DATE: September 9, 2014

TO: Metropolitan King County Councilmembers

FROM: Kymber Waltmunson, King County Auditor

SUBJECT: Management Letter on the County Executive's Report Regarding Acquisition and Governance of the Puget Sound Emergency Radio Network

Replacing King County's emergency radio network is an expensive and high-risk endeavor that could benefit from clearer and more comprehensive analysis and a greater focus on project management practices.

King County is preparing to replace its emergency management radio system. The current system is more than 20 years old and is owned and operated by four partners: King County, the City of Seattle, the Eastside Public Safety Communications Agency (EPSCA), and the Valley Communications Agency (ValleyCom). The system supports over 16,000 users across more than 100 agencies.[1] The vendor of the current system has stated that it will stop supporting the system by the end of 2018; therefore, King County and its partners are in the process of determining how to replace the current system. The Puget Sound Emergency Radio Network (PSERN) project team operates in the Department of Information Technology (KCIT). The project team estimates the system replacement cost to total $265 million. The project team currently intends to fund the new system through a nine-year levy lid lift posed to voters on the April 2015 ballot.

The County Council included this audit in our 2014 work program based on concerns and questions raised by councilmembers during the 2013 budget deliberations. The County Council also placed a budget proviso on the project requesting a report from the County Executive describing funding and governance options. The County Executive submitted his report to the County Council on July 30. This management letter focuses on our evaluation of the proviso response and overall observations about the project to date. This work was done in accordance with Government Auditing Standards. See Appendix A for more information about our scope and methodology.

[1]About 80 percent of these users are public safety agencies (e.g., police, fire, emergency medical) and about the remaining 20 percent are non-public safety entities (e.g., schools, utilities, general government, etc.).

Summary: The radio replacement project is an expensive, complex, and high-risk effort that will require significant coordination among project partners and would benefit from additional clarity and comprehensiveness in its identification and analysis of options.

In general, while the County Executive's response addressed the issues required in the County Council's proviso, it omitted several viable options to finance the radio replacement project that could ultimately prove effective. In addition, the response presented several governance options, but these options were not clearly evaluated using consistent criteria resulting in lack of consensus among partners around governance. Lastly, while this is a large and complex project requiring a great deal of communication and coordination among the four partners, we found instances in the project management approach and documentation in which the risk mitigation and communication strategies were not consistent with the overall magnitude of the radio replacement project thus increasing overall project risk.

Several Viable Funding Options Were Not Included in the County Executive's Response

The County Executive has identified a levy lid lift as the preferred financing option.[2] However, based on our evaluation, there are several additional alternatives either omitted from the analysis or not fully evaluated, thereby reducing the depth of information provided to decision-makers about whether to put a funding measure on the April 2015 ballot. In addition, the County Executive's response may have overstated the $265 million total cost of the project. After making several needed adjustments, the estimated cost of the project to be financed would be more in the range of $220 million.[3] The only actual cost assumption we changed in making these adjustments was the assumed $1.9 million for the arts, which we understand would not apply to a project of this kind and therefore omitted.

One of the options not included in the County Executive's response was to cover the initial cost of radios with user fees instead of paying for that equipment through a levy. This option was not given full consideration based on the project team's assertion that it is not feasible to have users pay for their initial radios. The radios are estimated to cost about $50 million, which if paid by user fees would reduce the estimated cost of the levy-supported project to $170 million. Based on our analysis, this option would result in total monthly user fees starting at about $50 per month once the project is fully implemented. This is not significantly more than the current rates paid by most users. Reducing the amount of the levy could also increase the likelihood of passage by voters.[4] In addition, this option could help address concerns raised by some of the

[2]State law limits the annual increase in the amount of a taxing district's levy to one percent. RCW 84.55.050 authorizes the county to ask voters to "lift" this statutory lid on the amount of property taxes a county may levy and collect. This ballot measure requires a simple majority of voters and the ballot measure may limit the use of the tax revenues and set the number of years for the "lid lift."

[3]Adjustments include removing contingencies from fixed costs and portraying project costs to be financed instead of adding finance costs.

[4] Based on our analysis, the levy amount would go from $23.56 per year for the average King County household to $18.25 per year over the nine-year life of the levy.

junior taxing districts in King County who are concerned about possible suppression issues with the County Executive's proposed levy lid lift.[5]

One of the reasons the County Executive's response identified a levy lid lift as the preferred alternative was the potential for voter confusion of putting two levies on the ballot–a nine-year levy lid lift to cover equipment costs and a longer (e.g., twenty-year) excess levy to cover remaining project costs. Some advantages of using both levies are that the taxes would be spread more equitably among the taxpayers that would benefit by the project, and by not compressing all of the bond debt payments over the nine years required for a levy lid lift, the initial tax impact would be lower. While there are several important pros and cons related to the two-levy option, which the County Executive's response points out, the concern related to voter confusion could be mitigated by combining both levies in a single ballot measure. Our research indicates that a single ballot measure would be feasible.

