9-1-1 IN MARICOPA REGION

1980'S

- MAG formed 9-1-1 Implementation Team
- Secured funding through telecom funding overages
- US West installs and tests 9-1-1 system to PSAPs
- 9-1-1 goes live September 9, 1985

1990'S

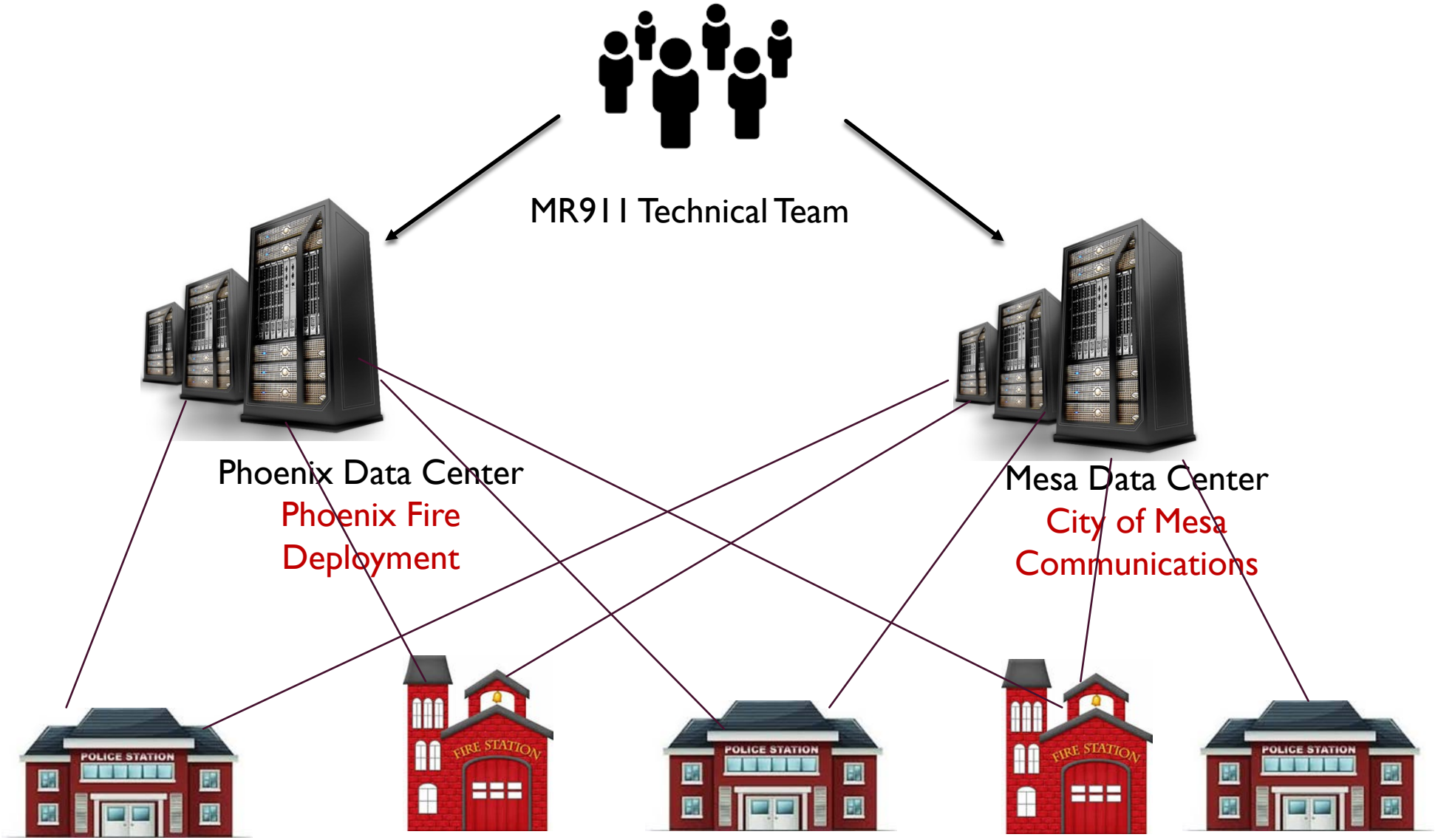
- Cell phones begin to appear in 9-1-1 calls
- No information provided; location, caller's phone number
- Originally, all wireless 9-1-1 calls routed to MCSO who then transferred to appropriate PSAP
- Nine PSAPs in the Maricopa Region identified to receive wireless 9-1-1 calls
- FCC mandates wireless carriers come up with a solution to deliver wireless 9-1-1 calls with caller's telephone number and location to the appropriate PSAP
- Phase II wireless call delivery is conceived

