Table of Contents

1. Introduction 2
2. Purpose 2
3. Executive Summary 2
4. Background 3
5. Process 5
6. Out of State Dispatch Center Consolidation Study Findings 6
7. Other Organizations Consolidation Study Findings 7
8. Washington State Agency Communication Consolidation Research 8
9. Conclusion 9
10. Appendices

Appendix A: Charter
Appendix B: Communications Division Organizational Chart
Appendix C: Yakima/Wenatchee/Spokane Consolidation Survey
Appendix D: Marysville/Bellevue Consolidation Survey
Appendix E: Tacoma/Vancouver/Bremerton Consolidation Survey
Appendix F: Construction Costs
Appendix G: Current WSP Customers and Services Provided
Appendix H: Washington State Patrol District Map
Appendix I: State Consolidation Study - Idaho State Police
Appendix J: State Consolidation Study - California Highway Patrol
Appendix K: State Consolidation Study - Oregon State Police
Appendix L: Oregon State Police Memorandum (October 2002)
Appendix M: Consolidation Studies – King County E-911 Program Office
Appendix N: Consolidation Study – Yakima County Sheriff’s Office (YSO)
Appendix O: Consolidation Studies – Ferry County Sheriff’s Office (FCSO) & Southeast Communications (SECOM)
Appendix P: Washington State Business Analysis:
  Evaluation of Consolidation of WSP/WSDOT Wireless Communications Systems and Operations
**Introduction:**
This report is intended to present research and recommendations with regard to potential efficiencies, savings and benefits of consolidating law enforcement and emergency dispatching centers.

As part of this study, the Washington State Patrol (WSP) will look for potential efficiencies within state government. The study will include our current WSP statewide Communication Centers eight (8), and other state agencies we dispatch for, such as Department of Natural Resources (DNR), Department of Fish and Wildlife (DFW), etc., and include the emergency component of the Washington State Department of Transportation (WSDOT) Incident Response Team (IRT). The WSP will also review recent consolidation studies by the state police in Idaho, Oregon, and California, and report on significant findings from those state agencies.

**Purpose:**
To work with the State Interoperability Executive Committee (SIEC) to compile a list of recent studies evaluating the potential savings and benefits of consolidating law enforcement and emergency dispatch centers, and specifically look for efficiencies in state government and report findings and recommendations to the Joint Transportation Committee by December 1, 2014.

**Executive Summary:**
Further consolidation of the current Washington State Patrol Communications Division resources creates a risk of failure and increases overall expenses for equipment, facility, and operating costs by creating additional layers of management. Budget constraints and the push for increased efficiency are prompting State Government as well as the private sector to pursue consolidation more aggressively. However, Washington State Patrol being a leader in this effort had already consolidated from 27 communications centers in 1983 to the existing eight (8) district headquarters communications centers by 1993. This was a significant consolidation effort. The information contained within this report shows that it will cost nearly $32 million dollars to further consolidate the WSP Communications Centers, with no realized savings. Further consolidation effort would cause a loss of command and control, and diminish the quality of services provided to the people, officers, and surrounding agencies.
Background:
9-1-1 public safety communications personnel work closely with local law enforcement, fire, and emergency medical services. 9-1-1 is the gateway through which virtually every emergency is reported, resulting in communications center personnel being the first to assist citizens in their time of need while simultaneously dispatching appropriate resources to the troopers and other agencies/personnel in the field.

The first Washington State Patrol (WSP) communications center was established in 1943, located in Olympia. Prior to that, state patrolmen received their orders and broadcast information from local sheriffs’ offices, police departments or highway department installations. In the years that followed, 21 communications centers would be established statewide. The WSP set up its own VHF microwave communications network, completing the installation of two-way sets in all vehicles in 1943.

Communications Officers (COs) wore a unique badge with a radio tower and a unique shoulder patch on their uniforms in the 1950s until the early 1970s when they transitioned to the current badge and the standard WSP shoulder patch. In 1983, an entirely new WACIC (Washington Crime Information Center) data base was brought on-line, providing faster response time as well as access to the FBI's National Crime Information Center computer system and direct entry of missing persons and runaway children.

For reasons of improved efficiency and reduced costs, the State Patrol consolidated from 27 communications centers down to nine (9) and finally to what is now our current structure of eight (8) centers statewide co-located with their district headquarters. They are Bellevue (D2), Bremerton (D8), Marysville (D7), Spokane (D4), Tacoma (D1), Vancouver (D5), Wenatchee (D6) and Yakima (D3). (Note: The last center to consolidate was the Olympia Center in 1993 when it was merged with Tacoma).

The first step of this consolidation began on October 18, 1982. By the end of December 1983, seven (7) of the now existing eight (8) districts were completely consolidated. As a result of this consolidation effort, the WSP was able to reduce its full-time employee (FTE) count by 15 people statewide. However, the cost of upgrading equipment outweighed the savings of those FTEs.
Today the Communications Division headquarters, located in Olympia, under the Technical Services Bureau, is led by a civilian special deputy Division Commander with six (6) total staff (Assistant Division Commander, Division Secretary and three (3) Communications Officers (see Appendix B). The division has 167 authorized positions comprised of five (5) job classifications - Communications Officer Assistant (9-1-1 call receiver), Communications Officer 1 (9-1-1 call receiverdispatcher), Communications Officer 2 (call taker/dispatcher/trainer/lead worker or assistant training officer), Communications Officer 3 (shift supervisor or training supervisor) and Communications Officer 4 (communications center manager or division training program manager).

Prior to 1986, communications centers used a punch card system to time stamp cards and hand write comments about incidents and unit locations. Daily reports were prepared using typewriters.

In 1987, the WSP created its first, “in house” Computer Aided Dispatch (CAD) system that was used until 2003. Communications Officers transmit, receive, and relay information concerning public safety and law enforcement activities to, from, and between State Patrol mobile units and stations, other state, county, city, and federal law enforcement agencies, and the public by means of radio, 9-1-1/business multiline telephone systems, and other telecommunications devices. All of this information is entered, recorded and stored by means of a CAD system.

The WSP gained international recognition for its development of the Mobile Computer Network (MCN), an innovative system linking laptop computers in patrol cars with satellite and land-based radio communication technology. The MCN became operational in 1991.

In the late 1990s, Communications Officers transitioned from the typical Trooper uniforms to unique uniforms only worn by Communications Officers.

In July 2003, the Communications Division procured a completely new CAD, Premier CAD from Motorola, for all eight (8) centers. This $1.6 million project enabled the agency to have a faster more efficient and effective CAD system with the expanded capabilities for collecting data, providing numerous reports, integrating with 9-1-1 and displaying computerized maps of interstates, state routes and other roads state wide. It also had the potential for interfacing with future technological advances (i.e., mobile laptop computers, automatic vehicle location, etc.). The system was upgraded in June 2008.

Throughout our proud history until today, everyone in the Communications Division has and will focus on officer and public safety. We provide a vital function as the “first of the first responders”, linking the emergency call to the emergency response 24 hours a day, every single day.
Process:
The WSP contacted all of the Public Safety Answering Points (PSAPs), Sheriff’s Offices, and Police Departments; and identified any and all communications consolidation studies conducted within the last five (5) years and it was identified that the following studies exist in the State of Washington:

1. (D1) South Sound 9-1-1 - Pierce Co (SS911) Voter initiative - no study implemented
2. (D2) King County E9-1-1 Program Office, Marlys Davis - not implemented
3. (D3) SUNCOM/YSO (Yakima Co), Wayne Wantland & Bob Udell - in planning stages
4. (D3) FCSO/SECOM (Benton/Franklin Co), Ed Bush & Jim Barber - not implemented
5. (D8) JEFCOM (Jefferson Co) Karl Hatton - study being conducted
6. (D8) PENCOM (Clallam Co) Steve Romberg - study being conducted

In addition, the WSP contacted neighboring states to collect any communications consolidation studies that existed.

The WSP also conducted a review of its communications centers and services provided to conduct a cost benefit analysis of any potential further consolidation of WSP facilities into three (3) centers which were identified as ideal locations based on geographical area, current infrastructure, etc.; if the WSP were to further consolidate the current centers. The locations identified would be:

1. Tacoma
2. Marysville
3. Yakima

The locations were identified to provide two (2) locations on the Westside (one (1) North and one (1) South), and one (1) on the Eastside; for redundancy, labor pools, site considerations, and retention.

NOTE: All information contained within is with consideration of consolidating to those three (3) locations.

A copy of all of the information received from each of these studies/surveys is included in the appendices of this document and summarized within this report.
Out of State Dispatch Center Consolidation Study Findings:
In July 2013, the Washington State Patrol conducted a survey of state police agencies in Idaho, Oregon, and California and identified consolidation studies they have conducted within the last five (5) years. The detailed information as provided in the appendix is summarized below:

1) **Idaho:**
   Consolidated in 1997 from six (6) centers to three (3) centers
   Consolidated in 2009 from three (3) centers to two (2) centers

2) **Oregon:**
   Consolidated 1993 from 26 centers to four (4) centers
   Consolidated in 2003 from four (4) centers to two (2) centers

3) **California:** The California study provided includes consolidation of communications centers as part of a consolidation of state agencies which included the California State Police (CSP) and the California Highway Patrol (CHP). This merger took place in 1995, and combined 271 CSP officers and 5,713 CHP officers. The 68 non-uniformed employees of the CSP transferred to existing civil service classifications, with the exception of CSP's Communications Operators who were assimilated into the CHP's Communications Operator II classification. The 269 remaining non-uniformed personnel changed to the new CHP classifications established specifically for the consolidation. CSP and CHP were consolidated from 40 to 25 dispatch centers throughout the state (five (5) of which are considered primary's).

4) **Washington:** Consolidated 1983 from 27 centers to nine (9), then again in the 1990s down to the current eight (8) centers.

<table>
<thead>
<tr>
<th>State</th>
<th>State Population*</th>
<th>State Land (square miles)*</th>
<th>Population per square mile*</th>
<th>Number of Dispatch Centers</th>
<th>Number of Radio Users</th>
<th>Number of Dispatchers</th>
<th>Current User Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho</td>
<td>1,567,582</td>
<td>82,643</td>
<td>19</td>
<td>2</td>
<td>646</td>
<td>41</td>
<td>1:16</td>
</tr>
<tr>
<td>Oregon</td>
<td>3,831,074</td>
<td>95,988</td>
<td>40</td>
<td>2</td>
<td>622</td>
<td>66</td>
<td>1:9</td>
</tr>
<tr>
<td>California</td>
<td>37,253,956</td>
<td>155,779</td>
<td>239</td>
<td>24</td>
<td>8,000</td>
<td>337</td>
<td>1:24</td>
</tr>
<tr>
<td>Washington</td>
<td>6,724,540</td>
<td>66,456</td>
<td>101</td>
<td>8</td>
<td>2,688</td>
<td>167</td>
<td>1:16</td>
</tr>
</tbody>
</table>

* Data provided based on US Census data from 2010.

Number of Radio Users for WSP includes 19 contract agencies that we currently dispatch for (such as WDFW for example). All other agencies listed above also include the number of other agencies that they currently dispatch for.

WSP dispatcher to radio user/officer ratio is currently in line with the other agencies listed above without further consolidation efforts or considerations.

Common benefits for consolidation of communications centers included, less equipment and common CAD.
Common lessons learned by all consolidations included the loss of qualified personnel due to relocation which caused ongoing hiring and training issues across the state. In addition, there was a loss in geographic knowledge which influenced the ability for dispatch centers to provide the personal touch to callers and officers in their respective areas as it is more difficult for a dispatcher to “know the beat” when they are in charge of dispatching for half of the state vs. having a smaller subset of counties.

In addition, it was noted that radio coverage limitations must be taken into consideration to ensure that a decrease in centers won’t impact service. Similarly, there must be redundancy within the system to ensure that if one center goes down, the other can handle the calls (centers should not share a fault line).

Other Organizations Consolidation Study Findings:

**WSDOT** - In 1993 a study was conducted by WSDOT to work to best consolidate the services of their Traffic Management Centers (TMC), and they partnered with WSP to work out incidents and reporting mechanisms in each of the districts. WSDOT currently has six (6) regions across the state, and offers traffic management services 24 hours per day, 7 days per week (24/7). Typically, there are seven (7) radio operators on duty across the state during business hours. Incident response is handled by the WSDOT Incident Response Group that typically handles approximately 4,500 incidents per year. In 2011, an evaluation of consolidating WSP/WSDOT wireless communications systems (infrastructure) was commissioned by WSDOT.

**WDFW** - Reported that they have not done an official consolidation study with regard to dispatch services.
Per a March 2012, “Public Safety Communications” article put out by APCO (pg. 58), it states in part that “The latest addition to the National Fire Protection Association (NFPA) standard for Communications Centers, NFPA 1221 Standard for the Installation Maintenance, and use of Emergency Services Communications Systems, 2010 edition, made it fairly clear what constitutes a Communications Center and what is required to incorporate these facilities into other facilities such as police headquarters. The Communications Center, under these rules and generally accepted practice; needs to be separated from any other space within the facility by a two (2) hour fire separation. This zone should include the immediate staff office and support spaces, such as break rooms, wash rooms, and locker areas. The required two (2) hour separation applies to the floor and ceiling areas as well. In addition, there is a need to provide ballistic protected glass for any outside windows. The walls surrounding the dispatch center must also be protected. As a last resort, the center must be able to “gracefully” shut down and transfer operations to a secondary Public Safety Answering Point (PSAP). The requirement for a full backup location is often mandated by local or provincial/state law and can be handled by service agreements with adjoining jurisdictions.” This article goes on in further detail about these requirements that NFPA 1221 stipulates.

With the premise of the WSP consolidating from eight (8) centers to three (3) centers located in Tacoma, Marysville, and Yakima; the WSP researched the potential cost, benefits and challenges for consolidation. The rationale behind selecting Marysville, Tacoma, and Yakima for the three (3) locations was based on location, population, current capacity, building and land availability, staffing levels, etc.

Managers were asked to survey their current personnel and determine how many (by classification) would be willing to relocate to retain their position with the Communications Division of WSP.

- District 4 (Spokane) – 12.5% willing to relocate. Two (2) have indicated they may be willing to move in the future.
- District 6 (Wenatchee) – 53% willing to relocate.
- District 3 (Yakima) – 30% willing to relocate.
- District 5 (Vancouver) – Approximately 33% willing to relocate.
- District 8 (Bremerton) – Approximately 4% willing to relocate.
- District 2 (Bellevue) – Approximately 50% willing to relocate.
The WSP does not anticipate that a reduction in required staffing levels would occur if the agency consolidated from eight (8) to three (3) dispatch centers. The survey results indicated that the number of personnel would remain the same. The challenge would be filling the positions in the new locations, as many of the current staff indicated that they would not be willing to re-locate. This is a challenge that other states found during their consolidations and continue to deal with through attrition and ongoing training issues.

The following rough cost estimates were provided for the consolidation of the current eight (8) centers into the following three (3):

<table>
<thead>
<tr>
<th>Cost</th>
<th>Yakima</th>
<th>Marysville</th>
<th>Tacoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>$329,300.00</td>
<td>$2,500,000.00</td>
<td>$1,000,000.00</td>
</tr>
<tr>
<td>Facilities</td>
<td>$3,663,000.00</td>
<td>$3,515,000.00</td>
<td>$4,033,000.00</td>
</tr>
<tr>
<td>Comm. tower</td>
<td>$175,000.00</td>
<td>$175,000.00</td>
<td>$175,000.00</td>
</tr>
<tr>
<td>Microwave hops</td>
<td>$180,000.00</td>
<td>$180,000.00</td>
<td>$180,000.00</td>
</tr>
<tr>
<td>Added Staffing</td>
<td>$287,196.00</td>
<td>$391,716.00</td>
<td>$234,936.00</td>
</tr>
<tr>
<td>Added Mgmt.</td>
<td>$5,000.00</td>
<td>$70,000.00</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>Recruit/Training</td>
<td>$2,394,522.00</td>
<td>$2,394,522.00</td>
<td>$2,394,522.00</td>
</tr>
<tr>
<td>Telephone equip.</td>
<td>$592,990.15</td>
<td>$529,427.24</td>
<td>$735,356.04</td>
</tr>
<tr>
<td>Leased data circ.</td>
<td>$45,600.00</td>
<td>$45,600.00</td>
<td>$45,600.00</td>
</tr>
<tr>
<td>VoIP data network</td>
<td>$250,000.00</td>
<td>$250,000.00</td>
<td>$250,000.00</td>
</tr>
<tr>
<td>Console positions</td>
<td>$1,200,000.00</td>
<td>$1,080,000.00</td>
<td>$1,500,000.00</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>$267,359.76</td>
<td>$267,359.76</td>
<td>$268,487.26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$9,389,967.91</strong></td>
<td><strong>$11,398,625.00</strong></td>
<td><strong>$10,821,901.30</strong></td>
</tr>
</tbody>
</table>

**Total: $31,610,494.21**

**Conclusion:**

Consolidation Considerations:

- An increase in staffing numbers based on three (3) locations from reduced from eight (8).
  - Add 10 COAs, six (6) CO2s and create three (3) CO5s.
- Potential costs benefits by consolidating other agency’s dispatch (WSDOT, WDFW, and DNR) communications centers with the WSP communications centers.
Potential Challenges:

- **Decrease in Service Quality** - If we were to consolidate further from the current eight (8) communications centers that we have statewide, we would likely see a decrease in services as follows:
  - Staff being unfamiliar with the area that they serve, there is likely to be an increase in the length of response times.
  - With staff being unaware of the geographical area that they are serving, there is a likelihood that Communications Officers may struggle with calls for service based on the fact that they will not have the current familiarity with local landmarks and other major indicators.
  - There is also an added likelihood that the Communications Division will have more time focused on training of new staff, as the retention of our current staff will be diminished due to their inability or unwillingness to relocate to the new facility.
  - We currently struggle to hire qualified staff in the eight (8) districts that we currently serve. If the number of Communications Centers were decreased from eight (8) to three (3), we would have less of a geographical area to hire from, thus decreasing our candidate pool by about 62% of the current hiring pool.
  - The ability to interact face to face with the district’s commanders, managers, and supervisors with whom we serve to maintain command and control. There are often many questions with regard to performance issues or policy directions, which are currently worked out because of our easy access.

- Availability and purchase of the land and building construction are estimated in the report. These figures are based on county assessed values, and may be much higher at the time of purchase, and are dependent on actual availability. Obtaining this land may prove to be problematic.

- **WSP is currently converting from analog to P25 digital radio operations due to an unfunded Federal mandate.** To begin conversion to consolidation to three (3) centers would have a significant impact to radio coverage for officers, increased delay to implementation, and unknown fiscal impacts.

- Reduced participation in weekly and monthly management meetings coordinating enforcement efforts of Field Operations Bureau (FOB), investigations, weighing and inspections operations, and multi-agency efforts.

After careful consideration and review of all other surrounding state’s dispatch studies, the recommendation would be not to continue with further consolidation of the current WSP Communications Centers. Since the WSP has already consolidated Communications Centers and resources (last done in 1993), further consolidation would create a risk of failure and increase the overall expenses for equipment, facility, and operating costs by creating additional layers of management.

Possible consolidation efforts to be explored would be to further consolidate state agencies (such as eliminating duplication of effort by WDFW and possibly DNR and WSDOT) by looking for efficiencies within state government. This would include whether or not consolidation of these dispatch centers would be more/less efficient since they are state agencies that provide dispatch services.
# Appendix A
## Project Charter Information

### Organization

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Mark Layhew, Communications Division Commander</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>Meagan Renick, Communications Division Assistant Commander</td>
</tr>
<tr>
<td>Core Project Team</td>
<td>Meagan Renick, Laurie Langlois, Jo Baumgartner, Julie Hudson, LaDonna Browell, Richard Warren, Yvonne LeBlanc, Andrea Marlow, Monte Simpson, Donna Barnes</td>
</tr>
</tbody>
</table>

### Goals and Objectives

**Project Goal Statement**

ESSB 5024 requires the Washington State Patrol to work with the State Interoperability Executive Committee (SIEC) to compile a list of recent studies evaluating the potential savings and benefits of consolidating law enforcement and emergency dispatch centers, and specifically look for efficiencies in state government.

**Project Objectives**

- Develop scope of project
- Finalize project charter
- Meet with key stakeholders
- Divide work assignments among station managers; to include recent state police dispatch consolidation studies in Oregon, Idaho, and California
- Develop a consolidated dispatch model for WSP and emergency dispatch centers
- Evaluate potential savings and benefits
- Look for efficiencies in State Government
- Review findings and recommendations with SIEC
- Prepare final report for the Joint Transportation Committee

**Timeframe Summary**

<table>
<thead>
<tr>
<th>Quarterly Update Meeting Dates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPTEMBER 2013</td>
</tr>
<tr>
<td>DECEMBER 2013</td>
</tr>
<tr>
<td>MARCH 2014</td>
</tr>
<tr>
<td>JUNE 2014</td>
</tr>
<tr>
<td>SEPTEMBER 2014</td>
</tr>
<tr>
<td>DECEMBER 1st 2014-DUE DATE</td>
</tr>
</tbody>
</table>
### Project Requirements

Rank scope, schedule, cost, and quality. Also describe any limitations that require approval from the Sponsor.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scope</td>
</tr>
<tr>
<td>2</td>
<td>Schedule</td>
</tr>
<tr>
<td>3</td>
<td>Cost</td>
</tr>
<tr>
<td>4</td>
<td>Quality</td>
</tr>
</tbody>
</table>

### Milestones and Deliverables

**Major Milestones**

<table>
<thead>
<tr>
<th>Item</th>
<th>Est. Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft Scope to AC Berry</td>
<td>July 8, 2013</td>
</tr>
<tr>
<td>Draft Scope to SIEC</td>
<td>July 15, 2013</td>
</tr>
<tr>
<td>Manager’s Meeting in District 4-Spokane</td>
<td>July 16, 2013</td>
</tr>
<tr>
<td>Project Charter to SIEC</td>
<td>August 9, 2013</td>
</tr>
<tr>
<td>Part 1 Reports due from Managers</td>
<td>August 16, 2013</td>
</tr>
<tr>
<td>District Commander Meeting/Input</td>
<td>October 1, 2013</td>
</tr>
<tr>
<td>Consolidation Reports/Draft Analysis</td>
<td>October 1, 2013</td>
</tr>
<tr>
<td>Reports for ID, OR and CA States Police back from Training Manager</td>
<td>November 1, 2013</td>
</tr>
<tr>
<td>Part 2 Reports due from Managers on WSP consolidation</td>
<td>December 2, 2013</td>
</tr>
<tr>
<td>Draft Report for Transportation Committee to AC Berry</td>
<td>April 2, 2014</td>
</tr>
<tr>
<td>Review by AC Berry complete</td>
<td>May 1, 2014</td>
</tr>
<tr>
<td>AC Berry’s revisions complete</td>
<td>June 2, 2014</td>
</tr>
<tr>
<td>Presentation to Executive Staff</td>
<td>July 1, 2014</td>
</tr>
<tr>
<td>Executive Staff comments incorporated</td>
<td>August 1, 2014</td>
</tr>
<tr>
<td>Copy of Report to SIEC</td>
<td>August 4, 2014</td>
</tr>
</tbody>
</table>

Examine the potential savings and benefits of consolidation and efficiencies within WSP. Report findings and recommendations to the Joint Transportation Committee by December 1, 2014.
<table>
<thead>
<tr>
<th>Major Deliverables</th>
<th>Item</th>
<th>Est. Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Project Charter Complete</td>
<td>August 8, 2013</td>
</tr>
<tr>
<td></td>
<td>Requirements Complete</td>
<td>July 15, 2014</td>
</tr>
<tr>
<td></td>
<td>Management Plan Complete</td>
<td>August 1, 2014</td>
</tr>
<tr>
<td></td>
<td>Schedule Complete</td>
<td>December 1, 2014</td>
</tr>
</tbody>
</table>

**Scope (May require a separate document)**

| Project Scope | WSP will work with SIEC to compile a list of recent (within the past five (5) years) law enforcement and emergency dispatching centers consolidation studies, and evaluate the potential savings and benefits thereof. As part of this study, the WSP will look for potential efficiencies within state government. The study will include our current eight (8) WSP Communication Centers, and other state agencies we dispatch for, such as DNR, DFW, etc., and include the emergency component of WSDOT (IRT). The WSP will also review recent consolidation studies with the state police in Idaho, Oregon, and California, and report on significant findings. The WSP will report its findings to the Joint Transportation Committee by December 1, 2014. |
Appendix B
Communications Division Organizational Chart

Communications Division
September 2014

Division Administrator
Mark Layhew
Position #: E145

Division Assistant Administrator
Meagan K. Renick
Position#: 0152

Training Program Manager
Donna M. Barnes
Position #: 0004

CAD Systems Administrator
Acting ITS 4 Richard Warren
Position#: 1654

Training Program Supervisor
CO 3 Mary E. Ransier
Position #: 0869

Training Program Officer
CO 2 Jonathon W. Lerew
Position #: 0857

D1 Comm Mgr
CO 4
Laurie Langlois
Position #: 0850

D2 Comm Mgr
CO 4
Jo Baumgartner
Position #: 0587

D3 Comm Mgr
CO 4
Julie Hudson
Yvonne LeBlanc
Position #: 0870

D4 Comm Mgr
CO 4
Cheryl Oltmann
Position #: 0875

D5 Comm Mgr
CO 4
Tony Amorati
Position #: 0874

D6 Comm Mgr
CO 4
Andrea Marlow
Position#: 0143

D7 Comm Mgr
CO 4
Monte Simpson
Position #: 0135

D8 Comm Mgr
CO 4
Laurie Langlois
Position #: 0850
Appendix C
Yakima/Wenatchee/Spokane Consolidation Survey

1. For the Yakima (Yakima (District 3)/Spokane (District 4)/Wenatchee (District 6)) Communications Center, determine the staffing needs by classification to cover the current workload for Yakima, Spokane, and Wenatchee. Compare the consolidated staffing level to the current staffing level of all three (3) centers.

Staffing Level By District:

1. Yakima current – 15, consolidated – 16
2. Spokane current – 16, consolidated – 17
3. Wenatchee current – 16, consolidated – 17

Total Positions – 47, Consolidated Total – 50

Broken Down as follows:

- District 4 current staffing is 16 – Consolidated Center 17 (12.5% willing to relocate).
- District 6 current staffing is 16 – Consolidated Center 17 (53% willing to relocate).
- District three (3) Current staffing is at 15 – Consolidated Center 16.
- Add three Communications Officer Assistant (COA) positions to help handle phones during peak periods (especially if there are added users under the consolidated model).

2. For the Yakima consolidated center, determine how many call positions/consoles would be needed for the communications center. Compare to current level in all three (3) centers.

New Staffing Level Assumptions:

- Building would have to accommodate additional staffing through 2040, as 9-1-1 calls and texting will increase the number of positions needed to cover incoming calls.
- Would require one (1) communications center manager (CO5) and two (2) assistant managers (CO4’s - day shift/night shift) – Which includes a manager to oversee overall operations and supply budget/ordering of supplies and serve as a direct contact for district commanders with two (2) assistant managers to oversee all personnel and day to day running of the center including customer service, liaison to outside user agencies, and scheduling. This is a net gain of one (1) management position.
- Would require the same number of Communications Officer 3 (CO3)-Supervisors six (6), One (1) for every eight (8) employees to supervise day to day operations and complete employee performance evaluations.
- Would require same number of Communications Officer 2 (CO2)-Lead Operator/Trainer positions. To accomplish this, the agency anticipates a need to temporarily elevate four Communications Officer 1 (CO/CO1) positions to CO2 positions, if center was located in Yakima, since a majority of the pre-existing CO’s in D4 and D6 would not be willing to move.
- Would require same as current staffing number of CO1 positions with the addition of three (3) Communications Officer Assistant (COA) Call Taker positions, one (1) per district, to assist with the increased geographical area that they are covering.
3. For the Yakima consolidated center, determine how many additional positions WSP would want for future growth, to the year 2040, and how many positions WSP would want to dedicate as back-up positions for other centers in the area.

- Moving the communications center to a consolidated center in Yakima would require continuous training of new COs, since the majority of existing COs from Spokane and Wenatchee would not move. This may create the need for at least six (6) additional CO2-trainer positions.
- Recruitment & training costs for one (1) center = $2,394,522.00.

4. For the consolidated center, determine the estimated square footage per position, square footage of manager’s office, supervisor’s office, restrooms, conference room, quiet room, testing room, training room, etc.

   - Total number of consoles: 20 @ 400 sq. ft. = 8,000 sq. ft.
   - Command/conference room 1,000 sq. ft.
   - Reception area 1,000 sq. ft.
   - Reception area restrooms 2 @ 600 sq. ft. = 1,200 sq. ft.
   - Training/testing room 1,000 sq. ft.
   - Counseling/quiet room 300 sq. ft.
   - Command radio console 200 sq. ft.
   - Manager’s office 400 sq. ft.
   - Assistant manager’s office 400 sq. ft. x 2 = 800 sq. ft.
   - Supervisor’s cubicles: 6 @ 200 sq. ft. = 1,200 sq. ft.
   - Restrooms (men/women) 600 sq. ft. ea. = 1,200 sq. ft.
   - Kitchen/break room 1,000 sq. ft.
   - Equipment Room 1,000 sq. ft.
   - Storage/Supply Room 400 sq. ft.
   - Shower/locker rooms 550 sq. ft. x 2 = 1,100 sq. ft.
   - Total 19,800 sq. ft.
     - Total cost for new building = $3,663,000.00

   All square footage estimates provided are aligned with the state’s parameters for the positions/facilities requested. For example, the standard office space is mostly 8ft x 8ft.

5. For the Yakima consolidated center, identify any existing structure/facility that could be used to house the consolidated center or location for a new facility.

   - Property adjacent to current facility in Yakima is a three (3) acre lot, assessed value is $329,300.00. Please note however, that the sale price may be much higher than that.
   - Parking would be required for a minimum of 30 parking spaces.
6. For the Yakima consolidated center, identify other state agencies we dispatch for, such as DNR, DFW, etc., including WSDOT IRT for other potential efficiencies/consolidations within state government.
   - The WSDOT Traffic Management Center (TMC) recently moved back to their own facility; as directed by local DOT management in Yakima.
   - DFW has central dispatch out of Olympia.

7. Replacement of the current Lifeline100 systems with the Positron VIPER system outlined herein based off of an estimate provided by Century Link to District 6.
   - Telephone Equipment Needs for this center would combine the needs for Yakima, Wenatchee, and Spokane as follows:
     o District 3 = $181,190.07 (for six (6) positions)
     o District 4 = $205,900.04 (for seven (7) positions)
     o District 6 = $205,900.04 (for seven (7) positions)

8. Summary of potential cost:
   - Gig-E installation cost = $900.00
   - Monthly lease cost = $7,170.00 per month = $86,040.00 per year
   - Long haul installation = $4,909.08
   - Monthly long haul cost = $6,545.44 per month = $78,545.28 per year
   - One time equipment costs = $86,365.40
   - SmartNet annual fee = $10,600.00
     o Total of installation costs = $92,174.48
     o Total yearly lease fees = $175,185.28
   - Land: $329,300.00
   - Telephone equipment costs: $592,990.15
   - Additional management staffing costs: $5,000.00 for the added layer of Management required by the new structure.
   - Recruitment/Training = $2,394,522.00
   - Facilities: $3,663,000.00
   - Two (2) microwave hops @$90,000 = $180,000.00
   - One (1) communications tower = $175,000.00
   - Leased data circuit one (1) Gbs = $3800 per month (x12 months) = $45,600.00/yr.
   - Data network and VoIP = $250,000.00
   - Console positions $60K per position (x20) = $1,200,000.00
   - Cost of added infrastructure for Yakima = $267,359.76

Total costs associated with Yakima/Spokane/Wenatchee consolidation: $9,389,967.91
1. For the Marysville (Marysville/Bellevue) center, determine the staffing needs by classification to cover the current workload for Marysville and Bellevue. Compare the consolidated staffing level to the current staffing level of the two centers.

**Staffing Level By District:**
1. Marysville current – 31, consolidated – 31
2. Bellevue current – 24, consolidated – 24
   Total Positions – 55

Broken Down as follows:
- Communications Officer (CO 1&2) Positions Needed: 35
- Communications Officer Assistants (COA) Needed: 12
- Communications Officer Supervisors (CO3) Needed: six (6)
- Communications Officer Managers (CO4) Needed: two (2)

**New Staffing Level Assumptions:**
2. For the Marysville center, determine how many call positions/consoles would be needed for the consolidated center. Compare to current level in the current two (2) centers.
   - Communications Officers (CO 1&2): 12 consoles
   - Communications Officer Assistants: six (6) Consoles

3. For the Marysville consolidated center, determine how many additional positions we would want for future growth, to the year 2040, and how many positions we would want to dedicate as back up positions for other centers in Marysville.
   - Eight (8) Additional Positions
   - Six (6) Backup Positions

4. Recruitment/Training = $2,394,522.00
5. For the Marysville consolidated center, determine the estimated square footage per position, square footage of manager's office, supervisor's office, restrooms, conference room, quiet room, testing room, training room, etc.

- Total number of consoles: 18 @ 400 sq. ft. = 7,200 sq. ft.
- Command/conference room 1,000 sq. ft.
- Reception area 1,000 sq. ft.
- Reception area restrooms: two (2) @ 600 sq. ft. = 1,200 sq. ft.
- Training/testing room 1,000 sq. ft.
- Counseling/quiet room 300 sq. ft.
- Command radio console 200 sq. ft.
- Manager's office 400 sq. ft.
- Assistant manager's office 400 sq. ft. x 2 = 800 sq. ft.
- Supervisor's cubicles: six (6) @ 200 sq. ft. = 1,200 sq. ft.
- Restrooms (men/women) 600 sq. ft. ea. = 1,200 sq. ft.
- Kitchen/break room 1,000 sq. ft.
- Locker/showers rooms: 550 sq. ft. x 2 = 1,100 sq. ft.
- Equipment room: 1,000 sq. ft.
- Storage/supply room: 400 sq. ft.
- **Total 19,000 sq. ft.**
  - Total cost for new building = $3,515,000.00

6. For the Marysville consolidated center, identify any existing structure/facility that could be used to house the Marysville consolidated center or location for a new facility.

- Price: $2,500,000
- Lot size: 16.81 acres
- Price per acre = $148,721
- Lot type: commercial/other parcel ID: 310524-003-020-00
- Address/NWC 172nd St. NE & Hwy 9, Arlington, WA, 98223
- Parking lot would be required to have a minimum of 30 parking stalls.

**Description**

- a) Relatively level GC (General Commercial) zoned site available for multiple uses: retail/office/light industrial/etc.
- b) Site has frontage on three sides. All utilities are to site.
- c) Traffic count is approximately 20,000 vehicles per day.
- d) SELLER WILL SHORT PLAT PROPERTY IF SMALLER SIZED SITE IS NEEDED. Some engineering is available.
- e) Visible corner location of two state routes, SR 9 & 531 where traffic is controlled by new round-a-bout.
- f) Site is located approximately two (2) miles east of I-5 at Exit 206 in Arlington, WA.

**Price**

- a) $1,575,000, existing 1994
- b) 13,000 SF, land area: 0.71 acres
- c) Smallest space 5,000 SF; largest space 13,000 SF
- d) Parking lot with 35 spaces
- e) Will need secured fencing/card key/video monitors.
7. For the Marysville consolidated center, identify other state agencies we dispatch for, such as DNR, DFW, etc., including WSDOT IRT for other potential efficiencies/consolidation within state government.
   - WDFW
   - DOT

8. Replacement of the current Lifeline100 systems with the Positron VIPER system outlined herein based off of an estimate provided by Century Link to District 6. This would be a requirement for upgrading our current system to fit the NG911 mandates, and help us better dispatch for other entities.

9. Telephone equipment needs for this center would combine the needs for Marysville/Bellevue are as follows:
   - District 2 = $264,728.62 (for 9 positions)
   - District 7 = $264,728.62 (for 9 positions)

10. Summary of potential cost:
    - Gig-E installation cost = $900.00
    - Monthly lease cost = $7,170.00 per month = $86,040.00 per year
    - Long haul installation = $4,909.08
    - Monthly long haul cost = $6,545.44 per month = $78,545.28 per year
    - One time equipment costs = $86,365.40
    - SmartNet annual fee = $10,600.00
      - Total of installation costs = $92,174.48
      - Total yearly lease fees = $175,185.28
    - Land: $2,500,000.00
    - Telephone equipment costs: $529,427.24
    - Additional management staffing costs: $70,000.00 (because WSP would need to hire an additional manager to assist in running the center).
    - Recruitment/Training = $2,394,522.00
    - Facilities: $3,515,000.00
    - Two (2) microwave hops @$90,000 = $180,000.00
    - One (1) communications tower = $175,000.00
    - Leased data circuit one (1) Gbs = $3800 per month (x12 months) = $45,600.00/yr.
    - Data network and VoIP = $250,000.00
    - Console positions $60K per position (x18) = $1,080,000.00
    - Cost of added infrastructure for Marysville = $267,359.76

Total costs associated with Marysville/Bellevue consolidation: $11,398,625.00
1. For the Tacoma (Tacoma/Bremerton/Vancouver) center, determine the staffing needs by classification to cover the current workload for the three (3) districts if they were combined. Compare the consolidated staffing level to the current staffing level of all three (3) centers.

**Staffing Level By District**
1. Tacoma current – 25, consolidated – 25
2. Vancouver current – 19, consolidated – 19
   Total Positions – 63

**New Staffing Level Assumptions:**
2. For the Tacoma center, determine how many call positions/ consoles would be needed for the consolidated center. Compare to current level in all three centers.
   - 12 working positions
   - Positions consisting of nine (9) dispatch positions
   - Two (2) Additional COA positions would be required to cover increase in call volume by adding users.
   - One (1) floor supervisory position
   Total = 25

3. For the Tacoma consolidated center, determine how many additional positions we would want for future growth, to the year 2040, and how many positions we would want to dedicate as back up positions for other centers in Tacoma.
   - The problem with planning for future growth is it isn’t just tied to personnel or square footage.
   - There would be a need to purchase additional frequencies that would allow us to split traffic to a new console.
   - We would need to successfully migrate to a trunked system that will allow us to split traffic to suit the center.
   - At a minimum, 30-40% growth in the next 25 years based on technological advances and population growth when combined with higher expectations of service.

4. Recruitment/Training = $2,394,522.00
5. For the consolidated center, determine the estimated square footage per position, square footage of manager’s office, supervisor’s office, restrooms, conference room, quiet room, testing room, training room, etc.
   - Total number of consoles: 25 @ 400 sq. ft. = 10,000 sq. ft.
   - Command/conference room 1,000 sq. ft.
   - Reception area 1,000 sq. ft.
   - Reception area restrooms: two (2) @ 600 sq. ft. = 1,200 sq. ft.
   - Training/testing room 1,000 sq. ft.
   - Counseling/Quiet Room 300 sq. ft.
   - Command Radio Console 200 sq. ft.
   - Manager’s Office 400 sq. ft.
   - Assistant Manager’s Office 400 sq. ft. x 2 = 800 sq. ft.
   - Supervisor’s cubicles: six (6) @ 200 sq. ft. = 1,200 sq. ft.
   - Restrooms (men/women) 600 sq. ft. ea. = 1,200 sq. ft.
   - Kitchen/Break room 1,000 sq. ft.
   - Locker/showers rooms: 550 sq. ft. x 2 = 1,100 sq. ft.
   - Equipment room: 1,000 sq. ft.
   - Storage/supply room: 400 sq. ft.
   - Total 21,800 sq. ft.
   - Total building cost for Tacoma = $4,033,000.00

6. For the Tacoma consolidated center, identify any existing structure/facility that could be used to house the Tacoma consolidated center or location for a new facility.
   a) None, even if the Crime Lab were to move from its current location, the current building lacks additional commercial power which severely limits any new equipment installations.
   b) HVAC issues with the current building also limit expansion.
   c) If Tacoma, Bremerton, and Vancouver are consolidated to Tacoma, a new building will be required.
   d) An alternative new location should also be considered.
   e) Shelton offers geographic isolation from the other two (2) consolidated centers for disaster planning.
   f) Co-location of the Olympic Peninsula Communications Center with the Academy would provide benefits to both.
   g) Shelton also provides reduced labor costs, property taxes, and has fewer cost of living issues for employees than the I-5 corridor options.
7. For the Tacoma consolidated center, identify other state agencies we dispatch for, such as DNR, DFW, etc., including WSDOT IRT for other potential efficiencies/consolidation within state government.
   a) The Tacoma Region TMC is in the area and could be co-located at a minimum; the other TMCs that are in the service area would have to be addressed separately with WSDOT.
   b) WILDCOMM, if it still exists when consolidation is implemented, should be dissolved and its work given back to the WSP Communications Centers, no additional resources and minimal additional workload. Approximately four (4) CO positions would be eliminated.
   c) Ideally, any State agency with radio resources could be either co-located or absorbed by WSP.
   d) With the transmitter sites in a unified “State Communications” radio network, moving to trunking would be a much more viable option.
   e) WSDOT and DNR, at a minimum, have resources that could be utilized for this consolidation.
   f) Parking lot would be required to have a minimum of 30 parking stalls.

8. Telephone Equipment Needs for this center would combine the needs for Tacoma, Vancouver, and Bremerton as follows:
   - District 1 = $294,142.00 (for 10 positions)
   - District 5 = $205,900.04 (for 7 positions)
   - District 8 = $235,314.00 (for 8 positions)

9. Summary of Infrastructure potential cost:
   - Gig-E Installation cost = $1,800.00
   - Monthly Lease cost = $7,170.00 per month = $86,040.00 per year
   - Long Haul Installation = $5,136.58
   - Monthly Long Haul cost = $6,545.44 per month = $78,545.28 per year
   - One time equipment costs = $86,365.40
   - SmartNet Annual fee = $10,600.00
     - Total of installation costs = $93,301.98
     - Total yearly lease fees = $175,185.28
   - Land = $1,000,000.00
   - Equipment Costs: $735,356.04
   - Additional Management Staffing Costs = $5,000.00 (the difference in pay from one level to the next).
   - Recruitment/Training = $2,394,522.00
   - Anticipated Construction Costs: $1,099,740.00 & Facilities: $4,373,400.00 = $4,033,000.00
   - Two (2) microwave hops @$90,000 = $180,000.00
   - One (1) communications tower = $175,000.00
   - Leased data circuit one (1) Gbs = $3800 per month (x12 months) = $45,600.00/yr.
   - Data network and VoIP = $250,000.00
   - Console positions $60K per position (x25) = $1,500,000.00
   - Cost of added infrastructure for Tacoma = $268,487.26

Total Costs associated with Tacoma/Vancouver/Bremerton consolidation: $10,821,901.30
Wrap Up Revisited:

<table>
<thead>
<tr>
<th>Cost</th>
<th>Yakima</th>
<th>Marysville</th>
<th>Tacoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>$329,300.00</td>
<td>$2,500,000.00</td>
<td>$1,000,000.00</td>
</tr>
<tr>
<td>Facilities</td>
<td>$3,663,000.00</td>
<td>$3,515,000.00</td>
<td>$4,033,000.00</td>
</tr>
<tr>
<td>Comm. tower</td>
<td>$175,000.00</td>
<td>$175,000.00</td>
<td>$175,000.00</td>
</tr>
<tr>
<td>Microwave hops</td>
<td>$180,000.00</td>
<td>$180,000.00</td>
<td>$180,000.00</td>
</tr>
<tr>
<td>Added Staffing</td>
<td>$287,196.00</td>
<td>$391,716.00</td>
<td>$234,936.00</td>
</tr>
<tr>
<td>Added Mgmt.</td>
<td>$5,000.00</td>
<td>$70,000.00</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>Recruit/Training</td>
<td>$2,394,522.00</td>
<td>$2,394,522.00</td>
<td>$2,394,522.00</td>
</tr>
<tr>
<td>Telephone equip.</td>
<td>$592,990.15</td>
<td>$529,427.24</td>
<td>$735,356.04</td>
</tr>
<tr>
<td>Leased data circ.</td>
<td>$45,600.00</td>
<td>$45,600.00</td>
<td>$45,600.00</td>
</tr>
<tr>
<td>VoIP data network</td>
<td>$250,000.00</td>
<td>$250,000.00</td>
<td>$250,000.00</td>
</tr>
<tr>
<td>Console positions</td>
<td>$1,200,000.00</td>
<td>$1,080,000.00</td>
<td>$1,500,000.00</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>$267,359.76</td>
<td>$267,359.76</td>
<td>$268,487.26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$9,389,967.91</strong></td>
<td><strong>$11,398,625.00</strong></td>
<td><strong>$10,821,901.30</strong></td>
</tr>
</tbody>
</table>

**Total: $31,610,494.21**

Further consolidation of WSP would result in eight (8) additional positions, as most managers felt that it would be necessary to add a layer of management (three (3) CO5s), create an additional 10 COA positions to handle call volume, and create additional six (6) CO2 positions to handle the increased training needs.
Appendix F
Construction Costs

Construction costs average is around $185.00 per square foot for office type buildings including tax. Land costs in Pierce County, WA average anywhere from $100K to $1M an acre in the Tacoma area depending on location, etc. Tacoma’s consolidated center would require two (2) acres of land, taking a medium land number of $500K per acre, which adds $1M. Chart below shows building costs for major cities including Seattle area.
Appendix G
Current WSP Customers and Services Provided

Customers:
Our Primary customers are the WSP Field Operations Bureau (FOB) district personnel, Investigative Services Bureau (ISB), Executive/District/Division Command Staff, and following 19 federal and state government users with communications service contracts:

<table>
<thead>
<tr>
<th>Service Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attorney General’s Office</td>
</tr>
<tr>
<td>Bureau Land Management (BLM)</td>
</tr>
<tr>
<td>BNSF Railway Police</td>
</tr>
<tr>
<td>Department of Natural Resources</td>
</tr>
<tr>
<td>Department of Corrections</td>
</tr>
<tr>
<td>DSHS (Child Admin. Services)</td>
</tr>
<tr>
<td>DSHS (Fraud/DFI)</td>
</tr>
<tr>
<td>DSHS (McNeil/ISCC)</td>
</tr>
<tr>
<td>Gambling Commission</td>
</tr>
<tr>
<td>Homeland Security Division (HSD)</td>
</tr>
<tr>
<td>Labor &amp; Industries</td>
</tr>
<tr>
<td>Liquor Control Board</td>
</tr>
<tr>
<td>Muckleshoot Indian Tribe</td>
</tr>
<tr>
<td>Parks and Recreation Commission</td>
</tr>
<tr>
<td>Union Pacific Railroad Police</td>
</tr>
<tr>
<td>US ARMY ENG</td>
</tr>
<tr>
<td>US Forest Service (USFS-NFS)</td>
</tr>
<tr>
<td>US Fish &amp; Wildlife (USFWS)</td>
</tr>
<tr>
<td>Department of Fish and Wildlife</td>
</tr>
</tbody>
</table>

The WSP is currently reimbursed for services provided to the 19 federal and state government users with communications service contracts which is approximately $326,484.00 per year. This could result in a loss of revenue for the services provided to the WSP with added costs to the agency.

Services:
- Quickly answer 9-1-1 calls and enter complete and accurate information needed to initiate an emergency response.
- Initiate appropriate response (law enforcement, fire, medical, tow, etc.) for calls for service.
- Monitor officer safety through status checks.
- Run data checks (i.e., license/registration/criminal history).
- Record information and enter complete and accurate information on officer initiated incidents.
- Initiate emergency notifications (Blackberry notifications, AMBER Alerts, Blue Alerts, Endangered and Missing Person Alerts (EMPA), phone tree, Organ/Tissue Donor, etc.).
- Research and provide appropriate information for public records requests
- Answer and provide appropriate information on business calls, (and use of Language Line as needed).
Appendix H
Washington State Patrol District Map

Below is the current map of defining the WSP’s eight (8) current districts; and the black star marking the current location of the communications center in each of those districts. As you can see by the map, the districts are geographically spread out and the communications centers are strategically placed in each of those districts to allow the best service possible to the district, the community it serves, and the troopers on the road. WSP also has radio towers strategically placed throughout the state, to provide the best coverage of a large landscape consisting of mountain ranges, mountain passes, densely populated areas, agricultural growth areas, and ocean front, just to name a few.
Appendix I
State Consolidation Studies
Idaho State Police

Contact: Denise King (208) 846-7512

Summary
Consolidated in 1997 from six (6) centers to three (3) centers
Consolidated in 2009 from three (3) centers to two (2) centers
  a. Consolidation addressed redundancy for CAD and Radios but not phones (still a work in progress)
  b. Benefits:
     i. System Redundancy
     ii. Less Equipment
  c. Downfalls:
     i. Training
     ii. Personal touch with units
     iii. Moving employees

Approach
Idaho State Police consolidated in two phases one in 1997 and the second in 2009.

Results
  • 1997 consolidation six (6) centers to three (3)
  • 2009 consolidation three (3) centers to two (2)
  • Consideration for a final consolidation to one (1) supercenter

Savings
A dollar amount concerning savings was not discussed, but it was stated less equipment is needed and maintenance costs are much lower.

Locations
There are currently two (2) Idaho State Police Regional Communications Centers (RCC’s):

RCC North
Coeur d’Alene - District 1 / Lewiston - District 2
The communications center is located in the District 1 office (Coeur d’Alene)
615 West Wilbur Ave.
Coeur d’Alene, ID 83815

RCC South
Meridian - District 3 / Jerome - District 4
Pocatello - District 5 / Idaho Falls - District 6
The communications center is located in the District 3 office (Meridian)
Benefits

- The centers have the capability for CAD and radio to work from either center. This redundancy is helpful in the event one center becomes un-operational.
- There is less equipment to purchase and maintain.

Lessons Learned

- Phones are not redundant in both centers; this is still a work in progress and the work around is to call the phone company to move calls if necessary. Employees chose not to move to a new location due to the consolidation, so talent was lost from tenured employees and geographic sense. One (1) center had 11 employees, one (1) position was reallocated to a supervisor position, only one (1) of the remaining 10 moved, so this left a huge deficit in the work force.
  - Training new employees is continual and there are always openings
  - The personal touch with units has been lost. Centers were in each district so the communications officers and officers were close. Now with a northern and southern center that is gone.
- This personal touch was also lost to the public. Many times people are talking to someone that is not even located in their geographical area.
Appendix J
State Consolidation Studies
California Highway Patrol

Contact: Robin (916) 861-1300 referred to CCSS (916) 843-3000

Summary
Consolidated prior to 1992 from 24 centers to five (5) main dispatch centers, with further consolidation efforts beginning in 1992; combining CSP and CHP into one agency.

- Study includes consolidation of communications centers as part of a consolidation of state agencies.
- Benefits: Efficiencies in governmental expenditures and operations
- Downfalls: Radio traffic getting over mountains

Approach

For many years, the concept of consolidating the California State Police (CSP) with the California Highway Patrol (CHP) had been discussed and then shelved. In recent years, reductions in state fiscal resources and a focused effort to streamline government agencies and operations prompted a revival of the CSP/CHP consolidation concept.

In March 1994, Governor Pete Wilson directed Dean R. Dunphy, Secretary of Business, Transportation, and Housing Agency (BT&H) to officially evaluate the feasibility of consolidation. A preliminary fiscal analysis was prepared by the CHP to determine if merging the two (2) departments could achieve an increased level of public safety and service without higher costs. The analysis proved favorable and a formal consolidation proposal was prepared for Governor Wilson including an additional report for the Governor to present to the Milton Marks Commission on California State Government Organization and Economy (Little Hoover Commission). Preliminary indicators also showed bi-partisan support in the legislature for CSP/CHP consolidation.

CHP's Executive Staff directed the Offices of Primary Interest (OPIs) to establish a liaison with their respective counterparts in the CSP. Initial contacts were conducted with the understanding that consolidation might not take place, but to establish an information base in the event the plan was approved by the Legislature. State Police management also began preliminary preparations for a possible merger, including developing a "transition manual," with a detailed overview of CSP activities, administration, responsibilities, and organizational structure.

Governor Wilson wanted an economic and structural reorganization that would establish an entity capable of providing the highest levels of law enforcement service for the public, state employees, and state facilities. His goal was to gain legislative approval and complete the consolidation process by July 1, 1995. The CHP immediately formed a CSP/CHP "transition team" to concentrate on achieving the Governor's objective and target date. A key element for consideration was maintenance of the current public safety services performed by the CSP while incorporating those services into the existing structure of the CHP.
The Little Hoover Commission held a public hearing on March 16, 1995 and the consolidation proposal was unanimously approved after testimony from BT&H Secretary Dean R. Dunphy, CHP Commissioner Maury Hannigan, and then Deputy Commissioner Dwight "Spike" Helmick with additional presentations made by CSP Chief Duane Lowe and representatives of the Department of General Services, CSP Association, and the California Union of Safety Employees.

The CHP's Office of Special Representative formalized the written language of the Governor's Reorganization Plan to modify sections of the Government Code and other codes required by the consolidation. Final legislative action came in the form of an Assembly Resolution in support of the merger.

Results
On July 12, 1995, 271 uniformed officers of the State Police became part of the 5,713 sworn officers of the Highway Patrol. The 68 non-uniformed employees of the CSP transferred to existing civil service classifications, with the exception of CSP's Communications Operators who were assimilated into the CHP's Communications Operator II classification. The uniformed personnel changed from California State Police classifications to new CHP classifications established specifically for the consolidation.

In order to complete this transition of former CSP personnel into CHP classifications, a comprehensive three-phase training program was developed. This training was designed to provide CSP personnel with the tools necessary to successfully perform the full range of the new duties for CHP classifications. Mandatory courses ranging from four days to three weeks were implemented for both uniformed and non-uniformed staff including field orientation periods for specified classifications. Almost all CSP personnel successfully transitioned into CHP’s corresponding rank structure and now receive the same pay and benefits.

Savings
The fiscal profile initially developed showed costs/savings in two main categories: "personnel services" and "operating expenses & equipment." During the fiscal planning for the merger, the CHP estimated it could realize substantial savings in equipment and operating expenses, however, fiscal problems developed in three (3) primary areas:

1) **Communications**: Unanticipated costs were incurred to update and repair CSP telecommunications equipment to ensure its compatibility with existing CHP equipment. Unplanned costs also resulted with the reestablishment of CSP radio communications operations in CHP dispatch centers. Originally, plans called for consolidation of the CSP/CHP dispatch centers after the first year; however, due to operational issues the centers were consolidated as soon as feasible.
2) **Facilities:** Savings in the rental of facilities did not occur at the same rate as initially anticipated, although all but four (4) facilities were vacated and operations assimilated into CHP facilities. The Department was required to continue rental payments for a longer period of time than expected after vacating some buildings owned and controlled by the Department of General Services.

3) **Equipment:** The CHP anticipated that CSP vehicles owned by the Department of General Services would be transferred during the merger at no additional cost to the Department; however, the CHP was required to purchase the vehicles from DGS to maintain the existing level of service.

The consolidation, however, has resulted in undetermined savings by reducing redundancies including vacating 12 leased facilities, eliminating duplicate contracts for services, and streamlining contracts for law enforcement services.

**Locations**
The California Highway Patrol has eight (8) divisions, with one or more Dispatch or Communication Centers in each division. There are a total of 24 dispatch centers.

<table>
<thead>
<tr>
<th>Northern Division</th>
<th>Communication or Dispatch Center</th>
<th>CHP Offices of Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Humboldt Communications Center</strong></td>
<td>255 East Samoa Blvd. Arcata 95521-6797 707.268.2000</td>
<td>Crescent City Garberville Humboldt</td>
</tr>
<tr>
<td><strong>Redding Dispatch Center</strong></td>
<td>2503 Cascade Blvd. Redding 96003-0999 530.242.3210</td>
<td>Cottonwood Inspection Facility Red Bluff Redding Trinity River</td>
</tr>
<tr>
<td><strong>Susanville Dispatch Center</strong></td>
<td>472-400 Diamond Crest Road Susanville 96130-5001 530.257.9605</td>
<td>Alturas Quincy Susanville</td>
</tr>
<tr>
<td><strong>Ukiah Dispatch Center</strong></td>
<td>540 South Orchard Avenue Ukiah 95482 707.467.4000</td>
<td>Clear Lake Ukiah</td>
</tr>
<tr>
<td><strong>Yreka Dispatch Center</strong></td>
<td>1739 South Main Street Yreka 96097 530.841.6000</td>
<td>Dunsmuir Grade Inspection Facility Mt. Shasta Yreka</td>
</tr>
<tr>
<td>Valley Division</td>
<td>Communication or Dispatch Center</td>
<td>CHP Offices of Jurisdiction</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Chico Dispatch Center</td>
<td>995 Fir Street Chico 95927-6301</td>
<td>Chico</td>
</tr>
<tr>
<td></td>
<td>530.879.1900</td>
<td>Oroville</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Williams</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Willows</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yuba-Sutter</td>
</tr>
<tr>
<td>Sacramento Communications</td>
<td>3165 Gold Valley Drive Rancho</td>
<td>Auburn</td>
</tr>
<tr>
<td>Center</td>
<td>Cordova 95670 916.861.1300</td>
<td>Grass Valley</td>
</tr>
<tr>
<td></td>
<td></td>
<td>North Sacramento</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Placerville</td>
</tr>
<tr>
<td></td>
<td></td>
<td>South Sacramento</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Woodland</td>
</tr>
<tr>
<td>Stockton Dispatch Center</td>
<td>3330 N. Ad Art Road Stockton</td>
<td>Amador</td>
</tr>
<tr>
<td></td>
<td>95208 209.943.8600</td>
<td>San Andreas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stockton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tracy</td>
</tr>
<tr>
<td>Truckee Dispatch Center</td>
<td>10077 Sate Rte. 89 South Truckee</td>
<td>Donner Pass Inspection Facility</td>
</tr>
<tr>
<td></td>
<td>96161 530.582.7500</td>
<td>Gold Run</td>
</tr>
<tr>
<td></td>
<td></td>
<td>South Lake Tahoe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Truckee</td>
</tr>
<tr>
<td>Golden Gate Division</td>
<td>Golden Gate Communications</td>
<td>Castro Valley</td>
</tr>
<tr>
<td></td>
<td>Center 1551 Benicia Road Vallejo</td>
<td>Contra Costa</td>
</tr>
<tr>
<td></td>
<td>94591-7568 707-551-4180</td>
<td>Cordelia Inspection Facility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dublin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hayward</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mission Grade Inspection Facility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Napa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nimitz Inspection Facility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oakland</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Redwood City</td>
</tr>
<tr>
<td></td>
<td></td>
<td>San Francisco</td>
</tr>
<tr>
<td></td>
<td></td>
<td>San Jose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Santa Rosa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Solano</td>
</tr>
</tbody>
</table>
### Central Division

<table>
<thead>
<tr>
<th>Communication or Dispatch Center</th>
<th>CHP Offices of Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bakersfield Dispatch Center</strong></td>
<td></td>
</tr>
<tr>
<td>4040 Buck Owens Blvd.</td>
<td></td>
</tr>
<tr>
<td>Bakersfield 93308-4930</td>
<td></td>
</tr>
<tr>
<td>661.864.4400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bakersfield</td>
</tr>
<tr>
<td></td>
<td>Buttonwillow</td>
</tr>
<tr>
<td></td>
<td>Fort Tejon</td>
</tr>
<tr>
<td></td>
<td>Grapevine Inspection Facility</td>
</tr>
<tr>
<td><strong>Fresno Dispatch Center</strong></td>
<td></td>
</tr>
<tr>
<td>1382 West Olive Drive</td>
<td></td>
</tr>
<tr>
<td>Fresno 93728-2890</td>
<td></td>
</tr>
<tr>
<td>559.441.5400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coalinga</td>
</tr>
<tr>
<td></td>
<td>Fresno</td>
</tr>
<tr>
<td></td>
<td>Hanford</td>
</tr>
<tr>
<td></td>
<td>Porterville</td>
</tr>
<tr>
<td></td>
<td>Visalia</td>
</tr>
<tr>
<td><strong>Merced Dispatch Center</strong></td>
<td></td>
</tr>
<tr>
<td>1500 Bell Drive</td>
<td></td>
</tr>
<tr>
<td>Atwater 95301</td>
<td></td>
</tr>
<tr>
<td>209.356.2900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Los Banos</td>
</tr>
<tr>
<td></td>
<td>Madera</td>
</tr>
<tr>
<td></td>
<td>Mariposa</td>
</tr>
<tr>
<td></td>
<td>Merced</td>
</tr>
<tr>
<td></td>
<td>Modesto</td>
</tr>
<tr>
<td></td>
<td>Oakhurst</td>
</tr>
<tr>
<td></td>
<td>Sonora</td>
</tr>
</tbody>
</table>

### Southern Division

<table>
<thead>
<tr>
<th>Communication or Dispatch Center</th>
<th>CHP Offices of Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Los Angeles Communications Center</strong></td>
<td></td>
</tr>
<tr>
<td>2901 Broadway</td>
<td></td>
</tr>
<tr>
<td>Los Angeles 90041</td>
<td></td>
</tr>
<tr>
<td>323.259.2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Altadena</td>
</tr>
<tr>
<td></td>
<td>Antelope Valley</td>
</tr>
<tr>
<td></td>
<td>Baldwin Park</td>
</tr>
<tr>
<td></td>
<td>Castaic Inspection Facility</td>
</tr>
<tr>
<td></td>
<td>Central Los Angeles</td>
</tr>
<tr>
<td></td>
<td>East Los Angeles</td>
</tr>
<tr>
<td></td>
<td>Newhall</td>
</tr>
<tr>
<td></td>
<td>Santa Fe Springs</td>
</tr>
<tr>
<td></td>
<td>South Los Angeles</td>
</tr>
<tr>
<td></td>
<td>West Los Angeles</td>
</tr>
<tr>
<td></td>
<td>West Los Angeles</td>
</tr>
<tr>
<td></td>
<td>Valley</td>
</tr>
</tbody>
</table>

### Border Division

<table>
<thead>
<tr>
<th>Communication or Dispatch Center</th>
<th>CHP Offices of Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Border Communications Center</strong></td>
<td></td>
</tr>
<tr>
<td>7183 Opportunity Road</td>
<td></td>
</tr>
<tr>
<td>San Diego 92111</td>
<td></td>
</tr>
<tr>
<td>858.637.3800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>El Cajon</td>
</tr>
<tr>
<td></td>
<td>Oceanside</td>
</tr>
<tr>
<td></td>
<td>Otay Mesa Inspection Facility</td>
</tr>
<tr>
<td></td>
<td>Rainbow Inspection Facility</td>
</tr>
<tr>
<td></td>
<td>San Diego</td>
</tr>
<tr>
<td></td>
<td>San Onofre Inspection Facility</td>
</tr>
<tr>
<td></td>
<td>Temecula</td>
</tr>
<tr>
<td><strong>El Centro Dispatch Center</strong></td>
<td></td>
</tr>
<tr>
<td>2331 Highway 86</td>
<td></td>
</tr>
<tr>
<td>Imperial, CA 92251</td>
<td></td>
</tr>
<tr>
<td>760.482.2550</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Calexico Inspection Facility</td>
</tr>
<tr>
<td></td>
<td>El Centro</td>
</tr>
<tr>
<td></td>
<td>Winterhaven</td>
</tr>
<tr>
<td>Communication or Dispatch Center</td>
<td>CHP Offices of Jurisdiction</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Indio Dispatch Center</strong></td>
<td></td>
</tr>
<tr>
<td>79-650 Varner Road</td>
<td></td>
</tr>
<tr>
<td>Indio, CA 92203-9704</td>
<td></td>
</tr>
<tr>
<td>760.772.8900</td>
<td></td>
</tr>
<tr>
<td><strong>Orange County Communications</strong></td>
<td></td>
</tr>
<tr>
<td>Center</td>
<td></td>
</tr>
<tr>
<td>6681 Marine Way</td>
<td></td>
</tr>
<tr>
<td>Irvine 92618</td>
<td></td>
</tr>
<tr>
<td>949.559.7888</td>
<td></td>
</tr>
<tr>
<td><strong>Coastal Division</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Monterey Dispatch Center</strong></td>
<td>Gilroy Inspection Facility</td>
</tr>
<tr>
<td>960 East Blanco Road</td>
<td>Hollister-Gilroy</td>
</tr>
<tr>
<td>Salinas 93901</td>
<td>King City</td>
</tr>
<tr>
<td>831.796.2160</td>
<td>Monterey</td>
</tr>
<tr>
<td></td>
<td>Santa Cruz</td>
</tr>
<tr>
<td><strong>San Luis Obispo Dispatch Center</strong></td>
<td>Buellton</td>
</tr>
<tr>
<td>675 California Blvd.</td>
<td>Santa Maria</td>
</tr>
<tr>
<td>San Luis Obispo 93401-2591</td>
<td>San Luis Obispo</td>
</tr>
<tr>
<td>805.593.3333</td>
<td>Templeton</td>
</tr>
<tr>
<td><strong>Ventura Dispatch Center</strong></td>
<td>Conejo Inspection Facility</td>
</tr>
<tr>
<td>4656 Valentine Road</td>
<td>Moorpark</td>
</tr>
<tr>
<td>Ventura 93003-5740</td>
<td>Santa Barbara</td>
</tr>
<tr>
<td>805.477.4174</td>
<td>Ventura</td>
</tr>
<tr>
<td><strong>Inland Division</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Barstow Dispatch Center</strong></td>
<td>Barstow</td>
</tr>
<tr>
<td>300 East Mt. View</td>
<td>Morongo Basin</td>
</tr>
<tr>
<td>Barstow 92311-2887</td>
<td>Needles</td>
</tr>
<tr>
<td>760.255.8750</td>
<td>Victorville</td>
</tr>
<tr>
<td><strong>Bishop Dispatch Center</strong></td>
<td>Bishop</td>
</tr>
<tr>
<td>469 South Main Street</td>
<td>Bridgeport</td>
</tr>
<tr>
<td>Bishop 93514-3490</td>
<td>Mojave</td>
</tr>
<tr>
<td>760.872.5900</td>
<td></td>
</tr>
<tr>
<td><strong>Inland Empire Traffic Management</strong></td>
<td></td>
</tr>
<tr>
<td>Center</td>
<td></td>
</tr>
<tr>
<td>Inland Communications Center</td>
<td></td>
</tr>
<tr>
<td>13892 Victoria Street</td>
<td></td>
</tr>
<tr>
<td>Fontana, CA 92336</td>
<td></td>
</tr>
<tr>
<td>909.428.5400</td>
<td></td>
</tr>
</tbody>
</table>
The merger did not increase CHP's uniformed personnel strength beyond the addition of the authorized CSP staffing level. As a result, the CHP assumed responsibility only for those services which were provided by the CSP at the time of consolidation. In June 1995, all state agencies/departments were provided with details about the merger and the enforcement responsibilities assumed by the CHP. Local police departments and sheriffs’ offices were also contacted to discuss procedures for responding to calls on state facilities located in their jurisdictions. The CHP continued several contracts for expanded services, including the following state facilities:

- Department of Motor Vehicles - patrol services on a full-time basis for the Hope Street office in Los Angeles; security services at hearings.
- Employment Development Department - patrol services on a full-time basis at unemployment offices in Los Angeles and the Bay Area; security services at hearings.
- Board of Equalization - serving tax seizure and arrest warrants.
- Franchise Tax Board - serving tax seizure and arrest warrants.
- California Courts of Appeal - providing security services at hearings.
- Department of Water Resources - maintaining six (6) field offices dedicated to the State Water Project including both ground and air surveillance services. (Contract expired December 1995.)
- Department of Consumer Affairs - providing security services at hearings.
- Department of Transportation - providing police services at the Transbay Transit Terminal located in San Francisco.

The CHP will also provide providing dignitary protection services for the following agencies:

- Secretary of State
- State Treasurer's Office
- State Controller's Office
- State Superintendent of Public Instruction
- Department of Insurance
- The CHP cataloged every state-owned building and facility in California to provide a resource for dispatching officers to service calls.

Benefits

One of the key benefits of the CSP/CHP consolidation was efficiencies in governmental expenditures and operations. Preliminary fiscal analysis, however, indicated that there would be both costs and savings associated with the merger although it was originally anticipated that most of the savings would be immediate, while many of the costs would be spread over several years.

The primary focus of the Highway Patrol has always been California's freeways and the highways in the unincorporated areas of our state, but the merger with the CSP has changed and broadened the scope of the Department. The CHP assumes the responsibilities of protecting the Governor and other constitutional officers, as well as everyone who works in or visits a state building. To accomplish this new mission, the CHP absorbed and integrated the following CSP units into its organizational structure:
a) **Office of Dignitary Protection (ODP)** - The reorganization merely placed ODP under the CHP but its role did not change. ODP provides protection to state constitutional officers and other dignitaries as appropriate or provided for under contractual agreements. ODP is also responsible for the Department’s Explosive Ordinance Unit and dignitary threat assessments/investigations.

b) **Office of Capitol Services (OCAPS)** - OCAPS, formerly known as the CSP Capitol Corps is responsible for providing security and protection on the grounds of the State Capitol including the Legislative Office Building adjacent to the Capitol. The Department’s Equestrian and Bicycle Units are assigned to OCAPS as well. Additionally, OCAPS is responsible for coordinating security efforts with the Senate and Assembly Sergeants-at-Arms for security of the legislature.

c) **Office of Court Services (OCS)** - OCS consolidates reimbursable court security services provided throughout the state under one (1) command. Pending final contractual approvals, OCS will be responsible for providing security services to the Supreme and Appellate Courts at various locations in California although it will be headquartered at the Supreme Court in San Francisco.

**Lessons Learned**
Radio traffic getting over the mountain passes in California and extended geography is difficult. Would plan for a better disaster recovery plan.
Appendix K  
State Consolidation Studies  
Oregon State Police

Contact: Rich Cully and Bob Rector (503) 375-3555

Summary:
Consolidated 1993 from six (6) centers to four (4) centers  
Consolidated in 2003 from four (4) centers to two (2) centers

- Benefits:
  - Less Equipment
  - Common CAD in both centers
- Downfalls:
  - Training
  - Personal touch with units
  - Moving employees
  - Radio coverage limitations
  - Redundancy (both centers should not share a fault line)

Approach
Oregon State Police consolidated in two (2) phases; one beginning in 1993 and the second in 2003.

Results
- 1997 consolidation four (4) centers to three (3)
- 2003 consolidation three (3) centers to two (2)
- Overall they are satisfied but learned very important lessons about consolidation of centers that share a fault line on the Interstate 5 corridor.

Savings
It was mentioned one of the centers is now housed in the DOD readiness center which is felt to be a savings and benefit

Locations
- Northern location
- Southern location

Both Centers are located on the Interstate 5 corridor and are on the same fault line. This creates a Continuity of Operations Plan (COOP) risk for fail-over and risk management when both centers may have the possibility of going down simultaneously in the state of a major natural disaster.

Benefits
- Purchase less equipment and can upgrade to new equipment for less.
- The centers have common CAD in both centers.
Lessons Learned

- Terrain should dictate center locations. Be mindful of weather systems, fault lines, mountain ranges, etc. so each center location is separate.
- Identify the work load before consolidation and how many areas a dispatcher can truly work/handle effectively. This leads to how many consoles are needed.
- Tabletop exercise for phone, CAD and radio coverage from all centers to identify gaps in coverage throughout the state in the event one center needs to cover for another. Mock up center locations and towers.
- Limitations are set by radio coverage, know what system you will be using and have it completed and in place before executing the consolidation. This is still a work in progress since 1997. Thoughts, piggy-backing on IWIN or using DOJ, university systems, etc.
- When eastern Oregon (OR) center closed they lost the talent from that geographical location, with it went the geography knowledge, and other specific information to run daily business unique to that area.
- A CO is not able to intimately learn geography for the whole state and be as effective as knowing a localized area.
- There is a definite transition between moving the work and doing the work, be very cognizant of this and the overtime and stress involved in the transition. Example closed center in Bend on Friday, reported to work in the northern location on Saturday with a majority of the workforce brand new inexperienced dispatchers.
- The personal touch with units is lost. There is no way to recover this or rebuild it.
- Work closely with local agencies to build rapport and keep communication open in the event the move is less than perfect. Offer an 800 number for Law Enforcement only for those agencies that are no longer a local call, this builds a working relationship.
- Both Centers are located on the Interstate 5 corridor and are on the same fault line. This creates a COOP risk for fail-over and risk management when both centers may have the possibility of going down simultaneously in the state of a major natural disaster. In looking back, they would have rather located them in the Northeast and the Southwest areas of the state.
DATE: October 2, 2002
TO: Danny Bisgaard, Major
    Budget Director
FROM: Jerry Martin, Manager
    Dispatch Support Unit

SUBJECT: TELECOMMUNICATOR STAFFING STUDY 2002


In relationship to the 2000 staffing study, my conclusions for staffing needs are as follows:

<table>
<thead>
<tr>
<th>Center</th>
<th>TC-I</th>
<th>TC-II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECC</td>
<td>8</td>
<td>18</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>(-1)</td>
<td>(-4)</td>
<td>(-5)</td>
</tr>
<tr>
<td>NCC</td>
<td>14</td>
<td>24</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(0)</td>
<td>(5)</td>
</tr>
<tr>
<td>SCC</td>
<td>8</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>(0)</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>DSS</td>
<td>30</td>
<td>61</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>(0)</td>
<td>(0)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

* The dispersion of personnel from the ECC into the remaining centers is being conducted as an administrative function of the section. Since the closure of the ECC does not eliminate the work performed by that center, it is valid to project future system-wide staffing needs by considering the work done by the ECC during the study period. This report does not take into account the staffing reductions directed in April and August 2002. The ECC is closed nightly from midnight until 6:00 A.M. and the centers in Salem and Central Point pick up ECC duties.
DISCUSSION

Since 1991, the predecessor organizations to the Dispatch Support Unit have undertaken the task of forecasting and reporting the number of full time employees (FTE) to staff the Telecommunicator-I (Call taker) and Telecommunicator-II (Dispatcher) positions within the State Police dispatch system. The efforts of Scholten and Walker are well documented and the methodology used has supported the 1993, 1995, 1997, 1999 and 2001 budget processes for establishing required FTE in the Dispatch Services Section.

In planning for the 2003-05 biennium, the section faces potential challenges ranging from the constraints of previous budget developments to an uncertain future.

Budget cutting began before Thanksgiving 2001, when, with the state of Oregon facing what was then a $500-million deficit, the Dispatch Services managers met to prepare budget reduction scenarios in two-percent reduction increments up to 20-percent. These projections, delivered to the Department’s executive staff, were considered by that body and implemented at the 10-percent reduction level. This reduction met that certain vacant positions could not be filled, starting the section down the road of eliminating gains in staffing levels accomplished over the past three biennia.

As the state budget deficit approached $1-billion and the Legislature met in its fifth special session, Dispatch Services were again reduced, this time by another 13 Full Time Equivalent positions. The elimination of this number of positions has effectively negated earlier success in attaining a staffing level commensurate with reduction of employee overtime and acceptable levels of customer service.

Before the end of the 2001-03 budget, the section will close the Eastern Command Center (ECC - Formerly, the Eastern Regional Dispatch Center), consolidate ECC operations into the Northern and Southern Command Centers (NCC, SCC formerly the Western Regional and Southern Regional Dispatch Centers, respectively), redistribute the associated personnel voicing a preference to stay with the Department and replacing those positions vacated by attrition and for which authorization to hire can be obtained.

The department as a whole faces loss of sworn and non-sworn personnel. There are no additional trooper academies scheduled in this biennium, while attrition will continue. This has the potential to flatten demand for dispatch services, as there will be fewer patrols on the road and certainly no new additions, unlike the past two years when patrol numbers and associated activity increased. However, dispatchers will continue to stand watch over assigned radio frequency groups, against the occasion for those groups to come into immediate and unannounced use.
The intake of calls for service (from public and governmental sources) is expected to remain the same, or increase slightly as the demand for State Police services continues, regardless of the availability of responding resources.

Against the backdrop of these events, the Dispatch Support Unit has made adjustments to the year 2000 Telecommunicator staffing analysis. While some elements and assumptions in the staffing study are now approaching six years old, there will be no significant modification of these elements this biennium. The construction of this, and perhaps the next, staffing study assumes a “wait and see,” conservative approach to the application of formulae and assumptions. The state economy could turn around dramatically in advance of the 2003 session; the state economy could plummet further. An upward swing, and accelerated sworn hiring which could result, would result in an understaffing of the dispatch centers; while a further downturn would result in a neutral to overstaffing situation.

Therefore, revised assumptions about radio channel saturation, modifications to leave accrual and usage computation, reconsideration of the shift relief factor and a host of other details will wait until another study.

This staffing study, then, is accomplished by updating the significant data points (Dispatch and call taking activity and measured leave use), leaving unchanged the ratios and task measurements of the proceeding study. Historical data is applied in determining workload created through the query of state, interstate and national databases and the workload associated with a call for service after initial entry is extrapolated from earlier study data. The number of TC-II’s (Dispatchers) remains connected to frequency groups and percentage of activity measured in those groups, while TC-I (Call Taker) staffing remains connected to the metrics associated with receiving and processing calls for service and supporting the dispatch operation. The result is a conservatively updated forecast of FTE needed to accomplish the dispatch and call taking task.

There were gains made in dispatch staffing during the 1999-01 and 2001-03 biennia. As data was being gathered for this report (Winter-Spring 2001-02), the Northern Command Center (Salem) had full staffing level in sight for the first time in its history. Notably, this results in a slightly smaller shift relief factor for this work site and for the dispatch section generally in this study. This example of the benefit of attaining proper staffing level occurred because there were more full time-full benefit employees on staff during the study period; leave taken was spread out among a larger employee field. If the shift relief factor has been historically accurate, then one result of the anticipated reduction in staffing should be that the shift relief factor will go up in the 2004 study (Indicating a need for additional personnel).
WHAT IS TAKEN INTO ACCOUNT IN DETERMINING THE “STAFFING LEVEL?”

- Shift Relief Factor. The shift relief factor is a multiplier to determine the actual FTE necessary to cover one eight (8) hour shift seven days a week. It is created from the analysis of historical employee payroll and scheduling data, including leave used, training time, patrol observation, special assignments, meal and rest breaks.

- The number of radio frequency groups, adjusted to reflect time in use, one TCII can effectively manage.

- Time spent by personnel handling telephone traffic.

- Time spent making entries into the CAD system.

This information is viewed from the assumption of personnel working on a 5/8 style shift.

WHAT ARE THE KEY ELEMENTS OF THE SHIFT RELIEF FACTOR?

LEAVE TAKEN

To determine historical leave time taken by TCI and TCII employees, information was obtained from the Computer Services Section on all leave taken in CY2000. The results show that the average Telecommunicator takes 331 hours per year in various types of leave including compensatory time, holiday, vacation, and sick time.

TRAINING TIME

Time devoted each year to training was estimated at 160 hours, and includes the ride along program, in-service, and seminars.
ADDITIONAL DUTIES

Each Center has employees involved in essential duties that reduce their availability for actual dispatch or call taking functions. These duties include CAD maintenance, LEDS representation, CAD Focus groups, User Groups, Department Safety Committee, operations at the annual Oregon State Fair, and other duties as required. Approximately 35 hours per person, per year.

DAYS OFF

In order to compute the Shift Relief Factor it is necessary to know the amount of time taken on Regularly Scheduled Days Off for each employee. Assuming 8 hour shifts there are 104.3 regularly scheduled Days Off or 834.4 hours per year.

BREAKS AND LUNCHES

By contract Telecommunicator personnel are entitled to 1 hour per shift for breaks and lunch. This can be taken in two 15 minute breaks and one 30 minute lunch or two 30 minute breaks. In order to calculate the impact of breaks and lunches it was necessary to identify how many days a Telecommunicator actually works in the Center. This was calculated by subtracting the time taken off for Leave, Training, Additional Duties, Holidays, and Days Off from the hours available per year. The result indicated 195 hours of break time per year per employee.