Another financing related issue not addressed in the County Executive's response is the significant cost associated with replacing radios.[6] The project team has indicated that they expect the individual entities using the system to pay this cost as radios reach the end of their useful life (estimated to be about 8 to 10 years). This strategy is in contrast with the project team's assertion that it is not feasible to have users pay for their initial radios. Instead of relying on users to budget and save for replacement radios, explicitly acknowledging this replacement cost and developing a plan to pay for them would provide a clearer and more reliable means to address these future costs.[7]

Recommendation 1	The Puget Sound Emergency Radio Network team should consider the full range of financing options, such as users paying for radios, prior to transmitting its financing proposal to the County Executive.
Recommendation 2	The Puget Sound Emergency Radio Network team should report costs using conventional methods including reporting known future costs, such as mid-cycle radio replacement, in future analyses.

Governance Options Were Not Consistently Evaluated or Clearly Communicated

The County Executive's proviso response identified a nonprofit as the preferred governance organization for the new emergency management radio system; however, the analysis presented to support this recommendation is not comprehensive or objective. Disagreements over the analysis among steering committee members could lead to potential delays to the project and impact project cost as a new governance system must pass 13 legislative bodies before a measure is placed on the ballot. Presenting objective analysis of the potential options would allow

[5]Levy suppression occurs when the local taxing district rates in any given area in the county exceed the limit of $5.90 per $1,000 of assessed value. This impacts more junior taxing districts, such as fire districts, because their levies are reduced, thus less revenue is collected until total levy rates are under the limit.
[6]These are the costs to replace radio units as they wear out or are no longer operable.
[7]These replacement costs could be paid for using bonds guaranteed by user fees or including a replacement cost in current fees.

stakeholders to make informed decisions about which option would best serve the new system and may help prevent potential delays to the project caused by a lack of stakeholder buy-in to the chosen governance option.

Currently, a joint board known as the Regional Communications Board operates the radio system. The project team believes there would be advantages to a new governance system and the PSERN steering committee members are therefore considering a new governance model for the radio system once it becomes operational.[8] The County Council requested analysis of the potential governance options as part of a budget proviso, which the project team provided at the beginning of August 2014.

Among the four potential governance options discussed in the proviso response, the nonprofit option received a disproportionate amount of consideration within the proviso compared to the other three options (see Figure 1).

Figure 1: Proviso response did not present governance options consistently and objectively.

● Considered: analysis of the governance option included this criterion
○ Not considered: analysis did not include this criterion

Criteria against which team assessed governance options	LLC	Nonprofit Corporation	Joint Board	Partnership
Description of option	●	●	●	●
Relevant RCW	●	●	●	●
Creates a separate legal entity	●	●	●	○
Power of entity to contract	●	●	●	○
Power of entity to hire and fire	●	●	●	●
Whether entity can own property	●	●	●	○
Ability of entity to sue/be sued	●	●	○	●
Liability issues	●	●	●	●
Other jurisdiction examples	○	●	○	○
Procedures for binding agreements	○	●	○	●
Conduct system operations	○	●	○	●
Operational effectiveness	○	●	○	○
Operational efficiency	○	●	○	○
Contract structure with vendor	○	●	●	○
Requirements to maintain status	○	●	○	○

Source: King County Auditor's Office analysis of proviso response document
The Interlocal Agreement Act (RCW 39.34) provides four potential options for creating an interlocal agreement for joint or cooperative action among governments: Limited Liability Company (LLC), Nonprofit Corporation, Joint Board, and Partnership. LLCs and nonprofits are separate legal entities. Nonprofit corporations are directed by a Board of Directors that may administer or hire someone to administer the organization. LLC participants are members who typically adopt agreements defining how the company will be run. A joint board is not a separate legal entity, and ownership of assets would be held either by all members in common or by one designated lead agency. Partnerships are formed by designating general partners who run the partnership and may include limited partners who benefit from, but do not run the partnership.

[8]The PSERN Steering Committee consists of four parties representing the entities that will participate in the new system as well as project team members and representatives from relevant county agencies.

Although the steering committee has made progress towards internal agreement, steering committee members expressed that the project team has not provided sufficient information or analysis for them to communicate a recommendation to their respective elected officials. The analysis of governance options included in the proviso response and in other material provided to the steering committee members has consisted largely of pros and cons associated with each option. The project team determined these pros and cons without presenting the information on which they were based, making their conclusions subjective. For example, although the nonprofit option is called the most efficient and effective, there is no comparative data to show if and by how much the costs and benefits differ between the options.