2000'S

- Number of 9-1-1 calls via cell phones continues to increase
- PSAPs in Maricopa Region request alternative to 9-1-1 maintenance provided by local telecom
- PSAPs put out an RFP for 9-1-1 maintenance
- Decision is made to move to a 9-1-1 self-maintenance model and to implement and manage wireless 9-1-1 calls for the region
- Approval received from MAG Regional Council and by State 9-1-1 Office
- June 2003, MR911 team began to be formed

MR911 TO DO LIST

- Hire a technical team
- Establish network centers to act as hubs for selective routing equipment and 9-1-1 data network
- Build 9-1-1 network for data delivery
- Select product that would route wireless 9-1-1 calls according to cell tower/sector location
- Compile GIS data for entire region
- Select 9-1-1 mapping product for 9-1-1call taking positions throughout region
- Build map layer with all cell phone towers/sector info



26 PSAPs in Maricopa Region

Leased phone trunks that carry wireless 9-1-1 voice

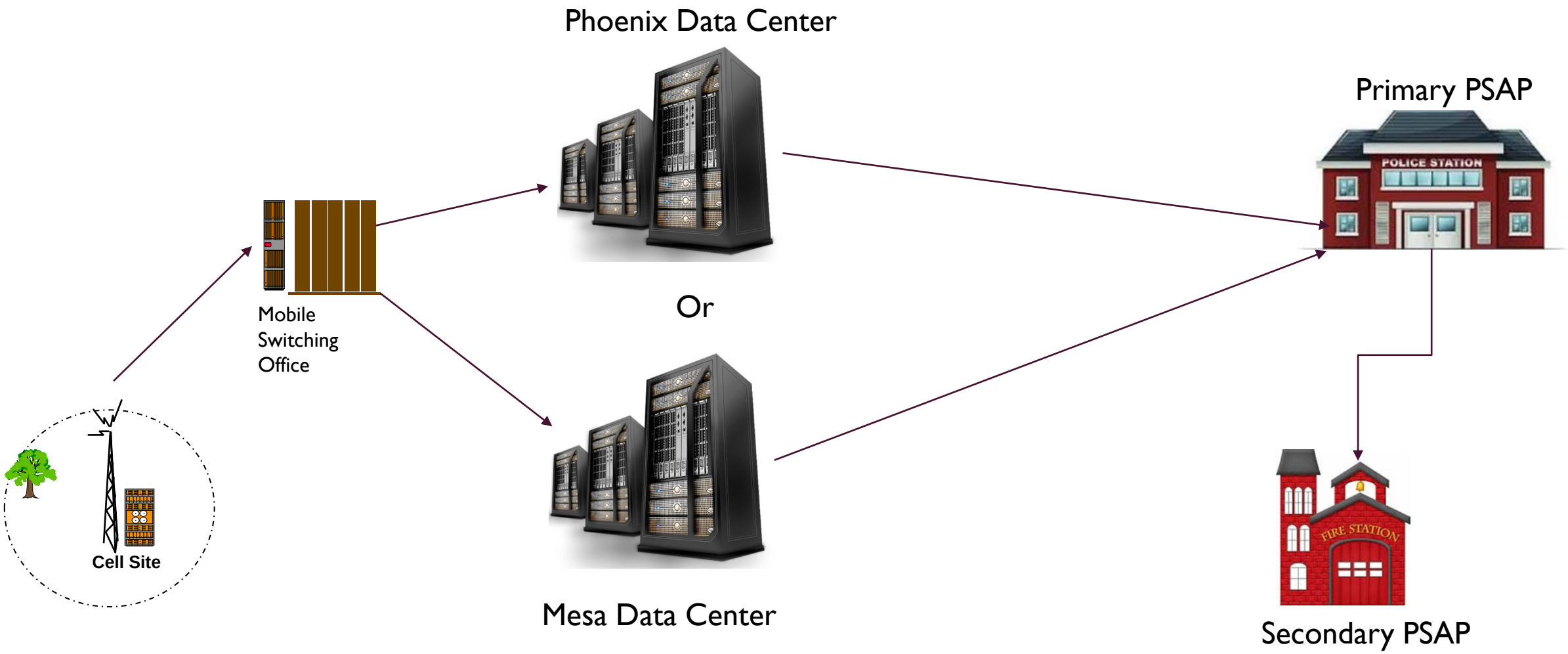
9-1-1 Phoenix/Mesa Data Centers

9-1-1 Data Network links

PSAP

PSAP Connections

SELECTIVE ROUTING WIRELESS 9-1-1



ORIGINAL 9-1-1 DATA NETWORK COMPONENTS

- Transport 9-1-1 Call Data – location, telephone, X/Y coordinates
- Allow secure remote access for technical team
- 9-1-1 mapping enterprise solution to push mapping updates to PSAP mapping servers
- CENS/Reverse 9-1-1 access

