

Michigan Next Generation 9-1-1 Feasibility Study Report

Presented to:

The State 9-1-1 Committee

December 8, 2009

Agenda

- **Introductions**
- **9-1-1 Overview**
- **Michigan Feasibility Report**
 - **Methods**
 - **Findings**
 - **Technical Recommendations**
 - **Legislative and Regulatory Recommendations**
 - **Transition Steps**
- **Questions**

L Robert Kimball & Associates

- Privately held firm, in business for 56 years
- Client centric and vendor neutral
- Ranked #13 on *Engineering News Record's* top 20 telecommunications firms

Kimball

- Average of 1,200 projects each year and nearly \$75M in annual revenue
- Technology Division has 23 years in the telecommunications and technology business
- Worked in 41 states – 14 of which involved statewide projects including 28 of the Top 50 MSAs

Staff

- **573 Employees**
- **129 Employees supporting telecommunications and technology nationwide**
 - **488 combined years of Kimball experience**
 - **1521 Combined years of other experience**
 - **39 Emergency Number Professionals**
 - **12 Project Management Professionals**
 - **Several other licensed and certified staff**

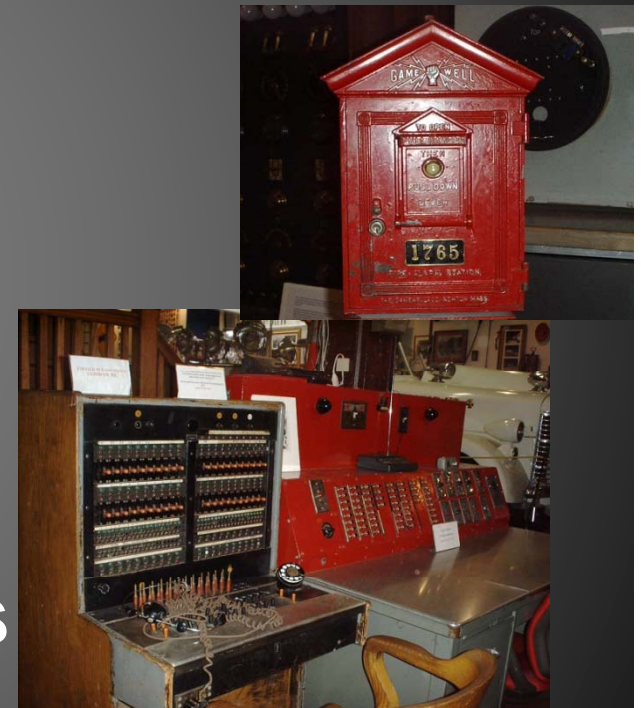
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9-1-1 OVERVIEW

History of 9-1-1

- 1968 – AT&T designates 9-1-1
- 1968 – 2/16/68 the first 9-1-1 call in Haleyville, AL
- 1979 – First Enhanced System (ANI only)
- 1980 – First Fully Enhanced System (ANI, ALI)
- 1990s – Wireless Phones
- 2000s – Voice over IP Phones



Today's 9-1-1 System

- **Analog**
 - Limited bandwidth
 - Limited routing capabilities
- **Primarily voice**
- **Two paths to get the information (Voice & Data)**

NG9-1-1 is built on:

- **Wireless 9-1-1 Experience**
- **Lessons Learned**
- **Hatfield Report**
 - **FCC requested an independent report on the status of 9-1-1 in the Country**
 - **Six month study starting in April 2002**
 - **Outlined status, and a road map to deploying wireless 9-1-1**
 - **One of the first warnings on the need to upgrade the wire line 9-1-1 Network**

Hatfield Report

*“... one over-arching issue that immediately emerged in my inquiry is that the existing wire line E9-1-1 infrastructure, **while generally reliable, is seriously antiquated.** Indeed, it turns out that the existing wire line E9-1-1 infrastructure is built upon not only an outdated technology, but also one that was originally designed for an entirely different purpose. **It is an analog technology in an overwhelmingly digital world.** Yet it is a critical building block in the implementation of wireless E9-1-1.”*

NG9-1-1 is built on:

- **Wireless Telecommunication & Public Safety Act of 1999**
 - Established 9-1-1 as the national emergency number
 - Ordered the FCC to make rules to fulfill the intentions of the act
 - Places emphasis on state coordination
- **Voice over Internet Protocol (VoIP)**
- **NENA Future Path Plan**
- **Public adopting newer technologies**