Steering committee members have disagreed about the content of these pros and cons, and their respective elected officials have asked for specific information about the advantages and disadvantages of the options. Inconsistent and unbalanced communication could hinder the ability of the project team to gain acceptance of a proposed governance model from its many stakeholders. Lacking support from stakeholders could impact the funding measure, which the project team has stated could increase the cost of the system as the contract terms would likely expire without a funding mechanism in place. Completing objective analysis of the four available governance options and communicating this information to its partners and relevant decision-makers could help prevent these delays by helping stakeholders make an informed choice on a new governance model.[9]

Recommendation 3 The Puget Sound Emergency Radio Network project team should ensure agreement by the steering committee upon a set of criteria to evaluate governance options. The project team should consistently evaluate the potential options according to those criteria and communicate the results to its partners and other decision-makers.

PSERN Project Management Approach Does Not Reflect Magnitude and Risk of the Project

The total cost of the radio replacement project is more than $200 million. However, the PSERN project team is treating it as a $3 to $4 million project for risk management purposes, which represents the estimated cost of completing the project planning phase. This is the only phase which is certain to be completed, since completing the entire project requires voter approval. Therefore, since the county's certain financial exposure is limited, PSERN assigned the project to its lowest level of risk based oversight. This means the project has not been subject to external quality assurance, milestone based funding releases, and other procedures used by KCIT to help identify and manage risks for large information technology projects. Viewing the project as only a $3 to $4 million effort for risk planning purposes may be short-sighted, since major decisions

[9]City Councilmember Sally Clark raised one potential means of analyzing options and presenting this analysis during a July meeting of the Regional Policy Committee. Councilmember Clark cited the analysis done of governance options for the Business and Occupation (B&O) Tax portal project. In that analysis, a set of criteria were identified and each option was evaluated against that set of criteria. This example also revealed there are additional potential criteria which the project team had not considered in its proviso response or project documents.

are being made during the planning phase affecting the risk profile of the entire project, should it be implemented. For example, selecting the technology used to replace the current radio network and planning for replacing or adding multiple radio towers countywide to house communications equipment may present significant risk and would benefit from additional oversight.

The PSERN project is also an atypical effort for KCIT, involving at least $60 million in capital costs not normally completed by the department, such as construction and real estate acquisition work. It is also risky based on the comparatively high score generated when the project is evaluated using the county's Capital Projects Assessment Questionnaire.[10] The radio project score on the questionnaire suggests the radio project could benefit from following the project management guidance developed by the Capital Project Management Work Group (CPMWG) for county departments regularly completing construction and real estate acquisition work. This guidance includes the development of a robust risk register designed to visualize relationships between potential scope, schedule, and budget risks. It also includes other tools, such as earned value reporting, to help identify and mitigate cost or schedule overruns before they occur.

Recommendation 4	The Puget Sound Emergency Radio Network project team should reassess the radio project's risk rating to reflect the project's entire scope, including its capital component. Oversight by the Project Review Board should be implemented as appropriate to the scoring, which may include increased monitoring, phased appropriation, and external quality assurance.
Matter for Council Consideration	King County Council should consider referring the project to formally complete the Capital Projects Assessment Questionnaire which could result in additional oversight.

Key Project Management Deliverables are Outdated and Incomplete, Which May Expose the Project to Additional Risk

Key project management deliverables are incomplete, outdated, and of insufficient quality to ensure project success. Specifically, the risk management and communications plans are not sufficient to address all project risks and communication needs. These key documents play a major role in helping manage the project and its success and if not adequately developed, increases the risk of project failure.

The risk management plan for the radio replacement project is incomplete; is not organized in a manner that visualizes the relationship between risks affecting the scope, schedule, and budget of

[10]By King County Code (KCC), the Capital Projects Assessment Questionnaire is used to formally evaluate the risk of all non-KCIT capital projects costing $10 million or more. As a KCIT project, the radio project is exempted by KCC from this scoring process. Our office, in consultation with Capital Projects Oversight staff indicated it would receive the ninth highest score out of the 67 capital projects scored to date. It would also score higher than 13 of the 19 capital projects selected by the Joint Advisory Group for Mandatory Phased Appropriation. Our analysis was conservative, limiting the project cost to just the $60 million estimated by the PSERN project team for capital improvements.

the project; and does not clearly identify mitigation strategies to reduce or avoid risks. This may be because the project has been managed as a small project. Not having a fully defined risk management plan increases the likelihood that unmitigated risks will occur.

The communications plan is also incomplete and was last updated a year and a half ago, increasing the likelihood that internal and external interests will receive misleading, inconsistent, or no project information. Having a robust communications plan could be critical to the success of the radio project, especially given the wide variety of stakeholders involved in or impacted by the effort, including county and non-county programs and the general public. Projects requiring ballot measures typically have a communications subcommittee dedicated to developing and carrying out extensive communications strategies. The PSERN project team has not made communications planning a priority, which may play a role in internal communications issues; however, the PSERN team did hire a communication specialist in July. The PSERN project team has stated that this individual will be updating and maintaining the communications plan. There are strong examples of communications plans from other large county projects from which this specialist can draw examples, such as the Children and Family Justice Center communications plan as this is a project under the CPMWG with thorough communications strategies.

