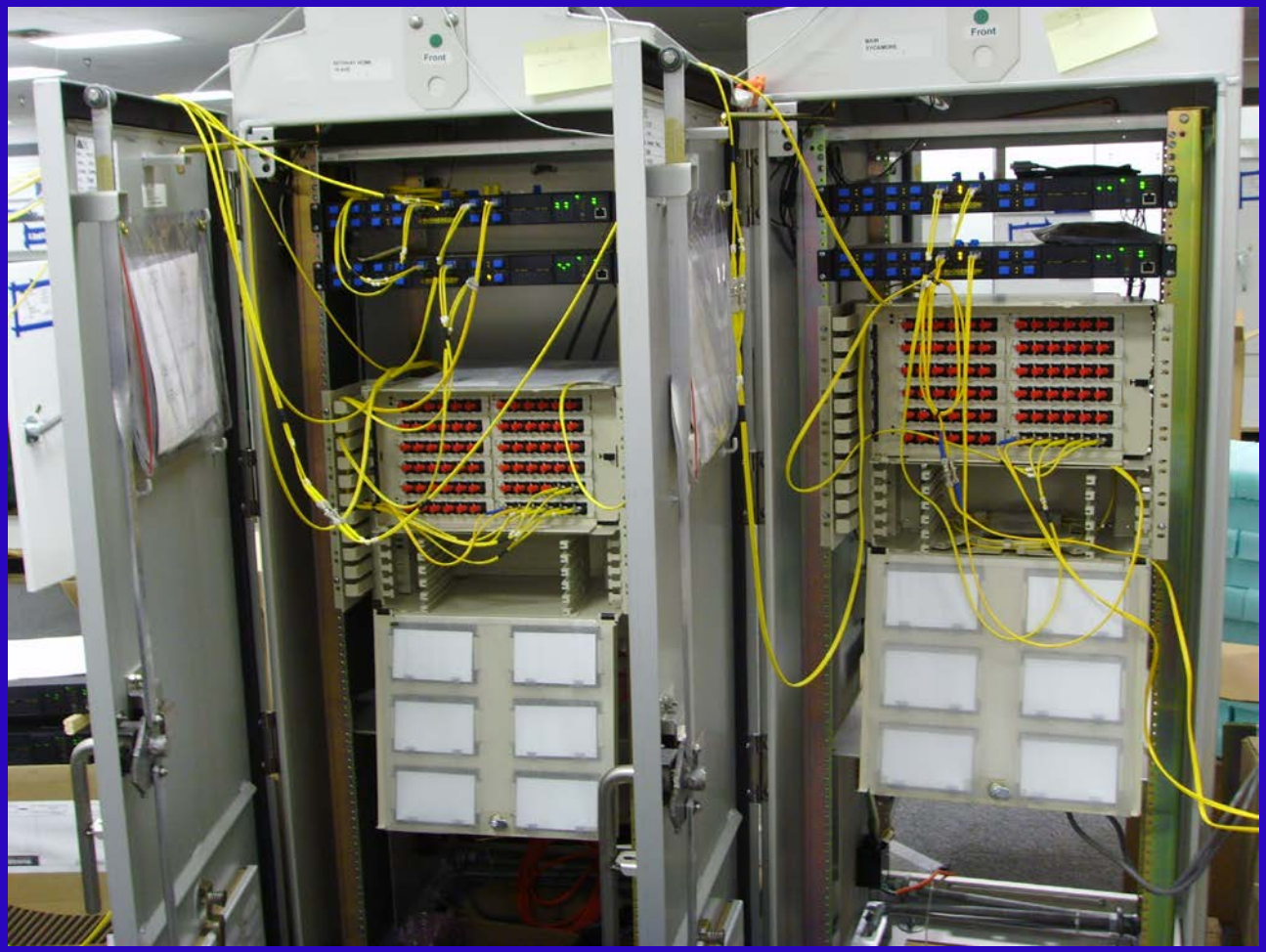
Traffic Signal Test Facility

- Test before deployment
- Test all functionality
- Preprogram all Controllers
- Technology Transfer

