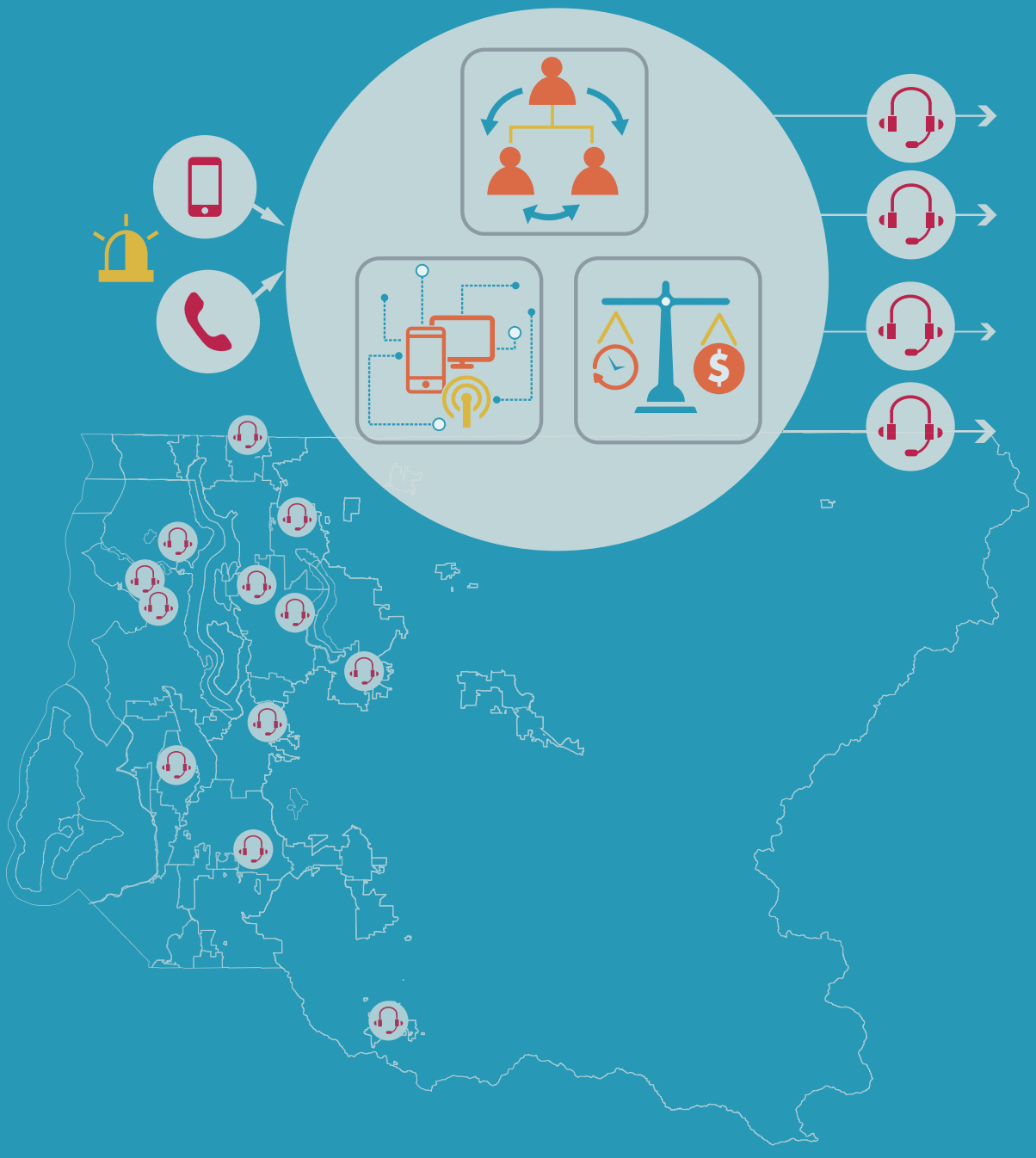
King County

REGIONAL E-911 STRATEGIC PLAN



DECEMBER 2017

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EXECUTIVE SUMMARY

This Strategic Plan for the King County regional E-911 system was set in motion in 2015 by Ordinance 18139 of the King County Council and the Regional Policy Committee. As recommended by the scoping process in the spring of 2016, this plan provides:

1. **A system to integrate with the state's E-911 system and local jurisdictions;**
2. **A ten-year technology investment strategy;**
3. **A ten-year sustainable financial plan; and**
4. **An ongoing decision making or governance structure.**

FOUNDATION

VISION

King County's regional E-911 system will be among the best in the country in terms of:

- Rapid and effective routing of requests for service;
- Efficient use of public resources;
- Effective deployment of evolving technology; and
- Adherence to the values, noted below.

MISSION

The regional E-911 system provides an emergency communications link between the people of King County and appropriate public safety responders.

VALUES

PROCESS

- Transparency
- Project Management Principles
- Collaboration
- Predictability
- Advocacy
- Inclusion

FINANCE

- Fiscal Responsibility
- Financial Sustainability
- Cost Effective

STANDARDS

- National Best Practices
- Performance Metrics
- Continuous Improvement

GOALS

1. No Request Lost
2. Prompt Response
3. Seamless System-wide Technology
4. Meet or Exceed Industry Standards
5. Equity
6. Secure, Resilient & Survivable

CORE SERVICES OF THE E-911 PROGRAM OFFICE

- Network, System, & Equipment
- Operations & Maintenance
- Project & Vendor Management
- System Access & Education
- Regional Leadership
- Administration & Finance

PRINCIPLES

TECHNOLOGY & OPERATIONS

- Public Safety
- Capacity
- Fair and Equitable
- Security
- Availability
- Cost Effective
- Convergence

FINANCES

- Fiscal Responsibility
- Financial Sustainability
- Cost Effective

GOVERNANCE

- Inclusive
- Proportionality
- Consensus
- Adaptable
- Informed & Timely Decisions
- Inform & Advise
- Advocacy for E-911 system
- Collaboration
- Diversity
- Continuous Improvement

EXECUTIVE SUMMARY

STRATEGIC DIRECTIONS

GOVERNANCE & DECISION STRUCTURE

FINDINGS. The King County Auditor's report on the E-911 system recommended a governance system with a formal, clear, and transparent decision-making structure. In addition to the Auditor's report, the Governance Task Force reviewed a number of other 911 systems with characteristics similar to the King County regional E-911 system. In each of those cases, authority was delegated by the state to a county or regional authority, and representation by PSAPS or local jurisdictions was advisory to the county or regional system. The Task Force also researched other regional governance structures in the Puget Sound region not related to E-911.

RECOMMENDATIONS. The future Governing Board should be advisory to the E-911 Program Office, have one voting position for each PSAP, and operate by consensus as much as possible. If voting is required, a two-part test must be met. For a vote to pass, it must be approved by (1) 40% of the PSAPs present and voting and (2) PSAPs representing 60% of the call volume of the King County regional E-911 system. This plan also lays out a specific process for decisions and appeals.

IMPLEMENTATION. The King County Executive is expected to transmit by January 2018 and the Council is expected approve by April 2018 the Regional E-911 Strategic Plan and establish the Advisory Governing Board (hereafter referred to as the Governing Board).

TECHNOLOGY INVESTMENT STRATEGY

FINDINGS. The King County regional E-911 system currently uses a decentralized architecture with equipment located at each of the 12 PSAPs that directly interconnects them to the statewide ESInet. The State of Washington is replacing the current statewide ESInet with a network that will require new security and interfaces to allow the PSAPs to interface with the next generation ESInet (ESInet II). To address these issues, the Technology & Operations Task Force evaluated the overall architecture of the regional E 911 system and developed a new strategy to respond to regional system objectives and evolving future conditions.

RECOMMENDATIONS. Proceed with implementing a single platform architecture solution, with the understanding that, during implementation, the E-911 Program Office and Governing Board may discover additional information that will cause them to modify their course.

In the Single Platform Architecture, the core elements of the 911 telephone system infrastructure are moved from each individual PSAP to a multi-node host platform. The State's ESInet II delivers calls to this shared system platform, and the PSAPs are then networked to the platform. The platform approach allows one of the host nodes to be located in a geographically remote location to increase system resiliency compared to having hosts only located within King County.

OBJECTIVES, ACTIONS, AND PERFORMANCE METRICS. Objectives, Actions and Performance Metrics are provided in the following areas.

1. **NG911 Readiness** – Preparing for the emerging capabilities of NG911 (e.g., text, photos, video, telematics, etc.) with a roadmap that adopts and adapts to technology changes, and balances operational needs with improved service and cost effectiveness.

2. **Integrated and Interoperable Systems** – Ensuring systems are integrated effectively to achieve reliable interoperability across organizations and functions in delivering seamless 911 services across the region.

3. **Security and Resiliency** – Protecting the 911 call flow, beginning at the State's ESInet, continuing through the various systems and transport mechanisms, and arriving at the PSAPs, while also ensuring the overall resiliency of the E-911 systems and operations.

4. **Optimized Operations** – Providing reliable 911 services across King County that meet or exceed applicable standards by providing a combination of hardware and software systems, databases, networking and operational support that accurately locate and route calls to King County PSAPs delivered from the State ESInet.

5. **Accessible and Equitable Service** – Increasing equitable access to the 911 services for all communities and individuals served, with specific focus on lessening obstacles faced by groups with unique needs.

EXECUTIVE SUMMARY

IMPLEMENTATION. To reach full NG911 capability, King County will migrate to a Single Platform system architecture. This will be accomplished through a multi-phase process with key decision milestones as each phase concludes. Steps will include updating cost estimates, developing detailed requirements, evaluating staffing needs, clarifying technical roles and responsibilities between E-911 Program Office and PSAP technical staff, and dealing with emerging security changes. A request for proposals will be followed by an evaluation and selection process, contract negotiations, detailed design, installation, testing, training, and cutover processes. This process will be managed by the E-911 Program Office in collaboration with the Governing Board. Like all major technology projects, this process will evolve as detailed information and decisions are made. Each phase of this process will give the E-911 Program Office and Governing Board an opportunity to consider the broad strategic direction in light of new information.

10-YEAR SUSTAINABLE FINANCIAL PLAN

FINDINGS. The King County regional E-911 system is largely funded by excise taxes collected by the State of Washington and distributed to the County. The current level of spending is not sustainable with projected revenues, with a negative fund balance projected in 2023. Financial sustainability requires expenses to align with revenues. If revenues do not increase, then expenses must come down.

RECOMMENDATIONS. King County and its E-911 partners should take the following actions to ensure the regional E-911 system's financial sustainability.

First, the E-911 Program Office and PSAPs must operate the E-911 system in a more cost-effective manner. Specifically:

- Capture potential savings to network, security, and vendor contracts presented by the deployment of ESInet II and a new system architecture.
- Develop the most operationally efficient staffing levels for excise tax funded FTEs at both the E-911 Program Office and PSAPs to deliver and maintain the technology side of the system.
- Define E-911 service responsibilities and funding of PSAPs to consistently specify: 1) which E-911 services the PSAPs will deliver; 2) what levels of service are suitable for the system; and, 3) what level of revenue support is commensurate with those responsibilities.
- Continue to improve financial policies, processes and transparency.