SHIFT RELIEF FACTOR

In this study period, the shift relief factor for State Police Telecommunicators was calculated at 2.14. This equates to 6.42 persons to staff one position 24 hours a day (3 shifts).
WHAT WORKLOAD ELEMENTS ARE CONSIDERED?
(Average for all dispatch centers)

RADIO TRAFFIC

Based on information captured on digital communications logging systems, the average workload per shift for radio traffic was 334 minutes (Informational, not used to establish TC-II needs).

TELEPHONES

Based on information captured on digital communications logging systems, the average workload per shift for telephone traffic was 385 minutes.

CAD ENTRIES

Based upon an examination of CAD Call For Service data the average workload per shift for calls for service was 53 minutes.

CAD INCIDENT REMARKS AND MODIFICATIONS

After a CAD incident has been created, many times, additional remarks or modifications are made to the incident. The amount of time spent on these activities is significant and is not captured in any other location in this report.

The amount of time spent adding supplemental information or otherwise modifying CAD records is calculated at 43.51 minutes per shift, based upon adjusting the historical value for this task by the increase in calls for service in this study period. (Informational, not used to establish TC-II needs).

LEDS QUERIES

LEDS records were utilized to determine the amount of time spent by telecommunicators on LEDS queries.

The average workload per shift for LEDS Queries was 40-minutes, with the average number of LEDS Queries per shift at 272 (Informational, not used to establish TC-II needs).
LEDS ENTRIES

LEDS records were utilized to determine the amount of time spent by Telecommunicators on LEDS entries.

The average workload per shift for LEDS Entries and other LEDS related work was 22.17 minutes.

WRECKERS

Information was obtained from CAD as to the total number of Wrecker entries made into the CAD. The average wrecker entry takes 30 seconds to complete; with an average workload per shift for Wrecker Entries was 4.72 minutes.

ABANDONED AUTOS

The SCC handles abandoned autos tagged and towed differently than either of the other two Centers. This consists of monitoring a tracking and filing system for all abandoned autos tagged in the district. This workload is placed at 10 minutes per shift. All dispatch centers have assumed some additional responsibility in this area over the past two years.

MISCELLANEOUS

There are a certain amount of miscellaneous duties performed at each RDC. This includes, but is not limited to, filing, copying, faxing, handling teletypes, briefing, and cleaning. There is no means to measure the exact amount of time spent on these activities but it is estimated at 120-minutes per shift at each RDC.
MINIMUM STAFFING LEVEL CONSIDERATIONS

FREQUENCY GROUPS

In general terms a frequency group is “the smallest number of repeater sites that can be isolated and moved to another dispatcher, if needed, as work ebbs and flows.”

A study completed by Art Walker in 1991 determined that the maximum number of frequency groups a Telecommunicator could effectively manage was three even if other duties were minimized.

Using the same criteria for this study, the following assumptions are made, based solely on this requirement. This figure has been modified by the percentage of time that the frequency groups are active with at least one member working. This will take into account the time that many offices are closed. Workload has not been calculated into these figures.

<table>
<thead>
<tr>
<th>RDC</th>
<th>Groups</th>
<th>% Time Active</th>
<th>TCII’s Req. Per Shift</th>
<th>TCII’s Req. Per Day</th>
<th>FTE’s (x 2.14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERDC</td>
<td>10</td>
<td>83.57%</td>
<td>2.78</td>
<td>8.35</td>
<td>18</td>
</tr>
<tr>
<td>SRDC</td>
<td>10</td>
<td>84.55%</td>
<td>2.81</td>
<td>8.46</td>
<td>19</td>
</tr>
<tr>
<td>WRDC</td>
<td>13</td>
<td>82.9%</td>
<td>3.59</td>
<td>10.78</td>
<td>24</td>
</tr>
</tbody>
</table>

The number of frequency groups a TCII can monitor may fluctuate with the time of day, number of Troopers on duty, or the activity of particular frequency groups. For example, on graveyard with very few patrols on duty a TCII may be able to monitor more than three frequency groups. It is possible that one frequency group may get so busy that a TCII cannot handle more than that one group.

When duties, other than dispatch, such as answering phones and handling warrants are added to a TCII’s workload, the issue of frequency groups becomes even more complex and has a direct impact on the number of frequency groups a TCII can handle.

Frequency groups monitored by the dispatcher are the critical element in predicting staffing levels per shift. The number of frequencies that a Telecommunicator can be expected to monitor without error is vital when all factors are taken into account.
DISPATCH WORKLOAD DISTRIBUTION

As a function of previous staffing studies, workload categories were developed to predict what percentage of each workload category should be assigned as TCI or TCII functions. Conceptually, TCI’s are assigned those duties not in direct support of Trooper related, radio dispatch, functions. These figures, in turn, form a basis for clearly delineating TCI and TCII duties. This remains unchanged from previous staffing studies.

However, as a practical matter, this approach to the division of duties has not been successfully applied to the State Police dispatch program because neither the call-taking (TC-I), nor the dispatching functions (TC-II), have been fully staffed. Therefore, when a dispatch center is short call-takers, the work falls to dispatchers and, increasingly, to supervisors.

When dispatchers and supervisors get caught up in performing duties other than their own, then their primary duties are compromised with respect to efficiency, effectiveness and timeliness.

The workload estimates are:

<table>
<thead>
<tr>
<th></th>
<th>TCI</th>
<th>TCII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Traffic</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Telephones</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>CAD Entries</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>IR/Modify</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>LEDS Queries</td>
<td>12%</td>
<td>88%</td>
</tr>
<tr>
<td>LEDS Entries</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Wreckers</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>AIRS</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Abandoned Auto</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>90%</td>
<td>10%</td>
</tr>
</tbody>
</table>

These percentage estimates result in the following workload distribution.
### IDEALIZED WORKLOAD DISTRIBUTION
(Minutes)

<table>
<thead>
<tr>
<th>Category</th>
<th>TCI</th>
<th>TCII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Traffic</td>
<td>0</td>
<td>333.68</td>
</tr>
<tr>
<td>(338.68)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephones</td>
<td>349</td>
<td>18.37</td>
</tr>
<tr>
<td>(385.11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD Entries</td>
<td>47.53</td>
<td>5.28</td>
</tr>
<tr>
<td>(52.82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inc. Remarks/Mod</td>
<td>19.28</td>
<td>19.28</td>
</tr>
<tr>
<td>(43.51)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEDS Queries</td>
<td>11.52</td>
<td>84.47</td>
</tr>
<tr>
<td>(95.99)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEDS Entries</td>
<td>39.66</td>
<td>0</td>
</tr>
<tr>
<td>(39.66)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrecker Entries</td>
<td>4.72</td>
<td>0</td>
</tr>
<tr>
<td>(4.72)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIRS</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Abandoned Autos</td>
<td>10.00</td>
<td>0</td>
</tr>
<tr>
<td>(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>108</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>609</td>
<td>481</td>
</tr>
<tr>
<td>Obligated Total</td>
<td>761 mins</td>
<td>601 mins</td>
</tr>
<tr>
<td>Unobligated Total</td>
<td>12 hrs 33 mins</td>
<td>10 hrs</td>
</tr>
</tbody>
</table>

This workload shift is used to predict the number of TC-I (Call Takers) employed in the system. Again, TC-II staffing is predicted based upon frequency group distribution and the percentage of time the frequency groups are in use.
Therefore, the following staffing needs are predicted:

<table>
<thead>
<tr>
<th></th>
<th>Change from 2000 Study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECC</strong></td>
<td></td>
</tr>
<tr>
<td>TC-I 8</td>
<td>(-1)</td>
</tr>
<tr>
<td>TC-II 18</td>
<td>(-4)</td>
</tr>
<tr>
<td>Total 26</td>
<td>(-5)</td>
</tr>
<tr>
<td><strong>NCC</strong></td>
<td></td>
</tr>
<tr>
<td>TC-I 14</td>
<td>(1)</td>
</tr>
<tr>
<td>TC-II 24</td>
<td>(0)</td>
</tr>
<tr>
<td>Total 38</td>
<td>(5)</td>
</tr>
<tr>
<td><strong>SCC</strong></td>
<td></td>
</tr>
<tr>
<td>TC-I 8</td>
<td>(0)</td>
</tr>
<tr>
<td>TC-II 19</td>
<td>(4)</td>
</tr>
<tr>
<td>Total 27</td>
<td>(4)</td>
</tr>
<tr>
<td><strong>DSS</strong></td>
<td></td>
</tr>
<tr>
<td>TC-I 30</td>
<td>(0)</td>
</tr>
<tr>
<td>TC-II 61</td>
<td>(0)</td>
</tr>
<tr>
<td>Total 91</td>
<td>(1)</td>
</tr>
</tbody>
</table>

* The dispersion of personnel from the ECC into the remaining centers is being conducted as an administrative function of the section. The staffing study data was compiled during the time when all three centers were in operation. Since the closure of the ECC does not eliminate the work performed by that center, it is valid to project future system-wide staffing needs by considering the work done by the ECC during the study period. This report does not take into account the staffing reductions directed in April and August 2002.
RECOMMENDATIONS

● In all Telecommunicator staffing reports to date, the number of frequency groups monitored has the sole factor in determining Telecommunicator II, under the concept that dispatchers, in effect, stand guard over their assigned radio frequency groups and that a dispatcher could effectively manage three such groups. The underlining basis for the frequency group method of measurement was a report by Art Walker that is now over ten years old and in need of reevaluation. While using frequency groups to establish dispatcher staffing numbers has proved basically valid method, the transition to a two-dispatch-center system in CY2003 will dramatically change the amount of radio traffic concentrated in the two centers. The challenge faced in compiling the 2004 staffing study, will be to define the new dispatch landscape, to determine if the frequency group model is still appropriate and to design a replacement if necessary.

● This staffing report does not take into consideration the FTE positions lost in the process of training new personnel. In December 1999, Deschutes County 911 commissioned a dispatch center staffing study by “J.N. Hartsock Project Management” of Clackamas. The report observed:

“In order to maintain an adequately staffed operation, another area that the agency may consider is creating an over hire of authorized staffing for training purposes. In today’s environment, when the agency has a vacancy, they immediately fall below the recommended staffing levels. A new hire dispatcher requires extensive training prior to their ability to staff a position. During these vacancy periods, the staffing shortfalls are covered by the assignment of overtime hours to the existing staff. It is important to recognize that too much overtime may create a situation of “burn out” for the employees covering the vacant shift. This burn out creates the situation of more sick leave use or creates a vacancy because the employee leaves the agency because of the extreme working conditions. This staffing over hire does not usually create a negative budgetary impact, simply due to the turnover rate, and if the goals are achieved, less overtime is utilized. It is important to remember that staffing shortfalls create a “snowball” effect towards the beginning of a major avalanche.”

● As real staffing levels permit, the dispatch centers must adhere to the job category percentages outlined on page ten of this document. When at the recommended staffing, TCII duties must exclude any functions not specifically centered on the radio communication support of Trooper activities.
Strides have been made in reducing the amount of time spent on functions not directly related to dispatching, call receiving and the administration of the dispatch centers. Historically, these activities included processing and maintenance of arrest warrant files, management of abandoned vehicle files, monitoring the Area Information Regional System (AIRS – A regional public safety telecommunications system). Especially when staffed "lean," but at all times, the dispatch facilities must weigh proposed additions to workload against how a proposed task relates to the RCC mission.

JKM:
Appendix M
Consolidation Studies
King County E-911 Program Office

King County PSAP Consolidation Assessment and PSAP Future Configuration Recommendation Process, Carco Theatre
September 23, 2013

Presentation Overview:
• PSAP Consolidation Assessment
• Reasons for the Assessment
• GeoComm Recommendations
• Steering Committee Statement
• PSAP Future Configuration Recommendation Process

Reasons for the Assessment
• Provide the most efficient and effective emergency communications services possible in order to improve the level of emergency service provided to the public and cost effectiveness.
• Next Generation 911 Implementation.
• King County E-911 funding demands.

GeoComm Recommendations
Nancy Pollock
Greg Ballentine

PSAP Consolidation Steering Committee Statement
Assistant Chief Dick Reed
Seattle Police Department

PSAP Future Configuration Recommendation Process
• Second phase –
  o Drawing from GeoComm report make recommendations for:
    ▪ Future vision
    ▪ E-911 system that remains financially viable, operationally efficient and effective
• Selection of Facilitator – Triangle and Associates
• PSAP Consolidation Steering Committee becomes Technical Committee
King County

E-911 Program Office
Office of Emergency Management
Department of Executive Services
7300 Perimeter Road South, Room 128
Seattle, WA 98108-3823
206-296-3910

To: Readers of GeoComm's Existing Conditions and Final Recommendations Rep0lis

from: PSAP Consolidation Steering Committee
Marlys Davis, E-911 Program Manager

Date: July 26, 2013

Re: PSAP Consolidation Steering Committee's Statement about the Reports

The King County Enhanced 911 (E-911) Program Office, in conjunction with the Public Safety Answering Point (PSAP) Consolidation Steering Committee, developed a Request for Proposal (RFP) for a consultant for a countywide PSAP consolidation assessment. The goal of the assessment was to evaluate whether the current PSAP configuration is providing the most efficient and effective emergency communications services possible to the public. The existing E-911 system has inherent transfers of 911 calls due to the number of PSAPs and the services they provide, and the assessment was to examine whether reducing the need for transfers would expedite the delivery of emergency services. In addition, it is anticipated that the provision of Next Generation 911 (NG911) service will be more costly than E-911 service, including increased system, equipment, and operational costs, and that reducing the number of PSAPs may reduce these costs. The consultant was asked to assess these factors, and recommend the optimum PSAP configuration in King County.

GeoComm, a company from Minnesota with extensive public safety consulting and PSAP consolidation feasibility study experience, was selected as the consultant for our assessment. GeoComm began their work by documenting the existing conditions at the PSAPs. Next, they conducted a PSAP consolidation feasibility assessment. Finally, they made recommendations for improving the efficiency and effectiveness of our E-911 system, including a recommended optimum PSAP configuration. GeoComm provided two reports, which follow this letter.

The Steering Committee would like readers of these reports to understand some important points, and to establish the context in which the reports should be read:

- These reports studied the feasibility of consolidating PSAPs, and are not a comprehensive implementation plan. These reports will be used as the starting point for the next, decision-making phase that will develop the comprehensive plan. In the report, GeoComm states, "This report is planning tool and framework for the implementation team."
- The costs in the report are not complete. They include 911 call handling costs only, and do not include the costs of handling other calls, dispatch costs, or the costs of performing ancillary duties. Readers should not view the staffing calculations or cost savings in the report as complete, and these figures should not be used as projections for the future. The comprehensive workload and costs necessary to calculate staffing and costs will be developed in the next phase.
GeoComm states, “Regardless of the reason and whether ancillary duties will transfer to a consolidated center or remain with a local agency, it is crucial to understand that the functions exist and must be considered for continuation, discontinuation or a modification in process. It is also important to realize that there is a cost associated with these functions today and unless wholly discontinued, there will be a recurring cost in the future.”

- The costs in the report reflect a snapshot in time, which is from 2011. The costs will need to be updated to current costs in the next phase of the project. In addition, costs will change based on the decisions that are made. GeoComm states, “Updated data will need to be gathered during the implementation process and cost estimates recalculated with every decision that is made by the implementation team. The financial information provided in this report is based on a certain set of assumptions for a specific snapshot in time. Decisions that will be made during the implementation process, and through continued and more intense discussions of the participants, will certainly influence and impact these estimates.”

- There is no consensus among Steering Committee members on the models recommended by GeoComm in the report. As stated above, much more work is needed to put together the comprehensive picture before any decisions can be made. GeoComm states, “Determining the feasibility of pursuing a consolidation model or a methodology can be done by a consultant; the next step is the in-depth discussions that come with implementation strategies and that must be completed by the local professionals who provide the service. GeoComm understands that the region may not implement a model that looks exactly like what has been proposed in this report.”

A presentation of GeoComm's recommendations has been scheduled for September 23rd, 2013. Invitations will be sent to stakeholders and interested parties.

King County and the Steering Committee are in the process of selecting a facilitation firm to lead a PSAP Future Configuration Recommendation Committee through the next phase of the project. This Recommendation Committee will be made up of a policy-maker representative, including elected officials, from each of the 12 PSAP agencies and the Cowry. The current Steering Committee, which includes the directors of each of the 12 PSAPs and representatives from police, fire, and EMS, will form a Technical Committee to provide information to the Recommendation Committee. The Committee will develop a charter, identify PSAP configuration options to be evaluated, develop the criteria to be used to evaluate the options, and evaluate the options. The goal is for the Recommendation Committee to reach consensus on a recommended PSAP configuration and develop a transition plan for moving from the current to the future PSAP configuration by May, 2014. The Committee will then discuss policy issues based on the recommended PSAP configuration, and produce a final report by August, 2014.

GeoComm states in their report, “The primary goal of any consolidation effort should be to enhance public safety in the region.” The Recommendation and Technical Committees will remain focused on the goal of providing the most efficient and effective emergency communications services possible to the public, as has been the focus of the Steering Committee during the assessment phase of the project. After completing their assessment, GeoComm indicated, “We believe there is strong indication of advantages to all participating agencies and the discussions should continue.” As GeoComm points out throughout their report, there is much work to be done to develop the information and costs necessary to evaluate the options in order to determine the best option for King County.
PSAP CONSOLIDATION STEERING COMMITTEE MEMBERS

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>REPRESENTATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department PSAP</td>
<td>Manager Micki Singer</td>
</tr>
<tr>
<td>Enumclaw Police Department PSAP</td>
<td>Supervisor Mimi Jensen</td>
</tr>
<tr>
<td>Issaquah Police Department PSAP</td>
<td>Commander Stan Conrad</td>
</tr>
<tr>
<td>King County Sheriff's Office PSAP</td>
<td>Captain Patrick Butschli <em>(previous representatives Captain DJ Nesel, Captain Dave Jutilla)</em></td>
</tr>
<tr>
<td>Northeast King County Regional Public Safety Communications Agency (NORCOM) PSAP</td>
<td>Executive Director Tom Orr <em>(previous representatives Executive Director Chris Fischer, Interim Executive Director Pam Bissonnette)</em></td>
</tr>
<tr>
<td>Port of Seattle Police Department PSAP</td>
<td>Communications Manager Kathy McCaughan</td>
</tr>
<tr>
<td>Redmond Police Department PSAP</td>
<td>Commander Erik Scairpon <em>(previous representative Commander Kristi Wilson)</em></td>
</tr>
<tr>
<td>Seattle Fire Department PSAP</td>
<td>Deputy Chief Michael Teffre <em>(previous representative Devutv Chief Jim Fosse)</em></td>
</tr>
<tr>
<td>Seattle Police Department PSAP</td>
<td>Captain Sean O'Donnell</td>
</tr>
<tr>
<td>University of Washington Police Department PSAP</td>
<td>Technical Services Manager Susan Carr</td>
</tr>
<tr>
<td>Valley Communications Center PSAP</td>
<td>Director Lora Ueland <em>(previous representative Director Steve Reinke)</em></td>
</tr>
<tr>
<td>Washington State Patrol -Bellevue PSAP</td>
<td>Station Manager Jo Baumgartner</td>
</tr>
<tr>
<td>King County Police Chiefs’ Association</td>
<td>Assistant Chief Dick Reed, Seattle Police Department</td>
</tr>
<tr>
<td>King County Fire Chiefs’ Association</td>
<td>Chief Lee Sopitch, Eastside Fire &amp; Rescue</td>
</tr>
<tr>
<td>King County Emergency Medical Services</td>
<td>Director Jim Fogarty, Emergency Medical Services Division, Seattle &amp; King County Public Health</td>
</tr>
</tbody>
</table>
King County, Washington PSAP Consolidation Assessment of the King County E9-1-1 System

Existing Conditions Report

October 2012
Section 1: Executive Summary ........................................................................................................... 1-1

Existing Conditions Report Overview .............................................................................................. 1-1

King County 9-1-1 Overview ........................................................................................................... 1-2

Role of E9-1-1 Program Office ......................................................................................................... 1-2

Role of Local Government in E9-1-1 ............................................................................................... 1-3

Overview of Existing Conditions of PSAP Agencies ....................................................................... 1-4

Project Initiation Meeting ................................................................................................................ 1-4

Stakeholder Workshops and Executive Leadership Interviews ...................................................... 1-5

Data Collection and Interview Process ............................................................................................ 1-9

Initial Data Collection Tool ............................................................................................................. 1-9

Areas of Assessment ......................................................................................................................... 1-11

Governance ....................................................................................................................................... 1-11

Funding ............................................................................................................................................ 1-12

Operational ...................................................................................................................................... 1-14

Technology ....................................................................................................................................... 1-15

GIS ................................................................................................................................................... 1-16

9-1-1 Network and Infrastructure .................................................................................................... 1-17

Facility .............................................................................................................................................. 1-17

Supplemental Information ................................................................................................................ 1-17

Conclusion ......................................................................................................................................... 1-18

Section 2: Governance .................................................................................................................... 2-1

Governance Overview ....................................................................................................................... 2-1

PSAP Governance ............................................................................................................................. 2-2
King County, Washington PSAP Consolidation Assessment
Of the King County E9-1-1 System Existing Conditions Report

October 2012

E9-1-1 Network ........................................................................................................5-4
PSAP IT System Support...........................................................................................5-6
Other Technology Present in the PSAP....................................................................5-7
Conclusion..................................................................................................................5-8

Section 6: PSAP Profiles..........................................................................................6-1
Bothell Police Department.........................................................................................6-1
Enumclaw Police Department....................................................................................6-9
Issaquah Police Department......................................................................................6-18
King County Sheriff’s Office.....................................................................................6-27
North East King County Regional Public Safety Communications Agency (NORCOM)6-37 Port of Seattle Police Department........................................................................................................6-49
Redmond Police Department....................................................................................6-58
Seattle Fire Department............................................................................................6-69
Seattle Police Department.........................................................................................6-81
University of Washington Police Department.........................................................6-92
Valley Communications Center..............................................................................6-102
Washington State Patrol District 2 - Bellevue.........................................................6-114

Appendix A: Data Collection Tool...........................................................................A1-1

Appendix B: King County Enhanced 911 Participation Agreements.......................B1-1
Executive Summary

Existing Conditions Report Overview

Geo-Comm, Inc. (GeoComm) was engaged by the King County Enhanced 9-1-1 (KCE9-1-1) Program Office to conduct a comprehensive review of the existing operations and technology at each of the 12 Public Safety Answering Points (PSAPs) in the King County area. The goal of the review was to determine the feasibility of consolidating none, some, or all of the PSAPs and public safety communications functions serving the county and municipalities within King County.

This effort has been conducted with the end goal of providing a PSAP/9-1-1 dispatch center consolidation assessment of the King County E9-1-1 system. King County sought a high-quality study to assess whether the current PSAP structure provides the most efficient and effective emergency communications services possible. The study goal is to identify potential enhancements to emergency services that may be achieved and the timing for the study is critical since the county is considering PSAP equipment and operational upgrades that would be necessary for Next Generation 9-1-1 (NG9-1-1).

Specifically GeoComm has collected data and conducted interviews and on-site observations to:

- Establish an appreciation of current E9-1-1 operations
- Determine the technology used by the PSAP
- Understand the functional relationships between the PSAPs in the county
- Comprehend the working relationships of the responder agencies to the PSAP
- Determine the current level of fiscal support
- Understand the governance structure of King County PSAPs
A key focus of this study is to explore and provide options and opportunities for improvement to ensure the highest quality, efficient, and effective emergency communications services for the region. Cost impact will be taken into account in order to allow the county proper background information as it, and the participating PSAPs, plan for a future Next Generation 9-1-1 (NG9-1-1) system and any changes contemplated following GeoComm’s assessment.

Ultimately, the remaining phases of the assessment will explore:

- Options for PSAP configurations and possible consolidation(s)
- Potential improvements and impact of each model including the evaluation of remaining in the current structure
- Final recommendation of the optimum PSAP configuration for King County PSAPs including governance, facility, staffing, technology, and funding impacts
- Recommendations for any implementation planning, if necessary

**King County 9-1-1 Overview**

9-1-1 Public safety emergency communications in the State of Washington is managed and operated through a jointly defined set of responsibilities shared by state, county, and local government. The state determines the level of taxing that is permissible, the framework of 9-1-1 network(s), and the general scope of 9-1-1 services to be provided. County planning and oversight responsibilities are assigned by the state and consist of administration of a regional system and distribution of the 9-1-1 tax funds in a manner consistent with state requirements. Local jurisdictions in King County are responsible for the operation of 9-1-1 PSAPs to receive and respond to the 9-1-1 call for service from the public.

**Role of E9-1-1 Program Office**

KCE9-1-1 is the administrative agency in King County, Washington that works in conjunction with the state and the local PSAPs to administer the E9-1-1 system throughout the county and its cities and unincorporated areas.

KCE9-1-1 is a unit of county government within the King County Office of Emergency Management (OEM). KCE9-1-1 program manager reports to the director of the OEM. In addition to the program manager, there are six staff members who work with service providers and the PSAPs in the county to administer the regional emergency 9-1-1 telephone system in King County.

This partnership of the 12 PSAPs, service providers, and KCE9-1-1 provides effective, consistent, and professional E9-1-1 services to all of King County, including all cities and unincorporated King County.
KCE9-1-1 staff administers the regional system by coordinating services and through service agreements and tariffs with service providers and participation agreements with PSAPs for the provision of E9-1-1 services. In addition, the office manages the integrity of the 9-1-1 data, the automatic location information (ALI) database, PSAP mapping systems coordination and maintenance; GIS address point layer maintenance and designs, implements and maintains the E9-1-1 network. KCE9-1-1 also oversees E9-1-1 network coordination, E9-1-1 service and communication service outage coordination, Master Street Address Guide (MSAG) maintenance, E9-1-1 equipment coordination, and 9-1-1 public education to ensure that the public is using 9-1-1 appropriately.

There is an agreement between the 12 PSAP entities and KCE9-1-1 for the provision of 9-1-1 services known as the King County Enhanced 9-1-1 Participation Agreement. This is a contractual document which outlines the services for which the county is responsible and includes:

- Providing E9-1-1 service from the wireline telephone companies under 9-1-1 tariffs and service agreements;
- Coordinating with the Wireless Carriers and Voice over Internet Protocol (VoIP) service providers for E9-1-1 service in King County they are providing for their customers; and
- Assuring the installation of E9-1-1 equipment with adequate capacity to handle the number of incoming 9-1-1 call load at the expense of the county.

In order to ensure appropriate input from the PSAP community and to provide advisory participation from PSAPs, KCE9-1-1 has established a PSAP Committee with representation from the PSAPs. The PSAP Committee meets regularly to discuss issues and make recommendations to KCE9-1-1 regarding the operation and management of the system. The PSAP Committee is chaired by the King County E9-1-1 Program Manager and is composed of one representative designated by each PSAP.

In addition to the scope provisions, the 9-1-1 participation agreement provides detail as to how the King County E9-1-1 Program relates to its PSAPs and processes for funding the E9-1-1 system operations.

**Role of Local Government in E9-1-1**

The King County Enhanced 9-1-1 Participation Agreement is the document that defines the relationship between KCE9-1-1 and its PSAPs and how the system both operates and is funded.

The scope of the participation agreements also identifies the responsibilities of the PSAP in E9-1-1 operations. PSAPs are required to abide by the terms and conditions of the 9-1-1 tariffs and meet the established operational standards. PSAPs are obligated to verify and certify of the accuracy and completeness of street address data within its service area. PSAPs are expected to notify the county of any annexations and incorporations to allow sufficient time to process MSAG changes.
There are a variety of governance structures in place throughout the county ranging from single departments with a defined chain of command such as a police department or the Sheriff’s Department to broader representative governance that is shared among member cities or agencies such as North East King County Regional Public Safety Communications Agency (NORCOM) and Valley Communications (Valley Com) in a defined and structured manner for both voting and funding support.

Overview of Existing Conditions of PSAP Agencies

GeoComm used several approaches to collect the information required to make a thorough review of existing operations as well as to develop a baseline for future analysis. GeoComm appreciates the patience of the stakeholders during the observation and data gathering period. We understand it is a time consuming process for stakeholders, but has provided valuable data and is necessary in order to understand current operations which will allow GeoComm to explore and provide the appropriate options to King County.

Project Initiation Meeting

On May 9, 2012, the Project Steering Committee (Steering Committee) was invited to participate in the Project Initiation of the E9-1-1 Consolidation Assessment project. At the Project Initiation Meeting, the GeoComm consultant team was introduced. The Project and their professional background and expertise described for the Steering Committee and offered a forum to discuss the scope of the project as outlined in the King County Request for Proposal (RFP) and GeoComm’s approach to meeting the stated goals of the project.

Description of project scope, communication methods to be used to keep interested parties apprised of the project progress such as the communications portal and regular status reports, detail of GeoComm’s approach to the project, deliverables, and anticipated timeline were also reviewed for the benefit of the Steering Committee. The Project Initiation Meeting provided an opportunity for the Steering Committee to ask for clarification and to more fully understand the data collection tools and process GeoComm uses to obtain an in-depth understanding and awareness of the existing conditions in the individual PSAPs.

This meeting was also a time to discuss the goals of the first on-site interviews and observations that were to be conducted at each PSAP, to identify key executive level leadership involved in the 9-1-1 system in King County who should be interviewed and to provide high-level overview of report timelines and future meeting schedules.
Stakeholder Workshops and Executive Leadership Interviews

Stakeholder Workshop
Following the Project Initiation Meeting with the Project Steering Committee, also on May 9, 2012, a workshop for key stakeholders was conducted. Our experience has demonstrated that a stakeholder session of this nature is significant to the success of the project as it helps to provide the background and basis for our understanding of the area needs.

GeoComm sees the involvement of key stakeholders as an essential element to successfully determine the feasibility of consolidation in King County. The Stakeholder Workshop was an interactive working session where the local project team members and stakeholders identified:

- **What’s working well?**
  - Flexibility built into operations
  - KCE9-1-1 support is good; Expectations of KCE9-1-1 for PSAP effectiveness are high
  - Good working relationship between the PSAPs
  - Regional governance currently works well when representation is high and participants share goals – agencies are not competitive with one another and participation is fair and equitable
  - Effective mutual aid; organization and policies that help support surge capacity
  - Specialized knowledge
  - Competency and trust is high and there is mutual respect
  - Support of elected officials is critical
  - Technology working well

- **What’s not working well?**
  - Not all PSAPs have adequate backup or sufficient staff in the event of a large scale event
  - Staffing is a challenge.
  - Funding mechanism(s) does not keep up with changing technology or integration
  - Complexity of the technology - not a clear pathway for how the technology will evolve and lack of national standards.
  - Incompatible systems
  - Proprietary market means high costs.
  - Public message is confusing and incomplete; belief that phone tax pays for the full system operations

- **What do agencies fear most about consolidation?**
  - Impact on personnel
  - Governance – concern about the possible loss of voice in the process - larger centers could dilute impact or dilution of representation
- Loss of control of local service standards and procedures; inability to customize services for your jurisdiction
- Cost
- What do we do with all the ancillary/retained duties that have been previously provided by PSAP personnel
- Potential deterioration of quality of service
- Impacts of field operations
- Fear of change

- What do you see as the biggest obstacle to any consolidation effort?
  - Fear of change
  - Politics
  - Costs – balancing cost value with impact on service
  - Timing and stranded investment if change is required
  - Equity in participation and funding
  - Collaboration – possibly working with different agencies (some not as flexible)
  - Incompatible systems
  - Difference in dispatching various agencies; Discipline specific Protocol differences
  - Labor agreement issues

The candid dialogue that ensued was helpful and provided valuable insight into the operations and service philosophy of the King County PSAPs.

In addition, the stakeholder participants were asked: What are the guiding principles that drive service?
The stakeholder participants identified the following guiding principles:

**Consistent**

- Service in all communities is constant, reliable, and dependable
- Consistent operational protocols
- 9-1-1 is considered a core service of government
- Ensure the public’s expectations of high quality service are met
- Sound decisions are based on standardized service levels throughout the county

**Competent**

- Appropriate practices for effective dispatch are in place
- Organizations are efficient and highly functioning
- Coordinated training with the Standard Operating Procedures (SOP)
- Practices are supported by effective technologies
- Adequate supervision and support exists

**Collaborative**

- “It works best when it works together”
- Coordinated practices and policies
- Cooperative governance is in effect
- United vision of service exists throughout the county

**Cost Effective**

- Agencies must be able to equate value of the service with the cost to their community
- Decisions are made in the best interest of their citizens
- Achieve the desired standard of care for the entire community

**Customer Focused**

- Least amount of call processing time results in the fewest transfers
- Focus on efficient method of processing call
- Improved service through an efficient and effective response
- Public expectation of reliable public safety services
This service philosophy and articulated guiding principles of service will be used to validate any future recommendations developed as a part of this consolidation assessment project.

**Executive Leadership Interviews**

Consultants from the GeoComm project team interviewed each Police Chief whose departments were part of the primary PSAP operations. GeoComm met with the Police Departments of Bothell, Enumclaw, Issaquah, Port of Seattle, Redmond, and the University of Washington and the Deputy Chief in charge of the Seattle Fire Alarm Center.

GeoComm also interviewed the Mayor and City Manager of Issaquah, the King County Sheriff, the King County EMS Director, Medical Advisor and EMS staff, the Union President at the Seattle Fire Department, the chair of the King County Police Chiefs and Sheriffs Association, the chair of the NORCOM governing board, the chair of the Valley Com Administrative Board, and the chair of the Valley Com Operations Board.

GeoComm attended the NORCOM Board Meeting in early July and did attend the Valley Com Administrative Board meeting in early September. These are the only two agencies governed by boards of key stakeholders or investors. Additional executive level interviews with the Deputy County Executive, City Managers, along with group meetings with the large and small PSAPs.

**Strategy Sessions by Discipline**

In addition to the individual executive interviews, GeoComm was fortunate to meet with the King County Police Chiefs Association to provide an overview of the scope and status of the Assessment Study on July 12, 2012. At the presentation to the King County Police Chiefs Association, the concept of a discipline specific discussion forum to discuss dispatch issues from their perspective and the needs of the law enforcement discipline in whatever PSAP configuration might go forward was presented. A Law Enforcement discipline specific session was held on September 6, 2012, and volunteers from executive and policy level leadership in the King County law enforcement community were requested to attend. A similar discipline specific discussion session was held with representatives from the fire and Emergency Medical Services (EMS) leadership in the region also on September 6, 2012, in order to obtain the input and perspective of the fire service.

The purpose of these discussion forums is to understand the goals of the public safety discipline with regards to 9-1-1 and emergency communications and identify the high level political, governance and control, financial and other significant issues that would need to be addressed and resolved before the executive leadership could support changes that may be proposed to existing organizational structure with regards to emergency communications.
Some of the questions to be asked include:

- What does law enforcement (or fire/EMS) need from public safety 9-1-1 dispatch to continue to do their job most effectively?
- What is law enforcement (or fire/EMS) willing to contribute to ensure the effectiveness of 9-1-1 in King County?
- What elements must be present in order for the law enforcement (or fire/EMS) community to support a change to the PSAP configuration should one be recommended?

**Data Collection and Interview Process**

The process that GeoComm used to collect the information included in the PSAP profiles within this report was a thorough method of collection and involved multiple stakeholders from executive management to technicians. It included online data collection tools (Appendix A), interviews, and observations, and the process included the following steps:

- Initial Data Collection Tool
- Dispatch center interviews and observations
- Executive management interviews
- Other executive leadership interviews
- Stakeholder workshop
- GIS, training, and technology/radio interviews

The responses from all of the interviews are not included in the PSAP snapshots but will be used by the GeoComm team as it analyzes regionalization and/or consolidation opportunities. In addition, during the data collection process, definitions for each call data category was provided along with the instructions for compiling the information in an attempt, to the degree possible, to collect similar information from each PSAP. GeoComm requested that the PSAPs follow the data collection guidelines in order to have appropriate comparisons between PSAPs.

**Initial Data Collection Tool**

After GeoComm's Project Initiation Meeting with the King County Project Manager and the Project Steering Committee and after receiving contact information for each of the PSAPs involved in the study, GeoComm sent an initial correspondence package to each of the PSAP jurisdictions. This correspondence introduced GeoComm as the partner selected for the study and provided background on the project scope and purpose.
The package included an initial electronic data collection tool for each PSAP jurisdiction intended to provide basic PSAP information for GeoComm team prior to the first site visit and instructions on log in information regarding access to the GeoComm project portal established for the King County project. The GeoComm Project Coordinator distributed the tool with instructions to the PSAP representatives via e-mail and provided contact information, should the members have additional questions or difficulty with the Data Collection Tool.

Based on the scope of the project, as well as the data provided by KCE9-1-1, and information gained from the Project Initiation Meeting and stakeholder workshop, the GeoComm team developed a customized online data collection tool.

This tool was not created in advance, but rather was customized and designed after the Stakeholder session to only gather what is essential for GeoComm to be able to carry out the mission of King County.

KCE9-1-1 supplied statistical information on call volumes for each PSAP, thus minimizing the PSAP’s need to collect call volume data. Information that was specific to the PSAP such as staffing, training, and budget data was requested directly from the PSAP.

Most PSAPs returned the completed survey and requested data in a timely manner which helped GeoComm better prepare for its meetings during the initial site visit. The information collected helped the GeoComm consultants have a basic understanding of the operations prior to the on-site meetings and made the time spent on-site in person more productive.

The information that was requested in the Initial Data Collection Tool included basic data such as:

- Types and number of calls received and dispatched
- Types and number of dispatch and communications related equipment utilized
- List of agencies for which dispatch services are provided
- List of non-call taking or dispatch duties assigned to PSAP staff
- Staffing information
- Budget information

In addition to the statistical data provided by KCE9-1-1, GeoComm requested documentation that will assist in analyzing each PSAP’s potential for combining or consolidating emergency communications services. The documents requested included copies of union contracts, personnel policies, retirement plans, minimum staffing levels, budgets, and copies of any dispatching agreements with other jurisdictions.
GeoComm requested the participants to complete the tool and provide the data and documentation prior to the on-site visits conducted June 4 through 8, 2012. All but two PSAPs participating in the study provided the information by the requested deadline.

The data collected from this instrument and the follow-up interviews and observations is used throughout this project and is crucial to GeoComm providing study participants with the most objective reports and recommendations.

The online data collection tool included requests for basic data to supplement the documentation provided by the county. This introductory data allowed GeoComm to prepare for the on-site visits and gain a picture of current operations from a statistical standpoint. Focusing on what was needed and minimizing the intrusion that data collection may cause to the PSAP and PSAP Operations was an essential goal. GeoComm worked at being as cognizant of the onerous nature of data collection as possible.

The tool was designed to solicit PSAP information that would allow GeoComm’s initial site visit to each PSAP to be the most productive as possible, not wasting the PSAPs time, but by using it to clarify and provide a more full and complete understanding of operations. This method actually allows more time for observation and in-depth interview of the PSAP personnel than other methods.

The PSAP profiles included in the Existing Conditions report are based first on the data provided by the participating agency and second on the interviews and observations during the site visits, and third based on information provided by KCE9-1-1. The profiles are intended to objectively describe, in a factual way, a general overview of current operations. Each PSAP received a draft of the Profile for their PSAP and offered clarifications or additional information to be included in the Profile if applicable and germane to the purpose of the Profile.

Areas of Assessment Governance

The governance and funding models for PSAPs in King County are interdependent at three levels of government.

All three levels provide a layer of governance responsible for the policies, direction and funding for a successful system designed to meet the expectations of the 9-1-1 callers. The State of Washington 9-1-1 Program provides oversight for the entire state and works with the county programs to assure statewide E9-1-1 operational functionality under broad established infrastructure guidelines, designing the overall network for E9-1-1 services in the state.
The county programs, in turn, work with the local PSAPs in their jurisdiction to effectively and efficiently deliver the 9-1-1 calls to the call centers. The PSAPs are responsible for receiving the calls and dispatching appropriate emergency resources to the request for public safety response.

In King County, the 12 PSAPs that serve their constituents have local governing models that meet the needs of their emergency response agencies. All of the PSAPs dispatch police services, but only five provide fire and EMS: Enumclaw Police Department, NORCOM, Port of Seattle Police Department, Seattle Fire Department, and Valley Communications Center (Valley Com). Due to the nature of their organizations, only NORCOM and Valley Com have Fire/EMS Service Board representation.

**Funding**

Funding support of 9-1-1 is also provided at the three levels of state, county, and local jurisdiction. Each level is responsible for a different elements and aspects of 9-1-1 operations.

**State Funding**

The State of Washington 9-1-1 legislation provides for 9-1-1 system funding at the state and county level. The Revised Code of Washington authorizes the legislative bodies at both the state and county level to levy an E9-1-1 excise tax to pay for 9-1-1 services. Each county then contracts with the state E9-1-1 Coordination Office, Washington State Military Department, for the collection of its E9-1-1 excise tax. The underlying carrier for the respective telecommunication subscriber services is responsible for collecting the state and county E9-1-1 excise tax and remitting it to the Department of Revenue. All county 9-1-1 excise taxes collected in each county are held in dedicated accounts in the state treasury until distributed to the respective county 9-1-1 administrative entities.

The state E9-1-1 Coordinator, with the advice and assistance of the State E9-1-1 Advisory Committee, is authorized to enter into statewide agreements to improve the efficiency of E9-1-1 services for all counties and to specify by rule the additional purposes for which moneys may be expended from the state account. In some cases, as with network and database, the state funding for King County is not sufficient to fully fund the services.

**County Funding**

The E9-1-1 excise tax rate is set by the county legislative body as part of its budgetary process. KCE9-1-1 program budget includes administration/overhead, E9-1-1 system network, database and equipment support, PSAP revenue distribution, public education and E9-1-1 program reserves.
As noted on the previous page, the state 9-1-1 program does pay for statewide network, database, and equipment services but only to a certain level, based on funding available. KCE9-1-1 must supplement the state funding for network and database services for its PSAPs as well as provide funding for equipment and the appropriate approved support positions. Approximately 43 percent of KCE9-1-1 budget the past two years has been distributed back to the PSAPs by KCE9-1-1 amounting to more than $10 million for PSAP services.

KCE9-1-1 is working with the PSAP Committee to evaluate the distribution formula. The current 2012 general revenue distribution formula includes “additional” revenue for the four larger PSAPs as a transition measure to a different funding formula based more on call volume. The E9-1-1 Program does reserve funds in its budget each year for designated projects. It also has a modest rainy day reserve fund, equal to 60 days of operations expenditures, and an undesignated fund balance.

The reserves are intended for E9-1-1 equipment replacement, according to the schedule previously discussed, and for E9-1-1 system upgrades.

**Local Funding**

Each of the PSAPs served by King County are responsible for their operations and the associated funding for the service level offered in the community. It is important to note that the funding support provided by KCE9-1-1 is important to the success of each PSAP. Some of the PSAP management interviewed expressed concern about the current funding formula which is being reviewed by KCE9-1-1 and the PSAP Committee.

In addition to the local general revenue funds used for funding the local PSAPs, several of the PSAPs contract with public safety response agencies either though Interlocal Agreement or other contract arrangement.

The PSAPs that dispatch for fire and EMS also receive funding either indirectly or through in-kind services from the King County EMS Division (Division). The Division utilizes funds generated through a countywide EMS property tax levy. According to the Division’s 2011 Annual Report, it provides comprehensive and continuing education programs to dispatchers in communication centers in King County, outside the City of Seattle.

In its interviews with the PSAP leadership and other stakeholders in King County, GeoComm found that all agencies are aware of the financial challenges that are facing KCE9-1-1 as it moves toward NG9-1-1 and believe that there are opportunities to improve the efficiencies and effectiveness of the current program while maintaining some level of autonomy. Concern for service quality in the community was of paramount importance.
Operational

All PSAPs are required to meet KCE9-1-1 established standards for operations such as call answering times in order to receive E9-1-1 funding. PSAPs have an E9-1-1 Participation Agreement with KCE9-1-1 that outlines the mutual responsibilities and requirements. The desire for operational effectiveness and efficiency has been evident to GeoComm in our interview and observation process. The King County 9-1-1 community enjoys a high level of competence in the line staff and supervision of the PSAP. In addition, management clearly not only understands the requirements of effectively managing the operations, but also displays significant expertise and professionalism in 9-1-1 operations.

Dispatch Center Interviews and Observations

In addition to the initial data collection, members of the GeoComm team conducted on-site interviews and observations at the 12 primary and secondary PSAPs in the King County system. During the meetings, GeoComm was able to clarify some of the information that it had received as well as close the gaps on some of the outstanding information. The interviewees included dispatchers, management personnel, and emergency responders.

The goals of the interviews were to explore relevant issues pertaining to operational procedures, staffing, supervision, retention, training and development and scheduling. GeoComm also sought to gain a perspective from the responders with regards to current services and desires for future improvements. In addition to the interviews, GeoComm spent time observing the existing PSAP operations, seeking to clarify or enhance the information already collected. Consultants were also able to observe the communications personnel jobs and tasks procedures.

During the site visits, GeoComm was able to get a better understanding of the 9-1-1 network, existing equipment and building facilities, and management, supervision, and personnel structures.

Call Processing

Call handling is consistent among all PSAPs and follow generally accepted operational standards in addition to the requirements set forth in the E9-1-1 Participation Agreement between the PSAP and KCE9-1-1. Wireline and Voice over Internet Protocol (VoIP) 9-1-1 calls are routed to the primary PSAP for the jurisdiction in which the wireline or VoIP 9-1-1 call originated. Wireless calls are routed to the five primary PSAPs designated to receive and process wireless calls in King County.

Approximately half of the PSAPs utilize an Automatic Call Distribution system in their PSAP to direct the incoming 9-1-1 call to an available call taker.
Hiring Practices, Recruitment, and Retention
The PSAPs in the King County region recruit and hire new employees, by either utilizing their own personnel or a third party company. They all provide some form of pre-employment testing to determine if the candidates have skills required for the position. There seemed to be a high interest in public safety job openings, judging from the volume of applicants at most of the agencies.

Staffing
Staffing levels are determined at most agencies using APCO’s RETAINS product. This is the only public safety communications staffing tool specifically designed to determine appropriate levels for the PSAP. Most of the PSAPs reported being fully staffed or only experienced a single vacancy.

One PSAP reports being understaffed due to low authorized positions in the agency. All PSAPs have supervisory coverage in their centers or a supplemental plan for supervision should supervision be necessary.

Training
Training is a significant component of an effective PSAP and King County has several resources for 9-1-1 related training in addition to each PSAPs’ in-house training program. The Washington State Criminal Justice Training Commission (WSCJTC) has a formal Telecommunicator Program which is available to 9-1-1 personnel tuition-free. This program is funded by the State 9-1-1 Office and offers both new hire and incumbent worker training courses.

Beyond the state training offerings, KCE9-1-1 supports a training program and reports to have trained an average of 140 students per year through their programs by scheduling two offerings per year. KCE9-1-1 reports that attendance to these courses has decreased in recent months due to staffing issues with the PSAPs. Additional training opportunities are afforded through the efforts of the Washington State Chapter of APCO/NENA.

Technology
During the same period that the GeoComm team was on site interviewing executive management, additional site visits, and interviews of PSAP staff, including the PSAP technical staff was being interviewed by the GeoComm technical team members. The technical interviews consisted of conducting an inventory of the existing radio and related dispatch center technology at each PSAP.
The GeoComm technical staff met with agency staff to assess the current and future technology plans and opportunities that may impact consolidation feasibility considerations. In addition to the technical and radio data that GeoComm received from the PSAPs, GeoComm also interviewed the Regional Radio Replacement Project Manager, to understand the relationship of various public safety radio communications systems and projects currently in place, or planned and their potential impact on the E9-1-1 assessment required of this engagement.

PSAP technology in the King County PSAPs is generally at a high level. All PSAPs use CAD systems, the Positron/Intrado VIPER telephone equipment installed at each PSAP is described by the manufacturer as Next Generation (NG) capable, and field units communicate via mobile data. Ten of the 12 PSAPs are using a large regional trunked radio system as their primary radio system. A regional ESInet is in place, and connected with the state ESInet. King County is ahead of most of the country in taking steps toward implementation of NG9-1-1.

In addition to the basic information received from the data collection tool and the interviews and observations, GeoComm will utilize the information received in these interviews as a baseline for any radio system configuration recommendations.

**GIS**

GeoComm Geographic Information Systems (GIS) staff interviewed PSAP GIS/Mapping support staff in an effort to have a better understanding of the relationship between KCE9-1-1 and local GIS support. The relationship is not merely a funding relationship. The local GIS support staff and KCE9-1-1 staff is one of inter-relationship and coordination of services.

The PSAPs have established a workable communication plan with their local service areas such as the city or cities to provide GIS data or changes needed for the CAD map. The maintenance for MSAG is centrally located in KCE9-1-1 alongside the GIS maintenance. This allows for a functional parallel maintenance between the GIS and MSAG. A high synchronization level between the GIS data and MSAG is obtained as a result of the centralized maintenance program.

KCE9-1-1 recognizes that GIS plays a significant role in the functional implementation of NG 9-1-1 and as such, there is an effort to ensure adequate support and structure at the PSAP level. The functional work that is planned and outlined by KCE9-1-1 ensures a collaborative interface between the vision and plans for E9-1-1 in the county and the local execution of that plan.
Philosophically, KCE9-I-I exists partly to coordinate and support the PSAP in carrying out the plans and vision of E9-I-I in the region. The interviews with GIS support staff helped to frame, for GeoComm, not only the nature of the relationship between local jurisdictions and KCE9-I-I but functionally how the two entities bring reality to the vision.

9-I-I Network and Infrastructure

King County E9-I-I Program Office has been aggressively pursuing both planning and implementation of the Next Generation 9-I-I services but with a methodical and cautiously phased approach.

This phased approach has been carefully studied and thoroughly considered as a reasonable process for the county’s transition to the next level of E9-I-I services.

National standards organizations processes have been monitored to ensure, to the degree available, that investments in equipment and planning strategies are in keeping with generally accepted approaches and standards to this very new service element.

Facility

The buildings housing the PSAPs in King County range from older structures that have been converted to police department use (including the PSAP) to modern facilities designed and built specifically for PSAP use.

All PSAPs are equipped with emergency power generators and battery banks to supply electricity to critical loads during power outages. All have identified alternate locations where they can relocate operations if their PSAPs become unusable. All of the PSAPs have some method of access control in place to restrict access to the PSAP.

For the most part, PSAP equipment rooms are designed and cabled in accordance with generally accepted industry practices. While few of them have room for significant numbers of additional racks and cabinets, in many cases the racks and cabinets already in place have sufficient open space for installation of additional or replacement systems should that be necessary or for equipment alongside the existing equipment.

Supplemental Information

One of the most important components of emergency communication services in King County region is the role that KCE9-I-I plays in the provision of PSAPs and related services. GeoComm has had multiple meetings with KCE9-I-I staff and executive management staff to gain an understanding of the existing services and plans for the provision of NG9-1-1 services.
The staff has been extremely gracious and helpful to the GeoComm team. GeoComm was provided important information to utilize and consider as the team moves forward with additional analysis and the formulation of recommendations.

During the meeting, GeoComm noted that KCE9-1-1 plans include:
- Continued Next Generation E9-1-1 planning and ongoing implementation of NG elements
- Additional transition planning and support related to NG for the PSAP
- Monitoring the radio replacement project and its impact on King County PSAPs
- Seeking continued efficiency and financial stability within the PSAP community

It is important that GeoComm understands the timeline for the migration to NG9-1-1 and the Radio Replacement Project as it formulates recommendations for the King County participants in the study. It is also beneficial for GeoComm to have a full understanding of funding provided by the county for PSAP operations and how that funding for local jurisdictions will be impacted by decisions that participants in the study make regarding their options or any changes.

Conclusion

King County E9-1-1 enjoys a national reputation for high quality service, leading innovators in technology application in public safety communications, and high standards of operational effectiveness. Frequently, King County E9-1-1 has led the way in identifying issues of service provider integration, unrealistic public expectations of service and has been responsible for raising operational concerns to the federal level for resolution. This high profile and innovative nature is evident in the quality of output of the E9-1-1 Program Office and the PSAPs alike. During the site visits and leadership interviews, GeoComm noted a high degree of professionalism and competency.

The desire for excellence and the need to continue the integrity of both the systems and operations already in place has set a tone for the assessment of the King County E9-1-1 Existing Conditions as GeoComm seeks the optimum effectiveness for the region. GeoComm is grateful to all the King County PSAPs and their executive leadership, along with KCE9-1-1 staff for their cooperation and assistance during this process.
Governance Overview

Enhanced 9-1-1 (E9-1-1) services in the State of Washington have three different levels of government that are involved in the provision of emergency communications services across the state. There is a state agency charged with insuring statewide 9-1-1 service, county organizations responsible for coordinating 9-1-1 services in its jurisdiction, and local entities responsible for the operation of the Public Safety Answering Points (PSAPs). At each level, there are both governance and funding implications.

The first level of 9-1-1 oversight is the local government which is responsible for the operations of the PSAPs. The PSAPs typically are a sub-unit within a law enforcement department such as municipal police or county sheriff, but can be an independent agency created through Interlocal agreement or other form of joint powers agreement. The PSAP is responsible for receiving, triaging, and facilitating the dispatch of 9-1-1 calls from the public. The majority of the funding for PSAP operations is typically local general funds. However, PSAPs’ operations are eligible for supplemental funding from both the county E9-1-1 Program Office and the state E9-1-1 Coordination Office.

The second level of 9-1-1 management is the county E9-1-1 Program Office. The State of Washington legislation requires that each county in the state be responsible for the implementation of 9-1-1 communications system in its respective county. The Revised Code of Washington (RCW) 38.52.510 states that:

Each County, singly or in combination with one or more adjacent counties, must implement countywide or multicounty-wide enhanced 9-1-1 communications system in the county …

Counties in the State of Washington are responsible for the implementation and maintenance of the 9-1-1 systems in their respective counties. Because King, Snohomish, and Pierce counties have multiple PSAPs, these counties contract with each of the services providers and are responsible for coordinating 9-1-1 services within and among the participating PSAPs. Each county has the authority to establish a county 9-1-1 excise tax on wireline, wireless, and Voice over Internet Protocol (VoIP) subscribers to fund its county E9-1-1 Program.
The third level of oversight is the state E9-1-1 Coordination Office. The Washington State E9-1-1 Program was created by a 1991 voter referendum directing E9-1-1 emergency communications systems to be available statewide by December 31, 1998.

The referendum provided for a state E9-1-1 Coordination Office, headed by the state E9-1-1 coordinator, to facilitate local planning and installation of the systems. The statute creating the state E9-1-1 Coordination Office requires the E9-1-1 coordinator to work with an advisory committee consisting of representatives from the PSAP, service provider, and responder communities to carry out its functions.

The state E9-1-1 Coordination Office is a unit of the Emergency Management Division and works with counties and communications' companies to ensure 9-1-1 system is operational and available to all in the State of Washington. The state program is responsible for the collection and use of the state 9-1-1 excise tax collected on wireline, wireless, and VoIP subscribers across the state.

**PSAP Governance**

The King County 9-1-1 System includes 11 primary and one secondary PSAP. Each PSAP has a PSAP Director that is identified in the *King County Enhanced 9-1-1 Participation Agreement*, Exhibit 2:

<table>
<thead>
<tr>
<th>Name</th>
<th>PSAP Director</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>Communications Manager</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>Commander</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>Commander</td>
</tr>
<tr>
<td>King County Sheriff's Office</td>
<td>Captain</td>
</tr>
<tr>
<td>NORCOM</td>
<td>Executive Director</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>Communications Manager</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>Commander</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>Captain</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>Commander</td>
</tr>
<tr>
<td>Valley Communications Center</td>
<td>Executive Director</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>Station Manager</td>
</tr>
</tbody>
</table>

For the purposes of this Existing Conditions Report, GeoComm has elected to differentiate the governance structure of the 12 PSAPs in King County into one of two categories, either a department within a larger unit of government (municipality, county, university, state agency, district) or an independent unit of government created by Interlocal Agreement (ILA) for the provision of E9-1-1 services to its members. All of the PSAPs, with the exception of North East King County Regional Public Safety Communications Agency (NORCOM) and Valley Communications Center (Valley Com) are a unit of a larger governing body. PSAPs that are part of a larger unit of government typically have the following characteristics in common:

- The governing body for the jurisdiction that governs the PSAP is either elected or appointed by elected officials.
- With the exception of the Seattle Fire Department, the PSAPs operate within the law enforcement department of the respective jurisdiction. The Seattle Fire Department PSAP operates within the Seattle Fire Department.
- The chief executive officer for the organization is either the law enforcement or fire chief.
- The law enforcement or fire chief lead their respective departments and are accountable to the chief executive for the respective jurisdictions.
- The budget for the communications centers is included in the respective department budgets.
- The director for each PSAP reports either to the law enforcement or fire chief or an assistant or deputy chief.

Both NORCOM and VCC are independent organizations that were formed by ILA with its member jurisdictions. They were created for the express purpose of providing consolidated E9-1-1 and dispatch operations and have a governing board representing its membership. Both organizations have an executive director who is the chief executive officer for the organization and is accountable to the governing board. The executive director for both NORCOM and VCC is responsible for the hiring and performance of the organization staff and the PSAP operations in general.

Even though both NORCOM and VCC are similar as to how they were formed, there is a difference in the make-up and role of their respective governance models.
NORCOM

The ILA creating NORCOM provides for the organization to be governed by a board comprised of the chief executive officer of each Principal member. A Principal member is defined by the ILA as:

A “Principal” is a general purpose municipal corporation or government agency, a fire district, a Public Safety Interlocal Operation, or a state agency created under the laws of Washington, which has accepted the terms of and is a party to this Agreement.

The principle functions for the Governing Board are:

- Review and approval of NORCOM’s budget
- Approves the decision to request Principals issue debt for or on behalf of NORCOM
- Approves the admission of a new Principal
- Approves the appointment of the executive director
- Approves the expansion of the scope of services provided by NORCOM

In addition to the governing board, NORCOM has a Joint Operating Board that serves in an advisory capacity to the governing board. The Joint Operating Board is composed of the combined membership of the Police Service Board and the Fire/EMS Service Board. The Police Service Board consists of the chief from each Principal and Subscriber Police department or equivalent or operation directly receiving services from NORCOM. The Fire/EMS Service Board consists of the chief from each Principal and Subscriber with a Fire/EMS Department or equivalent agency or operation directly receiving services from NORCOM.

A Subscriber is defined by the ILA as:

A “Subscriber” is a general purpose municipal corporation or government agency, or a fire district, a Public Safety Interlocal Operation, or a state agency created under the laws of Washington which has agreed to pay NORCOM for emergency communications services or other services as offered at a rate or rates according to such terms and conditions as may be established by NORCOM as evidenced by separate contract between NORCOM and such entity.
The principle responsibilities of the Joint Operating Board are the following:

- Promote interagency collaboration and cooperation
- Share information
- Develop and propose Agency operating policy and other such matters as directed by the Governing Board
- Provide advice, information, and recommendations to the Governing Board and the Executive Director.

The NORCOM executive director is appointed by the Governing Board and serves as the organization’s chief executive officer. The executive director plans and directs the operations of NORCOM and is responsible for staff and operations management. In conjunction with both boards, he or she is responsible for preparing and presenting NORCOM’s budgets and strategic plans.

**NORCOM Organizational Chart:**

As of 9/14/12
Valley Communications Center (Valley Com)
The ILA between Valley Com and its members creates both an Administration Board and an Operating Board. The Administration Board represents Valley Com’s five owner cities, which own, operate, and maintain Valley Com’s. The five member cities are Auburn, Federal Way, Kent, Renton, and Tukwila. The mayor, or mayor’s designee, of each of the member cities serves on the Administration Board. The chair of the Administration Board is elected by a majority of the board’s membership each year and is the primary contact between the Executive Director and Administration Board. The principle functions of the Administration Board are the following:

- Review and approval of the Valley Com budget
- Appoint and supervise the Valley Com Executive Director
- Approve administrative and personnel policies
- Review and approve contracts and agreements
- Review and approve disbursement of Valley Com funds
- Consider approval of recommendations from the Executive Director and Operating Board
- Set the long-term strategic vision for the organization

The Operating Board provides operational guidance and support to Valley Com. The board is comprised of Police and Fire Chiefs of the five member cities along with one appointed representative from a Police and one appointed representative from a Fire contract agency. The Fire Chief representatives from the cities of Kent, Auburn, and Federal Way represent a regional fire authorities serving their respective communities. The principle functions of the Operations Board are the following:

- Responsible for operational policies and procedures
- Assist staff and the Administration Board with strategic planning
- Makes recommendations on the selection of the Executive Director
- Members serve on supporting groups including the Finance Committee and The Advisory Committee on Technology (ACT)

The Chair and Chair-elect are elected annually and serve one year terms. They are required to alternate between the police and fire discipline each year so that the chair alternates each year.

The executive director for Valley Com is its chief executive officer and reports directly to the Administration Board. The executive director is responsible for the day-to-day administration of Valley Com including, without limitation, employee discipline and termination, regulatory and code compliance, labor negotiations, payroll, purchasing, and claims management. He or she is also responsible for preparing and presenting budgets and long-term financial plans in cooperation with both Boards and their committees.
King County E9-1-1 Program Office

The State of Washington legislation requires that each county in the state be responsible for the implementation of 9-1-1 communications system in its respective county. RCW 38.52.510 states that:

Each County, singly or in combination with one or more adjacent counties, must implement countywide or multicounty-wide enhanced 9-1-1 communications system in the county …

Under the legislative authority of the county, King County E9-1-1 is authorized to impose a county enhanced 9-1-1 excise tax on wireline, wireless, and VoIP telecommunications services. The fees are collected by the services providers and remitted to the state to be held in a designated account of the county. Each county government must follow the appropriate procedures for the administration of the county E9-1-1 excise taxes and provide notice to the state E9-1-1 Coordination Office. King County E9-1-1 uses the funds generated by the county E9-1-1 excise tax to fund its operations.

The King County E9-1-1 Program Office (KCE9-1-1) is the administrative agency in King County, Washington that works in conjunction with the state and the local PSAPs to administer the E9-1-1 system throughout the county and its cities and unincorporated areas.

KCE9-1-1 is a unit of county government within the King County Office of Emergency Management (OEM). KCE9-1-1 program manager reports to the director of the OEM. In addition, the program manager, KCE9-1-1 has six staff members who work with service providers and the PSAPs in the county to administer the regional emergency 9-1-1 telephone system in King County.
This partnership of the 12 PSAPs, service providers, and KCE9-1-1 provides effective, consistent, and professional E9-1-1 services to all of King County, including all cities and unincorporated King County. KCE9-1-1 staff administers the regional system by coordinating services and through service agreements with the service providers and tariffs and participation agreements with PSAPs for the provision of E9-1-1 services. The PSAP agreement, known as the King County Enhanced 9-1-1 Participation Agreement, is a contractual document which outlines the services for which the county is responsible and the requirements and standards expected from a PSAP.

King County Enhanced 9-1-1 Participation Agreement is the contractual instrument between the 12 PSAP entities and KCE9-1-1 for the provision of 9-1-1 services. The agreement renews each year, not to exceed five consecutive years. The responsibilities of KCE9-1-1 defined in the scope of the agreement are the following:

- The County shall provide E9-1-1 service as procured from the telephone companies under 9-1-1 tariffs and service agreements.
- The County shall coordinate with the Wireless Carriers who provide service in King County for the provision of E9-1-1 service to their customers.
- The County shall coordinate with the VoIP service providers who provide service in King County for the provision of E9-1-1 service to their customers.
The county will assure the installation of E9-1-1 equipment with capacity adequate to handle the number of incoming 9-1-1 lines as prescribed by the service provider’s traffic study, described in the Qwest\(^2\) 9-1-1 Tariff. The County shall pay the cost of additional E9-1-1 equipment required as a result of the study.

The scope of the participation agreement identifies the responsibilities of the PSAP as follows:

- Each PSAP shall abide by the terms and conditions of the 9-1-1 tariffs.
- Each PSAP shall meet operational standards.
- Each PSAP shall provide the County with verification and certification of the accuracy and completeness of street address data within its service area as specified in the 9-1-1 tariffs.
- Each PSAP shall resolve MSAG discrepancies with its Public Safety Response Agencies and send written notification to KCE9-1-1 when the discrepancy is resolved.
- Each PSAP shall notify the county of any annexations and incorporations to allow sufficient time to process MSAG changes.

In addition to the scope provisions, the 9-1-1 participation agreement provides detail as to how KCE9-1-1 relates to its PSAPs and processes for funding the E9-1-1 system operations. Additional sections of the agreement include:

- Installation and site preparation
- System performance
- Evaluation
- Conditions of use
- Excise tax revenue distribution
- Network charges
- Addition, deletion, or movement of PSAPs
- System management
- Access to PSAP
- Vendor liaison
- Maintenance
- Training
- Documentation
- Attachments
- Liability

\(^{2}\) Qwest has been acquired and is a part of CenturyLink.
- Liability insurance
- Mediation
- Independent status of parties
- Delegation and assignment
- General provisions
- Exhibits
  - 9-1-1 Tariffs and Service Agreement
  - List of PSAPs
  - Operational standards
  - Operating procedures and protocols
  - Certificate of Insurance
  - Study on Enhanced 9-1-1 Funding Policies

The *King County Enhanced 9-1-1 Participation Agreement* is the document that defines the relationship between KCE9-1-1 and its PSAPs and how the system operates and is funded.

King County E9-1-1 Program Office also has a PSAP Committee with representation from its 12 PSAPs that meets every two months to discuss issues and make recommendations to KCE9-1-1 regarding the operation and management of the system. Issues on the meeting agendas include, but are not limited to, special projects, project updates, standards review, and PSAP funding. The PSAP Committee is chaired by KCE9-1-1 Program Manager and is composed of one representative designated by each PSAP.

Even though the committee is charged with making recommendations to the program manager, the participation agreement does state, “The County reserves the right to final judgment regarding the E9-1-1 system management and the administration of E9-1-1 excise tax proceeds.”

It is important to note that KCE9-1-1 and the PSAPs appear to have a good working relationship according to stakeholders interviewed for this phase of the consolidation assessment study. PSAP leadership, even though not always agreeing with the direction of the program with regards to consolidation, expressed gratitude and admiration for the program and its management.
State of Washington Enhanced 9-1-1 Coordination Office

Responsibilities of the Office
The State of Washington E9-1-1 coordination office is managed by the state E9-1-1 coordinator and operates within the emergency management division of the Washington Military Department. The office was established under RCW 38.52.520. The duties of the office, as defined by statute, include:

- Coordinating and facilitating the implementation and operation of E9-1-1 emergency communications systems throughout the state
- Seeking advice and assistance from, and providing staff support for, the E9-1-1 Advisory Committee
- Recommending to the utilities and transportation commission by August 31 of each year the level of the state E9-1-1 excise tax for the following year
- Considering base needs of individual counties for specific assistance, specify rules defining the purposes for which available state E9-1-1 funding may be expended, with the advice and assistance of the E9-1-1 Advisory Committee
- Providing an annual update to the E9-1-1 Advisory Committee on how much money each county has spent on:
  - Efforts to modernize their existing E9-1-1 emergency communications systems
  - Enhanced 9-1-1 operational costs

The E9-1-1 Advisory Committee is created by statute (RCW38.52.530) to advise and assist the state E9-1-1 coordinator in coordinating and facilitating the implementation and operation of E9-1-1 throughout the state.

The director of the Washington Military Department appoints members and alternates to the committee which consists of a designee and an alternative from the following organizations or as recommended by the E9-1-1 Advisory Committee chair for an at large position:

- National Emergency Number Association (NENA)
- Association of Public-Safety Communications Officials, Washington Chapter (APCO)
- Washington State Fire Chiefs Association
- Washington Association of Sheriffs and Police Chiefs
- Washington State Council of Fire Fighters
- Washington State Council of Police Officers
- Washington Ambulance Association
- Washington State Fire Protection Policy Board

---

3 Each member organization is permitted one representative with the exceptions noted for the Association of Washington Cities, Washington State Associations of Counties, and the Washington Wireless Industries.
King County, Washington PSAP Consolidation Assessment of the King County E9-1-1 System Existing Conditions Report

- Washington Fire Commissioners Association
- Washington State Patrol (WSP)
- Association of Washington Cities (2)
- Washington State Association of Counties (2)
- Washington Utilities and Transportation Commission (WUTC)
- Washington Independent Telephone Companies (WITA)
- CenturyLink™
- Frontier
- Department of Health (DOH)
- Washington Wireless Industries Position (3)
- Voice over Internet Protocol (VoIP)

Other parties may be appointed to the committee but are not legislatively mandated. According to the committee bylaws, the following representatives may be appointed and have equal representation as the statutory organizations:

- Washington State Emergency Management Association (WSEMA)
- Urban county PSAP Director or 9-1-1 Coordinator (2)
- Rural county PSAP Director or 9-1-1 Coordinator (2)
- King County

Each member or their designated alternate, including the chair, has one vote and a simple majority of those present constitutes passage of a motion.

The state statute (RCW 38.52.532) charges the E9-1-1 Advisory Committee with the following responsibility:

- Provide an annual update on the status of enhanced 9-1-1 service in the state to the appropriate committees in the legislature regarding progress by counties towards creating greater efficiencies in E9-1-1 operations including, but not limited to:
  - Regionalization of facilities
  - Centralization of equipment
  - Statewide purchasing
In addition to the annual report to the legislature, the E9-1-1 Advisory Committee also advises the E9-1-1 coordinator with regards to specifying rules defining how available state 9-1-1 moneys may be expended. The statute (RCW 38.52.545) defines funding priorities as follows:

- To assure that 9-1-1 dialing is operational statewide
- To assist counties as necessary to assure that they can achieve a basic service level for 9-1-1 operations
- To assist counties as practicable to acquire items of a capital nature appropriate to modernize 9-1-1 systems and increase 9-1-1 effectiveness

Conclusion

The governance and funding models for PSAPs in King County are interdependent at three levels of government. The State of Washington 9-1-1 Program provides oversight for the entire state and works with the county programs to assure statewide E9-1-1. The county programs in turn work with the local PSAPs in their jurisdiction to deliver the 9-1-1 calls to the call centers. The PSAPs are responsible for receiving the calls and dispatching appropriate emergency resources to mitigate the emergency. All three levels provide a layer of governance responsible for the policies, direction and funding for a successful system designed to meet the expectations of the 9-1-1 callers.

In King County, the 12 PSAPs that serve their constituents have local governing models that meet the needs of their emergency response agencies. All of the PSAPs, with the exception of the Seattle Fire Department, dispatch police services, but only five provide fire and EMS: Enumclaw Police Department, NORCOM, Port of Seattle Police Department, Seattle Fire Department, and Valley Com. It is important to note that law enforcement is represented in each PSAP governing structure with the exception of the Seattle Fire Department. In addition to the Seattle Fire Department, only NORCOM and Valley Com have Fire/EMS Service Board representation.

In its interviews with the PSAP leadership and other stakeholders in King County, GeoComm found that the current model works well for each PSAP entity, and there is reluctance to make a change that would lessen the control that each governing body has over its PSAP operations. All agencies are aware of the financial challenges that are facing KCE9-1-1 as it moves toward Next Generation 9-1-1 (NG9-1-1) and believe that there are opportunities to improve the efficiencies and effectiveness of the current program while maintaining some autonomy.
Funding Overview

As with the governance of the 9-1-1 systems in the State of Washington, funding is provided at the local, county and state level. Both the State of Washington 9-1-1 Coordination Office and the King County E9-1-1 Program Office (KCE9-1-1) have legislative authority to levy a 9-1-1 excise tax to support their programs. At the local level, it is incumbent upon the local Public Safety Answering Point (PSAP) governing bodies to generate sufficient local funding to operate their PSAPs.

The State of Washington 9-1-1 Coordination Office is responsible for insuring that 9-1-1 service is provided throughout the state and has funds available, through a state Enhanced 9-1-1 (E9-1-1) excise tax, to assist county and local jurisdictions in providing the E9-1-1 service. The state 9-1-1 Coordinator works closely with an Advisory Committee consisting of multiple stakeholders to identify the most effective use of the state 9-1-1 funds.

At the county level, KCE9-1-1 financially supports the 12 PSAPs through the provision and maintenance of the E9-1-1 system, funding for system staff support, and a partial distribution of the E9-1-1 excise tax levied by the county to the local PSAPs. KCE9-1-1 also provides strategic planning for the regional 9-1-1 system and is responsible for utilizing the E9-1-1 excise tax to provide the most efficient and effective system available.

The majority of the funding for PSAP operations is through the local general revenue funds of the public entity responsible for answering and processing the 9-1-1 call for service. In the case of the two independent PSAP organizations, North East King County Regional Public Safety Communications Agency (NORCOM) and Valley Communications Center (Valley Com), the local funding is defined through an Interlocal Agreement (ILA) and other contracts between the entity and their customers. The other ten PSAPs receive local funding through their respective public entity budgets.

9-1-1 Funding

The State of Washington 9-1-1 legislation provides for 9-1-1 system funding at the state and county level. The Revised Code of Washington (RCW) 82.14B.030 authorizes the legislative bodies at both the state and county level to levy an E9-1-1 excise tax to pay for 9-1-1 services.

The maximum tax rate levied on subscribers of wireline, wireless, and Voice over Internet Protocol (VoIP) telecommunications services for King County is as follows:

- County E9-1-1 Excise Tax
  - $0.70 per month for each switched access line (wireline telephone service)
$0.70 per month for each radio access line (wireless telephone service)
$0.70 per month for each interconnected voice over internet protocol service line (VoIP)

The tax rate levied on subscribers of wireline, wireless, and Voice over Internet Protocol (VoIP) telecommunications services for state purposes is as follows:

- **State E9-1-1 Excise Tax**
  - $0.25 per month for each wireline access line
  - $0.25 per month for wireless line
  - $0.25 per month for each VoIP access line

In addition to the E9-1-1 excise tax, the state also collects a Telecommunications Relay Service (TRS) to run the state relay service program and Washington Telephone Assistance Program (WTAP) to assist indigent to obtain communication services tax\(^1\) on wireline subscriber services. The combined rate for fiscal year 2013, beginning July 1, 2012, is $0.56 per month including $0.17 for TRS, $0.14 for WTAP, and the maximum $0.25 E9-1-1 for wireline. The state also collects a maximum $0.25 per month 9-1-1 excise tax on wireless and VoIP services.

All 39 counties in the state collect have levied the maximum $0.70 per month for all three services (wireline, wireless, and VoIP).

Each county must contract with the Washington State Department of Revenue for the collection of its E9-1-1 excise tax. The underlying carrier for the respective telecommunication subscriber services is responsible for collecting the state and county E9-1-1 excise tax and remitting it to the Department of Revenue. All county 9-1-1 excise taxes collected in each county are held in dedicated accounts in the state treasury until distributed to the respective county 9-1-1 administrative entities monthly.

**State Funding Support**

The State of Washington E9-1-1 Coordination Office is responsible for the distribution and use of the state E9-1-1 excise tax. RCW 38.52.540 authorized the funds to be used for the following purposes:

- To support the statewide coordination and management of the E9-1-1 system
- For the implementation of wireless E9-1-1 statewide
- For the modernization of E9-1-1 communications systems statewide

---

To help supplement, within available funds, the operational costs of the statewide E9-1-1 communications systems, including:

- Adequate funding of counties to enable implementation of wireless E9-1-1 services
- Reimburse wireless carriers for costs incurred in providing wireless E9-1-1 service

The state E9-1-1 Coordinator, with the advice and assistance of the E9-1-1 Advisory Committee, is authorized to enter into statewide agreements to improve the efficiency of E9-1-1 services for all counties and to specify by rule the additional purposes for which moneys may be expended from the state account.

The state contracts with counties for statewide services and operations. Statewide services are those which are specifically contracted services with the state and do not require local funding. Effective July 1, 2011, the following statewide services were paid directly by the State E9-1-1 Coordination Office:

- E9-1-1 and NG9-1-1 network backbone
- Switching office enabling
- Selective routing
- Traffic studies
- Automatic Location Identification (ALI), not to exceed $1.2 million per fiscal year per county
- Alternate routing and/or night service
- Frame relay/ALI transport
- Inter-tandem transfer trunks
- Telecommunications Services Priority (TSP)
- Language Interpretive Services
- Telecommunications training contracted with State E9-1-1 Coordination Office
- Telecommunications Teletype (TTY) training contracted with State E9-1-1 Coordination Office
- Coordination and facility expenses for Coordinator Forums
- Coordination and facility expenses for Advisory Committee/subcommittee meetings
- Coordinator Professional Development (CPD): Includes reimbursement for professional development for state, county and PSAP staff for Advisory Committee support, national conferences and training, public education, 9-1-1 salaries, benefits and training, 9-1-1 call receiver training.

In some cases, as with network and database, the state funding for King County is not sufficient to fully fund the services.
In addition to statewide services, the State E9-1-1 Coordination Office is authorized to contract with individual counties to provide supplemental grants to support operational costs if the county demonstrates that it will use all of its $0.70 per month E9-1-1 excise tax revenue over the contract period and state funds are needed to subsidize the county 9-1-1 program. The county must also be completely enhanced for wireline and wireless E9-1-1 services. Categories that are eligible for additional state reimbursement include:

- **Statewide Dialing** – Operational Section: Includes Customer Premise Equipment (CPE) and maintenance, PSAP mapping and maintenance, migration to new mapping platform/software, E9-1-1 Coordinator Salary, MSAG coordination, Information Technology (IT) staff support, E9-1-1 call receiver salaries and benefits, E9-1-1 public education salary, E9-1-1 training coordinator salary.

- **Basic Service – Operational Section:** Uninterruptible Power Supply (UPS) and maintenance, network diversity, instant call check and maintenance, mapping display equipment, management information systems (MIS) and maintenance, call detail recorder or printer and maintenance, headsets, records destruction, E9-1-1 mapping administration and E9-1-1 Coordinator e-mail. Also included is training for E9-1-1 Coordinator, MSAG, Mapping, GIS, E9-1-1 IT, and E9-1-1 call receiver.

- **Capital Items – Operational Section:** Includes E9-1-1 logging recorders and maintenance, Computer Aided Dispatch (CAD) systems and maintenance, auxiliary generators and maintenance, clock synchronizer and maintenance, and console furniture and maintenance.

Eligible funding for many of the items included having a dollar limit for both non-recurring and recurring costs.

According to the state office, King County E9-1-1 received the following state funds over the past three state fiscal years through their coordinator professional development contract:

| State 9-1-1 Funding for King County 9-1-1 Program | Coordinator Professional Development Contract |
|_____________________________________________|__________________________________________|
| **Fiscal Year** | **Contract Amount** |
| Fiscal Year 2010 | $8,000 |
| Fiscal Year 2011-1 | $11,971 |
| Fiscal Year 2011-2 | $39,800 |
| Fiscal Year 2012\(^2\) | $40,000 |


\(^3\) Fiscal year 2011 had two contracts due to changes in policy and tax rate mid-year. Fiscal year 2012 actual paid does not include June 2012 payment. The state fiscal year is July through June each year while the King County fiscal year is the calendar year.
The coordinator professional development contract for King County includes funding for the following activities in 2012 and 2013:

- Advisory Committee Meetings, Coordinator Forum, Mid-Year/Application Workshop, State Sponsored Training
- National Conference
- Public Educational Material Development
- 9-1-1 Salaries and Benefits
- 9-1-1 Call Receiver Training

**King County E9-1-1 Program Office Funding Support**

The KCE9-1-1 program is a unit of the King County Washington Office of Emergency Management (OEM) responsible for the provision of E9-1-1 service within its jurisdiction. KCE9-1-1 is financially supported through an E9-1-1 tax of $0.70 per month for subscribers of wireline, wireless, and VoIP communication services. The current rate ($0.70) is the maximum allowed by the state statute.