Recommendation 5 The Puget Sound Emergency Radio Network project team should revise its risk management plan to better visualize potential risks and mitigation strategies, including organization of risks by likelihood of impact, decision-making process, and appropriate stakeholders. For example, incorporating elements from Capital Project Management Work Group risk templates.

Recommendation 6 The Puget Sound Emergency Radio Network project team should immediately expand its communications plan to incorporate internal and external communication strategies and community outreach plans, including communication decision matrices.

Conclusion

The Puget Sound Emergency Radio Network project is an expensive and complex endeavor that requires a great deal of coordination among its users. To proceed, this project will have to enter into interlocal agreements with 12 jurisdictions, receive approval from the King County Council, and get voter approval of a funding measure. More fully identifying, analyzing, and presenting financing and governance options could facilitate this process. In addition, acknowledging the size and complexity of the project in its project management approach, especially in areas such as risk mitigation and communications planning will enhance the likelihood this important project is completed successfully.

Ben Thompson, Deputy County Auditor; Brooke Leary, Senior Principal Management Auditor; Elise Garvey, Management Auditor; Laura Ochoa, Management Auditor; and Tom Wood, Capital Projects Oversight Analyst, conducted this review. Please contact Ben Thompson at 477-1035 or me at 477-1038 if you have any questions about the issues discussed in this letter.

cc: Dow Constantine, King County Executive
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Rhonda Berry, Chief of Operations, King County Executive Office, (KCEO)
Dwight Dively, Director, Office of Performance, Strategy, and Budget
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Executive Response

KING COUNTY AUDITOR
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September 5, 2014

Kymber Waltmunson
King County Auditor
Room 1033
COURTHOUSE

Dear Ms. Waltmunson:

Thank you for the opportunity to provide a response to the Puget Sound Emergency Radio Network ("PSERN") Project Management Letter. I appreciate the role the Auditor's Office plays in promoting transparent, efficient and successful services and programs at the county. The PSERN project is a vitally important project that will replace the current emergency radio network and provide first responder and general government with voice radio services until at least 2040.

The current radio network provides emergency radio service for more than 16,000 public safety first responders, other responders and general government users from more than 100 agencies. The ownership and governance structures for the current network were established by an interlocal agreement (ILA) approved by King County Council Ordinance 10956. The current network has four owners and three subsystems. The owners are King County, City of Seattle, the Eastside Public Safety Communications Agency ("EPSCA"), and the Valley Communications Center ("ValleyCom"). The owners are voting members, along with an At-Large member representing non-owner public safety agencies that comprise the Regional Communications Board ("RCB"). The RCB is a joint board that provides today's network governance.

The network was primarily built to meet two related needs. It is used to dispatch emergency first responders such as police, fire and Emergency Medical Services ("EMS") to incidents or events requiring their services. It is also used by these same responders to coordinate with each other once they arrive at the scene of the incident. Secondarily it is used by agencies for general governmental operations such as roads maintenance, wastewater treatment and for transportation activities.

Although the current network does perform as it was designed, there are significant challenges it faces. It was intended to have a twenty year lifecycle and was built seventeen years ago. Therefore, most of the infrastructure is at or near its designed lifecycle. Network parts are old and are wearing out. At the same time, the system vendor has begun withdrawing support for the network. Support comes in several varieties including sales of new units or parts, software support, technical support and depot repair services. All of these services will expire for the radio network by the end of 2018.

The demographics of the County have changed since the current network was designed in the early 1990's. Population growth has driven eastward beyond the effective coverage of the network and the

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base of users has increased significantly, putting a strain on capacity. Unfortunately, with the withdrawal of vendor support, we are unable to make improvements to address these realities.

It is these factors that led to the development of the PSERN project. King County has been working with the City of Seattle, ESPCA, and ValleyCom since 2012 for the planning and development of the project. Complex issues have been discussed, such as technical parameters, ownership, governance, and funding for the new network. Through these discussions the steering committee group is unanimously in favor of King County leading and implementing the project. Most of the other issues are nearing agreement and two ILAs are being developed to support these discussions.

I agree with many of the recommendations that you have included in your letter in full or in part. Several have been addressed through the planning process and others are planned to be addressed as the process with our partners is completed this fall. A full response to each of your recommendations is provided in the attachment.

Sincerely,

Dow Constantine
King County Executive

Enclosures

cc: Fred Jarrett, Deputy King County Executive
Rhonda Berry, Chief of Operations, King County Executive's Office
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Executive Response (continued)

Executive Response to the PSERN Project Management Letter

Recommendation	Agency Position:	Schedule for Implementation:
Recommendation #1	Concur	Complete

Recommendation 1:
The Puget Sound Emergency Radio Network team should consider the full range of financing options, such as users paying for radios, prior to transmitting its financing proposal to the County Executive.