Second, revenue reforms are needed since the excise tax has not kept pace with inflation or needed expenses in the E-911 system. Specifically:

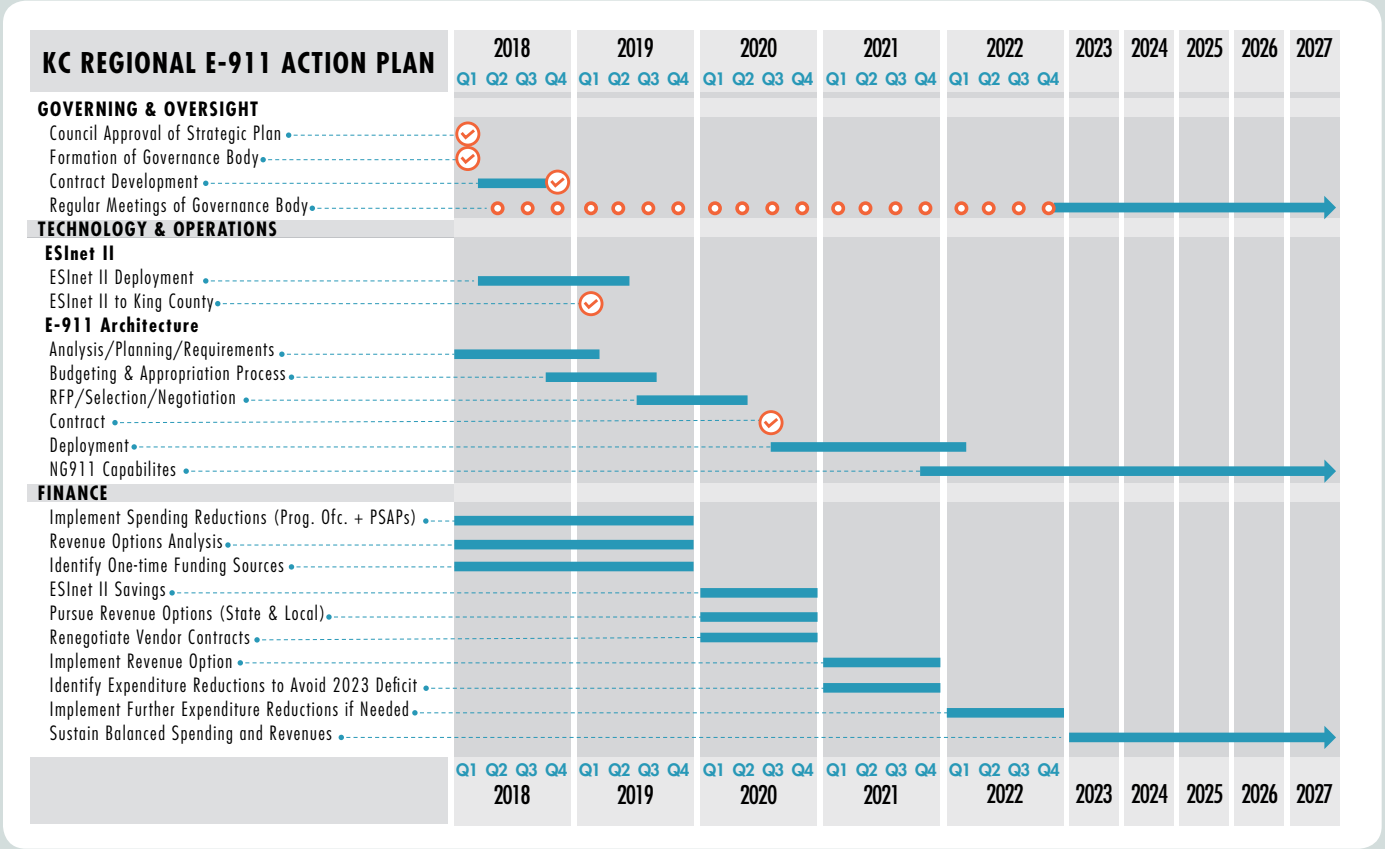
- Find options for funding one-time technology upgrades to the system.
- Find reforms to the existing excise tax that are more adequate and resilient for the needs of the E-911 system, including the ability to grow commensurate with normal inflation and system demand.

FINANCE IMPLEMENTATION. Developing financial sustainability must necessarily be a collaborative effort between the E-911 Program Office and PSAPs. While a revenue solution is recommended, it will require either State legislative action or a locally-voted tax measure – neither of which are simple or certain. Immediate expenditure reductions are needed along with careful future planning that emphasizes cost-effective technology investments and judicious consideration of new technologies that enhance services.

The following is a projected timeline for financial actions.	
2018-2019	Continue to work with the Interim Advisory Group and the new Governing Board (e.g. E-911 Program Office staff and PSAP representatives) to collaboratively develop a 2019-2020 budget proposal that includes recommended expenditure reductions.
	Implement spending reductions at E-911 Program Office and PSAPs
	Complete revenue options analysis and present to King County Council
	Identify sufficient one-time sources to fund implementation of the system architecture update
2020	Identify and implement savings associated with deployment of ESInet II
	Pursue revenue options with State Legislature and/or local measures
	Implement new escrow distribution formula
	Renegotiate vendor contracts for network access
2021	Implement revenue option, if approved
	Identify amount of further expenditure reductions needed to prevent a deficit position in 2023
2022	Implement expenditure reductions if needed

STRATEGIC PLAN IMPLEMENTATION TIMELINE

A high-level implementation timeline reflecting Governance, Technology & Operations, and Finance actions is shown in the illustration below.



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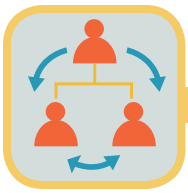

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- *A – SCOPING REPORT*
- *B – PROCESS BRIEF*
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- *D – GOVERNANCE TASK FORCE REPORT*
- *E – TECHNOLOGY & OPERATIONS TASK FORCE REPORT (INCLUDES EQUITY OUTREACH REPORT)*
- *F – FINANCE TASK FORCE REPORT*

INTRODUCTION

This King County regional E-911 Strategic Plan is the product of more than two years of work by dozens of agencies and more than one hundred individuals. It is intended to guide the regional E-911 system through the transition from analog to digital technology known as NG911.

The process was set in motion in 2015 by Ordinance 18139 of the King County Council and the Regional Policy Committee. As recommended by the scoping process in the spring of 2016, this plan provides:

1. A system to integrate with the state's E-911 system and the responsibilities of local jurisdictions in their delivery of E-911 dispatch services;
2. A **ten-year technology investment strategy** for the regional King County E-911 system with tactics and a process for adapting to evolving technology and service conditions;
3. A **ten-year sustainable financial plan** for the regional King County E-911 system with tactics and a process for adapting to evolving financial conditions; and
4. An **ongoing decision making or governance structure** for implementing and achieving the vision and goals of the regional King County E-911 system, including a conflict resolution process.

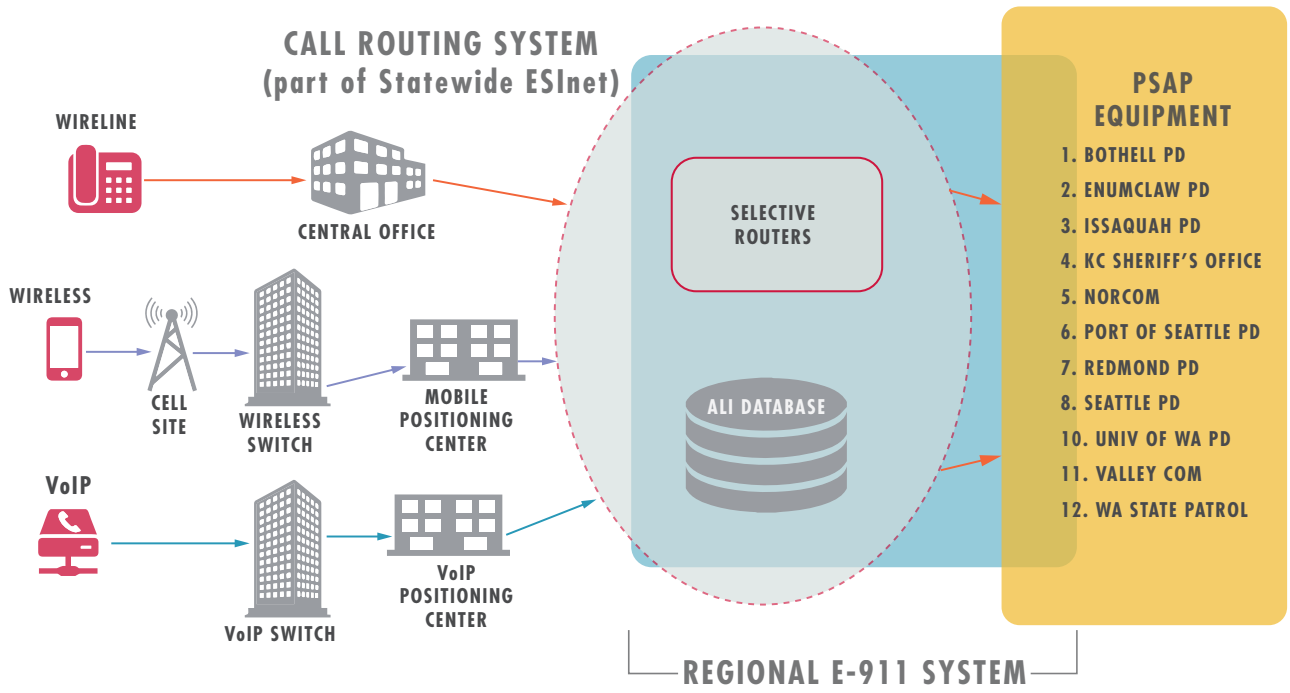
This Strategic Plan is based on extensive work by three substantive Task Forces on Governance; Technology & Operations; and Finance. Each of their reports are summarized here, and are also available as more detailed separate appendices. The Final Strategic Plan reflects the Task Force work, but it is ultimately a Leadership Group document that does not exactly match the Task Force products.

EXISTING KING COUNTY REGIONAL E-911 SYSTEM

The regional E-911 system in King County is a partnership between the King County E-911 Program Office and 12 Public Safety Answering Points (PSAP) which provide 911 call answering and dispatch services for local jurisdictions. The E-911 Program Office is within the King County Information Technology department, and is responsible for ensuring correct routing of a 911 call to the appropriate PSAP. Each PSAP, reporting to their local stakeholders, is responsible for the 911 call answering, interrogation, and dispatch of appropriate public safety agencies.

As illustrated below, calls are received by the system via wireline, wireless, and Voice Over Internet Protocol (VoIP) telephones. The private telephone service providers route these calls through to the statewide Emergency Services IP Network (ESInet), which routes them to the PSAPs that make up the King County regional E-911 system. These PSAPs are responsible for caller interrogation and dispatching of the appropriate public safety response agencies. It is the regional E-911 system - as depicted in the grey box below - that is the subject of this strategic plan. The regional E-911 system does not have jurisdiction over either the private telecommunications providers or the PSAPs.

EXISTING KING COUNTY REGIONAL E-911 SYSTEM



DEFINITIONS & ACRONYMS

The definitions below are intended to clarify how specific terms and acronyms were used during the overall Strategic Planning process and throughout this report.

Next Generation 911 (NG911):
For the purposes of this strategic plan, the working definition of NG911 is the transition of the E-911 system from analog to digital communications technology, reflecting today's internet-based world.

> ***NG911 is the transition of the 911 system from analog to digital communications technology,*** *reflecting today's internet-based world.*

This transition opens new capabilities beyond voice to deliver text, photo, video, and data from a caller to a 911 call center (PSAP) and potentially to a responder. Text and video communications – in particular – can impact accessibility to 911 for individuals with speech and hearing disabilities. NG911 also enhances PSAP operations with more accurate call location and routing, and enables connections between PSAPs that improve call transfers and interoperability for greater overall resiliency. NG911 is driven by national and statewide efforts, and each regional E-911 program can decide on which NG911 capabilities best align with its priorities, customer expectations, resources, and technology portfolio, as well as when and how those new capabilities should be phased in.

Additional Data Repository (ADR) Functionality:
Functionality in the Next Generation 9-1-1 protocols that will allow additional data (such the caller's medical information or premises information) to be linked to NG911 'calls' to 9-1-1, allowing the receiving PSAP to access this data as part of screening the call and to pass this data through to emergency responders as needed.

APCO:
The Association of Public-Safety Communications Officials is an organization of public safety communications professionals

CAMA trunks:
Centralized Automatic Message Accounting trunks are the legacy analog technology used to convey calls from the Public Switched Telephone Network (PSTN) to the 9-1-1 PSAPs.

CALEA:
The Commission on Accreditation for Law Enforcement Agencies is a credentialing authority which accredits public safety agencies, namely law enforcement agencies, training academies, communications centers, and campus public safety agencies.

Core Services:
Core services are the first priority functions of the King County E-911 Program Office. This list provides guidance to the Governing Board as it deliberates capital, operating, and funding priorities in the future.

Emergency Services Internet-Protocol Network (ESInet; ESInet II):
The statewide system for routing emergency calls. The State of Washington is in the process of deploying a new ESInet, often referred to as ESInet II.

Feature:
A distinctive attribute or aspect of some technology. In this planning context, features are used within the PSAPs as part of answering and processing 911 calls.

FCC:
The Federal Communications Commission is an independent agency of the United States government created by statute (47 U.S.C. § 151 and 47 U.S.C. § 154) to regulate interstate communications by radio, television, wire, satellite, and cable.

Function:
The basic purpose of some element of the technology. In this planning context, functions are NG911 capabilities within the ESInet or the regional E-911 telephone system.

Goals:
Prioritized future conditions and targets serving as an intermediate step toward achieving the Shared Vision in line with the Guiding Principles, as initially defined during Scoping.

IAG:
Interim Advisory Group

Interoperability:
The ability of computers, technology systems, or software to exchange and make use of information.

Mission:
A statement of organizational purpose for the King County regional E-911 system.

NFPA:
The National Fire Protection Association is a United States trade association that creates and maintains private, copyrighted standards and codes for usage and adoption by local governments.

NENA:
The National Emergency Number Association is a standard-setting body for 911 related technology and operations.

Over-the-Top Applications:
Smartphone applications that operate independently of the wireless service provider's core services for the device. Examples include applications such as Facetime or Skype that provide voice or video connectivity between users within their own services and only use the internet connectivity of the Smartphone for data transport/connectivity.

Principles:
Principles make up the comprehensive and fundamental doctrine of the King County regional E-911 system.

PMP certification:
Project Management Professional certification is a professional designation offered by the Project Management Institute (PMI).