Tomorrow's 9-1-1 System

- **Digital IP backbone**
 - Dynamic/scalable bandwidth
 - Redundant routing
- **NG9-1-1 applications**
 - Redundant/GIS driven
 - Policy driven routing (no 9-1-1 busy)
- **Handles digital calls with full functionality**
 - Telematics
 - Photo/video
 - Text

Next Generation 9-1-1

- **NG9-1-1 is best described as a robust system of systems that will allow the public to use any device to request help or send information to the appropriate public safety agency**
 - **Open standards**
 - **Access to shared data**

MICHIGAN FEASIBILITY REPORT



ARCHITECTURE ENGINEERING TECHNOLOGY CONSULTING

www.kimballcorp.com

Project Set up

- **RFP Process**
 - Selected Kimball
 - Kick Off meeting
- **Project intent – assess the current emergency communications capabilities and technology in order to determine the feasibility, costs, benefits and obstacles of establishing an IP-based 9-1-1 system for the State of Michigan**

Project Methods

- **Data Collection**
 - Site visits / surveys
 - Focus groups
 - Research
- **Analysis**
 - Focus group discussion
 - Experience (project and industry)
 - Current standards and ongoing work with SDOs

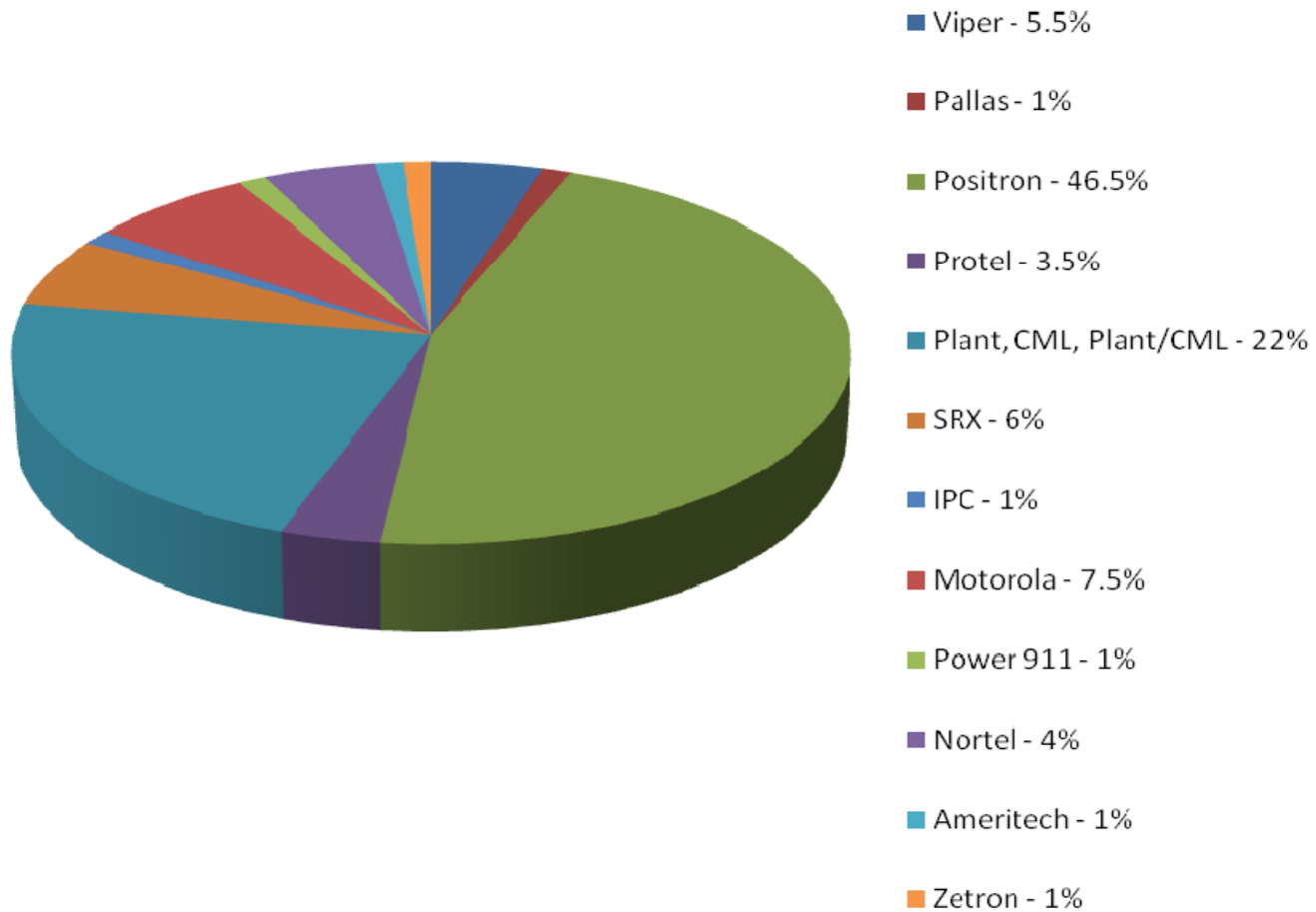
Project Findings

- PSAP
- Network
- Policy

PSAP (123 PSAPs Responded)

- 10.5% said they did not have enough positions in their PSAPs to operate properly
- 5% do not have a mapping system
- 21% have onsite ALI
- 87% have call loggers
- 33% have time synchronization
- 33% have CAD systems

PSAP Equipment



Network

- **IP-based networks are serving the business sector throughout the state of Michigan today**
- **Many of the current network providers in Michigan offer IP transport**
- **One example is the current Michigan Department of Information Technology (MDIT) contract in place with AT&T to provide IP services to state agencies across Michigan**
- **Some of the vendors may not be willing to participate due to the very high availability service level agreements (SLAs) required for 9-1-1**

Network

- Michigan's current 9-1-1 systems use older TDM network technology
- The current systems have proven to be reliable but are becoming obsolete
- The two 9-1-1 service providers, AT&T and Verizon, utilize quite different system configurations
- Diversity and redundancy are both lacking in the current 9-1-1 system design

