



PLANNING & URBAN DESIGN

September 22, 2017

To: Leadership Group

From: Brian Douglas Scott, Ph.D.

Re: Update on King County 911 Strategic Plan Process and Recommendations

This memorandum provides an update on the King County Strategic Planning process, including the analysis to date, status of recommendations, and schedule to completion. It summarizes the briefing provided to Leadership Group members at their September 11, 2017 informational meeting and responds to the questions posed at that meeting.

Summary of Process and Recommendations

The Strategic Planning process is about 80% complete, and on schedule for completion by the end of 2017. After thousands of hours of work, the three Task Forces have largely completed their work, and have submitted their reports. The Planning Group has made a recommendation about Technology and Operations, a preliminary recommendation about Governance, and is scheduled for final recommendations in October. The Leadership Group will meet on September 29 for a possible decision on Technology and Operations recommendation to the King County Council, as well as a discussion of Governance and Finance. The Leadership Group will also meet on November 9 to make final decisions. An additional Leadership Group meeting is scheduled for December 19 in case decisions are not finalized on November 9.

Leadership Group members are encouraged to discuss these issues with their counterparts on the Planning Group, which is deeply immersed in these complicated issues. These counterparts are:

Leadership Group Members	Planning Group Counterparts
Tom Orr, NORCOM	Lora Ueland, Valley Comm/Large PSAPs
Councilmember Tola Marts; Mayor Denis Law	Marilynne Beard, City of Kirkland/Sound Cities
Councilmember Jennifer Robertson	Chad Barnes, City of Bellevue
Sheriff John Urquhart	Patti Cole-Tindall, King County Sheriff's Office
Council President Bruce Harrell; Councilmember Lorena Gonzalez	Stacey Jehlik, City of Seattle Council Staff
Councilmembers Claudia Balducci, Reagan Dunn, and Kathy Lambert	Lise Kaye, King County Council Staff
Commissioner Tim Osgood	Tim Osgood, Woodinville Fire/Fire Districts
Executive Dow Constantine	Diane Carlson, King County Executive's Office
Director Tom Koney	Kathy Lombardo, King County IT
Brian Maxey	Brian Smith, Seattle Police/Seattle PSAPs
Lieutenant Erik Scairpon	Chris Wilson, Issaquah Police/Small PSAPs

Note: Mayor Liz Reynolds resigned from the Leadership Group in August.

The following is a headline-level summary of emerging findings and recommendations. These are described in detail in the Task Force reports, which are assembled in the accompanying briefing packet.

- **Vision, Mission, Core Services:** The Leadership Group has already approved statements of Vision, Mission, and Core Services for the King County 911 system (note: Councilmember Robertson reserved the right to revisit Core Services later in the process).
- **Principles:** All three Task Forces identified Principles to guide current and future decision-making. The Leadership Group has already approved the Technology & Operations and Finance Principles, and will take up the Organization Principles at its September meeting.
- **Governance:** The Governance Task Force reached unanimous agreement that the future governing board should be advisory to the 911 program office, have 12 voting positions (one for each PSAP), and operate by consensus as much as possible. If voting is required, it should require a two-step voting process with 40% of those present and 60% of current call volume being required for a decision. The Task Force also laid out a specific process for decisions and appeals. — At its September meeting, the Planning Group came to unanimous agreement to endorse these recommendations. (note: Further work on roles and responsibilities is scheduled shortly.)
- **Finance:** After considerable analysis, the Finance Task Force concluded that the current level of spending is not sustainable with projected revenues, but it appears that the fund balance will not go negative until 2023. The difference between alternative system architecture cost estimates is not enough to change the overall system's financial picture (it is less than a \$5 million difference in the context of 10-year operating costs on the order of \$280 million). In other words, the fund balance will go negative at a similar time regardless of which architectural alternative is deployed, and therefore broader finance issues must be addressed either way. The Task Force recommends that the 911 Program Office and PSAPs share in operations efficiencies, and that the future governing board explore using some of the substantial escrow fund balance in system upgrades. Finally, the Task Force recommends that a sustainable revenue source must be deployed for long-term system viability. — The Planning Group will make its own recommendations in October.
- **Technology & Operations:** 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 ("Distributed" and "Platform") meet all of the Technology & Operations Principles, with the Platform alternative exceeding several of the principles (security; fair & equitable; capacity; interoperability; convergence) more than the Distributed alternative. The 10-year cost of ownership for the Distributed alternative appears to be up to \$5 million less, and therefore it is somewhat better on the cost-effective principle. The Task Force also did a thorough analysis of advantages and disadvantages of these alternatives and their costs. When asked for a "preferred" alternative, 6 of 10 Task Force members favored the Platform architecture, while 4 of 10 preferred the Distributed architecture. Reasons for these preferences are also well documented. Regardless of the alternative, the implementation timeline indicates that the complexity of system architecture upgrades means that it will be 2020 before a vendor is selected and deployment of the new architecture begins. — The Planning Group reviewed and discussed the Task Force report at its August meeting, and agreed to recommend the Platform architecture to the Leadership Group. This recommendation followed extensive discussions, and was reached on a roll-call vote of 6-1 (86% of those present and voting). At the time of the vote, there were three members of the Planning Group not in attendance, and one member (who was present) declined to vote and expressed a preference for moving forward with further analysis of both alternatives.