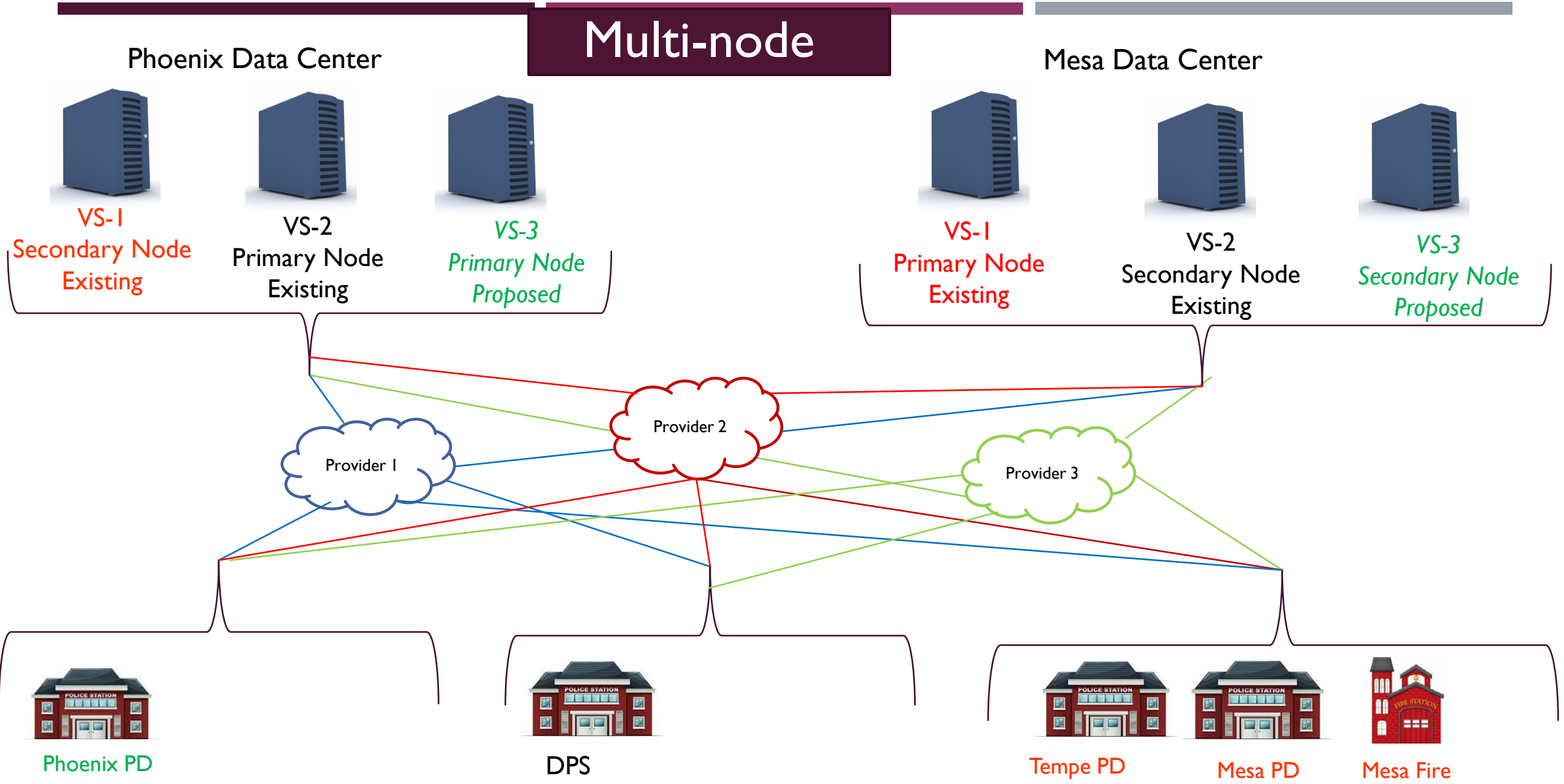
2010 9-1-1 NETWORK CHANGES

- Received approval from State 9-1-1 Office to modernize 9-1-1 network
- 9-1-1 Network Changes:
  - Copper facilities upgraded to fiber
  - Multiple active network providers, Cox, CenturyLink, RCN etc
  - Bandwidth Aggregation
  - Server and Storage Virtualization

BENEFITS OF THE 9-1-1 NETWORK UPGRADE

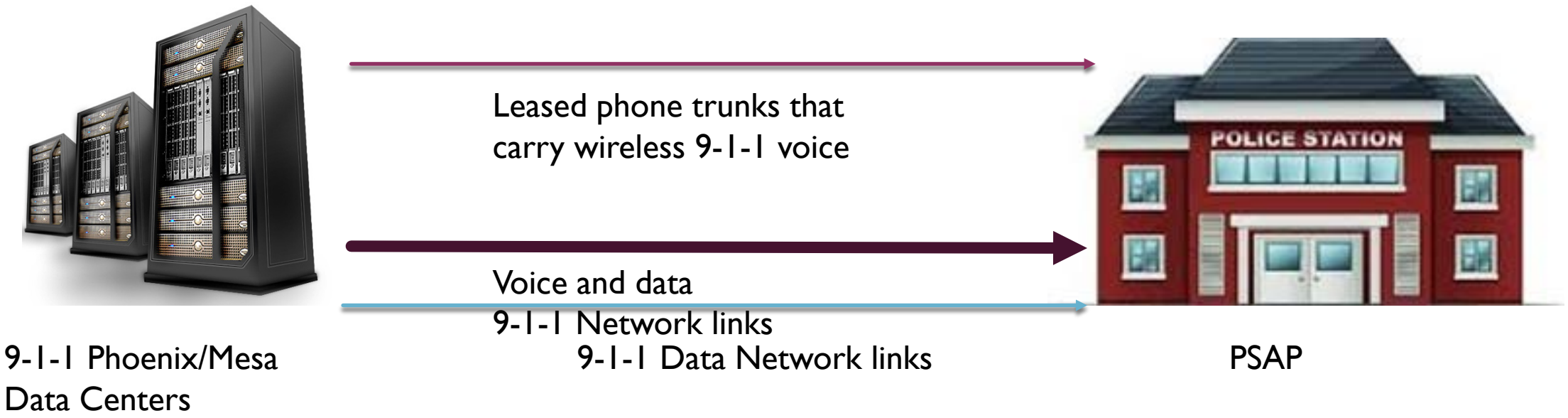
- Combines multiple network providers for greater redundancy and higher utilization of bandwidth
- Allows for better network monitoring and faster trouble shooting
- 9-1-1 system monitoring from technical team members' smart phones from in-house app
- In-house 9-1-1 map designed and implemented with a significant reduction in costs
- Ability to begin to send voice over IP path
- Multi-node, remote hosting 9-1-1 systems; Viper Systems (VS)

Multi-node


Phoenix Data Center
VS-1
Secondary Node
Existing
VS-2
Primary Node
Existing
VS-3
Primary Node
Proposed
Mesa Data Center
VS-1
Primary Node
Existing
VS-2
Secondary Node
Existing
VS-3
Secondary Node
Proposed
Provider 1
Provider 2
Provider 3
Phoenix PD
DPS
Tempe PD
Mesa PD
Mesa Fire

WHAT HAPPENS TODAY

- 3.2 million 9-1-1calls processed in 2015
- 80% of those calls are from cell phones delivered through MR911 Selective Routers
- Two multi-node, remote hosted systems installed with third being planned
- 20% of all 9-1-1 calls are delivered from 9-1-1 Data Centers to the PSAP via IP through our 9-1-1 data network