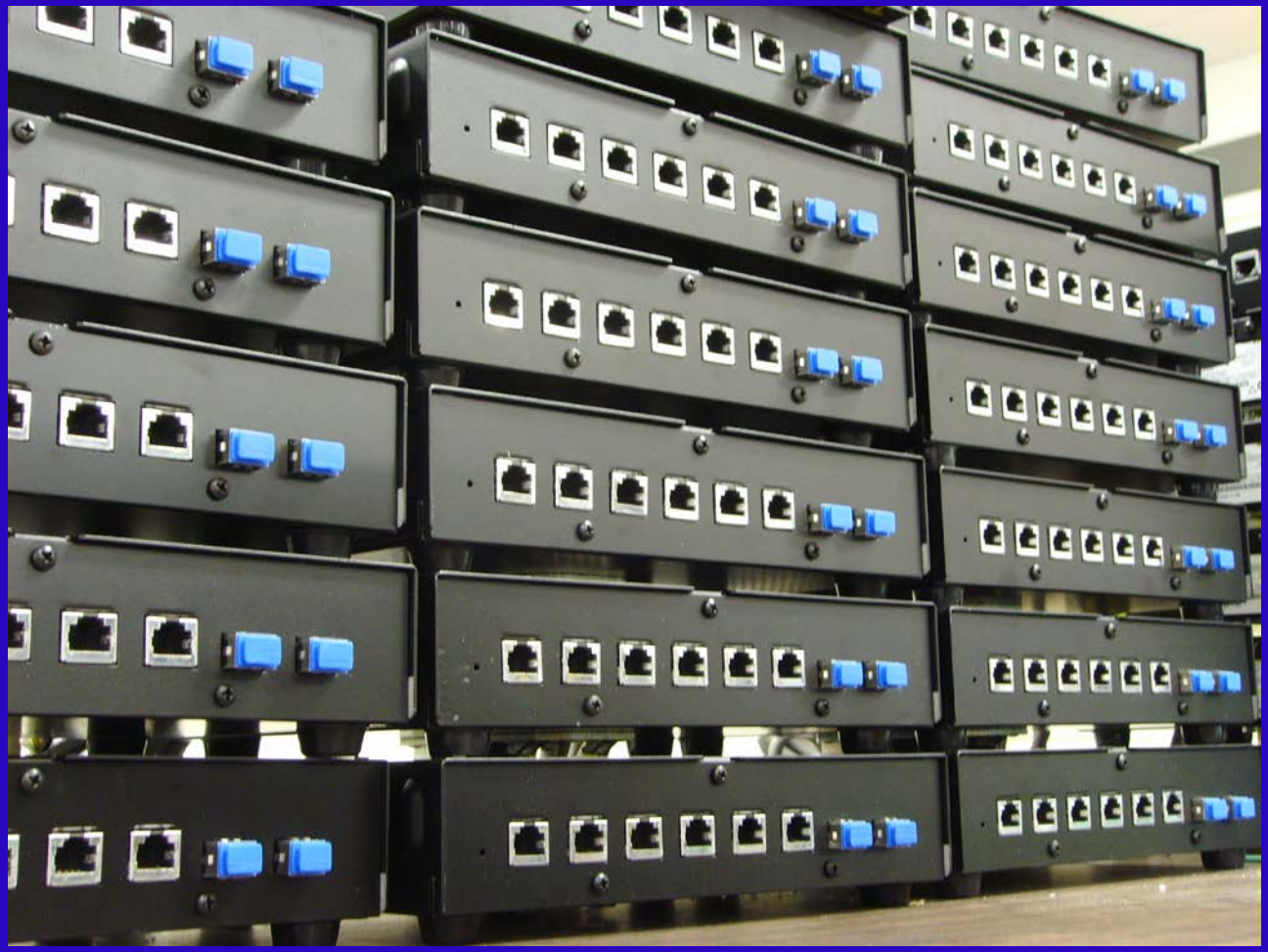
Traffic Signal Testing

Traffic Signal Testing

Communications Network Testing



Communications Network Testing



Operations Today

- Open Since December 2008
- Operator Feedback
- Quarterly Meetings with Cities
- Explore all Options

Operations Today

Operations Today

Questions