Questions from the September 11 Leadership Group Meeting

At their informational meeting on September 11, 2017, Leadership Group members received a detailed briefing on the issues above, and asked a number of questions. The consultants and task force co-chairs have considered these questions, and offer the following answers. During this follow-up question and answer process, Leadership Group members Tom Orr and Jennifer Robertson submitted four rephrased and/or additional questions. These are also addressed here. (note: The consultants and task force co-chairs have made a good faith effort to respond to these questions in a collaborative and timely manner, but this is a work in progress and not everyone has reviewed all elements of these responses. We are sending it to the Leadership Group now so that they can review the latest information as it stands.)

Technology Questions

Q) Tola Marts: *How is the single platform more resilient in the face of catastrophic failure? Is there any way to make the distributed architecture more resilient in this regard?*

A) The envisioned Platform architecture is more resilient than Distributed because it allows a node to be located in eastern Washington for geographic diversity of already redundant core system equipment. The 'out of area' node will be designed with enough throughput to handle the call volume should the two nodes in King County not be reachable for some reason, such as a region-wide event preventing access to these facilities while the PSAPs were still able to connect to the out of area node. The 'out of area' node does not require call-taking workstations or staffing since the geo-diverse network would still route calls to the King County PSAPs. The focus of the E911 technology strategy is on the E911 core technologies. Future business continuity planning beyond current scope can be pursued to address back-up relationships and operational continuity processes beyond King County PSAPs for overall regional resiliency.

To design for geo-diversity for the Distributed architecture would be significantly complex and therefore expensive, primarily because each of the twelve E911 telephone equipment is configured to handle the load for one PSAP. If we take a node out of area, it has to be able to handle the entire King County 911 call volume for all PSAPs, in which case the design then starts to become the Platform architecture. There is, however, a level of resiliency inherent in the current system, since each PSAP has backup relationships with another PSAP to ensure 911 calls aren't lost.

Q) Jennifer Robertson / Tom Orr: *Is a phased technology implementation plan extending over 5-8 years feasible in order to allow the County and PSAPs to plan and budget for the new system architecture?*

A) An extended implementation would not be advisable for a several significant reasons. First, the functional and operational differences between the existing systems and the new system will likely be quite significant because the new system would be fully NG911 capable and the existing system would not, which creates a situation where various NG911 capabilities would be available to some populations in King County but not for others. These differences would also have adverse impacts on interoperability, security and cross-PSAP support and backups as well. Second, an extended overlap means paying to maintain the existing system while also paying for the new could have significant budget impacts. Third, the complexity of maintaining two systems well beyond the planned migration timeframe would overwhelm existing staffing with demands to stay current in two systems and limiting capacity for additional projects that PSAPs and the Program Office may want to complete. There is also the risk that the State may impose an NG911 compliance deadline before the 5-8 year timeframe is complete.

Q) Jennifer Robertson / Tom Orr: *How long will it take to develop the RFP for a new system architecture? How long would the RFP be open?*

A) Development of the RFP would likely be a two-step process. First, the detailed operational and technical requirements would need to be developed in collaboration with all the PSAPs. This process typically can take at least 6 months to complete, and may take a bit longer given the diverse sizes and operational characteristics of the PSAPs in King County. Second, developing the process requirements can take an additional two months. Total RFP development will can take 9-12 months to be fully ready for release.

Vendors are typically given 6 months to respond to the RFP for a system of this complexity. Time needs to be allowed for pre-submittal meetings, time for vendors to clarify technical and operational requirements, and opportunities for PSAP visits. Once proposals are received 3-4 months should be allowed for proposal evaluation, clarification of responses, vendor demos and reference checks. Contract negotiations may take an additional 3 months.

As such, the total RFP and selection process is likely to take 18-24 months.

Q) Jennifer Robertson: *Can we use market forces to gain additional cost savings by issuing an RFP for both system architecture options?*

A) An RFP, whether for Distributed or Platform will use market forces to drive further competitive efficiencies. Issuing two RFPs could cause vendors uncertainty about what is being procured, which would impact getting a competitive pool. Through the process of getting vendor estimates, the Taskforce learned most vendors are able to architect for either a Platform or Distributed model.