PSAP Connections

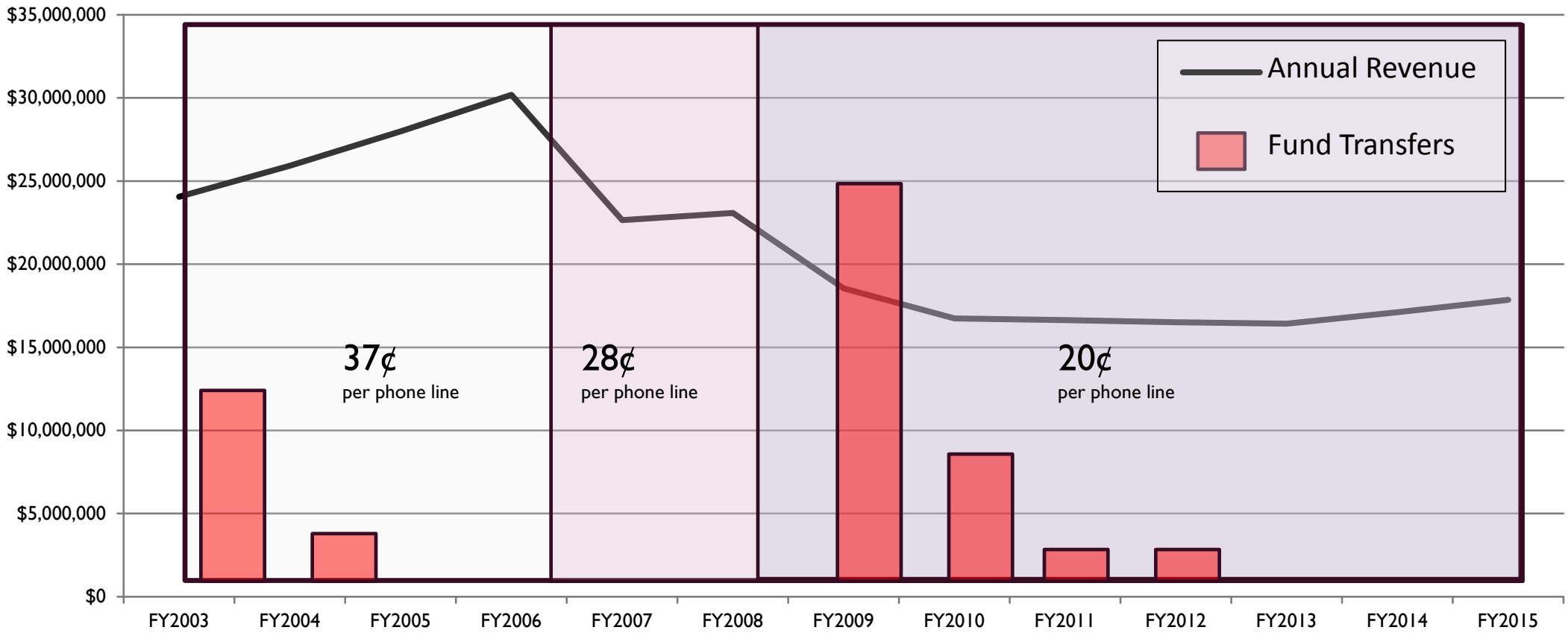
WHAT'S DOES THE FUTURE LOOK LIKE FOR 9-1-1 IN MARICOPA REGION?

FUTURE

- Migrate to a fully compliant National Emergency Number Association (NENA) i3 network
- Continue to operate with a multi-provider network solution
- Continue with a high level of customer service to PSAPs
- Ability to transfer a 9-1-1 call to other 9-1-1 systems outside of Phoenix and outside of Arizona
- Ability to receive IP communications
  - Voice (expand)
  - Text-to-9-1-1
  - Telematics
  - Picture/Video