Comments:
Concur with this recommendation. The Proviso Report evaluated five full funding options and an additional funding option with multiple parts.

The proposed funding measure has not been finalized; however, a single single funding measure, rather than two measures, is anticipated for the reasons discussed below.

One of the options evaluated in the proviso response was having users pay for the full project. Having users paying for a subset of the total costs is a variation of this option. The financial impact of funding a portion of the project is obviously lower than funding the full project. Most of the analysis of that option applies equally to proposals for users funding portions of the project, such as users paying for radios.

The main issue is where would the users get the money to pay for any capital expenses? Lacking a new source of funds, agencies without capital accounts would need to pay for capital equipment out of operational funds. It is preferable that capital projects pay for all the capital expenses when feasible. The PSERN project mandates the replacement of most radios used on the network because the radios in use today will not work on the new network. Because of this mandate, this is viewed as a capital expense.

The draft operational budget submitted to King County Auditor's Office ("KCAO") estimates the prorata cost to users as $31.71 per radio per month. If they are required to reimburse the County for radios, users would pay a new monthly user rate of $59.48 (assuming $50M and approximately16,700 radios) rather than the "about $50 per month" stated in the letter based on the draft operational budget and the highest rated vendor proposal. This figure is based on the assumption that the new network has the same number of users as the current network. For the reasons discussed below, the new network is likely to have fewer users under this option.

Today's network has two categories of users: police, fire, emergency medical responders and discretionary users, such as public works, schools, and utility districts. All users pay a monthly use fee that pays for operations of today's network.

Responders view the network as a life-safety issue. For these users the network is a necessity, not a choice. For this reason, increases in the monthly cost should not significantly impact the number of responder radios on the network.

This is not true for discretionary users. For discretionary users, the network is a benefit, but not a necessity. Unlike responders, discretionary users are more sensitive to price increases.

Making users pay for their new radios is likely to result in the loss of discretionary users. This would result in two negative impacts. Because the network would be a high fixed-cost, low variable-cost network, the rates for the remaining users would need to rise to make up for the revenues that would otherwise be paid by the discretionary users who stop service.

Equally important, there is a clear benefit to having as many government agencies on the network as possible. This provides governments a level of business continuity in times of disaster. For instance, if there is a shooting at a high school the administrators at the school will benefit greatly if they are radio network users. Cellular networks are notoriously unreliable in such situations. Staff will not be able to depend on cell phone systems because they will be overloaded with phone calls. Measures that result in government agencies terminating their PSERN use should be disfavored.

The impression that users will not be sharing any burden for the network expense is incorrect. The coverage and other improvements with the new network are likely to increase the annual operating costs. Users' monthly rates will need to increase to cover this operating cost increase even if all of today's users are retained.

The KCAO letter suggests strong consideration of two funding measures in one ballot measure. The decision on whether to propose two funding measures has not been finalized. This option was addressed in the proviso response.

As the KCAO letter notes, "there are several important pros and cons related to the two-levy option." The most important point for consideration is whether it makes it more or less likely that the voters will approve the measure assuming the Council puts a measure on the ballot. The clarity of any ballot measure impacts the likelihood of voter approval. Because of the project's complexity and state law requirements, the description of revenue usage in any ballot measure is likely to be complex. Adding a second funding measure would add to that complexity.

Executive Response (continued)

Recommendation	Agency Position:	Schedule for Implementation:
Recommendation #2	Concur	No later than October 31, 2014

Recommendation 2:
The Puget Sound Emergency Radio Network team should report costs using conventional methods including reporting in all analyses known future costs, such as mid-cycle radio replacement.

Comments:
The project has reported all known/estimated project costs using methods making those costs, and the assumptions underlying those costs, as transparent as possible. As the funding measure recommendation and the project Cost Benefit Analysis are finalized, the project will restate total costs using the conventional methodology.

The letter specifically discusses the midlife costs "associated with replacing radios." The network Request for Proposals estimated that radios would need to be replaced once during the 20-year life of the network. This estimate was the system vendor's estimated lifecycle for end-user radios. However, radio replacement is a business decision. Low risk users will want their radios to be replaced sooner. Other users may decide to defer capital purchases for a myriad of reasons. Given that this replacement decision is at least 15 years away for many users, agencies will have adequate time to accumulate the necessary funding to make these purchases and they are therefore excluded from the project costs.

Executive Response (continued)

Recommendation	Agency Position:	Schedule for Implementation:
Recommendation #3	Partially Concur	2014

Recommendation 3:
The Puget Sound Emergency Radio Network project team should ensure agreement by the Steering Committee upon a set of criteria to evaluate governance options. The project team should consistently evaluate the potential options according to those criteria and communicate the results to its partners and other decision-makers.

Comments:
The proviso called for "A description of potential options for the governance of the new system." The response went beyond this by including a full description of each option being considered together with pros and cons of those options and a summary discussion of each.