The *King County Enhanced 9-1-1 Participation Agreement* between KCE9-1-1 and each of the PSAPs lists the priorities as to how excise tax revenue is to be spent. The defined priorities for the 9-1-1 revenue are:

1. Purchase and maintain PSAP equipment, including upgrades necessary for NG9-1-1.
2. Defray the costs of operations payable to the telephone companies as defined in tariffs and service agreements.
3. Pay the costs for KCE9-1-1 program administration, risk management and PSAP insurance.
4. Defray costs associated with PSAP consolidation.
5. Contribute to costs associated with county approved PSAP support staff.
6. Defray operational and equipment costs for PSAP operations.

4 The contract provides $13,500 each year and used for training, including travel to national conferences, and salary and benefits for MSAG, Mapping, GIS, and IT staff.
Revenues not utilized for the aforementioned purposes are to be reserved for future costs associated with KCE9-1-1 emergency 9-1-1 system.

The E9-1-1 excise rate is set by the county legislative body as part of its budgetary process. KCE9-1-1 program budget includes administration/overhead, E9-1-1 system network, database and equipment support, PSAP revenue distribution, public education and E9-1-1 program reserves.

Over the past two fiscal years, KCE9-1-1 program actual budget expenditures by category are the following:

### King County 9-1-1 Program Office Expenditures

<table>
<thead>
<tr>
<th>Budget Category</th>
<th>Fiscal Year 2010</th>
<th>Percent of Total</th>
<th>Fiscal Year 2011</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Administration/Overhead</td>
<td>$1,546,269</td>
<td>5.71%</td>
<td>$1,304,707</td>
<td>5.18%</td>
</tr>
<tr>
<td>E9-1-1 Network Database and Equipment</td>
<td>$10,808,568</td>
<td>39.94%</td>
<td>$10,665,823</td>
<td>42.37%</td>
</tr>
<tr>
<td>PSAP Revenue Distribution</td>
<td>$11,504,950</td>
<td>42.52%</td>
<td>$11,004,950</td>
<td>43.71%</td>
</tr>
<tr>
<td>Public Education</td>
<td>$200,000</td>
<td>0.74%</td>
<td>$200,000</td>
<td>0.79%</td>
</tr>
<tr>
<td>E9-1-1 Reserves</td>
<td>$3,000,000</td>
<td>11.09%</td>
<td>$2,000,000</td>
<td>7.94%</td>
</tr>
<tr>
<td>Total</td>
<td>$27,059,787</td>
<td>100.00%</td>
<td>$25,175,480</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
System Administration/Overhead
The King County E9-1-1 Program Office is managed by the E9-1-1 Program Manager who is supported by six technical and administrative staff. Support staff includes the following positions:

- Program Manager II
- Administrator II
- PSAP Network Administrator
- PSAP Mapping Administrator
- ALI Database Coordinator
- GIS Analyst

The staff is responsible for the administration and coordination of the services provided by KCE9-1-1 including, but not limited to E9-1-1 system planning and management of network, database, GIS and equipment, public education, training for 9-1-1 employees, and NG9-1-1 preparation. King County has already made the following enhancements to its systems in preparation of NG9-1-1:

- Upgrade of the E9-1-1 ALI database system
- Upgrades to the E9-1-1 mapping system
- Upgrade of call answering positions to computerized displays
- Upgrade backroom equipment to interface to an Internet Protocol (IP) 9-1-1 network
- Converted E9-1-1 network to IP telephony
- Participated in the U.S. Department of Transportation NG9-1-1 Proof of Concept demonstration.

E9-1-1 Network, Database, and Equipment
The state E9-1-1 program pays for statewide network, database, and equipment services, based on available funding. KCE9-1-1 supplements the state funding for network and database services for its PSAPs as well as provides funding for equipment. KCE9-1-1 spent more than $10 million for PSAP services over the past two years including:

- Network cost
  - NG9-1-1 network elements = $500,000
  - End office trunks = $200,000
- Annual cost of ALI database for NG9-1-1 = $2.2 million
- 9-1-1 call answering equipment
  - Intrado VIPERs at all PSAPs
    - PBX systems at large PSAPs
    - Hardware replacement schedule
Call taking workstations replaced every three years
Servers and backroom equipment replaced every four years

**PSAP Revenue Distribution**
Approximately 44 percent of KCE9-1-1 budget the past two years has been distributed back to the PSAPs. The funds are distributed for a variety of purposes as identified in the table below:

<table>
<thead>
<tr>
<th>Fund</th>
<th>How Distributed</th>
<th>Method to Request Funds</th>
<th>Carryover to Future Years*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSAP Revenue Distribution</td>
<td>Quarterly to Escrow Account</td>
<td>PSAP Request for Distribution of Funds from 9-1-1 Escrow Account</td>
<td>Yes</td>
</tr>
<tr>
<td>GIS CAD Support</td>
<td>To Escrow Account Upon Request</td>
<td>PSAP Request for Distribution of Funds from 9-1-1 Escrow Account</td>
<td>No</td>
</tr>
<tr>
<td>IT System Specialist</td>
<td>To Escrow Account Upon Request</td>
<td>PSAP Request for Distribution of Funds from 9-1-1 Escrow Account</td>
<td>No</td>
</tr>
<tr>
<td>PBX/VIPER Administration Support</td>
<td>To Escrow Account Upon Request</td>
<td>PSAP Request for Distribution of Funds from 9-1-1 Escrow Account</td>
<td>No</td>
</tr>
<tr>
<td>NG9-1-1 Operational Impact</td>
<td>To Escrow Account Upon Request</td>
<td>PSAP Request for Distribution of Funds from 9-1-1 Escrow Account</td>
<td>Yes</td>
</tr>
<tr>
<td>NG9-1-1 Training Funds</td>
<td>Direct from E9-1-1</td>
<td>Cover Memo</td>
<td>No</td>
</tr>
<tr>
<td>PSAP Equipment Support</td>
<td>Direct from E9-1-1</td>
<td>PSAP Request for PSAP Equipment Support</td>
<td>No</td>
</tr>
<tr>
<td>Headsets for Call Receivers</td>
<td>Direct from E9-1-1</td>
<td>Cover Memo</td>
<td>No</td>
</tr>
<tr>
<td>UPS for 9-1-1 Equipment</td>
<td>Direct from E9-1-1</td>
<td>Cover Memo</td>
<td>No</td>
</tr>
</tbody>
</table>

*“No” in this column indicates that funds are available on an annual basis, but unused funds do not carry over to future years.

5 PBX/VIPER Administration Support FTE is provided to PSAPs with a PBX. Those include King County Sheriff, NORCOM, Seattle Police Department, Valley Communications, and Seattle Fire Department.
In order to be eligible for revenue distributions, PSAPs must meet standards outlined in the 9-1-1 participation agreement. The requirements for eligibility for each of the funds are the following:

**PSAP General Revenue Distribution**

Each year, the total amount of general revenue to be distributed to the PSAPs is determined by KCE9-1-1 program manager. The percentage of the total distribution to each PSAP is determined by a formula based on the following:

- Number of wireline access lines served by each PSAP
- Percentage of the total number of wireless 9-1-1 calls received by each PSAP
- Percentage of the total number of VoIP calls received by each PSAP

KCE9-1-1 has been working with the PSAP Committee to evaluate the distribution formula. The current 2012 general revenue distribution formula includes “additional” revenue for the four larger PSAPs as a transition measure to a different funding formula based more on call volume. Findings that have stimulated the PSAP Committee discussion regarding the funding formula include:

- Wireline call volume has decreased to 25 percent of the total 9-1-1 call volume while 44 percent of the revenue distribution is based on wireline access lines served.
- Wireless call volume has increased to 69 percent, yet only 52 percent of revenue distribution is based on wireless call volume.
- The current revenue distribution model skews revenues away from the four largest PSAPs that receive 84 percent of the total call volume.

In 2011, the four largest PSAPs, King County Sheriff’s Office, Seattle Police Department, Valley Com, and Washington State Patrol received 72 percent of the general revenue distributed. The 2012 transition formula, with the additional transition revenue, increases the distribution to the four largest PSAPs to 75 percent.

The 2013 projected general revenue distributions to the King County PSAPs also includes the additional transition revenue to the four largest PSAPs with the total distribution being the same as 2012, $5,790,616. KCE9-1-1 has not changed the distribution for 2013 because it is waiting to see the recommendations from the consolidation study before it determines the future distribution model. KCE9-1-1 and the PSAP Committee plan to develop a more formal model in 2014 after it is more clear what funds will be available and how many PSAPs will be funded.

---

6 If a wireless call is transferred to another PSAP, both PSAPs receive full credit for the call.
General revenue distributions are deposited in an escrow account for each PSAP and must be requested by the PSAP. Escrow funds can be used for equipment, staffing, consulting services, or other 9-1-1 related purposes.

GeoComm found, during its interviews with executives and governing body officials that PSAPs are, for the most part, dependent on this revenue to help fund its operations. We found that in fiscal years 2011 and 2012 that if the PSAPs used the escrow general revenue for PSAP operations, KCE9-1-1 contributed up to 22 percent of PSAP operations. Even though each PSAP may not apply for the escrow funds each year, they are part of their long-term funding requirements.

The following table provides the total PSAP general revenue distribution for fiscal years 2010 and 2011 along with the projected distribution for 2012 and 2013:

<table>
<thead>
<tr>
<th>King County Enhanced 9-1-1 Program</th>
<th>PSAP Revenue Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSAP</td>
<td>2010 Annual</td>
</tr>
<tr>
<td>Bothell Police Department</td>
<td>$ 77,815</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>$ 12,491</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>$ 42,559</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>$ 764,587</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$ 653,402</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$ 11,191</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>$ 173,536</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$ 1,308,681</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>$ 41,145</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$ 1,016,803</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$ 569,582</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>$ 328,208</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$ 5,000,000</td>
</tr>
</tbody>
</table>

In addition to the general revenue distributions to PSAPs, KCE9-1-1 also will add funds to each PSAP’s escrow account to support PSAP operations with funding 9-1-1 technical support staff. Some of the funding can be carried over fiscal years and others are not eligible.
Additional escrow funds are available for the following purposes:

**PSAP Staff Support**
KCE9-1-1 utilizes a portion of its revenue distribution to provide technical staff support for its PSAPs. The amount of staff support funding a PSAP is eligible for is dependent upon its size. The larger PSAPs are defined as those with ten or more answering positions and the smaller PSAPs are those with less than ten positions.

Those staff support positions include:

- **GIS/CAD Support**: KCE9-1-1 uses program funds to support up to one Geographic Information System/Computer Aided Dispatch (GIS/CAD) full time employee (FTE) at the larger PSAPs and up to on-half FTE at smaller PSAPs. PSAPs may also request funds for appropriate equipment and training for the FTE to effectively perform his/her duties.

- **IT System Specialist**: KCE9-1-1 will use E9-1-1 funds to support up to one Information Technology (IT) Specialist FTE at larger PSAPs and up to one-half FTE at smaller PSAPs. IT system support staff work closely KCE9-1-1 to coordinate IT work related to NG9-1-1 in addition to its specific 9-1-1 system related work at its PSAP. PSAPs may also request funding to support the equipment and training necessary for the IT System Specialist to perform their duties.

- **PBX/VIPER Admin Support**: KCE9-1-1 has provided for additional staff support for five of the larger PSAPs to provide PBX/VIPER administration services on their larger system. The PSAPs receiving the additional funds since 2011 include King County Sheriff, NORCOM, Seattle Police Department, Valley Com, and Seattle Fire Department.

- **NG9-1-1 Operational Impact**: KCE9-1-1 provided $2,500,000 in 2010 and $3,925,938 in 2011 for its PSAP NG9-1-1 PSAP operational readiness program. To qualify for the additional funds, PSAPs were required to enhance their PSAP to prepare for NG9-1-1. New enhancements to the PSAP that meet the requirement included additional staff or call taker salary increases, CAD upgrades, recording upgrades that include recording of data, pictures, video, Automatic Collision Notification data, text messages, etc. Each PSAP was eligible for the amount equal to the percentage of total available funds equaling its percentage of total E9-1-1 call volume the previous year.

Other PSAP operational expenditures that are eligible for direct reimbursement from KCE9-1-1 include NG9-1-1 training, PSAP equipment support, headsets for call receivers and Uninterrupted Power Supplies (UPS) for E9-1-1 equipment.
The following table provides the amount of funding that is projected to be distributed to the King County PSAPs in 2012 and 2013 for GIS/CAD, IT systems and PBX/VIPER staff support and for PSAP equipment support:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>$63,000</td>
<td>$63,000</td>
<td>$0</td>
<td>$28,560</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>$63,000</td>
<td>$63,000</td>
<td>$0</td>
<td>$6,630</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>$63,000</td>
<td>$63,000</td>
<td>$0</td>
<td>$15,810</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$724,500</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$362,250</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$63,000</td>
<td>$63,000</td>
<td>$0</td>
<td>$15,810</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>$63,000</td>
<td>$63,000</td>
<td>$0</td>
<td>$28,560</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$724,500</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>$63,000</td>
<td>$63,000</td>
<td>$0</td>
<td>$6,630</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$724,500</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$362,250</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$126,000</td>
<td>$362,250</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$1,134,000</strong></td>
<td><strong>$1,134,000</strong></td>
<td><strong>$630,000</strong></td>
<td><strong>$3,000,000</strong></td>
</tr>
</tbody>
</table>

**E9-1-1 Reserves**

The KCE9-1-1 does reserve funds in its budget each year for designated projects. It also has a rainy day reserve fund, equal to 60 days of operations expenditures, and an undesignated fund balance. KCE9-1-1 advises GeoComm that the reserves are intended for E9-1-1 equipment replacement, according to the schedule previously discussed and for E9-1-1 system upgrades.
The following table provides an overview of the current reserve fund accounts and fund balance for 2010 – 2012:

<table>
<thead>
<tr>
<th>King County E9-1-1 Program Reserve Fund</th>
<th>2010</th>
<th>2011</th>
<th>2012 Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Reserve/Designations – Landline</td>
<td>$(1,500,000)</td>
<td>$(1,000,000)</td>
<td>$(1,000,000)</td>
</tr>
<tr>
<td>Less Reserve/Designations – Cellular</td>
<td>$(1,500,000)</td>
<td>$(1,944,338)</td>
<td>$(1,944,338)</td>
</tr>
<tr>
<td>Less Reserve/Designations – VoIP</td>
<td>$(1,888,339)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Rainy Day Reserve at 90 Days of Expenditures</td>
<td>NA</td>
<td>$(2,466,216)</td>
<td>$(2,372,966)</td>
</tr>
<tr>
<td>Total Reserves and Designations</td>
<td>$(4,888,339)</td>
<td>$(5,410,554)</td>
<td>$(5,317,304)</td>
</tr>
<tr>
<td>Ending Undesignated Fund Balance</td>
<td>$5,931,144</td>
<td>$8,867,716</td>
<td>$9,373,368</td>
</tr>
</tbody>
</table>

**Local Funding Support**

Each of the PSAPs served by King County are responsible for their operations and the funding for such. It is important to note that the funding support provided by KCE9-1-1 is important to the success of each PSAP. Some of the PSAP management interviewed expressed concern about the current funding formula that is being addressed by KCE9-1-1 and the PSAP Committee. Issues include the following:

- Routing of wireless 9-1-1 calls. Smaller PSAPs would like to see KCE9-1-1 reevaluate the routing of cell tower sectors to include routing to the smaller PSAPs. They believe that technology has progressed such that callers within their jurisdiction could be routed to their PSAP. This would increase KCE9-1-1 funding to their PSAP.

- There were also concerns expressed regarding the use of 9-1-1 as primary access to the police departments. It was noted that some of the municipalities advertised 9-1-1 as the only number to call. This is also being addressed by KCE9-1-1 and the PSAP Committee.

- A third issue that was communicated to GeoComm was that a large portion of KCE9-1-1 funding to the PSAPs was for support staff positions funded by KCE9-1-1. It was suggested that if the financial support for this technical staff would be removed over a period of a few years, there would be sufficient 9-1-1 excise tax funds in King County to fund the NG9-1-1 system.

The tables on the following page depict the total budget for each PSAP, as reported to GeoComm, for fiscal years 2011 and 2012. It also includes the amount reported by KCE9-1-1 that was distributed to the PSAPs in 2011 and that amount projected in 2012.
### 2011 King County PSAP Funding by Source

<table>
<thead>
<tr>
<th>PSAP</th>
<th>King County Funding</th>
<th>Local Funding</th>
<th>2011 Actual Expenditures</th>
<th>King County Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>$268,232</td>
<td>$1,260,416</td>
<td>$1,528,648</td>
<td>17.55%</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>$146,653</td>
<td>$668,117</td>
<td>$814,770</td>
<td>18.00%</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>$195,621</td>
<td>$1,103,379</td>
<td>$1,299,000</td>
<td>15.06%</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>$2,696,858</td>
<td>$5,728,704</td>
<td>$8,425,562</td>
<td>32.01%</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$1,808,409</td>
<td>$10,671,977</td>
<td>$12,480,386</td>
<td>14.49%</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$160,316</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>$384,975</td>
<td>$2,197,687</td>
<td>$2,582,662</td>
<td>14.91%</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$3,354,894</td>
<td>$9,238,485</td>
<td>$12,593,379</td>
<td>26.64%</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>$169,579</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$2,530,364</td>
<td>$16,796,232</td>
<td>$19,326,596</td>
<td>13.09%</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$1,314,248</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>$1,321,745</td>
<td>NP</td>
<td>$6,527,057</td>
<td>20.25%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$14,351,894</td>
<td>$52,870,309</td>
<td>$65,578,060</td>
<td>21.89%</td>
</tr>
</tbody>
</table>

### 2012 King County Forecasted PSAP Funding by Source

<table>
<thead>
<tr>
<th>PSAP</th>
<th>King County Funding</th>
<th>Local Funding</th>
<th>2012 Budgeted Expenditures</th>
<th>King County Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>$265,875</td>
<td>$1,385,274</td>
<td>$1,651,149</td>
<td>16.10%</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>$145,831</td>
<td>$689,852</td>
<td>$835,683</td>
<td>17.45%</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>$190,914</td>
<td>$1,026,056</td>
<td>$1,216,970</td>
<td>15.69%</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>$2,041,725</td>
<td>$7,104,500</td>
<td>$9,146,225</td>
<td>22.32%</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$1,424,170</td>
<td>$16,176,569</td>
<td>$17,600,739</td>
<td>8.09%</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$154,038</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>$376,820</td>
<td>$2,266,373</td>
<td>$2,643,193</td>
<td>14.26%</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$2,582,273</td>
<td>$10,965,860</td>
<td>$13,548,133</td>
<td>19.06%</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>$182,330</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$2,345,460</td>
<td>$15,796,409</td>
<td>$18,141,869</td>
<td>12.93%</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$950,578</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>$1,028,603</td>
<td>$5,630,425</td>
<td>$6,659,028</td>
<td>15.45%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>$11,688,617</td>
<td>$61,041,318</td>
<td>$71,442,989</td>
<td>16.36%</td>
</tr>
</tbody>
</table>

---

7 NP represents the PSAPs that have provided insufficient data to GeoComm to use for comparison in this table.
8 King County Funding includes: PSAP revenue distributions, GIS/CAD support staff, IT system support staff, PBX/VIPER administration support staff, NG9-1-1 Operations support, PSAP equipment support.
In addition to the local general revenue funds used for funding the local PSAPs, several of the PSAPs contract with public safety response agencies either through Interlocal Agreement or other contract arrangement. The following PSAPs have contracts with other response agencies for call taking and dispatch services:

- Bothell Police Department: Contracts with Lake Forest Park Police Department
- Enumclaw Police Department: Contracts with Enumclaw Fire Department
- Issaquah Police Department: Contracts with Snoqualmie Police Department
- King County Sheriff: Contracts with the cities of Burien, Covington, Kenmore, Maple Valley, Newcastle, North Bend, Sammamish, SeaTac, Shoreline, Woodinville, and King County Airport
- NORCOM: Contracts with the Bellevue Police and Fire, Clyde Hill Police, Kirkland Police and Fire, Medina, Mercer Island Police and Fire, Bothell Fire Department, Duvall Fire District 45, Fall City Fire District 27, Eastside Fire and Rescue, Northshore Fire Department, Redmond Fire Department, Shoreline Fire Department, Skokomish Fire Department, Snoqualmie Fire Department, Snoqualmie Pass Fire and Rescue, and Woodinville Fire and Rescue
- Redmond Police Department: Contracts with Carnation and Duvall Police
- Valley Communications: Contracts with Algona Police, Auburn Police, Black Diamond Police, Federal Way Police, Kent Police, Pacific Police, Auburn Fire, Kent Fire, Pacific Fire, Renton Fire, SeaTac Fire, Tukwila Fire, King County Fire Districts numbers 2, 11, 13,17, 20, 25, 26, 39, 40, 43, 44, 46, and 47

The PSAPs that dispatch for fire and EMS also receive funding either indirectly or through in-kind services from the King County EMS Division (Division). According to the Division’s 2011 Annual Report, it provides comprehensive and continuing education programs to approximately 210 dispatchers in communication centers in King County, outside the City of Seattle. More than 180 dispatchers complete the continuing education program annually.

The Division utilizes funds generated through a countywide EMS property tax levy of $0.30 per $1,000 assessed value to support 31 emergency response agencies that provide either Advanced Life Support (ALS) or Basic Life Support (BLS). The funding of the agencies indirectly supports the PSAPs that serve those agencies. The dispatch centers that provide EMS dispatch services are Enumclaw Police Department, NORCOM, Port of Seattle Police Department, Seattle Fire Department, and Valley Com. GeoComm was advised by Division staff that it provides approximately $4 million per year to PSAPs through contracts with EMS providers.
Conclusion

PSAPs in King County are well funded when compared to other agencies across the country. The statute that provides for E9-1-1 excise tax funding for all telecommunications services that access 9-1-1 is comprehensive and is intended to provide a means for funding E9-1-1 services across the state.

The tax revenue is levied both at the state level to provide for its program and at the county level to support its programs. The state and county program together fund the basic 9-1-1 infrastructure including network, database and equipment across the state.

The local PSAPs are responsible for the funding of their individual operations but in King County are also subsidized by KCE9-1-1 with various revenue distribution programs. Some local PSAPs also are subsidized through their contracts with user agencies. NORCOM and Valley Com are consolidated agencies that provide dispatch services to multiple jurisdictions and are funded by an assessment for services through their agreements with those governing bodies.

It is important to note that through its interviews with executive representatives at the King County PSAPs, GeoComm has learned that, in addition to the 9-1-1 dispatch funding issues, agencies are concerned about the future costs that will be associated with the countywide radio system. GeoComm was advised that the current organizations responsible for the system are planning for an election in 2014 for a countywide levy to fund a new system that may provide radio interoperability across the county. There are also discussions currently being held about radio interoperability with surrounding counties.

It is important for the public safety stakeholders in King County to consider both the cost for dispatch and radio as it considers consolidation options in the future.
Operations Overview

The goals of the on-site interviews and observation time were to explore relevant issues pertaining to operational procedures, staffing, call processing, training, technical functionality, and quality assurance practices. GeoComm, also, explored the size and layout of the facilities, operational effectiveness, and available equipment.

In addition to the initial data collection, members of the GeoComm team conducted on-site interviews and observations at each of the 12 Public Safety Answering Points (PSAPs) in the King County region. Following the personal interviews, GeoComm spent time observing the existing PSAP operations.

During the on-site meetings, GeoComm was able to clarify information received as part of the online data collection process as well as close the gaps on some of the outstanding information. The interviewees at each PSAP included civilian and non-civilian dispatchers, supervisors, training personnel, technical staff members, and management personnel. Information about operations at each PSAP is contained within this section of the report, and additional specific details about each PSAP are also in the individual profiles.

Call Handling

**Wireline, Wireless, and VoIP**

Eleven of the 12 PSAPs involved in the King County region assessment are primary for wireline and Voice over Internet Protocol (VoIP) incoming calls, five are primary for wireless incoming calls. Five PSAPs received between 151,391 and 523,021 total 9-1-1 calls last year. Four PSAPs received between 10,818 and 82,495 total 9-1-1 calls, and three received between 3,763 and 8,658 total 9-1-1 calls. King County Enhanced 9-1-1 Program Office (KCE9-1-1) data revealed that the percentage of wireless calls range from 43 to 94 percent of the total 9-1-1 calls received by the PSAP. The exceptions are University of Washington Police Department at ten percent and Port of Seattle Police Department at 21 percent of wireless calls. The VoIP calls are a lower percentage ranging from .89 to 13.86 percent of total 9-1-1 calls. The volume of wireless calls for the PSAPs is fairly consistent to the number of 9-1-1 calls each PSAP receives. The larger PSAPs have a larger percentage of wireless calls, however, some of the smaller PSAPs have a higher percentage of VoIP calls.
<table>
<thead>
<tr>
<th>PSAP</th>
<th>Total 9-1-1 Call Volume (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>14,829</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>4,184</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>10,818</td>
</tr>
<tr>
<td>King County Sheriff’s Office</td>
<td>331,966</td>
</tr>
<tr>
<td>NORCOM</td>
<td>151,391</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>8,658</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>20,568</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>82,495</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>523,021</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>3,763</td>
</tr>
<tr>
<td>Valley Communications Center</td>
<td>439,320</td>
</tr>
<tr>
<td>Washington State Patrol District 2 – Bellevue</td>
<td>246,910</td>
</tr>
</tbody>
</table>

**Compliance with King County E9-1-1 Program Office Standards of Operation**

All PSAPs are required to meet KCE9-1-1 established standards for operations such as call answering times in order to receive E9-1-1 funding. PSAPs sign an E9-1-1 Participation Agreement with KCE9-1-1 that outlines the mutual responsibilities and requirements.

In addition to the technical aspects of PSAP operations related to E9-1-1 database maintenance and E9-1-1 equipment requirements, the Participation Agreement also outlines the PSAPs requirements as it relates to general E9-1-1 equipment training for personnel along with the operational standards and operational procedures and protocols adopted by KCE9-1-1. These standards, procedures, and protocols are modified periodically to ensure compliance with nationally accepted standards and are Exhibits to the Participation Agreement. The Participation Agreement and Exhibits are included in this report as Appendix B.

**Standard Operating Procedures (SOPs)**

GeoComm staff observed that all 12 PSAPs followed standard call handling procedures. During GeoComm’s observations, the call taking and dispatching procedures and processes utilized at all 12 PSAPs appeared to be standard according to services delivered by most public safety communications centers in the industry. Information gathered by call takers was thorough according to the type of call being taken and met strict EMD protocol requirements when the calls were medical in nature and the PSAP provided EMD services. The transition process from call taker to dispatcher in the PSAPs that had two separate individuals providing these functions worked well. Calls were routed by CAD to the appropriate radio dispatcher and then handled according to local policy.
In the PSAPs where one individual answered the call and dispatched field responders, the process also ran smoothly. GeoComm observed a consistent sense of teamwork at each of the PSAPs visited.

In general, the PSAPs had a clear understanding of their core function providing communications services and had processes and procedures in place to ensure these services were provided thoroughly.

**Workflow and Processes**
The call handling process is consistent among the PSAPs. They all receive calls from a 9-1-1 line, non-emergency, or administrative line. Five of the 12 PSAPs utilize an Automatic Call Distribution (ACD) system that will automatically assign an incoming call to a call taker or cross trained call taker/dispatcher. The seven PSAPs that do not utilize the ACD answer calls according to an internal call taking protocol or a call taker who is available to answer calls.

<table>
<thead>
<tr>
<th>ACD</th>
<th>Non-ACD</th>
</tr>
</thead>
<tbody>
<tr>
<td>King County Sheriff's Office</td>
<td>Bothell Police Department</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>Enumclaw Police Department</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>Issaquah Police Department</td>
</tr>
<tr>
<td>NORCOM</td>
<td>Port of Seattle Police Department</td>
</tr>
<tr>
<td>Valley Communications</td>
<td>Redmond Police Department</td>
</tr>
<tr>
<td></td>
<td>University of Washington Police Department</td>
</tr>
<tr>
<td></td>
<td>Washington State Patrol</td>
</tr>
</tbody>
</table>

The caller is interviewed, and if a public safety response is required the call is entered into the agency’s Computer Aided Dispatch (CAD) system. The exception is NORCOM. Their center operates on two CAD systems. One CAD system is for fire/EMS and the other is for law enforcement. When they receive a call that requires a response from both fire/EMS and law enforcement, they must enter information into each CAD system separately. NORCOM’s CAD systems have a dual Automatic Number Identification/Automatic Location Identification (ANI/ALI) feed that requires one of the calls to be cancelled out if it is a single agency response. The call is then assigned to the appropriate responding unit or units by the designated radio dispatcher(s).

**Use of Technology**
The dispatchers that GeoComm interviewed in the King County region were very knowledgeable of the technology in their centers. They were able to either demonstrate the use of their equipment or explain the features and functions, such as the use of their CAD system and the interaction with the field units. The majority of the field units have Mobile Data Terminals (MDTs) in their vehicles, and some agencies report that not all field units have them in their cars.
The majority of field units that have MDTs or Mobile Data Computers (MDCs) will self-initiate to dispatch for officer initiated calls for service when appropriate. King County Sheriff’s field units have the option of entering a priority three call into the MDT, however, priority one or two will be verbally called into the dispatcher over the radio.

**Relationships with Field Units**

The on-site interviews and observations revealed that the dispatch personnel at the 12 PSAPs appear to have good working relationships with their field units. During interviews, individuals outlined the positive relationships that exist while also describing specific methods used to enhance relationships such as ride-alongs, sit-alongs, training/social opportunities, etc.

GeoComm observed professional radio demeanor and cooperation from the communications center and field while studying the communications center operations first hand. The dispatchers that GeoComm observed displayed a sincere attempt to provide professional service to the field units with whom they were in contact.

**Radio Use**

The observations during the GeoComm site visit revealed the dispatchers’ ability to efficiently operate their radios. They either demonstrated or explained the process they use to dispatch calls for service. Radio protocol was consistent with generally accepted operational principles. Appropriate radio communication language was observed and professional conduct on the radio was demonstrated. There were some operational challenges when it came to patching talk-groups or channels together in some of the PSAPs. This is attributed to not doing it very often and the lack of continuing training in this area according to the users.

**EMD**

Five of the 12 PSAPs currently utilize an Emergency Medical Dispatch (EMD) program. The PSAPs providing EMD services to their communities, utilize King County Emergency Medical Service, Criteria Based Dispatching (CBD) guidelines.

**Training**

**Overview**

Although the state of Washington does not currently have mandated training standards for telecommunicators, King County has several resources for 9-1-1 related training in addition to each PSAP’s in-house training programs.
**Washington State Criminal Justice Training Commission**

The Washington State Criminal Justice Training Commission (WSCJTC) has a formal, robust Telecommunicator Program which is available to 9-1-1 personnel tuition-free. This program is funded by the State 9-1-1 Office and offers both new hire and incumbent worker training courses.

Courses include:

- **I: Basic Call Taker (5 day)**
- **II: Fire and Police Dispatch (5 day)**
- **Training Officer (CTO) (4 day)**
- **Training Officer II (CTO II) (3 day)**
- **Incident Training Officer (ACTO) (3 day)**
- **Center Supervisor (6 day)**
- **Instructor (5 day)**
- **Instructor and Facilitator Training (3 day)**
- **IV: Survival Communications (3 day)**
- **Telecommunicator Emergency Response Taskforce) Leader (1 day)**
- **Telecommunicator Emergency Response Taskforce) Member (1 day)**

The Telecommunicator Program trains 450 to 500 students annually which includes attendees for all available courses.

**King County E9-1-1 Program Office**

In addition to the training provided by WSCJTC, KCE9-1-1 also provides an array of crisis and critical incident management training which is available to PSAPs as a supplement to in-house training free of charge.
Courses include:

- Conflict Management and Resolution (1 day)
- Handling Domestic Violence Calls, Basic and Advanced (1 day)
- Handling Suicidal Callers and Hostage Negotiations (1 day)
- Handling Weapons of Mass Destruction and Hazardous Materials Incidents (1 day)
- Handling ICS, Weapons of Mass Destruction and Hazardous Materials Incidents (1 day)
- Handling Communication Styles (1 day)
- Handling Training Techniques for Dispatchers (1 day)
- Supervisory Workshop (1 day)
- Handling TTY and Deaf Culture (1 day)
- Handling Understanding and Dealing with Difficult People (1 day)

KCE9-1-1 trains an average of 140 students per year through their programs by scheduling two offerings per year. KCE9-1-1 reports that attendance to these courses has decreased in recent months due to staffing issues with the PSAPs. For this reason, there is consideration being given to assist PSAPs with backfill costs for when a telecommunicator is in training.

Additional training opportunities are afforded through the efforts of the Washington State Chapter of APCO/NENA.

Overview of PSAP Training

- New Hire Training

All 12 PSAPs in King County report having formal training programs. As expected, there are different training approaches taken by various PSAPs. Most of the PSAPs report that their new hire training lasts between three to six months while three PSAPs, King County Sheriff’s Office, NORCOM, and the Seattle Police Department report their training programs last up to 18 months after being hired.

- Incumbent Worker Training

Each PSAP also reports that they have formal training requirements for incumbent workers. The length and type of this training varies from eight hours to 40 hours annually. Most PSAPs take advantage of training offered by WSCJTC and KCE9-1-1 as well as developing their own in-house training related to policies, procedures, and protocols.
APCO Minimum Training Standards for Public Safety Telecommunicator (P33)

Of the 12 study PSAPs, two are currently recognized for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33) with one PSAP in progress. The other nine PSAPs have not submitted their training programs for compliance review.

Commission on Accreditation for Law Enforcement Agencies (CALEA)

Four of the PSAPs have obtained the CALEA Public Safety Communications Accreditation while two PSAPs are actively in the CALEA process.

Communications Training Officer (CTO) Training

All 12 PSAPs have some form of a Communications Training Officer (CTO) program. This is the training for trainers and the formal training program that guides new hire training. Seven PSAPs use the WSCJTC CTO programs while four use an in-house version and one uses APCO CTO.

Quality Assurance/Quality Improvement (QA/QI) Program

Six PSAPs have a formal Quality Assurance/Quality Improvement (QA/QI) process in place while two have no formal process and two evaluate calls based on issues noted with particular calls. Two PSAPs conduct evaluation of their EMD calls only.

Emergency Medical Dispatch (EMD) Program

Seven of the PSAPs report no Emergency Medical Dispatch (EMD) program, while the other five PSAPs use the King County Criteria Based Dispatch Program.

Americans with Disabilities Act (ADA) Compliance Training

All 12 PSAPs report that they comply with the Americans with Disabilities Act (ADA) requirements in regards to their training programs including instruction on handling TTY calls for callers who are deaf.

GIS/Mapping

Overview

KCE9-1-1 has supplied a standard map application and GIS data in all the county PSAPs. The GIS data for this application is maintained separate from the local GIS data. Update information is provided through the local personnel and in some cases local GIS data. A majority of PSAPs also have a second mapping application associated with their CAD. The GIS data used in the CAD mapping application is maintained separately by local personnel.
Staff Support
KCE9-1-1 uses E9-1-1 funds to support either a full-time or a half-time CAD/GIS system position at each PSAP. If the PSAP has ten or fewer answering positions, the position is funded at 50 percent. If the PSAP has more than ten answering positions, the entire position is funded. The purpose of this position is to ensure that the PSAP has appropriate support personnel in place to ensure coordination with KCE9-1-1 network elements and components related to the integration of current E9-1-1 and Next Generation 9-1-1 (NG9-1-1) network with the PSAPs computer aided dispatch and mapping supported systems. The CAD/GIS support position, although funded by KCE9-1-1, is considered an employee of the PSAP and dedicated to the PSAP needs.

Dispatch Mapping Software
The 12 PSAPs servicing King County have a standard mapping application supported by KCE9-1-1. This mapping application is associated with the telephone system and plots 9-1-1 calls. It provides a common map view and functionality across all the PSAPs. The PSAPs locally support a separate mapping application through their CAD systems. The exception is the University of Washington that does not have mapping in their current CAD version.

Data Maintenance
The main component in supporting a mapping application for public safety is the GIS data that is used within the mapping application. The GIS map data installed in the standard mapping application supported by KCE9-1-1 is built and maintained by the program office and its staff.

KCE9-1-1 personnel work directly with local cities to obtain support documentation or map data for map updates. Attribute standards are applied to the GIS data as part of the maintenance process by KCE9-1-1. KCE9-1-1 reviews changes, updates the map data, and performs extensive quality control checks on the new data. If questions or conflicts arise in the data updates the program office discusses the items with local cities. This provides a direct link between GIS data maintenance and the local resources.

The PSAPs have established a communication plan with their local service areas such as the city or cities to provide GIS data or changes needed for the CAD map. Some local maintenance programs utilize KCE9-1-1 data to determine updates that must occur for their CAD map. As with any regional type maintenance program, King County faces the issue of obtaining local update information in a timely fashion.

The maintenance for the Master Street Address Guide (MSAG) is centrally located in KCE9-1-1 alongside the GIS maintenance. This allows for parallel maintenance between the GIS and MSAG. A high synchronization level between the GIS data and MSAG is obtained as a result of the centralized maintenance program. GIS and MSAG synchronization is necessary for GIS functionality in a NG9-1-1 system.
Staffing

Overview

The PSAPs in the King County region recruit and hire new employees, by either utilizing their own personnel or a third party company. They all provide some form of pre-employment testing to determine if the candidates have skills required for the position. There seemed to be a high interest in public safety job openings, judging from the volume of applicants at most of the agencies.

Staffing levels are determined at most agencies using APCO’s RETAINS product. This is the only public safety communications staffing tool specifically designed to determine appropriate levels for the PSAP. Some agencies use the product on an ongoing basis while some reported that it was time to look at the data again to determine whether current levels are sufficient or if there needs to be modifications to their staffing numbers. A few agencies relied on other data and processes to determine staffing levels such as call volume, number of radio channels, special events, etc.

Staffing Levels

Seven of the 12 PSAPs are either fully staffed or have only one vacant position. The staffing levels of the other five PSAPs vary according to turnover rate and vacancies. However, most of these five PSAPs generally were able to retain employees after they were employed over three years. The majority of the PSAPs believe they have adequate staffing levels when all positions are filled with the exception of Seattle Police Department. Seattle Police Department stated to GeoComm that this is due, in part, to annexations, the size of their agency, and the increased workload on their radio zones.

The table on the following page is a breakdown of full-time equivalent (FTE) and part-time employees that are authorized positions for King County PSAPs.
King County has several PSAPs reporting adequate staffing allocation and appropriate levels of actual filled positions filled while others report they are struggling with the issue of appropriate staff or retention concerns. Staffing and retention issues are common throughout the country and some PSAPs in King County are not immune to this stigma. The agencies that have fewer staffing and retention issues can serve as excellent example to the others. The observations at the agencies that have fewer issues reveal that processes are in place that are prone to circumvent traditional issues while creating an environment that is conducive to retaining employees.

**Supervision**

All the PSAPs have supervisory coverage in their centers. Six agencies have a supervisor or an acting supervisor on duty to cover each shift. The other six agencies have supervisory coverage during certain times periods. In the absence of a supervisor, the PSAPs report that generally the patrol supervisor is available to handle after hour issues.

**Facility**

**Overview**

The buildings housing the PSAPs in King County range from older structures that have been converted to police department use (including the PSAP) to modern facilities designed and built specifically for PSAP use. The oldest building, the Bryant Building that houses the University of Washington Police Department, was originally built in 1935. The newest building is the one housing the Seattle Fire Department PSAP, completed and occupied in 2008.
Facility Design
While the majority of the PSAPs in King County are located within police department facilities, one (Valley Com) is in a building designed and built to house the PSAP, and two (Seattle Fire Department and King County Sheriff's Office) are in facilities designed to house the PSAP and the adjoining Emergency Operating Center (EOC). One (NORCOM) is an autonomous PSAP housed in leased space redesigned for this purpose within a large city hall building.

Facility Size and PSAP Configuration
PSAP sizes range from two consoles to 46 consoles. Six PSAPs have six or fewer consoles, and three PSAPs have 30 or more consoles. The six smaller PSAPs have limited space, if any, for adding console positions without relocating or doing extensive remodeling projects. The larger PSAPs, due to their size, have the ability in most cases to reconfigure the available space and add more console positions if necessary.

Facility Structures and Emergency Power
Newer facilities have been designed to comply with, and in some cases to exceed, the seismic standards for buildings of their type and occupancy. All PSAPs are equipped with emergency power generators and battery banks to supply electricity to critical loads during power outages. All have identified alternate locations where they can relocate operations if their PSAPs become unusable.

Access Control
All of the PSAPs have some method of access control in place to restrict access to the PSAP. These methods ranged from key access to punch-code locks to door access card systems of varying degrees of sophistication, depending largely on the age of the facility. One PSAP had multi-factor authentication systems in place on some doors including equipment rooms.

Equipment Rooms
PSAP equipment rooms, in most cases, are designed and cabled in accordance with generally accepted industry practices for such spaces. While few of them have room for significant numbers of additional racks and cabinets, in most cases the racks and cabinets already in place have sufficient open space for installation of additional or replacement systems or equipment alongside the existing equipment. Some equipment rooms are configured to keep racks and cabinets stable during significant seismic events. Sufficient cooling capacity appears to be in place to handle the heat load of the equipment presently installed, although portable cooling units are being employed at two locations to achieve this. Some equipment rooms have redundant cooling units in case the primary unit fails. There is a good deal of variation in the types of grounding systems in place, ranging from rudimentary to comprehensive systems including grounding halos.
Conclusion

To date, GeoComm has gathered information and observed details relating to call processing, facilities, financials, governance, political climate, staffing, and technology. The project team has paid careful attention to gathering information about these details and identifying items that are unique to the individual PSAPs as well as information that will impact future recommendations.

Eleven of the 12 PSAPs involved in the King County region assessment are primary for wireline and VoIP incoming calls, and five are primary for wireless incoming calls. There is one secondary PSAP in the King County system.

All PSAPs are required to meet KCE9-1-1 established standards for operations such as call answering times in order to receive E9-1-1 funding. PSAPs sign a participation agreement with KCE9-1-1 that outlines the mutual responsibilities and requirements, helping to keep the call handling process and the service level to citizens as it relates to 9-1-1 calls consistent among the PSAPs. The caller is interviewed, and if a public safety response is required, the call is entered into the agency’s Computer Aided Dispatch (CAD) system with the exception of NORCOM which is challenged today due to the dual CAD configuration.

The dispatchers that GeoComm observed in the King County region were knowledgeable of the technology in their centers, including the efficient operation of their radios. The PSAP facilities in King County range from older structures that have been converted for police department use to modern facilities designed and built specifically for PSAP use.

King County has several PSAPs reporting adequate staffing allocation and appropriate levels of actual positions filled while others report they are struggling with the issue of appropriate staff or retention concerns. All the PSAPs have supervisory coverage in their centers, many with a supervisor or an acting supervisor on duty to cover each shift.

The operations information reported in this section and the individual PSAP profiles will be used extensively to develop findings and recommendations going forward in this project.
Technology/Interoperability Overview

Public Safety Answering Point (PSAP) technology in the King County PSAPs is at a generally high level. All PSAPs use Computer Aided Dispatch (CAD) systems. The Positron/Intrado VIPER telephone equipment installed at each PSAP is described by the manufacturer as Next Generation (NG) capable. Ten of the 12 PSAPs are using a large regional trunked radio system as their primary radio system. A regional ESInet is in place, connected with the state ESInet. King County is ahead of most of the country in taking steps toward implementation of Next Generation 9-1-1 (NG9-1-1). While there are some remaining interoperability challenges, much has been and is being done to enhance interoperability in the region.

Interoperability

With the exception of two PSAPs that use separate radio systems for their daily operations, the PSAPs in King County and the field agencies they dispatch have the technical capability for a very high level of voice radio interoperability. Developed by the Department of Homeland Security’s SAFECOM program, the Interoperability Continuum is a tool that is intended to assist emergency response agencies and policy makers to plan and implement interoperability solutions for data and voice communications.¹

A proprietary shared radio system, such as the 800 MHz trunked King County Regional Radio System is today, provides the fourth of five levels of voice interoperability on the technology lane of the SAFECOM Interoperability Continuum. If the system makes the transition to the P25 digital radio standard, it will be a standards-based shared system, the fifth and highest level on the technology voice elements lane. Because the regional system is used daily throughout the region, the agencies using it also have achieved the fourth and highest rating on the Usage lane of the Interoperability Continuum.

The King County radio system provides a robust complement of shared talk-groups for use during incidents when interoperability is necessary for long periods of time.

¹ http://www.safecomprogram.gov/oecguidancedocuments/continuum/Default.aspx
A PSAP to PSAP talk-group is provided to facilitate radio communications among the PSAPs in the county. The two PSAPs that are not regular users of the regional radio system have the capability of monitoring and transmitting on the PSAP to PSAP talk-group as well.

The Port of Seattle Police Department PSAP and the Washington State Patrol PSAP use other radio systems as their primary systems for daily operations. The Port of Seattle Police Department PSAP operates on the Port of Seattle 800 MHz trunked radio system, and the Washington State Patrol presently operates on a VHF conventional (non-trunked) radio system used by that agency statewide. The state patrol is in the process of implementing a state-owned 700 MHz P25 trunked radio system for its operations in the Puget Sound region. While this system is separate from the King County regional system, the mobile and portable radios for the new state system will also be capable of operating on the King County regional system if desired. Today, interoperability between the patrol and other regional agencies is primarily achieved through messages relayed by dispatchers and face-to-face contact at the scene of the incident. In a few cases regional PSAPs have VHF conventional channels the patrol units can use to contact them.

Voice interoperability between the Port of Seattle and other regional agencies is achieved through cross-programming, patching, and shared talk-groups. A talk-group on the Port of Seattle trunked system has been offered to regional public safety agencies with responsibility for portions of the Port or adjacent areas, and most have added it to their mobile and portable radios. Cross-programming of neighboring agency talk-groups is also used in Port of Seattle field radios. The PSAP has some ability to do patching with neighboring agencies.

A regional CAD Interoperability Project is underway in King County. A regional CAD data switch is being upgraded to allow data sharing among the region’s CAD systems. Northrop Grumman is the vendor for this regional switch. Although the interface will be funding by KCE9-1-1, each PSAP is responsible to work with its CAD vendor to develop and implement the interface between the local CAD system and the regional switch. The PSAPs in the county are participating on various levels. Some are taking active steps to connect their present CAD systems to the regional switch. Some are actively planning to interface their systems after a scheduled version upgrade or system replacement is complete. Others are intending to participate but do not yet have a timeline for doing so. GeoComm has not learned of any PSAPs that do not plan to participate in this project. This project, when complete, will provide data interoperability through custom-interfaced applications, the third of five levels of data interoperability on the technology lane of the SAFECOM Interoperability Continuum.
Radio Communications

Current System
The King County Regional Radio System in use today is a Motorola SmartZone 800 MHz trunked radio system with a master site running system software version 7.8. The transmit sites are presently operating in analog mode, running software version 4.1 and connected to the master site through gateways. The system’s main controllers are capable of P25 digital operation, although the transmit sites in today’s system are not. Four owner agencies are responsible for operation of the system – the City of Seattle, Valley Communications Center (Valley Com), the Eastside Public Safety Communications Agency (EPSCA), and King County. A Regional Communications Board is responsible for coordination of the system. Each of the four owner agencies has a seat on the board, along with a fifth at-large member who represents the non-owner system users.

The system consists of three simulcast subsystems and several single sites. A single master site, with redundant controllers, serves as the point of interconnection for the subsystems and transmit sites, and is the system connection point for most of the radio consoles located at the PSAPs. High-priority users of the system (including all public safety agencies) are able to roam to other zones if the home zone is not accessible.

Replacement Project
The system owners have agreed that King County’s next radio system should be a P25 phase 2 trunked radio system. One or more additional sources of funding will be needed for this project. A P25 phase 2 system is a digital radio system that uses two-slot time division multiple access (TDMA) technology to put two different transmissions on the same radio channel at the same time, effectively doubling the capacity of the radio system. The P25 phase 2 standard is an open standard, so agencies will be able to procure mobile and portable radio equipment for the new system from multiple vendors.

Computer Aided Dispatch
All 12 PSAPs in King County have CAD systems. Systems from nine different CAD vendors are in use in these PSAPs – Intergraph, Motorola, New World, Northrop Grumman, Spillman, SunGard, Tiburon, TriTech, and Versaterm. The systems are reported to be using currently-supported software release versions, or are being upgraded or replaced in the near future.
The number of CAD vendors supplying systems in the county has introduced some complexity to regional data-sharing efforts. Each vendor must develop an interface to the regional CAD data switch if that system’s users are going to participate in the CAD interoperability project. King County’s Medic One program has encountered difficulties in integrating its Emergency Medical Dispatch (EMD) software with the number of systems in use, and in obtaining desired statistical data points about call processing times from the various systems.

**E9-1-1 Network**

**Overview**

The PSAPs in King County all use Intrado/Positron VIPER™ Customer Premise Equipment (CPE), with a VIPER switch located at each PSAP.

- King County, in coordination with the State of Washington, has built a regional Emergency Services IP Network (ESInet). Data circuits have been connected to each PSAP to take the place of the legacy CAMA trunks traditionally used in 9-1-1 systems. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.

- Five of the larger PSAPs in King County use Automatic Call Distributor (ACD) technology. At these five PSAPs, an Avaya PBX system is integrated with the VIPER system to provide the ACD functionality. The remaining seven PSAPs do not use ACD and do not have Avaya PBX systems.

- Each PSAP is required to have a predefined alternate location (in each case another PSAP), known as a backup PSAP, where its calls are transferred in the event of a failure that prevents 9-1-1 calls from being answered at the primary location. Each PSAP is also required to test this functionality at least once every month to ensure operational effectiveness. PSAPs are also required to establish disaster procedures which follow the guidelines of their emergency management authority to allow personnel to function on site for a minimum of three calendar days or the ability to relocate to their alternate or backup facility depending on the needs dictated by the disaster situation.

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Backup PSAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>NORCOM</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>King County Sheriff’s Office</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>Redmond Police Department</td>
</tr>
<tr>
<td>King County Sheriff’s Office</td>
<td>Valley Com</td>
</tr>
<tr>
<td>NORCOM</td>
<td>Redmond Police Department</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>King County Sheriff’s Office</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>NORCOM</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>Seattle Fire Department</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>Seattle Police Department</td>
</tr>
<tr>
<td>Valley Com</td>
<td>King County Sheriff’s Office</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>NORCOM</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>Seattle Police Department</td>
</tr>
</tbody>
</table>
Conditional or alternate routing in the traditional sense is not used in the King County E9-1-1 system. Condition 2 is a network condition where all 9-1-1 trunks are in a busy status and frequently results in overflow routing to a 10-digit administrative number in the PSAP itself. However, in King County it has been determined that overflowing 9-1-1 calls to 10-digit administrative lines in the PSAP is thought to compromise the PSAPs’ ability to function effectively with limited staff. Condition 3 (all 9-1-1 trunks out of service) initiates a backup PSAP call routing scenario. Condition 4 (central office isolation) routing is established with CenturyLink for all of its central offices.

The ESInet SPdata circuits that transport 9-1-1 calls to the PSAPs have been designed in self-healing SONET ring configuration, providing redundant data connections and path diversity, and reducing the number of single points of failure in the system.

Next Generation 9-1-1 Status in King County
KCE9-1-1 has been aggressively pursuing both planning and implementation of the Next Generation 9-1-1 services but with a methodical and cautiously phased approach. This phased approach has been carefully studied and thoroughly considered as a reasonable process for the county’s transition to the next level of Enhanced 9-1-1 (E9-1-1) services. National standards organizations processes have been monitored to ensure, to the degree available, that investments in equipment and planning strategies are in keeping with generally accepted approaches and standards to this very new service element.

Next Generation 9-1-1 Planning, Funding and Implementation Progress
KCE9-1-1 has set aside $2.5 million of E9-1-1 funds to support PSAP operational readiness for Next Generation (NG) system. Planning and implementation for a number of elements of the NG have been well underway for some period of time.

In the 2005-2006 timeframe, the ALI database was upgraded to the NENA XML standard format. Following this upgrade, in 2007 the latitude and longitude of all assigned addresses in King County were added to the PSAP mapping systems in place.

In 2008-2009, IP-capable backroom equipment was upgraded and installed at the PSAPs and a mechanism for synchronizing all King County addresses in the ALI database with the Geographic Information Systems (GIS) addressing database was put in place and KCE9-1-1 continues that effort through their ongoing program of support. In 2011, when the State of Washington completed implementation of the ESI backbone network, all King County PSAPs were connected to that backbone NG transport network.

Next Phase Tasks
Currently, 9-1-1 calls are transported over the ESInet using Session Initiation Protocol (SIP) but they are being converted back to CAMA before connecting to the PSAP VIPER switches. The next phase of the NG plan is to remove the CAMA gateways and connect the ESInet directly to the VIPER switches. At that point SIP will be fully deployed and operational to all PSAPs.
**PSAP Requirements in Addition to KCE9-1-1 Funding**

PSAPs are responsible for making some local investment to upgrade PSAP equipment to support NG readiness in order to continue to receive E9-1-1 program funds. These upgrades include the necessary changes to CAD systems, local CAD mapping software, updates to recording and documentation equipment to prepare for recording of the additional data elements which will be transmitted to the PSAP (video, photos, additional data streams, Automatic Collision Notification data, text messaging, etc.) additional staffing and training.

**Future Next Generation Strategies for King County**

Future NG strategies include moving to spatial routing, which is planned for the mid-2013 timeframe, and further implementation of NG features after that. KCE9-1-1 will continue to monitor the establishment of standards to help guide the implementation of additional elements of NG services.

**PSAP IT System Support**

KCE9-1-1 uses E9-1-1 funds to support either a half-time or full-time position in each PSAP. The responsibilities of the position of Information Technology (IT) System Specialist include coordination with KCE9-1-1 for 9-1-1 related IT work. The IT System Specialist is expected to provide IT support for the IT systems within the PSAP that interface to the E9-1-1 equipment to support the handling of 9-1-1 calls, such as CAD systems, logging recorders, etc. and have administrative access to those systems in order to be appropriately responsive to operational and technical issues and problems requiring resolution.

The position is also responsible for coordination with KCE9-1-1 for NG9-1-1 elements such as implementation and ongoing operation of the NG9-1-1 system, ensuring that security and other standards established for the NG system are implemented, monitored and enforced at the PSAP and fully support the PSAP operationally in the implementation and ongoing management of NG services at the PSAP.

Determination of depth of support KCE9-1-1 will provide is dependent on the size of the PSAP based on the number of answering positions. PSAPs with ten or fewer answering positions are funded at one half a position of IT System Specialist.

PSAPs with more than ten answering positions are funded for a full-time IT System Specialist position. The positions, although funded by KCE9-1-1, are not considered KCE9-1-1 employees but rather are recruited, hired, supervised, evaluated, and managed by the PSAP agency.
Other Technology Present in the PSAP

Logging Recorders
All PSAPs in King County use logging recorders to record emergency telephone calls and radio transmissions. The logging recorder vendors supplying equipment to these PSAPs are DSS, NICE, Stancil, and Voiceprint. All are respected vendors in the industry. Radio transmissions are recorded off-the-air using receivers located at the PSAPs.

Fire Station / Personnel Alerting
Five of the King County PSAPs dispatch fire departments, using various methods of alerting fire personnel in and out of stations.

- The Enumclaw Police Department PSAP alerts the fire department using tone-voice paging on a VHF conventional radio channel.
- NORCOM alerts fire departments using the Locution™ station alerting system (both in-station and over-the-air components) and a private alphanumeric paging system.
- The Port of Seattle Police Department PSAP alerts fire personnel using tone-voice paging on a conventional radio channel.
- Seattle Fire Department alerts stations and personnel using the Locution station alerting system and a private alphanumeric paging system. An older Zetron™ Model 26 station alerting system is still in place and available for use as a backup. Dispatchers are also able to activate lights and bells in fire stations on a backup basis by activating tones using Zetron Model 25 encoders at the consoles.
- Valley Com alerts fire departments using a private alphanumeric paging system.

Emergency Notification Systems (ENS)
Emergency Notification Systems use the telephone service provider database for activation and are paid for by the emergency management division of King County or the local jurisdiction. While the service is considered part of public safety response and emergency notification to citizenry, activation, and maintenance of the ENS is a local issue and not part of KCE9-1-1 Program Office responsibility.

PSAP Survivability
While there is a range of preparedness for natural and man-made disasters and lesser incidents, determined largely by the age of the facility, the PSAPs in King County have taken many steps to survive and continue to function during these events.

- All PSAPs have generators and battery banks to provide power to critical loads when utility power is lost.
- Newer facilities are built to comply with, and in some cases to exceed, then-current seismic standards. Many equipment rooms are configured with extra support for equipment racks and isolator bases for cabinets to reduce the likelihood of damage during seismic events.
- Several radio rooms are equipped with halo grounding for greater resistance to lightning damage.
- Automatic fire suppression systems are in place in several PSAPs.
- Ballistic glazing is in place for ground-level windows at some PSAPs.
- Many of the PSAPs have made some provision for emergency supplies and sleeping arrangements during major incidents.

**Network Redundancy, Diversity, and Reliability**
The ESInet in King County uses a self-healing SONET ring configuration, providing two data pathways to each PSAP. With the exception of the “last mile” between the PSAP and the carrier’s point of presence, the two pathways are diverse routed to reduce the effect of a single event such as a fiber cut or equipment failure. Each PSAP has its own VIPER switch on-site.

**Backup Configuration**
Each PSAP has a designated backup location for its operations when the PSAP is unusable. In all cases the backup location is another PSAP. The presence of the agency’s 9-1-1 calls and the regional radio system at the backup PSAP, and in some cases the presence of the agency’s CAD system, allows a high degree of functionality at the backup site.

**Conclusion**
Radio technology and interoperability functionality is at a high level in and among the King County PSAPs. All PSAPs use Computer Aided Dispatch (CAD) systems and have Positron/Intrado VIPER telephone equipment installed at each as a result of the contributions of KCE9-1-1 planning, coordination, and funding. This VIPER equipment assists the PSAPs in the region to implement Next Generation (NG) 9-1-1 capable service. A majority of the PSAPs are using the regional trunked radio system as their primary radio system and as such are part of the radio replacement project in progress in King County.

A regional CAD Interoperability Project is underway in King County, and a regional ESInet is in place as well. King County is advanced in its progress toward implementation of NG9-1-1, primarily due to the coordination, funding, and vision of KCE9-1-1 and the expectations of the King County system users. While there are some interoperability challenges as often experienced with large regional systems of this size and complexity, much has been accomplished to enhance interoperability in the region.
Bothell Police Department PSAP Overview

The Bothell Police Department (Bothell) PSAP is a primary and secondary Public Safety Answering Point (PSAP). The PSAP is located at 18410 101st Avenue Northeast, Bothell, Washington. The PSAP serves a population of 46,103 within a service area of approximately 16 square miles. The agency reported an average of 73,163 emergency and non-emergency calls for the years 2010 and 2011.

The Bothell PSAP is operated by the Bothell Police Department. The Bothell Police Department Support Services Division is responsible for the 9-1-1 Communications Center and the records unit which maintains police department case reports and criminal history record information. Bothell also provides 9-1-1 call answering and dispatch services for Lake Forest Park Police Department. Bothell fire and medical response is dispatched by NORCOM. The Bothell PSAP is the primary answering point for wireline and Voice over Internet Protocol (VoIP) 9-1-1 calls and is the secondary answering point for wireless 9-1-1 calls that originate within the Bothell jurisdiction.

<table>
<thead>
<tr>
<th>Calls for Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>10,493</td>
<td>9,387</td>
<td>5,978</td>
<td>-36.32% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>6,569</td>
<td>6,694</td>
<td>6,796</td>
<td>1.52% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>220</td>
<td>297</td>
<td>2,055</td>
<td>591.92% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>68,020</td>
<td>60,140</td>
<td>54,979</td>
<td>-8.58% decrease</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>85,302</td>
<td>76,518</td>
<td>69,808</td>
<td>-8.77% decrease</td>
</tr>
</tbody>
</table>

In 2011, the agency reported that it had 39,430 calls for service with a total incident call volume of 52,270. The agency has a total of five 9-1-1 answering positions; three have radio consoles.

---

1 Population and service area square miles according to the 2010 U.S. Census.
2 9-1-1 and non-emergency call volume is provided by the King County E9-1-1 Program Office.
The following table reflects average call processing times.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Governance**

The Bothell PSAP is part of its Support Services Division. The Support Services Division Manager also serves as the 9-1-1 Communications Center Manager. The PSAP has two supervisors that report to the manager.

**Finance**

The Bothell PSAP receives funding from the city’s general fund, KCE9-1-1, and from the City of Lake Forest Park for their dispatch contract services. According to the budget spreadsheet provided to GeoComm during its site visit on June 7, 2012, the total expenditures for the 9-1-1 Communications Center in 2011 was $1,495,728. The budgeted amount in 2012 is $1,464,543.

According to data provided by KCE9-1-1, the Bothell PSAP received a revenue distribution in 2011 of $89,508. The city also received Next Generation 9-1-1 (NG9-1-1) Operations Support of $42,787 and PSAP equipment support of $24,825 from King County 9-1-1 Program Office. The King County E9-1-1 Coordination Office funded half the Support Service Manager costs as well as an IT Applications Analyst. In 2012, KCE9-1-1 projects it will distribute $111,315 to the Bothell Police Department along with $28,560 in PSAP equipment support. The office plans to continue to provide some staff funding as well.

**Staffing**

There are a total of 14 employees including a manager, two supervisors, and ten dispatchers. The dispatchers are all cross trained to answer telephones and dispatch. The minimum staffing allows for two dispatchers per shift. There is one call taker and one radio dispatcher to cover the agencies served. Two supervisors cover all shifts and schedules are adjusted depending on the call load. The staffing levels are based on call volume and special events, and at this time the center is fully staffed. Turnover rate averages one per year.

---

3 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
As noted, the two supervisors adjust their schedules to cover 24 hour shifts. When the supervisors are not on duty, the sergeant covers supervision needs. The manager is on call 24/7 and has authority to adjust hours for necessary coverage.

The recruitment and hiring process starts with human resources that posts the position and advertises in the local newspaper, and job recruitment websites. After the applications are received, human resources screens applicants and the applicants are given a typing test. The testing process includes ECOMM 911 pre-employment test and Profiles International testing. The applicant appears before an interview board and the top three candidates are selected for the next step in the interview process. Then the applicants interview with the chief of police. The chief of police makes a selection and a conditional job offer is given. Then a polygraph and psychological evaluation is conducted as well as a thorough background check, a pre-employment physical, and drug screening.

The agency answers all 9-1-1 and all non-emergency and administrative calls for Bothell Police Department and all 9-1-1 calls for the Lake Forest Park community. They also answer all non-emergency and administrative calls for the Bothell Police Department, and for Lake Forest Park after hours, holidays, and when they are in meetings. The Bothell 9-1-1 PSAP is also responsible for entering protective orders and stolen items such as vehicles, runaways, and articles. In addition, the staff is responsible for ancillary duties such as after-hours handling of public works call. The PSAP will call out the parks department after hours for problems such as the lights off on a publicly owned field, restrooms that need to be opened, or issues in the park. The communications specialist also enter pawn tickets and private impounds, repos, monitor terminal messages, photo montage requests, and monitor all the security cameras and panic alarms inside and outside of the Bothell Police Department building and the court.

The following table is a breakdown of full-time equivalent (FTE) and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td>1</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>2</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>.5</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>.5</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
</tbody>
</table>
King County, Washington PSAP Consolidation Assessment
Existing Conditions Report

### Position Authorized Positions

<table>
<thead>
<tr>
<th>Position</th>
<th>(Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td></td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td>10</td>
</tr>
</tbody>
</table>

**PSAP Capabilities**

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>Bothell uses CAD, RMS, and Mobile from New World Systems, implemented in 2004. The current version is 9.0.2740.</td>
</tr>
<tr>
<td>9-1-1 call processing</td>
<td>Calls are answered by the dispatcher who then enters the call into CAD. There is a minimum of two dispatchers on duty during each eight-hour shift, one is the primary call taker and one is the primary dispatcher, but both support each other as the need arises. Once a call is received and entered into CAD, it is assigned to a police unit by the dispatcher. If the call is fire or medical in nature it is transferred to NORCOM. There is a civilian supervisor on duty approximately 80 hours per week with varying schedules depending on the need; after that the sergeant handles supervision.</td>
</tr>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping is supported by E9-1-1 Program Office. New World CAD mapping application also available.</td>
</tr>
<tr>
<td>E9-1-1 telephone equipment</td>
<td>Bothell’s 9-1-1 call answering positions are equipped with Intrado VIPER non-ACD softphones, with a VIPER switch located at the PSAP. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, brand, and type of radio control consoles</td>
<td>Bothell has three Motorola CENTRACOM Gold Series Elite™ radio consoles operating remotely from the Central Electronics Bank located at NORCOM.</td>
</tr>
<tr>
<td>Fire station/personnel alerting</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Backup PSAP</td>
<td>Bothell’s backup PSAP is NORCOM. Bothell is not listed as the</td>
</tr>
</tbody>
</table>
Current Status of GIS
The city maintains the Geographic Information Systems (GIS) data for the PSAP. When it is time to update the map data in the CAD system, the city exports the data out to an older version that is required by the current CAD setup. There are two fields needed in CAD that are not in the city data related to alias names. A SQL script runs once the data is in CAD to process those adjustments with minimal work required.

The dispatchers have an internal software program to assist in reporting data issues. Any adjustments to the CAD map data are reported to the city for review.

<table>
<thead>
<tr>
<th>Bothell GIS Summary</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of GIS data and maintenance</td>
<td>City GIS with adjustments for CAD done by PSAP</td>
</tr>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>Quarterly updates</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>City creates data packet and PSAP GIS drops in the new data. After the updates have been scheduled, the actual update process takes approximately 30 minutes.</td>
</tr>
<tr>
<td>GIS position</td>
<td>Part-time position supported by E9-1-1 Coordination Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>The MSAG is maintained at E9-1-1 Coordination Office</td>
</tr>
</tbody>
</table>

Technology
Radio Systems – Bothell uses the King County Regional Radio System as its primary radio system. Bothell is a member agency of Eastside Public Safety Communications Agency (EPSCA). EPSCA is one of four owner entities for the regional radio system. Bothell has five talk-groups on the regional system, with two of the talk-groups carrying most routine radio traffic.

Control stations⁴ are installed at the radio consoles for use in case of a radio console failure. At the time of GeoComm’s visit, Bothell was in the process of replacing the control stations with newer P25-capable units.

⁴ RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
Interoperability – As an agency that uses a regional shared radio system for its daily operations, Bothell has extensive capability for voice radio interoperability. Bothell also has the opportunity to enhance its data interoperability by participating in the regional CAD interoperability project now underway in King County.

Voice Logging Recorder – Bothell uses a 16-channel NICE Wordnet logging recorder. Radio traffic is recorded off-the-air using the control stations installed at the consoles.

ENS – Bothell does not have a city-operated emergency notification system to alert the general population, although there is an option of using the REVERSE 911® system operated by NORCOM since the Bothell Fire Department is dispatched by NORCOM.

Training
This agency has a formal documented training program that all new hires must complete within four to six months. The program is designed as an on-the-job training program and involves cross training for all positions. New hires start training on call taking of non-emergency lines, then emergency lines and then they transition to radio dispatch training. New hires are required to complete the Washington State Criminal Justice Training Commission’s (WSCJTC) Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training.

Generally, the agency believes that their training program is sufficiently meeting their needs. There is continuous focus on maintaining up-to-date training materials. Daily Observations Reports (DORs) and weekly reports are reviewed by the PSAP manager to ensure trainees are progressing as expected through the training program.

Bothell Police PSAP has not had their training program evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)®. However, the agency has plans to pursue this certification in the future. The agency is not CALEA® accredited. Agency trainers have minimum requirements of three years of experience with the agency and ability to successfully complete the CTO course provided by the WSCJTC.

The agency also has a formal training requirement for incumbent workers with a stated objective of two, eight-hour training classes annually. They also utilize on-site mini-training sessions but there are not set requirements. As classes become available, they consider staffing and the potential to send staff to those programs from outside training sources.
This agency reports that staff members are trained for system failures and to notify the PSAP manager of all technical issues. They report participating in equipment down drills, evacuations of the center to the command van, and testing of the switch to activate the backup center.

The agency does not have a dedicated training room or simulation equipment per se. Each live console has the capability of signing into the test server as needed for training purposes.

This agency reports that they do not have a formal Quality Assurance/Quality Improvement (QA/QI) program. They report however that the supervisors routinely review calls, and document the review of any issues in a performance file, which is then used to follow up with the employee. Call answering statistics are also reviewed by the supervisor. This agency does not have an Emergency Medical Dispatch program.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts weekly test calls and provides additional training every six months.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The service philosophy at Bothell Police Department Communications Center is focused on a high level of customer service for the citizens and patrol officers. GeoComm observed that the dispatchers pride themselves on not telling an officer to look up information they have access to. The dispatchers do not judge the officers requests and strive to fulfill what is asked of them. Their quality control process involves the supervisor listening to the radio, watching the CAD entries, and listening to recorded 9-1-1 calls.

GeoComm witnessed call taking and dispatching functions at Bothell Police Department. Calls that were observed appear to follow generally accepted call processing standards of operations and procedures. They reported that at times they must put a 9-1-1 call on hold, once it is determined there is not an emergency, in order to process an administrative line. The agency reports they are open to expanding their communications center to include more dispatcher positions and consoles and services.

**General Facility Overview**

The Bothell PSAP is located on the second floor of the Bothell Police Department’s headquarters building. The building, built in 2000, is a modern facility that is in very good condition. The lobby is open to the public during business hours. The rest of the building is secured and uses a card access system. The PSAP monitors door system alarms.
The PSAP operations area is further secured by locked doors with key card access. It contains five consoles, three of which have radio capability. There is space in the room for a sixth console, should it become necessary. The room has large windows providing natural light, indirect fluorescent lighting, and task lighting available at the consoles.

The console furniture is by Watson, new in 2001 and in good condition. Consoles can be quickly and easily adjusted to standing height if desired. Built-in fans and heaters can be adjusted for dispatcher comfort.

The PSAP equipment room is well-designed, although space is limited for additional equipment. Cabinets are mounted on isolator bases, allowing safe lateral movement during seismic events. Open racks are secured at top and bottom.

**Bothell Police Department PSAP Photos**

![Figure 1 – Workstation](image1.jpg)

![Figure 2 – Workstation](image2.jpg)

![Figure 3 – Equipment Room](image3.jpg)

![Figure 4 – Outside of Police Department](image4.jpg)
Enumclaw Police Department PSAP Overview

The Enumclaw Police Department (Enumclaw) is a primary and secondary PSAP (Public Safety Answering Point). The Enumclaw PSAP located at 1705 Wells, Enumclaw, Washington. The PSAP serves a population of 10,669 within a service area of four square miles. The agency reported an average of 36,670 emergency and non-emergency calls for the years 2010 and 2011.

The Enumclaw PSAP is operated by the Enumclaw Police Department. The center currently provides dispatch services for law enforcement, fire/medical aid, Emergency Medical Services (EMS) for the city and serves as the primary answering point for wireline and Voice over Internet Protocol (VoIP) Enhanced 9-1-1 (E9-1-1) calls originating within the city boundary. Wireless 9-1-1 calls for the Enumclaw area are routed to King County Sheriff or Pierce County Sheriff and then transferred to Enumclaw for dispatch if a response is warranted.

<table>
<thead>
<tr>
<th>Calls for Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>2,590</td>
<td>2,355</td>
<td>1,699</td>
<td>-27.86% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>1,699</td>
<td>1,094</td>
<td>2,059</td>
<td>88.21% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>63</td>
<td>30</td>
<td>426</td>
<td>1320% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>37,005</td>
<td>35,408</td>
<td>30,280</td>
<td>-14.48% decrease</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>41,357</td>
<td>38,887</td>
<td>34,464</td>
<td>-11.37% decrease</td>
</tr>
</tbody>
</table>

In 2011, the agency reported that it had 7,067 calls for service with a total incident call volume of 29,444.

The Enumclaw PSAP has two 9-1-1 answering positions and radio consoles and a third overflow call taking position.

---

1 Population and service area square miles is from the 2010 U.S. Census.
2 9-1-1 and non-emergency call volume provided by the King County E9-1-1 Program Office.
The following table reflects average call processing times.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>1 minute</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

**Governance**

The Enumclaw Police Department is a department within the City of Enumclaw governance structure. The police chief is the chief executive officer with police lieutenants responsible for Operations Patrol, Investigations, and Communications units. The PSAP managed by a supervisor of operations, who reports to the police operations lieutenant.

**Finance**

The Enumclaw PSAP budget is included in the City of Enumclaw budget. It is funded through the general fund with interfund transfers for fire dispatch which represents close to 25 percent of the budget. The city also receives revenue distribution from the King County E9-1-1 Coordination Office along with $25,000 for Information Technology (IT) support. The city plans to apply to the King County E9-1-1 Program Office for financial assistance with Geographic Information Systems (GIS) staffing in 2012.

According to the budget worksheet submitted by the Enumclaw PSAP, the 2011 actual expenditures for PSAP operations by the city was $814,770. The 2012 operating budget is $835,683.

The revenue distribution worksheet provided by the King County E9-1-1 Coordination Office shows that Enumclaw received $14,560 in revenue distribution in 2011 with $11,051 for Next Generation 9-1-1 (NG9-1-1) Operations Support and $9,930 in PSAP equipment support. The King County E9-1-1 Coordination Office projects that the revenue distribution to Enumclaw in 2012 will be $13,201 with PSAP equipment support of $6,630.

**Staffing**

There are a total of seven full-time positions, six dispatchers, and one supervisor. The supervisor works as a dispatcher and trains new employees, in addition to supervisory duties.

---

1 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
The minimum staffing is one dispatcher per shift; there are three, eight-hour shifts. The dispatchers work six days on and three days off. Staffing levels are determined by calls for service and number of 9-1-1 calls, and the amount of funding available.

Enumclaw Police Department has not had anyone leave for any reason for the past three years; turnover rate is zero. The employee with the least amount of time is four years.

The hiring process for call taker and dispatcher positions begins with a third party company (Public Safety Training) that handles the application and testing process for the agency. There is a selection board appointed consisting of one dispatcher and two other employees that are not necessarily dispatchers. The selection board determines the top three candidates. The police chief makes the final selection for the open position(s). A background investigation, polygraph, and psychological test are conducted.

In addition to providing police and fire dispatching duties for the PSAP jurisdiction, the staff has several ancillary duties. The dispatchers are responsible for observing the jail monitors and handle jail business that comes into the lobby. The records are kept in the dispatch room, therefore the call taker/dispatchers are able to assist citizens with record requests and fingerprinting and they also issue Concealed Pistol Licenses (CPLs).

The following table is a breakdown of full-time and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td></td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>1</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>.25</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>.25</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td>2</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td>6</td>
</tr>
</tbody>
</table>
PSAP Capabilities

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>Enumclaw’s CAD system is by Spillman, upgraded in 2012 to version 6.1. Mobile computers are supported, using Verizon air cards and a NetMotion® server located at the PSAP.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>Enumclaw is the Primary PSAP for wireline. Wireless calls are first delivered to either King County Sheriff’s Office or Pierce County Sheriff’s Office and then transferred based on location being reported by the caller. Calls are answered by the dispatcher who then enters the call into CAD and assigns the call to a police or fire/aid unit. They have a three minute call processing time and an average call taking time of 1.5 minutes. The PSAP dispatches for Enumclaw Police Department and Enumclaw Fire/Aid and Mount Rainier National Park. There is one supervisor on the day shift. Command staff handles supervision when the supervisor is not on duty.</td>
</tr>
<tr>
<td>Mapping Software</td>
<td>9-1-1 call telephone mapping is supported by King County E9-1-1 Program Office. Spillman CAD mapping application with new upgrade.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>Enumclaw’s three 9-1-1 call answering positions are equipped with Intrado VIPER non-ACD softphones, with a VIPER switch located at the PSAP. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio</td>
<td>Enumclaw has two Motorola CENTRACOM II Plus CRT radio consoles. Radio capability has been augmented through the placement of radio control stations at the consoles.</td>
</tr>
<tr>
<td>Control Consoles</td>
<td></td>
</tr>
<tr>
<td>Fire Station/Personnel Alerting</td>
<td>Tone-voice paging on a VHF radio channel is used to alert fire department personnel of calls. Fire/EMS calls are initially dispatched on both VHF and the trunked radio system. Radio traffic for the remainder of the call is on the trunked system.</td>
</tr>
<tr>
<td>Backup PSAP</td>
<td>Enumclaw’s backup location is the Enumclaw fire station. Enumclaw is not listed as the backup location for any other PSAP.</td>
</tr>
</tbody>
</table>
Current Status of GIS

The Enumclaw City Planner has recently been assigned to provide Geographic Information Systems (GIS) support for the Police Department PSAP. Enumclaw dispatches for the city and areas outside of the city. The city planner has direct access to any changes that occur within the city limits as all processes that affect GIS flow directly through the planning department. All GIS changes within the city are passed to King County and the E9-1-1 Coordination Office. For areas outside the city limits but within the PSAP boundary, adjustments to the GIS data are provided by King County GIS and incorporated into public safety data for Enumclaw Police Department PSAP.

Enumclaw Police Department GIS Summary

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>The city planning office is the source of GIS data for the PSAP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>The agency is working out a schedule. Currently, the plan is to update the CAD map on an as needed basis. They experience the addition of approximately nine to ten single-family residents per year.</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>They utilize a CAD processing program to prepare data for the update process. Time allotment is approximately 10 to 15 minutes. CAD mapping upgrade completed.</td>
</tr>
<tr>
<td>GIS position</td>
<td>Part-time position supported by King County E9-1-1 Coordination Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>The MSAG is maintained at King County E9-1-1 Coordination Office</td>
</tr>
</tbody>
</table>

Technology

Radio Systems – Enumclaw uses the King County Regional Radio System as its primary radio system. In addition to its own talk-groups, Enumclaw has access to several shared talk-groups used in the region. A portable radio is kept in the operations area for use in case of a radio console failure. Enumclaw also serves as the primary dispatch center for the National Park Service at Mount Rainier National Park outside of normal business hours when the park’s own dispatch center is closed. This is done using a wired leased-line connection between the park’s radio system and the Enumclaw PSAP.

Interoperability – As an agency that uses a regional shared radio system for its daily operations, Enumclaw has significant capability for voice radio interoperability. This capability is limited to some degree by two factors.
First, the older radio consoles presently in use have limited patching capability for trunked talk-groups. Enumclaw addresses this by requesting patches from other PSAPs with enhanced patching ability when needed. Second, several of Enumclaw’s neighboring agencies are not users of the King County trunked system. The Enumclaw PSAP maintains sufficient VHF capability to communicate with these agencies. Enumclaw also has the opportunity to enhance its data interoperability by participating in the regional CAD interoperability project now underway in King County.

**Voice Logging Recorder** – Enumclaw uses a 16-channel Stancil logging recorder.

**ENS** – Enumclaw does not have an emergency notification system to alert the general population, although there is interest in acquiring such a system in the future.

**Training**

This agency has a formal documented training program that all new hires must complete within four to six months. The program is designed as an on-the-job training and involves cross training all personnel. This training includes the completion of the Washington State Criminal Justice Training Commission’s (WSCJTC) Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training.

The agency reported that they believe their training program is sufficiently meeting their needs. This agency has not had their training program evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)© and the PSAP is not CALEA© accredited.

Agency trainers are selected based on experience and interests in training. They must successfully complete CTO program at the WSCJTC.

The agency also has a formal training requirement for incumbent workers. They attend training through WSCJTC, King County EMS, and NIMS 100, 200, 700, 800, and supervisors complete NIMS 300 and 400 also.

This agency reports that staff members are trained for system failures. They have procedures detailed in a manual, test their generator weekly, and conduct quarterly evacuation drills. Their backup site is the fire department located approximately three blocks from the PSAP. They report that it takes approximately three to five minutes to activate the backup center.