PSAPs:
Public Safety Answering Points are the answering locations for 911 calls. In King County, the twelve PSAPs are governed and largely funded by the independent jurisdictions and agencies they serve.

Reliability:
The quality of being trustworthy or of performing consistently well.

Resilience:
The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Such disruptions might include deliberate attacks, accidents, or naturally occurring incidents.

SHNS Ring:
The Self-Healing Network Service is a diverse-path fiber optic digital networking service provided by. This service is utilized by the King County 9-1-1 program to provide higher reliability connectivity to the PSAPs than can be accomplished with legacy 9-1-1 telephone trunk lines.

SIP Call Transport:
Session Initiated Protocol is an internet communications protocol that allows voice, video and messaging transactions to be conducted over the Internet without having to have a telephone number or utilizing the Public Switched Telephone Network (PSTN) used for normal voice telephone calls.

USDOT:
The United States Department of Transportation is a federal Cabinet department of the U.S. government concerned with transportation.

Values:
Major tenets that identify the way the King County regional E-911 system will pursue its Shared Vision, as initially defined during Scoping.

Vision:
An aspirational statement of what the King County regional E-911 system should be in the future, as initially defined during Scoping.

PROCESS AND CONTEXT

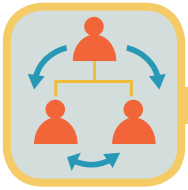
As defined by the King County Executive, consistent with the Scoping Report, the King County regional E-911 strategic planning process included an organizational timeline, structure, and strategic questions as follows:

TIMELINE:

June 2016 to December 2017.

STRUCTURE:

- ✓ **Leadership Group** to recommend a Strategic Plan to the King County Executive and King County Council.
- ✓ **Planning Group** to prepare recommendations and/or decision options for each of the questions and issues for strategic planning, including supervising the work of content Task Forces.
- ✓ Content **Task Forces** on **Governance, Technology**, and **Finance** to deliberate and develop recommendations for Planning Group consideration on key questions and issues.
- ✓ Stakeholders, staff, and consultant support.



TASK FORCE ASSIGNMENTS AND STRATEGIC QUESTIONS:

GOVERNANCE

Charge:

Research, deliberate, and recommend a governance structure for the regional E-911 system, including how the regional E-911 system will integrate with the state E-911 system and local E-911 dispatch services. Define an ongoing decision-making or governance structure for implementing and achieving the vision and goals of the King County regional E-911 system, including a conflict resolution process.

Statement of Strategic Questions:

Best Practices Questions (inputs to support strategic planning decisions):

- ✓ What are others doing for governance of regional E-911 systems with multiple operating groups?

Baseline Questions:

- ✓ What is the current governance structure (organization chart; decision structure oversight; accountability; responsibility, conflict resolution process)?
- ✓ What are the governance lessons from the 2015 King County Auditor's report on E-911 operations?

Strategic Governance Questions:

G1.What is the definition of the King County regional E-911 system?

G2.What is the management structure for the King County regional E-911 system, in terms of authority, oversight, operations, accountability, responsibility, and performance monitoring?

G3.What is the major decision-making structure for the King County regional E-911 system, including process management, research, input, and authority?

G4. What is the conflict resolution process for the King County regional E-911 system?

G5. What is the stakeholder engagement structure for the King County regional E-911 system, including input into decisions, reporting, and performance monitoring?

Off the Table:

- ✓ The evolving number and configuration of Public Safety Answering Points (that are locally governed and largely locally funded) is an ongoing process of local decisions by individual PSAPS and/or groups of PSAPs. This plan will not include a top-down PSAP consolidation.

TECHNOLOGY & OPERATIONS

Charge: Research, deliberate, and recommend a 10-year Technology Investment Strategy for the regional E-911 system that meets the following Goals (from Scoping process):

- ✓ No request for emergency service be lost.
- ✓ Prompt responses to all requests for emergency service.
- ✓ Seamless system-wide technology that minimizes transfers and is fully integrated and interoperable.
- ✓ Meet or exceed industry standards on a continuing basis.
- ✓ Provide equitable access to the E-911 system by all communities & individuals.
- ✓ A county-wide system that is secure, resilient and survivable.

Statement of Strategic Questions:

Best Practices Questions (inputs to support strategic planning decisions):

- ✓ Manage, review and implement in alignment with national standards and best practices (e.g. NENA, APCO, CALEA, PMP, FCC, USDOT, NFPA)
- ✓ Comprehensive review of case studies.

Strategic Technology & Operations Questions:

T1. What is the technology vision for the King County regional E-911 system, in terms of the technology's purpose, evolution and investment approach?

T2. What are the technology requirements for integrating with the state's E-911 system, and for local jurisdictions to connect to the regional E-911 system?

T3. What is the ongoing decision process for technology investments, including options, tradeoffs, priorities, budgets, and schedules?

T4. What are the ongoing performance metrics for technology in the King County regional E-911 system, including the performance of the system, vendors, and local partners?

T5. What are the security requirements for the King County regional E-911 system, including protection of the system, individual privacy and proprietary information?

FINANCE

Charge: The Finance Task Force is charged with the research, deliberation, and recommendation of a 10-year Sustainable Financial Plan for the regional E-911 system.

Statement of Strategic Questions

Best Practices Questions (inputs to support strategic planning decisions):

- ✓ What are cities, counties, PSAPs doing with respect to financial management and reporting (case studies)?
- ✓ How is workload and performance measured?
- ✓ How are funds collected, budgeted, prioritized and distributed?

Strategic Finance Questions:

F1. What are the procedures and processes for forecasting, reporting, auditing, and operations related to King County regional E-911 system revenue and expenditures?

F2. What are the funding needs and revenue strategies for the King County regional E-911 system, including NG911 upgrades and keeping the system up to date over time?

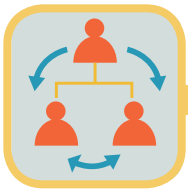
F3. What are the stakeholder reporting requirements related to the King County regional E-911 system finances, including revenue, expenditures, efficiency, and effectiveness?

F4. What are the investment management policies for the King County regional E-911 system related to forecasting, investments, reserves, and contingencies?

KEY ISSUES

In January 2017, the Leadership Group approved an ***Issue Brief*** of key issues in Governance, Technology & Operations, and Finance to be resolved during the King County regional E-911 strategic planning process.

In the context of the Shared Vision, Guiding Principles, and Goals, the Strategic Plan Task Forces responded to the strategic questions by identifying the following key issues as topics for deeper analysis in order for the strategic plan to answer the questions above:



GOVERNANCE

- **Decision-Making Authority, Feedback, and Transparency:** A formal process is needed to effectively make decisions about the King County regional E-911 system and deal with emerging challenges and opportunities. This should include clear roles, responsibilities, and communication protocol to enable timely decisions that are responsive to both established objectives and new information.
- **Conflict Resolution:** A conflict resolution process is needed, and should include how conflicts are identified, at what level of governance are they addressed, and how they are they resolved.
- **Coordination/Communication:** There is demand for establishing protocols for communication between the E-911 Program Office and the PSAPs, as well as among and between the PSAPS.

TECHNOLOGY & OPERATIONS

- **Pace of Change:** The pace of technology change brings new public and user expectations that can stress the regional E-911 system and its operations, and will require a continuous process to review and evaluate new changes and fiscal impacts.
- **Architecture Complexity and Strategy:** The overall architecture of the regional E-911 system needs to be evaluated, with a strategy developed to respond to overall system objectives and evolving future conditions. This may require an ongoing Technology & Operations committee to conduct continuous review and evaluation.
- **Security:** Security of the regional E-911 system overall, as well as other critical PSAP systems, needs to be a constant focus and priority.
- **Call and Operational Complexity:** The nature of emergency calls is changing rapidly, with ever-increasing volumes of calls from wireless devices and emerging technologies such as text, video and telematics calls to 911. This will drive a variety of ongoing technological, operational and funding issues for the regional E-911 system overall and the systems and operations at the individual PSAPs. A technology and operations strategy must balance operational impacts with effectiveness gains from technology in a diverse environment with geographically distributed PSAPs, different jurisdictional boundaries and variety of call types handled by various PSAPs.

FINANCE

- **Fiscal Sustainability:** Forecasted increases in operating and capital expenditures need to be evaluated in detail to determine whether alternative assumptions are needed. Forecasted growth in these expenditures is driving fiscal deficits in the future. However, revenue adequacy of existing sources will also need to be evaluated as part of a financial sustainability plan.
- **Clarity of Financial Responsibilities.** There is ambiguity about the appropriate roles of the E-911 Office and the PSAPs in supporting the regional E-911 system. It will be important to determine what services the E-911 Program Office is required to provide, and beyond those costs, what are the financial implications, if any, for individual PSAPs.
- **Financial Policies and Accountability:** Clear financial policies and accountability are needed related to budgeting and accounting.
- **Distribution of Funding:** A clear and transparent system for distribution of funding between the E-911 Office and PSAPs and between PSAPs is essential, and this system must also be able to evolve with changing technologies and operations.

These key issues served as a check-list for strategic planning in identifying objectives, actions, performance metrics, and implementation timelines.

FOUNDATION

This strategic plan is rooted in the following vision, mission, values, and goals for the King County regional E-911 system.

VISION

An aspirational statement of what the King County regional E-911 system should be in the future, as initially defined during Scoping.

King County's regional E-911 system will be among the best in the country in terms of:

» Rapid and effective routing of requests for service;

» Efficient use of public resources;

» Effective deployment of evolving technology; and

» Adherence to the guiding principles.

MISSION

What is the mission of the King County regional E-911 system, and what are the core services and technologies of the E-911 Program Office and of the regional components of the PSAPs.

The regional E-911 system provides an emergency communications link between the people of King County and appropriate public safety responders.

VALUES

Major tenets that identify the way the King County regional E-911 system will pursue its Shared Vision, as initially defined during Scoping.

PROCESS

Transparency
Project Management Principles
Collaboration
Predictability
Advocacy
Inclusion

FINANCE

Fiscal Responsibility
Financial Sustainability
Cost Effective Foundation

STANDARDS

National Best Practices
Performance Metrics
Continuous Improvement

GOALS

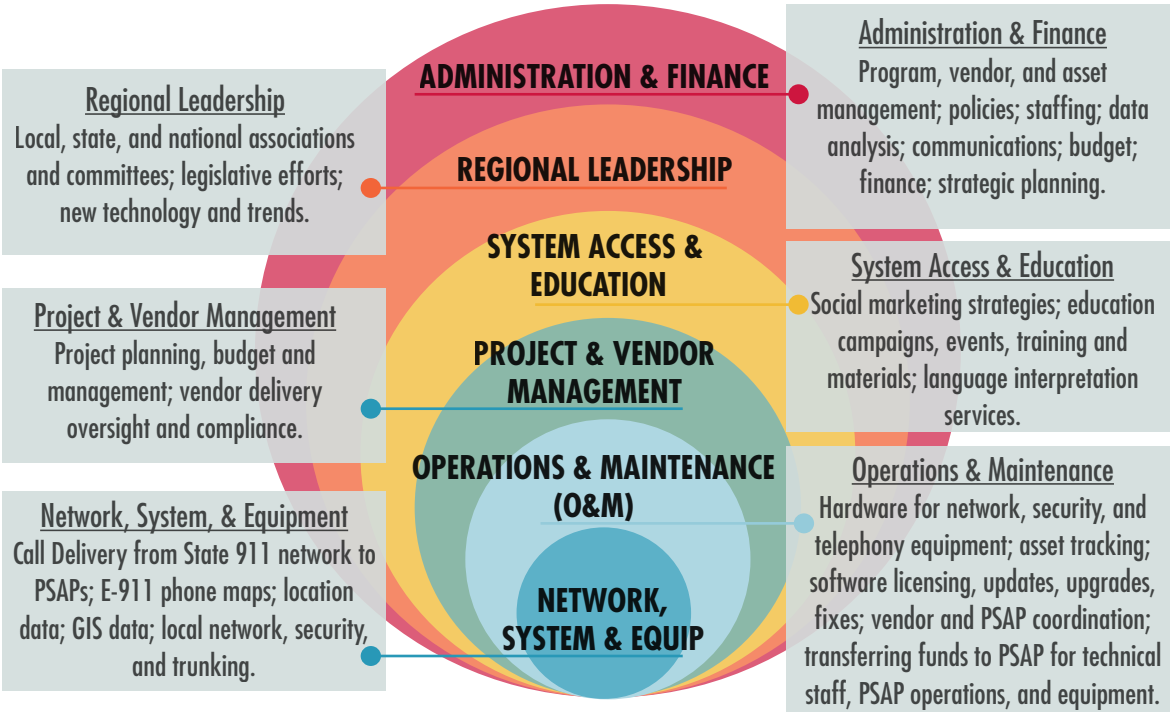
Prioritized future conditions and targets serving as an intermediate step toward achieving the Shared Vision in line with the Guiding Principles, as initially defined during Scoping.