The recommended approach may have had merit several weeks and months ago, but recent events at the Steering Committee level have moved the group closer to consensus and members have agreed on a path to reach that final agreement. Because of this, if adopted, the recommendation could actually move us farther away from agreement.

In the summer of 2013, Steering Committee members reached tentative agreement on most of the "deal points" needed for a governance interlocal agreement. At the end of 2013 and beginning of 2014, three of the four Steering Committee members turned over. Although there was a recorded decision record, the project had to essentially start over with the new members and regain concurrence. This effort was significantly underestimated but the group is now making measurable progress.

Executive Response (continued)

Recommendation	Agency Position:	Schedule for Implementation:
Recommendation #4	Partially Concur	N/A

Recommendation #4:

The Puget Sound Emergency Radio Network project team should reassess the radio project's risk rating to reflect the project's entire scope, including its capital component. Oversight by the Project Review Board should be implemented as appropriate to the scoring, which may include increased monitoring, phased appropriation, and external quality assurance.

Matter for Council Consideration:

King County Council should consider referring the project to formally complete the Capital Projects Assessment Questionnaire which could result in additional oversight.

Comments:

The County has two project oversight models: one for IT projects and one for large capital projects. Parts of this project fit into one model, parts into the other. Given the nature of the two models, there is no "right choice". The Council may want to consider how the models could be rationalized for large, hybrid projects such as this one. However, the project did inquire on which methodology would be most appropriate to the project and was informed it should comply with the IT Project Management Methodology within the Department of Information Technology (KCIT).

The letter gives the following as an example of the asserted failure to assess risk: "selecting the technology used to replace the current radio network and planning for replacing or adding multiple radio towers countywide to house communications equipment may present significant risk and would benefit from additional oversight."

The proviso did not request an analysis of the decision on technology. Nonetheless, the project expended considerable efforts related to the choice of technology. Efforts to learn about technology alternatives have included:

- Researching technologies used by other public safety agencies in the United States and abroad;
- Talking with the Chief, Assistant Chief, and staff of the Federal Communications Commission's Public Safety and Homeland Security Bureau;
- Attending engineering courses on the current cell phone industry technology, Long Term Evolution (LTE) in Chicago;
- Participating in the National Institute of Standards and Technology LTE for public safety seminars at its lab in Boulder, Colorado;
- Speaking with high-level cell phone industry engineers, including the chief engineer of T-Mobile;
- Consulting with telephone industry experts, including staff at QUALCOMM, Microsoft phone, and the Vice Chair of the standards body that developed the LTE specifications;
- Hiring a consultant to assist with the technology decision;

- Establishing a technical committee made up of the subsystem managers from the four parts of today's network and other key technology staff;
- Going to presentations by multiple companies that enable disparate radio networks to talk by converting all voice communications to Internet Protocol; and
- Working with a group of communication system managers from King, Pierce, and Snohomish Counties over several months to produce a report laying out and evaluating technology alternatives for the potential new network.

This work was in addition to extensive work done with users to evaluate their communications needs and to determine whether the proposed technology would meet their needs.

This is a complex, multi-phase $200-300 million project and all project documentation should accurately reflect this reality.

The letter also raised concerns about "planning for replacing or adding multiple radio towers countywide to house communications equipment." The risk point here is whether the site is viable to be built upon, not risk to construction completion once ground is broken. The project has been aware that the radio tower work is the highest project risk since the County launched planning efforts. Therefore, the project has taken steps to address this risk. To help mitigate the level of risk, the Request for Proposals asked not just for a list of sites but also detailed information on site viability based on specific activities such as site walks and discussions with the owner and/or leasing agent. The staff rating the vendor proposals used this site information as part of their proposal scoring. The information from this review is also being used in contract discussions with the highest rated proposer.

Additionally, the project is currently seeking a registered professional civil engineer to help us with site evaluations and designs. This consultant will further help with determining site viability by investigating items such as, environmental suitability, tower loads and load capacities, and permitting.

The vendor will need to post a performance bond to help insure work is completed; the County will make progress payments only as work is adequately completed; and the County will retain a significant percentage of payments until full and adequate completion of the vendor's work. Also, the companies that submitted proposals were required to submit a list of similar projects over the last three years. Staff checked with the government staff from several of these projects for each proposer and staff from all of the co-owners visited two of the recent projects from each proposer to inquire about questions such as the vendor's timeliness, quality of work, and network performance. Staff has also worked with Risk Management, Prosecuting Attorney, and Procurement Office staff on both mitigation of project risks and protection of the county's interests and assets.

Executive Response (continued)

Recommendation	Agency Position:	Schedule for Implementation:
Recommendation #5	Do not concur	N/A

Recommendation 5:
The Puget Sound Emergency Radio Network project team should revise its risk management plan to better visualize potential risks and mitigation strategies, including organization of risks by likelihood of impact, decision-making process, and appropriate stakeholders. For example, incorporating elements from Capital Project Management Work Group risk templates.