The agency does not have a dedicated training room or simulation equipment. All training is provided on the dispatch floor in the live environment.
This agency reports that they have a formal Quality Assurance/Quality Improvement (QA/QI) program. They report that they are currently evaluating Emergency Medical Dispatch related calls only. They are conducting an evaluation on six calls per employee quarterly. They also review calls requested by King County EMS for CPR and elderly care calls.

This agency uses the King County Criteria Based Dispatch© system as their Emergency Medical Dispatch program. They require eight hours of continuing education requirements annually.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts tests calls and additional training every six months. This agency reports participation in the King County PSAPs TTY testing schedule.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The service philosophy at Enumclaw Police Department is that customer service is a high priority. GeoComm observed that the personnel are proud of their agency and would like to dispatch for more agencies. The agency stated that they believe a smaller communications center can provide a better and more personalized customer service.

They report that they frequently receive calls transferred from Valley Communications that are not in Enumclaw Police Department’s jurisdiction. These calls are outside of the city limits and should have been transferred to King County Sheriff. This results in calls being transferred at least twice and a delay in service.

They have a maximum of three units on the street during the day shift, this includes a patrol unit, administrative and investigative units. They operate one patrol unit during the evening and night shifts. Their backup center is at King County Sheriff’s Office, however they have the option to go to the Enumclaw Fire Department with a portable radio and King County can transfer their calls. GeoComm observed the dispatcher answer the telephone, a call entered into CAD, and a police unit dispatched. The calls that were observed appear to follow accepted call processing standards of operations and procedures.

**General Facility Overview**

The Enumclaw PSAP is located in the Enumclaw Police Department building, in a room adjoining the lobby with a ballistic-glass communication window between them.
The building, believed to date to the 1940s, was converted to Police Department use in 1986. The lobby is open to the public at all times. The rest of the building is secured by a door with an electro-mechanical pushbutton combination lock. The department is seeking funding for a card access system for the building. The building also houses a basement-level jail facility that is, according to Enumclaw Police Department, shared by 32 agencies in King and neighboring Pierce County. The PSAP does video and audio monitoring of the jail facility.

The PSAP operations area is open to the interior of the police station. It contains two full consoles with 9-1-1 and radio capability, and a third overflow 9-1-1 answering position. There is no additional space in the room for additional consoles, although there is a possibility that space elsewhere in the building could be converted to a larger PSAP location. The room has fluorescent lighting, and windows that were covered with heavy shades during our visit. The two full consoles have Xybix™ Systems, Inc. console furniture, capable of being adjusted to standing height if desired. The third call taking position has a non-adjustable desktop. The dispatch room also contains the department’s shared break area.

The PSAP equipment room is small but clean and well-designed for its purpose. The radio Central Electronics Bank (CEB) is presently located inside the operations room, but plans are to place the CEB in the equipment room when radio consoles are replaced with newer equipment. With this addition, the equipment room will be full.
Enumclaw Police Department PSAP Photos

Figure 1 – Workstation

Figure 2 – Workstation

Figure 3 – Equipment Room

Figure 4 – Exterior of Building
Issaquah Police Department PSAP Overview

The Issaquah Police Department (Issaquah) is a primary and secondary Public Safety Answering Point (PSAP). The Issaquah PSAP is located at 130 East Sunset Way, Issaquah, Washington. The PSAP serves a population of 41,104 within a service area of approximately 18 square miles\(^1\). The agency reported an average of 54,393 emergency and non-emergency calls for the years 2010 and 2011.

The Issaquah Police Department receives and prioritizes 9-1-1 calls as well as non-emergency calls for the City of Issaquah Police Department operations. The PSAP also provides 9-1-1 and dispatch services for the Snoqualmie Police Department. In addition to providing clerical support for the police department, the PSAP personnel monitor and communicate with other responders and Issaquah public works staff. This PSAP is the primary answering point for wireline and Voice over Internet Protocol (VoIP) 9-1-1 calls and is a secondary answering point for wireless 9-1-1 calls which are transferred from King County Sheriff and Washington State Patrol and require an Issaquah response.

<table>
<thead>
<tr>
<th>Calls for Service(^2)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>4,457</td>
<td>4,275</td>
<td>4,044</td>
<td>-5.40% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>4,425</td>
<td>4,862</td>
<td>5,245</td>
<td>7.88% increase</td>
</tr>
<tr>
<td>Total VolP 9-1-1 calls</td>
<td>242</td>
<td>309</td>
<td>1,169</td>
<td>278.32% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>34,814</td>
<td>42,007</td>
<td>46,875</td>
<td>11.59% increase</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>43,938</td>
<td>51,453</td>
<td>57,333</td>
<td>11.43% increase</td>
</tr>
</tbody>
</table>

In 2011, the agency reported that it had 12,791 calls for service and 4,429 calls that were self-initiated by field units with a total incident call volume of 17,220.

---

\(^1\) Population and service area square miles is from the 2010 U.S. Census.

\(^2\) 9-1-1 and non-emergency call volume provided by the King County E9-1-1 Program Office.
The Issaquah PSAP has four 9-1-1 answering positions, two of which have radio capability. One of the non-radio consoles has an extra PC for accessing the web and standard office applications.

The following table reflects average call processing times.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>2 minute, 3 seconds</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>2 minutes, 40 seconds</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>2 minutes, 40 seconds</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>4 minutes</td>
</tr>
</tbody>
</table>

**Governance**

The Issaquah Police Department is a department within the City of Issaquah governing structure. Under the direction of the Mayor, the City Administrator supervises, administers, and coordinates the various city departments. The chief executive of the Issaquah Police Department is the police chief. The police department has one deputy chief and two Commander positions. One of the department’s Commanders is responsible for public safety communications (along with other functions) and reports directly to the deputy chief. The PSAP also has a full-time supervisor who reports to that commander.

**Finance**

The Issaquah PSAP budget is part of the City of Issaquah Police Department budget. According to the 9-1-1 PSAP Operations Budget Worksheet submitted by the city, the actual PSAP expenditures for 2011 were $1,299,000. The department also had a Technology Replacement Fund Balance of $190,317. The current 2012 budgeted expenditure is $1,216,970 with a Technology Replacement Fund Balance being $220,317.

It is important to note that the City of Issaquah’s Technology Replacement Fund Balance is funded by the 9-1-1 Escrow Fund provided by King County Enhanced 9-1-1 (KCE9-1-1) Program Office. The King County E9-1-1 2011 PSAP Revenue Distribution to Issaquah was $43,956 along with $25,658 in Next Generation (NG9-1-1) operations support and $14,895 in PSAP equipment support. KCE9-1-1 projects the distribution in 2012 to be $49,104 with PSAP equipment support being $15,810. The documentation provided by KCE9-1-1 does not provide a forecast for NG9-1-1 operations support in 2012.

---

1 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
Staffing

Currently, the PSAP has nine full-time dispatchers. They have one civilian supervisor, and when the supervisor is not there a patrol supervisor will cover supervision duties. The dispatchers work 12 hour shifts with a minimum two dispatchers on duty. The shifts are two day shifts and two night shifts back-to-back, then four days off.

Issaquah Police Department advertises in local newspaper and public safety career-oriented press and with other area PSAPs to attract potential candidates. The recruitment/hiring process begins with the department completing a personnel requisition form that is approved/disapproved by the City Finance Director, City Administrator, and Mayor. If approved, they contact the local public safety testing company for a list of candidates who have successfully completed a test. Candidates then go through oral boards consisting of a variety of department members. Successful candidates are scheduled for an interview with the Chief of Police. Upon the Chief's approval, the candidate will begin the background process. If successful, the candidate will be hired and assigned to a Communications Training Officer (CTO).

Issaquah reports that they have a very low turnover rate, one per year. Staffing levels are determined by call volume and a commitment by administration to have two employees on duty at all times. In addition to traditional dispatching duties the staff is responsible for ancillary duties such as:

- After hours dispatching for public works
- Video monitoring the park and ride, streets, and jail exit doors
- Answering all incoming calls to the police department after business hours and on weekends
- Remotely opening and closing the electronic doors for the jail and department for persons who do not possess access card keys.

The following table is a breakdown of full-time equivalent (FTE) and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td></td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>1</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>.5</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>.5</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td>1</td>
</tr>
</tbody>
</table>
The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>Issaquah uses a suite of applications from Spillman including CAD, records, jail, and patrol. The CAD version is 4.6. The primary CAD server is in the PSAP equipment room, and the CAD data repository is in a city IT facility in a nearby building. Issaquah has recently implemented a backup CAD server at the Redmond PSAP, with batch replication of call data five times per day. Real-time duplication of data is planned for the next version of CAD.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>The two dispatchers on duty handle both call taking and dispatching duties. Incoming medical and fire calls are transferred to NORCOM. Dispatching duties at this communication center are performed in a very traditional way to the industry standard with a heavy emphasis on teamwork between the two positions. There are no separate call takers, and, as such, the 9-1-1 operator answers the call and radio dispatches the responders.</td>
</tr>
<tr>
<td>Mapping</td>
<td>The current map software is associated with the 9-1-1 telephone equipment is maintained by the E9-1-1 Program Office. Spillman CAD mapping application is also used.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>Issaquah’s 9-1-1 call answering positions are equipped with Intrado VIPER non-ACD softphones, with a VIPER switch located at the PSAP. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio Control Consoles</td>
<td>Issaquah has two Motorola CENTRACOM Gold Series Elite™ radio consoles operating remotely from the Central Electronics Bank (CEB) located at NORCOM.</td>
</tr>
</tbody>
</table>
King County, Washington PSAP Consolidation Assessment

October 2012

Existing Conditions Report 6-22

Current Capabilities | Description
--- | ---
Fire Station/Personnel Alerting | Not applicable.
Backup PSAP | Issaquah’s backup PSAP is the Redmond Police Department.

Current Status of GIS

The City of Issaquah’s Geographic Information Systems (GIS) department has been in place for the past four years. They maintain the data for use in the Spillman CAD. They have street centerline and address points down to the unit level.

All development in the city will pass through the city GIS department so the data is up-to-date. The GIS Analyst at the PSAP has a direct link into the city GIS layers so they are pulled when needed for the CAD update. The tabular files that need updating in CAD are created from the new map data and tested prior to pushing out to the production environment. The city and PSAP GIS have a good working relationship in identifying issues and GIS maintenance.

Issaquah Police Department GIS Summary

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>Issaquah City GIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>Once every three months or as needed based on data updates</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>Two-prong process that breaks the map data into text files then upload into the CAD geofile. Then update the map data into the mapping server. Approximately a 30 minute process.</td>
</tr>
<tr>
<td>GIS position</td>
<td>Part-time supported by the E9-1-1 Program Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>Maintained at E9-1-1 Program Office</td>
</tr>
</tbody>
</table>

Technology

Radio Systems – Issaquah uses the King County Regional 800 MHz Trunked Radio System as its primary radio system. Issaquah is a member agency of Eastside Public Safety Communications Agency (EPSCA). EPSCA is one of four owner entities for the regional radio system. Issaquah has four talk-groups on the regional system, including one for the neighboring City of Snoqualmie dispatched by Issaquah.

Control stations⁴ are installed at the radio consoles for use in case of a radio console failure. Portable radios can also be used at the consoles for the same purpose.

---

⁴ RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
Interoperability – As an agency that uses a regional shared radio system for its daily operations, Issaquah has extensive capability for voice radio interoperability. Issaquah also has the opportunity to enhance its data interoperability by participating in the regional CAD interoperability project now underway in King County.

Voice Logging Recorder – Issaquah uses a 24-channel Stancil logging recorder. A Pelco video recorder for police department video cameras is located in the PSAP equipment room.

ENS – Issaquah does not have a city-operated emergency notification system at this time to alert the general population, although there is a possibility of using the REVERSE 911® system operated by NORCOM since the Issaquah fire department is dispatched by NORCOM. The city is considering implementing an alerting system from MyStateUSA in coordination with the King County Office of Emergency Management.

Training
This agency has a formal documented training program that all new hires must complete within 12 to 14 weeks of employment. The training program is designed as an on-the-job training program which is based on the “San Jose Model” and the Washington State Criminal Justice Training Commission’s (WSCJTC) Communications Training Officer program includes training and tasks manuals. They do not complete daily observation reports, but they do conduct weekly observation reports and require the trainee and trainers to journal. The agency receives positive feedback from students who have completed the program and have become full-time employees of the PSAP and believes that their training program is sufficiently meeting their needs. The agency has not had their training program evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33) but is Washington Association of Sheriffs and Police Chiefs’ (WASPC) accredited.

The agency cross trains all PSAP personnel as call takers and dispatchers. This training is designed as a typical Communications Training Officer (CTO) program with on-the-job trainers who follow training guidelines. The Issaquah Police Dispatch trainees also attend the Washington State Criminal Justice Training Commission’s Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training.

When trainees are having difficulty with the basic training program, they may rotate trainers, receive detailed feedback through weekly observation reports, journaling and mentoring, and, if necessary, have a

5 San Jose (CA) Police Department Field Training Officer Program, [http://www.sjpd.org/BFO/FieldTraining/](http://www.sjpd.org/BFO/FieldTraining/)
conference with the trainers and the PSAP manager. The final decisions regarding a trainee’s completion of the training program lies with the chief of police.

The agency also has a formal training program for incumbent workers. Incumbents are required to have 36 hours annually which is made up of a combination of training opportunities. The agency uses daily bulletins which reviews policies on a rotational basis and other operational protocols.

Dispatch staff are also encouraged to take an additional 24 hours every two years through courses offered by King County E9-1-1 Program office, the Washington State Criminal Justice Training Commissioner’s course offerings and some APCO conferences.

The PSAP reports additional training is provided as needed to cover new equipment and new and revised policies. Employees are required to sign documentation acknowledging their understanding. The agency designs its own curriculum and updates as needed. Standard operating procedures for equipment failures and notification procedures are covered as part of the training process.

The agency has a Deputy Chief who is responsible for training coordination and oversight. Trainers are selected based on three years minimum experience, successful completion of theWSCJTC’s Communications Training Officer Course and they cannot have any recent disciplinary issues. There is no separate training room or simulation equipment for telecommunicator training. There is some office space available as quiet space for taking quizzes as need.

This agency does not have a formal Quality Assurance/Quality Improvement (QA/QI) program. There is an informal evaluation used as the result of specific issues with a given call. If call processing or other procedures were not followed, there is the possibility of disciplinary action as well as additional training.

This agency does not subscribe to any Emergency Medical Dispatch program.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA).

Likewise, the agency also conducts tests calls and additional training every six months. This agency reports participation in the King County PSAPs TTY testing schedule.
On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes

The Issaquah Police Department service philosophy is very community orientated, putting “public safety first.” The internal perception of employees is very good. Employees share the center’s philosophy. Service levels are measured by monthly statistical reports and number of calls handled.

The two dispatchers on duty handle both call taking and dispatching duties. Incoming medical calls are transferred to NORCOM. Dispatching duties at this communication center are traditional with a heavy emphasis on teamwork between the two positions. With dispatch services provided for both Issaquah PD and Snoqualmie Police Department, there is the rare occasion when only one operator is on duty. In this case, the standard operating procedure dictates that both main law enforcement radio channels be patched together. GeoComm’s observation is that call handling procedures follow standard and generally accepted methods of operation.

During the on-site observation period the teamwork aspect of the operation was very evident. The processes observed during the call intake process went very smoothly, and the high level of customer service was evident. Dialog on the radio between the dispatchers and field responders was very good and professional.

General Facility Overview

The Issaquah PSAP is inside the Issaquah Police Department, which is in the Issaquah City Hall building. The building was built in 2000. Due to the presence of detention facilities in the building, it was built to the more-rigorous seismic standards prescribed at that time for high-risk buildings such as hospitals. The lobby of the building is open to the public during normal business hours. The police department portion of the building, except for a public-access window away from the PSAP, is not open to the public and is secured with card access. The door card system, while it logs activity, does not generate alarms. The building is fully occupied.

The PSAP operations area is further secured by a locked door with key card access. There is no space in the present operations room to place additional consoles. An adjacent break room, shared by the entire police department, could be used as expansion space if its present function could be accommodated elsewhere.

The room has overhead fluorescent lighting, windows for natural light (shaded during our visit), and task lighting at the consoles. The console furniture is made by Watson. The two radio consoles are not height-adjustable. The two call taker consoles can be adjusted to standing height if desired.
The PSAP equipment room is accessible only from the operations room. It is small but clean and organized. One or two additional equipment racks could possibly be added to the room. Two UPS units are in the room – one provided by the E9-1-1 Program Office to protect the equipment and a city-owned UPS to protect the other critical loads in the equipment room. Each console position has its own UPS for its critical loads. A facility-size diesel generator is located in an adjoining outbuilding. The generator is exercised once per week with a full load test four times per year.

Issaquah Police Department PSAP Photos

Figure 1 – Workstation

Figure 2 – Workstation

Figure 3 – Exterior of Building

Figure 4 – Operations Floor
King County Sheriff’s Office  PSAP Overview

The King County Sheriff’s Office (KCSO) PSAP is a primary Public Safety Answering Point (PSAP). The PSAP is located at 3511 NE 2nd Street, Renton, Washington. The PSAP serves a population of 572,194 (out of a total King County population of over 1.8 million) within a service area of 1,819 square miles1. The agency reported an average of 658,628 emergency and non-emergency calls for the years 2010 and 2011.

The KCSO PSAP is operated by the King County Sheriff’s Office and is located in the Regional Communications and Emergency Coordination Center. King County is the state’s largest metropolitan county. It spans more than 2,100 square miles and has more than 1.8 million citizens. The sheriff is the chief executive officer and conservator of the peace of the county. In March 2010, the KCSO communications center received CALEA accreditation.

The KCSO provides services to all of unincorporated King County and, they reported to more than 50 other entities. The KCSO, through their Marine unit, reports they provide contract services for various cities and the unincorporated areas along Lake Washington and Lake Sammamish shorelines. Sound Transit and Metro Transit contract for complete law enforcement service on train, light rail, buses and for other transit facilities and properties2. Serving approximately 23 million people per year, Sound Transit covers several geographic regions including parts of King, Snohomish, and Pierce counties3.

The 9-1-1 Communication Center currently provides dispatch services for local police for four precincts of the Sheriff’s Department, contract cities and communities, Metro Transit Police, and Animal Control. They are the primary 9-1-1 answering point for wireline, Voice over Internet Protocol (VoIP), and wireless calls originating within their jurisdiction of service. The King County Sheriff PSAP does not dispatch for any fire or EMS agencies.

---

1 Population and service area square miles is from the 2010 U.S. Census.
2 King County Sheriff’s Office 2010 Annual Report.
### Calls for Service

<table>
<thead>
<tr>
<th>Calls for Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>128,110</td>
<td>110,627</td>
<td>61,749</td>
<td>-44.18% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>232,710</td>
<td>234,515</td>
<td>246,047</td>
<td>4.92% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>3,441</td>
<td>3,824</td>
<td>24,170</td>
<td>532.06% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>338,836</td>
<td>308,258</td>
<td>328,066</td>
<td>6.43% increase</td>
</tr>
<tr>
<td><strong>Total emergency and non-emergency calls</strong></td>
<td><strong>703,097</strong></td>
<td><strong>657,224</strong></td>
<td><strong>660,032</strong></td>
<td><strong>.43% increase</strong></td>
</tr>
</tbody>
</table>

The King County Sheriff’s Office PSAP provides dispatch services for the following agencies:
- Burien Police Department
- Covington Police Department
- Kenmore Police Department
- Maple Valley Police Department
- Metro Police Department
- Muckleshoot Police Department
- Newcastle Police Department
- North Bend Police Department
- Sammamish Police Department
- SeaTac Police Department
- Shoreline Police Department
- Sound Transit Police Department
- Woodinville Police Department

In 2011, the agency reported that it had a total incident call volume of 565,525.

The KCSO PSAP has thirty-two 9-1-1 answering positions in the main communications room. The secondary operations room has an additional fourteen 9-1-1 answering positions.

---

4 9-1-1 and non-emergency call volume provided by the King County E9-1-1 Program Office.
The following table reflects average call processing times.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>1 minute, 25 seconds (1.42 minutes)</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>1 minute, 24 seconds (1.40 minutes)</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>1 minute, 21 seconds (1.35 minutes)</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>1 minute, 29 seconds (1.48 minutes)</td>
</tr>
</tbody>
</table>

**Governance**

The King County 9-1-1 Center is one of the Sections within the Technical Services Division of the King County Sheriff’s Office. The Communications Section is under the direction of a Section Captain. The Captain reports to the Technical Services Chief who is one of two division chief’s reporting directly to the King County Sheriff.

The management team includes a Technical and Operations Manager and nine Communications Supervisors.

**Finance**

The King County 9-1-1 Center budget is part of the Technical Services Division budget within the Sheriff’s Office overall budget. The majority of the budget is funded by King County general revenue funds. According to the budget worksheet submitted by the communications unit, the total costs reported for 2011 was $8,425,562. The budgeted amount reported for 2012 is $9,146,225.

The PSAP does receive funds from the King County E9-1-1 Program Office (KCE9-1-1). According to data provided by the King County Enhanced 9-1-1 (E9-1-1) Program Office, in 2011 the PSAP received a revenue distribution of $756,030. It also received financial support for staffing for Geographic Information Systems (GIS) and CAD support, IT support, and PBX/VIPER administration support. It also received additional Next Generation 9-1-1 (NG9-1-1) operations support and for PSAP equipment support from the King County E9-1-1 Program Office.

In 2012, KCE9-1-1 estimates that it will continue providing the staff support along with a revenue distribution of $770,701. It will also receive an Option C revenue distribution of $168,524 and PSAP equipment support of $724,500.

---

5 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.

6 Option C is a temporary revenue distribution adjustment for four of the largest PSAPs in 2012 and 2013. The King County E9-1-1 Program Office is in the process of adjusting its distribution model and the purpose for Option C is to adjust the distribution for the four largest PSAPs incrementally toward the new model while the smaller PSAPs continue to receive the projected distributions. It is anticipated that after 2013, the smaller PSAPs distributions will decrease.
Staffing

There are a total of 75 employees currently working at the KCSO PSAP. The staffing includes one operations manager, nine supervisors, 47 dispatchers, and 18 call takers. They currently have five vacancies. The minimum staffing are four radio dispatchers and one relief dispatcher. There are a minimum of six to nine call takers on duty each shift, depending on call load. There are a total of six, eight-hour shifts, 3:00 am to 11:00 am, 7:00 am to 3:00 pm, 9:00 am to 5:00 pm, 11:00 am to 7:00 pm, 3:00 pm to 11:00 pm and 11:00 pm to 7:00 am. Staffing levels are determined by call volume and call processing times.

The hiring process begins when human resources post the job and collects the applications. The applicants are given a CritiCall® performance test and a typing test. The candidates are then given three mock policies to take home and study. During the interview process, the applicant is required to listen to audio call scenarios and evaluate them. In addition, the applicant must be able to write driving directions from their home to the KCSO. The applicant must pass a polygraph exam in order to move on to the next step in the hiring process. In accordance with Civil Service Rules, King County Human Resources will rank the applicants and provide a list of three names for the Captain to interview or each position available or four names if two positions are to be filled, five names if three positions are to be filled and so on. The applicant chosen by the Section Commander will be given a conditional job offer pending the results of their required psychological and physical pre-hire testing. The process takes approximately six months.

The following table is a breakdown of full-time equivalent (FTE) and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>1</td>
</tr>
<tr>
<td>Manager</td>
<td>1 technical and 1 operations</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>9</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>3</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>1</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td>Training supervisor – included in supervisor count</td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td>No special budget; 24 of the combined call taker/dispatchers listed below carry this ‘additional duty’ designation</td>
</tr>
</tbody>
</table>
Position          | Authorized Positions (Budgeted FTEs) |
------------------|-------------------------------------|
Administrative Assistant | 1                                   |
Call Taker        | 18                                  |
Dispatcher        | 47                                  |

**PSAP Capabilities**

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>The King County Sheriff PSAP uses Tiburon’s CommandCAD, recently renamed TotalCommand CAD, version 2.3. 47 CAD workstations are located in the PSAP operations area, and many others are deployed at other locations. The Tiburon mobile computing product, now known as TotalCommand MobileCOM, is also deployed. RMS for the PSAP is presently a system developed in-house known as ‘IRIS’, but plans are to replace IRIS in 2013 with a product from Total Enforcement.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>The King County Sheriff PSAP is primary for wireline, VoIP and wireless 9-1-1 calls within their jurisdiction. The wireless calls are received at KCSO and transferred based on the location given by the caller if the requested assistance with outside the KCSO jurisdiction. Calls are answered by dedicated call takers and calls are entered into CAD where the call is then routed to the appropriate radio dispatcher. If the call is fire or medical in nature, it is transferred to the most appropriate PSAP providing the necessary dispatch services based on jurisdictional boundaries. There are 47 dispatchers and 18 call takers and nine supervisors allowing for a supervisor to be on duty at all times.</td>
</tr>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping supported by E9-1-1 Program Office. For CAD purposes, the agency uses Maverick Integrated Mapping.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>King County Sheriff's 9-1-1 call answering positions are equipped with Intrado VIPER softphones, with a VIPER switch located at the PSAP, and ACD managed by a Nortel/Avaya PBX. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio</td>
<td>Radio consoles are Motorola CENTRACOM Gold Series Elite™</td>
</tr>
</tbody>
</table>
**Current Capabilities**

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Consoles</td>
<td>workstations. 20 radio consoles are in place – ten dispatch positions and two supervisor positions in the primary operations area, five dispatch positions and a supervisor position in the secondary operations area, and one in the EOC’s communication room. The console CEB is located in the PSAPs radio room.</td>
</tr>
<tr>
<td>Fire Station / Personnel Alerting</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Backup PSAP</td>
<td>The backup PSAP for King County Sheriff is Valley Communications. King County Sheriff is the backup PSAP for Valley Communications.</td>
</tr>
</tbody>
</table>

**Current Status of GIS**

The King County Sheriff obtains a copy of the GIS dataset from KCE9-1-1. The KCSO GIS Analyst reviews the data for changes. Any changes to the point file only are incorporated into the King County Sheriff data for use in CAD. The address point data is used as a resource to determine street or boundary updates.

The CAD mapping application is loaded with the full county dataset. Priority is placed on updating those areas for which the KCSO PSAP provides dispatch, however, the changes to the full county are incorporated into the data. The Tiburon CAD version used in the PSAP requires shape files so the GIS data is still being maintained in shape files to streamline the conversion process. The PSAP GIS analyst assists the E9-1-1 Program Office in data collection or verification.

**King County Sheriff’s Office GIS Summary**

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>King County Sheriff Department data changes are obtained from the E9-1-1 Program Office.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>GIS updates occur monthly unless large number of changes are necessary, then the updates are conducted more frequently.</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>Tiburon conversion software is used for data transfer that generally takes approximately one hour to complete. Changes are loaded automatically.</td>
</tr>
<tr>
<td>GIS position</td>
<td>Full-time position supported by the E9-1-1 Program Office.</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>MSAG is maintained at E9-1-1 Program Office.</td>
</tr>
</tbody>
</table>
Technology

Radio System – King County Sheriff uses the King County Regional 800 MHz Trunked Radio System as its primary radio system. King County is one of four owner entities for the regional radio system. The PSAP dispatches for four active zones, each with two active talk-groups. Consoles have access to dozens more talk-groups if needed.

Remote-mount mobile radios are mounted in the radio room with the control heads at the radio consoles for use in case of a radio console failure. Portable radios may also be used at the consoles if necessary.

Interoperability – As an agency that uses a regional shared radio system for its daily operations, King County Sheriff has extensive capability for voice radio interoperability. King County is also enhancing its data interoperability by participating in the regional CAD interoperability project now underway in King County.

Voice Logging Recorder – The King County PSAP uses a pair of Stancil TEN-4™logging recorders. Each has a capacity of 144 channels. The second recorder is for redundancy. All radio traffic is recorded off-the-air using trunked radio receivers located in the equipment room.

ENS – King County alerts the general population of emergency situations using two systems – MyStateUSA, a commercial system, and the Emergency Alert System (EAS) used by the federal government for weather alerts and national emergencies. MyStateUSA can also be used to alert specialty teams and other defined groups associated with the departments dispatched.

Training

This agency has a formal documented training program that all new hires must complete within 18 months of employment. The training program includes both classroom and on-the-job training (OJT). New hire trainees are required to six to eight weeks of classroom training followed by a transition between non-emergency call taking, emergency call taking, and then police dispatch. They must also complete the Washington State Criminal Justice Training Commission’s Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training.

The agency reports that they believe that their training program is sufficiently meeting their needs but they would like to add two more weeks of classroom and four more weeks to OJT.

The agency believes they are compliant with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33) but their program has not yet been evaluated. There are plans to pursue the APCO certification by next year and they are currently CALEA accredited.
The training is designed as an in-house Communications Training Officer (CTO) program with both classroom and on-the-job. Agency trainers have minimum requirements of one year experience with no disciplinary actions, must have approval of supervisors, and complete a knowledge exam with 80 percent. They must also successfully complete the CTO course within one year of assignment as a trainer. When trainees are experiencing difficulty through the basic training program, they may have their time in training extended, and/or switch trainers.

The agency also has a formal training program for incumbent workers of a minimum of 24 hours every year. This training includes additional courses through King County E9-1-1 Program Office and other sources of commercial training. Internally, they develop some in-house online training and have weekly reviews of policy and procedures.

This agency reports that staff members are trained for system failures and that they have evacuation plans in place. They conduct monthly tests of the telephone system with Valley Communications but do not exercise the evacuation plans.

The agency has dedicated training rooms and nine positions of simulation equipment. The Training Unit oversees the training program and is responsible for revisions and updates. There is appropriate space and equipment available for their training program.

This agency reports a Quality Assurance/Quality Improvement (QA/QI) program handled by supervisors. There are evaluations conducted on five phone calls, two customer service calls, and two emergency calls. This is supplemented by live monitoring of radio traffic one per month per employee. The employees are given the opportunity to also review the calls prior to meeting with the evaluator for feedback. This agency does not subscribe to any Emergency Medical Dispatch program.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). The agency also conducts tests calls and additional training every six months.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The stated service philosophy at the King County Sheriff Office PSAP is “every call counts.” They track complaints and provide customer surveys in order to ensure they are providing good customer service. In addition, they have a “standard of service” to answer 90 percent of incoming 9-1-1 calls within ten seconds and report that they are able to achieve this goal 80 percent of the time. They also pride themselves on the fact that they are willing to customize dispatch procedures for each customer.
The KCSO PSAP is the primary PSAP for wireless callers in their jurisdiction. Call taking and dispatching practices are traditional, with incoming calls answered by a call takers set up to answer either 9-1-1 or non-emergency lines. In the event of a major event, the call taker can switch over from non-emergency call taking to being able to answer the 9-1-1 lines. This step involves logging off and logging back on, they are able to perform this within less than a minute.

**General Facility Overview**

The King County Sheriff PSAP is located in the King County Regional Communications and Emergency Coordination Center in the city of Renton, a building that was built in 2003 to house the PSAP and the county Office of Emergency Management with its Emergency Operations Center (EOC). This Leadership in Energy and Environmental Design (LEED)-certified building was designed to function after a man-made or natural disaster, including a major seismic event. Secure employee parking is provided. The large lobby of the building is open to the public during business hours, with secure card access to the rest of the building. If the lobby area is needed for extra EOC or special operations space, the front door lock can be engaged by activating a key switch on the premise. Then the front door becomes a card-access entry. The county facilities department (located in downtown Seattle) monitors door system alarms.

The spacious PSAP operations area is secured by card-access doors. It is divided into a primary operations area with 32 consoles, and a secondary operations area with 14 consoles. The two areas are separated by a partial glass wall with a door near one end and an open passageway around the other end of the wall. The secondary operations area is used as a backup PSAP facility for Valley Communications and as overflow or special operations space. The two supervisor workstations in the primary area are elevated about one foot to facilitate over-watch of the room. Call taking consoles are in pods of four with call takers facing inward, and dispatch positions are in pairs with dispatchers seated side by side. The primary area has large clerestory windows on three sides with non-ballistic glazing and remotely controlled roll-down shades. The secondary area has lower windows with ballistic glazing. Indirect fluorescent lighting is installed, and task lighting is available at each console. Console furniture is by Bramic. All consoles are quickly and easily adjustable to standing height if desired. Consoles in the primary area have comfort controls.

There are two equipment rooms in the facility — a radio room and a server room. Both are well-designed, clean, well-organized, and equipped for effective cable management. Both rooms have room for a few additional racks or cabinets. The radio room has a halo grounding system.

Cabinets in both rooms are on isolator bases that allow controlled safe lateral movement during a seismic event. Racks are secured at top and bottom, and overhead cable trays are braced with diagonal cables. Clean agent fire suppression systems cover both rooms. A portable “MovinCool” chiller unit has been
added to the server room due to concerns about the Heating, Ventilating, and Air Conditioning (HVAC) capacity in that room.

The facility has two diesel generators outside, either of which can power the entire facility. Two UPS units protect all critical loads, with either UPS capable of handling those loads alone for a short time if necessary. A 15,000 gallon fresh water storage tank is on-site.

King County Sheriff’s Office PSAP Photos

Figure 1 – Workstations

Figure 2 – Entrance to Building

Figure 3 – Training Room

Figure 4 – Server Room
NORCOM PSAP Overview

The NORCOM (North East King County Regional Public Safety Communications Agency) PSAP is a primary Public Safety Answering Point (PSAP). The PSAP is located at 450 110th Avenue Northeast, Bellevue, Washington. The PSAP serves a population of approximately 453,000 within a service area of 1,400 square miles\(^1\). The agency reported an average of 384,884 emergency and non-emergency calls for the years 2010 and 2011.

The NORCOM PSAP is governed by the NORCOM Governing Board and operated under the direction of an executive director. NORCOM serves 14 fire departments and five law enforcement agencies. The center currently provides 9-1-1 call answering and dispatch services for the five local police agencies it serves, fire, and Emergency Medical Services (EMS). NORCOM is the primary 9-1-1 answering point for wireline, Voice over Internet Protocol (VoIP), and wireless calls originating within its jurisdiction.

<table>
<thead>
<tr>
<th>Calls for Service(^2)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>39,368</td>
<td>60,949</td>
<td>43,668</td>
<td>-28.35% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>44,428</td>
<td>84,122</td>
<td>93,144</td>
<td>10.72% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>884</td>
<td>2,204</td>
<td>14,579</td>
<td>561.48% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>220,829</td>
<td>216,208</td>
<td>254,894</td>
<td>17.89% increase</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>305,509</td>
<td>363,483</td>
<td>406,285</td>
<td>11.78% increase</td>
</tr>
</tbody>
</table>

\(^1\) Population is from the 2010 U.S. Census.
\(^2\) 9-1-1 and non-emergency call volume is provided by the King County E9-1-1 Program Office.
The NORCOM PSAP provides dispatch for the following agencies:

- Bellevue Police Department
- Kirkland Police Department
- Mercer Island Police Department
- Bothell Fire Department
- Eastside Fire and Rescue
- Kirkland Fire Department
- Northshore Fire Department
- Shoreline Fire Department
- Snoqualmie Fire Department
- Snoqualmie Pass Fire and Rescue (Fire District 51)
- Clyde Hill Police Department
- Medina Police Department
- Bellevue Fire Department
- Duvall Fire District 45
- Fall City Fire District 27
- Mercer Island Fire Department
- Redmond Fire Department
- Skykomish Fire Department
- Woodinville Fire and Rescue

In 2011, the agency reported that it had 292,083 calls that required dispatch, 9,021 calls did not require dispatch, 297,058 calls for service, 4,046 calls that were self-initiated by field units which is a total incident call volume of 301,104.

The following data for NORCOM was collected from the GeoComm data collection questionnaire.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>2 minutes, 8 seconds</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Governance**

NORCOM was created by an Interlocal Agreement in 2007 to be governed by a Governing Board. The Principal members of NORCOM are the general purpose municipal corporations or government agencies, fire districts, Public Safety Interlocal Operations, or a state agencies created under the laws of Washington that have accepted the terms of and are a party to the NORCOM Interlocal Agreement. The principal functions of the Governing Board include budget approval, decisions regarding the issue of debt by Principals on behalf of NORCOM, approval of the admission of a new Principal, approval of an additional Principal and the appointment of the executive director.

---

3 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
NORCOM also has a Joint Operating Board that serves in an advisory capacity to the Governing Board. Its membership is comprised of the combined membership of the police service and the fire/EMS Service Boards.

The Joint Operating Board responsibilities include:

- Promoting interagency collaboration and cooperation
- Share information
- Develop and propose Agency operating policy and other such matters as directed by the Governing Board
- Provide advice, information, and recommendations to the Governing Board and the Executive Director

The Executive Director of NORCOM is the chief executive officer who reports directly to the Governing Board and is directly responsible for the organization’s staff and operations.

**Finance**

NORCOM is an Enterprise Fund totally self-supporting through user fees based on calls for service. The fees are apportioned to principal and subscriber agencies based on an established formula. The annual budget goes through several review and approval processes prior to being submitted to the legislative bodies of each participating and subscriber agency. Upon approval of the legislative bodies of the Principal and Subscribing agencies, NORCOM Board adopts the final budget. There is a process for budget amendments during the year.

According to the NORCOM 2011 adopted budget, the total expenditures budgeted for 2011 were $12,480,386. The 2012 NORCOM adopted budget was $14,352,527. The 2012 budget was amended by Governing Board resolution in May 2012 to $17,600,739.

The financial distribution data provided by the King County E9-1-1 Program Office reflects a 2011 PSAP revenue distribution to NORCOM of $671,871. The King County E9-1-1 Program Office also provides funding for three support staff and PSAP equipment support. The total 2011 funding for the staffing and equipment support was $914,316. The King County E9-1-1 Program Office projects it will distribute $683,920 in revenue and $362,250 in PSAP equipment support in 2012.
Staffing

NORCOM is a consolidated, independent agency managed by an executive director and a management team consisting of a technical manager, human resources manager, finance manager, professional standards and development manager, and operations manager. There is a team of six supervisors who oversee a current complement of 65 authorized telecommunicator positions.

Staff reports that there is considerable interest in a career at NORCOM. For example they had 900 applicants for 14 open positions.

The minimum staffing is three law enforcement and two fire/EMS dispatchers and between two and five call takers (based on time of day) on all four shifts. The shift breakdown is; 0300 hours until 0700, 0700 hours until 1100, 1100 hours until 2100, and 2100 hours until 0300. The minimum call takers are five during the shift hours of 0700 hours until 1100 and 2100 hours until 0300, and two call takers during the 0300 hours until 700 shift and seven call takers during the hours of 1100 hours until 2100 hours. The agency reported that there are six full-time supervisors in the communications center allowing for 24 hour supervisory coverage. When a supervisor is not available, an acting supervisor is designated.

The agency is Emergency Medical Dispatch (EMD) certified. They subscribe to King County Criteria Based Dispatch.

NORCOM utilizes career fairs, advertising, and bus placards to attract potential candidates. They utilize www.GovJobsToday.com for the online application process and applicants must submit to a third party typing test. After receiving applications from www.GovJobsToday.com candidates enter a testing process. The full day process includes a split ear test, a written test, a requirement to listen to and review four to five actual 9-1-1 incidents and a process to review all aspects of a public safety communication career. If successful, a preliminary panel interview is scheduled. There is a final interview before the psychological evaluation, is given along with a Computerized Voice Stress Analysis (CVSA). Candidates are also required to do a one hour site visit in the communications center. A comprehensive background investigation is performed prior to a final interview. A conditional offer of hire is given prior to physical, drug and audio examinations, and candidate fingerprinting.

NORCOM turnover rate is 22 to 23 percent, which they consider average to high. Employees with two to three years’ experience demonstrate a turnover rate of 8.5 percent. The APCO RETAINS model is used to determine the necessary staffing levels needed for the call volume experienced by the Center. The total Full-Time telecommunicator staff (FTEs) dropped from 72 to 65 in the past year. Budgeted staffing levels are appropriate according to the staff members GeoComm interviewed.
The following table is a breakdown of full-time equivalent (FTE) and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>1</td>
</tr>
<tr>
<td>Operations Manager</td>
<td>1</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>6</td>
</tr>
<tr>
<td>Supervisor (Technology)</td>
<td>1</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>7</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>1</td>
</tr>
<tr>
<td>Public Records/Quality Records Specialist</td>
<td>1</td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td>1</td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td>11 (included in the 65 Combined Call Taker/Dispatcher count)</td>
</tr>
<tr>
<td>Accounting &amp; Benefits Specialist</td>
<td>1</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td>1 (clerk, part-time)</td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td>65</td>
</tr>
<tr>
<td>Tech Team Manager</td>
<td>1</td>
</tr>
<tr>
<td>Human Resources Manager</td>
<td>1</td>
</tr>
<tr>
<td>Human Resources Specialist</td>
<td>1</td>
</tr>
<tr>
<td>Finance Manager</td>
<td>1</td>
</tr>
</tbody>
</table>

NORCOM provides a records/data function 24/7 which includes emergency entries, warrant confirmation, and other after-hours records functions. NORCOM also maintains and operates a corrections management system and mobile computers for Police, Fire, and EMS.

**PSAP Capabilities**

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>NORCOM is presently using New World Systems CAD.net</td>
</tr>
</tbody>
</table>
### Current Capabilities

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>version 3.4.2.11 for police dispatching, and TriTech VisiCAD</td>
<td>The intent is to transition to the New World system for all dispatching. Both CAD systems are available at all consoles. Call takers determine the type of call, then enter it into the appropriate CAD system. NORCOM also operates and maintains records management systems (RMS) for five law enforcement agencies and 14 fire/EMS agencies, mobile computers for police, fire and EMS, and a corrections management system. Their goal is a single software vendor for all these systems.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>E9-1-1 calls are received by the call taker in the PSAP via an Automatic Call Distribution (ACD) system. Calls are entered into one of two CAD systems depending if it is a fire or police call. Calls that require response by both disciplines are manually entered into both systems. Calls then go to the appropriate radio dispatcher and are dispatched from that console.</td>
</tr>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping is supported by the E9-1-1 Program Office. New World and TriTech CAD mapping applications are also utilized.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>NORCOM’s 9-1-1 call answering positions are equipped with Intrado VIPER softphones, with a VIPER switch located at the PSAP, and ACD managed by a Nortel/Avaya PBX. Each answering position also has a Nortel/Avaya desk telephone as a backup in case of softphone failure. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio Control Consoles</td>
<td>Radio consoles are Motorola CENTRACOM Gold Series Elite™. Eight dispatcher positions (four police, four fire) and two supervisor positions are equipped with the Gold Elite radio consoles. The Central Electronics Bank (CEB) located in the NORCOM equipment room also supports Gold Elite radio consoles at three other PSAPs.</td>
</tr>
<tr>
<td>Fire Station/Personnel Alerting</td>
<td>Fire alerting is done using Locution™ CADVoice (in-station and over-the-air components) and a private alphanumeric paging system on a paging channel that is exempt from narrowbanding. Approximately 55 fire stations are equipped with in-station Locution equipment, and the Locution system generates voice</td>
</tr>
</tbody>
</table>
Current Capabilities | Description
---|---
announcements for all fire/EMS dispatches over a single – trunked radio system talk-group. The general plan is to use alphanumeric paging for personnel and location for places. Some automated text messaging to cell phones is also done for fire alerting purposes.

Backup PSAP | NORCOM’s backup PSAP location is Redmond. NORCOM has its own operations room at Redmond, separate from the Redmond PSAP. NORCOM is the backup PSAP location for Bothell, Redmond, and Washington State Police.

Current Status of GIS
New World and TriTech CAD systems are being used at NORCOM. GIS work is contracted out to Port Madison Team. They developed the point level map and the common names for the New World system. Port Madison Team prepares the data to be updated in New World CAD. New World CAD utilizes point level mapping. NORCOM is working toward a single CAD which they have determined will be New World. GIS data is being adjusted internally at NORCOM for data that resides in the TriTech CAD while Port Madison Team maintains the data for the New World CAD. Actual updates to both CADs are handled internally by NORCOM. NORCOM has a full-time GIS person.

<table>
<thead>
<tr>
<th>NORCOM GIS Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of GIS data and maintenance</td>
</tr>
<tr>
<td>GIS update frequency in CAD mapping</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
</tr>
<tr>
<td>GIS position</td>
</tr>
<tr>
<td>GIS software</td>
</tr>
</tbody>
</table>
Technology

Radio System – NORCOM uses the King County Regional 800 MHz Trunked Radio System as its primary radio system. NORCOM is a subscriber agency of Eastside Public Safety Communications Agency (EPSCA). EPSCA is one of four owner entities for the regional radio system.

NORCOM also uses a VHF radio channel with a voting receiver system for radio traffic with some of the fire departments it dispatches. Control stations⁴ are installed at some radio consoles for use in case of a radio console failure.

Interoperability – As an agency that uses a regional shared radio system for its daily operations, NORCOM has extensive capability for voice radio interoperability. NORCOM is also enhancing its data interoperability by participating in the regional CAD interoperability project now underway in King County.

Voice Logging Recorder – NORCOM uses the NICE Inform® logging recorder system, presently configured for 144 channels of logging. All radio traffic is recorded off-the-air using trunked radio receivers located in the equipment room. Telephone traffic is recorded at each 9-1-1 answering position.

ENS – NORCOM has a Cassidian REVERSE 911® emergency notification system that is still operational, but the Governing Board decided in 2011 to no longer expend funds to maintain the system. The choice of system has not been identified therefore the funding has not been identified.

Training

This agency has a formal documented training program that all new hires must complete and includes cross training. The program is designed so that call takers receive 400 hours of academy training followed by 240 to 320 hours of on-the-job (OJT). Police radio training consists of 20 hours of academy training followed by 160 to 240 hours of OJT. Fire radio training consists of 20 hours of academy training followed by 160 to 240 hours of OJT. The training program includes both classroom and on-the-job training. The agency reports they believe that their training program is sufficiently meeting their needs but regularly conducts scheduled reviews to ensure ongoing efficiency and accuracy of training.

⁴ RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
NORCOM has had their training program certified as compliant with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)\textsuperscript{2}, as revised. They are also in the process of CALEA accreditation having just completed their mock on-site evaluation. The anticipated completion date for this accreditation is first quarter 2013. NORCOM is also recognized as a National Center for Missing and Exploited Children (NCMEC) Partner agency.

Agency trainers have minimum requirements of full-time employee who has completed the six month trial period and has an additional six months of work experience with NORCOM.

They must also have achieved a “meets standards” or better on their past two Quality Assurance checks and no ongoing complaints or disciplinary actions related to performance or interpersonal communications. Finally, they must achieve at least an 80 percent or above on at least 80 percent of their reviews in the last year. Additional training is provided through in house developed presentations, information sharing, use of King County 9-1-1 training, Washington State Criminal Justice Training Center classes, and CAD training and other local training opportunities.

The agency also has a formal training requirement for incumbent workers of a minimum of 24 hours annually. This training is usually a combination of King County EMS provided training of twice a year two hour courses for continuing education. The agency reports not being able to pull staff off schedule to send to training so they use self-studies in a variety of formats and some limited use of outside training sources.

This agency reports that staff members are trained for system failures and have access to a technical services procedures manual. NORCOM reports they have participated in some regional drills, equipment down drills, evacuations of the center, activating the backup center for planned and unplanned events, and routinely managing radio failures.

The agency has a dedicated, six position training room with fully equipped consoles and all of the necessary and appropriate audio/visual equipment. The six training consoles are complemented by one instructor console.

This agency reports a Quality Assurance/Quality Improvement (QA/QI) program based on established King County Criteria Based Dispatch\textsuperscript{®} standards for medical calls and agency defined standards for law enforcement and fire calls. There are ongoing quarterly reviews as well as review of calls requested through open records. There is a random sampling of six EMS, all high priority law enforcement calls, two non-priority law enforcement calls and two high priority fire calls evaluated. This agency further provides daily reports to the floor on call statistics including time from call receipt to call dispatch.
This agency uses the King County Criteria Based Dispatch Emergency Medical Dispatch® (EMD) program. Employees are required to have a minimum of four hour classroom and two hour online training annually for EMD. All telecommunicators complete a minimum of 24 hours of continuing education training annually to maintain compliance with APCO P33 training standards.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts tests calls and additional training every six months.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

NORCOM’s service philosophy is to provide high quality service to the public and their public safety customers. This is instilled in employees starting with the training program and employees are always reminded of this message.

NORCOM has an objective to dispatch priority 1 and priority 2 calls within 60 seconds and priority 3 calls within three minutes. They also subscribe to King County’s requirement to answer 9-1-1 calls within ten seconds 90 percent of the time. Reports are generated daily to ensure compliance with this requirement. GeoComm’s observed that call handling procedures followed generally accepted standard procedures.

NORCOM is the secondary PSAP for fire calls within their fire response area, but outside of their law enforcement response area. They serve as the primary PSAP for wireless callers for many surrounding areas.

9-1-1 calls are received by the call taker in the PSAP via an Automatic Call Distribution (ACD) system that has been configured to allow non-emergency calls to be placed in a secondary queue, giving priority to emergency calls. Calls are entered into one of two CAD systems depending if it is a fire, EMS or police call. Calls that require response by both disciplines are manually entered into both systems. Calls then go to the appropriate radio dispatcher and are dispatched from that console.

During GeoComm’s observation period, NORCOM was experiencing a steady call volume. The observations indicated that the procedures utilized in the PSAP both during the call intake process and the dispatch process were sufficient to provide quality public safety communications services to both the public and responders in the field. Call takers were thorough during the information gathering process. Radio traffic from communications center personnel and responders in the field was clear and professional.
General Facility Overview

The NORCOM PSAP is located on the seventh floor of the Bellevue City Hall. This modern office building, originally built and occupied by a telephone company (formerly US West), was acquired by the city about 2005. The Bellevue city PSAP opened on the seventh floor approximately 2007, and NORCOM began operations on July 1, 2009. NORCOM leases the space from the City of Bellevue. The seventh floor is shared with the city traffic department.

The first floor of the building is open to the public during the business day and at times in the evening. Access to the seventh floor is via card access only. The card access system is operated by the City of Bellevue. Door alarms are monitored by the city’s facilities department and by NORCOM staff.

Entrance into the PSAP is via card access through an “air lock” entryway with the inner door remaining locked until the outer door has closed and locked. The operations area contains eight call taking consoles without radio capability, four police dispatch positions, four fire dispatch positions, and a supervisor position. A row of windows runs the length of the outside wall. The room also has indirect lighting, and task lighting is available at each console. The agency reported that the communication center was designed and built consistent with the then-current NFPA standards.

The console furniture is by Watson, with the full desktop easily and quickly adjustable to standing height if desired. Comfort controls are also present. Each dispatcher has an individual rolling pedestal with drawer storage to roll underneath the console to which he/she is assigned.

The equipment room is clean, well-designed, with cabling that is neat and traceable. While the room is fully populated with racks and cabinets, many of them have unused space that can be used to house additional equipment. The room has redundant cooling units. All critical loads in the PSAP are on a facility UPS.

The building has three generators, any one of which can power the entire facility including its network equipment. Some City of Bellevue servers are located in the NORCOM equipment room.
NORCOM PSAP Photos

Figure 1 – Workstation

Figure 2 – Operations Floor

Figure 3 – NORCOM Central Electronics Bank

Figure 4 – View of NORCOM at Bellevue City Hall Building
Port of Seattle Police Department PSAP Overview

The Port of Seattle is a primary and secondary Public Safety Answering Point (PSAP) located at 17801 Pacific Hwy South, Seattle, Washington. The PSAP serves the airport, the Port of Seattle and adjacent properties. The agency reported an average of 78,436 emergency and non-emergency calls for the years 2010 and 2011.

The Port of Seattle PSAP is operated by the Port of Seattle Police Department. The center currently provides dispatch services for Port of Seattle Police and Port of Seattle Fire Department for the Seattle-Tacoma (SEA-TAC) International Airport and the Seaport. The Port of Seattle PSAP is the primary PSAP for 9-1-1 wireline and wireless calls originating with the Port jurisdiction and is the secondary for wireless 9-1-1 calls received at a neighboring jurisdiction that have been transferred to the Port PSAP based on the location of the caller. The Port of Seattle Fire Department provides Aircraft Rescue Firefighting to the SEA-TAC Airport and surrounding Port of Seattle properties. The PSAP has six 9-1-1 answering positions.

<table>
<thead>
<tr>
<th>Calls for Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>8,594</td>
<td>7,593</td>
<td>6,779</td>
<td>-10.72% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>1,820</td>
<td>1,691</td>
<td>1,802</td>
<td>6.56% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>18</td>
<td>41</td>
<td>77</td>
<td>87.80% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>84,446</td>
<td>72,484</td>
<td>66,406</td>
<td>-8.39% decrease</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>94,878</td>
<td>81,809</td>
<td>75,064</td>
<td>-8.24% decrease</td>
</tr>
</tbody>
</table>

1 9-1-1 and non-emergency call volume provided by the King County E9-1-1 Program Office.
The following table reflects average call processing times.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Governance**

The Port of Seattle Police Department is a unit of the Corporate Division of the Port of Seattle organization. The Corporate Division is one of five divisions within the organization. The chief executive for the police department is its Police Chief. The Port of Seattle PSAP is part of the police department unit and is managed by the Police/Fire Communications Manager.

**Finance**

The Port of Seattle has not provided GeoComm with a budget breakdown for communications. However, its 2012 Budget and Business Plan reports that the 2011 police department budget was $21,452,000 and its current 2012 budget is $22,574,000. The communications budget is part of the overall police department budget.

According to the financial data provided by the King County E9-1-1 Program Office (KCE9-1-1), the Port of Seattle Police Department received $8,145 in revenue distributions in 2011 along with financial support for GIS/CAD and IT system staff support. It also received $26,164 for Next Generation 9-1-1 (NG9-1-1) Operations Support and $14,895 in PSAP equipment support. In 2012, KCE9-1-1 projects a revenue distribution of $12,228 to help support the PSAP. It continues to provide the GIS/CAD and IT staff support along with $15,810 PSAP equipment support.

**Staffing**

Currently, the Port of Seattle PSAP has 16 dispatch positions, one of the positions is a job share which means two employees split the hours designated for one employee. The dispatchers work ten hour shifts that have a one to two hour staggered start time. Minimum staffing is one call receiver, one police dispatcher, and one fire and EMS dispatcher.

---

2 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
Staffing levels are determined by statistics and authorized funding. The turnover rate for fully trained employees is zero for the past three years. The reasons they explained for the low turnover rate is due to a good pay and benefits, less burnout then an average communications center.

Two supervisors are scheduled to cover the busiest shifts. During their absence there is not an acting supervisor assigned to cover supervisory duties.

The PSAP recruits potential applicants by advertising in newspapers and on their website. The Communications Center Manager screens the applications to confirm they meet the minimum qualifications and then a list of screened applications is forwarded on to the Human Resources representative. Human Resources schedules the applicant to participate pre-employment testing which is the next step in the process, followed by an oral board. The candidates are then ranked and if possible scheduled to sit in the communications center for one or two hours to observe. Then an investigation into their background is conducted, and if they pass the background, they are given a conditional job offer and must successfully complete a polygraph and psychological exams before a formal job offer is extended.

The PSAP staff's duties include answering 9-1-1 and non-emergency telephones. Dispatching police, fire, and EMS units to the airport terminals, piers and marinas, their jurisdiction covers 40 miles of waterfront. They are also responsible for monitoring approximately 7,400 fire alarms.

The following table is a breakdown of full-time and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td>1</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>2</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>.5 (funded from E9-1-1 Program Office)</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>.5 (funded from E9-1-1 Program Office)</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td>5 (also FTE dispatchers)</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td>16</td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td></td>
</tr>
</tbody>
</table>
**PSAP Capabilities**

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>The Port of Seattle PSAP uses Intergraph CAD, version 8.1.0, with an upgrade planned to version 9.2.0. Nine CAD workstations are installed in the PSAP including administrative offices.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>9-1-1 calls are routed to the dispatch center, and are answered with a touch screen capability. Dispatchers have headset capability and use them for call answering and radio transmissions. This center has a call taker position that enters the call into CAD. The call is routed by CAD to the appropriate radio dispatcher. There are two radio dispatchers assigned to each shift, one for fire/EMS and the other for police.</td>
</tr>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping is supported by the E9-1-1 Program Office. Intergraph CAD mapping application.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>Port of Seattle’s 9-1-1 call answering positions are equipped with Intrado VIPER non-ACD softphones, with a VIPER switch located at the PSAP. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio Control Consoles</td>
<td>Six Motorola CENTRACOM Gold Series Elite™ radio consoles are located in the PSAP.</td>
</tr>
<tr>
<td>Fire Station / Personnel Alerting</td>
<td>A Zetron Model 2S encoder is used for tone-voice paging of fire resources. Fire stations also monitor all conversations on the “tower phone” between the control tower and the PSAP.</td>
</tr>
<tr>
<td>Backup PSAP</td>
<td>The backup location for the Port of Seattle PSAP is an airport garage facility. The Port of Seattle PSAP does not backup any other PSAP.</td>
</tr>
</tbody>
</table>

**Current Status of GIS**

The Port of Seattle PSAP has created its own unique GIS dataset for use in the CAD. They require additional data beyond the standard address data. They have mapped out every floor of the airport and all garages. They have dispatchable points that also contain the elevation information that is needed for the multi-floor unit.
An example of a dispatchable point could be a fire extinguisher or AED devices.

### Port of Seattle Police Department GIS Summary

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>Port of Seattle PSAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>Last map rollout was in 2010 however the data does not require frequent changes based on service areas.</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>Complex process with Intergraph scripts and different steps</td>
</tr>
<tr>
<td>GIS position</td>
<td>Part-time supported by the King County E9-1-1 Program Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>Maintained at King County E9-1-1 Program Office</td>
</tr>
</tbody>
</table>

### Technology

**Radio System** – The Port of Seattle PSAP uses an 800 MHz analog trunked radio system owned and operated by the Port of Seattle as its primary radio system. It is a Motorola SmartZone system, version 4.1. Portable radios are kept at the radio consoles for use in case of a radio console failure. Control stations have been purchased and will soon be installed at the consoles for this purpose.

**Interoperability** – Since the Port of Seattle PSAP does not use the regional shared radio system for its daily operations, interoperability must be achieved in other ways. A talk-group on the Port of Seattle trunked system has been offered to regional public safety agencies with responsibility for portions of the Port or adjacent areas, and most have added it to their mobile and portable radios. Cross-programming is also used in Port of Seattle field radios. The PSAP has some ability to do patching with neighboring agencies. The PSAP monitors the PSAP talk-group on the regional system, but most PSAP-to-PSAP traffic is handled by telephone. The Port of Seattle PSAP also has the opportunity to enhance its data interoperability by participating in the regional CAD interoperability project now underway in King County.

**Voice Logging Recorder** – The Port of Seattle PSAP uses a NICE Inform logging recorder system configured for 120 channels. The system was placed in operation in 2008.

---

3 RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
Emergency Notification System – The Port of Seattle does not operate an emergency notification system for general alerting during emergencies. Send Word Now® is used on an opt-in basis for alerting of interested parties.

Training
This agency has a formal documented training program that all new hires must complete within six months. The program is designed as an on-the-job training program supported by classroom training as well. Two weeks are classroom based covering geography and other agency-specific information followed by the completion of the Washington State Criminal Justice Training Commission’s (WSCJTC) Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training.

New hires are cross trained in law enforcement, fire, and EMS and for call taking and dispatching. The agency believes that their training program is sufficiently meeting their needs. Some lateral transfer trainees are allowed to complete an agency-specific shorter training course.

This agency has not had their training program evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)® but they are CALEA® accredited. Agency trainers have minimum requirements of two years of experience and are successful with an interview panel and practical assessment. They must also successfully complete a three-day CTO program.

The agency also has a formal training requirement for incumbent workers. They attend training through the King County E9-1-1 Program Office, WSCJTC, King County EMS, and other vendor provided training as available.

This agency reports that staff members are trained for system failures. This includes CAD down manual drills, other equipment failures and service maintenance drills. They also have plans to drill the activation of their backup center.

The agency does not have a dedicated training room or simulation equipment. All training is provided on the dispatch floor in the live environment.

This agency reports that they have a formal Quality Assurance/Quality Improvement (QA/QI) program. They report that they are currently evaluating Emergency Medical Dispatch related calls but plan to expand to include law enforcement and fire calls. They are currently conducting two evaluations per month per employee.
This agency uses the King County Criteria Based Dispatch© system as their Emergency Medical Dispatch program. They use both hard copy and electronic protocols and require 24 hours of continuing education requirements every two years.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts tests calls and additional training every six months. This agency reports participation in the King County PSAPs TTY testing schedule.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The self-stated service philosophy at the Port of Seattle PSAP is “Accountability, Leadership, Integrity”; they rate their customer service as “number one.” They are sincere in their belief that their department is the finest port police department in the nation. However, they believe there is always room for improvement. The nature of the calls they respond to are different than a typical police department in that the traveler is not as equipped to handle a significant event as they would be if at home in their normal environment. The agency calculates standard response times from time the call is received to the time on scene. A call from the Transportation Security Administration (TSA) office has a minimum response time of five minutes. The airport control tower calls dispatch to notify them of a plane crash, as soon as it is answered the call is live in the fire station.

Most of their customers are travelers, airport employees, and the TSA staff. During the site visit, GeoComm observed a caller that was having difficulty breathing that the medics responded to. The dispatcher was able to manipulate the monitors to show the engine leaving the station and then redirect the monitor to observe the medics arriving at the patient. This is unique for the dispatchers to be able to follow through with the calls of this nature on the airport property. Calls that were observed appear to follow accepted call processing standards of operations and procedures.

The PSAP stated that it has a good working relationship with Valley Communications, King County Sheriff’s Office, and Seattle Police Department. However, their terminology is different and the agency reported that at times this causes some confusion and frustration.

**General Facility Overview**

The Port of Seattle PSAP is located at the SEA-TAC Airport, the major international airport for the Seattle-Tacoma metropolitan area. The PSAP is on a lower level of the Port of Seattle office space in the main airport terminal building. That portion of the building was built in 2004. Access for employees is by door card with employee identification to be visible at all times.
Access for visitors requires an escort and a sign-in/sign-out process at the Port of Seattle reception desk. Some interior doors inside the facility require two-factor authentication (card plus PIN or fingerprint) and some require three-factor authentication (card plus PIN plus fingerprint). The airport Communications Center (adjacent to the PSAP but separate in operation) monitors door alarms and cameras throughout the airport.

The PSAP dispatchers can also monitor the cameras – in most cases they are able to bring up a camera and watch the incident they are dispatching. Dispatchers regularly monitor cameras covering booking and other police department spaces in the airport.

There has been some discussion of moving the PSAP to a different building at the airport in the future if additional space becomes necessary. While it is adjacent to the airport communications center and EOC, the adjacency is not considered critical for successful operations.

The airport building is covered by very robust generator and Uninterruptable Power Supply (UPS) capability, designed to sustain facility operations including runway lighting during short-term and long-term power interruptions.

The PSAP has six console positions, with three to four positions staffed during a normal day. There is room for two more positions within the present space if the existing positions are reconfigured. Some upper-tier monitors are in use today, and there is room for others. A transition is underway to fewer but wider monitors in an attempt to save space. Indirect fluorescent lights, track lighting, and task lighting are available. During GeoComm’s observation, the task lights were turned upward to provide subdued indirect lighting for the room. New console furniture is planned for late 2012.

The PSAP’s equipment room is relatively small and fully populated with racks and cabinets, although some racks and cabinets have open space that can be used for additional equipment. The room is well-organized and clean with appropriate cable management. Several other large shared equipment rooms are nearby in the facility, available if needed for PSAP equipment placement after committee approval of the request. These shared spaces conform to industry accepted standards for data centers. Some PSAP equipment is located in these shared rooms.
Port of Seattle Police Department PSAP Photos

Figure 1 – Workstation

Figure 2 – Workstation

Figure 3 – Equipment Room

Figure 4 – Workstation
Redmond Police Department PSAP Overview

The Redmond Police Department (Redmond) is a primary and secondary Public Safety Answering Point (PSAP). The PSAP is located at 8701 160th Avenue Northeast, Redmond, Washington. The PSAP serves a population of 60,839 within a service area of 18 square miles which includes the cities of Duvall and Carnation. The agency reported an average of 82,380 emergency and non-emergency calls for the years 2010 and 2011.

The Redmond PSAP is housed in the Redmond Public Safety building, and operated by the police department. The center currently provides law enforcement dispatch services for Redmond, Duvall, and Carnation. The Redmond PSAP has six workstations capable of handling both call intake and dispatch duties. Fire/EMS service for Redmond is dispatched by NORCOM. The Redmond PSAP is the primary answering point for wireline Enhanced 9-1-1 (E9-1-1) calls and Voice over Internet Protocol (VoIP) E9-1-1 calls for the communities they serve and are the secondary PSAP for wireless calls originating within their jurisdiction. Wireless E9-1-1 calls are first answered at NORCOM depending on their location and the routing instructions associated with the tower receiving the wireless 9-1-1 call, and then transferred to the Redmond PSAP for dispatching law enforcement response.

<table>
<thead>
<tr>
<th>Calls for Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>13,666</td>
<td>14,095</td>
<td>9,854</td>
<td>-30.09% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>10,202</td>
<td>8,950</td>
<td>8,796</td>
<td>-1.72% decrease</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>496</td>
<td>707</td>
<td>1,918</td>
<td>171.29% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>39,800</td>
<td>60,640</td>
<td>59,801</td>
<td>-1.38% decrease</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>64,164</td>
<td>84,392</td>
<td>80,369</td>
<td>-4.77% decrease</td>
</tr>
</tbody>
</table>

1 Population and service area square miles is from the 2010 U.S. Census.
2 Call volume is provided by the King County E9-1-1 Program Office.
In 2011, the agency reported that there 26,769 calls for service (this excludes officer initiated contacts that did not require a case number – all traffic stops (17,805) and contacts for example), 5,010 calls were self-initiated by field units. The agency does not track beyond the first call that requires a dispatch. Redmond PSAP noted that they do not have an accurate way of tracking incident call volume. These numbers are approximates.

The following data for Redmond PSAP was provided to GeoComm through the data collection questionnaire.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>1 minute, 54 seconds</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>1 minutes, 19 seconds</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Governance**

The Redmond PSAP is within the Redmond Police Department’s Patrol Section. The Communications unit has two supervisors who report to the PSAP Director (a Police Commander) who is also jointly responsible for the Patrol Section. The Commander reports directly to the Assistant Chief of Police who reports to the Mayor of Redmond.

**Finance**

The budget for the Redmond Police Department PSAP is within the City of Redmond Police Department budget. It is funded with general fund revenues, a public safety levy and 9-1-1 funds from the King County E9-1-1 Program Office. 14.5 of the 20.5 PSAP staff is funded through general funds, one dispatcher through a public safety levy and three dispatchers, one GIS technician and one IT technician by the King County E9-1-1 Program Office. The city also receives funding through its contracts with the cities of Duvall and Carnation for dispatch services.

According to budget documents provided to GeoComm during the first site visit, the total city council approved budget in 2011 was $2,582,662. The 2012 approved budget is $2,643,193.

---

3 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
The King County E9-1-1 Program Office revenue distribution data indicates that the program distributed $181,528 in 2011 along with Next Generation 9-1-1 (NG9-1-1) operational support of $67,510 and $24,825 in PSAP equipment support to the City of Redmond. The E9-1-1 Program Office projects it will distribute $222,260 in 2012 along with $28,560 in PSAP equipment support.

**Staffing**

The Redmond PSAP has two communications supervisors, two lead dispatchers, and 16 dispatchers (including two lead dispatchers) who are cross-trained to handle both call intake and dispatching duties. The communications supervisors oversee the day-to-day operation of the PSAP, handling typical supervisory duties such as scheduling, performance management, discipline, etc. The lead dispatchers perform dispatch duties while also filling the role of leader, trainer, and mentor. Dispatchers are cross trained to handle both call taking and dispatching duties.

Staff reports that Redmond is a very attractive agency for prospective employees because of the excellent benefits, and they are one of the top five paying agencies in the State of Washington.

Front-line staff recently developed a very creative and complicated schedule. Their schedule has a 56 day rotation, and they work ten hour shifts. The shift times are staggered. Staff reports that overtime is at a minimum and usage of sick time a nearly non-existent. They attribute this to the staff involvement in the creation of the scheduling system. The agency reported that the new schedule was very beneficial in significantly decreasing overtime. The minimum staffing level for call takers/dispatchers is two during the hours of 0300 to 0900 and three during the hours of 0900 to 0300. Minimum staffing is determined by statistical call volume and officer initiated activity.

Medical calls are transferred to NORCOM who provides fire/EMS dispatch services for the City of Redmond.

The communications supervisors oversee the day-to-day operation of the PSAP, handling typical supervisory duties such as scheduling, performance management, discipline, etc. The lead dispatchers perform dispatch duties while also filling the role of leader, trainer, and mentor. In the event of a critical incident, the supervisors are available to the communications personnel 24 hours a day, seven days a week.
Redmond uses the www.GovJobsToday.com service. The ASO\(^4\) office screens the initial applications using criteria defined by the PSAP. Applicants then enter the civil service process and are tested and ranked. A pre-background investigation is performed. The candidate is then interviewed. If successful a complete background is performed. A conditional offer of hire is given prior to a drug screening, polygraph, and psychological examination. If successful, the candidate is hired. The entire process takes two to four months.

Staff reports that their turnover rate is low. They currently have one opening and report that this is common in their center. Although, they take their time in hiring individuals, many new employees do not complete the training period. However this PSAP reported that taking the extra time in the hiring process, has resulted in higher quality employees and individuals that are a good fit for this center.

Redmond has not used any standardized staffing formulas or models to determine their staffing levels. This PSAP relies on call volume and officer initiated events to determine the number of staff to operate the communications center.

The Redmond PSAP provides call out capability for the city’s Public Works Department.

The following table is a breakdown of full-time equivalent (FTE) and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td>5</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>2</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>1</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>1</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
</tbody>
</table>

\(^4\) Administrative Services Organization: serves as an HR department for the agency. The ASO will process payroll, file all paperwork for hiring and firing, negotiate for medical insurance and other benefits etc.
**Position** | **Authorized Positions (Budgeted FTEs)**  
---|---  
Communications Training Officers (CTO) |  
Administrative Assistant |  
Call Taker |  
Dispatcher |  
Combined Call Taker/Dispatcher | 16

### PSAP Capabilities

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer Aided Dispatch (CAD)</strong></td>
<td>Redmond has used Spillman CAD since 1997. RMS, Mobile, ALI interface and Mapping are utilized. The current version is 4.6. CAD servers are presently Sun hardware. Redmond is making increasing use of virtual servers and expects that CAD servers will be virtual in the future. Eight CAD workstations are used – six dispatch consoles and two supervisor offices.</td>
</tr>
<tr>
<td><strong>9-1-1 Call Processing</strong></td>
<td>Redmond is the primary PSAP for its jurisdiction. 9-1-1 calls are answered by cross trained dispatchers and entered into the CAD system. The calls are then dispatched by the radio operator to the appropriate law enforcement agency. There were three dispatchers on duty, two acting primarily in a call taking function and the other as the radio dispatcher.</td>
</tr>
<tr>
<td><strong>Mapping</strong></td>
<td>9-1-1 call telephone mapping supported by King County E9-1-1 Program Office. Spillman CAD map is supported by Redmond Police Department.</td>
</tr>
<tr>
<td><strong>E9-1-1 Telephone Equipment</strong></td>
<td>Redmond’s 9-1-1 call answering positions are equipped with Intrado VIPER non-ACD softphones, with a VIPER switch located at the PSAP. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td><strong>Number, Brand, and Type of Radio Control Consoles</strong></td>
<td>Redmond has two Motorola CENTRACOM Gold Series Elite™ radio consoles, and two older Motorola CENTRACOM II Plus CRT radio consoles.</td>
</tr>
<tr>
<td><strong>Backup</strong></td>
<td>Redmond’s backup location is NORCOM. Redmond is the</td>
</tr>
</tbody>
</table>
Current Capabilities | Description
--- | ---
backup location for NORCOM. NORCOM's backup facility at Redmond is a room separate from Redmond's own operations area. This backup facility can also be used by Redmond as a local backup to its own operations room or for special operations.

Current Status of GIS
The primary GIS data used in the Redmond Police Department is maintained by the city GIS department. The GIS analyst for the PSAP downloads data from the city and makes adjustments to fit the Spillman CAD system. Because the PSAP also dispatches for the cities of Duvall and Carnation, the PSAP uses general GIS data for these areas and made adjustments to fit their needs. There is no formal maintenance process for obtaining or reporting issues in these two cities. The PSAP also displays unincorporated areas of King County that fall between Redmond, Duvall, and Carnation.

The GIS analyst in public safety takes the disparate datasets and combined them into a single data set that can function within their CAD system. The analyst also works closely with supervisors to review dispatcher reports. If any issues are the result of map data within Redmond, the adjustment is made to the data in CAD and reports are sent to the city for review. If issues are due to GIS data outside of city they are fixed in CAD but there currently is no reporting process for sending adjustments outside of the city. The GIS Analyst is currently working on a proposal for the city GIS to maintain a Redmond copy of the areas that the Redmond Police Department dispatches area in an attempt to standardize the data and maintenance process.

Redmond Police Department GIS Summary

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>Utilizes data from City of Redmond and adjusts data to meet CAD specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>Twice a year for wholesale update of map data. Adjustments occur as needed within CAD around once or twice a month.</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>Spillman software through ArcGIS</td>
</tr>
<tr>
<td>GIS position</td>
<td>Part-time supported by the King County E9-1-1 Program Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>Maintained at King County E9-1-1 Program Office</td>
</tr>
</tbody>
</table>
Technology

Radio Systems – Redmond uses the King County 800 MHz Regional Trunked Radio System as its primary radio system. Redmond is a member agency of the Eastside Public Safety Communications Agency (EPSCA), whose offices are in the Redmond Police Department building. EPSCA is one of four owner entities for the regional radio system. Control stations[^1] are installed at one of the radio consoles for use in case of a radio console failure. Portable radios can also be used at the consoles for the same purpose.

Interoperability – As an agency that uses a regional shared radio system for its daily operations, Redmond has extensive capability for voice radio interoperability. Redmond also has the opportunity to enhance its data interoperability by participating in the regional CAD interoperability project now underway in King County.

Voice Logging Recorder – Redmond is currently using a new 48-channel equature® logging recorder from DSS Corporation. Radio traffic is recorded off-air using trunked radio receivers.

ENS – At this time Redmond does not have an emergency notification system to alert the general public during emergencies. During a severe winter storm or other emergency, citizens are directed to tune to WQHK903-1650 on the AM dial for updated information from the City of Redmond.

Training

The Redmond PSAP has a formal documented training program that all new hires must complete within six months of employment. New hires that are considered lateral transfers from other area Communications Centers have a shorter training course. The training program is designed as an on-the-job training program which is based on the APCO Communications Training Officer (CTO) course. They complete daily observation reports and rotate trainers at least three times to measure trainee progress.

The agency receives positive feedback on their training program and is confident that their training program is sufficiently meeting their needs. The agency reports that their training program is under revision and that the program is being modeled after the APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)^©.

[^1]: RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
They have not formally submitted the training program for evaluation as compliant. The agency previously held CALEA® accreditation but a previous administration chose not to maintain the accreditation. The agency is actively pursuing reaccreditation at this time.

The agency cross trains all PSAP personnel as call takers and dispatchers. This training is based on the APCO Communications Training Officer (CTO) program. Trainees must be able to successfully cross train on telephone and radio to maintain employment. When trainees are struggling, they may rotate trainers and have meetings between trainers and the trainee to review and discuss deficiencies. The Redmond Police Dispatch trainees also attend the Washington State Criminal Justice Training Commission’s Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training within one year.

The agency also has a formal training program for incumbent workers. Incumbents are required to have 40 hours annually which is made up of a combination of training opportunities. The agency uses courses offered by the King County E9-1-1 Program Office, the Washington State Criminal Justice Training Commission’s course offerings, APCO conference or courses, and other vendor-provided training. They report additional training is provided as needed to cover new equipment and new and revised policies. Standard operating procedures for equipment failures, notification procedures, and minor troubleshooting procedures are covered as part of the training process. The agency reports however that they do not conduct evacuation drills but did experience a real evacuation caused by a water leak.

Trainers are selected based on two years minimum experience, successful completion of the APCO Communications Training Officer Course and good standing for two years. Supervisors are consulted to determine recommendations.

There is no separate training room or simulation equipment for training; it takes place on the dispatch floor.

This agency does not have a formal Quality Assurance/Quality Improvement (QA/QI) program. However, call evaluation occurs as the result of specific issues with a given call, random call review or when records are subpoenaed.

This agency does not subscribe to any Emergency Medical Dispatch program.

The agency reports that the Telecommunicator I training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA) and that equipment specific training is handled during on-the-job training.
Likewise, the agency also conducts tests calls and additional training every six months. This agency reports participation in the King County PSAPs TTY testing schedule.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The Redmond PSAP staff reports that their service philosophy is centered around customer service above everything else. The primary metric is their call answer time, which averages 5.86 seconds. Although there is no formal QA/QI process, calls are often reviewed when public information requests are made that require audio duplication of calls. Citizen surveys are done and overall complaints are low. Staff also noted that employees that have come from other agencies report customer service levels are much higher at this PSAP.

Redmond is the primary PSAP for its jurisdiction. 9-1-1 calls are answered by cross trained dispatchers and entered into the CAD system. The calls are then dispatched by the radio operator to the appropriate law enforcement agency. Redmond’s call taking and dispatching practices are very traditional as compared to how dispatch services are delivered generally in the industry with a high focus on customer service. They make it a point to take the amount of time necessary to provide callers with the level of service that they expect in the City of Redmond. GeoComm’s observations revealed that public safety communications services are delivered professionally at this PSAP.

The staff reports that the lower call volume allows additional time to complete service delivery to the complete level that is expected by this agency. Redmond reports that the extra time they have to process calls results in the high level of customer service that the citizens expect.

**General Facility Overview**

The Redmond Police Department PSAP is located on the second floor of the Redmond Public Safety building. The building was built about 1992. The building appears to be in very good condition and well-maintained. The first-floor lobby is open to the public during normal business hours. The rest of the building is secured with card access doors. The PSAP receives door system alarms, and also does visual and audio monitoring of the detention facility within the building. A facility door control application runs on the CAD computers at the dispatch consoles, allowing dispatchers to remotely unlock doors when needed.

The PSAP operations area entrances are secured with card access. The room contains six console positions, four of which have radio capability. There does not appear to be space to add more console positions to the room. Natural light is supplied through windows with non-ballistic glazing placed high on the outside wall. Indirect lighting and task lighting are also available if desired.
The console furniture is by Watson and is sized for the larger CRT computer monitors previously used. The desktops can be easily and quickly raised to standing height if desired. Comfort controls are also provided. Plantronics CA12 wireless headsets are in use.

The PSAP equipment room is clean and organized with appropriate cable management techniques. While it is fully populated with racks and cabinets, some racks have available space for additional equipment, and two cabinets are scheduled to be removed in the near future as the equipment they contain is retired. A UPS unit supplied by the 9-1-1 project office provides power to the VIPER phone cabinet, and a city-supplied UPS unit provides power to the other critical loads in the equipment room and at the consoles. Two Computer Room Air Conditioner (CRAC) units are located in the equipment room, with either one capable of handling the cooling load of the room. The facility has two diesel generators, a newer unit capable of powering the entire building, and an older unit capable of powering the critical loads of the PSAP.
Redmond Police Department PSAP Photos

Figure 1 – Workstations

Figure 2 – Operations Room

Figure 3 – Equipment Room

Figure 4 – Front of Building
Seattle Fire Department PSAP Overview

The Seattle Fire Department (Seattle FD) PSAP is a secondary Public Safety Answering Point (PSAP). The PSAP is located at 105 5th Avenue South, Seattle, Washington. The PSAP serves a population of 608,660 within a service area of 84 square miles\(^1\). The agency reported an average of 167,517 emergency and non-emergency calls for the years 2010 and 2011.