MI Available Networks

- Available IP networks
 - Fiber Optic
 - Cable TV infrastructure
 - Wireless networks using IP

General Policy Findings

- Michigan is facing the same policy issues identified by the NENA Next Generation Partner Program:
 - State-level 9-1-1 leadership and coordination
 - Funding
 - Establishing statewide emergency services IP networks (ESInets)
 - Legacy regulation / legislation and tariffs
 - Automatic location of 9-1-1 calls
 - Confidentiality
 - Liability

Policy – State Level Leadership and Coordination

- **The Committee, with the assistance of the Office, provides state-level oversight for 9-1-1**
- **The Committee’s statutory authority is purely advisory**
- **It may develop and recommend statewide standards for emergency telephone service, make recommendations for counties’ 9-1-1 plans, provide technical assistance for the implementation of county 9-1-1 systems and oversee the distribution and use of State and county 9-1-1 funds**
- **The Committee makes recommendations to the Michigan Public Service Commission (MPSC), which has authority to promulgate rules**

Policy – Funding

- **Michigan currently has three statutory funding provisions for 9-1-1:**
 - (1) the State all devices surcharge
 - (2) the county all devices surcharge
 - (3) the Technical Charge (land line based)

Policy – Establishing Statewide ESInets

- **ESInets are IP-based, multi-purpose interconnected networks (network of networks) supporting local, regional, state and national public safety communications services essential to NG9-1-1**
- **The Committee and Office do not have the authority to develop ESInets**

Policy – Legacy Regulation, Legislation and Tariffs

- **NG9-1-1 involves new technologies, 9-1-1 service suppliers and other competitive options that current laws, regulations and tariffs did not foresee**
- **Michigan's 9-1-1 statutes, regulations and tariffs are designed around the traditional regulated telephone service approach to providing E9-1-1**

IP System Options

- 1. A Statewide prime contractor implementing and managing the statewide IP network**
- 2. Regional (geographic) contractors implementing and managing an IP network**
- 3. State agency implementing and managing the statewide IP network**
- 4. Regional (geographic) agencies implementing and managing regional IP network**