1. No Request Lost – Never lose track of a request for assistance
2. Prompt Response – Promptly route and respond to every request for assistance to promote rapid dispatch
3. Seamless System-wide Technology – A county-wide system that is fully integrated and interoperable, minimizing transfers and ensuring reliability
4. Meet or Exceed Industry Standards – A county-wide system that meets or exceeds current industry standards and is continuously improved to adapt to evolving technology and needs
5. Equity – Equitable access to the E-911 system by all communities and individuals, recognizing and addressing the obstacles faced by specific groups.
6. Secure, Resilient & Survivable – A county-wide system that is secure, resilient, and survivable

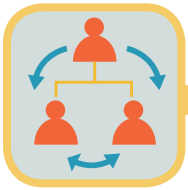
CORE SERVICES

Core services are the first priority functions of the King County E-911 Program Office. This list provides guidance to the Governing Board as it deliberates capital, operating, and funding priorities in the future.

KING COUNTY E911 CORE SERVICES
Developed to Deliver Services on a Regional Platform



PRINCIPLES



Principles make up the comprehensive and fundamental doctrine of the King County regional E-911 system.

GOVERNANCE

- Inclusive: Every PSAP has a seat at the table
- Proportionality: A form of proportionality shall be used for voting purposes
- Consensus: A form of consensus decision making shall be used
- Adaptable: The structure must continue to function if the system changes
- Informed & Timely Decisions: The Governing Board will make informed and timely decisions for the good of the regional system
- Inform & Advise: The Governing Board will inform and advise on the regional E-911 system
- Transparency: The Governing Board will be fully transparent in decision making
- Advocacy for E-911 system: Governing Board members should advocate at all levels to implement best practices and appropriate resources in the public and private sectors
- Collaboration: The Governing Board shall maintain a collaborative approach among all jurisdictions and project partners, including open and regular communication
- Diversity: The Governing Board shall review and consider the results of outreach to diverse communities that are served by the King County regional E-911 system
- Continuous Improvement: The Governing Board shall continue to seek opportunities for improvement

TECHNOLOGY & OPERATIONS

- Public Safety: We should ensure service exists that protects the public's safety above all else
- Capacity: The capacity of the system should meet demand at all times without service interruption
- Fair and Equitable: We should seek to provide fair and equitable access so that all communities can receive and perceive value
- Security: All systems and solutions will need to meet the minimum level of security defined
- Availability: Solutions should be available at all times without service interruption
- Cost Effective: Financial decisions should be based on the most cost-effective solutions consistent with documented needs
- Convergence: We should converge toward common solutions, approaches and standards
- Interoperability: Software and hardware should conform to defined standards that promote interoperability for data, applications and technology

FINANCE

- Fiscal Responsibility: The E-911 system must rely on clearly articulated financial management policies that reflect responsible stewardship of E-911 resources, and ensure that they are used for their intended purposes. The system must be open and transparent about all the E-911 finances, making financial information available to all stakeholders, and build trust and collaboration among partners.
- Fiscal Sustainability: The E-911 system should make effective and efficient use of resources, achieve E-911 objectives, fulfill commitments to stakeholders, and prepare for long-term fiscal sustainability. Financial sustainability of E-911 revenues is important to the services delivered by both the King County E-911 Program Office and PSAPs.
- Cost Effective: The E-911 system should invest and spend available resources in building and operating a more efficient E-911 system. Investments in the E-911 system need to be effective and reinforce broader program goals.

STRATEGIC DIRECTIONS

The following are strategic directions for the King County's regional E-911 system. They are not specific action plans, but provide guidance to the E-911 Program Office and Governing Board as it makes tactical decisions in the years ahead.

GOVERNANCE & DECISION STRUCTURE

The Governance Task Force met ten times and produced the following findings and recommendations.

FINDINGS

Auditor's Report

The King County Auditor's report on the E-911 system was one of the catalysts for the scoping and strategic planning process. One of the report's main findings was the need for a governance system that provides a formal, clear, and transparent decision-making structure.

The Governance Task Force reviewed the findings and recommendations of the Auditor report and incorporated those into their workplan.

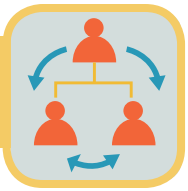
Case Studies

The initial work of the Task Force included a review of other regional E-911 governance structures to gain a better understanding of how other agencies were structured, how PSAPs were represented, how decisions were made, if authority was delegated or advisory, and how operations and capital were funded. These case studies were used to determine if best practices existed and what experiences of other jurisdictions could be applied to improve E-911 governance in King County. A set of questions and evaluation criteria were used for each jurisdiction. E-911 structures that were studied included the Interim Advisory Group for King County E-911; Otsego County, New York; Palm Beach County, Florida; Tarrant County 911 District, Texas; and Ramsey County, Minnesota. All the 911 systems interviewed had similarities in their governance structures. In all cases authority was delegated by the state to counties or a regional authority and representation by PSAPS or local jurisdictions was advisory to the county or regional system. There was also a variance in state involvement with 911 systems, ranging from Palm Beach which had a high level of state oversight and control, to the Tarrant County District, which is a regional partnership with little state oversite.

In addition, the Task Force engaged in a discussion of authorities and voting structures of other regional governance structures in the Puget Sound region not related to 911. Those were the Puget Sound Regional Council, the King County Growth Management Council, the Puget Sound Emergency Radio Network (PSERN), and the Emergency Medical System Advisory Committee.

RECOMMENDATIONS

Summary. The future Governing Board should be advisory to the E-911 Program Office, have one voting position for each PSAP, and operate by consensus as much as possible. If voting is required, a two-part test must be met. For a vote to pass, it must be approved by (1) 40% of the PSAPs present and voting and (2) PSAPs representing 60% of the call volume of the King County regional E-911 system. This plan also lays out a specific process for decisions and appeals, in response to the Scoping Report recommendation that any governance recommendation include a conflict resolution process.



Authority

The Governing Board of the King County regional E-911 system shall inform and advise the King County E-911 Program Office, the King County Executive, and the King County Council on the King County regional E-911 system.

Voting

The Governing Board shall strive to reach consensus on all issues and any recommendations to the King County E-911 Program Office, the King County Executive and the King County Council. Consensus is assumed unless a member of the Board that is present at the meeting asks for a formal vote.

A call for a vote must be seconded by another Board member for the vote to proceed. If a Board member who is present at the meeting requests a vote, and that vote is seconded by another Board member, the following voting procedure shall apply:

- ✓ A quorum of the Board must be present at the meeting. A quorum is defined as 50% plus one of the total Board membership, as well as PSAPs that cumulatively represent 60% of the call volume of the King County regional E-911 system.
- ✓ An action of the Governing Board requires a two-part test. For a vote to pass, it must be approved by (1) 40% of the PSAPs present and voting and (2) PSAPs representing 60% of the call volume of the King County regional E-911 system.
- ✓ When a vote of the Governing Board occurs, the members of the Board voting in the minority may file a dissenting recommendation that shall also be forwarded with the action of the majority. The dissenting recommendation must be provided within 10 calendar days to be submitted with the action of the majority of the board.
- ✓ The Governing Board should adopt rules to establish procedures for notice and timing of votes.
- ✓ For purposes of calculating the 40% of Board members present and voting, the result shall be rounded up to the next whole number if there is a fractional outcome equal to 0.5 or greater and shall be rounded down if the fractional result is less than 0.5.
- ✓ For purposes of calculating call volume percentages the King County E-911 Program Office shall annually on or before January 15th provide to the Governing Board updated total call volumes for each PSAP.

Decision Making and Dispute Resolution

For all matters that are within the purview of the King County E-911 Governing Board (Governing Board) the King County E-911 Program Office shall provide background, briefings, data, analysis, and financial review to the Governing Board to facilitate its review and recommendations to the E-911 Program Office. The Governing Board may also initiate proposals that are within their authority and the E-911 Program Office shall provide background, briefings, data, analysis, and financial review to facilitate review and recommendation by the Governing Board.

The E-911 Program Office and the Governing Board shall engage in a deliberative process with the objective of reaching a consensus decision of the Governing Board. Lacking consensus, and upon the request of a member with the appropriate second, the Governing Board may also vote and make a recommendation to the E-911 Program Office.

Concurrence:

If the Governing Board and E-911 Program Office concurs (i.e., agree on a recommendation), the matter will be implemented, or if required, forwarded to the King County Executive (the Executive).

When an issue requires an action by the Executive, the recommendation of the Governing Board shall be provided to the Executive in a form as required by the Executive. When the action of the Executive is consistent with the recommendation of the Governing Board, the matter may be implemented or transmitted to the King County Council (the Council), as needed.

Executive Rejection or Modification of Joint Recommendation:

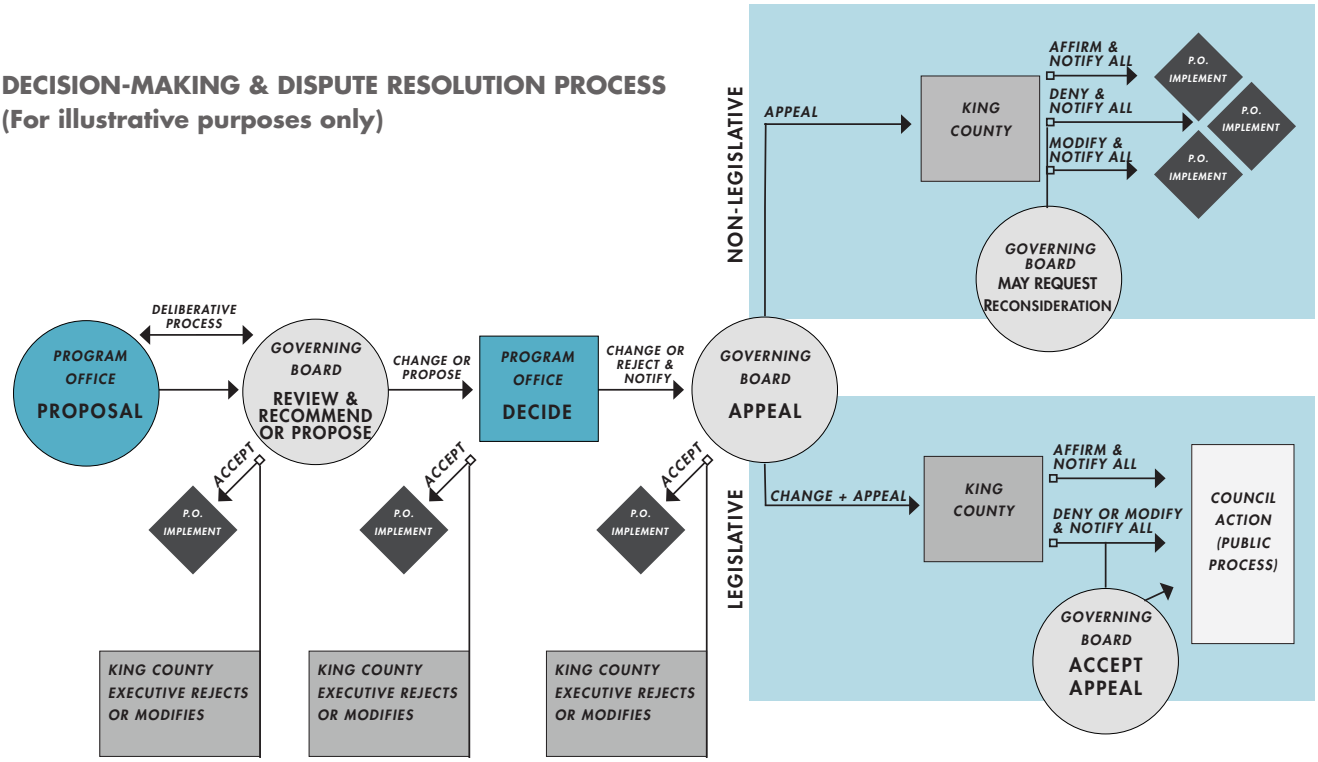
If the Executive rejects or modifies the joint E-911 Program Office/Governing Board recommendation, the Governing Board shall be notified in writing with a description of the action and justification for the decision. The Governing Board may, within 10 calendar days, respond in writing to the Executive either concurring with the action or making an appeal for reconsideration which could include a request for a meeting with the Executive. The Executive then has 10 calendar days within which to respond to the Governing Board.

E-911 Program Office Rejection or Modification of Governing Board Action:

If the E-911 Program Office rejects or modifies a Governing Board recommendation, the E-911 Program Office must notify the Governing Board in writing within 10 calendar days with a description and justification for the E-911 Program Office action. The Governing Board shall have 10 calendar days to consider the E-911 Program Office decision before the E-911 Program Office takes any further action. Within that time the Governing Board may accept the E-911 Program Office position, engage in discussions with the E-911 Program Office seeking a mutually agreeable compromise, or appeal to the County Executive. Preparation of an appeal is the responsibility of the Governing Board.