The Seattle FD PSAP is operated by the Seattle Fire Department and is housed in the Fire Alarm Center. The center provides fire and Emergency Medical Services (EMS) dispatch services for local City of Seattle fire incidents through 33 fire stations located in neighborhoods throughout the City of Seattle\(^2\). Seattle Fire Department is the only exclusively secondary PSAP in King County. According to information received from King County 9-1-1 Program Office, roughly 83,000 calls to 9-1-1 received each year at the Seattle Fire PSAP have all been transferred, usually from the Seattle Police Department PSAP or the Washington State Patrol PSAP. The SFD PSAP has ten 9-1-1 answering positions the main communications room; with four more positions in the adjacent training room. American Medical Response (AMR) has a dispatch center in Tukwila that does the actual dispatching of the AMR units. Seattle FD orders AMR for transport of BLS calls, and handles ALS calls with its own Seattle FD ambulances.

<table>
<thead>
<tr>
<th>Calls for Service(^3)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>49,137</td>
<td>42,853</td>
<td>35,151</td>
<td>-17.97% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>39,644</td>
<td>39,710</td>
<td>41,657</td>
<td>4.90% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>710</td>
<td>691</td>
<td>5,687</td>
<td>723.01% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>53,806</td>
<td>84,048</td>
<td>85,237</td>
<td>1.41% increase</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>143,297</td>
<td>167,302</td>
<td>167,732</td>
<td>.26% increase</td>
</tr>
</tbody>
</table>

In 2011, the agency reported that it had 77,302 calls that required dispatch and 2,781 calls for service (American Medical Response EMS transfers).

---

1 Population and service area square miles is from the 2010 U.S. Census.
2 [www.seattle.gov/fire](http://www.seattle.gov/fire).
3 9-1-1 and non-emergency call volume provided by the King County E9-1-1 Program Office.
This table reflects call information.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Governance**

The Seattle Fire Department is a department within the governing structure of the City of Seattle. The fire chief is the chief executive officer of the department that has five divisions. The communications section is one of the seven sub units departments within the Administration Division, which is managed by an assistant fire chief who reports directly to the Seattle fire chief. The communications section is managed by a deputy fire chief who reports to the assistant fire chief for administration.

The deputy chief is the director for the communications division of the Fire Alarm Center and has support management staff of one captain who manages the center and five supervisors.

**Finance**

The Seattle Fire Department PSAP budget is part of the City of Seattle Fire Department overall budget. According to the data provided in the Seattle Fire Department Budget Worksheet, the actual PSAP expenditures in 2011 were $6,527,057. The total communications section operating budget for 2012 is $6,659,028. The budget is primarily funded through appropriations from the city general fund.

The city appropriation is supplemented by the King County E9-1-1 Program Office. The program office provides a PSAP revenue distribution and funds four full-time employees. According to data supplied by the program office, it provided a revenue distribution of $345,194, staff support of $331,329 and PSAP equipment support of $423,000 in 2011. The King County E9-1-1 Program Office forecasts supplementing the PSAP budget in 2012 with $288,353 in revenue distribution and $362,250 in PSAP equipment support. The program office also plans to fund the actual cost for PBX/VIPER administrative support.

It is important to note that the department does have a Technology Replacement Fund Balance of $1,300,000 for radio replacement.

---

4 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
The city expects the regional radio system to be replaced in the next two to four years and anticipates a major expenditure. The city also has a Benefit Liability Fund Balance of $932,957.

The fire department also contracts for facilities and information technology services with other city departments.

**Staffing**

The Seattle FD PSAP staff are certified firefighters who go through a detailed, communications-specific hiring process. There are a total of 28 employees, including four lieutenants who are the shift supervisors. There are four shifts, the staff works a cycle of 24 hours on and off for 48 hours, then work another 24 hours on and off four days. There are a total of ten and a half hours of break time for each employee. However, in an emergency situation they may be required to work the full 24 hours without breaks. The minimum staffing per shift in order to cover breaks is seven positions. There are three fire call taker/Dispatcher positions and one supervisor position for each 24 hour shift.

The staffing levels are determined by Seattle FD administration. The agency did not provide a formula or process for determining staffing levels.

There are also 19 field personnel that have applied and been accepted into a dispatch “pool.” The pool personnel have gone through dispatch training and can be utilized to cover shortages. The candidates for the dispatch pool are selected from current firefighters and Lieutenants. They are required to submit a letter of intent along with a resume and then take the CritiCall® performance test. They are interviewed and ranked and from that ranking a list is created. Once the candidate is selected and trained, they are eligible to apply for a full-time position.

Staff reports that retention or sufficient staffing is never an issue in this center because they always have a pool of qualified people waiting to be transferred to the communications center. The turnover rate is very low averaging one per year. During the past two years one employee retired and another went back to the operations division.

The PSAP reports that the average communications center employee not only has 13 years of experience in the field as a firefighter, they also have an average of 13.5 years of experience in the communications center.

Seattle FD has provided a list of numerous ancillary duties in their Fire Alarm Center Informational Report. Many of these duties are specific to the fire services they provide and coincide with the high quality, data driven service delivery initiative that is part of the overall philosophy of the Seattle Fire Department.
Although many of these ancillary duties are unique in the sense that they support this philosophy there are others that are common among other fire dispatch operations in the industry.

Examples of unique duties include but are not limited to; determining optimal in-service resource levels during the daily chief’s meeting ensuring a balance between training and city wide coverage, monitoring fuel needs for prolonged events and ordering fuel as necessary, prompting incident command to secure additional resources, reducing the number of emergency units due to staffing shortages, etc.

Examples of ancillary duties that are common to communications centers in the industry include but are not limited to; monitoring all command positions at fires per ICS protocols, procuring helicopters, facilitating chaplain responses to incidents, manage emergency button activations, etc.

The following table is a breakdown of full-time and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>1 (deputy fire chief)</td>
</tr>
<tr>
<td>Manager</td>
<td>1 (fire captain)</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>5 (fire lieutenant)</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>3</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>1</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td>.8</td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td></td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td>1</td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Certified Firefighter Combined Call Taker/Dispatcher</td>
<td>24</td>
</tr>
</tbody>
</table>

**PSAP Capabilities**

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>Seattle FD PSAP uses the VisiCAD version 4.5.6 CAD system from TriTech Software Systems. 28 CAD workstations are</td>
</tr>
<tr>
<td>Current Capabilities</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>deployed at dispatch consoles, administrative, training, and backup positions. A read-only display of active CAD calls is provided to the American Medical Response (AMR) ambulance dispatcher, since AMR transports some types of patients in Seattle. Backup CAD servers are located at the police PSAP, and backup police CAD servers are located at the fire PSAP.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>The Seattle FD Communications Center is a secondary PSAP with 9-1-1 calls transferred mostly from Seattle PD. When the call comes into the Seattle FD Communications Center, an Automatic Call Distribution (ACD) process routes the call to the next available call taker who then enters the info into CAD. (If caller aid instructions are warranted then they are given at this time.) This triggers the Locution station alerting system where the call is dispatched at the appropriate fire station via electronic voice. The call information is also sent to a printer at the station and to the mobile terminals in the apparatus. Once field responders are en-route to the call, their activity is monitored by the radio console operator. This radio console operator is monitoring three separate channels at a time. EMS calls are handled the same as described above by the call takers with the call data transferred to AMR through the CAD system.</td>
</tr>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping supported by King County E9-1-1 Program Office. TriTech CAD map supported by Seattle Fire Department.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>Seattle FD 9-1-1 call answering positions are equipped with Intrado VIPER softphones, with a VIPER switch located at the PSAP, and ACD managed by a Nortel/Avaya PBX. The Nortel/Avaya telephone equipment is capable of handling 9-1-1 calls in case of a failure of the VIPER equipment. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio</td>
<td>Seattle Fire Department is presently using Motorola CENTRACOM Gold Series Elite™ radio consoles. The city is planning to replace these consoles with Motorola ASTRO® 25 MCC 7500 IP Dispatch Consoles during the third quarter of 2012.</td>
</tr>
<tr>
<td>Control Consoles</td>
<td></td>
</tr>
<tr>
<td>Fire Station/Personnel Alerting</td>
<td>Seattle Fire Department uses a fire station alerting system from</td>
</tr>
</tbody>
</table>
Current Capabilities

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location™ systems. The department also operates a private alphanumeric paging system on a UHF channel. This system is being narrow-banded with replacement of all pagers. The alphanumeric system is controlled by dual Zetron™ 690 paging controllers. An older Zetron Model 26 station alerting system is still in place as a backup to the Location alerting system. Zetron Model 25 encoders at the consoles allow dispatchers to activate station lights and bells by radio on a backup basis if necessary.</td>
</tr>
<tr>
<td>Backup PSAP</td>
</tr>
<tr>
<td>Seattle Fire Department’s backup PSAP is Seattle Police Department. Seattle Fire Department serves as the backup PSAP for Seattle Police Department.</td>
</tr>
</tbody>
</table>

Current Status of GIS

The Seattle Fire Department maintains their data internally due to the strict routing processes based in their centerline. Seattle Fire Department does not use address points. Changes to data are obtained from Geographic Information Systems (GIS) data maintained by the Seattle Public Utilities (SPU). The Seattle Fire Department utilizes GIS data for routing and route analysis. The PSAP has switched from geographic zones to first available units. The current GIS specialist has been analyzing call locations and responses to assist the PSAP in their decision processes.

Seattle Fire Department GIS Summary

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>CAD map layers are maintained by Seattle Fire Department GIS personnel. Updates are derived from the Seattle Public Utilities (SPU). Process map data issues reported by dispatcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>The department has established a goal of updating the CAD mapping every one or two weeks if updates are required, but the updates need to be coordinated with other processes. The current GIS Analyst is new to position and has been organizing data for the department use. The data has not been fully updated to match the city data for two years. Resolution to reported issues have been updated.</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>Data is pushed to a test CAD system and run through software provided by TriTech to prepare the GIS data and create support files. Files are transferred to correct</td>
</tr>
</tbody>
</table>

King County, Washington PSAP Consolidation Assessment

October 2012

Existing Conditions Report

6-74

Public Safety Consulting, GIS, and Software
www.geo-comm.com

GeoComm
Seattle Fire Department GIS Summary

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>location and testing</td>
<td>process begins. After testing data is then passed into production</td>
</tr>
<tr>
<td>process</td>
<td>server for use in the CAD mapping. The update process takes</td>
</tr>
<tr>
<td></td>
<td>approximately four hours from SPU to production system.</td>
</tr>
<tr>
<td>GIS position</td>
<td>Full-time supported by the King County E9-1-1 Program Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>Maintained at King County E9-1-1 Program Office</td>
</tr>
</tbody>
</table>

Technology

Radio Systems – Seattle FD PSAP uses the King County Regional Radio System as its primary radio system. The City of Seattle is one of four owner entities for the regional radio system, and is the host entity for the system’s master switch. Control stations\(^5\) are connected to the radio consoles for use in case of a failure of the primary transmit path from the console to the radio system. Portable radios can also be used in case of a radio console failure. Connectivity between the PSAP and the radio system is via a microwave loop plus a fiber optic link, providing redundancy in the path. The fire department stated it has eight or nine talk-groups, six of which are used regularly. A robust complement of shared interoperability talk-groups is also provided.

Interoperability – As an agency that uses a regional shared trunked radio system for its daily operations, Seattle Fire Department has extensive capability for voice radio interoperability. Seattle Fire Department also responds at times with fire departments that are not users of the regional system. Swap radios are frequently used for interoperable communication during these incidents. Seattle fire dispatchers have access to a talk-group that is shared by Port of Seattle for use during joint operations with Port resources. Seattle Fire Department also has the opportunity to enhance its data interoperability by participating in the regional CAD interoperability project now underway in King County, although the fire department will be limited in the CAD information from other agencies it can view due to its status as a non-CJIS agency. Seattle Fire Department is also participating in the city’s Common Operating Picture (COP) project that facilitates data sharing among several key city agencies.

\(^5\) RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
**Voice Logging Recorder** – Seattle FD uses the NICE Universe® logging recorder system, configured for 93 channels. All radio traffic is recorded off-the-air using trunked radio receivers for each talk-group installed in the PSAPs equipment room.

**ENS** – The City of Seattle has an emergency notification system, run by the city’s Department of Information Technology (DOIT). A citywide steering group is in place for this system. The system uses two notification products from Cassidian Communications – The Communicator! NXT, version 4.2.0, and GeoCast Web, version 1.6.0, SP3.

**Training**

The Seattle FD PSAP has a formal documented training program that all new hires must complete within six months of employment. All trainees come from the rank of Firefighter or Lieutenants and all have fire operations experience. The training program includes both classroom and on-the-job training with three weeks spent on classroom and five months on-the-job. The agency reports they receive positive feedback and believes that their training program is sufficiently meeting their needs. The agency has not had their training program evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)®.

The agency cross trains all PSAP personnel as call takers and dispatchers. This training is designed as a typical Communications Training Officer (CTO) program with on-the-job trainers who follow training guidelines and complete daily observation reports (DOR).

During this phase of training, the Seattle Fire trainees also attend the Washington State Criminal Justice Training Commission’s Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training.

When trainees are struggling through the basic training program, they may have their time in training expanded but everyone must complete the same length of training so it may not be shortened if a trainee is functioning at a higher level.

Through the training program, new hires practice hundreds of scenario-based calls using simulated CAD and other technology in a four position training room. Trainees who are not making the cut in dispatch are allowed to return to their firefighter assignments.

The agency also has a formal training program for incumbent workers. This training is topic-specific and offered at least twice per year in four-hour increments. They report additional training is provided as needed to cover new equipment and new and revised policies.
The agency designs its own curriculum and it includes CAD down drills and evacuation drills. All PSAP staff members are trained firefighters and are also emergency medical technicians or paramedics. Those PSAP staff members that are also medically trained must have an additional four hours quarterly for medic specific training. There are also some additional training requirements for staff depending on their firefighter background.

The agency does not employ a full-time training coordinator but depends on specified staff trainers to manage the training program delivery. For refresher and ongoing training this agency develops written training materials which are available online for self-study, some topics are presented by lieutenants during shift briefings and for major topics, classroom time is the delivery method chosen.

This agency describes a significant amount of training and exercise drills related to activating and staffing the backup center, evacuating the Seattle Police Department PSAP, and other equipment down drills.

Trainers are selected based on level of interest and expertise. They are required to complete the fire academy instructor certification and some previous training experience is preferred.

This agency conducts a formal Quality Assurance/Quality Improvement (QA/QI) program of medical calls. There are extensive measures of call processing time and quality of call handling based on established protocols. Each employee has a goal of 100 percent and focus on the quickest processing time as possible. They demonstrated pride in their response times, life-saving record, and shifts compete against each other. This agency uses the King County Criteria Based Dispatch Emergency Medical Dispatch® program and reports a 52 percent save rate for sudden cardiac arrest incidents.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts tests calls and additional training every six months.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The service philosophy at the Seattle FD PSAP revolves around gathering information quick and accurately. They have a very detailed caller aid/pre-arrival instruction process which is central to their delivery of service. Detailed protocol is evaluated by a formal Quality Assurance/Quality Improvement process which staff claims is one of the best in the country. Priority calls are ready for dispatch in 20-30 seconds while non-priority calls are ready in 40 seconds.
Staff reports that there is a high level of trust from field responders in the ability of the dispatchers in the center primarily due to the fact that they are trained firefighters with many years of practical field experience.

When the call comes into the Seattle FD Communications Center, an Automatic Call Distribution (ACD) process routes the call to the next available call taker who then enters the info into CAD. This triggers the locution station alerting system where the call is dispatched at the appropriate fire station via electronic voice. The call information is also sent to a printer at the station and to the mobile terminals in the apparatus. Once field responders are en-route to the call, their activity is monitored by the radio console operator. This radio console operator is monitoring three separate channels at a time.

During GeoComm’s observation period, the Seattle FD PSAP was experiencing a very slow period. According to their electronic activity display, sometimes called a “tote board,” more than 20 minutes had passed without a call coming into the PSAP. This is sometimes that nature of public safety communications, particularly in a secondary PSAP. However, this time gave staff a very good opportunity to explain the processes used in the PSAP. They have a very thorough and quick call taking process which incorporates automation into the dispatch function which ultimately provides information to responders very quickly through the Locution system. The agency reported to GeoComm that call taking protocol has also been effective in saving time.

The Seattle Fire PSAP has facilities that house Seattle Police Communications in a backup capacity. Because of these expanded capabilities, the center believes that they could handle all fire/rescue dispatch responsibilities for the entire county. The Seattle FD report that they have the largest group of COMLs (Department of Homeland Security Communications Team Leaders), 30 COMLs and 11 COMTs (Department of Homeland Security Communications Technicians)(11) in Washington.

**General Facility Overview**

The Seattle Fire Department PSAP is on the second floor of a building that also contains the city Emergency Operations Center (EOC) and is attached to a fire station. The building is approximately six years old and is built to rigorous seismic standards, designed to survive a 30-degree “list” or tilt during an earthquake. Access to the lobby is by card or intercom. Access to interior sections of the building requires an authorized door card. Alarms at the facility are monitored by the facilities division of the city (located elsewhere) and by the watch lieutenant in the PSAP.

The PSAP, including its administrative offices, occupies the entire second floor of the building. The operations area contains ten consoles in the operations room, and four consoles in the adjacent training room that also serves as the backup PSAP for the police department.
PSAP personnel believe that an additional four to eight consoles could be added to the combined rooms by reconfiguring the present consoles, but there is little unused space at this time. The room has skylights providing natural light, spotlight fixtures mounted on the ceiling aimed downward, and floor lamps directed upward to provide indirect lighting for the room.

Console furniture is Watson, easily adjustable to standing height if desired, and equipped with comfort controls. Because Seattle fire dispatchers are firefighters who work 24 hour shifts, there are several individual sleeping rooms in a quiet dormitory area immediately adjacent to the operations room.

The PSAP has two equipment rooms – a communications room for telephone equipment, servers, and related networking equipment, and a radio room. Both rooms are clean, well-organized, neat and tidy. Cabinets are on isolator bases that allow controlled safe lateral movement during seismic events. Cable management is compliant with industry best practices. The radio room is grounded to R56 standards. Both rooms are fully populated with racks and cabinets, but many racks and cabinets have open space for additional equipment.
Seattle Fire Department PSAP Photos

Figure 1 – Operations Floor

Figure 2 – Workstation

Figure 3 – Data Room (partial)

Figure 4 – Front of Building
Seattle Police Department PSAP Overview

The Seattle Police Department is a primary Public Safety Answering Point (PSAP). The PSAP is located at 810 Virginia Street, Seattle, Washington. The PSAP serves a population of 608,660 within a service area of 84 square miles.

The agency reported an average of 810,160 emergency and non-emergency calls for the years 2010 and 2011.

The Seattle Police Department PSAP is operated by the Seattle Police Department. The center provides law enforcement dispatch services for the Seattle police department and serves as the primary Enhanced 9-1-1 (E9-1-1) answering point for wireline, Voice over Internet Protocol (VoIP) and wireless calls originating within the city jurisdiction. Fire and Emergency Medical Services (EMS) response requests are transferred to the Seattle Fire Department for processing and dispatch.

<table>
<thead>
<tr>
<th>Calls for Service²</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>219,681</td>
<td>169,165</td>
<td>145,255</td>
<td>-14.13% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>348,524</td>
<td>334,092</td>
<td>354,335</td>
<td>6.06% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>3,733</td>
<td>3,751</td>
<td>23,431</td>
<td>524.66% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>305,655</td>
<td>302,311</td>
<td>287,981</td>
<td>-4.74% decrease</td>
</tr>
<tr>
<td><strong>Total emergency and non-emergency calls</strong></td>
<td><strong>877,593</strong></td>
<td><strong>809,319</strong></td>
<td><strong>811,002</strong></td>
<td><strong>21% increase</strong></td>
</tr>
</tbody>
</table>

* The totals listed here include data of significant outliers from incidents when supervisors handle 9-1-1 overload calls. These are not included in the call answering standards as they are considered irregular call taking. They have been included in the calculation for these averages.

In 2011, the agency reported that it had 206,800 calls that required dispatch, 59,518 calls did not require dispatch, 266,318 calls for service, 151,012 calls that were self-initiated by field units, which totals an incident call volume of 471,330.

---

¹ Population and service area square miles is from the 2010 U.S. Census.
² 9-1-1 and non-emergency call volume is provided by the King County E9-1-1 Program Office.
The Seattle Police Department PSAP has 30 9-1-1 answering positions. An additional 13 answering positions are available at the Fire Alarm Center backup center.

The following data for Seattle 9-1-1 Center was provided to GeoComm through the data collection questionnaire.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>1 minute, 41 seconds</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>2 minutes, 17 seconds</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>1 minute, 55 seconds</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>1 minute</td>
</tr>
</tbody>
</table>

**Governance**

The Seattle Police Department is a department within the City of Seattle governing structure. The chief executive of the police department is the Police Chief. The department is divided into two branches, Operational and Administrative. These branches divide into five different bureaus with each bureau being overseen by an assistant chief. The Assistant Chief is the Commander of the Field Support Bureau which includes Human Resources, Information Technology (IT), Training, and the 9-1-1 Center.

The Director for the 9-1-1 Center, is a Captain reporting to the Assistant Chief. The Captain is supported by a Lieutenant who manages the center. The 9-1-1 Center has three civilian supervisors.

**Finance**

The city funding for the Seattle Police Department comes through general revenue funds, King County E9-1-1 Program Office funds and other grant funds. According to financial data provided to GeoComm during its site visit on June 5, 2012, the total expenditures for the police communications program personnel and other charges in 2011 was $12,593,379. The revised budget expenditures for 2012 is $13,548,133. The department does have $75,000 additional capital outlay budgeted for 2012.

---

3 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
In addition to the quarterly revenue distribution, the King County E9-1-1 Program Office funds a full-time IT position, a full-time Geographic Information Systems (GIS) position, and a telephone support staff position for the Seattle Police Department. The program office also reimburses a portion of the call taker salaries.

In 2011, KCE9-1-1 distributed $1,249,089 to the Seattle Police Department 9-1-1 Center along with $1,883,583 in staffing and PSAP equipment support. In 2012, the program office forecasts revenue distribution of $1,387,912. The documentation provided by the program office also includes an additional $91,861 in Option C revenue, additional revenue provided to the four largest PSAPs. The office also projects continuing the financial support for technical (IT, GIS, and VIPER Support personnel) staff at actual cost along with $724,500 for PSAP equipment support.

**Staffing**

Currently, the Seattle 9-1-1 Center is staffed with 114 authorized positions, including management of one Captain who is supported by one Operations Lieutenant. A compliment of 96 call taking and dispatch personnel are supervised by three Operations Supervisors. In addition, two training unit CTOs, 23 floor operations CTOs and one training coordinator focus on skills and training. The department is further supported by an administrative specialist and three technical support staff of five and three Police Communications Analyst positions. There are nine Dispatcher III positions who are able to fill in for a chief dispatcher if needed. Thirty-eight of the dispatchers are cross trained to both take calls and dispatch.

There are 43 budgeted Dispatcher I positions plus three non-funded positions which can be filled on a temporary basis which are designated as call taker positions. The three civilian supervisors, positions were filled by sworn sergeants until recently. Staff reports that they get a very high number of initial applicants. This is an attractive agency because their pay scale is the second highest in King County and the retirement benefits are attractive and better than most agencies in the county.

The Seattle 9-1-1 center recruitment and hiring process begins with human resources posting the position, accepting applications and initially screening the applicants. Additional screening is completed by the Operations Lieutenant. Typing and CritiCall® tests are given and the applicant completes a two hour observation period in the dispatch center. An oral board is conducted with three assessors including - Training Unit representative, Chief Dispatcher, and Supervisor. If successful, an extensive background check and psychological evaluation is performed.

---

5 Option C is a temporary revenue distribution adjustment for four of the largest PSAPs in 2012 and 2013. The King County 9-1-1 Office is in the process of adjusting its distribution model and the purpose for Option C is to adjust the distribution for the four largest PSAPs incrementally toward the new model while the smaller PSAPs continue to receive the projected distributions. It is anticipated that after 2013, the smaller PSAPs distributions will decrease.
In the final step, a hiring board is assembled consisting of the Assistant Chief, Communications Captain, Human Resources Director and Lieutenant, the Communications Lieutenant, Communications Trainer, background investigator, and psychiatrist to review the potential employees and to make the final hiring decisions. A hearing and vision test is given as the final step before the applicant is hired. The hiring process takes approximately three to six months.

The average turnover rate is approximately seven each year.

Staffing levels are determined by the previous year’s statistics. An APCO RETAINS was performed several years ago, and the agency recognizes that the study should be done again to reflect their current staffing needs and potentially expose some staffing vulnerabilities. The Seattle 9-1-1 Center reports that they are understaffed and the number of allocated positions is insufficient. The agency states that the call volume and workload related to radio zones are increasing. A large amount of overtime is created due to the coverage needed for training, vacations and unplanned shortages. These shortages and forced overtime are causing some morale issues particularly with veteran employees. The staff reports that the number of allocated positions is not enough, due to forthcoming technological improvements related to NG9-1-1 and possible annexation.

The minimum staffing level in the communications center is eight dispatchers (six dedicated and two relief), ten call takers, and one supervisor. There are three civilian supervisors and six civilian chief dispatchers that can be acting supervisors in the supervisor’s absence.

The following table is a breakdown of full-time and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>1 (captain)</td>
</tr>
<tr>
<td>Manager</td>
<td></td>
</tr>
<tr>
<td>Operations Lieutenant</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>3 (civilian supervisors)</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>2</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>1</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Unit Staff</td>
<td>2</td>
</tr>
<tr>
<td>Combined Call Taker or Dispatcher and Communications Training Officers (CTO)</td>
<td>23 (floor)</td>
</tr>
<tr>
<td>Administrative Specialist</td>
<td>1</td>
</tr>
<tr>
<td>Call Taker</td>
<td>43</td>
</tr>
</tbody>
</table>
### PSAP Capabilities

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer Aided Dispatch (CAD)</strong></td>
<td>Seattle 9-1-1 Center has a Versaterm CAD system, version 7.3.763. Versaterm’s RMS is also deployed. The system went live in June 2009. Approximately 100 CAD workstations are deployed in the department, including 58 in the PSAPs operations, training, administrative, and technical support areas. Backup CAD servers are located in a data center at police headquarters. Seattle is moving toward private cloud architecture with physical servers in multiple locations. The city Department of Information Technology (DOIT) has robust fiber connections to all of these locations.</td>
</tr>
<tr>
<td><strong>9-1-1 Call Processing</strong></td>
<td>This agency is the primary PSAP for their jurisdiction. Calls are answered by dedicated call takers who then enter the call into CAD where it is routed to the appropriate radio dispatcher. The call takers are divided into primary, primary/secondary call and secondary call taking system. Primary call takers will process the emergency calls, the primary secondary call takers process the 9-1-1 overload calls as well as non-emergency calls. The secondary call takers process non-emergency calls only. If the primary call taker determines the call is not an emergency they can transfer the call to the secondary call taker. This allows the secondary call taker to spend the extra time to accurately process the call and keeps the primary call taker available for emergency calls. If the call is fire or medical in nature it is transferred to the Seattle Fire Department communications center. Radio dispatchers are assigned to handle police and multiple other field resources working in different geographic areas of the city. On average, there are ten call takers, eight dispatchers, and one supervisor on</td>
</tr>
</tbody>
</table>
### Current Capabilities

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping is supported by the King County E9-1-1 Program Office. Versaterm map software in CAD.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>Seattle 9-1-1 Center’s 9-1-1 call answering positions are equipped with Intrado VIPER softphones, with a VIPER switch located at the PSAP, and ACD managed by a Nortel/Avaya PBX. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio Control Consoles</td>
<td>Seattle Police Department is presently using Motorola CENTRACOM Gold Series Elite™ radio consoles. The city is planning to replace these consoles with Motorola ASTRO® 25 MCC 7500 IP Dispatch Console during the third quarter of 2012.</td>
</tr>
<tr>
<td>Fire Station/Personnel Alerting</td>
<td>Not applicable. Fire response calls are transferred to the Seattle Fire Alarm Center for dispatch.</td>
</tr>
<tr>
<td>Backup PSAP</td>
<td>Seattle 9-1-1 Center’s backup PSAP is Seattle Fire Department. The equipment at the backup PSAP is tested monthly and used for live dispatching on a quarterly basis. Seattle 9-1-1 Center is the backup PSAP for Seattle Fire Department.</td>
</tr>
</tbody>
</table>

### Current Status of GIS

The full-time position supported by the King County E9-1-1 Program Office is the sole GIS position for the police department. They import data from the Seattle Public Utilities (SPU) and then make adjustments based on CAD requirements. An example of an adjustment is reducing the street suffix attributes to two letters. They utilize streets and address points in the CAD. Updating the map data in the CAD system is very complex. The software provided by the CAD vendor requires about 37 hours of processing time and frequently crashes and therefore the process must be started again. Supplying map data to each dispatch position is completed manually with coordination of the call takers.
Seattle 9-1-1 Center GIS Summary

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>GIS data is obtained from the SPU then manipulated to fit CAD requirements.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>Twice a year</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>Very complex process that can take up to 37 hours of processing time using the CAD software application. If a failure in the process occurs, it must be started again.</td>
</tr>
<tr>
<td>GIS position</td>
<td>Full-time position supported by the King County E9-1-1 Program Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>MSAG is maintained at King County E9-1-1 Program Office</td>
</tr>
</tbody>
</table>

Technology

Radio Systems – Seattle 9-1-1 Center uses the King County Regional 800 MHz Trunked Radio System as its primary radio system. The City of Seattle is one of four owner entities for the regional radio system, and is the host entity for the system’s master switch. Control stations⁶ are installed at the radio consoles for use in case of a radio console failure. Portable radios can also be used for this purpose.

Interoperability – As an agency that uses a regional shared voice radio system for its daily operations, Seattle Police Department has extensive capability for voice radio interoperability. Seattle Police Department is also enhancing its data interoperability by participating in the regional CAD interoperability project now underway in King County. Seattle Police Department has committed to sharing CAD data with all CJIS-compliant law enforcement agencies in the county. Seattle Police Department is also participating in the city’s Common Operating Picture (COP) project that facilitates data sharing among several key city agencies.

Voice Logging Recorder – Seattle 9-1-1 Center uses the NICE Inform logging recorder system, configured for 100 channels. All radio traffic is recorded off-the-air using trunked radio receivers for each talk-group installed in the PSAPs equipment room. An older NiceCall® Focus III logging recorder is still in use as a backup to the Inform recorder system. Last Message Replay is available at each radio position.

⁶ RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
ENS – The City of Seattle has an emergency notification system, but the police department does not utilize it. The city is seeking a newer system, to be operated by the city EOC, not by the PSAP. The new system is envisioned as having both an opt-in capability and the ability to alert the general populace when necessary.

Training

The Seattle 9-1-1 Center has a formal documented training program that all new hires must complete within 18 months of employment. The training program includes both in-house classroom and on-the-job training. New hire trainees are required to complete 704 hours of training. Additionally, the call takers attend Washington State Criminal Justice Training Commission’s (WSCJTC) Telecommunicator I (Basic Call Taker) course and ACCESS training.

Call takers expressing interest in becoming a radio dispatcher are evaluated by training unit personnel and must successfully complete 464 hours of in-house classroom and on-the-job training. This training is designed as an in-house CTO program with on-the-job trainers who follow training guidelines. Radio dispatchers are routinely assigned as call takers to maintain their skill level. Call takers are given familiarization training on the dispatch function. Agency trainers have minimum requirements based on the level of training they are interested in providing. For example, a call taker CTO must have a minimum of 12 months experience while a radio CTO must have a minimum of two years of experience. Those interested in becoming a CTO must be evaluated by the training unit, complete an in-house CTO program and are offered optional CTO training through WSCJTC.

When trainees are struggling through the basic training program, they may have their time in training expanded up to 80 hours. The training unit reviews trainee progress for eight hours in the live environment and them make recommendations to the Training Review Board for disposition.

The agency reports that their training program is sufficiently meeting their needs but the training program is currently being revised to incorporate principles of problem-based learning and journaling. The agency is in the process of submitting training material for evaluation with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)©. They are also currently in the Washington Association of Sheriffs and Police Chiefs (WASPC) accreditation process with an anticipated completion date in the spring of 2013.

The agency also has a formal training program for incumbent workers. This training includes additional courses through WSCJTC such as Telecommunicator IV and courses available through the King County E9-1-1 Program Office. Incumbent employees also receive training through roll call briefings, specialized training topic areas and ride along programs with various units of the police department.
The agency is actively working to expand incumbent training, which will include daily questions which determine training needs of the agency.

This agency reports that staff members are trained for system failures and participate in quarterly drills. Employees are trained to conduct backup activities manually and also to evacuate to Seattle Fire Department and setup equipment and operations there.

The agency has dedicated training rooms and simulations equipment. The Training Unit oversees the training program and is responsible for revisions and updates. Under the new administration, there is an effort underway to establish training plans where the trainee will be evaluated annually for the first five years of work to identify training issues.

This agency reports a Quality Assurance/Quality Improvement (QA/QI) program handled by supervisors. There is one review per quarter per employee which is followed by individualized feedback. However, when issues are noted by the supervisor, they pull eight hours of tape from a three-month period which is reviewed and results in an individualized training plan to address noted issues.

This agency transfers all fire and EMS calls to Seattle fire who provides the emergency medical services.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). This agency reports participation in the King County PSAPs TTY testing schedule to include daily testing on all shifts.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

According to the Seattle 9-1-1 Center, their service philosophy is focused on citizen and field responder safety. Service delivery is measured by speed of call answer and a formal QA/QI process where three calls per employee, per quarter are analyzed. The King County E9-1-1 agreement requires PSAPs to answer incoming 9-1-1 calls within ten seconds or less, 80 percent of the time (on an hourly basis). This PSAP is currently meeting this objective. King County E9-1-1 is currently considering an increase to 85 percent.

Calls are answered by dedicated call takers who then enter the call into CAD where it is routed to the appropriate radio dispatcher. If the call is fire or medical in nature it is transferred to the Seattle Fire Department communications center. The five police precincts are handled by four radio dispatchers, a relief dispatcher and data base dispatcher. The radio dispatcher’s work is monitored and coordinated by the chief dispatcher.
Police zone dispatchers are responsible for assigning calls, logging officers to on-view incidents such as traffic stops and providing support to numerous field units (detectives and parking enforcement).

The chief dispatcher functions primarily in the supervisory/support capacity by initially broadcasting emergency calls, coordinating emergency response between radio zones, and contacting additional support units if required such as Special Weapons and Tactics (SWAT) or hostage negotiators.

This PSAP is a large, metropolitan communications center. The call volume was steady as GeoComm performed on-site observations. The center is well designed with dedicated call taker, radio, and supervisory positions on the operations floor. This design allows for functional call flow while keeping noise at a reasonable level creating a very professional atmosphere. Electronic activity and queue displays, sometimes referred to as a “tote board,” allow supervisors and front line staff alike to gauge the incoming call flow at just a glance. Although call volumes were high during the observation period, the call taking staff was processing calls efficiently. The radio dispatchers were handling a steady flow of radio traffic while communications between the center and the field remained professional.

**General Facility Overview**

The Seattle 9-1-1 Center co-located with the downtown West Precinct. The Communications Section is located on an upper floor of a police precinct headquarters building, built in 1999. The building was built to rigorous seismic standards, and is designed to withstand an earthquake measuring 8.1 on the Richter scale without disabling damage. The lobby is open to the public when a desk officer is present. The rest of the building is secured and uses a card access system throughout. The building is fully occupied. Additional space for the PSAP would require relocation of other functions.

The PSAP portion of the building is open to the rest of the building when the reception desk is staffed, and secured with card access at other times. The operations room is secured at all times with card access. Only PSAP staff cards will open the PSAP doors. One of the consoles in the operations area monitors alarms from the door access system. Secure parking is provided for PSAP employees.

The operations area contains 24 call taker positions and nine radio dispatch positions. A tenth radio dispatch position is located in a training area just across a hallway from the operations room. There does not appear to be sufficient space in the room to add more console positions. Four of the 24 call taker positions are staffed in the daytime by commissioned officers in the department’s Telephone Reporting Unit (TRU) who provide coverage from 0700 – 2300 Monday through Friday. The TRU officers do not answer emergency calls. During peak load, these four positions can be filled by civilian call takers and may be used for emergency call taking at other times if needed. Console furniture is Watson, easily adjustable to standing height if desired, and equipped with comfort controls.
Each console is equipped with a red light that indicates when the dispatcher is transmitting on the radio. A row of large windows extends the entire length of the room’s outside wall, providing natural light for the room. Indirect lighting is available for the room, and task lighting is available at each console position.

The PSAPs equipment room is clean, well-designed and organized, with appropriate cable management. The room is fully populated with racks and cabinets, although there is open space in both that can be used for additional equipment when needed.

A large diesel generator, exercised weekly and load-tested annually, powers the entire building during power outages. A facility Uninterruptable Power Supply (UPS) protects the critical loads in the PSAP.

**Seattle Police 9-1-1 Center PSAP Photos**

![Figure 1 – Workstation](image1)
![Figure 2 – Operations Room](image2)

![Figure 3 – Training Room](image3)
![Figure 4 – Equipment Room](image4)
University of Washington Police Department PSAP Overview

The University of Washington (UW) Police Department is a primary and secondary Public Safety Answering Point (PSAP). The PSAP is located at 1117 Northeast Boat Street, Seattle, Washington. The PSAP serves a daytime service staff and student population of 64,884 within a service area of more than 500 buildings and more than 20 million gross square footage of space. The agency reported an average of 35,797 emergency and non-emergency calls for the years 2010 and 2011.

The UW PSAP is operated by the University of Washington Police Department. The UW Police Department is one of only 55 university or college police departments nationally accredited through the Commission on Accreditation for Law Enforcement Agencies (CALEA). Initially accredited in 2005, the agency has maintained compliance and achieved reaccredited status in 2008 and in 2011. The center currently provides dispatch services for campus police and the University of Washington Emergency Management. Fire or Emergency Medical Services (EMS) requests are dispatched by Seattle Fire Department. The UW Communications Center is the primary answering point for wireline and Voice over Internet Protocol (VoIP) calls originating from campus. The center serves the campus property of the University of Washington and is under the direction of the Chief of Police and his Technical Services Division which also handles records, CAD/GIS, and IT for the department. Wireless 9-1-1 calls initiated within the campus property are routed to other PSAPs and must be transferred to the University Police Department for law enforcement dispatch or to the Seattle Fire Department for fire or EMS response. The UW PSAP has three 9-1-1 answering positions.

### Calls for Service

<table>
<thead>
<tr>
<th>Calls for Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>3,468</td>
<td>3,267</td>
<td>3,390</td>
<td>3.76% increase</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>493</td>
<td>390</td>
<td>368</td>
<td>-5.64% decrease</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>5</td>
<td>11</td>
<td>5</td>
<td>-54.55% decrease</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>38,362</td>
<td>34,646</td>
<td>36,948</td>
<td>6.64% increase</td>
</tr>
<tr>
<td><strong>Total emergency and non-emergency calls</strong></td>
<td>42,328</td>
<td>38,314</td>
<td>40,711</td>
<td>6.26% increase</td>
</tr>
</tbody>
</table>

In 2011, the agency reported that it had 12,059 calls that required dispatch, 33,302 calls did not require dispatch, 32,831 calls for service, 20,772 calls that were self-initiated by field units, that totals incident call volume of 66,133.

The UW PSAP provides dispatch services for the following agencies:

- University of Washington Police
- University of Washington Security
- University of Washington Medical Center Public Safety
- University of Washington Facility Operations
- University of Washington Emergency Management

The following data for the UW PSAP was collected from the GeoComm data collection questionnaire.

<table>
<thead>
<tr>
<th>Call Information(^1)</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>9 seconds</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>1 minute, 43 seconds</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>1 minute, 45 seconds</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>3 minutes, 48 seconds</td>
</tr>
</tbody>
</table>

\(^1\) The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
**Governance**

The University of Washington Police Department is a unit within the Student Life Division under the direction of the Vice President and Vice Provost for Student Life. The police department’s chief executive officer is the Police Chief who reports to the Vice President for Student Life. The Technical Services Division of the police department includes Communications/Dispatch, Records, CAD/GIS, and Information Technology and is managed by a Technical Services Manager who reports to the Chief of Police.

**Finance**

The University of Washington Police Department has provided limited budgetary information. It is a challenge for the University, which does not have separate budget calculations for the 9-1-1 operation alone, to provide a clearly defined account of costs for the 9-1-1 operation. Therefore, GeoComm does not have specific historical or complete budget information for the PSAP.

The University of Washington PSAP does, however, receive funds from the King County E9-1-1 Program Office (KCE9-1-1). The 9-1-1 offices reported to GeoComm that it provided the University PSAP with a revenue distribution in 2011 of $37,143. It also provided funding for GIS/CAD and IT support staff along with $11,394 in Next Generation 9-1-1 (NG9-1-1) Operations Support and $9,930 in PSAP equipment support. KCE9-1-1 2012 Projected PSAP Revenue Distribution Spreadsheet estimates a 2012 revenue distribution to the UW PSAP of $49,700. It also projects continued financial assistance for GIS/CAD and IT support staff along with a $6,630 in PSAP equipment support.

**Staffing**

The UW PSAP has a staff of eight dispatchers that cover three, ten hour shifts. The minimum staffing is one for the day shift which is 0600 hours until 1600 hours, one for the midnight shift, 2000 hours until 0600 hours. Also, one for the swing shift that is 1400 hours until 2400 hours. Staffing levels are determined by call volume, calls for service, and what hours or shifts need more coverage. In the past two years, the PSAP has had one employee leave.

Currently, the supervision for the PSAP is handled by the Technical Services Manager. In the absence of the Technical Services Manager, supervision is handled by other command staff.

The recruitment process includes advertisements in the local and national papers, APCO, and the University of Washington website.

The hiring process takes approximately six months and begins with an online application. Then pre-interview testing is completed through National Testing Network (ECOMM). The top three or four candidates that succeed the testing process are interviewed by the Command Staff.
All candidates who successfully complete the testing process interview with the Technical Services Division. Successful interview candidates are then forwarded to Command staff for a second interview. After a selection is made from this candidate pool, the applicant is given a polygraph test, then a background investigation is conducted followed by psychological and medical evaluation.

The PSAP staff has responsibility for answering 9-1-1 and non-emergency telephone calls. They enter calls for service into a CAD system and dispatch appropriate police units.

In addition the staff is responsible for ancillary duties that include fire alarm monitoring, alarm and video monitoring of high security locations on campus, receiving maintenance calls from the public, regarding water, sewer, natural gas, streets or other service problems. They are required to report maintenance problems to the appropriate entity. They also help with records duties when needed.

The following table is a breakdown of full-time and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td></td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td></td>
</tr>
<tr>
<td>Technical Personnel</td>
<td></td>
</tr>
<tr>
<td>CAD/GIS Specialist</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td></td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td>8</td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td></td>
</tr>
</tbody>
</table>
**PSAP Capabilities**

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>The CAD system used by the UWPD is by HTE / Sunguard. The system was upgraded a year ago, but the level of satisfaction with it is low. The department hopes to replace the system as part of the new police department headquarters project.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>University of Washington PSAP is the primary for wireline and secondary for wireless for 9-1-1 calls originating on the University campus property. Wireless calls are received at other King County PSAPs and transferred to this PSAP based on location given by caller. Call taking and dispatching duties are not separated at this PSAP. The call is answered and processed by the same person. If the call is fire or medical in nature it is transferred to the Seattle Fire Department Communications center. There are two dispatchers on duty except between the hours of four to eight. Command staff handles supervision when supervisor is not there.</td>
</tr>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping supported by King County E9-1-1 Program Office. The agency’s CAD does not support mapping.</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>The PSAPs 9-1-1 call answering positions are equipped with Intrado VIPER non-ACD softphones, with a VIPER switch located at the PSAP. 9-1-1 calls are transported to the PSAP via the regional ESI net and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio Control Consoles</td>
<td>The PSAP has two Motorola CENTRACOM Gold Series Elite™ radio consoles. The console Central Electronics Bank is located in the PSAPs equipment room.</td>
</tr>
<tr>
<td>Fire Station/Personnel Alerting</td>
<td>Not applicable. This PSAP does not dispatch fire or EMS stations or personnel.</td>
</tr>
<tr>
<td>Backup PSAP</td>
<td>The backup PSAP for University of Washington is the Seattle Police Department. The University of Washington PSAP does not serve as the backup for any PSAP.</td>
</tr>
</tbody>
</table>
Current Status of GIS
The current CAD system is an older version and does not have a built in GIS mapping application. The dispatch center utilizes the map supported by the King County E9-1-1 Program Office. The GIS staff person has collected and built GIS data for the university. It contains roads, boundaries, and is about one third complete with a point data layers. Different departments on campus have completed a data sharing agreement. Construction much be cleared through the communication center so the GIS analyst is aware of all data changes and is responsible for addressing on university grounds.

<table>
<thead>
<tr>
<th>University of Washington Communications Center GIS Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of GIS data and maintenance</td>
</tr>
<tr>
<td>GIS update frequency in CAD mapping</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
</tr>
<tr>
<td>GIS position</td>
</tr>
<tr>
<td>GIS software</td>
</tr>
<tr>
<td>MSAG maintenance</td>
</tr>
</tbody>
</table>

Technology

Radio Systems – The University of Washington Police Department (UWPD) uses the King County Regional 800 MHz Trunked Radio System as its primary radio system. A portable radio is kept in the PSAP for use in case of a radio console failure.

Interoperability – As an agency that uses a regional shared radio system for its daily operations, UWPD has extensive capability for voice radio interoperability. UWPD also has the opportunity to enhance its data interoperability by participating in the regional CAD interoperability project now underway in King County.

Voice Logging Recorder – UWPD’s PSAP uses a Stancil TEN-4™ logging recorder with a capacity of 24 channels. The recorder is about seven years old.

ENS – The campus has a robust emergency notification system, but the PSAP is not responsible for it. Activations are handled by the police chief’s office, the campus Public Information Officer (PIO), and/or the on-call university administrator.
**Training**

This agency has a formal documented training program that all new hires must complete within three months of employment. The training program is currently being revised but is designed as on-the-job training. The agency reports that their training program is sufficiently meeting their needs as they have a low turnover rate. The agency has not had their training program evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33) but is planning to pursue it and CALEA accreditation in the future.

The agency cross trains all PSAP personnel as call takers and dispatchers. This training is designed as a typical Communications Training Officer (CTO) program with on-the-job trainers who follow training guidelines and complete Daily Observation Reports (DOR). During this phase of training, the University Police PSAP trainees also attend the Washington State Criminal Justice Training Commission’s (WSCJTC) Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training. Agency trainers must successfully complete the CTO training through the WSCJTC in order to be eligible to serve as agency trainers.

When trainees experience difficulty through the basic training program, they may have their time in training expanded or training may be shortened if a trainee is functioning at a higher level. There is no specific training room or simulations equipment therefore training occurs in the live 9-1-1 environment. The Technical Manager oversees the training program and determines when the trainee is ready to be released from training.

The agency also has a formal training program for incumbent workers. This training includes additional courses through WSCJTC such as Telecommunicator IV and courses available through the King County E9-1-1 Program Office. Other training is available depending on the cost. Agency policies and procedures are now available electronically and employee reviews are tracked with time and date stamps.

This agency reports that staff members are trained for system failures and are able to conduct backup activities manually. For equipment issues, technicians are able to successfully remote in to troubleshoot problems. There are no evacuation procedures in place.

Trainers are required to have successfully completed the new hire training program, no longer be in probationary status, and successfully complete the WSCJTC CTO program. In rare instances, there has been occasions where staffing issues required trainers to begin work with a new hire prior to the completion of the WSCJTC CTO course. However, this training occurs with oversight provided by another CTO trainer.
This agency reports a Quality Assurance/Quality Improvement (QA/QI) program. However, call evaluation occurs as the result of specific issues with a given call, random call review or when records are subpoenaed. If call processing or other procedures were not followed, there is the possibility of disciplinary action as well as additional training.

This agency does not subscribe to any Emergency Medical Dispatch program.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts tests calls and additional training every six months. This agency reports participation in the King County PSAPs TTY testing schedule.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The service philosophy, according to the University of Washington PSAP, is to strive to serve the community. They are like all large campus police/security PSAPs, the University of Washington PSAPs scope of responsibilities covers many areas not normally dealt with at more main-line PSAPs. They provide services, such as providing building entrance admittance when someone is locked out of one of 500 buildings on campus. They also receive calls from University of Washington students from all over the world that are in trouble and need assistance. These calls are handled by a group that is part of “Global” system that helps the students in need.

The University of Washington daytime service population is approximately 68,000. GeoComm was able to observe the dispatcher perform call taking and dispatching functions. The dispatchers perform combined duties of call taking and dispatching. UWPD have a traditional call handling process. The call was received, screened, and entered into CAD and assigned to a patrol unit. Calls that were observed appeared to follow accepted call processing standards of operations and procedures.

**General Facility Overview**

The University of Washington Police Department PSAP is located in the police department offices on the southern edge of the university campus, in a waterfront building on Lake Union that was originally a lumber company and later the home of a large pleasure boat dealer. The building was originally constructed in 1935 with subsequent additions through 1950. The lobby and some interior portions of the building were open to the public during our visit. The police department areas, including the PSAP, were secure areas with key access. The police chief is seeking approval for construction of a new larger police facility more centrally located on the campus. A new PSAP is planned for inclusion in this facility.
The PSAP monitors fire alarms for hundreds of campus buildings, and does video monitoring of specific high-security locations on the campus.

The PSAP operations room is further secured with a key lock on one entrance and a pushbutton combination lock on the other entrance. The room contains two consoles. There is no room for additional consoles. Each console has eight monitors – four on the lower tier and four on the upper tier. The room has fluorescent lighting in the suspended ceiling and task lighting available on the consoles. The console furniture is by Watson and is in good condition.

The PSAPs equipment room is located on the attic level of the building, directly above the operations room. The space is enclosed and is cooled by a portable cooling unit located inside the room. The space is full. While not built to normal equipment room standards, the room is an inventive attempt to retrofit newer technology into an older fully-occupied building.
University of Washington Police Department PSAP Photos

Figure 1 – Operations Room

Figure 2 – Equipment Room

Figure 3 – Equipment Room

Figure 4 – PSAP Entrance
Valley Communications Center PSAP Overview

The Valley Communications Center (Valley Communications) is a primary Public Safety Answering Point (PSAP). The PSAP is located at 27519 108th Avenue Southeast, Kent, Washington. The PSAP serves a population of 715,000 within a service area of approximately 350 square miles\(^1\). The agency reported an average of 862,737 emergency and non-emergency calls for the years 2010 and 2011.

The Valley Communications PSAP is governed by the Valley Communications Center Administrative Board of the five owner cities and is operated through an executive director and advised by an Operating Board comprised of responder agencies of its nine police departments, 13 fire departments, and King County Medic One. The PSAP is housed in its own stand-alone facility within the City of Kent. The center currently provides emergency communications services for local law enforcement, fire, Emergency Medical Services (EMS) to communities of South King County\(^2\).

<table>
<thead>
<tr>
<th>Calls for Service(^3)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>198,620</td>
<td>173,655</td>
<td>121,343</td>
<td>-30.12% decrease</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>264,263</td>
<td>263,398</td>
<td>283,258</td>
<td>7.54% increase</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>4,194</td>
<td>4,651</td>
<td>34,719</td>
<td>646.48% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>446,763</td>
<td>426,968</td>
<td>417,482</td>
<td>-2.22% decrease</td>
</tr>
<tr>
<td>Total emergency and non-emergency calls</td>
<td>913,840</td>
<td>868,672</td>
<td>856,802</td>
<td>-1.37% decrease</td>
</tr>
</tbody>
</table>

In 2011, the total incident call volume was 505,795.

\(^1\) Population and service area square miles is from the 2010 U.S. Census.  
\(^2\) http://www.valleycom.org.  
\(^3\) 9-1-1 and non-emergency call volume information provided by King County E9-1-1 Program Office.
The Valley Communications PSAP provides dispatch services for the following agencies:

- Algona Police Department
- Auburn Police Department
- Black Diamond Police Department
- Des Moines Police Department
- Federal Way Police Department
- Kent Police, Fire, and EMS Departments
- KC Medic One
- KCFD #2 Burien/Normandy Park Fire
- KCFD #20 Skyway Fire
- KCFD #43 Maple Valley Fire
- KCFD # 44 Mountain View Fire and Rescue
- KCFD #47 Palmer/Selleck Fire Districts
- North Highline Fire Department
- Pacific Police Department
- Renton Police, Fire, and EMS Departments
- SeaTac Fire Department
- South King Fire and Rescue
- Tukwila Police, Fire, and EMS Departments
- Valley Regional Fire Authority
- Vashon Island Fire and Rescue

The Valley Communications PSAP has thirty-four 9-1-1 call answering capable positions in operations room with an additional 12 call answering capable positions in the training rooms.

Of the total 46 positions, there are 18 positions also equipped for radio dispatch in the operations room and two positions capable of radio dispatch in the training room.
The following data for the Valley Communications PSAP was provided to GeoComm through the data collection questionnaire.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>Not available</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Governance**

Valley Communications is a consolidated public safety communications agency established by Interlocal Agreement by the Cities of Auburn, Kent, Renton, Federal Way, and Tukwila. The Valley Communications Administrative Board is the governing board for the organization. Its membership consists of the mayor of the five member cities. In addition to budgetary, policy and strategic planning responsibilities, the board appoints and supervises the executive director for the organization. The executive director serves as the chief executive officer for the organization and is responsible for its operations.

In addition to the Administrative Board, Valley Communications has an Operating Board that provides operational guidance and support to the center. The Operating Board membership is comprised of the police and fire chiefs of the five member cities; one appointed representative from the police contract agencies and one appointed representative from the fire contract agencies.

The Operating Board’s principle responsibilities include operational policies and procedures, strategic planning, and making recommendations to the Administrative Board. Members also serve on supporting committees.⁴

**Finance**

The Valley Communications organization has an independent budget that is subject to the approval of its Administrative Board. The agency is funded by revenue from its owner and contract cities, the King County E9-1-1 Program Office (KCE9-1-1) and the King County EMS Levy revenue, radio system revenue and other miscellaneous revenue. Its budget has five active funds including Operating, Equipment Replacement, Operating Contingency, 800 MHz Radio System, and an E9-1-1 Escrow Fund. The majority of its operating revenue fund is generated by assessments to member cities.

⁴ The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
⁵ Valley Communications 2012 Budget Document.
According to its 2011 Annual Report, Valley Communications total 2011 budget, as amended, was $19,326,596. The total expenditures approved for 2012 is $18,141,869.

According to data supplied by KCE9-1-1, it provided a total of $1,074,088 in revenue distribution to Valley Communications in 2011, along with $1,234,054 additional support for staff and equipment support. Its projections for 2012 include a Valley Communications revenue distribution of $1,117,647 along with Option C revenue of $125,313.

KCE9-1-1 continues to provide funding to Valley Communications for additional GIS/CAD, IT System and PBX/VIPER staff support and $724,500 in PSAP equipment support. Valley Communications estimates the staff funding for the three full-time employees (IT, GIS, and VIPER Administrative Support) to be $378,000.

**Staffing**

Valley Communications is a consolidated public safety communication center under the direction of an executive director. Seven managers report to the executive director (human resources, administrative services, technical, finance, training, operations, and CASD/RMS project manager). The center employs two supervisor II’s, eight supervisor I’s, 59 dispatchers, and 44 call takers. Minimum staffing requires 9 to 12 dispatchers and 5 to 10 call takers based on time of day and call volume. Employees in the center work 10 hour shifts with starting times staggered every two hours. Staff is provided two 15 minute breaks and one 30 minute meal break during their shift.

Coverage for these breaks are provided by two “breakers” whose job for the day is to cover positions by those on breaks. Supervisory coverage is provided 24 hours a day on the operations floor. The agency is Emergency Medical Dispatch (EMD) certified.

Valley Communications employs their own human resources professional to handle all aspects of the recruiting, screening, testing, candidate application, and hiring process. Candidates apply and are given an initial public safety test from which a list is created. Candidates that move on take a split ear multi-tasking test, video test and the CritiCall® exam. A preliminary interview is conducted by the human resources manager, a supervisor, and the training manager.

---

6 Option C is a temporary revenue distribution adjustment for four of the largest PSAPs in 2012 and 2013. The King County 9-1-1 Office is in the process of adjusting its distribution model and the purpose for Option C is to adjust the distribution for the four largest PSAPs incrementally toward the new model while the smaller PSAPs continue to receive the projected distributions. It is anticipated that after 2013, the smaller PSAPs distributions will decrease.
If successful, a conditional offer of hire is given followed by polygraph and psychological exams. If successful, a final interview is then conducted by the operations manager and training manager.

Valley Communications reports a very low turnover rate which they attribute to the quality of their communication center. Management pays very close attention to conduct issues; the union and management report a very good relationship. Staff reports that longevity in the center translates to strong skill sets.

The most current APCO RETAINS study was done last year validating their current staffing needs and levels. Incoming calls and calls for service volume is also considered in determining staffing levels.

Valley Communications staff appears to be very happy working in this center. GeoComm observations in all areas of the operation appear to validate the feelings of staff.

The following table is a breakdown of full-time and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>1</td>
</tr>
<tr>
<td>Manager</td>
<td>1 (operations)</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>9</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>5</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>1</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>CASD/RMS project manager</td>
<td>1</td>
</tr>
<tr>
<td>Training Coordinator</td>
<td>1</td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td>22</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td>2 (manager and assistant)</td>
</tr>
<tr>
<td>Call Taker</td>
<td>44</td>
</tr>
<tr>
<td>Dispatcher</td>
<td>59</td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Human Resources</td>
<td>1</td>
</tr>
<tr>
<td>Finance</td>
<td>2</td>
</tr>
<tr>
<td>Training Assistant</td>
<td>1</td>
</tr>
<tr>
<td>Public Records</td>
<td>1</td>
</tr>
</tbody>
</table>
### PSAP Capabilities

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>Valley Communications present CAD system is PRC / Northrop Grumman COBOL CAD running on HP/COMPAQ Alpha servers under the VMS operating system. Valley Communications is in the process of making a transition to Tiburon’s TotalCommand CAD, with a planned cutover in 2013. Valley Communications intends to interface the new CAD system to the regional CAD interoperability switch. 46 CAD workstations are installed in the PSAP.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>Valley Communications is the primary PSAP for incoming wireless and wireline 9-1-1 calls for the law enforcement agencies for which Valley Communications provides dispatch services. They are the primary PSAP for wireline and the secondary PSAP for wireless 9-1-1 calls for the fire only agencies for which Valley Communications provides dispatch services. 9-1-1 calls for service and seven digit administrative/non-emergency telephone calls are received by call takers in the Valley Communications PSAP and are entered into the CAD system. The CAD incident is routed to the appropriate radio dispatcher who relays it by voice via radio transmission and electronically via mobile data computers to responding resources. There is a minimum of five police dispatchers that manage five radio consoles. The radio dispatchers may be in responsible for dispatching from one to four agencies. They are responsible for keeping up with 10 to 25 officers. There are two fire/EMS dispatchers on duty 24/7 and a third fire/EMS position staffed 12 hours a day. When not staffed, the Fire 1 dispatcher also assumes the duties of the Fire 3 position, if needed. The Fire 1 dispatcher dispatches the initial call and assigns to a secondary dispatcher. There are two secondary dispatchers, one for fire, and one for EMS. The secondary dispatchers are Fire 2 for EMS calls and Fire 3 for fire calls. The secondary dispatchers handle the call through its entirety. The call takers are not cross-trained as radio dispatchers, however the dispatchers are cross trained as call takers.</td>
</tr>
<tr>
<td>Mapping</td>
<td>The current map software is associated with the 9-1-1 telephone system and is maintained by the King County E9-1-1 Program</td>
</tr>
</tbody>
</table>
### Current Capabilities

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E9-1-1 Telephone Equipment</strong></td>
<td>Valley Communications’ 9-1-1 call answering positions are equipped with Intrado VIPER softphones, with a VIPER switch located at the PSAP, and ACD managed by a Nortel/Avaya PBX. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td><strong>Number, Brand, and Type of Radio Control Consoles</strong></td>
<td>Radio consoles are Motorola CENTRACOM Gold Series Elite™. 20 radio consoles are installed in the PSAP. The console CEB is located in the PSAP equipment room.</td>
</tr>
<tr>
<td><strong>Fire Station/Personnel Alerting</strong></td>
<td>Fire station and personnel alerting is done using a private VHF alphanumeric paging system, nine-site simulcast with two more sites to be added this year and two more next year. The frequency in use is not required to narrowband. The alphanumeric system is also used for EMS alerting.</td>
</tr>
<tr>
<td><strong>Backup PSAP</strong></td>
<td>Valley Communications backup PSAP is King County Sheriff, and Valley Communications is the backup PSAP for King County Sheriff.</td>
</tr>
</tbody>
</table>

### Current Status of GIS

Valley Communications is currently preparing GIS data to be used in the new CAD mapping application. The original GIS data came from the local stakeholders. Valley Communications has coordinated the areas of overlapping data by establishing a data hierarchy. A maintenance plan based at Valley Communications was also established. GIS updates from the local agencies are sent to Valley Communications. A GIS steward has been established at each local agency that will act as a single point of contact with Valley Communications. Overlapping agencies such as a jurisdiction’s fire and law coordinate changes internally then send on to Valley Communications.
<table>
<thead>
<tr>
<th>Valley Communications GIS Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of GIS data and maintenance</td>
</tr>
<tr>
<td>Original data from local agencies. Valley Communications adjusted data for use in CAD. They are responsible for maintenance with updates coming from local agencies.</td>
</tr>
<tr>
<td>GIS update frequency in CAD mapping</td>
</tr>
<tr>
<td>The update frequency will be established after the new CAD is installed in 2013.</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
</tr>
<tr>
<td>GIS data will reside on a central server and pushed out to the individual workstations.</td>
</tr>
<tr>
<td>GIS position</td>
</tr>
<tr>
<td>Full-time supported by the King County E9-1-1 Program Office</td>
</tr>
<tr>
<td>GIS software</td>
</tr>
<tr>
<td>MSAG maintenance</td>
</tr>
</tbody>
</table>

**Technology**

**Radio System** – Valley Communications uses the King County Regional 800 MHz Trunked Radio System as its primary radio system. Valley Communications is one of four owner entities for the regional radio system. Control stations are installed at the radio consoles for use in case of a radio console failure. Portable radios can also be used successfully for the same purpose. The fiber link between Valley Communications and the radio system central controller is backed up by a microwave link, providing a reliable redundant connection.

**Interoperability** – As an agency that uses a regional shared radio system for its daily operations, Valley Communications has extensive capability for voice radio interoperability. Since a portion of Valley Communications service area borders on Pierce County with its separate radio systems, many southern King County agencies have installed VHF or multi-band radios to allow interoperability with Pierce County agencies. Valley Communications is also able to do console patching to some Pierce County systems. Valley Communications will experience enhanced data interoperability when its new CAD system is interfaced to the regional CAD interoperability switch now being implemented in King County.

---

7 RF control stations are standalone radios that allow access to the regional trunked system in the event of a local console failure.
Voice Logging Recorders – Valley Communications uses redundant Voice Print International (VPI™) logging recorders, presently licensed for 124 channels of logging. All radio traffic on 41 talk-groups is recorded off-the-air using trunked radio receivers located in the equipment room.

ENS – While one or more of the cities dispatched by Valley Communications have emergency notification systems, the PSAP is not involved in activating these systems.

Training

This agency has a formal documented training program that all new hires must complete within six months of employment. The training program includes both classroom and on-the-job training. New hire trainees are required to complete ten weeks of in-house academy training, including the Telecommunicator I (Basic Call Taker) course, and Telecommunicator II (Basic Law and Fire Dispatcher) training offered at the Washington State Criminal Justice Training Center (WSCJTC) along with three to four months of on-the-job training.

The agency reports that they believes that their training program is sufficiently meeting their needs and notes that trainees are supported after release from training by the CTO for the remainder of the first year of employment. The CTO program is designed so that trainees rotate trainers with a final evaluation by a supervisor.

The Valley Communications has had their training program certified previously by APCO Project 33 and is currently in progress for recertifying as compliant with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)®, as revised. They are also CALEA® accredited.

The agency’s training program is designed to cross train all PSAP personnel as call takers and dispatchers. However, there are provisions for those who cannot successfully complete the radio dispatch portion to serve in a call taker only capacity. Dispatchers must be fully cross trained in law enforcement, fire, and EMS dispatch.

Agency trainers have minimum requirements to be eligible to be Communications Training Officers (CTOs). They are required to have a minimum of one year experience, been ranked as met standards in previous evaluations and no disciplinary issues in the last year. Trainers must successfully complete a formal assessment center, the various levels of CTO training through the WSCJTC, and an in-house mentoring program in order to be eligible to serve as agency trainers. Classroom trainers must also complete the 40-hour Instructor Development Course through WSCJTC.
The agency also has a formal training requirement for incumbent workers of a minimum of 24 hours annually. This training may include daily policy questions, self-study using topical slide presentations, APCO continuing education articles, and emergency operations procedures training. New equipment and policy changes are delivered in similar formats.

This agency reports that staff members are trained for system failures and participate in quarterly drills which include CAD down drills, evacuations of the center, activating the backup center, and managing radio failures.

The agency has a dedicated, multi-position training room with fully equipped consoles and all of the necessary and appropriate audio/visual equipment.

This agency reports a Quality Assurance/Quality Improvement (QA/QI) program in which CTOs conduct monthly reviews of released trainees for one year. This equates to approximately two to four hours per month of review.

This agency uses the King County Criteria Based Dispatch Emergency Medical Dispatch© program. Employees are required to have a minimum of two, two-hour classroom and two-hour online training annually for EMD.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts tests calls and additional training every six months.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

Valley Communications service philosophy is to go above and beyond and utilize all the resources they need to deliver service and resolve issues. No bare minimums. Expectations are clearly defined with employees and the agency reported it does not tolerate a “just you do your job” mentality.

GeoComm observed call handling processes and they appear to follow generally accepted standards of operation. Valley Communications measures performance by using a formal, standardized QA/QI process. Their accreditation thru CALEA, feedback from officers and call handling times also validates their level of service. Every month the call takers and dispatchers receive a packet from supervision which contains: their individual quality assurance results, “Daily Dose” (daily policy training communicated via email) scores, informal feedback, and how long they occupied each console position, if applicable. The employee is consistently updated on problems or areas that need improvement.
During GeoComm’s observation period, Valley Communications experienced a steady incoming call volume. The observations included the procedures utilized in the PSAP, both during the call intake process and the dispatch process, and the public safety communications services levels provided to both the public and responders in the field. Radio traffic from communications center personnel and responders in the field was observed to be clear and professional.

**General Facility Overview**

Valley Communications is located in the City of Kent, in a single-level building that was built new for this purpose and occupied in 2002. The building was built to comply with applicable seismic standards then in effect. Valley Communications occupies the entire building, which is attractive and well-maintained. The front entrance is secure, with card access for employees and an intercom for visitors to use. After entering the lobby, visitors sign in at the reception desk and are issued badges before they are admitted to the other parts of the building. Visitors are escorted while inside the facility.

There is some room for expansion of administrative and training areas, but expansion of the operations area would displace other functions and result in two separate operations spaces. The receptionist and the operations supervisor monitor the security cameras and receive door system alarms.

The operations area is further secured by locked doors with key card access. It contains 34 consoles. Two additional full consoles and ten non-adjustable consoles are located in training rooms. The operations room has a long row of room-size monitors along the top of one wall. It appeared that the consoles could be reconfigured to make room for a few more console positions, should it become necessary.

Some consoles had room for additional monitors at desktop height, while others could add monitors only by moving some to an upper tier. The room has indirect lighting at ceiling level, small high windows for natural light, and task lighting available at the consoles. Console furniture is by Xybix™ Systems, Inc. and is in good condition. The desktops are easily and quickly adjustable to standing height if desired. The console positions are equipped with comfort controls.

The PSAP equipment room is adequately sized, clean, and well-designed for its purpose. Grounding includes a halo as recommended for radio equipment rooms. Top-heavy equipment is secured top and bottom, and cabinets are mounted on isolator bases that allow safe controlled lateral movement during seismic events. Because Valley Communications is an independent agency with its own administrative and human resource systems, the number of servers in the equipment room is higher than at many PSAPs of similar size. A facility-sized UPS covers most circuits in the building including all critical loads, and a diesel generator sized for the entire facility is in place and exercised weekly.
Valley Communications Center Public Safety PSAP Photos

Figure 1 – Workstation

Figure 2 – Operations Floor

Figure 3 – Equipment Rack Grounding

Figure 4 – Training Room
**Washington State Patrol District 2 - Bellevue PSAP Overview**

The Washington State Patrol District 2 - Bellevue (WSP) is a primary Public Safety Answering Point (PSAP). The PSAP is located at 2803 156th Avenue Southeast, Bellevue, Washington. The agency reported an average of 261,138 emergency and non-emergency calls for the years 2010 and 2011.

The Washington State Police PSAP is located in the Division 2 headquarters in Bellevue. The center currently provides dispatch services for state police, and several state authorities. The agency is the Primary answering point for wireless 9-1-1 calls originating on major highways and state roads where the wireless cell sector is primarily covering the state highway system. If a call requires local law enforcement, fire, and/or Emergency Medical Service (EMS) response, the call is transferred to the appropriate community based on the caller’s perceived location. The Washington State Patrol District 2 encompasses the cities of Seattle, Bellevue, and surrounding communities and receives wireless 9-1-1 calls from this service area. These calls for service represent approximately 44 percent of the statewide total of wireless 9-1-1 calls. District 2 serves the most populated county in Washington with over 1.7 million drivers on Interstate 5, 90, 405, and State Routes 520 and 167\(^1\). The agency has a total of nine 9-1-1 answering positions; four call receivers, four dispatchers, and one supervisor.

<table>
<thead>
<tr>
<th>Calls for Service</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Percentage of Increase/Decrease (2010 to 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wireline 9-1-1 calls</td>
<td>20,137</td>
<td>5,374</td>
<td>13,464</td>
<td>150.54% increase</td>
</tr>
<tr>
<td>Total wireless 9-1-1 calls</td>
<td>254,826</td>
<td>238,823</td>
<td>232,920</td>
<td>-2.47% decrease</td>
</tr>
<tr>
<td>Total VoIP 9-1-1 calls</td>
<td>90</td>
<td>100</td>
<td>526</td>
<td>426% increase</td>
</tr>
<tr>
<td>Total non-emergency calls</td>
<td>13,109</td>
<td>25,704</td>
<td>5,366</td>
<td>-79.12% decrease</td>
</tr>
<tr>
<td><strong>Total emergency and non-emergency calls</strong></td>
<td>288,162</td>
<td>270,001</td>
<td>252,276</td>
<td>-6.56% decrease</td>
</tr>
</tbody>
</table>

In 2011, the agency reported that it had 78,937 calls for service, 81,334 calls that were self-initiated by field units, that totals incident call volume of 160,271.

\(^1\) [http://www.wsp.wa.gov](http://www.wsp.wa.gov)
The Washington State Patrol provides dispatch services (or ancillary radio dispatcher support services*) for the following agencies:

- Washington State Patrol Troopers
- Gambling Commission*
- Liquor Control*
- Wildlife (Fish/Game)
- Burlington Northern Railroad*
- Washington Department of Transportation*

The following data for Washington State Patrol PSAP was provided to GeoComm through the data collection questionnaire.

<table>
<thead>
<tr>
<th>Call Information</th>
<th>YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average telephone busy time for 9-1-1</td>
<td>2 minutes, 5 seconds</td>
</tr>
<tr>
<td>Average telephone busy time for non-9-1-1 and other calls</td>
<td>3 minutes</td>
</tr>
<tr>
<td>Average call completion time for 9-1-1</td>
<td>1 minute, 3 seconds</td>
</tr>
<tr>
<td>Average call completion time for non-9-1-1 and other calls</td>
<td>1 minute</td>
</tr>
</tbody>
</table>

**Governance**

The Communications Division is one of seven divisions within the Technical Services Bureau of the Washington State Patrol. The Division Administrator oversees the eight communication centers across the state. There is one communications center for each of the eight districts in the State of Washington. Each center reports to both the Technical Services Bureau and the Division Commander. Each PSAP has a different business model.

**Finance**

According to the Division Administrator for the Communications Division, the operating budget for the biennium is approximately $20 million. The Communications Division of the Washington State Patrol operates four primary and four secondary PSAPs across the state in Districts such as the Bellevue District 2 PSAP. Primary PSAPs are eligible to be reimbursed by state funds. The amount of reimbursement is capped by state and does not include salaries. The allocation is based on call volume.

Specific financial data for the Bellevue PSAP has not been provided to GeoComm at this time.

---

2 The definitions for Call Information can be found in Appendix A, Call Volume and Dispatched Incidents Assessment Worksheet.
According to data provided to GeoComm, in 2011, the King County E9-1-1 Program Office provided a revenue distribution to the Washington State Patrol of $528,889. The King County E9-1-1 Program Office provided additional funding for staff support and PSAP equipment support of $563,137. In 2012, the projected revenue distribution to the state patrol is $493,660 with Option C revenue of $204,918.

**Staffing**

Currently, the WSP Bellevue PSAP has 13 of 18 authorized dispatcher positions filled. There are three Communications Officer III’s (shift supervisors) assigned to cover the day and night shifts. Two cover the day shift and one covers the night shift. The budget authorizes four Communications Officer III’s, and when that fourth position is filled there will be another supervisor assigned to the night shift. The supervisors have different days off to ensure full coverage. In the event of a supervisor absence, there are five Communications Officer II’s, who can fill in as an acting supervisor. However, they do not have the authority to approve vacation leave or apply discipline if required. The Communications Officer II’s will provide input to the Communications Officer III’s in reference to discipline. The Communications Officer III’s, are considered lead dispatchers and trainers.

The minimum staffing level for the PSAP is three radio dispatchers Sunday through Wednesday plus one dispatcher serving as a call taker until 2:00 a.m., and four dispatchers Thursday through Saturday plus one dispatcher serving as a call taker until 1:00 a.m. The staffing levels are determined by the 9-1-1 and non-emergency call volume. During GeoComm’s visit, there were four dispatchers on duty along with one call taker and one Supervisor.

When a vacancy occurs, the recruiting process begins with online job announcement recruiting, advertisements placed in local papers and job fairs are held to attract potential candidates from the general job market. The applicants are given a CritiCall® test which is a performance test. If they pass the CritiCall® test they proceed to an interview board. If they pass the interview, they are given polygraph and a background investigation is done. The PSAPs turnover rate averages five per year.

The PSAP staff has the responsibility for WSP District 2, which encompasses all of King County’s geography. The communications center divides the county into two sections; a north and south section. Two dispatch personnel are assigned to each section.

---

3 Option C is a temporary revenue distribution adjustment for four of the largest PSAPs in 2012 and 2013. The King County E9-1-1 Program Office is in the process of adjusting its distribution model and the purpose for Option C is to adjust the distribution for the four largest PSAPs incrementally toward the new model while the smaller PSAPs continue to receive the projected distributions. It is anticipated that after 2013, the smaller PSAPs distributions will decrease.
Position A handles the radio traffic and position B provides backup support for position A. Position B responsibilities include making telephone calls and computer checks and covering for breaks.

Staff reported a retention problem stemming from their pay scale being 20 to 30 percent behind the King County PSAP employee market rate combined with a high cost of living for the area. The high call volume and busy workload for the staff of the center is also reported to be an issue to retaining qualified employees.

Staff reports that they do everything they can to retain the number of Full-Time Employees (FTE’s) in the center even though it has been difficult to fill all of the positions. They do believe that if all positions were filled and fully trained that there would be sufficient staff to operate the PSAP.

The following table is a breakdown of full-time and part-time employees that are authorized positions.

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>1</td>
</tr>
<tr>
<td>Manager</td>
<td>1</td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td>4</td>
</tr>
<tr>
<td>Technical Personnel</td>
<td>None on-site</td>
</tr>
<tr>
<td>GIS Technologist</td>
<td>None on-site</td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td>1</td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td>1</td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td>5</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td>5</td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td>18</td>
</tr>
</tbody>
</table>
## PSAP Capabilities

The following chart is a description of current capabilities and equipment at the PSAP.

<table>
<thead>
<tr>
<th>Current Capabilities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Aided Dispatch (CAD)</td>
<td>The PSAP uses Premier CAD® from Motorola. The current version is 6.6.8.63. Ten CAD workstations are installed in the PSAP. The CAD system shares statewide servers located in Tumwater, Washington. The system was implemented in 2003. A move to a newer Motorola CAD product is planned for the near future. A low-bandwidth mobile data system with limited functionality is presently deployed, and a move to a more robust Motorola mobile product using higher-bandwidth commercial 4G air cards is planned.</td>
</tr>
<tr>
<td>9-1-1 Call Processing</td>
<td>Wireless 9-1-1 calls from cell sectors on state highways are directed, answered and processed by the Patrol PSAP in Bellevue. They have established an objective to answer 90 percent of incoming 9-1-1 calls within ten seconds and report that their actual performance is 95 percent of the time. 9-1-1 calls requiring a dual response such as from fire, EMS, or local law enforcement are transferred to the appropriate jurisdiction.</td>
</tr>
<tr>
<td>Mapping</td>
<td>9-1-1 call telephone mapping supported by E9-1-1 Program Office. Motorola CAD mapping</td>
</tr>
<tr>
<td>E9-1-1 Telephone Equipment</td>
<td>The PSAPs 9-1-1 call answering positions are equipped with Intrado VIPER non-ACD softphones, with a VIPER switch located at the PSAP. 9-1-1 calls are transported to the PSAP via the regional ESInet and are converted to CAMA signaling before connecting to the VIPER switch.</td>
</tr>
<tr>
<td>Number, Brand, and Type of Radio Control Consoles</td>
<td>The PSAPs radio consoles are presently Motorola CENTRACOM Gold Series Elite™ Plus CRT, but they are scheduled to be replaced with Motorola ASTRO® 25MCC 7500 IP Dispatch Console in the near future. Five radio consoles are installed.</td>
</tr>
<tr>
<td>Fire Station/Personnel Alerting</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Backup PSAP</td>
<td>WSP's backup PSAP is NORCOM. The WSP PSAP is not a backup location for any other PSAP.</td>
</tr>
</tbody>
</table>
Current Status of GIS
The Washington State Patrol GIS CAD Administrator gathers data at a district level. Data updates related to address points are handled through a Motorola maintenance contract. One person in each communication center gathers new information they want added in CAD and provides the list to Jim Hill. Jim gathers all the data and forwards to Motorola in spreadsheet format. Motorola geocodes the address data to create the points used in the CAD systems and are required to provide a fifteen day turnaround. The original source data came from a partnership with the Department of Transportation to create common points. The turnaround time did not meet the needs for State Patrol so they contracted with Motorola.

The road centerline will be licensed through TomTom® and updated semi-annually. Washington State Patrol will be placing mobile CAD in the vehicles in 2013. A full-time GIS person has been requested and approved to assist and maintenance with the mobile upgrade project. Updates will happen quicker with the new GIS position on-site.