Project Recommendations

- **Technical**
- **Legislative and Regulatory**
- **Transition Steps**

TECHNICAL RECOMMENDATIONS

Recommendation 1

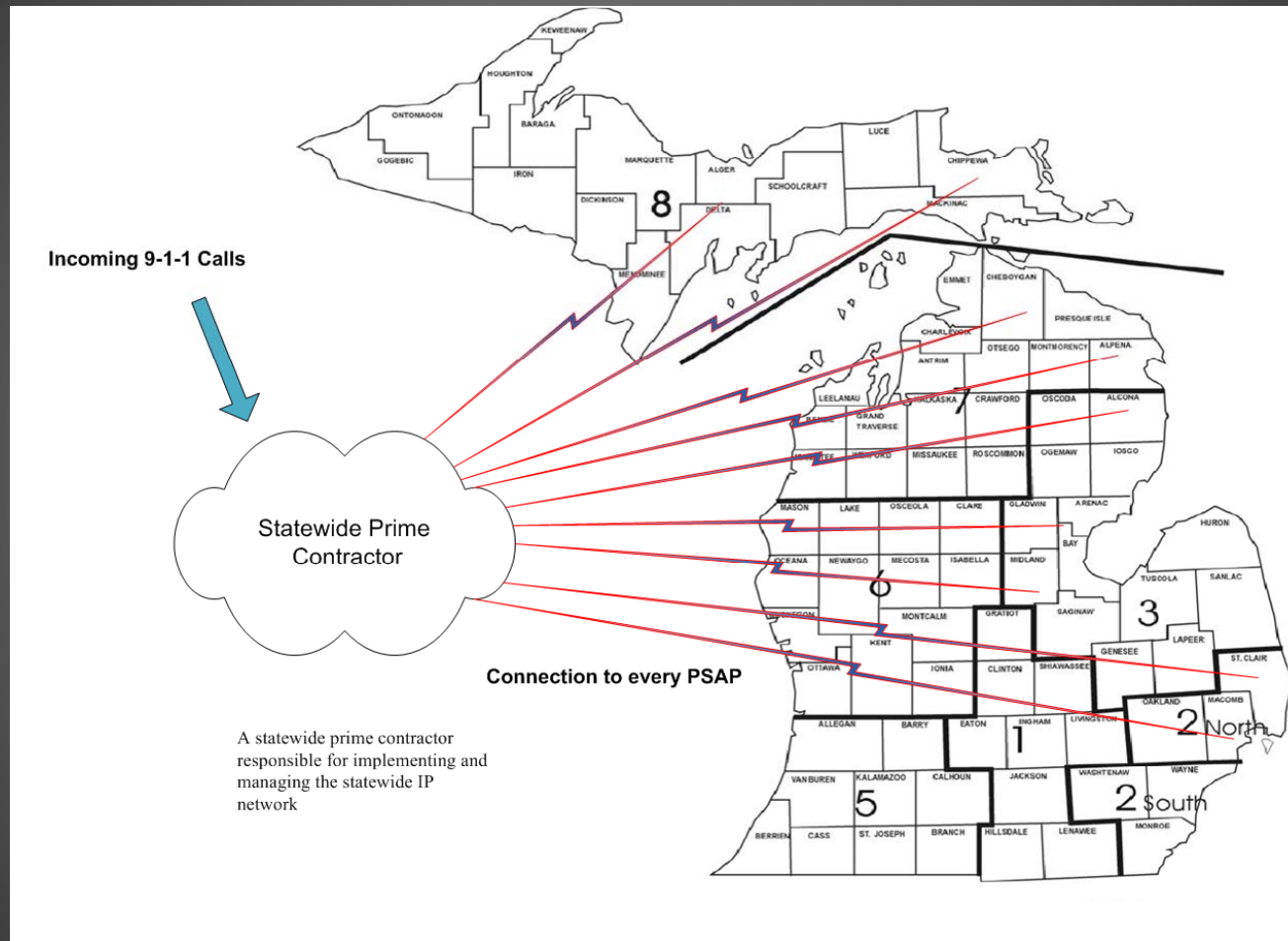
- **Statewide Prime Contractor Managed IP Network**
 - Provides communications infrastructure
 - Provides NG9-1-1 applications to all PSAPs
 - Responsible for meeting SLAs set by State
 - Contractor responsible for all issues
 - State holds the contract

Contract with:

- **Carrier provides the IP transport and the public safety solutions**
- **Carrier providing the IP transport and subcontracting the public safety solutions**
- **Public safety solutions provider subcontracting the IP transport network from carrier/carriers.**

Statewide Prime Contractor Option

\$77,578,880



Recommendation 2

- **Regional prime contractor managed IP network (specific geographic area)**
 - Provides IP transport infrastructure
 - Provides public safety solutions to PSAPs
 - Responsible for meeting SLAs
 - Responsible for all issues within the Region