On appeal, the Executive shall consider the recommendations of both the Governing Board and the E-911 Program Office. The Governing Board shall be notified of the Executive's decision in writing with a description of the action and justification for the decision. Upon receipt of that notification the Governing Board may, within 10 calendar days, respond in writing to the Executive either concurring with the action or to make an appeal for reconsideration which could include a request for a meeting with the Executive. In the case of an appeal for reconsideration, the Executive then has 10 calendar days within which to respond to the Governing Board.

DECISION-MAKING & DISPUTE RESOLUTION PROCESS
(For illustrative purposes only)



** THE GOVERNING BOARD WOULD NEED TO DELIBERATE THE BUDGET WITHIN THE COUNTY BUDGET PROCESS AND TIMEFRAME.*

Legislative Actions of the King County Council:

In matters that require the approval of the Council, the E-911 Program Office and the Executive shall follow all the same procedures as described before transmitting legislation to the Council. Upon Executive transmittal of legislation, the Governing Board may inform the Council of their support, opposition, or request for amendment through the public legislative process of the Council. The County Executive shall make all appropriate records of the Governing Board and the E-911 Program Office available to the Council and to the public to inform the Council process.

Roles and Responsibilities

The Governing Board of the King County regional E-911 system shall inform and advise the King County E-911 Program Office, the King County Executive, and the King County Council on the King County regional E-911 system on subjects that affect the King County regional E-911 system and operations and finances of the PSAPs.

Those subjects shall include but are not limited to the following:

The proposed biennial budget, spending plans and schedules for operations and maintenance costs, system and technology changes, platform and networking enhancement and modernization, strategic projects associated with NG911 technologies and projects, discretionary E-911 Program Office or PSAP requests, implementation of the strategic plan, financial plan monitoring and modification, revenue distribution formula to PSAPs, and establishing and monitoring performance standards and measures. (See figure below).

Governing Board is informed and makes a recommendation

- Proposed E-911 system and Program Office biennial operating and capital budget*
- Projects and expenditures to enhance, modernize, or upgrade the E-911 system.
- Federal and state legislative strategies
- System performance standards, measures, and monitoring
- Revenue and finance plan monitoring and revisions
- Strategic project proposals, projects, expenditures, implementation, and schedules associated with NG911 technologies.
- Strategic planning for the regional E-911 system.
- Modifications to the funding formula or changes to revenue distributions to PSAPs
- Discretionary Program Office or PSAP requests

* The Governing Board would need to deliberate the budget within the County budget process and timeframe.

Program office may inform the Governing Board but no Board action is required

- Expenditures within the authorized biennial budget to support operation, maintenance and security of the E-911 platform and network to the PSAPs
- Representation at local, state and national associations and committees
- Communications, social marketing strategies, education campaigns, events, training materials, language and interpretation services related to the regional system but not PSAP interpretation and language services.
- Administration, project planning, budget and management, vendor delivery oversight and compliance on approved projects. Results of outreach and engagement with community members who represent the diversity of people using the E-911 system

The Governing Board may also refer to the Core Services, which have been defined as the first priority functions of the King County E-911 Program Office. This list may provide guidance to the Governing Board as it deliberates capital, operating, and funding priorities in the future.

Core Services:

- ✓ **Network, System, & Equipment**

  Call delivery from State 911 network to PSAPs; E-911 phone maps; location data; GIS data; local network, security, and trunking.

- ✓ **Operations & Maintenance**

  Hardware for network, security, and telephony equipment; asset tracking; software licensing, updates, upgrades, fixes; vendor and PSAP coordination; transferring funds to PSAP for technical staff, PSAP operations, and equipment.

- ✓ **Project & Vendor Management**

  Project planning, budget and management; vendor delivery oversight and compliance.

- ✓ **System Access & Education**

  Social marketing strategies; education campaigns, events, training and materials; language interpretation services.

- ✓ **Regional Leadership**

  Local, state, and national associations and committees; legislative efforts; new technology and trends.

- ✓ **Administration & Finance**

  Program, vendor, and asset management; policies; staffing; data analysis; communications; budget; finance; strategic planning.

Governing Board Structure

Each PSAP shall have one representative appointed to the Governing Board by the Director of the PSAP. The Director may appoint themselves. Length of term on the Governing Board shall be determined by the appointing authority. Designated alternates may participate in Governing Board discussions but may not vote or participate in consensus decisions in place of the appointed representative.

The Governing Board shall adopt a charter to establish, officers, meeting schedules, committee structures, voting procedures, and other rules necessary to conduct the business of the board.

The King County E-911 Program Office will provide staff support for the Governing Board.

GOVERNANCE IMPLEMENTATION

It is anticipated that the King County Executive will transmit this regional E-911 Strategic Plan by January 2018. This will enable the Council to adopt legislation by April 2018, approving the plan as recommended by the Leadership Group and establishing the advisory Governing Board as recommended by this Strategic Plan.

The Governing Board is tasked with assuming the procedures and responsibilities of governance as described in the Strategic Plan.

The King County Executive (E-911 Program Office) will work with the Governing Board to draft a new contract with all PSAPs by the end of 2018.

TECHNOLOGY & OPERATIONS

The Technology and Operations Task Force met dozens of times — as a group and divided into five sub-groups — over the course of the strategic planning process. Their thorough analysis of the practices of other regions, of the existing King County regional E-911 system, and system architectural principles, as well as objectives, actions, and performance metrics appears in Appendix E.

FINDINGS

The King County regional E-911 system currently uses a decentralized architecture with equipment located at each of the 12 PSAPs that directly interconnects them to the statewide ESInet. This equipment is sourced from a single vendor, and provides a homogeneous mix of system capabilities and functionality so that each PSAP has access to comparable services. Connectivity between the PSAP equipment and the Statewide ESInet is a combination of legacy telecommunications circuits and NG911 networks using internet protocol.

The State of Washington is replacing the current statewide ESInet with a network provided by a different vendor. This will bring new security and interface requirements that will need to be implemented to allow the PSAPs to interface to the next generation ESInet (ESInet II), is planned for completion in 2018. ESInet II will most likely provide a stable environment for the King County regional E-911 system during the 10 - year planning horizon.

As part of this strategic planning process, the overall architecture of the King County regional E-911 system was evaluated, with a new strategy developed to respond to system objectives and evolving future conditions.

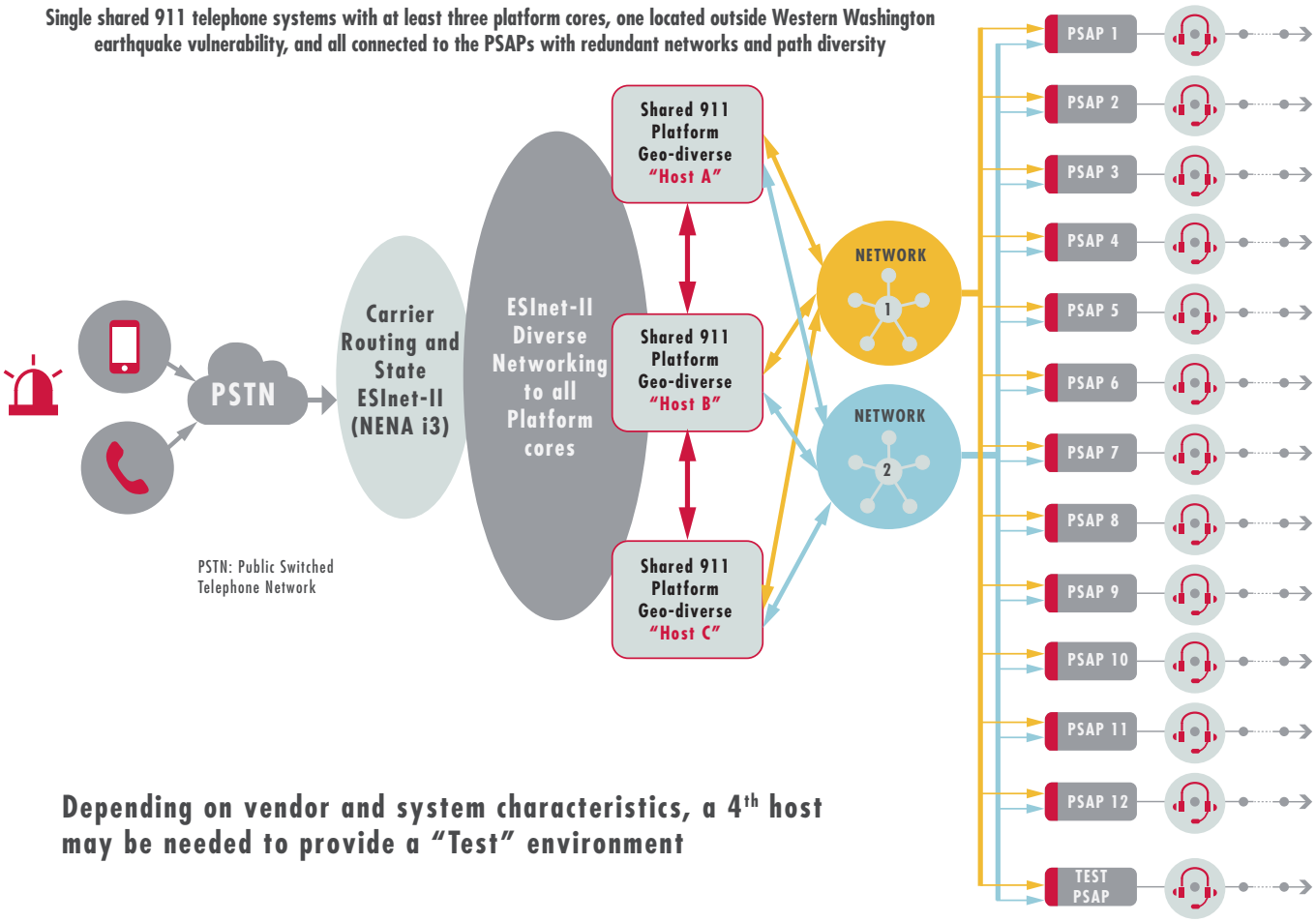
RECOMMENDATION: *System Architectural Approach*

Proceed with implementing a single platform architecture solution, with the understanding that, during implementation, the E-911 Program Office and Governing Board may discover additional information that will cause them to modify their course. The Platform Architectural solution is illustrated and briefly described below, with further description in Appendix E.

In the Single Platform Architecture, the core elements of the 911 telephone system are moved from each individual PSAP to a multi-node host platform. The State's ESInet II delivers calls to this shared system platform, and the PSAPs are then networked to the platform. The platform approach allows one of the host nodes to be located in a geographically remote location to increase system resiliency compared to having hosts only located within King County. This architecture is shown below.

SINGLE PLATFORM ARCHITECTURE
with REDUNDANT NETWORKING

Single shared 911 telephone systems with at least three platform cores, one located outside Western Washington earthquake vulnerability, and all connected to the PSAPs with redundant networks and path diversity



PSTN: Public Switched Telephone Network

Depending on vendor and system characteristics, a 4th host may be needed to provide a "Test" environment

Background: After an extensive and iterative process that included 45 meetings between the Task Force and its five sub-committees, the Technology & Operations Task Force articulated two viable alternatives for future system architecture and a timeline for implementation. Both the "Distributed" and "Platform" alternatives meet all of the Technology & Operations Principles, with the Platform alternative exceeding several of the principles more than the Distributed alternative. The 10-year cost of ownership for the Distributed alternative appears to be slightly less, and therefore is somewhat better on the cost-effective principle. In the end, a majority of Task Force members preferred the Platform architecture, and the Planning Group recommended this solution to the Leadership Group. The Leadership Group unanimously endorsed this direction on September 29, 2017.

SUMMARY OF OBJECTIVES, ACTIONS, AND PERFORMANCE METRICS

The following table summarizes Objectives, Actions and Performance Metrics in the following categories:

1. NG911 Readiness – Preparing for the emerging capabilities of NG911 (e.g., text, photos, video, telematics, etc.) with a roadmap that adopts and adapts to technology changes, and balances operational needs with improved service and cost effectiveness.

2. Integrated and Interoperable Systems – Ensuring systems are integrated effectively to achieve reliable interoperability across organizations and functions in delivering seamless 911 services across the region.

3. Security and Resiliency – Protecting the 911 call flow, beginning at the statewide ESInet, continuing through the various systems and transport mechanisms, and arriving at the PSAPs, while also ensuring the overall resiliency of the E-911 systems and operations.

4. Optimized Operations – Providing reliable 911 services across King County that meet or exceed applicable standards by providing a combination of hardware and software systems, databases, networking and operational support that accurately locate and route calls to King County PSAPs delivered from the State ESInet.

5. Accessible and Equitable Service – Increasing equitable access to the 911 services for all communities and individuals served, with specific focus on lessening obstacles faced by underrepresented groups and those with unique needs.