Washington State Patrol GIS Summary

<table>
<thead>
<tr>
<th>Source of GIS data and maintenance</th>
<th>Motorola geocodes address and common place names to create GIS points used in CAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS update frequency in CAD mapping</td>
<td>Once a year or as needed. Support from Motorola for 40 hours per year.</td>
</tr>
<tr>
<td>GIS data transfer process to CAD</td>
<td>Motorola handles updating of GIS information</td>
</tr>
<tr>
<td>GIS position</td>
<td>Full-time supported by the King County E9-1-1 Program Office</td>
</tr>
<tr>
<td>GIS software</td>
<td>ArcGIS</td>
</tr>
<tr>
<td>MSAG maintenance</td>
<td>Maintained at the King County E9-1-1 Program Office</td>
</tr>
</tbody>
</table>

Technology
Radio System – The Washington State Police PSAP uses a VHF conventional radio system at this time. A move is planned to a new WSP-owned 700 MHz P25 digital trunked radio system in the near future. Field radios for the new system will be dual-band with a VHF capability for use in other parts of the state where the WSP will remain on VHF. WSP field units and dispatchers will also have access to a secure VHF P25 digital trunked system operated by the United States Department of Justice. Mobile radios mounted at the consoles can be used in case of radio console failure. Three neighboring WSP communications centers can also divide the service area of this PSAP and handle the communications for this district.
Interoperability – Since the WSP does not use the King County regional shared 800 MHz trunked radio system for its daily operations, interoperability must be achieved in other ways. The new trunked radios soon to be installed in the field units will be capable of operating on the regional system if they are programmed to do so and the necessary policies and agreements are written. WSP is interested in participating in the regional CAD interoperability project now underway in the county, but will not have staff time to do so until after the planned CAD replacement.

Voice Logging Recorder – WSP’s present logging recorder, from Dynamic Instruments, is scheduled to be replaced soon by a NICE Inform logging recorder system. The present logging recorder has a capacity of 32 channels, and the new recorder is expected to be similar in size.


Training
The WSP has a formal documented training program that all new hires must complete within five months. The program is designed as an on-the-job training program supported by some classroom training. Three weeks are spent at the academy completing the Washington State Criminal Justice Training Commission’s (WSCJTC) Telecommunicator I (Basic Call Taker) and II (Basic Law and Fire Dispatcher) training. This is followed by two weeks of classroom training related to agency specific equipment, procedures, and protocols. Then there is a week-long series of written and simulation testing. Unique to this state patrol PSAP, new hires may be hired as call taker only or dispatchers only. The agency states that they believe that their training program is sufficiently meeting their needs.

The WSP has not had their training program evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)© but have used this standard as the basis for development of their training program. The agency has plans to pursue this certification in the future and is CALEA© accredited.

Agency trainers have minimum requirements of two years of experience, are successful with an interview panel and successfully complete the CTO course provided by the WSCJTC.

The agency also has a formal training requirement for incumbent workers. They use weekly tests, exercises, verbal quizzes, and emergency procedures scenarios along with a quarterly training package that is established by the CTOs for completion which serves as incumbent training. They also provide other training through the King County E9-1-1 Program Office, WSCJTC, ride-along programs.
This agency reports that staff members are trained for system failures, and they conduct evacuation exercises where they report to the NORCOM PSAP and setup their backup system a least twice annually.

The agency does not have a dedicated training room or simulation equipment. All training is provided on the dispatch floor in the live environment.

This agency reports that they have a formal Quality Assurance/Quality Improvement (QA/QI) program. They also report that calls on both the business and emergency lines are reviewed for compliance with procedures and they employ a self-appraisal procedure. Supervisors monitor and address issues on a daily basis.

This agency does not have an Emergency Medical Dispatch program.

The agency reports that their basic training program includes information on proper handling of TTY calls in compliance with the Americans with Disabilities Act (ADA). Likewise, the agency also conducts tests calls and additional training every six months. This agency reports participation in the King County PSAPs TTY testing schedule.

**On-site Observations, Standard Operating Procedures, Shared Public Safety Goals, and Processes**

The stated service philosophy at the Washington State Patrol is to answer calls as quickly and as efficiently as possible in order to provide “service with humility.” They strive to make sure the customer is satisfied. Although there is no regular, formalized QA/QI process, delivery of service is measured by the number of telephone calls received, number of CAD calls entered and self-assessment exercises where staff examine their own work by listening to recordings and looking at CAD data. The King County objective for all PSAPs is to answer 90 percent of incoming 9-1-1 calls within ten seconds. The WSP reported their statistics are actually 95 percent of the time. GeoComm did not observe any documentation to support or refute this claim.

As GeoComm observed operations in the center, a teamwork environment was evident. The call taking process was professional and efficient. When calls were processed at the radio positions, this professionalism continued. For having limited radio resource, it appears that the configuration of having two dispatchers assigned to each radio channel is one that works well. There were many units in the field on each radio channel and although the air traffic was busy, staff did a great job in keeping up with the workload while demonstrating efficiency. Radio communication between the communications center and responders in the field was professional.
The proximity of the supervisor console to the other operational consoles in the room was conducive to the supervisor having the ability to know what was going on while being accessible to staff while they were performing their duties.

The WSP in King County is the primary PSAP for wireless callers on cell towers that are located mainly directed towards the highways they patrol. Call taking and dispatching practices are traditional, with incoming calls answered by dedicated call taker positions (although calls can be answered at any position.) Calls for service are then dispatched from one of two radio positions. Each radio channel has two dispatchers (one performing primary dispatch duties and the other in a support role.) Staff reports very limited radio resources. There are at least 40 active field units on each channel which makes it difficult to get on the air at times. Interoperability with other agencies is reported to be difficult. Although there is the ability to patch channels/talk-groups together, the process is cumbersome and difficult to initiate.

**General Facility Overview**

The Washington State Patrol District 2 PSAP is located in the basement of the Division 2 headquarters in Bellevue. The building, built in 1971, has a public lobby and secure office spaces on the first floor. The lobby is open during business hours and secured after hours.

The PSAP operations area door is normally open. The room contains four call taker consoles, four radio dispatch consoles and a supervisor console. Console furniture is by Xybix™ Systems, Inc. and was installed in 2003. It appeared that the consoles could be reconfigured to allow one or two additional consoles in the room if necessary. Expansion of the room would require relocation of PSAP administrative offices and/or an adjoining shared conference room. The room has high windows with ballistic glazing, looking into a sunken light well area outside the building and providing natural light. Indirect fluorescent lighting is used, and task lighting at the consoles is available. Console work surfaces can be easily and quickly adjusted to standing height if desired. The consoles have functional air blowers for dispatcher comfort.

The PSAP has two equipment rooms – a telephone room and a radio room. The telephone room is small but functional, with redundant cooling units. The radio room is larger with industry-standard cable management. Both are clean and well-maintained. The phone room contains a UPS that supports only the equipment in that room. A large facility UPS covers the consoles and radio room. A diesel generator installed in 1971 is being replaced this year. It powers the entire facility and is exercised monthly.
Washington State Patrol District 2 - Bellevue PSAP Photos

Figure 1 – Operations Floor

Figure 2 – Operations Floor

Figure 3 – Equipment Room

Figure 4 – Entrance
Agency:

Please complete the following information for your agency.

Equipment and Systems

Computer Aided Dispatch System (CAD)

Vendor:
Type:
Make:
Version:

Is the version currently supported by the vendor? Yes No

Number of CAD workstations: The CAD workstations are designated by:
call taker only dispatcher only combined

Voice Logging Recorder

Vendor:
Type:
Make:
Version:
Number of channels:

Do you have an Emergency Notification System (ENS)? Yes No

Describe brand/type of ENS:

What policy is in place for use of the ENS?

How often is the telephone database updated?
# Voice Logging Recorder

<table>
<thead>
<tr>
<th>Vendor:</th>
<th>Type:</th>
<th>Make:</th>
<th>Version:</th>
<th>Age:</th>
<th>Is the version currently supported by the vendor?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

# Mapping System

<table>
<thead>
<tr>
<th>Vendor:</th>
<th>Type:</th>
<th>Make:</th>
<th>Version:</th>
<th>Is the version currently supported by the vendor?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

# Radio System

What radio system does your agency use as the primary radio system?

<table>
<thead>
<tr>
<th>System Name:</th>
<th>Is the radio system owned by your agency?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Is it part of a regional system?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>If yes, please name system:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Which neighboring agencies use the same system?

Is your agency’s primary radio system a trunked system? Yes No

Are the radios operating on narrowband, (if applicable)? Yes No

If not operating on narrowband, are they capable to be made narrowband (if applicable)?

Yes No

Please provide the contact that maintains the radio equipment:

Name/Company: Phone: Email:
What type of maintenance/technical support is in place for the radio system?

If a shared radio system, is there a current intra-agency and/or governance agreement for the radio system?  
Yes  No

How many radio channels does a single dispatch position actively operate?  How are dispatch center consoles connected to the transmitter site(s)?

Is there a separate radio room? (where physical radios for dispatch are located, not the console, but the radio itself)  Yes  No

Where is the radio dispatch central electronic bank (CEB) located?

The PSAP has full-time IT and support staff available 24/7?  Yes  No

The PSAP has contractual IT and support services available 24/7 for remote diagnostics or on-site resolution within how many hours?  Yes, within hours  No

The PSAP has clear standard operating procedures to determine the appropriate authority to request IT support services.  Yes  No

The PSAP has standard operating procedures and documented training to determine what services to request.  Yes  No

The PSAP staff generally knows to call supervisory personnel, and work around the problem until assistance can arrive.  Yes  No

The PSAP staff generally knows to call a supervisor, who will determine the appropriate course of action.  Yes  No

**Training**

What is the length of the training program for new hires?
Is the training program? classroom based on-the-job with a trainer both

Is the training program detailed in agency directive(s)? Yes No

How many hours of refreshers training is required annually?

Is the agency training program compliant with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (P33)? Yes No

Does the agency have a formal Quality Assurance/Quality Improvement (QA/QI) program? Yes No

Does the agency training program include initial and on-going ADA/TTY training? Yes No

How many agency trainers are there currently?

What are the minimum qualifications for agency trainers?

Does the agency have a formal Communications Training Officer (CTO)? Yes No

Does your agency provide Emergency Medical Dispatch (EMD) training? Yes No

Which EMD program does the agency subscribe to?

**Finance**

Describe your 9-1-1 funding source(s):

http://apcointl.org/911-resources/standards/apco-standards-for-download.html
King County, Washington PSAP Consolidation Assessment
of the King Co. E9-1-1 System

May 2012

What other projects are currently underway or in the planning process related to the PSAP or PSAP operations that might be impacted by changes in PSAP configuration in the county or consolidation?

Person completing worksheet: ________________________ Date: ________________________
9-1-1 Communications Center
Operations
Budget Worksheet

Agency: 

Please see description following chart.

Equipment Life Cycle Estimates

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Manufacturer</th>
<th>Year Acquired</th>
<th>Estimated Replacement or Upgrade Year</th>
<th>Projected Cost of Replacement or Upgrade Equipment (agency pays for; not part of maintenance services)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logging Recorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD Interfaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Telephone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio Consoles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Notification System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Budget Worksheet

<table>
<thead>
<tr>
<th></th>
<th>Actual 2011</th>
<th>Budget 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time/Regular Wages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part-Time/Per Diem Wages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overtime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training and Travel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# King County, WA PSAP Consolidation Assessment
of the King Co. E9-1-1 System

May 2012

<table>
<thead>
<tr>
<th>Maintenance</th>
<th>Actual 2011</th>
<th>Budget 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD Capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Equipment/Lease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle Purchase/Lease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Telephone System</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Radio Maintenance           |             |             |
| CAD Maintenance             |             |             |
| Office Equipment Maintenance|             |             |
| Facilities Maintenance      |             |             |
| Vehicle Maintenance         |             |             |
| Administrative Telephone System |         |             |
| Contract Services           |             |             |
| GIS Costs                   |             |             |
| IT Costs                    |             |             |
| Legal or Accounting Services|             |             |
| Facility Rent               |             |             |
| Debt Service or Bond Payment|             |             |
| Emergency Notification Systems |         |             |
| Miscellaneous *             |             |             |
| Other (please specify)      |             |             |

| Fund Balance                |             |             |
| Non Designated (Restricted) Fund Balance |         |             |
| Technology Replacement Fund Balance |         |             |
| Benefit Liability Fund Balance |         |             |

*Use the space below to detail miscellaneous expenditures, lease obligations and other contract services, debt service, and other cost explanations. Include detail of any costs supporting PSAP operations not specifically included in the above worksheet:
**Person completing worksheet:**  

**Date:**

**Full-Time Wages** – Include the total cost of full-time salaries for all positions. If there are positions included in other department budgets that are operationally allocated to the PSAP, these should be included. For example, if a command level individual is paid out of a general department budget but is assigned 50 percent of the time to manage the PSAP function, 50 percent of the total salary should be included.

**Part-Time** – Include the total cost of part-time salaries. If a field unit is assigned to the PSAP on light duty and serves as a part of minimum staffing, this cost should be included even if actually paid by a different department budget. If the light duty assignment is not a part of minimum staffing, the cost should not be included.

**Overtime** – Include the total cost of overtime for all positions.

**Employee Benefits** – Include the cost of employee benefits paid by the agency for items such as employer share of health insurance, employer share of life insurance, shift differential, holiday incentive, education assistance, clothing allowance, disability insurance, employer share of retirement contributions, etc.

**Supplies** – Include the total cost of supplies such as general office supplies, copy paper, printer ink, pens, tissue, break-room supplies, etc.

**Training and Travel** – Include the total cost of training and travel related to professional development. This category includes registration fees, airfare/mileage, meals, etc. to attend conferences and skills training classes. If an individual is assigned to the PSAP on a percentage basis, only include training and travel directly related to the PSAP. If the PSAP has multiple locations (i.e., radio tower sites, customer agencies) local mileage reimbursement should be included in this category.

**Utilities** – Include items such as water, gas, sewer, electricity, garbage service, etc. that is directly charged to the PSAP. If the PSAP is a part of a larger agency and utilities are not directly charged, this amount can be estimated based on the percentage of facility floor space dedicated to the PSAP.

**Capital Costs** – Include the cost of equipment, vehicles, facilities, and other capitalized items such as major software packages. The space below the chart should be used to itemize the contents of this category.
**Maintenance** – Include the cost of service or repair of items including annual maintenance agreements. Include tower lease costs in this category. The space below the chart should be used to itemize the contents of this category.

**Geographic Information Systems (GIS) Costs** – Include any additional costs for GIS services not included in other categories such as external services contracts for the maintenance of GIS data to support dispatch. The space below the chart should be used to itemize the contents of this category.

**Information Technology Costs** – Include any additional costs for IT services not included in other categories. The space below the chart should be used to itemize the contents of this category.

**Legal or Accounting Services** – Include cost of legal services and accounting services directly attributable to the PSAP. If these charges are not directly allocated to the PSAP, estimates are acceptable based on the overall percentage of floor space, personnel, or budget.

**Facility Rent** – Include rent for the PSAP facility, administrative office, and storage space. If the PSAP is a part of a larger agency and rent are not directly charged, this amount can be estimated based on the percentage of facility floor space dedicated to the PSAP.

**Debt Service or Bond Payments** – Include payments to retire debt service. If the PSAP is a part of a larger agency and facility debt is not directly charged, this amount can be estimated based on the percentage of facility floor space dedicated to the PSAP. The space below the chart should be used to itemize the contents of this category.

**Indirect Allocation** – Cost or value associated with services provided by other agency or other division for which the agency does not directly pay or receive charges such as for HR, Accounting, legal etc. For services provided to your department such as HR, Finance, etc. please provide an estimated value to the agency.

**Miscellaneous** – This category is for items not detailed elsewhere including headsets and chairs. The space below the chart should be used to itemize the contents of this category.
Call Volume and Dispatched Incidents Assessment Worksheet

Agency:  

Please see description following chart.

Annual Call Volume for:

<table>
<thead>
<tr>
<th>Category</th>
<th>Call Volume</th>
<th>Average Telephone Busy Time</th>
<th>Average Call Completion Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-9-1-1 and Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require Dispatch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do Not Require Dispatch Calls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Initiated by Field Units</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Incident Call Volume</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9-1-1 Call Volume – The total number of 9-1-1 calls processed by the PSAP. Duplicate calls for a single incident, such as multiple wireless calls for the same car accident, should be included in total call volume since they consume call taker time.

Non-9-1-1 Call Volume – The total number of calls received via regular telephone lines or other non-9-1-1 sources that result in a dispatch of a field response. Duplicate calls for a single incident, such as multiple wireless calls for the same car accident, should be included in total call volume since they consume call taker time.

Total Incident Call Volume – The combined total of 9-1-1 and non-9-1-1 call volume will account for all calls received by the PSAP that result in a dispatch of field response units. This category is also referred to as calls for service or calls for assistance that are generated by a specific request. Field unit initiated incidents such as traffic stops and events discovered without being reported by a caller are not included.

Administrative Call Volume – The total number of calls processed by the PSAP that do not result in dispatch of a field unit. This category should include all call activity: incoming, internal transfers, and
outgoing calls. Examples of administrative calls would include requests for information from citizens and field units. As long as a call requires staff time, it should be included in the total.

**Average Telephone Busy Time** – The actual time spent talking on the telephone, normally measured by management information software.

**Average Call Completion Time** – The non-phone time spent processing a call. It includes all additional time related to a call; time spent entering data into the CAD system, handling the call internally, transferring calls, dispatching a unit to the scene, address verification, etc. This information will be automatically calculated by some management information systems in Automatic Call Distributor (ACD) environments. In non-ACD environments, the time may be estimated based on workflow observation.

Please provide the list of agencies dispatched by this PSAP:

<table>
<thead>
<tr>
<th>Person completing worksheet:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Agency: Please see description following chart.

### Authorized Positions

<table>
<thead>
<tr>
<th>Position</th>
<th>Authorized Positions (Budgeted FTEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td></td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td></td>
</tr>
<tr>
<td>Technical Personnel</td>
<td></td>
</tr>
<tr>
<td>GIS Technologist</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
<tr>
<td>Communications Training Officers (CTO)</td>
<td></td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Shift Differential</td>
<td></td>
</tr>
</tbody>
</table>

**Position** – A position is defined as a job in a communication center that has specific requirements and duties. For example, some centers have a call taker/dispatcher position in which all employees do both call taking and dispatch whenever they are on duty. The two tasks are not separated and each employee handles all calls from pick up to completion. Some centers divide the task into separate positions, with some individuals designated as “call takers” and others designated as “dispatchers.” If the position is a cross-trained employee and moves from one job to another, count the position in combined.

**Authorized Positions** – The number of positions in a communications center that are allowed to be filled by the budget or budgeting authority, or budgeted full time equivalent (FTE) positions. If a center schedules two half-time employees to cover one position, the two employees make up one FTE. Each half-time employee would be .5 FTE. The authorized level may differ from the actual number of current employees. Positions should only be counted in one category. For example, a position that has both call taking and dispatch responsibilities should be counted as “1” in the combined call-taker/dispatch category. If an
employee is shared with another department or division, such as a Sheriff’s Captain who is assigned to manage the PSAP in addition to other duties, the percentage of time allocated to the PSAP should be noted.

### Current Minimum Staffing

<table>
<thead>
<tr>
<th>Minimum Staffing</th>
<th>Shift A</th>
<th>Shift B</th>
<th>Shift C</th>
<th>Shift D</th>
<th>Shift E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift Times</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law Enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire/EMS Dispatcher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Minimum Staffing** – The minimum number of staff scheduled at any time during a given period of time based on experience, contract, legal requirements, or previous staffing studies. The executive policy of the PSAP is that the on-duty staffing never goes below the minimum. Positions should only be counted in one category. For example, a position that has both call taking and dispatch responsibilities should be counted as “1” in the dispatch category. It is assumed that a dispatcher also handles telephone calls if the number of call takers is zero.

### Employee Compensation

**Pay Range** – List the minimum and maximum pay range for each category of staff at the PSAP. Please use blank lines for job titles not already included.

<table>
<thead>
<tr>
<th>Minimum Pay 2012</th>
<th>Maximum Pay 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td></td>
</tr>
<tr>
<td>Emergency Operations Coordinator</td>
<td></td>
</tr>
<tr>
<td>Supervisor (Operations)</td>
<td></td>
</tr>
<tr>
<td>Technical Personnel</td>
<td></td>
</tr>
<tr>
<td>GIS Technologist</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance/Public Information Officer</td>
<td></td>
</tr>
<tr>
<td>MSAG Coordinator/Systems Administrator</td>
<td></td>
</tr>
<tr>
<td>Training Coordinator</td>
<td></td>
</tr>
<tr>
<td>CTOs</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td></td>
</tr>
<tr>
<td>Call Taker</td>
<td></td>
</tr>
<tr>
<td>Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Combined Call Taker/Dispatcher</td>
<td></td>
</tr>
<tr>
<td>Shift Differential</td>
<td></td>
</tr>
</tbody>
</table>

**Employee Benefits:** List the employee benefits cost as a percentage of salary: percent.

**Employee Benefits** – Employee benefits are frequently calculated at a percentage of salary for budgetary and comparison purposes. The employee benefits percentage should include out of pocket costs paid by the agency on behalf of the employee for items such as employer share of health insurance, employer share of life insurance, shift differential, holiday incentive, education assistance, clothing allowance, disability insurance, employer share of retirement contributions, etc. This category should not include paid leave benefits.

**Employee Turnover** – The turnover rate is the ratio of the number of employees who left the agency within the identified time period compared to the average number of employees. This is calculated by determining the number of employees who terminate agency employment for any reason, voluntary or involuntary.

<table>
<thead>
<tr>
<th>Turnover Rate</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
</tr>
<tr>
<td>Total number of employees at the highest staffing level for that year</td>
<td></td>
</tr>
<tr>
<td>Number of new hires that failed to complete the probationary or training period</td>
<td></td>
</tr>
<tr>
<td>Turnover Rate</td>
<td>Year</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
</tr>
<tr>
<td>Number of fully-trained employees who left for any reason</td>
<td></td>
</tr>
</tbody>
</table>

**Staffing (Recruiting/Selection/Staffing & Retention)**

Describe recruitment, selection and hiring practices:

How do you determine staffing levels?
What is the labor climate in this PSAP jurisdiction?

Supervision and Management
What is the role of the supervisors in daily operations?

What is the current depth of supervision? How do you fill in a supervisory absence?

Do schedules provide for continuous supervision in the PSAP?  
Yes  No

Person completing worksheet:  
Date:
**Net Available Work Hours Assessment Worksheet**

**Agency:** Please see description following chart.

<table>
<thead>
<tr>
<th>Leave Category</th>
<th>Call Taker/Dispatcher</th>
<th>Supervisor (included in minimum staffing requirement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacation Leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holiday Leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sick Leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unpaid Leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training Leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military Leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FMLA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid Meal Breaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Paid Compensatory Time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Unavailable Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Average Unavailable Time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net Available Work Hours</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Net Available Work Hours (NAWH)** – Each of the leave categories should be calculated by determining the average amount of leave used for all employees. Activities such as meetings, light duty, special assignments, etc. should be included in “other unavailable time.”

**Person completing worksheet:**

**Date:**
Agency:
Please see category descriptions following the sections. If appropriate, please complete a worksheet for each category title.

<table>
<thead>
<tr>
<th>Radio Position Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal (peak) Number of Field Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Stations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annual Dispatch Volume</th>
<th>Shift A</th>
<th>Shift B</th>
<th>Shift C</th>
<th>Shift D</th>
<th>Shift E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispatched Fire Only Incidents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispatched EMS Only Incidents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispatched Combined Fire/EMS Incidents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Dispatched Incidents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Person completing worksheet: ___________________________  Date: _____________
Description – Include a detailed description of the function of the radio channel. Include detail on the number and purpose of the channels managed by the dispatcher. Indicate whether the dispatch position is staffed continually or during specific hours.

Shifts – Include time period for various shift schedules that will delineate differences in workload. Most agencies will have three base shifts but may have a separate schedule for special units such as traffic. It is not necessary to take this to extraordinary detail.

Number of Stations – Includes the number of stations staffed during the shift.

Number of Roving EMS Units – Includes roving EMS units that are subject to dispatch and are managed by the dispatcher.

Dispatched Fire Only Incidents – Includes total number of fire calls for service actually dispatched for a field response via this dispatch position only. This category includes responses such as automatic alarms, dumpster fires, small brush fires, etc.

Dispatched EMS Only Incidents – Includes total number of EMS calls for service actually dispatched for a field response via this dispatch position only. This category includes responses such as sick persons, minor injuries, medical transfers, etc.

Dispatched Combined Fire/EMS Incidents – Includes total number of combined Fire/EMS calls for service actually dispatched for a field response via this dispatch position only. This category includes responses such as major motor vehicle accidents, major structure fires, etc. Dispatched incidents included in the above categories should not be duplicated in this category.
Agency:
Please see description following chart. If appropriate, please complete a worksheet for each category title.

## Radio Position Title:

<table>
<thead>
<tr>
<th>Description:</th>
</tr>
</thead>
</table>

### Number of Field Units at full staffing on a typical day

<table>
<thead>
<tr>
<th>Shift A</th>
<th>Shift B</th>
<th>Shift C</th>
<th>Shift D</th>
<th>Shift E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shift Times</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patrol Field Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Administrative Field Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Traffic Field Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Investigative Field Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Annual Dispatch Volume

<table>
<thead>
<tr>
<th>Shift A</th>
<th>Shift B</th>
<th>Shift C</th>
<th>Shift D</th>
<th>Shift E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dispatched Incidents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Field Initiated/On-view Incidents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Description** – Include a detailed description of the function of the radio channel. Include detail on the number and purpose of the channels managed by the dispatcher. Indicate whether the dispatch position is staffed continually or during specific hours.

**Shifts** – Include time period for various shift schedules that will delineate differences in workload. Most agencies will have three base shifts but may have a separate schedule for special units such as traffic. It is not necessary to take this to extraordinary detail.

**Patrol Field Units** – Includes field units that are engaged in routine patrol activities such as responding to calls for service, patrolling business and residential neighborhoods, making routine traffic stops, etc.

**Administrative Field Units** – Includes field units that are not subject to dispatch but are managed by the dispatcher. In a typical agency environment this would include command staff, field units working special assignments or security detail, etc. Generally processing status changes and relay of general administrative information is the extent of activity.

**Traffic Field Units** – Includes field units that are assigned to monitor and control vehicular traffic as a primary assignment. These units are generally involved in high volume of traffic stops, sobriety checks, school zone enforcement, parking enforcement, responding to traffic accidents, etc.

**Investigative Field Units** – Includes field units that are assigned to criminal investigations. These units are not subject to routine dispatch but are managed by the dispatcher. Generally processing status changes and relay of general administrative information is the extent of activity.

**Dispatched Incidents** – Includes total number of calls for service actually dispatched to a field response unit via this dispatch position only.

**Field Initiated/On-view Incidents** – Includes total number of incidents initiated by field units. Typically this would include traffic stops, suspicious individuals, open door/window, security checks, etc.
KING COUNTY ENHANCED 911 PARTICIPATION AGREEMENT

THIS AGREEMENT is made and entered into this day of ________________________, 2010 by and between the __________ on behalf of the __________ (hereinafter “Public Safety Answering Point” (PSAP)), and King County, a Home Rule Charter County Government in the State of Washington, (hereinafter “County”).

WHEREAS, it is in the public interest to provide 911 emergency telephone service so that the public may summon emergency public safety assistance as quickly and efficiently as possible; and

WHEREAS, Ch. 82.14B RCW et seq. provides for funding of an emergency services communication system through the imposition of an excise tax on switched access lines and on radio access lines; and

WHEREAS, the operation of the County’s Enhanced 911 emergency telephone system (hereinafter the “System”), is governed by 911 Tariffs filed with the Washington Utilities and Transportation Commission by Qwest Corporation (hereinafter “Qwest”), Verizon Northwest Incorporated, and Century Telephone; and

WHEREAS, the County has entered into a Service Agreement which complements the 911 Tariff with Qwest for the operation of the System; and

WHEREAS, said 911 Tariffs and Service Agreement, attached hereto as Exhibit 1, impose terms and conditions concerning the use of the E-911 equipment that must be complied with by all PSAPs; and

WHEREAS, the County coordinates with each of the Wireless Carriers who offer service in King County for the provision of E-911 service to their customers; and

WHEREAS, the operation of any large and complex 911 system requires considerable coordination within and among the participating agencies; and
WHEREAS, the parties hereto desire to establish the policies, procedures, and responsibilities necessary to operate and provide continuity for the Enhanced 911 emergency telephone system for King County:

NOW, THEREFORE, IT IS HEREBY MUTUALLY AGREED AS FOLLOWS:

1. **DEFINITIONS**

The following terms shall have the meanings set forth below whenever they are used in this Agreement. All other terms shall be as defined in the 911 Tariffs and The Service Agreement.

A. **911 Tariffs** shall jointly refer to: Qwest Corporation Section 9.2.1, "Universal Emergency Number Service - 911", filed with the Washington Utilities and Transportation Commission as Docket No. UT-071173 (Qwest 911 Tariff); Verizon Northwest Incorporated, Section 12, "E9-1-1 Emergency Telephone Service", filed with the Washington Utilities and Transportation Commission as Docket No. UT-041765 (Verizon 911 Tariff); and Century Telephone of Washington Incorporated Schedule 37, "9-1-1 Emergency Service", filed with the Washington Utilities and Transportation Commission as Docket No. UT-031151 (Century Telephone 911 Tariff), and to subsequent 911 tariffs replacing these specified tariffs. Each of these tariffs may also be referred to individually by their company name; e.g. "Qwest 911 Tariff".

B. **E-911 Equipment** shall mean the site equipment necessary at a PSAP to terminate incoming 911 lines, control 911 calls, and obtain and display the telephone number and location information of the 911 caller at the 911 call taker positions.

C. **PSAP Consolidation** shall refer to two or more PSAPs who combine their operations and services to form one new PSAP or one or more PSAPs who merge their operations and services with an existing PSAP.

D. **Public Safety Answering Point (PSAP)** shall mean a public safety agency communications center where 911 emergency calls for a specific geographic area are answered and handled. PSAPs are designated as primary or secondary, which refers to the order in which calls are directed for answering.
Primary PSAPs receive 911 calls directly from the public; Secondary PSAPs receive 911 calls only on a transfer or relay basis from the Primary PSAP. Current PSAPs are listed in Exhibit 2.

E. **Public Safety Response Agency** shall mean a public police, fire, or emergency medical agency which provides public safety services in response to 911 calls. It may be a public agency that is not a PSAP, but has a contractual relationship with a PSAP to provide public safety services in response to 911 calls.

F. **Radio Access Line** shall mean the same as defined in RCW 82.14B.020(5).

G. **Service Agreement** shall refer to the Agreement signed between King County and Qwest Corporation for Enhanced 911 Service. The Agreement with Qwest Corporation, formerly US West Communications, Inc., was signed on December 22, 1998, amended on May 24, 2002, May 22, 2003, and May 3, 2006 and will remain in effect until December 31, 2012. This Agreement may also be referred to by the company name, "Qwest 911 Service Agreement".

H. **Switched Access Line** shall mean the same as defined in RCW 82.14B.020(3).

I. **System** shall mean the Enhanced 911 (E-911) emergency telephone system described in the "Enhanced 911 Service Agreement Between King County and Qwest Corporation " signed on December 22, 1998 and contracted for under King County Contract Number M10135M. System shall include the Next Generation 911 (NG911) Emergency Services Internet Protocol Network (ESInet) and Automatic Location Information (ALI Database as described in Washington State Contract Number E09-196.

J. **Telephone Companies** shall refer to Qwest Corporation, Verizon Northwest Incorporated, and Century Telephone jointly or independently, depending on the function to be performed.

K. **Wireless 911 Calls** shall refer to 911 calls generated from Radio Access Lines.

L. **Wireless Carriers** shall mean the same as defined in RCW 80.04.010.
2. TERM OF AGREEMENT

A. This Agreement shall commence upon execution by both parties. The Agreement shall continue from year to year as a one-year Agreement, but shall in no event continue for more than five (5) consecutive years.

B. In the event two or more PSAPs combine their operations and services to form one new PSAP or one or more PSAPs merge their operations and services with an existing PSAP, which events shall hereinafter be referred to as a consolidation, or a PSAP changes status; i.e., primary to secondary or vice versa, the terms of this Agreement that apply to the PSAP’s new status shall be binding on the newly formed PSAP, or PSAP with changed status, subject to the provisions of Article 22 herein. The PSAP shall notify the County of a planned consolidation or change in status not less than one hundred twenty (120) calendar days prior to the effective date of such consolidation or change in status.

C. The parties understand that termination of E-911 service jeopardizes the safety of the public in King County. In the event the PSAP fails to comply with the terms of this Agreement, County intends to enforce the provisions specified in Article 8.G. and any other remedies available to County.

3. SCOPE OF AGREEMENT

A. County Responsibility

1. The County shall provide E-911 Service as procured from the Telephone Companies under the 911 Tariffs and the Service Agreement to the PSAP.

2. The County shall coordinate with the Wireless Carriers who provide service in King County for the provision of E-911 service to their customers.

3. The County shall coordinate with the Voice over Internet Protocol (VoIP) service providers who provide service in King County for the provision of E-911 service to their customers.

4. The County will assure the installation of E-911 equipment with a capacity adequate to handle the number of incoming 911 lines as prescribed by Qwest’s traffic study as described in the Qwest 911 Tariff and the County shall
pay the cost of additional E-911 equipment required as a result of said study. The exception shall be for new PSAPs added to the E-911 System after the initial installation of the System as specified in Article 10 herein.

B. PSAP Responsibility

In addition to meeting the requirements specified elsewhere in this Agreement, the PSAP and its employees and agents shall act consistently with the terms and conditions of the 911 Tariffs and shall accept the following responsibilities:

1. Each PSAP shall meet the operational standards outlined in Exhibit 3.

2. Each PSAP shall follow the operational procedures and protocols outlined in Exhibit 4.

3. Each PSAP shall provide the County with verification and certification of the accuracy and completeness of street address data within its serving area as specified in the 911 Tariffs. Such address data shall be provided by the County to the PSAP in the form of a quarterly computer printout of all street segments and address ranges on those segments within the jurisdictional boundaries of the agencies served by that PSAP. The PSAP shall proofread said printout and notify the County of any errors therein. All errors noted by the PSAP shall be corrected by the County and Qwest in the Master Street Address Guide (MSAG). When all errors have been corrected, the PSAP shall certify in writing to the E-911 Program Manager the accuracy of the corrected printout. The County shall have no responsibility for the accuracy of address entries certified by the PSAPs as being correct. PSAPs may delegate these tasks to the Public Safety Response Agencies they provide service to, but each PSAP is responsible for ensuring that these requirements are met.

4. Each PSAP shall be responsible for maintaining an up-to-date MSAG definition of its serving area and verify the accuracy of new telephone subscriber information when requested by the County. This information shall be provided to the PSAP in the form of an MSAG Change Form. The PSAP shall verify that the information presented on said form is correct, or shall note any corrections on said form, and return it to the County within ten (10) business days. PSAPs may delegate these tasks to the Public Safety Response Agencies they provide service to, but each PSAP is responsible for ensuring that these requirements are met.
5. In the event that a dispute arises between Public Safety Response Agencies regarding jurisdiction over addresses in the MSAG, and the Public Safety Response Agency is not a PSAP, the PSAP and the Public Safety Response Agency may agree in writing to allow the Public Safety Response Agency to act on behalf of the PSAP to resolve the dispute. Such dispute shall be resolved by the Public Safety Response Agencies outside of and independent of this Agreement. At such time as the County becomes aware of such dispute, no further MSAG changes within the disputed area will be made until the County is notified in writing by both parties that agreement has been reached regarding jurisdiction.

6. The PSAP shall provide the County with adequate notice of any annexations and incorporations to allow sufficient time for the County and Qwest to process the MSAG changes before the effective date of the annexation or incorporation. PSAPs may delegate this task to the Public Safety Response Agencies they provide service to, but each PSAP is responsible for ensuring that this requirement is met.

4. INSTALLATION AND SITE PREPARATION

A. The PSAP shall be responsible for all PSAP site preparation, and for meeting and maintaining proper environmental conditions at the site, including but not limited to, temperature requirements (including air conditioning if applicable), cleanliness, commercial power, backup power, grounding, conduits, and power poles, as required by the Telephone Companies in accordance to requirements of the equipment manufacturers. The PSAP may seek reimbursement from the County for that portion of the cost of site preparation which is directly due to the requirements of the E-911 Equipment, according to the following procedures:

1. The PSAP shall request County reimbursement of such cost in writing not less than ninety (90) calendar days prior to the scheduled installation of E-911 equipment at the affected site at that PSAP.

2. The E-911 Program Manager will evaluate all written requests for the reimbursement of PSAP site preparation costs and provide each PSAP submitting such a request with a written response either approving or denying said request or portions thereof within thirty (30) calendar days of the submission of said request. Failure to respond within thirty (30) calendar days shall not be deemed approval by the County. There will be a two (2) week period for the appeal and resubmission of denied requests.

3. Vouchers or invoices for PSAP site preparation costs approved for County
reimbursement shall be submitted to the County by the PSAP within fifteen (15) calendar days of the date in which the voucher or invoice was received by the PSAP. Said vouchers and invoices shall be reviewed and, if approved as stipulated in paragraph 2. herein, certified by the E-911 Program Manager for reimbursement to the PSAP and said reimbursement shall be made by the County as Excise Tax revenues are available based on the priorities for Excise Tax revenue distributions defined in Article 8, Paragraphs B. and C.

B. The County shall provide the PSAP with written information containing complete dimensions, space requirements, electrical requirements, and mounting requirements of all PSAP E-911 equipment within five (5) calendar days of the date said information is provided to the County by the Telephone Companies.

C. The PSAP shall provide the County with a detailed floor plan showing the location of each piece of existing equipment and the space provided and electrical outlets available for the installation of PSAP E-911 equipment not less than forty (40) calendar days prior to the scheduled installation of said equipment at each PSAP. Changes to the floor plan made after submission to the County may result in charges to the PSAP in the amount equal to charges levied against the County by the Telephone Companies as a result of said changes. If the Telephone Companies deem the site unacceptable, the County shall provide written notice to the PSAP specifying items which need correction within fifteen (15) calendar days of the date the County receives written notice from the Telephone Companies that the site is unacceptable and the PSAP shall, as soon as feasible, make all necessary corrections.

D. When the PSAP provides inside wiring, all station cable, riser cable, distribution and feeder cable will be tested and identified by the PSAP at the main and any intermediate distribution frame(s). All telephone and data jacks will be properly labeled and a corresponding floor plan will be provided to the County by the PSAP.

E. The PSAP shall certify to the County in writing prior to the scheduled installation date that the locations, space, and electrical outlets designated for PSAP equipment installation are available and free of any and all encumbrances which the Telephone Companies have advised would inhibit installation and security of said equipment.

F. The PSAP shall perform its site preparation as stipulated herein in compliance with all applicable building codes, fire codes, National Fire Protection Association regulations, and all other codes, ordinances, and regulations which are applicable.
G. The PSAP shall ensure that its personnel are available to receive delivery of E-911 equipment at site, at a date and time to be determined between the Telephone Companies and the PSAP.

H. The PSAP agrees to grant reasonable right of entry to the Telephone Companies' representatives to deliver the E-911 equipment and/or perform all installation, maintenance, and other required services of said equipment, and will make available a reasonable amount of appropriate secure space for storage of said equipment or parts as necessary.

I. All necessary interfacing between the E-911 equipment and trunks and the telephone equipment at the PSAP shall be provided by the County.

5. SYSTEM PERFORMANCE

A. The PSAP shall prepare Automatic Location Identification (ALI) and Selective Routing discrepancy reports in a format as agreed to by Qwest, the County, and the PSAP Committee for review and transmittal by the County to Qwest. Said discrepancy reports will indicate incidents when incorrect or no ALI data is displayed at the PSAP and incidents when 911 calls other than alternate or default routed calls have been incorrectly routed.

B. The PSAP shall contact Qwest immediately upon the failure of a unit of E-911 equipment provided by the County and shall record the time of failure or discovery of failure, the time of arrival of maintenance personnel, and the time of full restoration of equipment in writing and report those times to the County. The PSAP shall notify the E-911 Program Manager as defined in Article 11 herein of said failure in a timely manner.

C. During periods of E-911 equipment downtime the PSAP may use operable equipment when such action does not interfere with maintenance of inoperable equipment, as determined by the Telephone Companies.

D. Upon the discovery of the failure of any non-E-911 equipment provided to the PSAP by the County, including equipment which tracks 911 call statistics or interconnects the PSAPs for the exchange of data, the PSAP shall notify the County of such equipment failure by the next business day following the equipment failure.

6. EVALUATION
The PSAP agrees to cooperate with the County in the evaluation of the System and to make available all information desired by the County to perform the evaluation. Evaluation information requested by the County and provided by the PSAP shall be limited to data available to the PSAP from systems or procedures in place at the time of the request. Said data may be provided to the County in a raw format to be compiled or summarized by the County.

7. CONDITIONS OF USE

The PSAP and the County concur in and agree to the following conditions relating to the use and operation of the E-911 System:

A. The System shall be provided only to allow the PSAPs to receive and transfer reports of emergencies by the public according to the procedures and protocols outlined in this Article and in Exhibits 3 and 4, and the PSAPs shall defend and hold the County harmless from and against any and all claims, demands, and causes of action, including costs and attorney's fees associated therewith, arising out of the performance of the PSAPs' usual functions and duties as public safety emergency call answering/dispatch agencies which functions and duties are not substantially altered by the installation and operation of the System.

B. The PSAPs shall list only 911 in the telephone directories serving their respective areas as the telephone number to call to report police, fire, and medical emergencies. The PSAPs shall maintain ten-digit or other existing numbers for reporting emergencies, but shall not list those numbers as emergency numbers in telephone directories.

C. The 911 emergency telephone number is not intended as a total replacement for the telephone service of the PSAPs. The PSAPs will not use the E-911 System for administrative purposes, for placing outgoing calls, or for receiving non-emergency calls. The PSAPs shall list a separate number for non-emergency calls in the telephone directory for their respective areas.

D. The E-911 System is arranged for one-way incoming service to the appropriate PSAP. Outgoing calls can only be made on a transfer basis.
E. ALI shall not be exclusively relied upon for the dispatch of emergency services. Prior to any dispatch, the PSAP Call Receiver will attempt, where feasible, to verify the location of the incident with the caller.

F. ANI/ALI information consisting of the names, addresses, and telephone numbers of telephone subscribers whose listings are not published in directories or listed in directory assistance offices is confidential. Such information will be provided on a call-by-call basis only for the purpose of handling emergency calls and any permanent record of such information shall be secured by the PSAPs and disposed of in a manner which will retain that security except as otherwise required by applicable law. Should the PSAP not take the necessary steps to protect this confidential information, the Telephone Companies may restrict access to such confidential customer information.

G. In the event a PSAP receives a 911 call reporting an incident outside its serving area, that PSAP shall transfer such call or relay the information derived from the caller when a transfer is not feasible to the appropriate PSAP or agency immediately upon determining that the incident is outside its serving area.

H. It is understood and agreed that the furnishing or automatic display of number and location identification pertaining to incoming 911 calls hereunder and the information provided thereby is to be used by the PSAPs solely for the purpose of answering and responding to emergency calls in a manner consistent with the nature of the emergency and in accordance with the terms of this Agreement. Any other use of the database may result in immediate termination of E-911 Service to the violating PSAP. Any PSAP provided systems, such as Computer Aided Dispatch (CAD), will be used and configured only to monitor the output of the ALI/DMS as it relates to a specific emergency call. Data acquired by a PSAP via the monitoring of the ALI/DMS output may be used to enhance or facilitate the operations or management information systems of that PSAP but the PSAP shall maintain the confidentiality of individual telephone subscriber records as stipulated in F. above.

I. Pursuant to WAC 480.120.452, the PSAP may make a reverse search of information in the Automatic Location Identification (ALI) database when, in the judgment of the PSAP representative, an immediate response to the location of the caller or to the location of another telephone number reported by the caller is necessary because of an apparent emergency.

1. Absent a judicial order, reverse search must not be used for criminal or legal investigations or other non-emergency purposes.
J. It is understood and agreed that the E-911 Equipment provided by the County to the PSAP under this Agreement remains the property of the County and the PSAPs shall allow the removal of said equipment at the termination of this Agreement.

8. **EXCISE TAX REVENUE DISTRIBUTION**

The County shall levy the E-911 Excise Tax pursuant to Ch. 82.14B RCW and at a rate adequate to pay system operation charges and E-911 administration costs incurred by the County, and to provide for Excise Tax revenue distributions to the PSAPs subject to the following conditions, policies, and procedures:

A. The County shall adopt such legislation as may be necessary to direct the investment of any monies in the E-911 Emergency Telephone System Fund (E-911 Fund) which are not required for immediate expenditure in securities legally permitted for investment under the provisions of the first paragraph of R.C.W. 36.29.020. The investment authority provided by this legislation shall not negate or affect the authority of the County to include the retained cash balance in the E-911 Fund as part of the residual treasury cash invested under the second paragraph of R.C.W. 36.29.020 as now or hereafter amended. All proceeds from investments under the first paragraph of R.C.W. 36.29.020 shall be retained by the County in the E-911 Fund to defray future costs of the System as stipulated herein; provided, the County is authorized and directed to charge and collect investment service fees as provided in R.C.W. 36.29.020.

B. Excise Tax revenues collected and any interest which may accrue thereon shall be used first to purchase and maintain E-911 PSAP Equipment, including upgrades necessary for Next Generation 911 (NG911) system requirements; second, to defray all costs of operation payable to the Telephone Companies as defined in the 911 Tariffs and the Service Agreement, including upgrades necessary for Next Generation 911 (NG911) system requirements; third, to pay the costs incurred by the County to administer the E-911 Program, to provide for the risks to the County of the E-911 Program as determined by the King County agent responsible for risk management, and to pay the PSAPs' costs of naming the County as an additional insured under the requirements of Article 19 herein; fourth, to defray any costs associated with E-911 resulting from the consolidation of PSAPs; fifth, to defray the costs associated with County approved E-911 PSAP GIS CAD System GIS and IT.
System Specialist positions; and sixth, to defray operational and/or equipment costs of the PSAPs directly attributable to and resulting from the operation of the System. Any revenues not expended as described above and any interest which may accrue thereon shall be retained by the County to defray any future costs of a County-wide Enhanced 911 emergency telephone system, including any costs of termination thereof.

C. Any PSAP that deems that it has incurred or will incur costs that are attributable to the System may submit a written request to the County for a defrayal of those costs from Excise Tax revenues. Said written request shall include a complete itemization of those costs including: (1) a complete description of equipment purchased or to be purchased with a comprehensive statement of need for said equipment; a thorough explanation demonstrating that said need is resultant from the System; costs per unit or item of equipment; and total costs for said equipment. All costs submitted in said written requests for County subvention shall be derived through accepted accounting practices.

D. The E-911 Program Manager will evaluate all requests for Excise Tax revenue funding and assign priorities to those requests on an item by item basis according to the policies and procedures stipulated herein. Allowable costs for Excise Tax revenue funding in priority order may include but are not necessarily limited to:

1. Costs necessitated by a consolidation of PSAPs, including costs associated with the relocation and reinstallation of E-911 equipment, modifications to the database supporting selective routing and transfer, and other costs associated with the System.

2. Equipment costs including costs of devices or components used for the functions of receiving, distributing, transferring, recording, producing statistical data about, or handling E-911 emergency calls; and/or costs of equipment used to support those functions; e.g., back-up emergency power devices required to support E-911 Equipment.

3. Other costs attributable to E-911.

E. The E-911 Program Manager will provide each PSAP submitting a written request with a written response either approving or disapproving said request or portions
thereof within six (6) weeks following the receipt of the written request. Failure to respond within six (6) weeks shall not be deemed approval by the County. There will be a two (2) week period for the appeal and resubmission of denied PSAP Excise Tax revenue distribution requests to the County immediately following the date of said written response by the E-911 Program Manager.

F. Excise Tax revenue distributions granted to PSAPs through the processes defined herein shall be made within thirty (30) calendar days of the receipt of an invoice or invoices by the County, or a voucher or vouchers for equipment received or services rendered. Said invoices or vouchers shall be reviewed and certified by the E-911 Program Manager for payment.

G. The annual wireline revenue generated from switched access lines shall be distributed to the PSAPs based on the number of switched access lines served by each PSAP. The number of switched access lines served by each PSAP shall be determined by Qwest in January of the year the revenue is to be distributed. The total amount of revenue to be distributed shall be determined by the E-911 Program Manager. The percentage of the total amount to be distributed to the Primary and Secondary PSAPs shall be based on the percentage of 911 calls transferred by the Primary PSAPs to the Secondary PSAPs during the previous year, as specified in Exhibit 6. The revenue shall be distributed to the PSAPs on a quarterly basis.

The annual wireless revenue generated from radio access lines shall be distributed to the PSAPs based on the percentage of wireless 911 calls answered by each PSAP during the previous year. The total amount of wireless revenue to be distributed shall be determined by the E-911 Program Manager. The percentage of the total amount to be distributed to the Primary and Secondary Wireless PSAPs shall be based on the percentage of 911 calls transferred by the Primary Wireless PSAPs to the Secondary Wireless PSAPs during the previous year, as specified in Exhibit 6.

The PSAPs shall only expend E-911 revenue that has been distributed to them to fund items which have been determined to be appropriate to fund with E-911 funds as specified in Exhibit 6.

E-911 revenue will only be distributed to a PSAP if the PSAP has met all of the standards established in Exhibit 3 of this Agreement. These standards include the Minimum Acceptable, Funded, and Operational standards listed in the exhibit. If a PSAP does not meet the standards for one quarter, they will still receive their revenue for the quarter, but they will also receive a notice from the E-911 Program Office informing them that the standards have not been met. If the PSAP has not
brought their performance up to standard by the end of the quarter in which they received their notice from the program office, their revenue will be discontinued. If the PSAP then meets their quarterly standard within six months, they will begin receiving revenue for the quarter in which they met the standards as well as receive any revenue which was withheld. If the PSAP has still not met the quarterly standards after the six month period, they will once again receive revenue for the quarter in which they met the standards, but they will not receive any withheld revenue.

The County reserves the right to discontinue the distribution of Excise Tax revenues to any PSAP or PSAPs at any time if the affected PSAP or PSAPs fail substantially to comply with any of the other terms of this Agreement provided the County notifies the affected PSAP in writing of the PSAP's failure to comply with the terms of this Agreement and the nature of that failure and provided the affected PSAP shall have thirty (30) calendar days after such notice to correct said failure and notify the County in writing of said correction or the reasons for said failure and the PSAP's plans for correcting said failure including the time of correction. Within five (5) business days following the thirty-day correction period provided above, the County shall review the PSAP's written response and actions taken and determine whether to continue or discontinue the distribution of Excise Tax revenue to the affected PSAP. If the PSAP does not provide a written response, the County shall determine whether to continue or discontinue the distribution of Excise Tax revenue to the affected PSAP. The County shall inform the affected PSAP in writing of such determination, and the County shall inform the PSAP Committee as defined in Article 11 of the action taken.

9. NETWORK CHARGES

The PSAP shall reimburse the County on a monthly basis for charges for messages transferred by that PSAP from the E-911 System over exchange facilities as billed to the County by the Telephone Companies according to filed tariff rates applicable from the E-911 Control Office to the point of termination of the transfer. These are toll or message unit charges for calls transferred off the E-911 network. Reimbursement of said charges shall be made within thirty (30) calendar days of the receipt by the PSAP of a bill from the County. If these monthly charges are minimal, the County may choose to cover these costs for the PSAP.

10. ADDITION, DELETION, OR MOVEMENT OF PSAPS
Payment for the addition or movement of a PSAP or PSAP equipment, including E-911 equipment, made after the initial installation of the E-911 System that does not result from a consolidation shall be the responsibility of that PSAP. Such payment shall be in an amount equal to the actual costs billed to the County by the Telephone Companies for effecting a relocation of a PSAP or PSAP equipment and shall also include any costs associated with canceling or terminating any contracts. Relocation of a PSAP or PSAP equipment shall be arranged by the PSAP with the Telephone Companies. If addition or movement of a PSAP affects the routing of E-911 calls, changes to the database and/or MSAG shall be charged to said PSAP on a cost per conversion basis as billed by the Telephone Companies to the County.

The PSAP may request reimbursement from the County for the costs directly due to moving the E-911 equipment according to the following procedures:

1. The PSAP shall request County reimbursement of such cost in writing not less than ninety (90) calendar days prior to the scheduled move of E-911 equipment.

2. The E-911 Program Manager will evaluate all written requests for the reimbursement of E-911 equipment move costs and provide each PSAP submitting such a request with a written response either approving or denying said request or portions thereof within thirty (30) calendar days of the submission of said request. Failure to respond within thirty (30) calendar days shall not be deemed approval by the County. There will be a two (2) week period for the appeal and resubmission of denied requests.

3. Vouchers or invoices for E-911 equipment move costs approved for County reimbursement shall be submitted to the County by the PSAP within fifteen (15) calendar days of the date in which the voucher or invoice was received by the PSAP. Said vouchers and invoices shall be reviewed and, if approved as stipulated in paragraph 2. herein, certified by the E-911 Program Manager for reimbursement to the PSAP and said reimbursement shall be made by the County as Excise Tax revenues are available based on the priorities for Excise Tax revenue distribution defined in Article 8, Paragraphs B. and C.

11. SYSTEM MANAGEMENT

A. The County shall designate an E-911 Program Manager to coordinate and manage the operation and maintenance of the System. The County shall notify the PSAPs of
said designation by the date of this Agreement and immediately upon any change in said designation thereafter.

B. A PSAP Committee shall stand throughout the term of this Agreement. The PSAP Committee shall be chaired by the E-911 Program Manager designated by the County under this Article and shall be composed of one representative designated by each PSAP. The PSAP Committee shall make recommendations to the County regarding the operation and management of the System.

C. The County reserves the right to final judgment regarding E-911 System Management and the administration of E-911 excise tax proceeds.

12. ACCESS TO PSAP

The County and the Telephone Companies and their subcontractors shall at any reasonable time be provided access by the PSAP to premises where the E-911 equipment is located. This access shall be for the purposes of installing, inspecting, testing, and repairing equipment provided by the County under the terms of this Agreement and for removing E-911 equipment provided by the County.

13. VENDOR LIAISON

Only designated representatives of PSAPs participating in the System under this Agreement may request System maintenance from the Telephone Companies. The PSAP shall not request alterations, additions, or deletions in or to the service provided hereunder, except upon the prior written consent of the E-911 Program Manager. The PSAP agrees that the Telephone Companies shall not be responsible for the resolution of disputes regarding the use of the System which may arise among participating or non-participating jurisdictions, municipalities and agencies.

14. MAINTENANCE

A. The County shall provide preventative and remedial maintenance for the System.

B. The PSAP shall identify the individual(s) to be responsible for reporting equipment or System failures. Said individual(s) shall promptly notify Qwest's designated agent of
the time of failure and record said time as well as the time of arrival of maintenance personnel and the time of equipment restoration.

15. **TRAINING**

A. The County shall provide training as procured from Qwest to the PSAP as follows:

1. Operational training shall include instructional materials and classroom and/or on-the-job training covering the use of E-911 equipment for PSAP personnel designated by the PSAP to the County and employed at the time of new E-911 equipment installation.

2. Maintenance training will be included in the operational training.

3. The County shall provide as procured from Qwest one (1) copy of all appropriate and applicable operational manuals for each PSAP.

4. All training by Qwest subsequent to new E-911 equipment installation shall be negotiated by the PSAP and Qwest.

B. Except as specified in this Article, the PSAP shall train appropriate PSAP personnel on the operation of E-911 equipment, call-answering protocol, and database maintenance. Said training is not the responsibility of the County.

16. **DOCUMENTATION**

A. Qwest and the County shall provide without charge to the PSAP all current and future System documentation required by the PSAP for database preparation and PSAP operations and maintenance as described in this Agreement.

B. All System documentation provided to the PSAP under this Agreement may be reproduced by the PSAP, provided that such reproduction is solely for the internal use of the PSAP and further provided that no charge other than a printing or duplicating charge is made to anyone for such reproductions.

17. **ATTACHMENTS**
A. The PSAP may, with the prior written consent of the County and Qwest, which consent shall not be unreasonably withheld, attach features or devices of other vendors to the E-911 equipment provided by Qwest. Qwest's consent will be based upon a determination by Qwest that said attachments will not degrade System performance as defined in the 911 Tariffs. The County's consent will be based on Qwest's consent, and if necessary, Qwest will conduct an in-depth study to determine whether said attachments degrade the System.

B. When any attachments are made to the equipment, unless such attachments are consented to by Qwest and the County:

1. Qwest and the County shall not be held responsible for defects in System Software or Documentation if such defects are caused by or result directly or indirectly from said attachments;

2. Qwest and the County shall not be liable for any performance degradation of the E-911 equipment caused by or resulting directly or indirectly from said attachments;

3. Qwest and the County will not be responsible for the proper or efficient operation of any System Software or Documentation affected directly or indirectly by said attachments.

4. Resultant repair calls and E-911 equipment damages will be charged to the PSAP on a time and materials basis if said attachments cause any E-911 equipment to malfunction.

C. Qwest shall not be responsible for maintenance of any attachments unless provided by Qwest.

D. If at any time after installation, it becomes apparent that an attachment degrades System performance, Qwest or the County may require removal of said attachment.

18. LIABILITY

A. The word "fault" as used throughout this article shall have the meaning ascribed to it in RCW 4.22.015 as of the date of the Service Agreement.
B. 1. The PSAP agrees to defend, protect, and save the County, its elected and appointed officials, employees and agents, harmless from and against any and all claims, demands, and causes of action of any kind or character, including claims for attorneys’ fees, and the cost of defense thereof, including reasonable attorneys’ fees, arising out of the PSAP’s sole fault with respect to the subject matter of this Agreement.

2. The County agrees to defend, protect, and save the PSAP, its directors, its elected and appointed officials, and its employees and agents, harmless from and against any and all claims, demands, and causes of action of any kind or character, including claims for attorneys’ fees, and the cost of defense thereof, including reasonable attorneys’ fees, arising out of the County’s sole fault with respect to the subject matter of this Agreement.

3. Each party shall be responsible for any liability for damages to its own property as are caused by the concurrent or joint fault of the parties or due to causes arising out of the subject matter of this Agreement which cannot be traced to the sole fault of one party.

C. In the event the parties agree that one party shall defend the other party pursuant to section 18.B above, the defending party shall have the sole right to select legal counsel to defend against the claim, demand, or cause of action. In the event either party agrees to defend, protect, and save the other harmless, the defending party shall be empowered to settle or compromise the claims, demand, or cause of action, and the defended party shall not interfere therewith.

D. In the case of liability for damages or injuries to persons other than employees of any party and in the case of liability for damages or injuries to property not belonging to either party, when the damages or injuries are due to causes arising out of the subject matter of this Agreement which cannot be traced to the sole fault of one party, the County and the PSAP shall be responsible for such damages or injuries in proportion to their respective shares of the fault, or equally if the parties’ proportionate shares of fault cannot be determined.

E. The PSAP agrees that it may be joined and has the right to join in any suit or claim wherein the County or the Telephone Companies or the Telephone Companies'
subcontractors are affected or named as a party or parties, provided, however, that this joinder provision shall apply only when the claim or suit arises out of, is related to, or involves the subject matter of this Agreement or the PSAP's usual functions and duties as a public safety emergency call answering/dispatch agency. The County agrees that it may be joined and has the right to join in any suit or claim wherein the PSAP is affected or named as a party, provided, however, that this joinder provision shall apply only when the claim or suit arises out of, is related to, or involves the subject matter of this Agreement.

F. This liability clause shall not be interpreted, construed or regarded either expressly or impliedly as creating a right of action for the benefit of or creating any obligation toward any third person legal entity other than the parties to this Contract.

19. LIABILITY INSURANCE

Prior to execution of this Agreement, the PSAP shall provide to the County evidence of general liability insurance with limits not less than two million dollars ($2,000,000) per occurrence, with an aggregate limit of not less than four million dollars ($4,000,000). Such evidence shall be in the form of a duly signed County or Insurance Industry Standard Certificate of Insurance form, substantially in the form provided herein as Exhibit 5, except that PSAPs which are self-insured shall provide to the County a written statement signed by the person authorized to sign this Agreement indicating the PSAP is self-insured. Any commercial liability insurance policy shall name King County as an additional insured with respect to the liabilities and obligations assumed by the PSAP under Articles 7.A and 18 of this Agreement. The PSAP shall procure or maintain, under this paragraph, sufficient and appropriate insurance or self-insurance to cover the liabilities and obligations assumed by the PSAP under Article 18 of this Agreement. Any commercial insurance referred to in this paragraph shall be maintained in full force and effect throughout the term of this Agreement, and shall be primary to any other valid and collectible insurance.

The County shall use E-911 Excise Tax revenues to pay or reimburse the PSAP for the cost of naming the County as an additional insured on the PSAP's liability insurance policy and such payment or reimbursement shall be made according to the following procedures:

A. The PSAP shall request County payment of such costs in writing not less than ninety (90) calendar days prior to the procurement of said insurance policy.
B. The E-911 Program Manager with the PSAP Committee as defined in Article 11 herein will evaluate all written requests for the reimbursement of liability insurance costs and provide each PSAP submitting such a request with a written response either approving or denying said request or portions thereof within thirty (30) calendar days of the submission of said request. Failure to respond within thirty (30) calendar days shall not be deemed approval by the County. There will be a two (2) week period for the appeal and resubmission of denied requests.

C. Vouchers or invoices for liability insurance costs approved for County reimbursement shall be submitted to the County by the PSAP within fifteen (15) calendar days of the date in which the voucher or invoice was received by the PSAP. Said vouchers and invoices shall be reviewed and, if approved as stipulated in paragraph B. herein, certified by the E-911 Program Manager for reimbursement to the PSAP and said reimbursement shall be made by the County as Excise Tax revenues are available based on the priorities for Excise Tax revenue distribution defined in Article 8, Paragraphs B. and C.

20. MEDIATION

Nothing in this subsection precludes any party from seeking relief from King County Superior Court or the U.S. District Court for the Western District of Washington, in Seattle. If a dispute arises out of or relates to this Contract, or the breach thereof, and if said dispute cannot be settled through direct discussions, the parties agree to first endeavor to settle the dispute in an amicable manner by mediation.

21. INDEPENDENT STATUS OF PARTIES

Both parties hereto, in the performance of this Agreement will act in their individual capacities and not as agents, employees, partners, joint venturers or associates of one another.

22. DELEGATION AND ASSIGNMENT

The PSAP shall not delegate its responsibilities under this Agreement nor shall any use of equipment provided by the Telephone Companies or the County hereunder be assigned, sublet or transferred by the PSAP without the prior written consent of the County, which consent shall not be unreasonably withheld.
23. **GENERAL PROVISIONS**

A. This Agreement supersedes any prior agreement between the parties relating to the same subject matter and there are no contemporaneous verbal agreements between the parties relating to the same subject matter. This Agreement may not be altered or modified in any way unless the modification is reduced to writing and signed by both parties.

B. Any termination of this Agreement shall not terminate any duty of either party incurred prior to such termination.

C. No waiver by either party of any term or condition of this Agreement shall be deemed or construed as a waiver of any other term or condition, nor shall a waiver of any breach be deemed to constitute a waiver of any subsequent breach whether of the same or a different provision of this Agreement.

D. The County and the PSAP agree in all their employment policies and practices to refrain from illegal discrimination against any person on the basis of race, color, creed, religion, nationality, sex, age, marital status, sexual orientation, or the presence of any mental, physical or sensory handicap, including but not limited to hiring, firing, lay-off, promotion or demotion, job assignment, wages, and other terms and conditions of state and local rules, laws or ordinances and regulations regarding any such discrimination.

E. If any term or condition of this Agreement or the application thereof to any persons(s) or circumstance is held invalid, such invalidity shall not affect other terms, conditions, or applications which can be given effect without the invalid term, condition, or application; to this end the terms and conditions of this Agreement are declared severable.

F. PSAP records and documents with respect to the distribution of E-911 Excise Tax revenues shall be available and subject at all reasonable times to inspection, review, or audit by personnel duly authorized by the County and/or Federal/State officials so authorized by law, rule, regulation, or contract during the performance of this Agreement and six (6) years after termination or expiration of this Agreement.
G. This Agreement shall be governed by, subject to, and construed according to the Constitution and laws of the State of Washington and the Charter and Ordinances of King County and may be subject to the applicable rules and regulations of the Washington Utilities and Transportation Commission.

H. All notices provided for in this Agreement shall be in writing addressed to the appropriate party to its representative designated below or in Exhibit 2, at the respective address set forth or to such other address or representative as is specified by notice provided:

King County
Marlys R. Davis
E-911 Program Manager
7300 Perimeter Road South, Room 128
Seattle, Washington 98108-3825

PSAPs
See Exhibit 2

I. Article headings are included in this Agreement for convenience only and are not to be deemed to be a part of this Agreement.

J. Time is of the essence in this Agreement.

24. EXHIBITS

The following exhibits are attached and incorporated by reference into this Agreement:

A. Exhibit 1 - 911 Tariffs and Service Agreement
B. Exhibit 2 - Public Safety Answering Points
C. Exhibit 3 - Operational Standards
D. Exhibit 4 - Operating Procedures and Protocols
E. Exhibit 5 - Certificate of Insurance
F. Exhibit 6 – Study on Enhanced 911 Funding Policies

Changes to Exhibit 1 identified above shall be provided to the PSAP representative designated in Exhibit 2 without amendment to this Agreement.
IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed as of the last date signed below.

<table>
<thead>
<tr>
<th>KING COUNTY</th>
<th>PARTICIPANT (PSAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td>Signature</td>
</tr>
<tr>
<td>Name (Typed or Printed)</td>
<td>Name (Typed or Printed)</td>
</tr>
<tr>
<td>Title</td>
<td>Title</td>
</tr>
<tr>
<td>Date</td>
<td>Date</td>
</tr>
</tbody>
</table>

Approved as to Form Only:

King County Deputy Prosecuting Attorney

Attorney for Participant

Signature

Signature
## EXHIBIT 2

### PUBLIC SAFETY ANSWERING POINTS (PSAPs)

<table>
<thead>
<tr>
<th>Name</th>
<th>PSAP Director</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell PD</td>
<td>Micki Donovan, Communications Director</td>
<td>18410 101st Ave. N.E. Bothell, WA 98011</td>
<td>425-487-5559</td>
</tr>
<tr>
<td>Enumclaw PD</td>
<td>Bob Huebler, Commander</td>
<td>1705 Wells Enumclaw, WA 98022</td>
<td>360-825-3505</td>
</tr>
<tr>
<td>Issaquah PD</td>
<td>Stan Conrad, Commander</td>
<td>130 E. Sunset Way Issaquah, WA 98027</td>
<td>425-837-3236</td>
</tr>
<tr>
<td>King County Sheriff’s Office</td>
<td>D.J. Nesel, Captain</td>
<td>3511 N.E. 2nd St. Renton, WA 98056</td>
<td>206-296-7500</td>
</tr>
<tr>
<td>NORCOM</td>
<td>Pam Bissonnette, Interim Executive Director</td>
<td>P.O. Box 50911 Bellevue, WA 98015</td>
<td>425-577-5671</td>
</tr>
<tr>
<td>Port of Seattle PD</td>
<td>Kathy Baskin, Communications Manager</td>
<td>SeaTac International Airport P.O. Box 68727 Seattle, WA 98168</td>
<td>206-787-4457</td>
</tr>
<tr>
<td>Redmond PD</td>
<td>Kristi Wilson, Commander</td>
<td>8701 160th Ave. N.E. Redmond, WA 98052</td>
<td>425-556-2529</td>
</tr>
<tr>
<td>Seattle PD</td>
<td>Greg Schmidt, Captain</td>
<td>810 Virginia St. Seattle, WA 98101</td>
<td>206-684-8632</td>
</tr>
<tr>
<td>University of Washington PD</td>
<td>Jerome Solomon, Commander</td>
<td>1117 N.E. Boat St. Seattle, WA 98105</td>
<td>206-616-8347</td>
</tr>
<tr>
<td>Valley Communications Center</td>
<td>Lora Ueland, Executive Director</td>
<td>27519 108th Ave. S.E. Kent, WA 98030</td>
<td>253-372-1510</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>Jo Baumgartner, Station Manager</td>
<td>2803 156th Ave. S.E. Bellevue, WA 98007</td>
<td>425-401-7751</td>
</tr>
</tbody>
</table>
### SECONDARY PSA PSAPS

<table>
<thead>
<tr>
<th>Name</th>
<th>PSAP Director</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle FD</td>
<td>Jim Fosse, Deputy Chief</td>
<td>105 5th Ave. S.</td>
<td>206-386-1492</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seattle, WA 98104</td>
<td></td>
</tr>
</tbody>
</table>

### PRIMARY WIRELESS PSA PSAPS

<table>
<thead>
<tr>
<th>Name</th>
<th>PSAP Director</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>King County Sheriff’s Office</td>
<td>D.J. Nesel, Captain</td>
<td>3511 N.E. 2nd St.</td>
<td>206-296-7500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Renton, WA 98056</td>
<td></td>
</tr>
<tr>
<td>NORCOM</td>
<td>Pam Bissonette, Interim Executive Director</td>
<td>P.O. Box 50911</td>
<td>425-577-5671</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bellevue, WA 98015</td>
<td></td>
</tr>
<tr>
<td>Seattle PD</td>
<td>Greg Schmidt, Captain</td>
<td>810 Virginia St.</td>
<td>206-684-8632</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seattle, WA 98101</td>
<td></td>
</tr>
<tr>
<td>Valley Communications Center</td>
<td>Lora Ueland, Executive Director</td>
<td>27519 106th Ave. S.E.</td>
<td>253-372-1510</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kent, WA 98030</td>
<td></td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>Jo Baumgartner, Station Manager</td>
<td>2803 156th Ave. S.E.</td>
<td>425-401-7751</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bellevue, WA 98007</td>
<td></td>
</tr>
</tbody>
</table>

### SECONDARY WIRELESS PSA PSAPS

<table>
<thead>
<tr>
<th>Name</th>
<th>PSAP Director</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell PD</td>
<td>Micki Donovan, Communications Director</td>
<td>18410 101st Ave. N.E.</td>
<td>425-487-5559</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bothell, WA 98011</td>
<td></td>
</tr>
<tr>
<td>Enumclaw PD</td>
<td>Bob Huebler, Commander</td>
<td>1705 Wells</td>
<td>360-825-3505</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enumclaw, WA 98022</td>
<td></td>
</tr>
<tr>
<td>Department</td>
<td>Name</td>
<td>Address</td>
<td>Phone</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------</td>
<td>---------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Issaquah PD</td>
<td>Stan Conrad, Commander</td>
<td>130 E. Sunset Way Issaquah, WA 98027</td>
<td>425-837-3236</td>
</tr>
<tr>
<td>Port of Seattle PD</td>
<td>Kathy Baskin, Communications Manager</td>
<td>SeaTac International Airport P.O. Box 68727 Seattle, WA 98168</td>
<td>206-787-4457</td>
</tr>
<tr>
<td>Redmond PD</td>
<td>Kristi Wilson, Commander</td>
<td>8701 160th Ave. N.E. Redmond, WA 98052</td>
<td>425-556-2529</td>
</tr>
<tr>
<td>Seattle FD</td>
<td>Jim Fosse, Deputy Chief</td>
<td>105 5th Ave. S. Seattle, WA 98104</td>
<td>206-386-1492</td>
</tr>
<tr>
<td>University of Washington PD</td>
<td>Jerome Solomon, Commander</td>
<td>1117 N.E. Boat St. Seattle, WA 98105</td>
<td>206-616-8347</td>
</tr>
</tbody>
</table>
EXHIBIT 3

OPERATIONAL STANDARDS

A. General Provisions

1. There shall be two (2) types of operational standards for PSAPs: minimum acceptable standards and funded standards. Minimum acceptable standards are those which an agency must meet in order to be qualified as a primary or secondary PSAP. Any costs incurred by an agency to meet these standards are the responsibility of that agency. Funded standards are those which an agency also must meet in order to be qualified as a primary or secondary PSAP; however, PSAPs are eligible to receive E-911 excise tax revenue, as available, to offset costs that are reasonably necessary to meet these standards, provided that those costs are directly traceable through a reliable accounting method and are approved according to the procedures specified in Article 8 of the Agreement.

2. Barring unforeseen circumstances or consolidation of operations, each PSAP shall meet operational standards for the period of this contract.

B. Minimum Acceptable Standards for Primary and Secondary PSAPs

1. 24 Hour Service Standard - All primary and secondary PSAPs shall answer 911 calls on a twenty-four (24) hour, seven (7) day a week basis.

2. Call Recording Standard - Primary and secondary PSAPs shall make an audio record of each call. Tapes shall be held as required by state law.

3. Emergency Power Standard - Primary and secondary PSAPs shall be equipped with an emergency power source capable of supplying electrical power to at least serve their basic power requirements; e.g., environmental lighting, phone lights and bells.

4. Training Standards - Each PSAP shall ensure that all personnel within their PSAP who answer 911 calls are trained in the answering and handling of 911 calls and shall ensure that all personnel have successfully completed an adequate training program before answering 911 calls.
5. **TDD/TTY Standards** – The County shall equip all PSAP answering positions with TDD/TTY capabilities. Each PSAP shall ensure that all personnel within their PSAP who answer 911 calls are trained in the answering and handling of TDD/TTY 911 calls and shall ensure that all personnel have successfully completed an adequate training program before answering 911 calls.

6. **Wireline Abandoned Calls** – Each PSAP shall respond to all abandoned or “hang-up” Wireline 911 calls by attempting to call back the telephone number provided on the ANI/ALI display. If contact with the caller cannot be made through a call back attempt, each PSAP shall make a reasonable effort to contact the caller through other means as deemed to be appropriate. Each PSAP shall establish policies and procedures to document the actions to be taken by their personnel in responding to abandoned 911 calls.

7. **Wireless Calls** – Each PSAP shall make a reasonable effort to respond to all Wireless 911 calls based on the location information that is available. The location information may be provided on the ANI/ALI display or by the caller. If the call is disconnected prior to determining the location of the caller, each PSAP shall attempt to call back the telephone number provided on the ANI/ALI display. If contact with the caller cannot be made through a call back attempt, each PSAP shall make a reasonable effort to contact the caller through other means as deemed to be appropriate. Each PSAP shall establish policies and procedures to document the actions to be taken by their personnel in responding to Wireless 911 calls.

   a. The following specific procedures are to be followed when responding to Phase I and Phase II Wireless 911 calls, as defined by the Federal Communications Commission in CC Docket No. 94-102:

**Phase I Wireless 911 Calls:**

- If the caller can be heard in the background and no problem is indicated, the call-taker should disconnect the call and attempt a call-back. If the call-back is unsuccessful, no additional response is warranted.
- If it is a silent open line call, the call-taker should do a TTY query. If no response, the call-taker should disconnect the call and attempt a call-back. If the call-back is unsuccessful, no additional response is warranted.
- On an abandoned (hang-up) call, the call-taker should disconnect the call and attempt a call-back. If the call-back is unsuccessful, no additional response is warranted.
Phase II Wireless 911 Calls:

- On an open line call in which the caller can be heard in the background and no problem is indicated, the call-taker should disconnect the call and attempt a call-back. If the call-back is unsuccessful, no additional response is warranted.
- On a silent open line call, the call-taker should remain on the call, and the PSAP shall make a reasonable effort to contact the caller through other means as deemed to be appropriate. Each PSAP shall establish policies and procedures to document the actions to be taken by their personnel in responding to Phase II silent open line 911 calls.
- On an abandoned (hang-up) call, the call-taker should disconnect the call and attempt a call-back. If the call-back is unsuccessful, a police officer should be dispatched to the location to attempt to locate the caller.
- Providing an emergency is not known to be in progress, the responding officer may choose a “non-response” if the location is determined or is known to be inaccurate or in a congested area, such as a mall or a high-rise building.

8. Voice over Internet Protocols (VoIP) and Automatic Collision Notification (ACN) Calls

- Each PSAP shall make a reasonable effort to respond to all VoIP and ACN 911 calls based on the location information that is available. The location information may be provided on the ANI/ALI display, by the caller, or by a private call center. If the call is disconnected prior to determining the location of the caller, each PSAP shall attempt to call back the telephone number provided on the ANI/ALI display, by the caller, or by the private call center. If contact with the caller cannot be made through a call back attempt, each PSAP shall make a reasonable effort to contact the caller through other means as deemed to be appropriate. Each PSAP shall establish policies and procedures to document the actions to be taken by their personnel in responding to VoIP and ACN 911 calls.

C. Funded Standards for Primary and Secondary PSAPs

Call Answering Standard - The County shall equip enough answering positions with Automatic Number Identification (ANI) and Automatic Location Identification (ALI) and the PSAPs shall assign enough operators such that, barring major disasters or other extraordinary events, during each hour of a calendar quarter a minimum of 90% of those 911 calls received by each PSAP shall be answered within ten (10) seconds. An extra three (3) seconds shall be added to this standard to accommodate the telephone equipment ring cycle. The time of answer shall be considered to be the time when a person answers the call. The electronic answering of a call shall be included in the queue time. The percentage of hours in a quarter in which PSAPs are allowed to not meet the standard and still be eligible to receive their revenue distribution shall be reviewed and set on an annual basis.
D. **Operational Requirements of all PSAPs**

1. **Call Documentation** - The County shall provide each PSAP with a call data printer and/or other call data analysis equipment. The E-911 Program Manager and PSAP Committee shall have access to 911 call data for the purpose of documenting compliance with PSAP operational standards. Each PSAP shall keep a copy 911 call data for a minimum of six months.

2. **911 as Primary Emergency Telephone Number** - The digits "911" shall be the primary emergency telephone number in King County and the only telephone number that shall be listed in King County telephone directories for reporting police, fire, and medical emergencies. Each PSAP, however, shall maintain a separate ten-digit emergency back-up number and list a separate number for non-emergency telephone calls in the telephone directory serving its area.

3. **Night Service Routing** - Each PSAP shall establish night service routing (back-up routing) at another PSAP which is capable of handling its 911 calls if for any reason the PSAP is unable to handle its own calls. Each PSAP shall test their night service routing at least once every month to ensure that it is operating properly. Each PSAP shall also establish disaster procedures which follow the guidelines of their emergency management authority which will allow their personnel to function on site for a minimum of three (3) calendar days or relocate to their night service routing location, depending on requirements dictated by the disaster situation.
EXHIBIT 4

OPERATING PROCEDURES AND PROTOCOLS

The operating procedures and protocols for PSAPs are as follows:

A. Extenuating Circumstances.

1. Extenuating circumstances as identified by the PSAP call taker can alter the handling of an emergency call from this procedure, and in such situations the call taker shall follow their local PSAP procedures for those extenuating circumstances.

2. Examples of extenuating circumstances include but are not limited to:
   - Combined call taker/dispatcher coordinating an officer safety situation on the radio.
   - Combined Police, Emergency Medical Services (EMS) situation when pre-arrival instructions are in progress.

B. 911 Call Answering.

1. Primary PSAP call takers shall answer all incoming 911 calls with an initial phrase containing “911”, such as “911, what are you reporting?”

2. Secondary PSAP call takers shall answer all incoming 911 calls with an initial phrase that includes a listing of the services supported by that PSAP; e.g., “Fire and emergency medical”, etc.

C. 911 Call Screening.

1. One of the basic functions of Primary PSAPs is the initial screening of 911 calls from the public and when appropriate, the distribution/transfer of those calls to the appropriate agency.

2. Primary PSAP call takers shall not interview callers except as required to determine the nature and location (including city or area) of the emergency, unless the call takers at the Primary PSAP are also the dispatchers for one or more of the three (3) basic services (Police, Fire, and EMS). All other calls shall be immediately
transferred to the PSAP dispatching the appropriate service. A Primary PSAP call taker shall only interview callers reporting incidents requiring the service(s) for which they also dispatch; e.g., when a Primary PSAP operator is also a dispatcher for police in the jurisdiction(s) encompassed within that PSAP’s boundaries, the operator will interview a caller reporting an incident requiring police services only and will immediately transfer a caller reporting an incident requiring fire and/or EMS services.

3. One of the basic functions of Secondary PSAPs shall be the receipt of calls reporting incidents requiring the services of agencies supported by the Secondary PSAP as transferred by a Primary PSAP, the interview of callers reporting such incidents, the triaging of such calls, and the allocation of appropriate resources to resolve such incidents.