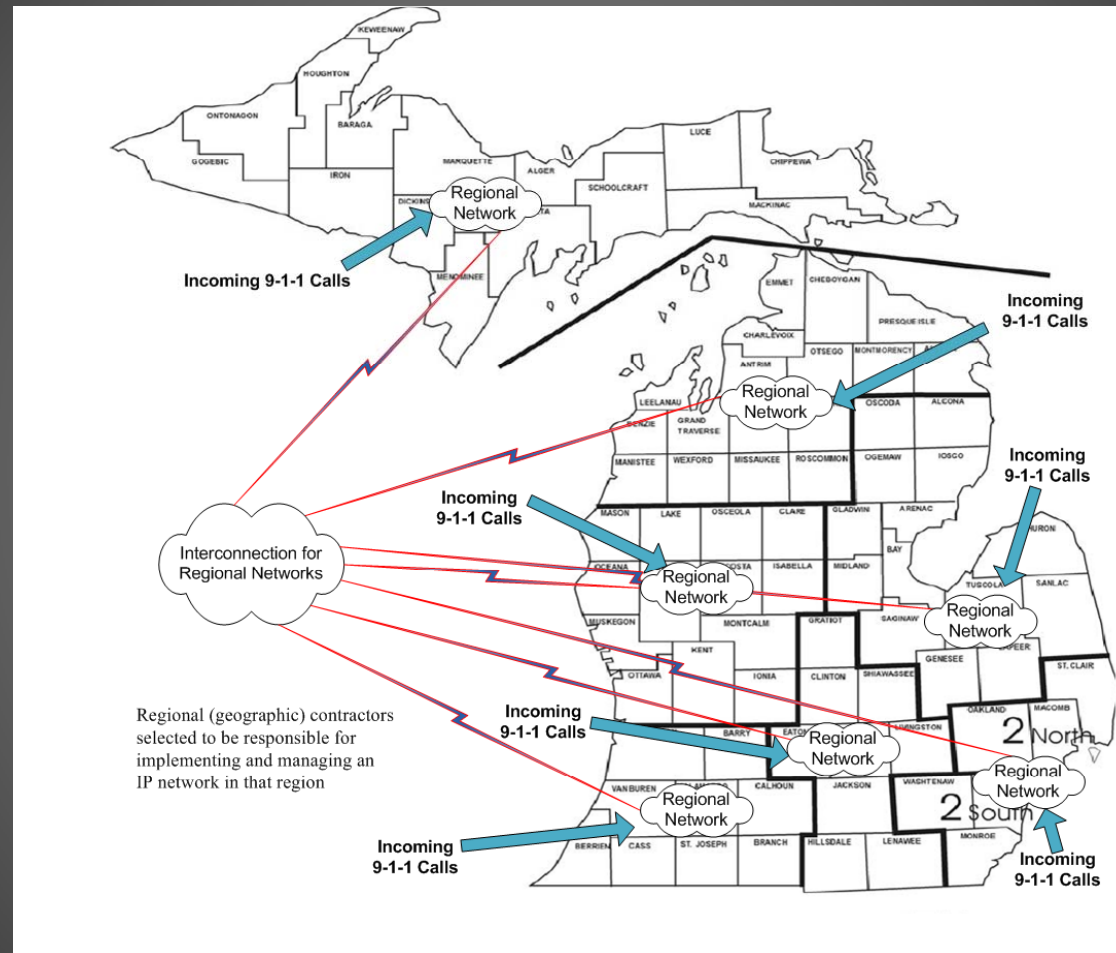
Requires coordination of regional interconnectivity to occur

Contract with:

- Carrier providing the IP transport and public safety solutions
- Carrier providing the IP transport and subcontracting the public safety solutions
- Public safety solutions provider subcontracting IP transport from carrier/carriers

Regional Prime Contractor Option

\$130,516,640



LEGISLATIVE AND REGULATORY RECOMMENDATIONS

Policy Considerations

- **The most important for Michigan are:**
 - **State-level 9-1-1 leadership and coordination**
 - **Establishing statewide emergency services IP networks (ESInets)**
 - **Legacy regulation / legislation and tariffs**
 - **Funding**

State-level 9-1-1 Leadership and Coordination

- The states that are making the most effective progress toward NG9-1-1 are those that:
 - Function autonomously
 - Have broad powers and authority for the statewide provisioning of 9-1-1
 - Have authority to establish and enforce statewide standards
 - Have adequate funding, control and accountability

State-level 9-1-1 Leadership and Coordination

- **The most effective State 9-1-1 Boards (or commissions) are small – seven to eleven members**
- **Key stakeholder representation**
- **Unified statewide vision**