Q) Jennifer Robertson: *Are there other counties in Washington with a single platform? Would we be an outlier if we implemented the single platform approach? Is the State's system designed to use a Platform approach? Is the risk of failure increased or decreased with each option?*

A) Most counties in Washington have consolidated to a single PSAP, so a Platform architecture does not benefit them unless they partner with other counties. There is already one example of a Platform architecture in Washington, where three counties (Thurston, Clark and Wahkiakum) collaborated on a shared platform, so King County would not be an outlier in the state if a Platform architecture were selected. Both Distributed and Platform architectures have also been deployed throughout the U.S. with the Platform architecture showing up in regions or counties with multiple PSAPs. The state's ESInet II will support either Distributed or Platform – they are more interested in achieving NG911 compliance statewide, which the current King County E911 equipment is not able to meet, but there is no stated deadline yet.

There are different 'risks of failure' with each option, but neither is necessarily more risky than the other, just different risks. Here's how E911 core equipment failure would play out in each architecture:

- Distributed architecture: If the E911 core equipment at an individual PSAP fails, this will require that PSAP to move to its backup facility (e.g., NORCOM to Redmond). ESInet II routes the calls to a backup PSAP until the PSAP is ready at their backup to resume 911 call handling. Other King County PSAPs are isolated from this failure scenario during this time. If a PSAP has to failover to its backup site, but the E911 core equipment is functioning, ESInet II routes 911 calls to the backup.

- Platform architecture: If the E911 core equipment fails at a node, the nodes are configured to automatically reroute calls to another node, so no impact to PSAPs from a single node failure. Each node would be sized to handle the full call volume for all PSAPs to enable automatic failover/rerouting capability and located in separate physical facilities for increased reliability. In the unlikely scenario of all three of the Platform nodes failing, ESInet II could route all King County 911 calls to other PSAPs in the state until one of the nodes is restored and all King County PSAPS can return to normal operations. If the PSAP has to failover to its backup site, the PSAP's configurations are stored in the Platform core and calls are able to be handled at the backup.

Q) Kathy Lambert: *Why are we stating an intent to adhere to the NENA security standards 'at a minimum'? Shouldn't we be stating an expectation to exceed these standards.*

A) The standards we will adopt will adhere to the NENA i3 standards so system and equipment investments are standards-based. Separately, there will need to be investments in a security program, that is also standards-driven. NENA and NIST are two standards bodies that provide appropriate frameworks that can guide practices. The current E911 program does not have the appropriate level of security standards, operational practices and on-going monitoring systems in place for this critical function. Security costs are being built into the financial model and scaled to reflect the complexity inherent in the two architecture alternatives - Distributed with more nodes will cost more to operate and secure than the Platform.

Finance Questions

Q) Jennifer Robertson: *What is the County's role in the burden of the efficiency recommendations and capex costs? Is there room for savings from non-core Program Office services? Is there room for a contribution by the County from the general fund?*

Answers:

- King County is directly responsible for finding the most cost-effective operating and capital solutions for the regional E911 system. Both the Program Office and PSAPs have different roles and responsibilities for operating the regional E911 system. The Finance Task Force believes the County's role is to continue to work with PSAPs in an open and transparent fashion to find ways to deliver the most cost-effective service possible. The Task Force's recommendations provide a preliminary work program designed to reduce costs.
- While the Task Force believes that the Program Office should continue to look for cost-efficiencies in all its expenses, its review of expenditures does not reveal large "non-core" expenditures. Please see pages 16-17 of its preliminary recommendation that nearly 90% of program expenditures are in the Network System, Equipment, Operations, and Maintenance categories. The proposed governance model provides an opportunity for the regional partners through the Governing Board to weigh in on proposed program office expenditures prior to executive budget submittal to the county council.
- The financial planning tool developed during the Finance Task Force review provides a transparent way for any of the partner agencies to model alternative expenditure levels. This information can then be meaningfully discussed during budget discussions.

- The county general fund is a major source of revenue for the King County Sheriff's Office (KCSO) 911 PSAP. The KCSO PSAP is subject to the same financial impacts of any change to the escrow account distribution as any other PSAP.
- The Task Force recommends that work begin immediately on revenue reforms to the E911 funding source that can more adequately address the region's E911 needs. While the recommendations submitted by the Task Force present a short list of potential areas that can be examined, the Task Force believes that the work should be comprehensive, evaluating all potential sources. A number of PSAPs would like to see whether contributions from the King County general fund can be entertained.
- The Program Office has been working with IAG over the past year to scrutinize non-essential services (e.g. satellite phone service) to minimize costs. In addition, as the Program Office transitions to KCIT, there is a rigor in areas of contracts and project expenditures that will create a structure of oversight, lending itself to potential efficiencies and cost-savings in these areas.