4. Secondary PSAP call takers shall interview so as to derive the location of the incident as the first priority. In the event that the location of the incident is in a jurisdiction served by agencies supported by another PSAP, the call taker shall immediately transfer the call to the appropriate PSAP.

D. Transferring Emergency Calls.

1. All PSAP call takers transferring a 911 call to another PSAP shall advise the caller to not hang up, and that they are connecting the caller with the appropriate agency or (name of PSAP agency).”

2. If the call drops, the transferring PSAP shall call the receiving PSAP to relay the caller’s information to enable the receiving PSAP to call the caller back. If the transferring call taker has had the opportunity to verify the ALI, they shall report that ALI has been verified to the receiving PSAP.

3. The call taker shall remain on the line long enough to assure that the transfer has been successfully completed and to verify that the receiving PSAP has the location and all other pertinent information.

4. The transferring PSAP shall announce the name of their PSAP and inform the answering PSAP call taker that they are transferring a call; e.g., “This is the King County Sheriff’s Office with a transfer”.

October 2012
5. If a PSAP receives an emergency call that belongs to another PSAP and all trunks to that PSAP are busy, the transferring PSAP call taker shall tell the caller to remain on the line and the call taker shall reasonably stay on the line with the caller until the transfer can be completed. If there are multiple calls for the same incident and all trunks to the receiving PSAP are busy, it is acceptable for the transferring PSAP to screen the calls for new information, then disconnect the calls and relay the information to the receiving PSAP.

7. The call taker shall verify that they have transferred the call to the correct PSAP. If they have transferred to a PSAP that does not dispatch to the caller’s location, the original PSAP shall retain the call until they have transferred it to the correct PSAP. In cases where the call needs to be transferred to a county with multiple PSAPs and the call taker is unsure of which PSAP to transfer to, the call shall be transferred to the default PSAP for that county.

8. PSAP call takers shall transfer all emergency calls using the 3-Digit Star (*) Transfer Codes. It is recommended that these Codes be programmed into the 911 equipment at each PSAP.

E. Combined Police, Fire/EMS Incidents.

1. Examples of Combined Police, Fire/EMS incidents are as follows: assaults, controlled substance overdoses, vehicle accidents with injuries and/or fire, suicides, etc.

2. In a Combined Police, Fire/EMS incident where there are no extenuating circumstances that make the scene unsecured or unsafe for EMS personnel, the dispatch of EMS services is the priority.

3. If the answering PSAP does not dispatch EMS for the caller’s location, they shall immediately transfer the caller to the correct PSAP supporting EMS services. The transferring PSAP call taker shall remain on the line to get additional information as needed.

4. In these circumstances, the EMS PSAP call taker shall conduct the initial interview regarding location and injuries only and then turn the caller over to the Police PSAP call taker.
5. When the incident scene is still unsecured or unsafe for EMS personnel, the Police PSAP call taker shall conduct the initial interview and then turn the caller over to the EMS PSAP call taker.

6. The initial interviewing call taker for a Combined incident shall remain on the line long enough to assure that the transfer has been completed and the answering PSAP call taker has adequate location information and is aware of conditions at the scene.

7. In the event that a caller reporting a Combined incident is disconnected before being questioned by both appropriate PSAP call takers, the call taker that conducted the interview shall relay relevant incident information to the other PSAP.

F. Non-Emergency Calls Received on Emergency Lines.

1. If a non-emergency call is received on an emergency line, the PSAP call taker shall advise the caller that they have called on an emergency line and shall free up the 911 trunk as soon as possible.

2. It is not recommended that the call be transferred to the business number, since that may tie up the 911 trunks.
King County, Washington PSAP Consolidation Assessment of the King County E9-1-1-1 System

Final Recommendations Report

June, 2013
## Contents

**Section 1: Executive Summary** .......................................................................................................................... 1-1
Overview .................................................................................................................................................................. 1-1
Methodology ............................................................................................................................................................ 1-3
Conclusions and Recommendations ......................................................................................................................... 1-5
Enhancement Opportunities and Considerations for the KCE9-1-1 Program Office ................................................. 1-6
Assessment of Current Environment ......................................................................................................................... 1-6
Recommended Model – Optimum Model .................................................................................................................... 1-7
Alternate Model – Model “B” ...................................................................................................................................... 1-10
Summary ................................................................................................................................................................ 1-11

**Section 2: Findings and Conclusions** ..................................................................................................................... 2-1
Overview ................................................................................................................................................................ 2-1
Findings .................................................................................................................................................................. 2-1
Governance Structure Assessment ............................................................................................................................... 2-1
Political Assessment ................................................................................................................................................ 2-4
Funding Assessment ............................................................................................................................................... 2-5
KCE9-1-1 Assessment ........................................................................................................................................ 2-8
Operations Assessment .......................................................................................................................................... 2-9
Training Assessment ............................................................................................................................................. 2-13
GIS Assessment ................................................................................................................................................... 2-14
Facilities Assessment ........................................................................................................................................... 2-15
Technology and Interoperability Assessment ........................................................................................................ 2-18
Section 3: Potential Model Evaluation ................................................................. 3-1
Overview .................................................................................................................. 3-1
Models Considered .................................................................................................. 3-2
Conclusion ............................................................................................................... 3-11

Section 4: Enhancement Opportunities and Considerations for the King County E9-1-1 Program Office 4-1
KCE9-1-1 Enhancement Opportunities Overview ....................................................... 4-1
Enhancement Considerations for King County E9-1-1 Office .................................... 4-1
Governance .............................................................................................................. 4-2
Financial .................................................................................................................. 4-4
Training .................................................................................................................... 4-8
PSAP Training Program at the Regional Level .......................................................... 4-11
Next Generation 9-1-1 ............................................................................................. 4-15
GIS Data Maintenance ............................................................................................. 4-22
Other King County Projects – Regional Radio Replacement Project .......................... 4-24
Conclusion ............................................................................................................... 4-25

Section 5: Current Configuration Status Quo Discussion and Recommendations ..........5-1
Current Configuration Overview ............................................................................. 5-1
Governance .............................................................................................................. 5-2
Financial .................................................................................................................. 5-4
Local PSAP Operational Assessment ....................................................................... 5-6
Facility ..................................................................................................................... 5-11
Technology .............................................................................................................. 5-12
Strengths and Weaknesses of the Current Configuration ........................................ 5-14
Conclusion........................................................................................................................................5-15

Section 6: Optimum Model Configuration for King County .........................................................6-1

Optimum Model Overview................................................................................................................6-1

Governance ........................................................................................................................................6-3

Financial ..........................................................................................................................................6-7

Operations – Staffing, Supervision, Facilities ...............................................................................6-23

Staffing ...........................................................................................................................................6-27

Facilities ..........................................................................................................................................6-31

Technology .......................................................................................................................................6-34

Other Considerations .........................................................................................................................6-36

Port of Seattle ..................................................................................................................................6-35

University of Washington ...............................................................................................................6-37

Washington State Patrol ...................................................................................................................6-39

Next Generation 9-1-1 .......................................................................................................................6-40

Ancillary Duties .................................................................................................................................6-41

King County E9-1-1 Program Office ...............................................................................................6-41

Strengths and Weaknesses of the Optimum Model ...................................................................6-42

Conclusion .......................................................................................................................................6-43

Section 7: Model B ............................................................................................................................7-1

Model B Overview .............................................................................................................................7-1

Governance .......................................................................................................................................7-1

Financial ...........................................................................................................................................7-5

Operations – Staffing, Supervision, Facilities .............................................................................7-11

Facilities ...........................................................................................................................................7-12
Technology .............................................................................................................................................7-13
Strengths and Weaknesses of Model B .................................................................................................7-13
Conclusion ................................................................................................................................................7-14

Appendix A: Staffing ..................................................................................................................................A-1
Appendix B: Successful Regional Public Safety Operations and Consolidations Matrix........ B-1
Executive Summary

Overview

In the spring of 2012, Geo-Comm, Inc. (GeoComm) began a partnership with King County E9-1-1 Program Office (KCE9-1-1) to conduct a PSAP Consolidation Assessment of King County E9-1-1 System. King County sought a study to assess whether the current Public Safety Answering Point (PSAP) structure provides the most efficient and effective emergency communications services possible, and to study goals focused on the potential for service improvements as well as cost savings that might be realized if a more consolidated approach to 9-1-1 service delivery was considered in the region.

The timing for the study is crucial for three very important reasons:

1. The county is considering PSAP equipment and operational upgrades that are necessary for Next Generation 9-1-1 (NG9-1-1).
2. A regional radio system replacement project is underway, and the number of PSAPs is essential to the cost and engineering of that project.
3. KCE9-1-1 is facing unsustainable funding if the program continues on the current path of support and funding.

PSAPS involved in this PSAP Consolidation Assessment include:

- Bothell Police Department
- Enumclaw Police Department
- Issaquah Police Department
- King County Sheriff’s Office (KCSO)
- North East King County Regional Public Safety Communications Agency (NORCOM)
- Port of Seattle Police Department
- Redmond Police Department
- Seattle Fire Department
- Seattle Police Department
- University of Washington Police Department
- Valley Communications Center (Valley Com)
- Washington State Patrol (WSP)

GeoComm devoted substantial resources to reach an in-depth understanding of the complexities involved in determining the Optimal Model of PSAP configuration for King County. This involved interviews with PSAP and agency representatives, stakeholder meetings, observation at the PSAPs and assessment of facilities pertaining to its use for operations, review of data provided by the agencies and PSAPs, and research and review of industry standards and best practices.

This report will discuss governance, finance, operations, training, technology and interoperability, and facility findings as well as the assessment of the feasibility of models examined from a financial, operational, and technical standpoint.

Significant deliberation, analysis, and discussion by GeoComm consultants have resulted in the proposed Optimum Model configuration for King County. GeoComm was asked to provide an Optimum Model without regard to political implication as well as a model that is the most sound, technically and fiscally. The GeoComm team of consultants has been in the position that the King County PSAPs and local government now find itself. We understand that it is difficult, if not impossible, to totally ignore political implications. As consultants and advisors to King County, we were encouraged to provide the most technically appropriate recommendations possible. That directive speaks volumes about the leadership in the region.

The attitude and vision that prevails in the county to tackle the operational, technical, and financial challenges in order to ultimately achieve the most efficient and effective service, is one that has always advanced this region to a place of high regard. Among 9-1-1 professionals, KCE9-1-1 is perceived as a respected professional organization. We have welcomed the opportunity to work under this vision.

GeoComm observed that the professionalism of the 9-1-1 communications centers is at a very high level and all of the PSAPs strive to provide high quality and responsive 9-1-1 service in the communities. The 9-1-1 community works well with each other in order to meet the needs of the public.

This collaborative environment means King County is well positioned to continue centralized planning and benchmarking efforts related to the identified guiding principles. In addition, while many in the county initially object to the concept of consolidation, there are a number of advantages to consolidation, such as fewer calls transferred, which leads to less call processing time and more effective service to the public.
These desired outcomes of consolidation cannot be overlooked. There may also be disadvantages to consolidation related to new operating procedures, the need to eliminate specialized services, and the perception of a more impersonal service to the community which will all have to be overcome if any consolidation moves forward. These possible negative outcomes cannot be overlooked either.

Politically, the region enjoys strong leadership, and there are many champions of quality service and effective processes which seek to continually improve the region’s quality of life. Collaboration is demonstrated in many different areas of government operations between and among cities and the county. Participatory and representative decision-making is common and shared funding demonstrates equitable support.

**Methodology**

Guiding principles are the precepts that guide an organization irrespective of changes in short-term goals, strategies, work, or top management. They are the fundamental norms, rules, or values that represent the desired state and help in determining the rightfulness or wrongfulness of the organization’s actions. Principles are more basic than policy and objectives and are meant to govern both.

During interviews, discussions, and stakeholder forums, that GeoComm conducted as a part of this PSAP Consolidation Assessment Study, the study participants articulated a set of guiding principles which define the desired service level for the citizens of the King County region and which GeoComm applied to our recommendations.

Through extensive discussion during stakeholder meetings, these guiding principles of service were further developed to illustrate the service philosophy to be used as validation of this assessment project. The stated service philosophy also demonstrates the area’s desire for efficiency in the management of emergency communications.
The principles, as described in the existing conditions report, were identified as follows:

**Consistent**

- Service in all communities is constant, reliable, and dependable
- Consistent operational protocols
- 9-1-1 is considered a core service of government
- Ensure the public’s expectations of high quality service are met
- Sound decisions are based on standardized service levels throughout the county

**Competent**

- Appropriate practices for effective dispatch are in place
- Organizations are efficient and highly functioning
- Coordinated training with the Standard Operating Procedures (SOP)
- Practices are supported by effective technologies
- Adequate supervision and support exists

**Collaborative**

- “It works best when it works together”
- Coordinated practices and policies
- Cooperative governance is in effect
- United vision of service exists throughout the county

**Cost Effective**

- Agencies must be able to equate value of the service with the cost to their community
- Decisions are made in the best interest of their citizens
- Achieve the desired standard of care for the entire community

**Customer Focused**

- Least amount of call processing time results in the fewest transfers
- Focus on efficient method of processing call
- Improved service through an efficient and effective response
- Public expectation of reliable public safety services
Once the GeoComm team began looking at potential feasible models for implementation in King County, it was important to measure those models against the region’s identified principles. In all cases, the service to the public was foremost in our assessment because that is what was foremost in King County. By using guiding principles that seek improved public service, an independent evaluation was possible. The GeoComm team reviewed potential models for implementation, as discussed in Section Three, and of those models; the team believes that the Optimum Model emerged as most closely aligning with the principles.

**Conclusions and Recommendations**

GeoComm’s preliminary identification of consolidation models includes an evaluation of the current configuration and discussion of the potential for enhanced administrative functions through KCE9-1-1. GeoComm has included an assessment of the current configuration as part of the study. GeoComm has also identified sufficient benefits to consolidation, which are discussed in this report and are plausible for implementation. Decisions of this magnitude do not come without challenges and may be difficult to implement. However, GeoComm is confident that the model presented along with the enhancement recommendations for KCE9-1-1 will, at the very least continue the high quality service enjoyed by the region, and have potential for improve overall public safety communications services to the citizens and visitors within the region.

After examining and assessing the data, interviewing key stakeholders, visiting each PSAP, and observing public safety communications operations in the region, GeoComm developed two models for consolidation that are worthy of further analysis to determine the overall feasibility of consolidation. Under each model, GeoComm recommends enhancement of KCE9-1-1 as a stronger “umbrella” agency to coordinate shared administrative and fiscal service functions on behalf of all public safety agencies.

Elected officials and PSAP management should understand that estimates included in this report were collected and assessed for feasibility potential which is the end goal of the project. It is important to note that the financial estimates are based on data obtained during the data collection process of this project. Updated data will need to be gathered during the implementation process and cost estimates recalculated with every decision that is made by the implementation team. The financial information provided in this report is based on a certain set of assumptions for a specific snapshot in time. Decisions that will be made during the implementation process, and through continued and more intense discussions of the participants, will certainly influence and impact these estimates.
Enhancement Opportunities and Considerations for the KCE9-1-1 Program Office

KCE9-1-1 is a well-respected county government program whose purpose is to provide the necessary planning and support to local PSAPs to ensure the highest quality 9-1-1 service delivery possible throughout the county. Over the years, the demand on these services has increased partly because of the needs of the local PSAP, partly because of the demands of the public, and partly because of the excellent service provided by KCE9-1-1. There are clearly some services that are best provided in a regional environment both for efficiency and effectiveness.

GeoComm presents the following strengths of KCE9-1-1 and further expands on these areas with recommendations for potential enhancements to the current structure within this section of the report:

- KCE9-1-1 is well respected and appreciated by the PSAPs it supports. The program office is long established and viewed as having the expertise necessary to provide planning, direction, guidance, and leadership for 9-1-1 service in the county.
- KCE9-1-1 has statutory authority with regards to funding decisions.
- KCE9-1-1 is well funded and provides significant supplemental funding to the PSAPs it supports. The supplemental funding to PSAPs accounts for 14 percent to 17 percent of PSAP funding.
- KCE9-1-1 provides funding for training and public education initiatives, and there is a dedicated position for training and public education coordination within KCE9-1-1.
- The program office has strategically planned and provided useful support services to the PSAP to augment local staff necessary to carry out the mission of coordinated service and integrated technology.

It is GeoComm’s recommendation that the quality programming enjoyed by the county’s PSAPs through KCE9-1-1 be extended and enhanced to include greater control and oversight by strengthening the program’s governance, financial stability, coordination of practices, technology implementation, standards development, and regional training program. These opportunities can be pursued immediately, regardless any of consolidation decisions.

Assessment of Current Environment

The current configuration model, by definition makes no changes to the current configuration of PSAPs in the region, except to normalize some critical data elements in order to provide an appropriate basis for comparison among all factors. GeoComm found that the experience in this region has demonstrated that KCE9-1-1 and the 12 PSAPs in the county have adopted a collaborative and unified approach to 9-1-1 infrastructure, database management, technical support, and other elements of 9-1-1 call delivery management which has served the County well. King County has achieved success with its E9-1-1 Program but finds itself in a position of concern over long-term financial stability and sustainability.
GeoComm recommends changes to the governance structures, financial resource distribution, and operational processes to more effectively and efficiently provide public safety services to the citizens while keeping relationships between the area PSAPs as they are currently.

Just a few of these recommended improvements within the current configuration include consideration of:

- Whether King County EMS is appropriately represented on their governing and policy boards
- Reevaluating wireless call routing to send wireless calls originating in the local community to the local community PSAP.
- Options, methods, and procedures that will reduce call transfers and call processing time
- Increased staffing to appropriate levels to meet call volume demands and public service expectations.
- Continue progressing the CAD interoperability project towards a single regional CAD to ensure the full value of this integration is realized and experienced by the county’s PSAPs.

Advance the implementation of NG9-1-1.

One of the predominant advantages that might be perceived by maintaining the current PSAP configuration is that no change usually means that the problems and issues are well known and understood and to some degree have been managed at least at a low level. Optimal operations and efficiencies may not be realized, but the business of 9-1-1 is accommodated. There is often capacity within organizations to operate with some degree of functionality despite the issues that the people of the organization deal with day in and day out. While GeoComm’s primary recommendation is Optimum Model, we also realize there are benefits to be realized in the interim within the current structure. However, without change to the existing conditions, little improvement to service, cost containment, efficiencies, or effectiveness will be realized and the guiding principles adopted by King County will not be fully achieved. It is GeoComm’s position that the King County region would not be satisfied with such an outcome.

The status quo is used for comparative purposes to determine a baseline for cost analysis and improvements to efficiency and service.

**Recommended Model — Optimum Model**

The Optimum Model proposed by GeoComm based on our assessment of governance, financial stability, operations and training, technology, and considerations for NG9-1-1 is an enhancement of KCE9-1-1 and the creation of several consolidated PSAPs. This Optimum Model consists of:

1. A City of Seattle combined police and fire civilian PSAP as an independent city department.
2. Continuation of the independent PSAPs for the Port of Seattle and the University of Washington Police Department.
3. Combine through contract or partnership of Valley Com and Enumclaw Police Department.
4. Consolidation of the KCSO, NORCOM, Bothell, Issaquah, and Redmond into a newly structured agency.
5. WSP transitioning to a secondary PSAP status by no longer being the initial answering point for wireless 9-1-1 calls for wireless calls substantially within the jurisdiction of the local PSAP.

This consolidation recommendation has benefits for each of the PSAPs involved, including, to the degree that it is feasible, bringing police and fire/EMS dispatch under one organization for as much of the region as possible in order to minimize call transfers and improve call processing time. A single PSAP also alleviates the need for duplication of service via call transferring and obtaining identical information from callers, which can be very frustrating for the caller while also being very time consuming.

Although, all the PSAPs within King County are very progressive in their technology and customer service attitude, the ability to utilize resources from all the communities such as equipment, training, and personnel will provide PSAPs the ability to provide an even higher quality service to their citizens. Under current configurations, services are duplicated for law enforcement and fire/EMS dispatch operations. Having field responders dispatched from a centralized location also creates a better result for interoperability in the field. By combining smaller operations into a larger center, the PSAP will be postured to more effectively respond to larger incidents, particularly those that overlap jurisdictions. Responders will receive critical information in a timelier manner while communications center personnel will have a better understanding of the inter-operational needs, such as operating on common radio channels. With the Optimum Model, resources can be pooled and utilized, such as equipment, staff, and training opportunities that may not be funded in a single PSAP.

The Optimum Model recommendation took several areas of rationale into account:

- Seattle Fire Department as a secondary PSAP adds call processing time that is not in the best interest of the citizens and visitors to Seattle and does not meet the guiding principles of the region.
- The populations served and the unique requirements of both the Port of Seattle and the University of Washington make them challenging partners for a consolidation with any existing traditional PSAP and would present new challenges if they combined.
- The Enumclaw PSAP, given the low staffing number and its inability to handle the increased data and call processing requirements that will be present with a NG9-1-1 call, will likely be forced to consider some level of consolidation once NG9-1-1 services are implemented in the region. The most reasonable partnership for Enumclaw is with Valley Com. The sooner that is accomplished the better for Enumclaw and its citizens.
- The WSP PSAP as a component of a state agency has a very focused service area and function which is not enhanced by consolidation with local government agencies. This situation is also true for the University of Washington PSAP.
- The consolidation of the identified PSAPs into a consortium of public safety agencies consisting of KCSO, NORCOM, Bothell, Issaquah, and Redmond would address both the fiscal responsibilities of...
KCE9-1-1 and assist in the transition to NG9-1-1 services for the region. The fewer PSAPs to receive the software and possible hardware updates required for NG9-1-1 should result in lower costs for KCE9-1-1. While some of the hardware such as Intrado VIPER® is in place, there could be additional costs for activating “features” to the Intrado VIPER® system.

- Larger PSAPs will be better able to manage the staffing needed to handle new call types and better able to schedule the training for staff.
- The WSP PSAP has enjoyed a close working relationship with all the PSAPs in the region and that effective working relationship should not change. The treatment of WSP as an equal PSAP in the region in the past has elevated that agency’s standing and effectiveness and has balanced its service to the King County calling public. The funding relationship and support the WSP has received from KCE9-1-1 is no longer sustainable and should be reevaluated.

Within the Optimum Model section of this report, GeoComm presents detailed recommendations with regard to governance, finance, operations, facilities, technology, and other considerations for KCE9-1-1 and PSAP stakeholders. Just a few of the recommendation highlights described in the report include:

- Enhancements of the services provided by KCE9-1-1 including greater training opportunities, increased oversight and regionalization of services, and savings to the agency operations.
- A governance structure that defines a shared decision-making process that is fair and equitable.
- The total projected saving between the current budget and the optimum model is $6,014,172 per year.
- The recommended model configuration results in a minimum estimated costs savings of $2,899,946, call taker salary costs alone.
- The City of Seattle should design and build a suitable facility to accommodate the consolidated operations of police and fire/EMS communications. The timing for considering such consolidation or co-location is appropriate.
- KCSO facility should be redesigned to accommodate the consolidated operations of KCSO, NORCOM, Bothell, Issaquah, and Redmond.
- Minor modifications to the Valley Com facility to accommodate the partnership with Enumclaw.

Recommended Model Alignment with the Principles of E9-1-1 Service

The principles, as developed and articulated by the PSAPs in King County, focus on the needs of the community and are about quality service for citizens of the region. They are not about, and should not be about, an individual PSAP, government, or person. Decision-making in a service-oriented environment is committed to directing the organization to the most effective and efficient operations.

When you remove the emotion that often surrounds the decision-making process, what remains is faithfulness to the service principles held by the community. The end result is an effective strategic direction. It is this goal that GeoComm pursued when determining appropriate structures for improved emergency communications for the region.
GeoComm understands that the findings and recommendations contained in this report may not please all of the participants in the study. It is anticipated that some stakeholders may believe the recommendations are less than desirable from an individual or personal perspective. However, the greater good of improved service to the public at large was the charge of KCE9-1-1 to GeoComm, and we believe that to be true to that mission, it was necessary for an unbiased approach to solutions for the region.

The value of this process and this report is that it brings the topic of consolidation to the forefront for additional discussion and assessment, and in GeoComm’s opinion that continued conversation has to be done locally. Determining the feasibility of pursuing a consolidation model or a methodology can be done by a consultant; the next step is the in-depth discussions that come with implementation strategies and that must be completed by the local professionals who provide the service. GeoComm hopes that this report is not just accepted and put on a shelf. We believe there is strong indication of advantages to all participating agencies and the discussions should continue. GeoComm understands that the region may not implement a model that looks exactly like what has been proposed in this report; however, the local professionals should take the recommendations and modify as needed to the preferred way of operating and make implementation decisions related to the level of service that will be expected in their own communities.

This report is a planning tool and framework for the implementation team.

By using guiding principles that seek improved public service, an independent evaluation was possible, and an Optimum Model developed that incorporates the region’s principles to the highest degree possible.

Alternate Model — Model “B”

GeoComm has considered an alternate model that would reduce the number of primary PSAPs in King County from twelve to six. This alternate model to the Optimum Model recommended consolidates Issaquah, Bothell, and Redmond into a single, primary PSAP because of their size and service philosophy. NORCOM and the King County Sheriff’s Office (KCSO) merge. It combines the primary Seattle Police Department and secondary Seattle Fire Department PSAPs into a civilian and independent city department, as does the Optimum Model, and also consolidates Enumclaw with Valley Communications Center (Valley Com) as in the Optimum Model. Because of their unique structure and mission, the University of Washington and the Port of Seattle PSAPs would not change as in the Optimum Model. This model also includes transition of the Washington State Patrol (WSP) to a secondary PSAP and wireless 9-1-1 calls currently answered by WSP would be routed to the local jurisdictional PSAP. The only difference between the Optimum Model and this Model B is the separation of Bothell, Issaquah, and Redmond cities into their own consolidated PSAP.

Many of the Optimum Model recommendations are applicable to Model B; however, justification is not repeated within this section but the recommendations are noted.
Within the Model B section of this report, GeoComm presents detailed recommendations with regard to governance, finance, operations, facilities, technology, and other considerations for KCE9-1-1 and PSAP stakeholders. Just a few of the recommendation highlights include:

- Enhancements of the services provided by KCE9-1-1 including greater training opportunities, increased oversight and regionalization of services, and savings to the agency operations.
- A governance structure that defines a shared decision-making process that is fair and equitable.
- The total projected saving between the status quo and the Model B is $4,873,561 per year.
- Facility changes including the continued planning by the City of Seattle for a combined Police and Fire/EMS consolidated operation; modifications to the KCSo county facility to accommodate the consolidation with NORCOM; minor modifications to Valley Com related to their partnership with Enumclaw; and facility planning for a consolidated Bothell, Issaquah, and Redmond operation.

Model B offers King County an alternative that might be considered more acceptable politically and even operationally to some of the PSAPs in the region but does not offer the most efficient option fiscally. The goal of this assessment was to consider other options and evaluate those options on several levels in order for the best decisions to be made for the long-term stability in the region. Model B, while operationally sound, does present new challenges financially and in terms of timelines if additional facilities are necessary to implement this model.

Summary

GeoComm is most appreciative of the cooperation we received from King County PSAPs. The staff was willing to meet with us and discuss opportunities for improving 9-1-1 service in their PSAP area and offered regional approaches to consider as well. GeoComm would also like to acknowledge that each of the PSAPs in the region endeavors to provide the best possible service to the public within the economic and administrative constraints that exist.

To the casual observer, a public safety communications center simply answers 9-1-1 calls and manages the response of field resources. In reality, a sophisticated PSAP, such as all of those participating in this study, are responsible for many more activities and functions. Frequently, we find assignments are given to the PSAP that are not specific to the call taking and dispatch function but support the overall department’s goals and even though these duties may be labeled “ancillary” to the core function of the PSAP, they can be vital to the success of the agency.

Many times, these support duties are assigned due to the 24 hours per day/7 days per week that a PSAP operates, or it may be a way to utilize staff productively during the normal ebb and flow of 9-1-1 activities. Regardless of the reason and whether ancillary duties will transfer to a consolidated center or remain with a local agency, it is crucial to understand that the functions exist and must be considered for continuation,
discontinuation or a modification in process. Ultimately, each public safety department must make its own
determination for handling these functions that are consistent with the community’s standard of care, service
level expectations, and available resources. It is also important to realize that there is a cost associated with
these functions today and unless wholly discontinued, there will be a recurring cost in the future. Some
agencies may elect to add staff to perform continuing activities; other agencies will modify the procedures for
providing governmental services. Stakeholders are advised that any retained duties in the community will likely
have an impact on anticipated cost savings.

While enhancements under the current structure are possible and will clearly improve service, they only go
part way toward realization of the guiding principles articulated as the ultimate goal for the region. The
Optimum Model, if adopted with a spirit of collaboration and resolve, will be most faithful to the principles and
effectively enhance 9-1-1 service in King County.

The next steps in the process for King County are critical. There are a multitude of decisions that will need
to be discussed at length regarding consolidation including to what extent the region wants to embrace
consolidation. Each of these decisions will require a commitment to thorough discussion and evaluation by
the implementation team. Every policy decision will impact financial projections and operational outcomes.

Decisions of this magnitude do not come without challenges and may be difficult to implement. However,
GeoComm is confident that the recommendations presented will identify sufficient feasibility for financial
sustainability of the KCE9-1-1 program while also improving the overall public safety communications services
to the citizens and visitors within the region.

In conclusion, GeoComm has reviewed the current PSAP configurations and developed an Optimum Model for
how these 9-1-1 related tasks could be organized, staffed, and performed. If adopted, this model could offer
the nine PSAPs directly impacted by consolidation an opportunity to:

- Savings on a countywide basis could be 9.1 percent or $6,014,172 for 9-1-1 call taking alone
- Reduce the number of call takers by 41 positions
- Create a more inter-operative holistic emergency communications system in the entire county that
  would mean better coordination and information sharing among and between emergency response
  agencies, while creating far greater “flex” capability to efficiently handle a massive influx of 9-1-1
  calls that would accompany a disaster such as an earthquake, volcano eruption, or massive wild fire

The challenges that the county will face when embarking on and implementing area-wide improvements or a
reorganization of the magnitude proposed may, at first, appear daunting. Some of the challenges will be easier
to overcome and address than others. Mitigating or resolving the challenges, however, will continue
to advance the county toward the ultimate goal of improved service, more effective governance and policy development, and a superior level of efficacy in operations.

Highly functioning organizations perpetually seek to increase efficiencies and find more effective ways of conducting their work. Successful organizations pursue service enhancements for their constituency and put that goal above many others, if not paramount, in their processes and procedures. These successful organizations seek opportunities to improve and enhance operations at every level of the organization and within every task. In the spirit of seeking the same outcomes for the PSAPs in King County, GeoComm believes that the potential enhancement to 9-1-1 service in the area recommended in this report are possible and encourage their consideration and adoption.

While enhancements under the current structure are possible and will clearly improve service, they only go part way toward realization of the guiding principles articulated as the ultimate goal for the region. The Optimum Model, if adopted with a spirit of collaboration and resolve, will be most faithful to the principles and effectively enhance 9-1-1 service in King County.
Findings and Conclusions

Overview
This section of the report discusses current operating and functional elements that contribute to consideration for change, enhancement of service, or continuation of present methods in King County. While high-quality public safety communications services are provided under the current structure, the findings and conclusions are provided to assist King County in planning and decision-making for the future.

Methodology and Process
As part of this PSAP Consolidation Assessment Study, GeoComm has conducted research, collected data from the 12 King County area Public Safety Answering Points (PSAPs) and other sources, interviewed stakeholders, and observed PSAP operations. The various methods of data collection and observation have helped GeoComm identify a number of findings and conclusions related to 9-1-1 service in the county that have ultimately led to recommendations of enhanced services through King County E9-1-1 Program Office (KCE9-1-1) and the recommendation of an optimum model.

Upon completion and acceptance of the Existing Conditions report, GeoComm’s project team began analyzing the data collected to review PSAP similarities, system requirements and technology, staffing needs, and operations. The GeoComm project team then discussed a range of models from maintaining the current configuration of PSAPs to a variety of consolidation scenarios in order to ensure the most thorough PSAP analysis. Further information about the models considered is presented in Section Three of this report.

Findings
Governance Structure Assessment
GeoComm understands that the governance structure of any organization is one of the most crucial elements to its success. The selection of an appropriate structure is especially important to a multi-jurisdictional public safety communications operation.

When multiple agencies jointly operate public safety communications centers, participants must develop confidence that their interests are represented in decision-making and that they can appropriately influence the level of service provided to their constituents. Either through direct or collaborative representation, agencies must have a forum for active participation in the policy development for and management of dispatch services.
The Revised Code of Washington (RCW), Title 38, Chapter 53, Section 510 provides for each county in the state, either singly or in conjunction with an adjacent county(s), to implement countywide or multi-county 9-1-1 emergency communications systems throughout their respective jurisdictions. The Washington State Enhanced 9-1-1 Program also provides a funding mechanism through the levy of a 9-1-1 excise tax at the county level to be used to support PSAP and 9-1-1 administration costs in the county. The county 9-1-1 governance is independent from the Washington State Enhanced 9-1-1 Program and funding decisions are made at the county level.

KCE9-1-1 has ultimate authority for management of E9-1-1 in King County and is a county agency under the King County Office of Emergency Management in the Department of Executive Services. Through an Interlocal Agreement (ILA), KCE9-1-1 contracts with the 12 PSAPs in the county to provide 9-1-1 call delivery equipment along with financial support, 9-1-1 infrastructure, and other support services. The ILA provides for a PSAP Committee which is called upon to discuss issues of countywide importance and to be a sounding board for KCE9-1-1 when changes to service or financial support are contemplated, operational standards are developed or improvements to call delivery are needed. There is no formal structure and the PSAP Committee is advisory only to KCE9-1-1. In addition, although King County Emergency Medical Services (EMS) is welcomed to attend meetings of the KCE9-1-1 PSAP Directors group and is encouraged to participate in discussions, the agency is not a formal member or member of the governance boards of North East King County Regional Public Safety Communications Agency (NORCOM) and Valley Communications Center (Valley Com).

The current governing structures of all the King County PSAPs are working well according to the stakeholders interviewed by GeoComm during the course of this project. With the exception of Valley Com and NORCOM, the PSAPs are a unit of a department within a larger organization.

The two larger, consolidated PSAPs, NORCOM and Valley Com are stand-alone organizations with a governing body that represents its member entities and an operating body that represents multiple organizations in its user community. Both PSAPs have representation from their owner cities as in the case of Valley Com or “principals” as is the case with NORCOM. Their policy and operational boards assist the PSAP management with direction on budget and are advisory as it relates to user policy. The governance model is common in independent consolidation scenarios and, for the most part, is effective.

NORCOM board members have advised GeoComm that it strives to operate by consensus and that there is not a history of divisiveness among members when voting. However, some smaller sized PSAPs expressed concern during the interview process that if they move to NORCOM, their influence on the board may be limited due to the two-pronged voting process which tends to favor larger sized agencies.
The two-pronged process, as outlined in NORCOM bylaws, requires a majority of both the voting members present, and their weighted voting for a motion to be approved. The requirement of whether a simple or super majority is required is dependent upon the motion.

GeoComm found that each PSAP currently operating in King County believes it has an effective and efficient governance structure to meet its needs. The two consolidated centers (Valley Com and NORCOM) have a structure in place with both a policy and operations board that provides direction and accountability for the PSAPs.

As noted above, each of the city PSAPs included in the study operate as a unit of a larger body, typically the police department. The University of Washington Police Department PSAP, Port of Seattle Police Department PSAP, and Washington State Patrol (WSP) PSAP also have law enforcement agencies responsible for the operations of their PSAPs, as does the King County Sheriff’s Office (KCSO). In each case, the governance is structured so that it can be responsive to PSAP needs and also accountable to appointed or elected officials and the public safety agencies they serve.

During its meetings with elected and appointed officials, GeoComm found that some of the PSAPs not currently in a consolidated environment are concerned that if their PSAP were to be absorbed by a consolidated PSAP, their citizens would lose the level of service and accountability they currently experience and expect. They are concerned that the culture of a larger, consolidated, and potentially less personal organization would not provide the same level of service and responsiveness.

From the discussions that GeoComm had with PSAP officials and stakeholders, governance is the first hurdle that must be cleared for current, independent PSAP entities to consider consolidation.

As noted in the Existing Conditions Report, both Valley Com and NORCOM have both a governing board and an operations board. The governing boards consist of elected or appointed policy officials while the operating boards’ members are representatives from the public safety entities that the PSAPs serve. In both cases, the governing board is primarily responsible for budget, policy, legal, and administrative issues, while the operating boards are responsible for operational policies and procedures.

With potential consolidation, it will be imperative that a new governance structure be developed for the new entity or entities. The type of governance structure chosen can directly impact the success of PSAP consolidation. The new organizational structures provide an opportunity to establish a shared governance approach that ensures each agency has fair and equitable participation.
For small PSAP entities considering moving to one of the larger consolidated systems, they must be confident that the governing and operating boards are representative of the user agencies and that their concerns will be addressed. Representation and participation in ongoing management, procedure development, service levels, and budget decisions that are fair and equitable will be essential. It is vital that those participating have confidence in their ability to impact the level of service provided to the public and to be able to help define service that might affect their own agency. Participating agencies must have an active role in policy development and management of dispatch services.

**Governance Findings**

- **KCE9-1-1** has an advisory committee representative of PSAP managers and directors. The committee does not have a formal structure, charter, or mission for which it is responsible, and is not comprised of representation that is, in most cases, directly responsible to an elected body.
- Bothell, Redmond, and Issaquah are reluctant to participate in membership of NORCOM due to perceived inequity in decision-making. They have expressed a fear that as a smaller community and a late “joiner” to the NORCOM jurisdiction, they will not have a sufficient voice in its governance and policy, whereas today they have complete control over their own PSAP operation. They also shared concerns that any change to a policy or practice would take an extended period of time to initiate in a consolidated operation because of the bureaucracy and the shared decision-making process. They feel they are able to be much more nimble in their decision-making by retaining local control over their dispatch services.
- Public safety agencies in King County want to participate in decision-making that impact their operation and the 9-1-1 service in their community.
- PSAPS will be more receptive to consolidation if there is no appearance or perception of control or undue influence by any one agency. Consolidated agencies must be independent in practice and perception and governance and operational representation must be fair and equitable.
- King County EMS does not have a seat on the governing boards of any of the PSAPs that it supports financially through its agreement with the fire agencies. The chief executive of the member fire agency represents fire and EMS on the governing boards of NORCOM and Valley Com rather than a King County EMS representative.

**Political Assessment**

Public safety agencies in King County have a long history of working together to address the region’s needs. For example, groups such as the City Managers group formally meet to discuss the county’s issues and seek collaborative resolution to concerns that affect the region. The PSAP consolidation discussion is no different and has led to measured and deliberate conversation about how best to define and seek most efficient governance of the 9-1-1 call delivery system and support necessary to maintain the effectiveness of that system. The continued economic health of the region and the need to provision new and additional Next Generation 9-1-1 (NG9-1-1) call delivery services has advanced the evaluation of consolidation opportunities and an examination of the potential efficiencies that might be gained.
While the region as a whole has sought innovative and creative resolution to economic stress, the impact that consolidation discussion has on individual communities and cities, which pride themselves on customized and highly specialized services for their citizens, is politically charged. All cities want to provide the highest quality public safety response services to their constituents and need to be assured that any changes will positively impact that service delivery. Demonstration that any consolidation effort will retain that same or greater level of customer service will be essential to allay the fears of elected officials on behalf of their citizens. Any consolidation effort will need to ensure a number of things.

- Service levels are at least equal and potentially improved.
- Local government has a voice in the design and management of the 9-1-1 call delivery service on behalf of their constituents.
- Cost effectiveness can be demonstrated and is a clear advantage.

It is important to note that several communities have successfully consolidated already; the region has two examples of highly functional, multi-agency consolidations in the form of NORCOM and Valley Com. Several communities that are part of these consolidations expressed to GeoComm their initial reluctance and objection to becoming part of a consolidation; however, these communities now report their concerns were proved to be unfounded. It was demonstrated to them that a larger, consolidated operation could just as effectively handle the services for their citizens and their responders as well as the local operation.

Obviously, there are some initial challenges and procedural changes that everyone has to work through, but the first thought that consolidation could not work for them was quickly dispelled once everyone gave it a chance.

Political Findings

- The King County communities have several formalized groups such as the City Managers group which should be leveraged for information gathering and dissemination related to consolidation discussion, decisions, and transition and implementation planning.
- Positive aspects of already consolidated operations and positive experiences of agencies that have already been through consolidation should be shared as consolidation discussions continue.

Funding Assessment

The PSAPs in King County are dependent upon the revenue they receive each year from KCE9-1-1 not only in direct financial support known as an “escrow” account, but also for technical PSAP support, training, and equipment. KCE9-1-1 funded up to 26 percent of PSAP budgets in 2011 and is projected to fund up to 22 percent in 2012.
KCE9-1-1 and the PSAP Committee has recently reviewed the funding formula and helped shape the modifications to the budget distribution for 2012 and 2013.

KCE9-1-1 and the PSAP Committee has recently reviewed the funding formula and helped shape the modifications to the budget distribution for 2012 and 2013. In both years, KCE9-1-1 is forecasting a PSAP revenue distribution to escrow accounts of $5,790,617 and an additional $5,898,000 for all PSAP support costs. Before considering future PSAP supplemental funding models, the PSAP Committee and KCE9-1-1 are awaiting decisions, in order to review the information provided by GeoComm.

Given the increase in distribution of revenue to the PSAPs it supports, and the high cost for the deployment of NG9-1-1 services on the horizon, it is important for KCE9-1-1 to consider the financial sustainability of its current strategic direction.

**Funding Findings**

- Both the state and county excise tax for wireline, wireless, and Voice over Internet Protocol (VoIP) are at the maximum rate allowed by the statute and cannot be increased without a change in legislation. Currently no opportunity exists to increase 9-1-1 excise tax revenue without increasing subscribers or population growth.\(^1\) The State of Washington Office of Financial Management forecasts King County’s population to increase by 641,213 by the year 2032. However, there is an opportunity for King County voters to approve a local sales and use tax for 9-1-1 system improvements. For example, the voters in Pierce County, Washington, approved a one-tenth of one percent (0.01%) tax for improvements to its 9-1-1 system in 2011 with a 55 percent majority.\(^2\)

- There is consensus that future KCE9-1-1 funding is not sustainable in the current structure; however, there is not a consensus on the appropriate strategies to mitigate financial challenges. Some believe a reduction in the number of PSAPs is the best future course while others perceive that funding challenges should be addressed through a number of approaches, such as reductions in amount of funds provided for staff support and escrow funding. There is a concern that the number of staff positions funded at the PSAP by KCE9-1-1 may lead to a shortage of funds necessary for KCE9-1-1 to complete its deployment of NG9-1-1 services, and it is anticipated that NG9-1-1 will have significant costs associated with it.

- The cost impact of NG9-1-1 on PSAP technology budgets is very difficult to determine, since many of the details about how NG9-1-1 will be implemented at the national, state, and regional levels are still unknown. In 2009 the U S Department of Transportation’s Next Generation 9-1-1 System Initiative released an analysis of cost, value, and risk for NG9-1-1. The report stated its conclusion in this way, “After adjusting for the risks inherent in the upgrade to an NG9-1-1 system, all NG9-1-1 deployment scenarios have total lifecycle costs that are within the range of the current 9-1-1 environment’s lifecycle costs.”\(^3\) GeoComm finds that the present 9-1-1 system architecture


with an on-site 9-1-1 switch at each PSAP will be more expensive to upgrade to NG9-1-1 than the recommended architecture with fewer shared switches, but the present architecture is also more expensive to maintain in a non-NG9-1-1 environment.

- It was reported to GeoComm that the original NORCOM infrastructure and budgeting was based on a larger number of “principals” than is currently part of the NORCOM agency. Because of the assumptions used in planning for NORCOM versus the resulting participation levels, there is a perception that NORCOM is struggling financially. Bothell, Redmond, and Issaquah have expressed reluctance to participate in membership of NORCOM due to this perceived financial instability and the concern that future costs are unknown.

- The smaller PSAPs that are not already primary for wireless 9-1-1 calls want to handle all calls originating within their jurisdiction including wireless 9-1-1 calls. Although KCE9-1-1 has the sole authority to determine wireless call routing, there is a lot of confusion and tension over the manner in which wireless 9-1-1 calls are being routed. Leadership at the PSAPs that are not receiving wireless 9-1-1 calls directly express concern that every wireless 9-1-1 call from their jurisdiction requires a transfer. In addition, inter-agency tension is created as revenue is disbursed on the basis of call volume. There has been some attempt to mitigate this concern on the part of KCE9-1-1 through modifications to the PSAP funding distribution. While this attempt has been somewhat accepted, the routing and primary 9-1-1 call answering responsibility issues remain.

- Funding distribution is perceived to be able to be manipulated by various methods such as not transferring all 9-1-1 calls for the same incident; encouraging, or at the very least not discouraging, use of 9-1-1 as a non-emergency number; and perception that police officers routinely use 9-1-1 to communicate with dispatch generating a 9-1-1 call tally.

- Because WSP receives a significant percentage of the wireless 9-1-1 calls in King County, it is considered one of KCE9-1-1’s large PSAPs and is receiving eight percent of the total distribution from KCE9-1-1 in 2012 and 2013. This is the only state patrol agency in the state receiving funding from a county through its 9-1-1 surcharge revenue. It is also eligible to receive some equipment support from the Washington State Enhanced 9-1-1 Program, however, WSP is only eligible to receive some equipment support from the state, but none of the operational support they receive from King County. Per Washington State Statute §18-66-045, “Upon designation by a county as a primary PSAP for wireless 9-1-1 calls, a Washington State Patrol communications center may be eligible to receive available wireless funds from the state enhanced 9-1-1 account.” The remaining operational funding and support that is not covered by King County is part of the WSP normal budgeting process.

- The 2013 KCE9-1-1 financial distribution budget results in a decrease of the fund balance by $3.4 million and the undesignated fund balance by $3.8 million.
### 2013 KCE9-1-1 Budget

<table>
<thead>
<tr>
<th>Financial Support Component</th>
<th>Amount of Funding</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSAP Support Costs</td>
<td>$5,898,000</td>
<td>20.9%</td>
</tr>
<tr>
<td>9-1-1 PSAP CPE Equipment, Network, and Database(^4)</td>
<td>$12,905,975(^5)</td>
<td>45.9%</td>
</tr>
<tr>
<td>Escrow</td>
<td>$5,790,616</td>
<td>20.6%</td>
</tr>
<tr>
<td>9-1-1 System Administration and Overhead</td>
<td>$2,410,588(^6)</td>
<td>8.5%</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>$1,160,540</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

### KCE9-1-1 Assessment

GeoComm finds that KCE9-1-1 is highly respected in King County and the PSAP community supports the mission of the office to help ensure the highest quality 9-1-1 service for the region.

KCE9-1-1 is responsible for the planning and implementation of 9-1-1 infrastructure and is actively working towards NG9-1-1 implementation. KCE9-1-1 expects to accumulate an $8.9 million undesignated fund balance by the end of 2012 to further this goal. The 2012 estimated financial plan, as of June 30, 2012, projects that some delays in anticipated expenditures requires deferring expenses until 2013. The 2013 proposed expenditures exceed those estimated in 2012 by $3.0 million.

The King County Enhanced 9-1-1 Participation Agreement (ILA) provides for a PSAP Committee with representation from the 12 PSAPs and this same agreement also reserves the right to final judgment regarding system management and the use of E9-1-1 excise tax proceeds to King County.

### KCE9-1-1 Findings

- It is anticipated that NG9-1-1 will have significant costs associated with it and that legacy costs will need to be maintained during transition to NG9-1-1 and for a period beyond implementation.
- Long-term financial sustainability is a concern given the current projections provided in KCE9-1-1 2013/2014 biennial financial plan. KCE9-1-1 budget forecast through 2016 reflects a declining fund

\(^4\) The State of Washington pays a portion of the selective routing, network, and database services across the state; KCE9-1-1 supplements state funding for services provided in King County.

\(^5\) The total is an estimate based on the total direct services and intergovernmental services line items less the technical staff at PSAP and the escrow funding.

\(^6\) The total wages, benefits, and retirement plus total intergovernmental services less the technical staff at PSAP and escrow funding for the King County Sheriff’s PSAP.
balance. By the end of fiscal year 2016, the total end of year fund balance will decrease by $7.3 million and the undesignated fund balance will decrease by $7.8 million.

- E9-1-1 funding policies recommendations are developed by KCE9-1-1 in collaboration with the PSAP Committee. The policies are then presented to the King County Regional Policy Committee for approval, and then forwarded to the County Council for approval. The final approval for fiscal policies related to E9-1-1 funding rests with the County Council. Fiscal decisions, within those established and County Council approved policies, are reviewed by the PSAP Committee. Each year the E9-1-1 Program budget is reviewed at the division, department, and Executive levels in county administration, and then approved by the County Council. Reports are given, as appropriate, to the King County Regional Policy Committee and the Suburban Cities Association. Any changes in funding policies follow this procedure and are presented to the King County Regional Policy Committee and approved by the County Council.

Operations Assessment

GeoComm is pleased to note that King County PSAPs possess very competent and skilled call takers and dispatchers that answer and process 9-1-1, non-emergency, or administrative calls. Proficient and experienced telecommunicators and supervisors are crucial to the consolidation process.

Projected Workload and Staffing Levels

Just as each agency grows in numbers of police officers, paramedics, and firefighters, the number of communications personnel to provide public safety communications services will also grow. Factors that directly impact this PSAP growth include call volume, increase in the number of police officers, paramedics, and firefighters, population growth, rise in crime, etc.

GeoComm found that the current and projected call volume does warrant more call taker staff in the current single PSAP environment. The staffing and methodology is further discussed Sections Five through Seven as well as the Staffing Appendix of this report. However, as a quick snapshot, GeoComm offers the following chart:

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Current Call Taker Staffing Level</th>
<th>Recommended Call Taker Staffing Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Enumclaw</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Issaquah</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>KCSO</td>
<td>18</td>
<td>51</td>
</tr>
<tr>
<td>NORCOM</td>
<td>65</td>
<td>34</td>
</tr>
<tr>
<td>Port of Seattle</td>
<td>16</td>
<td>17</td>
</tr>
</tbody>
</table>
The current call taker staffing allocation is a staffing shortage of 83 call takers. In addition, GeoComm believes that a minimum of two dispatchers on duty is an essential risk management and employee safety factor. A minimum staffing level of two assists with continuity of operations in the event of call overload, dispatcher safety, backup coverage, and a variety of other reasons. At some PSAPs, there is not a consistent minimum staffing level of two on duty 24 hours a day, seven days a week.

Further, the Office of Financial Management of the State of Washington has forecasted population growth for King County through 2040. In its 2012 projections publication, County Growth Management Population Projections by Age and Sex: 2010-2040, the agency projects a 33.75 percent growth in population between 2011 and 2032. Utilizing the population growth as an indicator, GeoComm estimates that the total call volume in King County will grow at the same rate. The following table provides those estimates:

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Current Call Taker Staffing Level</th>
<th>Recommended Call Taker Staffing Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redmond</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>43</td>
<td>51</td>
</tr>
<tr>
<td>University of Washington</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Valley Com</td>
<td>44</td>
<td>59</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>264</strong></td>
<td><strong>347</strong></td>
</tr>
</tbody>
</table>

The call volumes include all 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls.

For 2012, 2013, 2012, and 2032 the projected call volume was based on Office of Financial Management 2012 projections publication.

---

7 Includes 9-1-1 emergency and 9-1-1 non-emergency administrative calls for 2011 as reported by KCE9-1-1. The call volumes include all 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls.

8 For 2012, 2013, 2012, and 2032 the projected call volume was based on Office of Financial Management 2012 projections publication.
Given the projected growth rate, GeoComm estimates that current staffing levels will need to be adjusted to accommodate growth in call volume. The PSAPs in King County will need to increase the total number of call takers to an additional 33 call takers in 2021 and another nine by 2032. The additional call takers will be needed at the PSAPs is an estimate and will ultimately depend on actual call volume and the PSAP structure in place at the time.

Projected Workload and Staffing Levels Findings

- GeoComm finds that given the current call volume, the region’s call taker staffing is currently understaffed by 83 positions.
- GeoComm estimates that, given the projected growth rate, PSAPs in King County will need to increase the total number of call takers to an additional 33 call takers in 2021 and another nine by 2032. The additional call takers will be needed at the PSAPs is an estimate and will ultimately depend on actual call volume and the PSAP structure in place at the time.

Service Level

In the process of this assessment, the various methods of data collection and on-site interviews and observations were helpful in determining findings for the service level expectations. All the PSAP representatives GeoComm interviewed were very knowledgeable and demonstrated a thorough understanding of the workflow processes in their communication centers. The observations revealed professional and competent staff, from management to call taker.

For PSAPs to consider transitioning to a consolidated environment there needs to be adequate disposition of their ancillary duties or leave behind duties before the cities will realize the full value of the cost savings. These are duties including, but not limited to, handling walk in traffic for records and fingerprinting requests, jail business, issuance of Concealed Pistol Licenses (CPLs), monitoring jail, security cameras, answering after-hours administrative lines for other city departments, panic and fire alarms.

In some cases duties can be performed by any PSAP providing dispatch service but in other cases, alternate ways of performing these duties will need to be determined. The very nature of the communications center is to perform many duties beyond the core services of call intake and dispatch. Many of these duties are so routine and ingrained in local operations that many in the PSAPs may not even realize that some of the ancillary duties are unique to their operation.
Service Level Findings

- GeoComm finds that the professionalism of the 9-1-1 communications centers is at a very high level and that all of the PSAPs strive to provide high quality and responsive 9-1-1 service in the communities.

- GeoComm finds that several PSAPs perform a variety of ancillary duties, and the current non-consolidated PSAP agencies must adequately reassign those duties before consolidation is accepted by the jurisdiction.

- GeoComm finds that each non-consolidated PSAP believes they are positioned to provide the best level of service and responsiveness to their communities and being served by a consolidated center would result in service degradation.

- Some of the Board governance of the already consolidated PSAPs are open to expansion and some are not. The Valley Com board position, as stated by the current Board Chair, is that while they do not desire to add full “owners” they are open to considering contracts for service. NORCOM, during GeoComm interviews with their Board Chair, has expressed they are open to accepting new principals. The Bothell PSAP also expressed that it is open to partnering with other PSAP agencies and believe they have adequate room for such expansion.

- There is some concern that PSAPs will not be able to maintain the current level of service when NG9-1-1 is fully implemented. NG9-1-1 will make it challenging for a single position PSAP to handle both voice and non-voice calls. A single call taker/dispatcher will not be able to effectively process these two types of calls at the same time. The additional data that will be both available and sent to the PSAP with NG9-1-1 calls will need to be managed and handled. This additional information that is part of the NG9-1-1 call will clearly impact current PSAP staffing levels.

Call Routing and Call Processing

As stated above, KCE9-1-1 has the authority to establish wireless call routing. The decision to route wireless E9-1-1 calls is based on the estimated coverage area of the sector of a cell site, the proximity of that coverage to a major highway or interstate that would require a WSP response, and the PSAP’s ability to absorb a surge of call activity that is often associated with multiple wireless 9-1-1 calls reporting an incident.

While the rationale used by KCE9-1-1 is sound, the confusion and tension that results over the manner in which wireless 9-1-1 calls are being routed is counterproductive. The local PSAPs want to handle all calls originating within their own jurisdiction, including wireless 9-1-1. It should also be noted that on many accidents, and at least on serious accidents, a fire/EMS response is also likely required. Fire/EMS response is dispatched by one of the five designated PSAPs rather than WSP, thus requiring a transfer of the call to the jurisdiction responsible for fire/EMS dispatch. In addition, GeoComm observed PSAP staff conduct

9-1-1 call answering and call transfer activity at each of the primary and secondary PSAPs. Although the staff at all PSAPs demonstrated a good understanding of their critical role in the overall effort to assist callers, calls for service which require a transfer are delayed.
KCE9-1-1 has established a policy that all wireless calls shall be transferred to the appropriate jurisdiction by the answering PSAP. So if the primary answering PSAP (NORCOM, Valley Com, Seattle Police Department, KCSO, or WSP District 2 - Bellevue receives 20 calls reporting the same incident all of those calls are to be transferred to the appropriate PSAP. There is a perception by PSAPs receiving the transferred 9-1-1 call that transfer policies are not always being followed in the primary PSAP.

In addition, all 9-1-1 calls requesting fire and EMS services from the City of Seattle are answered at the Seattle Police Department PSAP but are dispatched by the secondary PSAP of Seattle Fire Department. This process requires a transfer of the 9-1-1 call.

Call Routing and Call Processing Findings

- Policies have been established relating to the transfer of wireless calls to the appropriate PSAP even if answered at another PSAP. However, there is a perception that policies are not always being followed in the primary (answering) PSAP.
- It is inevitable that calls requiring transfer to another agency will take longer to process than calls that do not require transfer.
- During the observation time, GeoComm consultants found that calls were generally processed in accordance with common industry practices which include verification of event location, call back number, additional hazards, etc.

Training Assessment

GeoComm understands that there is a direct correlation between training and performance. 9-1-1 personnel are expected to provide the highest possible levels of public safety services to both the public and first responders.

In order to identify effective training strategies, methodologies, topics, and approaches, a detailed training needs assessment should form the basis for identifying the critical duties, tasks, knowledge, skills, and traits for effective performance in any given job category. It is through a validated training needs assessment and effective training development and delivery that 9-1-1 personnel at every level are given the tools necessary to demonstrate the highest professional standards possible.

Training Findings

- KCE9-1-1 training curriculum is not based on a recent, validated training needs assessment with the existing topics being offered on a rotational basis each year. There is no stated plan to assess the training needed by King County 9-1-1 personnel.
- KCE9-1-1 Training Coordinator position is responsible for oversight and coordination of the training offered to 9-1-1 personnel but the job description does not require training in conducting training needs assessments, developing curriculum or delivering training for 9-1-1 personnel.
There are inconsistent standards for Quality Assurance/Quality Improvement (QA/QI) programs used by the various PSAPs.

The Communications Training Officer (CTO) programs are used as the formal training model for newly hired telecommunicators. The training programs for CTO trainers are not standardized across all PSAPs. All PSAPs will have unique elements of their training program that are specific to their agency’s policies, procedures, and protocols. However, the use of CTO programs which have varying foundations creates disparity across King County in the baseline training methodology used to train 9-1-1 personnel. This may lead to a risk management issues related to varying degrees of standard of care from one PSAP to another.

The two larger, consolidated PSAPs, NORCOM and Valley Com, have had their training evaluated for compliance with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (Project 33). The other PSAP training programs have not.

All PSAPs reportedly participate in the King County PSAPs’ TTY testing schedule. The testing process has been evaluated against the ADA requirements and APCO and NENA standards. This is a very proactive approach to equipment testing.

An assessment and recommendations for the regional training program is contained in Section 4 of this report.

GIS Assessment

Geographic Information System (GIS) data plays an important role in PSAPs today and a more heightened role in a NG9-1-1 system. The primary use today is within PSAP mapping software that can be standalone or embedded within the CAD systems.

The 12 PSAPs for King County have a standalone mapping application, xTrakker™, associated with the 9-1-1 telephone answering system. This mapping application is supported and maintained by KCE9-1-1. Some PSAPs also maintain a CAD map. The GIS data gathering used in each of the report models focuses on the maintenance and use of GIS data that is used in the PSAP mapping applications.

KCE9-1-1 completes synchronization testing on the MSAG, Automatic Location Identification (ALI), and their GIS data on a regular basis. Their process follows procedures outlined in NENA 71-501: NENA Information Document for Synchronizing Geographic Information System Databases with MSAG and ALI. If changes are required KCE9-1-1 contacts local personnel for resource information to update the King County dataset.

KCE9-1-1 has established a maintenance program for obtaining information from the local jurisdictions that takes advantage of available resources and local contacts.

KCE9-1-1 GIS database provides a countywide view beyond the specific PSAP boundaries. In addition, PSAPs utilize local GIS databases within the CAD mapping application.
Seattle Fire Department uses data for response unit routing while Seattle Police Department uses GIS data for location validation. Seattle Fire Department maintains their own GIS data using the Seattle Public Utility (SPU) data as a reference for changes to the data. Seattle Police Department uses SPU data as their base layer in CAD. Minor adjustments are made to SPU data are made by Seattle Police Department to support CAD functionality.

**GIS Findings**

- KCE9-1-1 maintains the Master Street Address Guide (MSAG) for all of King County. The centralized maintenance program applies consistent standards within the MSAG that would be difficult if it were maintained by individual jurisdictions.
- KCE9-1-1 maintains a countywide GIS database that is updated in the mapping application associated with the Customer Premise Equipment (CPE) in all PSAPs, xTrakker™. The countywide GIS database includes address points, street centerline, emergency service zones, and city and zip code boundaries.
- KCE9-1-1 GIS data and MSAG maintenance program provides King County with a strong GIS foundation moving into a NG9-1-1 system.
- However, it was reported to GeoComm that there are some concerns with the speed in which changes are provided into the maintenance program and the effectiveness of the resource information from the local jurisdictions. This is a common maintenance issue of GIS data involving several jurisdictions.
- GeoComm found that synchronization testing between the MSAG, ALI, and KCE9-1-1 GIS data following the NENA 71-501 processes is completed on a regular basis. The KCE9-1-1 map data has a synchronization level around 99 percent which exceeds current industry standards.

**Facilities Assessment**

The facility assessment process considered the suitability of the facilities for current needs as well as future needs with local population growth projections and the implementation of NG9-1-1. As just one example, if NORCOM takes on more “principals” the suitability of the facility will be challenged.

The location of the NORCOM PSAP within the Bellevue City Hall building makes it less than suitable from a political standpoint as it has been difficult to shed the impression that this is still a City of Bellevue operation because of the location of the operation within the same existing City facility.

High level information about each of the PSAP facilities that would be impacted by GeoComm’s recommendations are included below.

**Bothell**

The Bothell facility has five consoles. The space is adequate for the present and one additional console could be added, but any further expansion would require major renovation. There is not sufficient extra
space in the equipment room for expansion. Bothell uses NORCOM as a backup site. Bothell does not serve as a backup PSAP for any other PSAP.

Enumclaw
Enumclaw’s facility has two 9-1-1 answering positions and radio consoles and a third overflow call taking position. As an older facility its ability to withstand a major earthquake is unknown, although it is reported to have minimal damage during the region’s recent earthquakes. Enumclaw’s backup location is the Enumclaw fire station. Enumclaw is not listed as the backup PSAP for any other PSAP.

Issaquah
The Issaquah facility is small and aging and has four positions. It has a very small equipment room that is full. There is no room for expansion of either the dispatch room or the equipment room without major renovation and removal of the adjoining police department break room. The Redmond PSAP is Issaquah’s backup. Issaquah does not serve as the backup PSAP for any other PSAP.

KCSO
The KCSO PSAP operations area is divided into a primary operations area with 32 consoles and a secondary operations area with 14 consoles. The 46 positions provide sufficient space for expansion of operations. There are two equipment rooms in the facility; both have room for additional equipment. The secondary operations area is currently used as a backup PSAP facility for Valley Com and as overflow or special operations space. Valley Com is the backup PSAP for KCSO.

NORCOM
The NORCOM facility has 17 consoles in the dispatch area and seven consoles in the training area. The size is adequate for today’s operation but does not have significant capability for expansion. Major expansion would require renovation and the forced dislocation of another city department. Emergency power capacity is excellent, HVAC is acceptable, and parking is good. NORCOM’s backup PSAP location is the Redmond PSAP.

Port of Seattle
The Port of Seattle PSAP has six dispatch positions. It has adequate space for its present operations. It has its own equipment room, and also shares equipment room space nearby within the Port of Seattle offices. Its backup facility is an airport garage building. It does not serve as the backup PSAP for any other PSAP at this time.
Redmond
The Redmond facility, with six dispatch positions, does not have room for expansion without displacing other functions such as the adjacent city emergency operations center (EOC). Redmond is currently the backup for NORCOM and Issaquah. Redmond’s backup PSAP is NORCOM.

Seattle Police and Fire
The Seattle Police Department PSAP and Seattle Fire Department PSAP facilities are well-equipped for their task of providing reliable service to a major city. Each serves as a backup PSAP facility for the other.

The Seattle Fire Department PSAP is the newest PSAP in the county. It has adequate space for its own operations. Its equipment rooms are well-designed and provide room for present and future systems, in addition to backup data center space for other city departments including the Seattle Police Department. Effective provisions have been made for backup power and cooling systems. The space provided for a backup location for the Seattle Police Department PSAP is somewhat limited, but that backup function is exercised regularly and successfully.

Backup space for Seattle Fire Department PSAP is provided in a console-equipped training room at Seattle Police Department, and available consoles inside the Seattle Police Department operations room. The Seattle Police Department equipment spaces are also well-designed and provide adequate space and effective redundant power and cooling.

University of Washington
The University of Washington PSAP is located within the offices of the University of Washington Police Department, which is located in an older building on the edge of the campus. The PSAP has two full consoles and a third call taking position. The PSAP is small and crowded, and the equipment room (located in attic space) is not built to normal PSAP equipment room standards. The department is actively seeking a new facility, which will include space for the PSAP. The PSAP does not serve as a backup PSAP for any other PSAPs. The Seattle Police PSAP is the backup location for the University PSAP.

Valley Com
Valley Com is in a facility built for that purpose. There are 34 consoles in the operations room, which is full but adequate for present and projected needs. Valley Com’s backup location is the King County Sheriff PSAP. Valley Com serves as the backup PSAP for the King County Sheriff PSAP.

Washington State Patrol
The Washington State Patrol PSAP contains nine consoles – four for call taking, four for radio dispatching, and one supervisor position. One or two additional positions could possibly be added if necessary by
reconfiguring the existing positions. The backup PSAP for Washington State Patrol is NORCOM. The Washington State Patrol PSAP does not serve as a backup PSAP for any other PSAP. Today, for 9-1-1 call delivery, every PSAP has a designated alternate location where its 9-1-1 calls will be redirected in the event the PSAP is not usable for any reason. As it relates to E9-1-1 call delivery, in all cases the alternate location is also a PSAP. KCE9-1-1 requires that all PSAP backups must be 9-1-1 equipped with ANI/ALI. This requirement is met for all PSAP backups in the region.

In cases where the alternate location is not a PSAP with radio consoles, the PSAP personnel must operate with portable radios and receive calls on phones without the ability to display the phone number or location of the calling party.

Facility Findings
- Most PSAP facilities in King County are well-equipped and suitable for use as PSAPs. Most are adequate in size for the present activity levels they handle.
- Backup PSAP arrangements are generally adequate, although two PSAPs (Enumclaw and the Port of Seattle) report they use backup locations that are normally used for functions other than PSAPs.

Technology and Interoperability Assessment
The technologies and systems used in the PSAPs in King County are generally current releases and are well chosen to meet the needs of the PSAP environment. Technical systems present few obstacles to consolidation in King County. All the PSAPs under consideration for consolidation in the options being presented in this report already use a common radio system. They also use a common 9-1-1 telephone system. While there will certainly be changes in the way these systems are configured and used by consolidated PSAPs, the basic systems are already familiar to the dispatchers and technical staff of the PSAPs.

Computer Aided Dispatch
Computer Aided Dispatch (CAD) presents a different situation. The PSAPs proposed for consolidation are all on separate CAD systems today. While there are a few instances where two or three PSAPs have the same CAD vendor, the systems are not shared today and are completely separate. Selecting and implementing a single CAD system for a consolidated PSAP when the predecessor PSAPs all have separate CAD systems from multiple vendors is a project that approaches in its scope the configuration of a new CAD system.

No agency will be interested in joining an operation with an unstable CAD system. A suggested approach is to carefully evaluate the CAD systems of the predecessor PSAPs and determine which (if any) of the systems will best fit the needs of the consolidated PSAP. If none of the systems are judged to be adequate
to the task, a new CAD procurement becomes part of the consolidation decision process. Even when an existing CAD is selected for use, much work must be done to configure it for the added geographic area, added resources to be dispatched, added response plans and protocols, and in some cases added disciplines if a law enforcement only CAD is becoming a fire/EMS CAD as well. Depending on the vendor’s licensing model, there may be substantial license fees to be paid when the CAD is enlarged or takes on added disciplines or interfaces. Most CAD vendors charge additional fees when more CAD workstations are added to an existing system.

Another CAD challenge for consideration during consolidation discussions is the fact that most CAD products are better at meeting the needs of some disciplines more than others. The CAD system that is chosen by law enforcement as a great product for its needs may not be very high on the list of suitable systems for fire/EMS, and vice versa. Few CAD products are viewed as top choices by all disciplines.

CAD interfaces may need to be added when PSAPs consolidate. For example, station alerting systems are very important for fire dispatching but are not used in law enforcement dispatching.

Interfaces to regional, state and national criminal history databases are essential for law enforcement CAD systems but are not used in fire/EMS CAD systems. Consolidations that bring disciplines together also bring in new interface needs.

Whether or not the region moves forward with any of the consolidation recommendations contained in this Assessment, it is recommended that beyond the CAD interoperability project currently underway, the region should pursue discussion on the feasibility of a single, regional CAD platform for the PSAP agencies in King County.

The new disciplines in a consolidated center may also bring requirements for new systems. Station alerting is a good example. In many cases it will be possible to continue using the existing systems, but the consolidated PSAP will need to be equipped to access or control them. In some cases leased telecommunications facilities may be required to tie the consolidated PSAP to the existing system, bringing new recurring charges.

CAD systems from multiple vendors are in use, but the region is in the implementation phase of a project to interconnect the disparate CAD systems through a central switch to achieve regional CAD data sharing. The shared regional radio system provides the capability for voice radio interoperability at the highest level defined on the Department of Homeland Security (DHS) SAFECOM Interoperability Continuum for the agencies that use the regional system as their primary radio system.
Radio and Telephone Systems

For radio and telephone systems the region is well-positioned. All PSAPs are already connected to the regional ESInet, and most PSAPs already have high-capacity data connections to the regional radio system. Consolidation should in most cases reduce the complexity of these regional systems and also reduce the recurring telecommunications costs associated with them. Existing 9-1-1 equipment can be relocated where needed without serious challenges. The present radio console equipment is not as simple to reconfigure and combine due to its age, potentially incompatible firmware, and limited availability of parts. The Motorola CENTRACOM™ Elite Gold Series radio workstations in use at most of the PSAPs are approaching the end of their support life, but the regional radio upgrade project now underway includes console replacement planning in its objectives. The replacement equipment will be much easier to reconfigure and combine if necessary.

The Seattle Urban Area Security Initiative (UASI) region is recognized nationally as a leader in interoperability. Voice radio interoperability in King County is at a very high level, due to the fact that most agencies in the region use a standards-based shared radio system on a daily basis as their primary radio system. Data interoperability is not as advanced, a situation that is the norm nationally, but the region is actively involved in implementing a CAD interoperability switch to improve this capability. GeoComm understands that the interoperability capacity of law enforcement, fire and EMS is regularly used and tested through exercises.

Interoperability governance appears to GeoComm to be strong and effective. The Tri-County Regional Interoperability Committee (TRIC) is active in maintaining and updating regional interoperable systems and plans. A statewide interoperability executive committee (SIEC) is in place. The Statewide Communications Interoperability Plan (SCIP) was adopted in 2008.

Goal 1 of the National Emergency Communications Plan (NECP) is: “By 2010, 90 percent of all high-risk urban areas designated within the Urban Areas Security Initiative (UASI) are able to demonstrate response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.” The Seattle urban area demonstrated its achievement of Goal 1 on August 8, 2010 at the annual Seafair event. The region was evaluated as having demonstrated compliance with Goal 1 at an Advanced level, the highest of four levels of compliance, as documented in the after-action report. The region’s Tactical Interoperable Communications Plan (TICP) was revised in 2010 and again in 2011. The TICP references information from the SCIP as it has a bearing on regional interoperable communications.

---

GeoComm finds that regional interoperability efforts are effective, the region ranks high on the SAFECOM Interoperability Continuum, and that regional efforts are compatible with statewide efforts and guidelines.

WSP and Port of Seattle Police Department use their own radio systems, not the regional system.

**Technology and Interoperability Findings**

- NORCOM uses two different CAD systems in its operations today. A CAD replacement project is taking longer to complete than originally anticipated. Today, NORCOM call takers must determine whether a call is for law enforcement or for fire/EMS before they know which CAD system(s) to use for call entry. Efforts are underway by the vendor and by NORCOM staff to implement the single system for both disciplines.

- Multiple CAD systems throughout the region complicate the process of automatically providing EMS call data to the Seattle and King County Division of EMS, and receiving protocol updates from the Division of EMS. GeoComm understands that the CAD interoperability switch will not improve this functionality, since these functions fall outside its project scope.

- Some PSAPs are not yet taking steps to connect their CAD systems to the regional interoperability switch, although most plan to do so at some point in the future.

- Agencies have expressed that they are open to exploring technology sharing as potential improvement to both efficiency and cost containment.

- In other places in the United States, the costs of replacing or upgrading dispatch console electronics in such shared, wide area trunked radio systems have been sufficiently high to spur greater interest at the local PSAP level in some degree of consolidation.

- Interoperable communications governance and regional and state plans are working effectively to address the needs of the region. The National Emergency Communications Plan Goal 1 exercise took place on August 8, 2010. In that exercise the region successfully demonstrated response-level interoperable emergency communications at an Advanced level, the highest of four levels of goal demonstration as defined by the Department of Homeland Security’s Office of Emergency Communications. The Tactical Interoperable Communications Plan (TICP) for the tri-county region including King, Snohomish, and much of Pierce County received a major update in 2011, incorporating the lessons learned from the Goal 1 exercise. Interoperability governance in the three-county TICP region includes representatives from each of the major radio systems in the region. The Washington Statewide Communications Interoperability Plan (SCIP), while primarily focused on interoperability efforts of the state and its agencies, incorporates by reference the regional TICP and recognizes the Puget Sound Regional-Interoperability Executive Committee (PSR-IEC) as a model for other regional interoperability committees in the state. The regional plan appears to be fully compatible and in compliance with the state plan.

**Redundancy, Diversity, and Continuity of Operations Assessment**

KCE9-1-1 and its committees have done much valuable work to minimize the impact of failures of equipment, systems, and transport pathways. With the move to ESInet call transport, the level of system redundancy and monitoring has been significantly increased.
Several types of 9-1-1 system outages can occur. There are also several other types of telephone outages that are sometimes reported incorrectly by the media as 9-1-1 outages.

A failure of a telephone central office results in the inability of all customers served by that central office to make any calls – including calls to 9-1-1. There have been numerous cases where this type of failure has occurred and has been reported as a 9-1-1 failure. However, this is not an actual 9-1-1 outage. This is a telephone system outage.

Another telephone system failure that can disrupt all calls including 9-1-1 calls is central office isolation. This occurs when a telephone central office loses its connection to the rest of the telephone system, most commonly because of a break in a main feeder cable. The central office is still functional, and the phones connected to the central office still have the ability to make calls. However, they can only call other customers served by that same central office. Unless the selective router and the PSAP are within the serving area of the affected central office, 9-1-1 calls cannot be delivered to the PSAP. Again, this is a result of a larger problem, not an actual 9-1-1 outage.

A 9-1-1 selective router failure is a serious occurrence. If there is no redundancy in the network, this failure will cause 9-1-1 calls to not be delivered to PSAPs. However, the King County region is served by two selective routers that are redundant to each other. The failure of either router will diminish the total capacity of the system but, because of the redundancy, will not cause a complete 9-1-1 system failure for any PSAP or portion of the region.

Currently, all large PSAPs have dual entrances, so diversity extends all the way to the PSAP. This is a highly desirable configuration and the region is to be commended on this level of reliability. Other PSAPs’ diversity is to the property line, with the exception of Issaquah. KCE9-1-1 has implemented a self-healing network services, SHNS, ring topology to further protect the network from outages and service interruptions.

The SHNS ring network topology is illustrated below:
The ESInet transport network that carries calls from the selective routers to the PSAPs also has built-in redundancy. The network is configured as a fiber ring. Data traffic can travel in either direction around the ring. A single break in the ring will not stop 9-1-1 calls from being delivered to the PSAPs. Two simultaneous breaks in the ring could have a large impact, but the likelihood of such an event is quite low. However, this ring configuration does not extend all the way to the PSAP. The ring is configured within telephone company facilities. The “last mile” connection from the nearest phone company access point to the PSAP is a single fiber connection without redundancy. This is a common cost-benefit compromise in 9-1-1 systems. The cost of a second diverse-routed connection to a PSAP, with separate building entrances for each, without any common pathways or devices, can be several times the cost of a single connection. If that second connection runs to a different connection point on the phone company fiber ring network, the cost becomes even higher.

Redundancy, Diversity, and Continuity of Operations Assessment Findings

- KCE9-1-1 built considerable redundancy into the current 9-1-1 network with the number of Intrado VIPER® systems although at a very high cost, which may be appropriate to review given more current standards and technology. A switch at each PSAP is an advantage when the system is impaired. For example, after a seismic event, a local switch supports the continued use of local phone lines by dispatchers, even if the data connection to the 9-1-1 system is down. At the time the VIPERs were installed, this configuration was the only option available to the region. The capability of serving multiple PSAPs from a single VIPER was just being developed. Since that time, the technology has advanced, as have the standards for NG9-1-1 implementation. There are now other options for serving multiple PSAPs from the same switch, or hosting the switch in the network. If the region moves to shared switches in the future, provision should be made for use of local phone lines if ESInet connections are impaired.

- The CenturyLink™ ESInet in King County uses a ring configuration, providing two data pathways to each PSAP. With the exception of the “last mile” between the PSAP and the carrier’s point of presence, the two pathways are diverse routed to reduce the effect of a single event such as a fiber cut or equipment failure.
Overview

It is the objective of GeoComm to meet the King County E9-1-1 Program (KCE9-1-1) project goal of evaluating potential improvements free of any preconceived notion for consolidation. Once GeoComm compiled the existing conditions information for each Public Safety Answering Point (PSAP) and completed the findings and analysis, it was appropriate to consider potential feasible models for implementation in King County that would result in improvements for the region’s 9-1-1 systems and measure those models against the guiding principles which define the desired service level for the citizens.

As stated in the principles discussion, the region’s stakeholders expressed that the King County public is best served when the 9-1-1 public safety communications call answering and dispatching model is:

- **Consistent**
  - Service in all communities is constant, reliable, and dependable
  - Consistent operational protocols
  - 9-1-1 is considered a core service of government
  - Ensure the public’s expectations of high quality service are met
  - Sound decisions are based on standardized service levels throughout the county

- **Competent**
  - Appropriate practices for effective dispatch are in place
  - Organizations are efficient and highly functioning
  - Coordinated training with the Standard Operating Procedures (SOP)
  - Practices are supported by effective technologies
  - Adequate supervision and support exists

- **Collaborative**
  - “It works best when it works together”
  - Coordinated practices and policies
  - Cooperative governance is in effect
  - United vision of service exists throughout the county

- **Cost Effective**
  - Agencies must be able to equate value of the service with the cost to their community
  - Decisions are made in the best interest of their citizens
  - Achieve the desired standard of care for the entire community
**Customer Focused**

- Least amount of call processing time results in the fewest transfers
- Focus on efficient method of processing call
- Improved service through an efficient and effective response
- Public expectation of reliable public safety services

Using these principles as a guide, the GeoComm team discussed and reviewed six possible models for consideration and evaluation for King County. These six models represent specific configurations for 9-1-1 operations and management.

**Models Considered**

The following is a high level description of the models GeoComm considered for King County. The consolidation of the City of Seattle into a regional center was not deemed feasible and any potential model that included this action was not pursued.