State-level 9-1-1 Leadership and Coordination

- **Recommendations**
 - **Reconfigure the Committee and transform it to a Board**
 - **Expand the authority of the Committee and/or the Office to enable it to effectively meet the requirements of NG9-1-1, to include:**
 - **Rulemaking**
 - **Authority to establish and enforce service standards**
 - **Authority to design and procure statewide NG9-1-1 system components and oversee implementation and interconnectivity**

Establishing Statewide ESInets

- Add definitions for ESInet, NG9-1-1, Internet Protocol, and any other terminology unique to NG9-1-1
- MCL 484.1201 authorizes the implementation of E9-1-1 service only by counties. We recommend the language be expanded to include the State
- MCL 484.1204 requires 9-1-1 system designs to be individually designed for each county and does not provide the option of a statewide design that would serve all the counties. We recommend the addition of language that would provide flexibility and include statewide approaches

Legacy Regulation / Legislation and Tariffs

- Update tariffs that describe E9-1-1 system components and functions in terms of legacy technology
- MPSC, with the State 9-1-1 Office and Committee, initiate a proceeding to update the tariffs to eliminate any roadblocks to achieving NG9-1-1

Funding

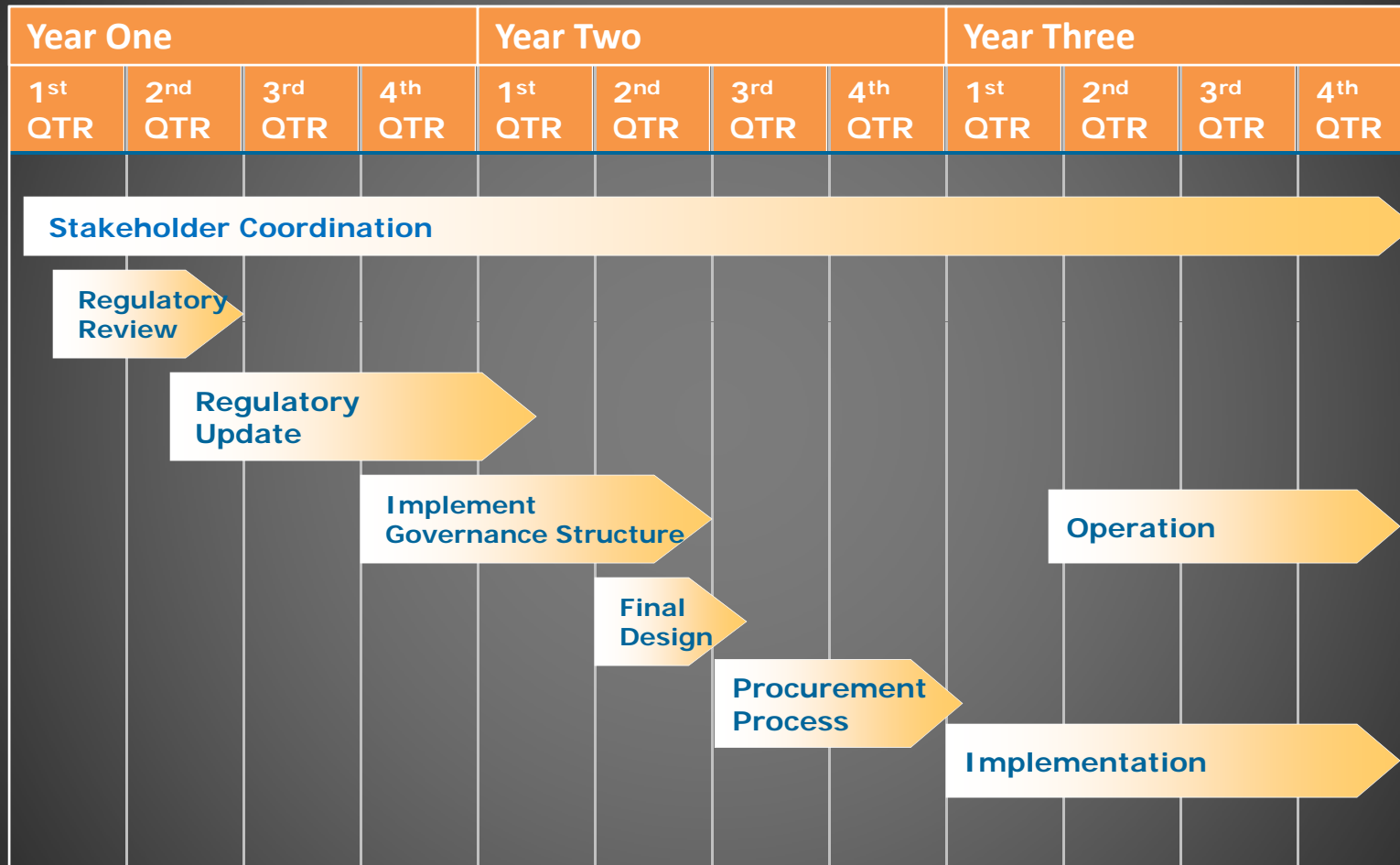
- We do not recommend the removal of the technical charge arrangement at this time
- A new mechanism to fund a regional ESInet will need to be established