Comments:
The project has produced a 35-page risk management plan. The plan was last revised on June 11, 2014.

The plan is divided into four main categories of risks: technology, scope and deliverables; schedule; resources; and costs. Each of these categories is defined. Next, the plan defines five Probability/Likelihood Definition levels: What is the likelihood the risk will happen? It goes on to define specific impact levels for each risk. The plan then contains further analysis and mitigation for each risk.

The following is an excerpt from the project risk management plan:

Risk Category: Scope and Deliverables		
Risk Title: Design and RFP assumptions were wrong.		***Risk ID number: 1***
Owner: PSERN Technical Committee	***Original Date: 2/7/2014***	***Revised Date: 6/11/2014***

Description of Risk:

The assumptions made for the RFP and subsequent system design and implementation were incorrect.

Statement of Cause:

There are many components to the new network. Each has interdependency on many others. There will be additional towers to provide coverage. There will need to be additional and reuse of spectrum to build out to the desired grade of service for the future capacity of the network. The network will also need to survive a natural or manmade disaster.

Consequences if Risk is realized:

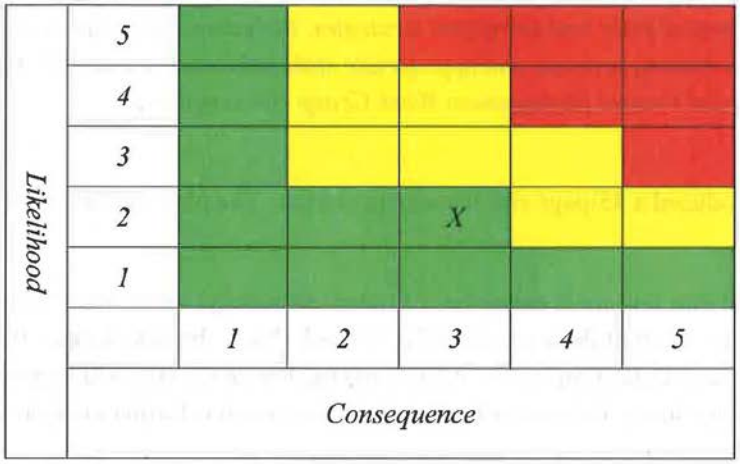
- *The user community and stakeholders may not have complete buy in.*
- *First Responders could be put at risk.*
- *There may have to be additional sites added or other design changes.*

Executive Response (continued)

Mitigation:

1. The Project used staff from its partners, a consulting firm and standards from The National Telecommunications and Information Administration to verify its assumptions.

2. The project has relied upon the hundreds of years of technical experience that exists in the Technical Committee and with Project Team Members as well as reliance several technical consultants' experience. Together these components have developed a comprehensive RFP that has checks and balances within it to validate its assumptions.



The plan contains similar work for each of the 19 risks identified. This is nearly identical to the format of other County risk management plans.

Executive Response (continued)

Recommendation	Agency Position:	Schedule for Implementation:
Recommendation #6	Concur	No later than September 30, 2014

Recommendation 6:
The Puget Sound Emergency Radio Network project team should immediately expand its communication plan to incorporate internal and external communication strategies and community outreach plans, including communication decision matrices.

Comments:
Concur with this recommendation. The letter goes on to state that "the PSERN team did hire a communication specialist in July. The PSERN project team has stated that this individual will be updating and maintaining the communications plan."

In addition, the project has met with or made outreach presentations to the following within the last 12 months:

- An informal project steering committee with representatives of each of the four co-owners: recurring meeting;
- Issaquah's Mayor and City Manager;
- Redmond Mayor's Staff;
- Tukwila's Mayor;
- Eastside Public Safety Communications Agency Executive Board;
- Valley Communications Center Board of Directors; Operations Board; and Executive Director;
- The Sound Cities Association;
- The King County City Managers' Association;
- Bellevue's Acting City Manager;
- The King County Police Chiefs' Association;
- The King County Sheriff's senior staff;
- The King County Fire Chiefs' Association;
- The Dispatch Center Managers' meeting;
- Northwest Gigapop; and
- Puget Sound Cyber Security Workshop.

Auditor's Comments

The replacement of King County's emergency radio network is a critical and high-risk project. Effective risk management plans identify potential problems that could cause trouble for projects, analyze how likely they are to occur, take action to prevent avoidable risks, and minimize unavoidable risks.

The County Executive did not concur with our recommendation to ensure the quality of the Puget Sound Emergency Radio Network (PSERN) risk management plan. The County Executive stated that the current risk management plan is sufficient for this large, expensive project.