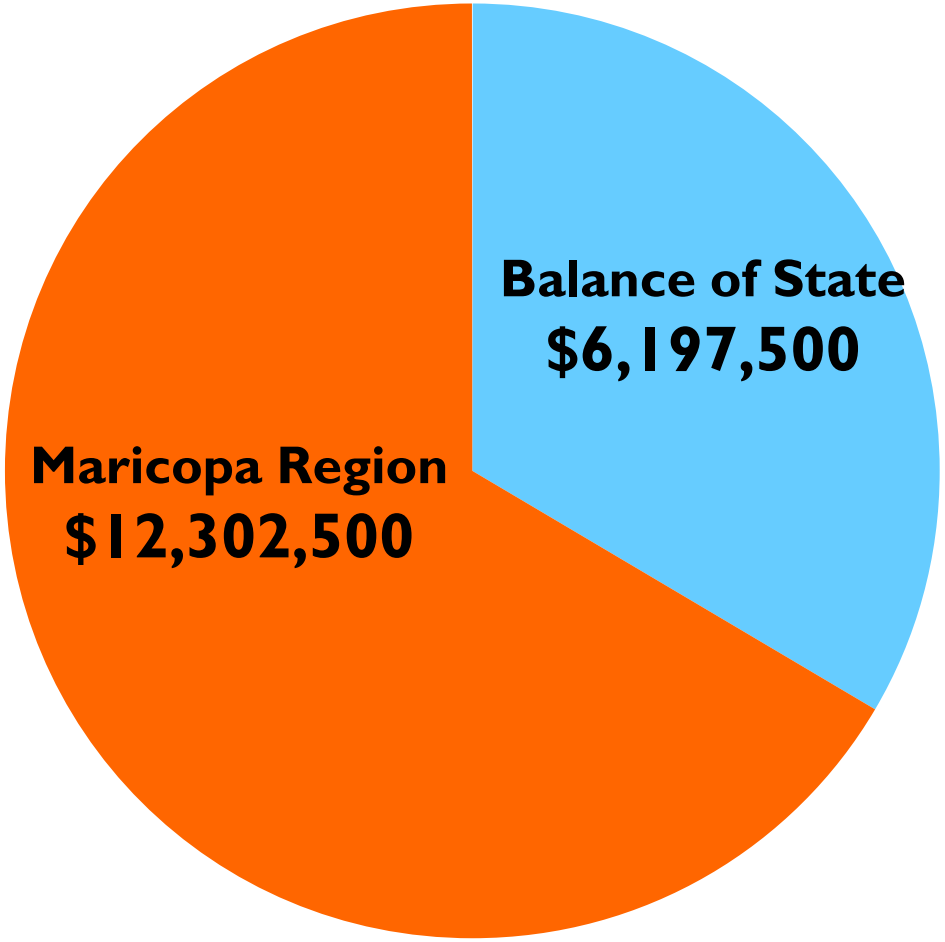
9-1-1 FUNDING CHALLENGES

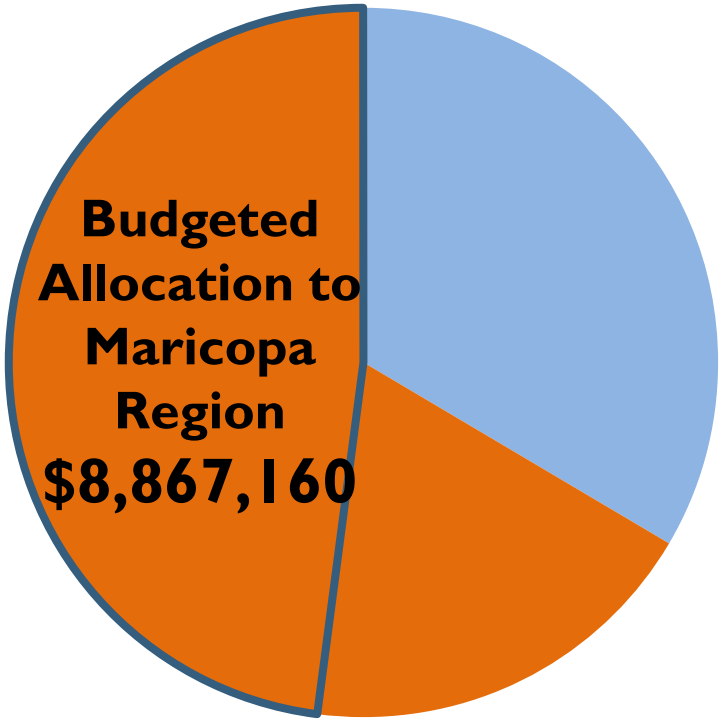
Arizona 9-1-1 Excise Tax Collection and Fund Transfers: FY 2003-2015



Over $53 million has been swept from the fund.

FY 2016 9-1-1 Excise Tax Collection





NEXT STEPS

- Determine best platform to expand IP call routing and delivery
- Secure funding for upgrading and maintaining new system
- Continue transition of legacy 9-1-1 system to an IP based 9-1-1 system
- Return to upgrading PSAP equipment on regularly scheduled intervals

QUESTIONS