TRANSITION STEPS

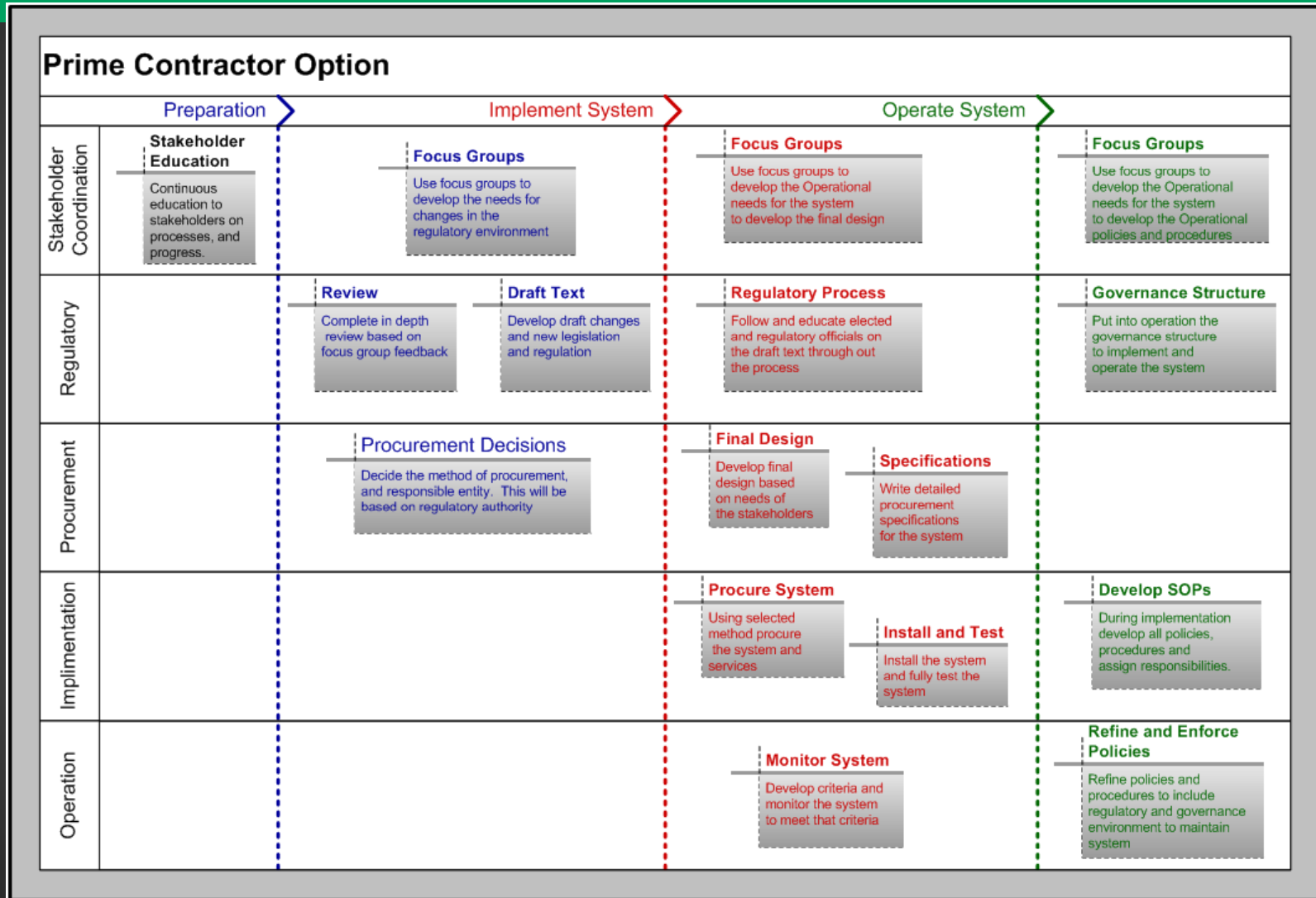
Transition Steps

- Stakeholder coordination
- Regulatory review
- Regulatory update
- Governance structure implemented
- Final system design
- Procurement process
- Implementation
- Operation