SUMMARY OF OBJECTIVES, ACTIONS, AND PERFORMANCE METRICS

A more detailed version of this table is included in Appendix E.

CATEGORIES	OBJECTIVES (WHAT)	ACTIONS (HOW)	MEASURES & TARGETS (HOW MANY)
NG911 Readiness	Objective #1: Adhere to Standards	NENA i3 Standards	Ongoing monitoring of Standards and assessment of systems against those Standards
		NENA Network & Interoperability Standards	
		ESInet Standards	
	Objective #2: NG911 Features	NG911 Features: – text-to-911 – enhanced text-to-911 – telematics – "over-the-top" apps	Ongoing monitoring of Standards and assessment of systems against those Standards
		Evolution of Standards	
		Decision Criteria	
		Implementation Timeline	
	Objective #3: NG911 Functions	NG911 Functions: – ESInet II Completion – geospatial routing – SIP call transport – end-to-end security – policy routing function – ADR functionality – location information – agency locator support	Ongoing monitoring of Standards and assessment of systems against those Standards
		Evolution of Standards	
		Implementation Timeline	
	Objective #4: Evaluate and Adopt a System Architecture	Identify Options	Completed during this strategic planning process
		Review Options against Architectural Principles	
		Review Options on Financial Criteria	
Integrated and Interoperable Systems	Objective #1: Interoperability Features	Identify Options: – Carrier Diversity – High Availability – Survivability – Virtual PSAPs – Mobile PSAPs – Real-time Data Capture and Analysis	Evolution of Standards Implementation Timeline
		Evolution of Standards	
		Implementation Timeline	
	Objective #2 Interoperability Functions	Identify Options: – Existing Structure – PSAP Needs – Bottlenecks – Potential Efficiencies – Routing Protocols – Data Protocols	Ongoing monitoring of Standards and assessment of systems against those Standards
		Evolution of Standards	
		Implementation Timeline	
CATEGORIES	OBJECTIVES (WHAT)	ACTIONS (HOW)	MEASURES & TARGETS (HOW MANY)

CATEGORIES	OBJECTIVES (WHAT)	ACTIONS (HOW)	MEASURES & TARGETS (HOW MANY)
Security and Resiliency	Objective #1: Security Standards	Staffing & Funding	Annual staff security training: 75% in 2018, 85% in 2019, and 100% in 2020 +.
		Certification Process	
		Security Awareness Training	
	Objective #2: Security Program	Security Policies	Governance structure by 2Q 2018.
		Staffing & Funding	
	Objective #3: Operations and Architecture	Implement IT Best Practices	Implement a process to measure key performance.
	Objective #4: Vendor Management	Vendor Management Best Practices	Include the standard language in all new vendor contracts and RFPs
		Quarterly Reports	
Optimized Operations	Objective #1: Standards and Policies	Demarcation Points	Routine review of E-911 Program and PSAPs conformance
		Standards & Policies	
		Governance	
	Objective #2: Delivery Framework	KCIT Delivery Framework	Creation and utilization of these delivery frameworks
		Project Management Standards	
	Objective #3 Operational Framework	KCIT Operational Framework	Creation and utilization of these operational frameworks
		Problem Management	
	Objective #4 Business Continuity Management	KCIT Business Continuity Management	Creation and utilization of these BCM strategies
		KCIT Coordination	
	Objective #5: Call Routing and Delivery	Routing Criteria	Creation and utilization of these call routing strategies.
		Periodic Review	
Accessible and Equitable Service	Objective #1: Public Education and Outreach	Maintain and increase educational outreach	Within the 1st year of this Plan, create a periodic reporting mechanisms to demonstrate these activities are being accomplished.
		Partner with community organizations	
		Partner with organizations that that innovate with special needs communities	
		Share community feedback with other agencies	
	Objective #2 Reducing Barriers	Partner with PSAPs to continue to enhance training for call takers	Within the 1st year of this Plan, develop mechanisms to routinely gather community feedback and identify training needs. Then, in the 2nd year, develop a process with the PSAPs to deliver training as needed.
		Support access to phone services for low-income people	
	Objective #3: Modernizing Technology	Implement Text-to-911 and similar enhancements as they become available and stable	Complete the implementation of Text-to-911 by Q 2018. Within the 1st year of this Plan, develop mechanisms to gather community feedback on the effectiveness of new solutions, and then expand this effort to include new and innovative technologies when appropriate.
		Seek ongoing feedback about how E-911 technologies are meeting community needs	
CATEGORIES	OBJECTIVES (WHAT)	ACTIONS (HOW)	MEASURES & TARGETS (HOW MANY)

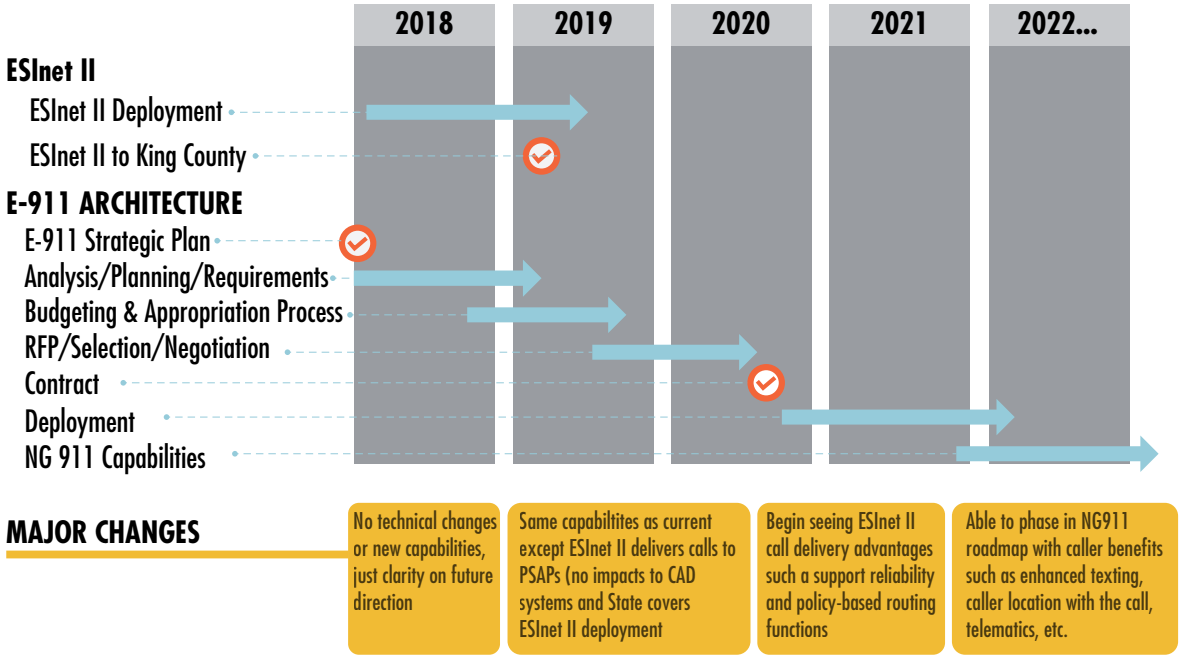
TECHNOLOGY IMPLEMENTATION

As the State completes the deployment and cutover to ESInet II call routing and transport to the PSAPs in mid 2018 to early 2019, the NENA i3 call delivery mechanism will be used to bring the 911 call to the PSAP. While it is the goal to accept this NENA i3 call delivery, if the current telephony system is not able to support the security elements of ESInet II, these IP-based calls will then be converted to legacy CAMA interfaces on the existing 911 telephone systems at each of the PSAPs (just like it is today). The preferred strategic direction is for King County to migrate to the Single Platform architecture.

Implementing the platform architecture will be a multi-phase process with key decision milestones as each phase concludes. A more detailed analysis and planning phase will be necessary after Strategic Plan adoption. This will involve updating cost estimates, developing detailed requirements, and evaluating staffing needs (perhaps through formal request for information and/or request for proposals processes), clarifying technical roles and responsibilities between E-911 Program Office and PSAP technical staff, and implementing emerging security changes. A request for proposal will be followed by an evaluation and selection process, contract negotiations, detailed design, installation, testing, training, and cutover processes.

This process will be managed by the E-911 Program Office in collaboration with the Governing Board. The technical personnel that are paid for by the regional excise tax and housed at the PSAPs will be central to this process by providing support at the PSAPs and coordinating with the E-911 Program Office staff for support of the NG911 systems, features, and functions. A high-level implementation timeline is provided in the diagram below.

HIGH LEVEL IMPLEMENTATION TIMELINE



Like all major technology projects, this process will evolve as detailed information and decisions are made. Each phase of this process will give the E-911 Program Office and Governing Board an opportunity to consider the broad strategic direction in light of new information. The Governing Board will be fully briefed no less than quarterly, and with presentations of each major phase, such as planning, request for proposals, selection, contract, and implementation plan to ensure collaboration with impacted stakeholders. This might include a reassessment of the system architecture approach.

10-YEAR SUSTAINABLE FINANCIAL PLAN

Summary. The King County regional E-911 system is largely funded by excise taxes collected by the State of Washington and distributed to the County. The current level of spending is not sustainable with projected revenues, but it appears that the fund balance will not go negative until 2023. To be sustainable, a financial plan must align expenditures and revenues. If revenues do not increase, then expenses must come down. This requires two complimentary actions. First, the E-911 Program Office and PSAPs must operate the E-911 system in a more cost-effective manner. Second, revenue reforms are needed since the excise tax is not keeping pace with inflation or needed expenses in the E-911 system.

FINDINGS

The E-911 Finance Task Force was charged with the research, deliberation, and recommendation of a 10-year Sustainable Financial Plan for the regional E-911 system. The E-911 Program Office is making real-time improvements to the E-911 accounting, operating and financial planning procedures. Further, they have made significant progress on the Guiding Principles adopted by the Leadership Group in June 2017. The findings in this report are the result of this collaborative and transparent effort by King County, the E-911 Program Office, and the PSAPs represented on the Task Force.

The E-911 Program and regional system is at a critical crossroads and significant policy, operational, and financial actions are needed immediately to place the program and its services on the path towards fiscal sustainability. These actions will be difficult and complex – likely requiring several years of phasing by the E-911 Program Office and PSAPs. However, these actions must be thoughtful and coordinated in order to protect the integrity of the 911 service to King County residents.

The E-911 Program Office should continue to work with IAG and the new Governing Board (e.g. E-911 Program Office staff and PSAP representatives knowledgeable about operational, technical and financial aspects of the system) to collaboratively develop a 2019-2020 Budget proposal that includes recommended expenditure reductions. This tight level of collaboration is necessary to tie reductions of expenditures to the operational effectiveness of the system. It must do so while also evaluating additional revenue options as described in this report. The Task Force developed a planning-level financial model for analyzing future revenue and expenditure conditions in the E-911 Program, and this tool will be used to support the work above.

This 10-year Sustainable Financial Plan finds the following:

1. The regional E-911 system consists of a system of communication networks, equipment, and people delivering services for 911 operability. The program spends significant resources on technology and equipment, as well as services to maintain and operate them. The system is geographically dispersed across the County.
2. The E-911 system is operationally and technologically complex. The mix of equipment and services are delivered via contracts with vendors, by the E-911 Program Office, and by PSAPs themselves. Investing and maintaining the system has been a regional partnership, backed with financial resources from the E-911 excise tax and from the local governments.
3. The total cost of the system has grown faster than the available excise tax revenues. The true growth in the cost of the system has been masked by budget carryovers due to delayed capital projects, the one-time bump in the excise tax rate in 2011, and past practices regarding the budgeting of services and equipment investments.
4. The E-911 tax is levied based on a per line fee and the tax is not sufficient to sustain the E-911 system in the long-term. The E-911 excise tax base has not grown – remaining essentially flat over the past several years. The rate at which households are abandoning their wired lines suggest that there will be no nominal growth in revenue from the tax. The implication is that the real (inflation-adjusted) value of the revenue is declining over time meaning there is fewer resources to pay for the same level of services.
5. The E-911 system is facing a forecasted $70 million cumulative budget deficit over the next ten years. Current system operating practices are projected to cost $300 million from 2017-2026 while the excise tax is projected to raise $230 million in revenue during that same time. While there is currently

$27 million in fund balance, projected spending on a new system architecture and current operating practices are not sustainable at current revenue levels. Continuation of the status quo is projected to erode the available fund balance and produce budget deficits starting in 2023.

6. Capital investment is needed to assure compliance with national 911 standards to allow for use of the State ESInet II and NG911 technologies. The Technology and Operations Task Force studied multiple system architectures that could meet future requirements of the E-911 regional system. Two architectures – the Distributed Architecture and the Single Platform architecture were presented to the Planning Group and the Leadership Group with the Leadership Group voting to move forward with the Platform system.
7. The coming deployment of the State's ESInet II and a new system architecture will mean the nature and level of work necessary to maintain the system will be different from today, including changes in network contracts, vendor contracts, and personnel needed to maintain the system.
8. There are a number of financial practices and policies that have been or will be implemented during the strategic planning time horizon. These practices and policies will demonstrate financial accountability, and will allow for better coordination between the E-911 Program Office and the PSAPs.