Q) Jennifer Robertson: *On the escrow distribution formula, has using a proportional call volume metric for sweeping the funds been considered?*

Answer:

- The Finance Task has not considered or evaluated any allocation formula regarding the use of escrow fund balances. The Task Force has recommended that the Program Office "explore what amount PSAP escrow fund balances can be used to fund one-time capital needs". There are significant annual balances in PSAP escrow accounts that have been rolled over year-over-year that we recommend be assessed as part of a one-time capital funding for system upgrades. Over the past three years, end-of-year escrow balances averaged approximately \$9.9 million. Additional work needs to be completed to better understand why individual PSAPs have carried balances and to assess how changes to escrow fund policies impact PSAP cash-flow issues. From this understanding, both the Program Office and PSAPs can evaluate how much fund balance might be available and whether a one-time assessment process could raise needed funds. This should start as soon as possible and be completed by the end of 2018. As an alternative, if an individual PSAP prefers not to use their escrow balances, they can contribute a like amount of capital funding from other sources in their PSAP budget.

Q) Kathy Lambert: *Should we be talking about a longer-term solution than only a 5¢ excise tax increase? Have we considered an escalation factor?*

Answer:

- The Task Force has not recommended a specific amount regarding the excise tax. The \$0.05 figure shown in the report illustrates the revenue impact that this amount would have on the Program Office's fund balance. The Task Force fully believes that its recommendation to "deliver options to the King County Council to find a more adequate, resilient, tax base to support the nature of this safety system" would consider long-term structural issues as well as needed escalation factors.

Q) Jennifer Robertson / Tom Orr: *What would be the estimated capital assessment taken from each PSAP to fund the capital costs for the platform architecture? For the distributed architecture? How much would the County contribute toward the capital costs under each architecture?*

A): The Finance Task Force has not developed or recommended any assessment framework or mechanism to fund either system architecture. The Finance Task Force has worked under the assumption that the E911 Excise Tax is the only revenue source available to fund either system architecture per state statute for the time being. In our financial modeling, these funds are transferred to capital reserves to finance the ultimate choice of either system alternative. The Finance Task Force has recommended two related issues. First, it has asked that the PSAPs and the Program Office work collaboratively to examine the use of fund balances in PSAP escrow accounts or other one-time assessments that might be available to fund capital upgrades - noting that its not entirely clear if balances are even available for this purpose and that any assessment should be fair and equitable. Second, the Task Force has asked that all parties begin to work on revenue reforms that can address revenue adequacy issues directly tied to funding the system's capital and operating needs.

Governance Questions

Q) Tola Marts: *If 60% of the call volume is not in the room (one or two big players), then you could have a quorum, but unable to pass anything. Isn't that problematic?*

A) The Task Force did not consider a second criteria for a quorum. According to current call volume statistics the lowest call volume threshold that could be achieved with a majority plus 1 quorum (7) is 15%. Therefore, Councilmember Marts' point is correct. A potential solution is to add 60% call volume to the quorum threshold.

Q) Jennifer Robertson: *How does the appeals process get initiated?*

A) The Governing Board initiates an appeal if their recommendation is not accepted. The process is described on page 6 of the draft governance report.

Q) Kathy Lambert: *Are there limitations on the amount of time for each step in the appeals process*

A) Yes, there are time limitations proposed for each step. These are described on page 6 of the draft governance report.

Q) Jennifer Robertson / Tom Orr: *Transferring funds to PSAP for technical staff, PSAP operations, and equipment is defined as a "core service" of the Program Office. Does this mean that PSAP revenue distributions will be guaranteed some level of funding?*

The Governance Task Force is scheduling an additional meeting for the week of September 25 to discuss this question, as well as issues related to roles and responsibilities of the future governing body. The following, however, is quoted directly from the Finance Task Force report.

A) "The Finance Task Force has documented that the E911 excise tax supports E911 related services and technology delivered by both the King County E911 Program Office and PSAPs. Nearly 90% of program expenditures are in the Network System and Equipment and Operations and Maintenance categories. Within those activities, nearly 47% of the E911 expenditures are for services delivered by the PSAPs via transfers to their escrow accounts for eligible reimbursements of IT/GIS employees, equipment, and other activities (primarily those related to call taking). Transfers to PSAP-delivered services are forecasted to remain at roughly 44% of Program Office expenditures, and 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. As such, this level of revenue sharing is unsustainable given other competing needs.

The Finance Task Force recommends that the Program Office and PSAPs work immediately on finding an affordable, fair, and appropriate level of PSAP funding that accounts for the cost-effective delivery of E911 services but also places the Program Office on the path toward fiscal sustainability. If so, these changes can be made and phased as needed. The Task Force is aware that reductions to the current level of PSAP funding would represent some fiscal challenges for PSAPs given their reliance on membership fees to support their services (and the challenges that those jurisdictions have in raising revenue)."