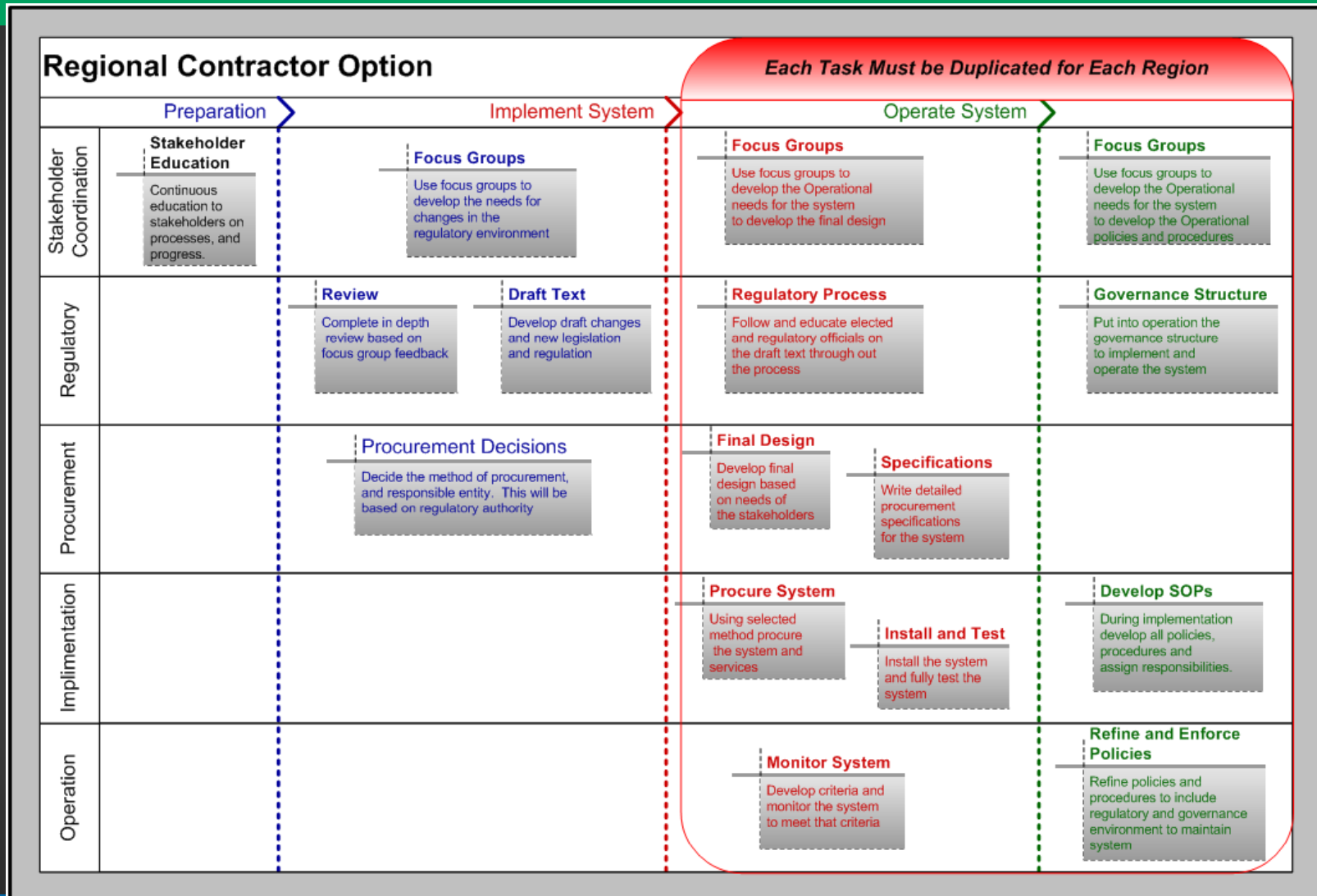
Transition Time Line



Recommendation 1 – Statewide Prime Contractor



Recommendation 2 – Regional Prime Contractor



Questions?

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