SUMMARY OF RECOMMENDATIONS

There are two critical areas that must be addressed by the E-911 Program Office and Governing Board in the year ahead.

First, the E-911 Program Office and PSAPs must operate the E-911 system in a more cost-effective manner.

The operational and provider complexity and coming technology changes of the system present both a challenge and opportunity for delivering cost-effective services. The E-911 system spends roughly 57% of its expenditures on operations and maintenance service delivered by vendors, the E-911 Program Office, and PSAPs. Finding a set of cost-effective solutions must balance the impacts between the Program Office and PSAPs, acknowledging that changes to service delivery and levels of service will be difficult to absorb by both parties while maintaining the operability of the system. There are some near term expenditure reductions that can provide some fiscal relief before future budget deficits occur. This will also allow time for the development and implementation of a workable revenue strategy to fund the system in the longer term.

The recommendations specify work to be done in the following four key areas:

- Capture any potential savings to network, security, and vendor contracts presented by the deployment of ESInet II and a new system architecture.
- Develop the most operationally efficient staffing levels for excise tax funded FTEs at both the E-911 Program Office and PSAPs to deliver and maintain the technology side of the system.
- Define E-911 service responsibilities and funding of PSAPs to consistently specify: 1) which E-911 services the PSAPs will deliver; 2) what levels of service are suitable for the system; and, 3) what level of revenue support is commensurate with those responsibilities.
- Continue to improve financial policies, processes and transparency.

Second, revenue reforms are needed since the excise tax has not kept pace with inflation or needed expenses in the E-911 system.

The regional E-911 system faces a structural issue related to the adequacy of funding. Demonstrating that the most cost-efficient and accountable spending is in place is important to make the case that new revenues are needed. Revenue has not increased since the excise tax increase in 2011. The tax base and tax policy that supports program revenues have not kept pace with inflation, much less the cost of labor and technology resulting in the real decline in purchasing power of the excise tax (for a given dollar, the excise tax buys less today than it did in the past).

This plan's recommendations for expenditure reductions will help prove that issue out. Work needs to begin immediately to deliver options to the King County Council to find a more adequate, resilient tax base to support the nature of this public safety system. The purchasing power of the tax revenue is declining in real terms (inflation adjusted).

The recommendations include work in the following key areas:

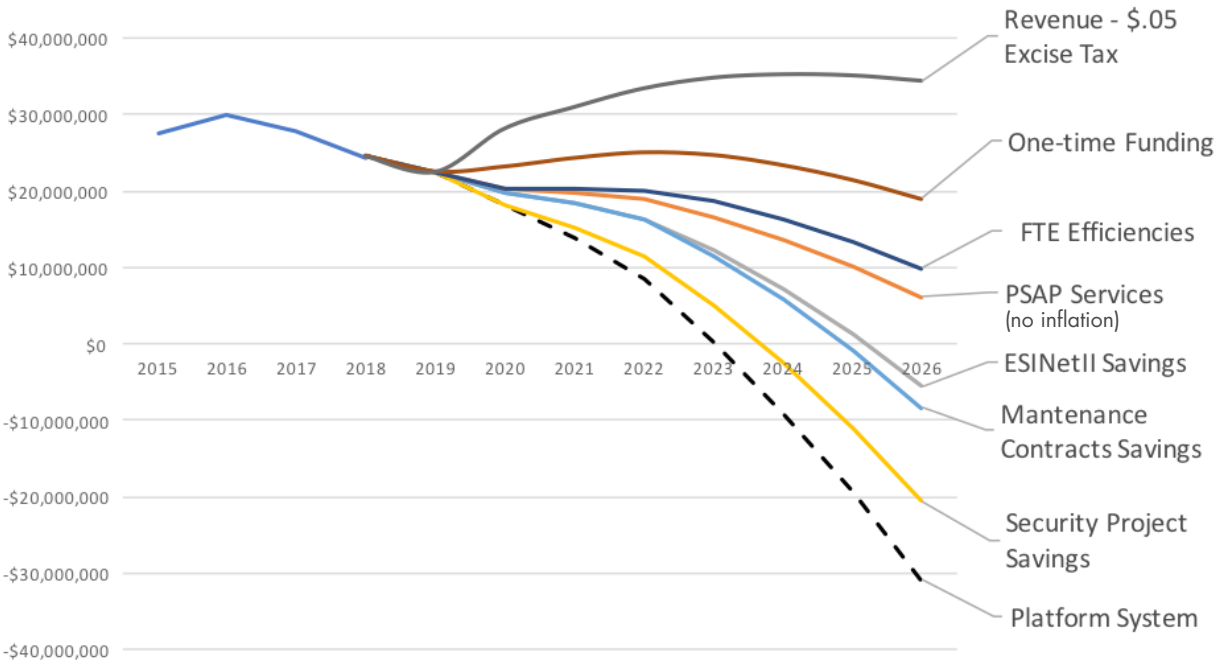
- Find options for funding one-time technology upgrades to the system.
- Find reforms to the existing excise tax that are more adequate and resilient for the needs of the E-911 system and have the ability to grow commensurate with normal inflation and system demand.

RECOMMENDATIONS

The authorizing Ordinance called for a 10-year sustainable financial plan. A detailed analysis of the E-911 Program Office's financial position revealed that the fund will have a positive balance until 2023, including all current expenditures and implementation of the proposed technology platform. A series of actions can improve the long term financial sustainability of the E-911 regional system beyond 2023.

The following exhibit is a graphic summary of recommendations to pursue both cost saving and revenue reforms. The chart shows illustrative impacts of "best-case" implementation of the recommendations discussed in the report and the resulting impact on the E-911 Program Office's beginning fund balance. The lines show the incremental effect of each action in addition to the one below it (in other words, all actions would need to be taken to achieve the top line beginning fund balance of "Revenue - $0.05 Excise Tax).

Some of the actions are dependent on information and decisions that cannot be accurately quantified at this time. For example, savings that may result from the implementation of the State's ESInet II are not known since the State is in the planning stages for this project. Therefore, the recommended implementation of a



SUMMARY OF BEGINNING FUND BALANCE IMPACTS OF POTENTIAL OPERATIONAL AND REVENUE REFORMS (2017-2026)

sustainable financial plan will rely on the outcomes of major milestones that will occur over the next two to five years as both network and technology deployment occurs. As each milestone is reached, the outcome should be reflected in the financial model created by the Task Force and the resulting positive or negative impact recorded. Those outcomes will inform next steps.

For example, if the E-911 regional system is not able to gain approval of excise tax reform, local options will be needed. If the revenue is secured at some reduced level, that outcome will need to be reflected in the financial model and appropriate steps will be taken to compensate.

The ten-year financial forecast cannot be responsibly "balanced" now because the long-term impacts on the E-911 regional system will change as the unknown variables around technology upgrades become clear. As a practical matter, local government budgets are balanced on an annual or biennial basis. Financial forecasts are used to inform near term decisions that have longer term implications.

While the actions identified here can produce a positive fund balance at the end of ten years, a collaborative process involving all stakeholders is needed to make thoughtful and informed financial decisions.

This plan recommends focusing in the following areas. As noted earlier, there is a projected cumulative budget deficit of $70 million over the period of 2017-2026. The exhibit below shows the potential magnitude

2017-2026 Forecasted Deficit		$70,260,000	$70,260,000
Potential Areas of Savings		Low End	High End
Contract - ESINetII	$40,350,000	$0	$10,340,000
Contract - Vendor Maintenance	$22,560,000	$0	$2,880,000
Contract - Security	$13,100,000	$0	$12,170,000
Operations and Maintenance FTE	$56,370,000	$3,740,000	n/a
Other PSAP E911 Services	$118,440,000	$0	$11,670,000
Remaining Forecasted Deficit	$187,900,000	$66,520,000	$33,200,000

Potential Areas of Revenues	Low End	High End
One-time Funding Options	$0	$7,340,000
New Revenue Solution	$66,520,000	$25,860,000
Remaining Forecasted Deficit	$0	$0

SUMMARY SPENDING AND POTENTIAL OPERATIONAL AND REVENUE REFORMS (2017-2026)

RECOMMENDATION: *Capture potential savings to network, security, and vendor contracts presented by the deployment of ESInet II and a new system architecture.*

Network and equipment costs represent a significant amount of annual operating expenditures for the E-911 Program Office. Planning and analysis of system requirements for the upgrade in the next 2 years must set targets for addressing possible cost savings including the potential for cost savings following the full deployment of ESInet II.

- The E-911 Program Office must scrutinize the planned annual expenditure of approximately $1.4 million which is most likely related to State trunking fees currently paid by the E-911 Program Office. It is unknown at this time whether or not the state will require local jurisdictions to continue payment once ESInet II has been deployed or whether it will become the responsibility of the State. The State caps its subsidy of these payments to King County and the E-911 Program Office is working to evaluate any potential savings given these issues. Currently, the state is scheduled to deploy ESInet II statewide between April 2018 – February 2019 with the King County cutover implemented between July – December 2018.
    - » The low-end savings from this measure could be $0 over 10 years.
    - » The best savings from this measure could be $10.3 million over 10 years.
- Evaluate potential cost savings from new maintenance contracts associated with the deployment of a new system architecture. The E-911 Program Office currently spends about $1.18M a year for hardware and software maintenance costs. In the short-term, they will have to stand up both systems but in the long run, there may be some cost savings.
    - » The low-end savings from this measure could be $0 over 10 years.
    - » The best savings from this measure could be $2.8 million over 10 years.
- Evaluate the potential for cost savings from potentially redundant security improvements. The E-911 Program Office is working on a plan to evaluate the security needs of a new system architecture.
    - » The low-end savings from this measure could be $0 over 10 years.
    - » The best savings from this measure could be $12.1 million over 10 years.

RECOMMENDATION: ***Create a cost-efficient and operationally sound staffing model for deploying and maintaining E-911 equipment and software.***

Deployment and maintenance of the new platform system could require 3-5 additional FTEs on an operational basis. There are currently eleven FTEs and two dedicated Project Managers from the KCIT Program Management Office — three of whom provide technical services from the E-911 Program Office for the regional system, two that provide technical solutions for location and address mapping (GIS/MSAG). There are an additional 23 excise tax-supported FTEs in the PSAPs, for a total of 36 FTEs across the system. If some of the FTEs that are now in the PSAPs could be redeployed to help with the new system architecture and thus maintain the current FTE load, it could save approximately $3.7 million over the 10 years (this would be the cost of 3-5 fewer FTEs in the system). The E-911 Program Office and KCIT will assess the skill sets of PSAP technical staff and provide supplementary training as needed.

- The low-end savings from this measure could be $3.7 million over 10 years.
- The best savings from this measure could be higher over 10 years if more a more efficient staffing model can be achieved with the platform architecture.

RECOMMENDATION: ***Define E-911 service responsibilities and funding of PSAPs to consistently specify: 1) which E-911 services they will deliver; 2) what levels of service are suitable for the system; and, 3) what level of revenue support is commensurate with those responsibilities.***

The E-911 Program Office and PSAPs must work immediately on finding an affordable, fair, and appropriate level of PSAP funding that accounts for the delivery of E-911 services but also places the E-911 Program Office on the path toward fiscal sustainability. Changes can be made and phased as needed, minimizing the level of disruption in the system. If PSAP-delivered E-911 expenditures remain at roughly 44% of E-911 Program Office expenditures, they will consume a greater and greater share of overall excise tax revenue, rising from 48% in 2015 to a forecasted level of 67% by 2026 due to stagnant revenue performance.

As such, this level of service delivery is unsustainable. Services provided by PSAPs should specify: 1) which E-911 services they will deliver; 2) what levels of service are suitable for the system; and, 3) what level of revenue support is commensurate with those responsibilities. The Task Force has not arrived at an answer to those questions since they must be addressed by both E-911 Program Office and PSAP leadership and operations staff. A reduction in the current level of PSAP funding would represent some fiscal challenges for PSAPs given their reliance on membership fees to support their services. Any reduction in PSAP distributions from the E-911 Program Office will need to be based on an agreed-upon formula.

- For illustrative purposes, addressing these issues by keeping expenditures at current nominal levels would produce some costs-savings of approximately $11.6 million over 10 years.

RECOMMENDATION: ***Find reforms to the existing excise tax that are more adequate and resilient for the needs of the E-911 system.***

Working with statewide partners to reform the E-911 tax base and/or tax policy could put in place a revenue mechanism that better matches the costs of the program services. All options should be explored as part of this process, including changing the levy amounts of the current excise tax, levying a consumption tax on telecommunications, a ballot measure to allow use of the public safety sales tax, or other property tax based mechanisms.