While we reviewed and acknowledged PSERN's current plan in our management letter, we found significant gaps. The project team should enhance the current PSERN risk management plan using tools and templates developed by the county to manage risk on large capital projects, namely, Capital Project Management Work Group guidance specific to rigorous risk management planning. One specific example of a risk that should be more fully developed and planned for is the risk of ballot failure. While the project team identifies this risk in its plan, there is not a contingency plan for dealing with this risk. The plan simply states, "If funding cannot be secured through a voter passed initiative, the current system would need to be maintained for a longer period and methods to do this will need to be developed." Given the importance of this project to King County, its partners, and residents, it is vital that the project team identify and plan for potential risks. Failure to implement our recommendation exacerbates the risks facing this project and enhances the negative impacts these risks pose to project success.

Appendix A

Statement of Compliance, Scope, Objective & Methodology

Statement of Compliance with Government Auditing Standards

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform audits to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Scope of Work on Internal Controls

We assessed internal controls relevant to the audit objectives. This included review of relevant project management methodologies and documentation as well as oversight processes. Additionally, we interviewed Puget Sound Emergency Radio Network (PSERN) project team members, PSERN steering committee members, and the Project Review Board to understand how they were performing project management and oversight functions.

Audit Scope and Objectives

This performance audit evaluated the extent and quality of the analysis of governance and financing options and assessed the project management practices of the PSERN project to determine if the project could benefit from best practices.

Methodology

To address the audit objectives, we reviewed project documents and the County Executive's response to a County Council budget proviso that requested analysis of the financing and governance options for the new system. We assessed the approach on governance options by reviewing which criteria were used to evaluate each option and how the County Executive came to the recommendation of a one-operator system in the proviso response. We also compared the information in the proviso response to documents and communications collected from the PSERN steering committee. To assess financing options, we reviewed the relevant section of the proviso response. To understand options that were not included in the proviso response, we utilized the best available information to build models to calculate levy and rate impacts of these financing options. The PSERN project team reviewed our assumptions for proximity to actual costs and user equipment figures. Lastly, we reviewed the Information Technology's Project Management Methodology to see which processes and documents apply to the PSERN project. We also reviewed the Capital Project Management Work Group's (CPMWG) standards. To better understand which CPMWG standards the PSERN project would follow based on its risk category, we worked with Capital Projects Oversight staff to score the project using the Capital Project Assessment Questionnaire. To identify opportunities for improvement, we compared CPMWG standards for the appropriate checklist based on our score to the PSERN project documentation.

List of Recommendations & Implementation Schedule

Recommendation 1: The Puget Sound Emergency Radio Network team should consider the full range of financing options, such as users paying for radios, prior to transmitting its financing proposal to the County Executive.

> **Implementation Date:** Complete
> **Estimate of Impact:** Considering additional financing options will improve decision-makers' ability to weigh and choose how to finance this large project. The options identified in this report could result in lower levy impacts to voters and junior taxing districts and more equitable distribution of costs among beneficiaries.

Recommendation 2: The Puget Sound Emergency Radio Network team should report costs using conventional methods including reporting known future costs, such as mid-cycle radio replacement, in future analyses.

> **Implementation Date:** No later than October 31, 2014
> **Estimate of Impact:** Reporting costs using more conventional methods will provide a more accurate representation of costs for the full project, which potentially includes millions of dollars in future costs for replacement equipment.

Recommendation 3: The Puget Sound Emergency Radio Network project team should ensure agreement by the Steering Committee upon a set of criteria to evaluate governance options. The project team should consistently evaluate the potential options according to those criteria and communicate the results to its partners and other decision-makers.

> **Implementation Date:** 2014
> **Estimate of Impact:** Objective and consistent analysis of governance options will allow stakeholders to choose the most effective and efficient governance system for the new system, which could be in place for up to twenty years.

Recommendation 4: The Puget Sound Emergency Radio Network project team should reassess the radio project's risk rating to reflect the project's entire scope, including its capital component. Oversight by the Project Review Board should be implemented as appropriate to the scoring, which may include increased monitoring, phased appropriation, and external quality assurance.

> **Implementation Date:** N/A
> **Estimate of Impact:** Appropriate oversight for this project will help improve accountability for project management practices suitable for a project of this size.

List of Recommendations & Implementation Schedule (continued)

Recommendation 5: The Puget Sound Emergency Radio Network project team should revise its risk management plan to better visualize potential risks and mitigation strategies, including organization of risks by likelihood of impact, decision-making process, and appropriate stakeholders. For example, incorporating elements from the Capital Project Management Work Group risk templates.

> **Implementation Date:** N/A
> **Estimate of Impact:** Revising the risk management plan will allow the project team and project oversight to better understand and mitigate risks, thus reducing the potential for project failure.

Recommendation 6: The Puget Sound Emergency Radio Network project team should immediately expand its communications plan to incorporate internal and external communication strategies and community outreach plans, including communication decision matrices.

> **Implementation Date:** No later than September 30, 2014
> **Estimate of Impact:** Updating the communications plan will allow the project team to plan for the extensive communication that will be necessary to successfully complete this project, including passing an interlocal agreement, establishing a financing mechanism, and implementing the new system.