- For illustrative purposes, creating capacity for another $0.05 in excise taxing authority would raise $15.3 million over 10 years – raising it $0.15 in excise taxing authority would raise $46 million over 10 years.

RECOMMENDATION: ***Continue to create a set of defined financial policies and procedures.***

Creating a set of defined financial policies and procedures that would lead to better budgeting, accounting, and accountability is essential. During the Strategic Planning process the E-911 Program Office has worked with PSAPs through the IAG to address many of these issues and these efforts have been appreciated on all accounts. Completed measures are noted below to provide a comprehensive record of changes within the E-911 Program Office.

It should be noted that IAG policies and this plan's recommendations set forth a work program in these areas without expressly setting elements such as caps on reimbursements or requirements for PSAP financial planning of escrow fund balances. Each recommendation represents an action that could be taken with concurrence of the PSAPs and the E-911 Program Office on specific amounts and how they will be proportionally distributed considering the support for the efficient use of public resources and the effective deployment of evolving technology across the system. The collaborative and productive work on this plan should continue, including:

- **Creating a set of comprehensive E-911 Financial Management policies.** These policies should be tailored to fit the uniqueness of the E-911 Program Office's operations. As a starting point, they can be adapted from the King County Comprehensive Financial Management Policies and tailored to fit the E-911 Program Office's needs.
- **Creating separate operating and capital budgets**. The E-911 Program Office has improved financial transparency by creating a capital budget to separate operating and capital costs in order to better plan for ongoing costs. This recommendation has been implemented in King County Code and completed by the E-911 Program Office.
- **Including project management staff as part of capital projects.** Project management and subject matter labor costs should continue to be included in the cost of projects in the capital budget. These positions will likely be time-limited expenses.
- **Creating reserve accounts to fully fund future equipment replacement and capital investments.** The capital budget should be fully funded through the use of reserve or sinking funds.
- **Creating better oversight of the implementation of capital projects.** The E-911 Program Office has taken steps to improve financial transparency by collaborating with the KCIT Program Management Office which provide Project Management, Finance, and Business Analysis personnel planning and oversight for project implementation and costs.
- **Revising PSAP Escrow Policies to ensure a clear understanding between the E-911 Program Office and the PSAPs regarding eligible expenses.** The E-911 Program Office is collaborating with the IAG to revise escrow policies so that reimbursement eligibility is clear; the review and payment process is streamlined and efficient; policies are comprehensive and provide clear guidance on expectations; and requirements are clear for both the E-911 Program Office and PSAPs. The E-911 Program Office and the IAG are continuing this work and will develop a work plan for implementation during by the of 2017. Reimbursements are typically made within 30-60 days and going forward in 2018, escrow reimbursements will be made quarterly
- **Working with PSAPs through the IAG to develop a comprehensive escrow program and policies that govern reimbursements and increase accountability.** Additional work is needed to develop PSAP-level expense programs that result in more predictable spending so that expenses can be prioritized and demonstrate accountability towards supporting the E-911 regional system. The IAG is currently working on specific policies for:
    - » **Maximum salary reimbursement levels for FTEs.** Cap the amount of salary and benefits eligible for reimbursement for supported positions at the PSAPs based upon the body of work required to support the regional system. There is a wide variation of program reimbursable FTE costs.
    - » **Escrow fund balances.** Some escrow funds have carried large fund balances. Creating policies for the amount and nature of the fund balances will help PSAPs in their own financial planning. The IAG is currently discussing this issue.
    - » **Combining the equipment and general revenue distinction into one category.** The deployment of ESInet II and platform architecture may change the equipment needs of PSAPs that should be reflected in the escrow policy. The move to more cloud-based systems and software may mean that less hardware is needed at PSAPs.
    - » **Working with PSAPs to determine an agreed-upon basis for allocating tax revenue.** The E-911 Program Office has accepted the recommendation of the IAG to use a 2-year average of PSAP 911 call volume as the measure for escrow fund distribution. The E-911 Program Office intends to implement this change in 2020.

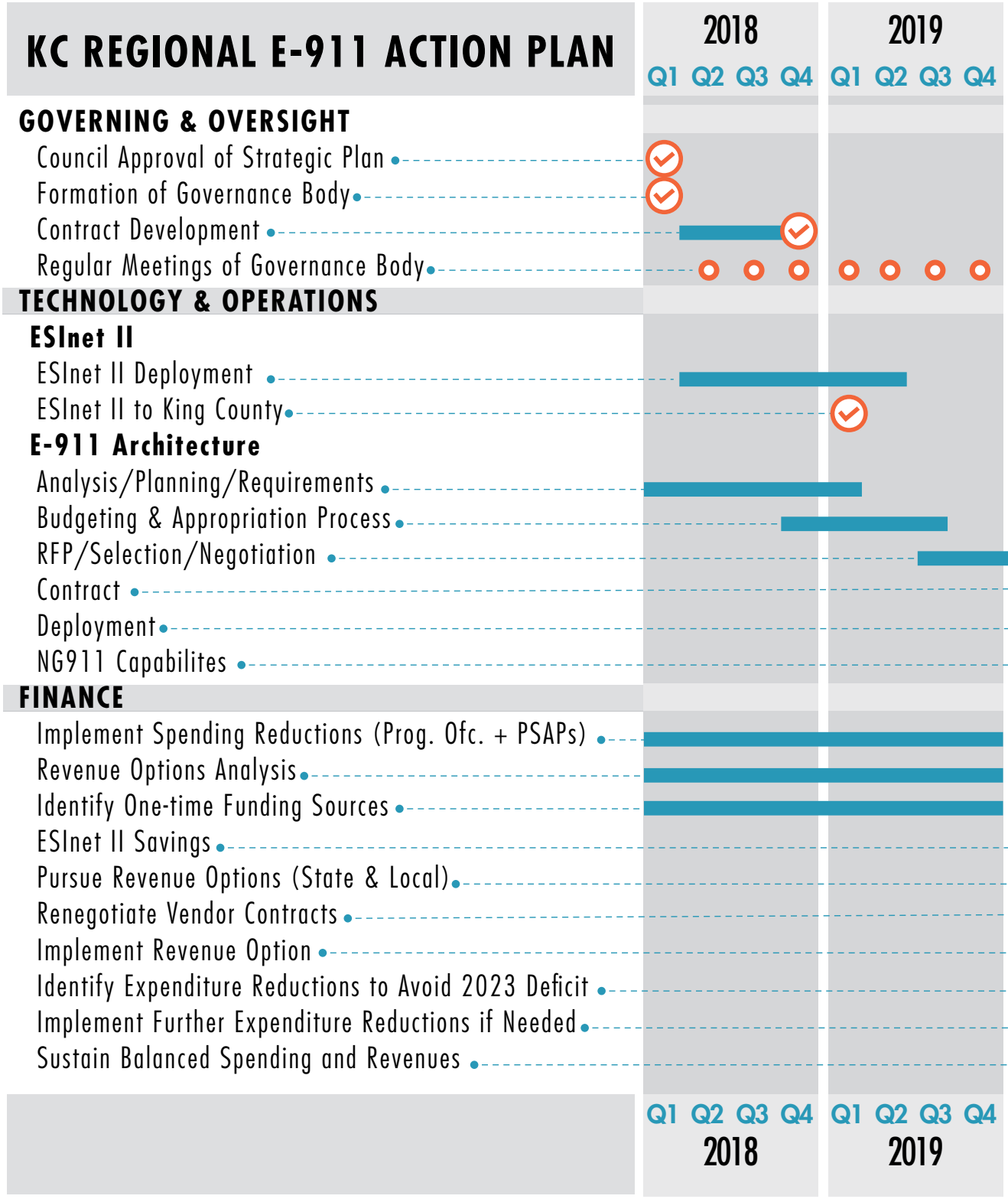
- **Engaging the state in tax revenue audits.** The E-911 Program Office should work with the State Department of Revenue to audit the compliance rate of phone line reporting.
- **Creating comprehensive and transparent annual financial reporting documentation and performance metrics.** These metrics can be folded into a high-level dashboard presentation of key financial indicators for decision-makers.

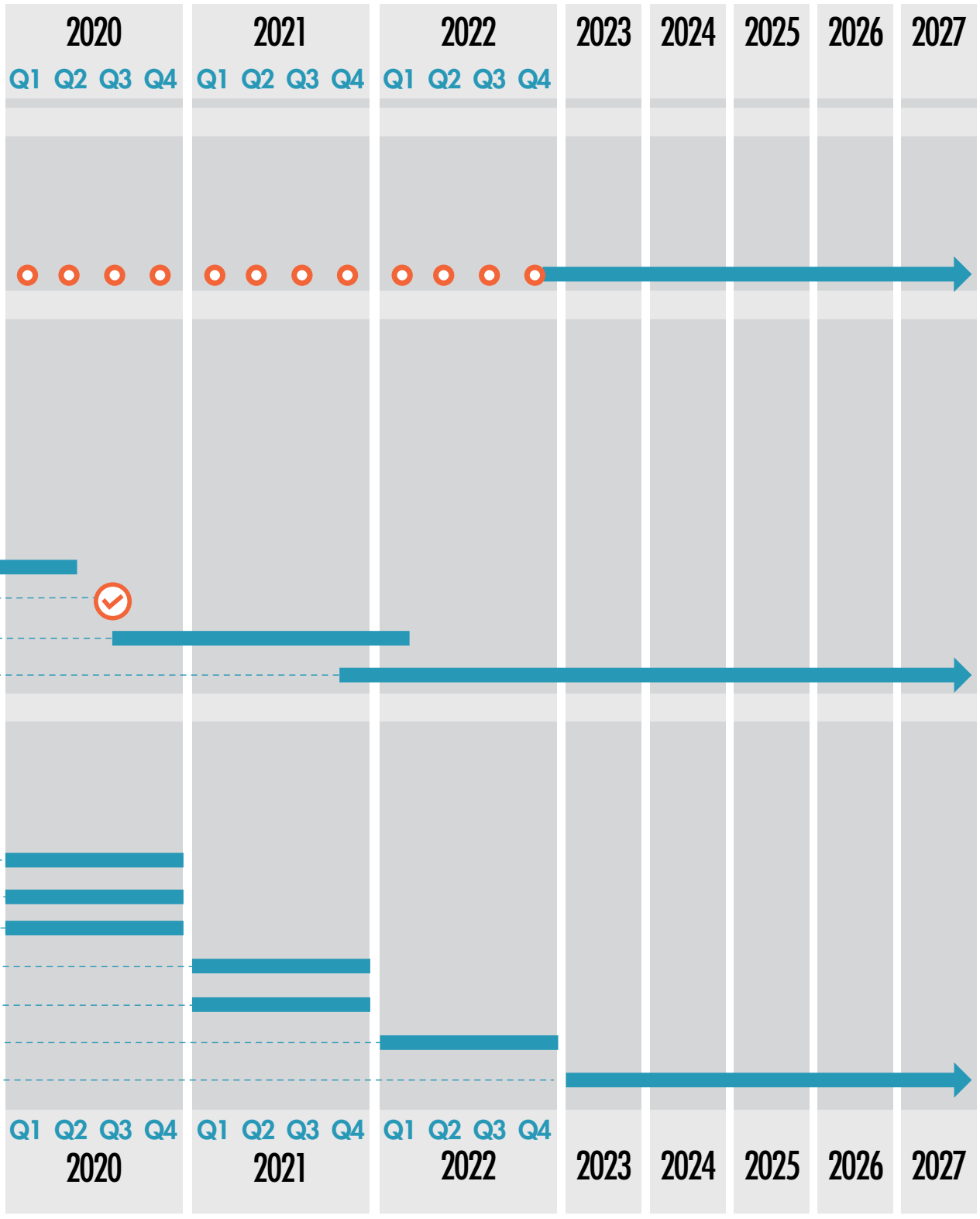
FINANCE IMPLEMENTATION

The following is a projected timeline for financial actions.	
2018-2019	Continue to work with the Interim Advisory Group and the new Governing Board (e.g. E-911 Program Office staff and PSAP representatives) to collaboratively develop a 2019-2020 budget proposal that includes recommended expenditure reductions.
	Implement spending reductions at E-911 Office and PSAPs
	Complete revenue options analysis and present to King County Council
	Identify sufficient one-time sources to fund implementation of the system architecture update
2020	Identify and implement savings associated with deployment of ESInet -II
	Pursue revenue options with State Legislature and/or local measures
	Implement new escrow distribution formula
	Renegotiate vendor contracts for network access
2021	Implement revenue option, if approved
	Identify amount of further expenditure reductions needed to prevent a deficit position in 2023
2022	Implement expenditure reductions if needed

STRATEGIC PLAN IMPLEMENTATION TIMELINE

A high-level implementation timeline reflecting Governance, Technology & Operations, and Finance actions is shown in the illustration below.

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King County

REGIONAL E-911 STRATEGIC PLAN

WEBLINK FOR PROJECT WEBSITE

http://www.kingcounty.gov/depts/it/e-911-program/strategic-plan.aspx