The models considered include:

- **Model 1:** A no change/status quo operations model; the region could continue with the current structure but might consider changes to current operations, management, and oversight that would improve service in the region. (11 primary PSAPs and 1 secondary PSAP)
- **Model 2:** A single regional consolidated PSAP merging all current primary PSAP functions for call taking and dispatching into a single entity for the county, outside of the City of Seattle. City of Seattle Police and Fire would merge into a single consolidated PSAP and the Washington State Patrol (WSP) remaining as a separate primary PSAP. (From 12 PSAPs to three primary PSAPs)
- **Model 3:** A modification of Model 2 which would combine the City of Seattle Police and Fire PSAP as described in the other models into a single, consolidated, independent civilian operation within the City, and a second consolidated PSAP for the county jurisdiction outside of the City of Seattle. In this model, WSP would transition to secondary status. (From 12 PSAPs to two primary and one secondary PSAPs)
- **Model 4:** A single regional call center for receiving all E9-1-1 calls and determination of jurisdictional response. E9-1-1 calls would be transferred to one of the 12 PSAPs in the county which would become secondary PSAPs strictly for dispatching purposes in their respective jurisdictions. (From 12 PSAPs to one regional call center and 12 secondary PSAPs)
- **Model 5:** A five primary PSAP configuration consisting of: (1) a consolidated operation which combines North East King County Regional Public Safety Communications Agency (NORCOM), King County Sheriff’s Office (KCSO), Bothell, Issaquah, and Redmond into a primary PSAP; (2) Combine through contract or partnership of Valley Communications Center (Valley Com) and Enumclaw Police Department; (3) a combined, civilian and separate city department of Communications for Seattle Police Department and Fire Department; (4 and 5) the Port of Seattle and the University of Washington Police Department remain as separate primary PSAPs as currently configured; and (6) WSP transitions to a secondary PSAP with the rerouting of all wireless 9-1-1 calls. (From 12 primary PSAPs to five primary PSAPs and one secondary PSAP)
- Model 6: Smaller sized PSAPs (Bothell, Enumclaw, Issaquah, Redmond, Port of Seattle, and the University of Washington) are collapsed into a single unified PSAP. The larger sized PSAPs of KCSO, NORCOM, Valley Com, and WSP remain as primary PSAPs. City of Seattle Police Department as primary PSAP for the City of Seattle and the Seattle Fire Department remain as a secondary PSAP. (From 12 PSAPs to six primary PSAPs and one secondary PSAP)

- Model 7: A modification of Model 5 which would combine Bothell, Issaquah, and Redmond into a consolidated primary PSAP; merge KCSO and NORCOM into another consolidated operation; a combined, civilian and separate city department of Communications for Seattle Police Department and Fire Department; leaving the Port of Seattle and the University of Washington Police Department to remain as primary PSAPs as currently configured; and Washington State Patrol moves to secondary PSAP status with the rerouting of all wireless 9-1-1 calls to local PSAPs. (From 12 PSAPs to five primary and one secondary PSAP)

**Model 1: No Change/Current Configuration for PSAP Operations**

The first model evaluated was no change/status quo operations. Enumclaw, Bothell, Issaquah, KCSO, NORCOM, Port of Seattle, Redmond, Seattle City Police Department, University of Washington Police Department, Valley Com, and Washington State Patrol would remain primary PSAPs and the Seattle Fire Department would retain its secondary PSAP status. Any deficiencies or issues related to funding or operations in existence today would remain unless improvements are implemented under the current configuration of PSAP entities.

GeoComm identified advantages and disadvantages in regards to remaining as currently configured.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost to operate in the current environment is known.</td>
<td>No improvements in service to the citizens.</td>
</tr>
<tr>
<td>Issues are known.</td>
<td>Sustainable funding concerns and challenges are not addressed.</td>
</tr>
<tr>
<td>PSAPs continue to serve their local communities at their discretion.</td>
<td>Current issues remain unresolved.</td>
</tr>
<tr>
<td>Backup configurations do not change.</td>
<td>Potential for continuing or escalation of challenges.</td>
</tr>
<tr>
<td>Full advantages of NG9-1-1 are not realized.</td>
<td>Transfer of 9-1-1 calls is not reduced and call processing times are not improved.</td>
</tr>
<tr>
<td>Does not reduce the number of PSAPs.</td>
<td></td>
</tr>
</tbody>
</table>
Looking at the advantages and disadvantages, remaining as currently configured does not meet several of elements of the guiding principles, such as:

- Cost effective
- Inconsistent service levels between communities
- Least amount of time between call receipt and dispatch readiness (most efficient method of processing call)

The cost of supporting and maintaining the large number of primary and secondary PSAPs in King County is what drove KCE9-1-1 to evaluate the feasibility of consolidation leading to the current project. The significant support that KCE9-1-1 contributes in the way of technical staff support, technology, distribution of 9-1-1 funds, and other support personnel is substantial and adds to the fiscal stability issues facing KCE9-1-1.

One of the other primary issues with maintaining the current configuration is the reality it does not resolve the call processing delays caused by transfers between PSAPs. For example, WSP transfers approximately two percent of the wireless calls they receive to non-primary wireless law enforcement PSAPs. The fire/EMS transferred number was not provided to GeoComm. These transfers are necessary for to initiate local law enforcement or fire/EMS dispatch response to the wireless 9-1-1 call. KCSO transfers fire/EMS calls to NORCOM or Valley Com for dispatch because 9-1-1 call answering and dispatch are split between two agencies. GeoComm believes that in order to provide the best 9-1-1 service to the public, stakeholders should expect a PSAP structure that provides the least amount of time between call receipt and dispatch readiness and the fewest number of transfers that are absolutely necessary.

After looking at other analysis topics, GeoComm determined in areas such as operations, training, technology, redundancy, and funding there were moderate advantages, but also presented significant disadvantages for the PSAPs to remain as they currently are.

However, in comparison to the guiding principles, GeoComm also recognized that there are improvements that can be implemented within the current structure that would enable current structure to more closely align with the principles.

Model 2: One Regional Consolidated Primary PSAP for the County, the City of Seattle Police and Fire Consolidate, and WSP PSAP (Three Primary PSAPs)

A single regional consolidated PSAP merging all current primary PSAP functions for the county for call taking and dispatching into a single entity, except for the City of Seattle is the second model evaluated. In this model, the Seattle Police Department PSAP and Seattle Fire Department PSAP also merged into a single consolidated PSAP, and WSP remains as a separate primary PSAP. This model reduces the number of primary PSAPs from 12 to three.
<table>
<thead>
<tr>
<th><strong>Advantages</strong></th>
<th><strong>Disadvantages</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The two largest 9-1-1 centers (the new regional center and the City of Seattle combined Police and Fire) will have the capability of backing each other up for continuity of operations.</td>
<td>This model will require a new facility for the City of Seattle.</td>
</tr>
<tr>
<td>Reduces the number of primary PSAPs from 12 to three.</td>
<td>If the funding model is not changed, the call volume will require all funding to go to the newly formed consolidated regional PSAP.</td>
</tr>
<tr>
<td>Less PSAP equipment and technology is required to be funded by KCE9-1-1 thus reducing costs.</td>
<td>Lack of redundancy and diversity.</td>
</tr>
<tr>
<td>Provides potential for adequate backup and continuity of operations.</td>
<td>This model may also require a new facility for the consolidated regional PSAP if no existing facility is deemed to be appropriately sized.</td>
</tr>
<tr>
<td></td>
<td>Does not address the specialty populations and requirements of Port of Seattle Police Department PSAP and University of Washington Police Department PSAP.</td>
</tr>
</tbody>
</table>

The current funding model is based on call volume. If all the call volume is concentrated in one facility rather than dispersed among the 12 PSAPs (or some other number) the sustainable funding problem remains. The problem, as expressed by some of the PSAPs, is not so much with the number of ways the 9-1-1 funding is split up and distributed, but the formula itself and the amount of activities and support KCE9-1-1 provides.

This three primary PSAP model does provide adequate diversity and redundancy for the region but does not address the issues of excess cost or technological feasibly optimum configuration.

Looking at the advantages and disadvantages, this model does not meet several of the guiding principles elements, such as:

- Cost effective
- Customer focused

**Model 3: Two Primary PSAPs (City and County) and one Secondary PSAP (WSP)**

Another model considered was a City of Seattle Police and Fire PSAP as described in the other models above into a single, consolidated, independent civilian operation within the City, and a second consolidated PSAP for the county jurisdiction outside of the City of Seattle. In this model, WSP would transition to secondary status.
Advantages | Disadvantages
--- | ---
Reduces the number of PSAPs from 12 PSAPs to two primary PSAPs and one secondary PSAP. | Increases vulnerability; primary PSAPs must be geographically diverse.
Improves call processing in that all law enforcement, fire and EMS is dispatched out of the same facility. | Radio system issues with the Port of Seattle on a separate radio system would have to be addressed.
With appropriate planning and implementation, provides adequate backup and redundancy capability in the region. | Requires two new facilities to accommodate the larger mega-PSAPs for the City and the County consolidated operations.
Improvements identified for the City of Seattle Police and Fire Department are realized. | Does not address the specialized populations and requirements of the Port of Seattle and the University of Washington.
New facilities can be designed, constructed, equipped to current standards, with state of the art technology, NG9-1-1 implementation and radio replacement project in mind. | 

When evaluating the advantages and disadvantages of this model as it relates to the guiding principles identified by the regional stakeholders, the five primary PSAP configurations does not meet several of the guiding principles, such as:

- Cost effective
- Customer focused

This model addresses the objectives of KCE9-1-1 to reduce the number of PSAPs. It moderately mitigates survivability risks by providing two large PSAPs which could be appropriately sized and built to provide adequate redundancy but does open up the region for some vulnerabilities with only two primary operations unless they are geographically diverse and adequately protected. There are radio system complications with the Port of Seattle which would have to be addressed achieve adequate protection.

This model has potential to resolves the funding challenges of the county, improves call processing by reducing transfers to another facility, addresses facility concerns, and day-to-day efficiency issues.

**Model 4: One Regional Consolidated Call Center and 12 Secondary PSAPs**

For this option, GeoComm analyzed the possibility of a regional consolidated call answering PSAP where the current primary PSAPs are all combined operations to form a regional call center that focuses on call
answering and the first stages of call processing for the entire region. Any number of PSAPs could be secondary PSAPs for dispatching purposes.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>This potential model does address some of the financial issues associated with current number of PSAPs and separates the call taking process from the dispatch process. In this model, the number of PSAPs that KCE9-1-1 is required to support is reduced, but if funding is based on call volume not much is changed, it's just the same amount on the check to one entity. This model allows the local community to retain control over its dispatching and local service function.</td>
<td>This model would require a singular facility for the new regional call center; therefore, the model may require a new facility or repurposing an existing facility.</td>
</tr>
<tr>
<td>As mentioned, in order to meet the guiding principles a new funding model will need to be created and shifted to fit a regional model. Local entities would need to assume funding without support from KCE9-1-1 for all dispatch functions. A regional authority board is recommended regardless of any other changes King County makes. Because of the single point of access to answer all incoming emergency call it is important to have a single governing authority.</td>
<td>Continuity of operations is challenged in this model.</td>
</tr>
<tr>
<td>Reduces number of PSAPs from 12 to one primary PSAP thus reducing costs and support from KCE9-1-1.</td>
<td>Financial burden shifted to local government.</td>
</tr>
<tr>
<td>Less PSAP equipment and technology is required to be funded by KCE9-1-1 thus reducing costs.</td>
<td>Some PSAPs may perceive a loss of control in 9-1-1 call answering.</td>
</tr>
<tr>
<td>Local jurisdictions can retain control over their dispatch and service functions.</td>
<td>Every call must be transferred thus increasing call processing time for each 9-1-1 call.</td>
</tr>
</tbody>
</table>
When looking at the topic of redundancy and backup capability, this option could not be considered as a potential improvement for King County. While NG9-1-1 networks will help in some regard, this model did not meet some of the basic elements of the principles such as consistency of service and reliable and dependable service.

Again, unless the funding model is modified, there will not be much anticipated savings for KCE9-1-1. Call processing delays are introduced on every call in this model. This model and the issues it presents are directly contrary to the principles of a PSAP model that results in the least amount of time between call receipt and dispatch readiness (most efficient method of processing call). The single primary PSAP model also does not provide adequate diversity or redundancy for the region.

Looking at the advantages and disadvantages as it relates to the guiding principles identified by the regional stakeholders, this configuration does not meet several of the guiding principles, such as:

- Cost effective
- Consistent
- Customer focused

**Model 5: Five Primary PSAPs and One Secondary PSAP Configuration**

A five primary PSAP configuration consisting of a (1) new consolidated operation which combines KCSO, NORCOM, Bothell, Issaquah, and Redmond into a primary PSAP; (2) a combined Valley Com and Enumclaw primary PSAP by contract or partnership, (3) a combined, civilian and separate city department of Communications for Seattle Police Department and Fire Department, (4 and 5) the University of Washington Police Department and Port of Seattle primary PSAPs and, (6) WSP transitioning to a secondary PSAP.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces the number of PSAPs 12 primary PSAPs to five primary PSAPs and one secondary PSAP thus reducing support costs and improving sustainability of KCE9-1-1.</td>
<td>Some communities of interest may not perceive this configuration to be a service improvement.</td>
</tr>
<tr>
<td>Retains service to the specialized populations of the Port and the University.</td>
<td>Requires the KCSO to share the county building for a larger operation with a shared governance structure.</td>
</tr>
<tr>
<td>Provides adequate backup and redundancy capability in the region.</td>
<td>If funding model continues to be based on call volume not much financial savings can be realized; Funding distribution is not resolved.</td>
</tr>
<tr>
<td>Combines the like jurisdictions into</td>
<td>This model will require a new facility for the City of Seattle</td>
</tr>
</tbody>
</table>
King County, Washington PSAP Consolidation Assessment of the King County E9-1-1 System

June 2013

Advantages | Disadvantages
---|---
manageable operational sizes. | 
Utilizes the KCSO facility in the most effective manner. | 

The five primary PSAP and one secondary PSAP model does provide adequate diversity or redundancy for the region and reduces the number of PSAPs to a manageable support level. This model also improves local service by concentrating the call delivery and dispatch service to the least number of PSAPs without compromising service.

Evaluating the advantages and disadvantages, GeoComm determined that this configuration meets several of the guiding principles, such as:

- Consistent
- Cost effective
- Collaborative
- Customer focused

This model comes closest to resolving the objectives of KCE9-1-1; and would mitigate survivability risks by providing redundant systems that can be adequately protected. This model also resolves the funding challenges of the county, improves the transferring issues to some degree, addresses facility concerns, and day-to-day efficiency issues.

Model 6: Six Primary and One Secondary PSAP Model

Smaller sized PSAPs (Bothell, Enumclaw, Issaquah, Redmond, Port of Seattle, and the University of Washington) are collapsed into a single unified PSAP. The larger sized PSAPs of KCSO, NORCOM, Valley Com, and WSP remain as primary PSAPs. City of Seattle Police Department as primary PSAP and the Seattle Fire Department remains as a secondary PSAP.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces the number of PSAPs from 12 PSAPs to six primary PSAPs and one secondary PSAP.</td>
<td>Does not address the unique population requirements of the Port of Seattle and the University of Washington.</td>
</tr>
<tr>
<td>Provides adequate backup and redundancy capability in the region.</td>
<td>Wireless call transfer will still be required for local dispatch of fire, EMS, or law enforcement.</td>
</tr>
<tr>
<td>Combines the like jurisdictions into manageable operational sizes.</td>
<td>Improvements that are possible with the City of Seattle Fire Department are not realized.</td>
</tr>
<tr>
<td>Advantages</td>
<td>Disadvantages</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Utilizes the KCSO facility in the most effective manner.</td>
<td>Sustainable funding issues are not resolved.</td>
</tr>
<tr>
<td></td>
<td>Results in more PSAPs than are necessary.</td>
</tr>
</tbody>
</table>

The six primary PSAP model does not provide the most technologically optimum model for the region and does not result in the greatest cost savings. Specialized services provided by the Port of Seattle Police Department PSAP and the University of Washington are not adequately addressed in this model. Cost saving measures and service improvements that are possible by consolidating the City of Seattle Police Department PSAP and Seattle Fire Department PSAP are not achieved.

After review of the model as it relates to the guiding principles, this model does not meet several, such as:
- Cost effective
- Collaborative
- Consistent

**Model 7: A Modification of Model 5**

A modification of Model 5 combines Bothell, Issaquah, and Redmond into a primary PSAP; merges KCSO and NORCOM into a consolidated operation; combines the Seattle Police Department and Seattle Fire Department PSAPs into a civilian and separate city department; leaves the Port of Seattle Police Department PSAP and the University of Washington Police Department PSAP as primary PSAPs as currently configured; and WSP moves to secondary PSAP status with the rerouting of all wireless 9-1-1 calls to local PSAPs.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces the number of PSAPs from 12 PSAPs to six primary PSAPs and one secondary PSAP.</td>
<td>Results in more primary PSAPs, and a secondary PSAP than are necessary.</td>
</tr>
<tr>
<td>Communities of Bothell, Issaquah, and Redmond combine operations saving costs for KCE9-1-1 in terms of network and support and all three communities in operational costs.</td>
<td>Wireless call transfers for local dispatch of fire, EMS, or law enforcement are not adequately addressed.</td>
</tr>
<tr>
<td>Retains the unique population requirements of the Port of Seattle Police Department PSAP and University of Washington Police Department PSAP.</td>
<td></td>
</tr>
</tbody>
</table>
The six primary PSAP model/one secondary PSAP model does provide adequate diversity and redundancy for the region.

When evaluating the advantages and disadvantages of this model as it relates to the guiding principles identified by the regional stakeholders, the five primary PSAP configurations does not meet several of the guiding principles, such as:

- Cost effective
- Customer focused

Because this model is clearly favored by some PSAP(s) in the study and much advocacy for its consideration was presented to GeoComm, it was essential that serious and thorough evaluation for its potential be assessed. The GeoComm project team deliberated at length over the merits and shortcomings of this PSAP model.

**Conclusion**

The direction GeoComm received was to consider a PSAP structure that was technologically optimal and recommendations for implementation should be suggested without regard to any potential financial and political ramifications. GeoComm evaluated potential consolidation models and the advantages and disadvantages presented in each of those potential models in order to arrive at an Optimum Model which clearly possessed extensive advantages worthy of in-depth analysis and consideration. GeoComm believes that in order to provide the best E9-1-1 service to the public, stakeholders should require a PSAP structure that provides least amount of time between call receipt and dispatch readiness (most efficient method of processing call) and stay as true as possible to the guiding principles and objectives of KCE9-1-1.

With this direction in the forefront, GeoComm recommends Model 5 discussed above as the Optimum Model. The next sections of the report discuss GeoComm’s assessment and recommendations including
enhancements that are possible for KCE9-1-1, evaluation of current configuration (Status Quo), full exploration of an Optimum Model, and also an alternative model (noted as Model 7 above) and discussed in Section 7 of the report as another potential option for consideration by King County.
KCE9-1-1 Enhancement Opportunities Overview

The preliminary findings, discussions, and conclusions contained in this report provide King County E9-1-1 Program Office (KCE9-1-1) and the Public Safety Answering Points (PSAPs) in the region with a framework for considering consolidation, related policy decision-making, and future planning. While there are high-quality public safety communications services provided under the current structure, there are also many benefits to be obtained from enhanced services both through KCE9-1-1 and in local PSAP operations as well. This section of the report focuses on the KCE9-1-1 Program while Sections Five through Seven focus on the current structure of the local PSAP operations and optimum model recommendations.

GeoComm found that staff of KCE9-1-1 and PSAPs in the region are genuinely concerned about service to the citizens of King County, and they realize that in order to maintain the high degree of service quality that King County citizens enjoy, requires all participants to work in a collaborative manner. The issue of PSAP consolidation has been raised as a possible enhancement to public safety operations and efficiencies in the county. Some of the county’s stakeholders have expressed, however, that perhaps the efficiencies for managing emergency communications can be found in other areas rather than turning the smaller Public PSAP operations into a consolidated service model. Several PSAPs described efficiencies for KCE9-1-1 that the PSAPs would be willing to consider. These efficiencies include taking on some of the support for operations fully within their own community in order to preserve their autonomy while achieving the cost containment goals and preserving KCE9-1-1 sustainability. Suggestions such as Geographic Information System (GIS) support and Information Technology (IT) support becoming the full responsibility of a city or agency in order to preserve the financial sustainability of KCE9-1-1 is a possible alternative some PSAPs would be willing to consider.

Enhancement Considerations for King County E9-1-1 Office

KCE9-1-1 is a well-respected county government program whose purpose is to provide the necessary planning and support to local PSAPs to ensure the highest quality 9-1-1 service delivery possible throughout the county. Over the years, the demand on these services has increased partly because of the needs of the local PSAP, partly because of the demands of the public, and partly because of the excellent service provided by KCE9-1-1. There are clearly some services that are best provided in a regional environment both for efficiency and effectiveness. 9-1-1 system planning is just one example. Training is another service that can be provided as a region to leverage the opportunities and efficiencies that are possible in serving a broader community.
KCE9-1-1 has done a notable job of keeping on top of technology and ensuring that the kind of support needed in the PSAP is available, even if it means that KCE9-1-1 provides the support directly or reimburses the PSAP for the support. It is GeoComm’s recommendation that the quality programming enjoyed by the county’s PSAPs through KCE9-1-1 be extended and enhanced to include greater control and oversight by strengthening the program’s governance, financial stability, coordination of practices, technology implementation, standards development, and regional training program.

Examples of successful regional oversight and support agencies can be seen in several areas of the country. 9-1-1 Association of Central Oklahoma Governments (9-1-1 ACOG), Denton County Area 9-1-1 District (Denco), and Greater Harris County 9-1-1 Emergency Network are but a few. King County is also in the category of highly successful 9-1-1 programs for large regions. The enhancements proposed in this report encourage the further development of the support structure, planning, and fiscal responsibility assigned to the county by statute. What King County has accomplished is exceptional, and its successes can be further expanded.

GeoComm presents the following strengths of KCE9-1-1 and further expands on these areas with recommendations for potential enhancements to the current structure within this section of the report:

- **KCE9-1-1** is well respected and appreciated by the PSAPs it supports. The program office is long established and viewed as having the expertise necessary to provide planning, direction, guidance, and leadership for 9-1-1 service in the county.
- **KCE9-1-1** has statutory authority with regards to funding decisions.
- **KCE9-1-1** is well funded and provides significant supplemental funding to the PSAPs it supports. The supplemental funding to PSAPs accounts for 14 percent to 17 percent of PSAP funding.
- **KCE9-1-1** provides funding for training and public education initiatives, and there is a dedicated position for training and public education coordination within KCE9-1-1.
- The program office has strategically planned and provided useful support services to the PSAP to augment local staff necessary to carry out the mission of coordinated service and integrated technology.

**Governance**

It is recommended that KCE9-1-1 establish an oversight governance board. This board, or advisory council, will receive its authority from King County government and should be established to assist with (1) determination of the most acceptable model of PSAP configuration for King County; (2) the transition from the current structure of 12 PSAPs to whatever model the region determines is most appropriate; and (3) ongoing operational management, fiscal stability, and technical effectiveness of the new model adopted by the county.
KCE9-1-1 Advisory Council should consider the following:

- Members of KCE9-1-1 Advisory Council should be appointed positions, some by virtue of their leadership positions in other organizations such as the chair of the King County Fire Chiefs Association or a position appointed by the Department of Executive Services of King County. The other members should be elected officials, policy makers, public safety leaders, and appropriate technical personnel with the necessary understanding, knowledge, leadership capacity, and energy for the oversight of the public safety emergency communications system. Membership on the Advisory Council from the Port of Seattle Police Department and the University of Washington Police Department should also be considered if these two agencies remain as primary PSAPs.

- As a more specific consideration, composition of KCE9-1-1 Advisory Council might include representatives such as: Chair of each PSAP Board; Chair of Police and Sheriff’s Association, Chair of Fire Chiefs Association, Chair of City Managers Association, the King County EMS Director, a representative from the City of Seattle, plus two elected officials to serve in at-large positions to be appointed by the Department of Executive Services.

- Sufficient authority should be vested in the KCE9-1-1 Advisory Council to make policy decisions for the KCE9-1-1 program and the region’s PSAPs so that the governance is appropriately shared and accountability to a representative body defined.

The duties and responsibilities that should be considered as part of the activities of KCE9-1-1 Advisory Council include:

- Establishing general 9-1-1 policy related to service elements for the region’s 9-1-1 service
- Coordinating long range strategic planning for regional 9-1-1 services
- Overseeing standards development and adopt operational and technical standards
- Developing service vision and goals for the region
- Coordinating call processing practices and standards throughout the County
- Developing regional, long range, and phased Next Generation 9-1-1 (NG9-1-1) migration plans
- Establishing funding priorities for KCE9-1-1
- Monitoring and overseeing the regional training program, reviewing agency training needs assessment recommended as a part of this report and appropriately funding the highest priority training needs identified
- Overseeing the KCE9-1-1 PSAP Grant program – as the amount of money changes every year; developing a process for application and distribution of grant dollars

While many of the above responsibilities are being done today, as stated in Section 2 of this report, the PSAP Committee is engaged in making recommendations about funding policy, but the ultimate authority to approve those funding policy recommendations is the responsibility of the Regional Policy Committee and the County Council.
The governance model of a KCE9-1-1 Advisory Council could be implemented immediately without regard for any consolidation decisions or the implementation and transition of a new PSAP structure.

Additional committees that could be supportive of this advisory council include an executive committee that can act between meetings or which would act as a pre-policy discussion group, the current PSAP director's committee, a technical advisory committee, and a long range planning committee. An Implementation and Transition Team should be established to assist with consolidation efforts if pursued and if a new PSAP structure is implemented in specific areas such as operations (including standards, training, technical), budget and finance to look at funding priorities and to ensure financial forecasting is in concert with long range planning; continuity of operations (including redundancy, diversity, etc.)

The Washington 9-1-1 statute gives full autonomy to the county to establish its own governance structure and manage 9-1-1 services as it deems is in the best interest of its citizens. The exact composition of the committee support structure is a consolidation implementation issue and should reflect the needs of whatever set of recommendations the region wishes to pursue.

For King County to ensure long-term high quality service and fiscal stability, a representative advisory group of elected officials and appointed stakeholders will help to ensure consistent and steady long-term fiscal and management stability while remaining adaptable to flex with the changing needs of the region.

**Governance Recommendations**

- Establish an oversight governance board comprised of policy level representatives with authority to initiate change.
- Establish appropriate committee support structure for the oversight board to provide guidance and operational input to decisions.
- Establish an Implementation and Transition Team to assist with any consolidation efforts pursued and/or implementation of a new PSAP structure.

**Financial**

KCE9-1-1 has a track record of being very supportive of its PSAPs by providing substantial funding to supplement the local jurisdictions in supporting its programs. It spends over 40 percent of its annual budget supporting the PSAPs with direct funding in addition to the in-kind services it provides. The supplemental PSAP funding formula that KCE9-1-1 applies is based on call volume for revenue distribution and the size of the PSAP for support staff funding. It is the recommendation of GeoComm that the direct financial support level provided to PSAPs be reevaluated and reduced or eliminated. In some cases, the support could be brought in-house and managed by KCE9-1-1 directly as a more efficient alternative to providing direct funding support to the PSAP.
Financial Impact of Retaining the Current PSAP Configuration State Funding

KCE9-1-1 does receive some funds directly from the Washington State Enhanced 9-1-1 (E9-1-1) Program along with some 9-1-1 network infrastructure support.

The KCE9-1-1 budget forecast for the next five years includes an annual State E9-1-1 Support line item of $43,000 per year through 2016. The support line item is for an annual Coordinator Professional Development Contract. That contract includes funding for meetings and conferences, call receiver training, and some salaries and benefits. The state also pays for a portion of the network and database expenses in King County.

KCE9-1-1 does not anticipate that it will receive additional funding assistance from the Washington State Enhanced 9-1-1 Program as it proceeds with the deployment of its NG9-1-1 system.

KCE9-1-1 Funding

Under the assumption that it will proceed with the implementation of the next phase of its NG9-1-1 deployment and that supplemental state funding will continue under the current model, KCE9-1-1 has prepared a five-year financial plan that forecasts revenues, expenditures, and ending fund balances. The table on the following page provides an overview of the projections.
KCE9-1-1 Long-Term Financial Plan

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E911 Switched Access Lines</td>
<td>$5,482,150</td>
<td>$4,827,239</td>
<td>$5,121,599</td>
<td>$4,916,444</td>
<td>$4,655,873</td>
<td>$4,409,111</td>
<td>$4,175,429</td>
</tr>
<tr>
<td>E911 Wireless Access Lines</td>
<td>$14,775,382</td>
<td>$14,671,769</td>
<td>$15,347,519</td>
<td>$15,769,882</td>
<td>$16,158,888</td>
<td>$16,695,932</td>
<td>$17,216,661</td>
</tr>
<tr>
<td>E911 VoIP Access Lines</td>
<td>$2,570,985</td>
<td>$2,311,210</td>
<td>$2,490,370</td>
<td>$3,084,599</td>
<td>$3,729,418</td>
<td>$4,223,701</td>
<td>$4,778,980</td>
</tr>
<tr>
<td>Investment Interest</td>
<td>$113,570</td>
<td>$119,056</td>
<td>$70,028</td>
<td>$72,763</td>
<td>$73,747</td>
<td>$76,928</td>
<td>$84,458</td>
</tr>
<tr>
<td>State E911 Support</td>
<td>$4,335,567</td>
<td>$40,000</td>
<td>$43,000</td>
<td>$43,000</td>
<td>$43,000</td>
<td>$43,000</td>
<td>$43,000</td>
</tr>
<tr>
<td>Other Interfund-Emergency Comm Sys</td>
<td>$555,775</td>
<td>$889,554</td>
<td>$689,554</td>
<td>$274,759</td>
<td>$756,368</td>
<td>$689,554</td>
<td>$889,554</td>
</tr>
<tr>
<td>Total Revenues</td>
<td>$23,544,421</td>
<td>$22,069,724</td>
<td>$24,142,060</td>
<td>$24,769,378</td>
<td>$25,455,794</td>
<td>$26,138,348</td>
<td>$26,249,067</td>
</tr>
<tr>
<td>Total Biennial Revenues</td>
<td></td>
<td>$50,215,671</td>
<td>$53,382,435</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages, Benefits and Retirement</td>
<td>$(1,200,857)</td>
<td>$(1,421,420)</td>
<td>$(1,428,323)</td>
<td>$(1,485,298)</td>
<td>$(1,427,409)</td>
<td>$(1,641,623)</td>
<td>$(1,721,289)</td>
</tr>
<tr>
<td>Supplies</td>
<td>$(22,246)</td>
<td>$(22,246)</td>
<td>$(22,246)</td>
<td>$(27,246)</td>
<td>$(27,246)</td>
<td>$(27,246)</td>
<td>$(27,246)</td>
</tr>
<tr>
<td>Direct Services</td>
<td>$(19,515,922)</td>
<td>$(21,694,846)</td>
<td>$(28,244,846)</td>
<td>$(25,522,659)</td>
<td>$(26,608,198)</td>
<td>$(21,508,189)</td>
<td>$(23,908,188)</td>
</tr>
<tr>
<td>Intergovernmental Services</td>
<td>$(3,418,931)</td>
<td>$(3,038,673)</td>
<td>$(2,629,174)</td>
<td>$(2,536,086)</td>
<td>$(2,685,714)</td>
<td>$(2,730,383)</td>
<td>$(2,768,390)</td>
</tr>
<tr>
<td>Capital</td>
<td>$(488,192)</td>
<td>$(1,150,540)</td>
<td>$(1,150,540)</td>
<td>$(1,150,540)</td>
<td>$(1,150,540)</td>
<td>$(1,150,540)</td>
<td>$(1,150,540)</td>
</tr>
<tr>
<td>Encumbrance Carvoyor</td>
<td>-</td>
<td>-</td>
<td>$(1,428,840)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Expenditures</td>
<td>$(24,663,931)</td>
<td>$(27,252,923)</td>
<td>$(25,156,499)</td>
<td>$(25,709,170)</td>
<td>$(25,407,978)</td>
<td>$(26,505,601)</td>
<td>$(26,505,601)</td>
</tr>
<tr>
<td>Total Biennial Expenditures</td>
<td></td>
<td>$(53,814,582)</td>
<td>$(51,095,529)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Fund Transactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAAP Adjustment</td>
<td>$20,275</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Other Fund Transactions</td>
<td>$20,275</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Biennial Other Fund Transactions</td>
<td>$20,275</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ending Fund Balance</td>
<td>$15,671,385</td>
<td>$5,339,486</td>
<td>$14,666,946</td>
<td>$11,251,695</td>
<td>$10,997,729</td>
<td>$8,666,999</td>
<td>$7,331,565</td>
</tr>
<tr>
<td>Reserves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encumbrance Carvoyor</td>
<td>$(1,428,840)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenditure Reserves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve for Wireless Equipment Replacement</td>
<td>$(1,000,000)</td>
<td>$(1,000,000)</td>
<td>$(1,000,000)</td>
<td>$(1,000,000)</td>
<td>$(1,000,000)</td>
<td>$(1,000,000)</td>
<td>$(1,000,000)</td>
</tr>
<tr>
<td>Reserve for Wireless 911</td>
<td>$(1,944,338)</td>
<td>$(1,944,338)</td>
<td>$(1,944,338)</td>
<td>$(2,000,000)</td>
<td>$(2,000,000)</td>
<td>$(2,000,000)</td>
<td>$(2,000,000)</td>
</tr>
<tr>
<td>Reserve for VoIP 911</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rainy Day Reserve @ 40 days of expenditures</td>
<td>$(2,703,057)</td>
<td>$(2,757,152)</td>
<td>$(3,086,963)</td>
<td>$(3,817,725)</td>
<td>$(3,120,096)</td>
<td>$(3,120,096)</td>
<td>$(3,120,096)</td>
</tr>
<tr>
<td>Total Reserves</td>
<td>$(7,674,335)</td>
<td>$(7,674,335)</td>
<td>$(5,701,496)</td>
<td>$(6,066,963)</td>
<td>$(5,517,703)</td>
<td>$(6,120,096)</td>
<td>$(6,120,096)</td>
</tr>
<tr>
<td>Reserve Sheriffal</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ending Undesignated Fund Balance</td>
<td>$8,597,150</td>
<td>$3,339,486</td>
<td>$8,956,456</td>
<td>$5,164,642</td>
<td>$5,180,000</td>
<td>$2,548,008</td>
<td>$1,198,583</td>
</tr>
</tbody>
</table>

The Ending Undesignated Fund Balance will decrease substantially over the five-year period and KCE9-1-1 may not be sustainable under the current model.

The financial plan also includes the following assumptions:

- The 9-1-1 Excise Tax Rate currently levied in King County for wireline, wireless, and Voice over Internet Protocol (VoIP) subscribers will remain at the current maximum rate of $0.70 per month per subscriber. Based on shifts in population demographics and technology usage:
  - Wireline Excise Tax Revenue is projected to decrease by 5.3 percent per year.
  - Wireless Excise Tax Revenue is projected to increase by 3.1 percent per year.
  - Voice over Internet Protocol (VoIP) Excise Tax Revenue is anticipated to increase by 13.2 percent per year.

- The average Direct Services expenditures over the period are 77.5 percent of the total expenditures for the program. Direct Services include all 9-1-1 system related expenses along with the revenue distribution and other supplemental PSAP support. The King County Sheriff’s supplemental support is expensed in the Intergovernmental Services line item because of it being another county department.
The approximately $4 million increase in Direct Services between the 2012 estimated and the 2013 proposed budget is based on the assumption that KCE9-1-1 will help fund PSAP consolidations and implement NG9-1-1 equipment upgrades.

The Ending Undesignated Fund Balance will decrease by $7.4 million between the end of 2011 and the end of 2016.

Given the decline in Ending Undesignated Fund Balance over the upcoming years and its inability to increase the 9-1-1 excise tax rate for subscribers, it is incumbent upon KCE9-1-1 to reassess its funding priorities in order to sustain sufficient funding over the long-term.

If KCE9-1-1 continues to spend the same percentage of its funding directly in financial support of the PSAPs (known as the escrow fund), its designated and undesignated funds will decrease by 64 percent in the next four years and is not sustainable in the long-term.

Local Funding
Currently, the 12 PSAPs in King County are primarily funded through local sources including general revenue funds and contracts with other jurisdictions. GeoComm has reported that in 2012, the smaller municipal PSAPs (Bothell, Enumclaw, Issaquah, and Redmond) receive from 14.26 percent to 17.45 percent of its current budget funding from KCE9-1-1 through its revenue distribution or support staff, programs.

The KCE9-1-1 supplemental funding support for the two independent consolidated PSAPs is a smaller percentage of their overall budget; KCE9-1-1 financial support for NORCOM in 2012 was 8.09 percent and the support for Valley Com was 12.93 percent of the total budget. The King County Sheriff’s Office PSAP reports that 22.32 percent of its 2012 budget is funded by KCE9-1-1.

As another example, KCE9-1-1 spends approximately $900,000 in E9-1-1 funds in support of the operations of the WSP. The WSP is the primary answering point for over 250,000 wireless 9-1-1 calls annually. As such, it was deemed necessary and important to support them with local 9-1-1 excise tax funds, just as any other PSAP in King County. However, the WSP is a state agency and the philosophy of providing support to a state agency, in the amount of nearly one million dollars, was questioned by the smaller local PSAPs GeoComm interviewed particularly when financial sustainability is one of the drivers in the conversation of consolidation.

Financial Recommendations

- Reassess KCE9-1-1 funding priorities in order to sustain sufficient funding over the long-term
- Reconsider the program’s level and method of support for:
  - GIS and IT positions at the PSAP
● Funding for other support personnel at the PSAP
● Funding of a state agency, as is the case for the WSP or the University of Washington

- Prioritize objectives and goals and fund accordingly with PSAP escrow as the lowest priority and only distributed if excess funds are realized. Consider holding the PSAP escrow in abeyance for a period of time (e.g. five years) until such time as KCE9-1-1 can stabilize funding and implement NG9-1-1
- Reassess local communities funding priorities with a view to providing equal quality 9-1-1 emergency communication services to their citizens in new ways
- Complete a 9-1-1 funding distribution formula re-evaluation to reflect the goals of fair and equitable funding distribution

Training

KCE9-1-1 has established training coordination as a part of its mission and service offering to the county PSAPs. KCE9-1-1 reports that the original purpose of the E9-1-1 Program Office training program was to reduce staff turnover by offering training sessions that would help to reduce the stress of the call takers. The program has expanded over the years as areas that require specific training have been identified by the Program Office and the PSAPs, such as domestic violence, Weapons of Mass Destruction (WMD), etc. The program is periodically reviewed and discussed with the PSAP directors to identify changes that are needed.

The program was intended to provide supplementary training to 9-1-1 call receivers and was never originally intended to be a comprehensive training program to supplant the PSAPs’ training programs.

While the training program runs efficiently as far as its current scope goes, it is GeoComm’s position that this program could be significantly enhanced to provide a more regional and cost effective approach to training for all the PSAPs in King County. A training program enhancement is warranted, and the timing with a potential revised PSAP structure within the region is appropriate. There are several extremely effective training programs run by regional, district, or county-managed services.

Just a few include 9-1-1 ACOG in Oklahoma City metro area; Denton County Area 9-1-1 District in Dallas, Texas; Greater Harris County 9-1-1 Emergency Network in Houston, Texas; and Orange County, Florida. The benefit and effectiveness of these programs, funded with 9-1-1 surcharge revenue, when run efficiently, is demonstrated in many areas.

The training program at Denco is a collaborative effort among the participating PSAPs and the District itself. Denco does utilize service fee revenues to sponsor the emergency medical dispatch and other dispatch training programs. Denco also coordinates with the professional trainers and the training academy in the District to provide other certification training as well as continuing education classes.
It is a joint effort that not only provides the training necessary for the PSAPs in the region but also provides a standardized training curriculum to all of the PSAPs it supports.

Similar model programs exist and may be beneficial to King County as a foundation for development of a more robust county program that meets the needs of the PSAPs.

**Training Needs Analysis**
GeoComm determined, through our interview with the KCE9-1-1 training coordinator that the training provided by the KCE9-1-1 is not based on a recent, validated training needs assessment. The existing topics are currently offered on a rotational basis twice a year and are repeatedly offered each year. The Program Office used adjunct instructors who specialized in the topics they teach. Changes to the lineup of course offerings are made when an instructor is no longer available to present training. New courses are added when there have been sufficient requests by the PSAPs. There is no stated plan to conduct a formal training needs analysis by the KCE9-1-1.

The training coordinator reports a decrease in the attendance to the currently offered courses and attributes that decrease to the costs of back-filling for PSAP staff away at training which is not currently covered as a training expense by KCE9-1-1. In discussions with the PSAP directors conducted by KCE9-1-1, they have reported that they are not able to send their staff to trainings because of being understaffed and needing to backfill and use overtime to replace the person who is attending the training. Training attendees complete an evaluation of the course and the instructor at the conclusion of each class, and these are reviewed to determine whether the classes and instructors are being effective or need changes. GeoComm recommends that KCE9-1-1 conduct a more formal and comprehensive training needs analysis to determine what topics, content and approaches to training would best suit the needs of the 9-1-1 personnel in King County.

**Professional Development Training for Training Coordinator**
The training coordinator for KCE9-1-1 is responsible for oversight and coordination of the training offered to 9-1-1 personnel. However, the job description does not require formal professional development training related to training responsibilities. GeoComm recommends the training coordinator position be required to have training/experience in how to conduct training needs assessments, develop curriculum, and deliver training for 9-1-1 personnel.

Without formal training for the KCE9-1-1 training coordinator, the position has no basis for determining the training needs of the PSAP personnel or the ability to evaluate the quality and standards of a given training program. This in turn, negatively impacts the ability to effectively determine current or future training needs through a formal training assessment or perform quality assurance evaluations of current or future training programs.
Quality Assurance/Quality Improvement Program

Through our observations and interviews, GeoComm found that there are inconsistent standards for Quality Assurance/Quality Improvement (QA/QI) programs used by the various PSAPs. Although most PSAPs have a formal QA/QI process, they are significantly different in the approach, methodology, and frequency. As a result, there is disparity in the efforts of the various PSAPs to evaluate their effectiveness on an on-going basis across all employees. Some PSAPs evaluate medical calls only, while others evaluate all types of calls. The number of calls reviewed and the methodologies for review and documentation are not standardized.

GeoComm recommends that the KCE9-1-1 establish minimum standards for a standardized QA/QI program which evaluates employees on proper call handling and dispatching of all disciplines of resources for use by all 12 PSAPs. APCO International has two pending American National Standards Institute (ANSI) standards related to QA/QI, 1.107.1-201x Quality Assurance / Quality Improvement Operational Standard and the 3.106.1.201x Core Competencies and Minimum Training Standards for Public Safety Communications Quality Assurance Evaluator, which would serve as a definitive guide to King County for implementation of such standards once they become available. In the meantime, the accepted industry best practice is to mirror the Emergency Medical Dispatch (EMD) QA/QI process for the evaluation of all call types to include law enforcement, fire, and medical calls.

Establishment of Minimum Training Standards

As part of our evaluation, GeoComm discussed each PSAP’s training program with agency-identified trainers. NORCOM and Valley Com report having received certification of their training program as compliant with APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (Project 33). The other ten PSAPs have not submitted their training for compliance evaluation.

Although most PSAPs have some level of training, there is no consistency in how that training is designed or any organized effort to develop a standardized minimum training standard for King County. The fact that there is no standardized minimum training standard across all PSAPs within King County creates a potential risk management issue for King County.

The King County PSAPs take advantage of the statewide training programs such as the Telecommunicator I and Telecommunicator II offered by Washington State Criminal Justice Training Commission (WSCJTC). However, this curriculum is not currently eligible for evaluation through APCO of compliance with APCO ANS 3.103.1-2010. APCO does not currently have a method for evaluating segments of statewide training programs. Agencies that use a combination of statewide training complemented with agency specific training may submit the state curriculum as part of their internal training program but must submit training individually per agency for consideration of compliance with Project 33.
King County should evaluate how to best pursue APCO ANSI 3.103.1-2010 certification through a combination of the WSCJTC programs, the training offered by KCE9-1-1 and individual agency training programs. A formal training needs analysis would greatly assist in this endeavor.

GeoComm recommends that KCE9-1-1 establish a comprehensive and standardized training program for all PSAP personnel at every level of career development within the emergency communications system as described below in the next section.

**TTY Call Processing Protocols and Equipment Testing**

Each PSAP reported participation in the King County PSAPs TTY testing schedule which is a rotational, regional plan for testing TTY equipment at each PSAP. This activity is a very proactive approach to equipment testing but does not necessarily include testing the call taker’s recognition and processing of TTY calls, as required by the Americans with Disabilities Act and Department of Justice’s regulatory guidelines.

GeoComm recommends that KCE9-1-1 establishes requirements that this TTY testing program includes equipment and operator testing and that it is formally documented consistently across all 12 PSAPs and that someone at the E9-1-1 Program Office is coordinating, evaluating and following up on such testing. APCO is in the process of revising its TTY-related standards. There is an approved NENA 52-003 TTY Call Taker Proficiency & Quality Assurance standard that addresses equipment and personnel testing.

**PSAP Training Program at the Regional Level**

Effective training of communication personnel is critical to the provision of emergency response and public safety within our communities. There is a direct correlation between effective training and the ability to provide life-saving assistance to the public and public safety responders alike. Conversely, there is a direct correlation between failure to train or inconsistent training and the increased exposure of government agencies and its agents to legal risks in the form of litigation. The mission of a PSAP and its employees is to provide emergency communications services to the public and to safeguard our public safety responders, both of which cannot be accomplished without proper training.

KCE9-1-1 is in a unique position to enhance and coordinate the training and professional development of PSAP personnel at every level of career development within the emergency communications system. Through a centralized approach, King County would be able to elevate the standard of care provided by all PSAPs within King County through consistent, professionally-developed training curriculum. This approach leverages the training resources of the KCE9-1-1 Program Office with those of each PSAP participating in this consolidation initiative, and with the telecommunicator training program offered through the WSCJTC. This holistic approach would ensure proper training for not only newly hired telecommunicators, but would address ongoing and recurring training needs of veteran workers, supervisors, CTOs, and managers.
The first step in this process would be to create a training committee comprised of PSAP trainers who have received professional training in the development of training curriculum as well as training delivery methodologies. If that skill set needs development for this purpose, APCO has a candidate ANSI standard under development for Communications Center Instructor which would serve as an appropriate foundation as would any instructor development course that taught the “ADDIE” process: analysis, design, development, implementation and evaluation of training.

The second step would be to develop and conduct a complete training needs assessment for each position within the PSAP configurations in King County. Those results coupled with existing training curriculum available through the P33-certified PSAPs, the KCE-9-1-1 Program Office and WSCJTC would set the foundation for King County to develop the following levels of training:

**Telecommunicator – New Hire Training**
Entry level training for all newly hired telecommunicators within the King County system should be developed based on the results of the Telecommunicator training needs assessment, the APCO ANSI 3.103.1-2010 Minimum Training Standards for Public Safety Telecommunicators, and existing training curriculum used by NORCOM and Valley Com (already certified by APCO).

Any informational training gaps between the existing materials and the needs analysis, specific to King County, would need to be developed for inclusion in the process. The WSCJTC curriculum would serve as a major foundational piece to entry-level training.

**Telecommunicator – Transition Training**
Once standardized operational protocols are completed for the consolidated PSAPs, King County should conduct careful gap analysis of existing training for the personnel involved in the consolidation and develop transitional training applicable to each consolidated PSAP. This training should be more in-depth than an orientation to a new facility; it should provide detailed content of operational protocols for handling emergency telephone calls as well as dispatch protocols related to each discipline dispatched by the PSAP.

**Telecommunicator – Refresher Training**
King County should establish a system of ongoing, refresher training for all telecommunicators within the system. This refresher training should be designed to present telecommunicators with new skills, knowledge of new technologies, changes to operational protocols, and acquisition of advanced call taking and dispatching skills. The training needs assessment will highlight areas of ongoing, refresher training topics relevant to the King County area. The WSCJTC curriculum would serve as a resource for this refresher and advanced skills level training.
Communications Supervisor Training
A proactive approach to Communications Supervisor training is recommended because these supervisors are a critical link in the risk management of public safety agencies. The skills necessary for communications supervisors vary so greatly from the knowledge and skills of a telecommunicator that agencies are remiss if they approach supervisory appointments based solely on the abilities of an excellent telecommunicator. There are many benefits that can be realized by a countywide approach to supervisory training because the ratio of employees who are in supervisory positions is so much lower than the number of telecommunicators, King County can acquire a much better economy of scale by pooling their supervisory training efforts.

The Communications Supervisor position is one that should be subject to a specific training needs analysis by King County. The results of that assessment, coupled with the Communications Supervisor Training offered by WSCJTC, and the pending APCO minimum training standard for Communications Supervisors, will serve as an excellent basis for curriculum development of material for this course.

Communications Training Officer (CTO) Training
King County should establish a countywide, standardized CTO program. A CTO program is the methodology that a PSAP uses to train their new employees.

There are many options to choose from including:
- Commercially available products which are primarily based on either the Reno or San Jose methodology
- The WSCJTC training for CTOs which is based on a Problem-Based Learning (PBL) methodology, or development of an in-house, King County-specific CTO program

GeoComm recommends that King County establish a CTO program that best meets its needs and is based on the APCO ANS 3.106.1-2009 Minimum Training Standards for Public Safety Communications Training Officer (CTO) or newer, and that is standardized across all PSAPs.

Once the CTO methodology is chosen, King County should provide training for all potential CTOs in accordance with the standards of the established program. The WSCJTC curriculum may be a resource depending on which methodology is chosen.

Communications Managers/Directors Training
GeoComm recommends that King County establish minimum qualifications and training requirements for each PSAP’s manager or director. There are many different professional qualifications which can be considered for this position which include:
- APCO ANS 1.106.1-2009 Core Competencies for Public Safety Communications Manager/Director
- APCO Registered Public-Safety Leader (RPL) Certificate Program
- NENA Emergency Number Professional (ENP) Certification Program

**Training Recommendations**

- Expand and enhance the KCE9-1-1 regional approach to training, curriculum development, and course offerings to provide added service to the PSAPs and to ensure a more coordinated program that is cost effectively managed on a countywide basis.
- Conduct a formal training needs analysis to determine what topics, content, and approaches to training would best suit the needs of the 9-1-1 personnel in the county by King County E9-1-1 Program Office.
- Establish KCE9-1-1 Training Coordinator responsibility for conducting training needs assessments, developing curriculum, and delivering training for 9-1-1 personnel.
- Establish minimum standards for a standardized QA/QI program which evaluates employees on proper call handling and dispatching of all disciplines of resources for use by all PSAPs.
- Evaluate how best pursue APCO ANS 3.103.1-2010 certification through a combination of the WSCJTC programs, the training offered by KCE9-1-1 and individual agency training programs. A formal training needs analysis would greatly assist in this endeavor as noted in the recommendation.
- Establish a standardized training program for new telecommunicators which meets or exceeds the minimum training standards established by the APCO ANS 3.103.1-2010: Minimum Training Standards for Public Safety Telecommunicators (Project 33).
- Conduct a gap analysis of existing training for the personnel involved in the consolidation and develop transitional training applicable to each consolidated PSAP.
- Establish a system of ongoing, refresher training for all telecommunicators within the system based on a validated training needs assessment.
- GeoComm recommends that King County adopt a formal minimum training requirement for trainers at PSAPs and adopt a formal, standardized CTO program. The CTO training program should at a minimum meet the Minimum Training Standards for Public Safety Communications Training Officer - APCO ANS 3.101.1-2007.
- Adopt a formal training program for supervisors which meets or exceeds APCO's Minimum Training Standards for Public Safety Communications First-Level Supervisor.
- Establish minimum qualifications and training requirements for each PSAP’s manager or director in accordance with a validated training needs assessment and available industry standards.
- Establish requirements that the TTY testing program of KCE9-1-1 includes equipment and operator testing and that it is formally documented consistently across all PSAPs and that the appropriate position in the KCE9-1-1 is assigned to coordinate, evaluate, and follow up on such testing.
Next Generation 9-1-1

KCE9-1-1 is responsible for coordinating the implementation and transition to NG9-1-1. The transition to NG9-1-1 will, in fact, significantly influence and push the need for smaller agencies to consider consolidation, at least for some of the services they provide. Smaller agencies will likely not be in a position to replace equipment or hire and train additional staff, especially if the support funding from KCE9-1-1 is not available. This factor could impact the viability of the small PSAPs significantly. NG9-1-1 is a factor that should be considered in a discussion of consolidation, however, only one of the factors.

Infrastructure Sharing and Centralization or Co-location of Technology

Providing 9-1-1 services has traditionally been the role of local, regional, and state government. As the infrastructure of 9-1-1 migrates to an Internet Protocol (IP)-based model, an examination of roles and responsibilities should be conducted on an ongoing basis, to identify those functions that should shift to a higher level of government. For example, as PSAPs are able to transfer calls to other distant PSAPs through a nationwide interconnection network, accessing a national database of IP addresses will be necessary to facilitate call transfers. While the response to emergencies will always be a local responsibility, some administrative and data security functions may be better served by shifting to a more shared or co-located scenario or model.1

Due to the economy of scale property, sharing of technology and infrastructure elements of 9-1-1 systems among PSAPs is becoming more popular and sound in the public safety communications industry. PSAPs and regions are becoming more significant partners in order to lower the increasing investments necessary to operate 9-1-1 emergency systems. The degree and method of infrastructure sharing can vary, depending on the cooperative arrangements already in place, such as that which exists in King County.

Standardization is essential to achieve local, regional, and national interoperability and to share data among geographically dispersed PSAPs and other emergency response agencies. The underlying concept of IP-enabled 9-1-1 is an open architecture that relies on many different technical standards to support its requirements.

9-1-1 authorities will confront the challenge of managing a wider set of shared resources and PSAP support technology resources to facilitate the delivery of multi-discipline public safety response than is typical in the current system, enhancing and expanding capabilities while ensuring personnel, including call takers, can expeditiously and correctly handle the new workload. Responsibilities will likely expand, particularly with regard to configuring and managing the NG9-1-1 system. 2

---

King County has already learned that some consolidation and centralization of 9-1-1 institutional responsibilities is not only essential, but smart administration which helps to avoid excessive administrative burdens as well as provide uniform, high quality 9-1-1 authority functions. For example, current policies regarding which Service Provider (SP) can connect to 9-1-1 trunk lines are generally set by each local PSAP or its corresponding 9-1-1 authority, as is the case with King County. Today, an SP that delivers 9-1-1 calls must establish service level agreements separately with each 9-1-1 authority in its service area. With the deployment of NG9-1-1, this may mean dozens of agreements for any single 9-1-1 authority, and may entail thousands of agreements for carriers with nationwide coverage. With the multitude of IP-based SPs that would be able to deliver 9-1-1 calls in an IP-enabled environment, this administrative model will become untenable for local 9-1-1 authorities in the future. Some consolidation and centralization of 9-1-1 institutional responsibilities will be essential to avoid excessive administrative burdens as well as provide uniform, high quality 9-1-1 authority functions, such as ensuring call routing and security mechanisms are in place, centralized training, and even greater sharing of the hardware and technology used in the NG9-1-1 system will be necessary.  

Infrastructure sharing limits duplication and improves the return on investment. Traditionally, 9-1-1 systems have been dominated by considerable investment of technology and infrastructure locally and individually (every PSAP has a logging recorder, a 9-1-1 switch, Computer Aided Dispatch [CAD] System, etc.). Given that such investments are fixed, sunk and irreversible; they represent a high risk factor. Maintaining and upgrading this infrastructure makes the risk even higher. The NG9-1-1 environment offers new opportunities for even greater infrastructure sharing to occur than is already present in the King County E9-1-1 system, and the region is encouraged to consider greater degrees of this sharing.

In order to achieve a fully functional NG9-1-1 system, policymakers cannot be naïve about funding requirements. The NG9-1-1 system must be understood as enhancing the value and improving E9-1-1 services not as a cost savings measure.

Two examples of successful 9-1-1 system sharing and preparation for NG include 9-1-1 ACOG and MARC. Further information regarding successful governance structures, PSAP consolidation, technology-sharing successes, etc., has been included in Appendix B, as well.

- 9-1-1 ACOG is an operational arm of the Association of Central Oklahoma Governments (ACOG), a voluntary association of city, town, and county governments in a four-county region in central Oklahoma that includes Oklahoma City. 9-1-1 ACOG provides 9-1-1 services to the region, except for Oklahoma City itself and Tinker Air Force Base. 9-1-1 ACOG has implemented a shared 9-1-1 switch that supports the 9-1-1 workstations in the PSAPs. The system serves 19 active PSAPs plus a training PSAP located at the 9-1-1 ACOG offices. Two of the PSAPs are outside of the four-county ACOG region, but their service

---

3 National NG9-1-1 Migration Plan, NENA, September, 2008, p 1-8
areas adjoin the region, and they have opted to become part of the regional 9-1-1 system. 9-1-1 ACOG is in the process of acquiring and activating a second geo-diverse 9-1-1 switch for redundancy. The shared switches and PSAP workstations are NG9-1-1 capable.

- Mid-America Regional Council (MARC) is responsible for the operation of the Kansas City regional 9-1-1 system. This system serves 44 PSAPs (39 active PSAPs and five backup facilities) in nine counties. Five of the counties are in Missouri and four are in Kansas. Though the system was implemented with a 9-1-1 switch at each PSAP, a system upgrade is underway that will result in a much smaller number of NG9-1-1 capable switches serving the workstations in all the PSAPs.

While there may be efficiencies and cost savings involved in an NG9-1-1 system, it is possible—indeed, in the near term, highly likely—that funding requirements for NG9-1-1 system will be greater than current 9-1-1 system costs. According to a report issued by the 9-1-1 Industry Alliance, there are at least four different types of costs which will be required in connection with the move to an NG9-1-1 system: “(i) capital expenditures involved in building out a new system; (ii) transitional costs—i.e., expenses involved in using the old 9-1-1 system while the new system is phased in; (iii) costs of network security and encryption requirements associated with a competitive, IP-based system; and (iv) on-going recurring costs of an NG9-1-1 system, which will likely need to account for shorter lifespan of products than traditional network pieces.”

**Smart911**

The implementation and deployment of Smart911 service at all PSAPs was initiated in August 2012 and was completed at the end of 2012, as one of the initial steps to move toward NG9-1-1 for both the PSAPs and the public, and particularly the hearing impaired community. This feature allows the PSAP to initiate texting conversations with wireless 9-1-1 callers and is initially planned for deployment to those who register a hearing or speech disability, and it may later be deployed to the general population. The feature also displays the home, apartment unit, work and room number, and school addresses entered by the person contacting the PSAP which can be associated with wireless latitude and longitude locations.

**ESInet**

KCE9-1-1 is also working with CenturyLink™, the 9-1-1 service provider in the region, to test all components of full i3 functionality in the King County portion of ESInet. Once testing has demonstrated both success and reliable delivery of NG9-1-1 calls, a full deployment will be initiated in the region. In order to fully deploy NG9-1-1 services, the planning, resource allocation for testing and evaluation, financing of system components, and support services (MSAG, GIS, IT, and Mapping) will be a huge factor.

---

1 Health of the US 911, 9-1-1 Industry Alliance, p 72
and commitment from KCE9-1-1 in both personnel and fiscal resources.

With the enhanced ability for PSAPs to assist each other during busy periods or under degraded conditions, and with the ability to transfer calls with accompanying data to any other NG9-1-1 PSAP on the same network (which will ultimately be nationwide), NG9-1-1 will be a further step toward the level of PSAP collaboration sometimes described as “virtual consolidation.”

**Virtual Consolidation Potential**

The public safety community understands the need to evolve legacy emergency services networks to next generation functionality which will likely facilitate new capabilities and services. There are a number of industry associations and Standard Development Organizations (SDOs) that are defining architectures and protocols for next generation networks. The public safety community should actively take advantage of this evolution and address the challenge it may represent to emergency communications.

Many PSAP systems lend themselves to technology sharing. King County is already sharing a single radio system, the King County Regional Radio System, which is the primary radio system for all but two of the county’s PSAPs. The exceptions are the Port of Seattle, which uses its own trunked radio system, and the Washington State Patrol PSAP, which uses the state radio system. This consolidated countywide radio system is a laudable achievement, one in which the county can justifiably take great pride.

CAD systems also provide opportunities for sharing, but CAD presents very real challenges when the varying needs of the PSAPs are considered. A CAD system that is a very good fit in one PSAP environment may not fit nearly as well in a different PSAP. To give one example, Seattle Police Department uses a Versaterm CAD system that is reported to be an excellent fit for Seattle Police Department’s needs.

Seattle Fire Department uses a TriTech CAD system that is reported to be an excellent fit for its needs. During our interviews, neither agency expressed interest in moving to a combined CAD platform for both agencies, because both are satisfied with the usability and suitability of their present systems and are concerned that the other system would not fit as well.

There may be some opportunities for consolidation of CAD systems in the existing PSAP environment, particularly when the systems from the same vendor are in use at multiple PSAPs. Issaquah and Redmond use CAD systems from the same vendor, and could possibly benefit from merging their systems into a single redundant system. The same is true of Bothell and NORCOM and will soon be true of KCSO and Valley Comm. On a larger regional basis, a regional CAD interoperability switch has been implemented to allow disparate CAD systems to share data. This system-of-systems approach provides for a degree of interoperability without actual system consolidation.
Virtual consolidation of 9-1-1 phone systems has already been done to some degree, since all PSAPs have the same telephone equipment and the same support organization. A higher degree of consolidation is available with the use of shared switches as described in the 9-1-1 Switches and Redundancy section below.

**Cloud-Based Systems**

While there are few if any viable options for cloud-based radio solutions, a number of CAD vendors are offering hosted CAD solutions with cloud-based servers operated by the CAD vendor. Several 9-1-1 equipment and system vendors are now offering hosted 9-1-1 solutions with the switches owned and operated by the vendors and housed in secure data centers that can be many states away from the PSAP. At present these hosted solutions are more commonly used by smaller PSAPs with limited technical resources. It is expected that in the future larger PSAPs and regional systems will consider hosted options when choosing replacement systems.

To be viable, cloud-based options require detailed service level agreements and high levels of trust between vendors and user agencies. Great care must be taken to ensure that single points of failure are minimized, and adequate backup systems are in place to provide uninterrupted service even if a key data center is lost. When a hosted solution is in use, a dispute between the vendor and the customer agency or a technical or business failure on the part of the vendor has the potential of leaving the agency without a working system and with limited options. Any such arrangements must be carefully crafted to address these potential situations.

**NG9-1-1 Considerations**

Transition to NG9-1-1 is expected to be an evolutionary process, involving technological, operational, economic, and institutional change. In some cases, the path to NG9-1-1 implementation will depend on the underlying infrastructure of the PSAP and 9-1-1 authorities involved. It is well understood that the NG9-1-1 environment will differ considerably from the current 9-1-1 environment. But, where there is change, there is opportunity to enhance operations and functionality.

NG9-1-1 will bring new opportunities for data sharing. When fully deployed, transferred NG9-1-1 calls will be accompanied by data from the system itself and data that has been gathered by the initial call taker(s), so subsequent call taker(s) will have the benefit of that information and will not be required to “start from scratch” when questioning the caller.

NG9-1-1 network infrastructure will offer a number of enhancement opportunities that contribute to the consolidation discussion. Because the PSAPs in King County, whatever that number ends up being, will be connected via an IP network, improved functionality is possible in a virtual consolidated model.
Examples of opportunities presented include:

- PSAPs may be in a better position to support overflow and call volume surges than under the separate silo situation that exists today. Call routing rules can be established in advance to take effect automatically in various scenarios so that the inherent delays currently involved in engaging the 9-1-1 service provider in rerouting or redirecting calls can be eliminated.
- Backup and redundancy can be greatly improved through use of redundant data pathways and connection of PSAPs to geo-diverse redundant 9-1-1 switches.
- Shared technology-data hub for routers, logging recorders, CAD, and other technology.

Call Routing Rules

NG9-1-1 is designed to include a robust capability for conditional call routing. Rules can be defined in advance to automatically take effect when a PSAP is busy or unavailable, or if the call itself is unusual, to route the call to the most appropriate alternate location to handle it. Drafting these rules will be a significant effort, requiring participation by PSAP management and supervisory personnel so the end result meets the needs of the local and regional situation appropriately. A key tenet of conditional routing is agreement by both the responsible PSAP and the alternate PSAP before any call is rerouted.

9-1-1 Switches and Redundancy

In today’s PSAP environment in King County, an Intrado VIPER® switch is located in the equipment room at each PSAP. The VIPER® switch with its associated interfaces is the termination point for 9-1-1 calls and for other phone lines and circuits that appear on the 9-1-1 workstation at the PSAP.

GeoComm finds that it is no longer necessary to have a 9-1-1 switch at every PSAP. With the migration to Session Initiation Protocol (SIP) 9-1-1 call delivery via the ESNet, and with appropriate diversity and redundancy of regional 9-1-1 switches, reliability of 9-1-1 call delivery to the PSAPs is as good or better with centralized switches. In the present architecture, the Intrado VIPER® switch at each PSAP is a single point of failure for that PSAP. With redundant centralized switches and redundant connections from the PSAP to more than one switch, that single point of failure is removed.

In addition to enhanced redundancy, advantages to centralizing the switches include reduced equipment costs, reduced support costs, both in vendor costs and in local staff time costs, and simplified call delivery from the selective router (or its NG9-1-1 successor) to the centralized switches.

A possible challenge with this approach is its impact on the ability to answer business lines locally in the event that contact is lost with all centralized switches. While this is an unlikely scenario, a significant earthquake could disrupt multiple communications pathways. Some provision could be made for answering local business lines separate from the 9-1-1 workstations, in order to address this challenge.

There is no
added vulnerability with 9-1-1 calls, because the same data pathways that deliver calls from the centralized switches to the PSAP would be required to deliver the calls to a local switch.

GeoComm recommends that the region consider use of microwave links to provide redundant and diverse “last mile” connections, in addition to the fiber links already in place. While there are concerns about the resiliency of microwave connections during seismic events, there are also concerns about the resiliency of underground fiber conduits in seismic events. Microwave dishes can be realigned fairly quickly, in most cases more quickly than repairing fiber conduit breaks caused by ground shifts. There is a strong possibility that the regional radio system could share the microwave capacity, improving its own redundancy and potentially reducing its recurring costs.

As a part of the ESINet, the region has implemented a robust network monitoring system. Equipment manufactured by Network Orange has been installed at each PSAP to monitor the ESINet connection and immediately signal any network interruptions.

KCE9-1-1 technical personnel are notified of all outages so they can take immediate action to initiate the recovery process. Those recovery processes are well-understood by the technicians who receive the notifications.

KCE9-1-1 technical staff and the technical support person for each PSAP have received training in appropriate remedial actions to take if there is an outage and phone company repair personnel are not immediately available. Under the guidance of the telephone company help desk, they can take any of a wide range of actions that may be necessary to restore service.

9-1-1 System Capacity
As a part of this evaluation, GeoComm was asked to identify any inadequate capacity which may have a negative impact on continuous operations. We did not identify any hardware, network, or configuration issues that are causing inadequate 9-1-1 system capacity. We do, however, wish to comment on the relative abilities of smaller and larger PSAPs to handle rapid surges in call volume.

With the proliferation of wireless phones, it is increasingly common for dozens or even hundreds of callers to report the same event, even a minor event, if it occurs in an area of high visibility. While small PSAPs can quickly reach a point where all available 9-1-1 line appearances and all available call takers are busy, larger PSAPs are able to weather such short-term surges in call volume with less difficulty, because of the larger number of incoming 9-1-1 line appearances and the larger number of 9-1-1 call takers available. This is an important factor that favors the consolidation of smaller PSAPs to form larger PSAPs.
Surges in call volume that last for longer periods of time can overload even the largest PSAP. These surges often occur after major weather or seismic events or human-caused disasters. It is simply not practical or cost-effective to build and staff PSAPs to handle every conceivable 9-1-1 call without any busies during such catastrophic, but rare events. NG9-1-1 is being designed to include capabilities not available today in such situations.

For example, call takers at PSAPs far from the affected area may be able to help answer calls and provide a level of triage, routing the highest-priority calls to appropriate local locations and giving instructions to callers with lower-priority issues or questions. The King County region is on track to be an early adopter of NG9-1-1 services and capabilities as they become available. Continuing this forward progress will be important and should not be sidetracked by other projects such as consolidation. Additional support at KCE9-1-1 may be required to keep all essential projects on a progressive track. Planning and prioritizing should occur to prepare for the full functionality that NG9-1-1 will offer.

**NG9-1-1 Recommendations**

- Advance NG9-1-1 implementation to take advantage of technological opportunities.
- Consider additional technology sharing possibilities such as sharing logging systems, utilizing data hubs, or data warehouses for systems commonly used by King County PSAPs.
- Review continuity of operations, redundancy, and backup opportunities in concert with NG9-1-1 planning.
- GeoComm recommends that the region consider use of microwave links to provide redundant and diverse “last mile” connections, in addition to the fiber links already in place.

**GIS Data Maintenance**

The focus of the GIS assessment is the source and maintenance of the GIS data used within the PSAPs’ mapping applications. GeoComm found that GIS data is utilized in two different mapping applications in the King County PSAPs. The first is commonly referred to as the “phone map” because it is associated with the phone equipment installed at each PSAP. The second mapping application is the “CAD map” associated with the individual CAD systems. The primary mapping application used in the PSAPs is the CAD map with the exception of the University of Washington. Their current version of CAD does not have a mapping component so the “phone map” is the primary source for call locations.

The source GIS data is loaded into the phone map or xTrakker® program which is being maintained by KCE9-1-1. The main GIS layers being maintained are streets, address points, ESNs, city, and zip code boundaries for King County, including municipalities. A Road Access Zone (RAZ) layer, required by the xTrakker® software, is also maintained. The GIS data installed in the xTrakker® software is updated monthly at each PSAP.
KCE9-1-1 has a GIS map data maintenance plan in place that accommodates the local maintenance processes at each jurisdiction. Since KCE9-1-1 is also in charge of the Master Street Address Guide (MSAG) maintenance for all of King County, MSAG changes are determined by several means such as plats, addressing authorities, local contacts, or change service orders from CenturyLink™. MSAG changes are synchronized with the GIS map data if changes are required the program office contacts local personnel for resource information to update the King County dataset. As an example if a new road is added to a city and the MSAG change is not provided to KCE9-1-1 the map data may not reflect the current road network.

The MSAG and GIS data is only as accurate as the communication of changes from the local jurisdictions. The KCE9-1-1 has been working very diligently to obtain updates from various resources and current staff but local participation is a necessary component.

Synchronization testing between the MSAG, ALI, and KCE9-1-1 GIS data following the NENA 71-501 processes is completed on a regular basis. The KCE9-1-1 map data has a synchronization level around 99 percent which exceeds current industry standards. The current maintenance issue is getting timely updates from the local jurisdictions. This is a common maintenance issue of GIS data involving several jurisdictions.

**GIS Data in CAD Systems**

The data being used in the local CAD installation are a combination of independent datasets maintained separately in public safety and those that utilize their local jurisdictional data. KCE9-1-1 GIS data is not being used in local CAD systems. The table on the following page shows the breakdown of the data used in CAD systems by PSAP.

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Data Source for CAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORCOM</td>
<td>Port Madison Team</td>
</tr>
<tr>
<td>Redmond</td>
<td>City and the other local data included in their PSAP boundary</td>
</tr>
<tr>
<td>Bothell</td>
<td>City</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>PSAP – review KCE9-1-1 Program Office data for updates</td>
</tr>
<tr>
<td>Issaquah</td>
<td>City</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>PSAP maintained – review Seattle Public Utilities (SPU) data for update</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>Review Seattle Public Utilities data; then make minor adjustments as appropriate</td>
</tr>
<tr>
<td>Enumclaw</td>
<td>City</td>
</tr>
<tr>
<td>Valley Com</td>
<td>PSAP</td>
</tr>
<tr>
<td>Port of Seattle</td>
<td>PSAP</td>
</tr>
<tr>
<td>University of Washington</td>
<td>N/A</td>
</tr>
<tr>
<td>Washington Patrol</td>
<td>State Patrol Data</td>
</tr>
</tbody>
</table>
Current Configuration GIS Recommendations

- KCE9-1-1 should continue working with local jurisdictions and look for new resources to improve the turnaround time for information submission into KCE9-1-1. Synchronization levels are high between the MSAG, ALI, and GIS data however may not reflect the accuracy of the data related to current local changes.

- Keep the GIS and MSAG data maintenance at KCE9-1-1. This process lays the foundation for the GIS data required for an NG9-1-1 system.

Other King County Projects – Regional Radio Replacement Project

The stakeholder community in King County, KCE9-1-1, and GeoComm are aware that there are a number of other important communications related projects that are currently also in progress. The transition to NG9-1-1 service and the Regional Radio Replacement project are just two that impact the same group of cities and public safety entities as the PSAP Consolidation Assessment project. All are critical projects requiring resources such as personnel time, energy, leadership, and funding. The projects are all competing for priority attention and funding.

It was reported to GeoComm that the Regional Radio Replacement Project (RRRP) may hold a lower priority when compared to the Consolidation Assessment project because it is believed that funding for the RRP will be achieved through bonds and all equipment, including end user radios requiring replacement will be paid for through the bonds with only minor funding required by the local community. This may or may not be the case. Local agencies report a lack of information and communication about RRRP, and that has the ability to severely impact the project and the PSAPs.

Several local agencies report they do not know what they will be responsible for in the replacement; what the timetable is; what decisions are being made, and by whom decisions are being made. Each PSAP needs detailed technical and cost information in order to plan for their responsibilities in this project. While detailed information may be available, it is not perceived to be effectively communicated to all relevant public safety agencies.

There appears to be a lack of cohesive leadership, and this can result in competing motivators. There is not an overarching policy board that looks at the whole 9-1-1 delivery continuum, from call transport and delivery to response dispatch. The policy boards of the operating PSAP and the PSAP advisory committee of KCE9-1-1 may sometimes have conflicting goals.

Other System Recommendations

- KCE9-1-1 should continue to monitor the development of plans for the RRRP for impact on E9-1-1, PSAPs, or other services and disperse that information to the appropriate PSAP stakeholders.
- Participate in RRRP planning so that E9-1-1 interests are appropriately addressed.

Conclusion

Whether KCE9-1-1 and local PSAPs determines that it is in their best interest and the interest of their citizens to pursue the Optimum Model recommendation or other level of consolidation, there are a number of enhancements and improvement opportunities for consideration that present themselves within KCE9-1-1. This section has discussed several of those opportunities and recommendations to continue to enhance governance structure, seek sustainable funding for KCE9-1-1, develop a centralized approach to training which will enhance the skills and knowledge of PSAP personnel at all levels within the organization, and continue the transition to NG9-1-1.
Current Configuration Overview

Twelve Public Safety Answering Points (PSAPs) provide Enhanced 9-1-1 (E9-1-1) emergency services to King County, including the cities and the unincorporated areas of King County. The primary PSAPs (PSAP to which 9-1-1 calls are initially routed) for wireline 9-1-1 calls are Bothell Police Department, Enumclaw Police Department, Issaquah Police Department, the King County Sheriff’s Office, North East King County Regional Public Safety Communications Agency (NORCOM), Port of Seattle Police Department, Redmond Police Department, Seattle Police Department, University of Washington Police Department, and Valley Communications (Valley Com).

The primary PSAPs for wireless 9-1-1 calls are King County Sheriff’s Office, NORCOM, Seattle Police Department, Valley Com, and the Washington State Patrol (WSP).

The primary PSAPs transfer fire and EMS calls within the City of Seattle to the Seattle Fire Department PSAP for processing and dispatch; the Seattle Fire Department is a secondary PSAP.

The KCE9-1-1 Program Office (KCE9-1-1), the 9-1-1 administrative agency of King County, works with the state and the local PSAPs to administer the King County E9-1-1 system with the goal to provide effective, professional, and consistent 9-1-1 services. There has been a concerted effort on the part of KCE9-1-1 to provide for the PSAPs in terms of support, resource augmentation, and planning on a regional level.

Fire and Law Enforcement Dispatch Services

Fire and law enforcement dispatch services are split in some cities. A city police department PSAP may dispatch law enforcement while the city fire department is dispatched by another PSAP. Those PSAPs that do not dispatch their respective fire services are Bothell, Issaquah, Redmond, and Seattle Police. When this occurs, there is an inherent delay in the provision of public safety communications services caused by the
need for 9-1-1 calls requiring both law enforcement and fire or EMS dispatch to be transferred between PSAPs. Having all calls come into one PSAP, particularly in a major metropolitan environment, is ideal for several reasons.

When two PSAPs are involved, information needs to be relayed from one to the other. This increases the possibility of information accuracy being compromised. For incidents that require both a law enforcement and fire response, one PSAP is in a better position to effectively manage the incidents, with both police and fire disciplines receiving the exact same information at the exact same time. To the extent possible, all disciplines serving a community should be dispatched from one PSAP. This is also less frustrating for the caller since they would not have to repeat information to multiple PSAPs.

For calls answered at the primary PSAP that require a WSP response, the calls are transferred from the primary PSAP to WSP for dispatch. For calls answered at the WSP primary PSAP and the service is beyond a WSP response (requires local law enforcement, fire, and/or EMS), these calls must be transferred to the local jurisdictional PSAP for dispatch of local resources. For example, there are communication towers near the freeway that route wireless calls to the WSP PSAP. There is a probability that many of the wireless calls routed to the WSP originate from residences and businesses in the coverage area of the tower. Wireless 9-1-1 calls from those residences or business must be transferred to the local jurisdictional PSAP. While KCE9-1-1 reports that statistical data shows transfers are required on less than two percent of the calls, the transfer scenario does compromise the prompt processing of those calls.

**Current Configuration/Status Quo**
The current configuration or status quo, presumes no changes to the current PSAP configuration. The status quo is used for comparative purposes to determine a baseline for cost analysis and improvements to efficiency and service. However, even in the current configuration GeoComm proposes some further enhancement to the already excellent work conducted by participating PSAPs and KCE9-1-1. This section of the report will look at governance, finance, operational efficiency, facilities, and technology within the current structure.

**Governance**
The 12 PSAPs are operated and managed by a wide variety of organizations, providing a unique arrangement of PSAPs within the county. Five of the PSAPs are operated and managed by city police departments and one PSAP is operated and managed by the county Sheriff. The University of Washington operates and manages its own PSAP for emergency services on campus properties.

The Port of Seattle Police Department PSAP is managed and operated by the corporate division of the Port of Seattle. The State of Washington oversees and manages WSP District 2 which operates in King County. The Seattle Fire Department, through the City of Seattle, operates the only secondary PSAP in the county.
Two, independent, consolidated PSAPs, Valley Com and NORCOM, are each governed by a Board. Both of these independent PSAPs have an administration or governing board and an operations board that are representative of their member communities and the public safety agencies they serve. King County EMS is represented by Fire/EMS agencies.

**Consolidated PSAPs’ Governance**

Valley Com was created by Interlocal Agreement by the member cities of Auburn, Federal Way, Kent, Renton, and Tukwila to provide 9-1-1 call taking and dispatching emergency services for their police and fire agencies. In addition to its member cities, Valley Communications has contracted with the Algona Police Department, Black Diamond Police Department, Pacific Police Department, Des Moines Police Department, eight King County Fire Districts, and King County Medic One for PSAP services.

The mayor, or mayor’s designee, of each of the member cities serves on the Administration Board which provides policy direction and fiscal oversight. The Valley Com Operating Board is responsible for operational policies and procedures and provides advisory support for strategic planning, finance and budgetary matters, and technical issues. The Valley Communications Operating Board is comprised of Police and Fire Chiefs of the member cities and one appointed member from both a police department and a fire department that contracts with Valley Communications.

NORCOM, also created by Interlocal Agreement, has a governing board representing general purpose municipal corporations and other government agencies that have accepted the Interlocal Agreement. The board consists of the chief executive officer of each Principal member. The current Principal members include the Northshore Fire Department, King County Fire Department #50, City of Bellevue, City of Mercer Island, City of Bothell (for fire and EMS dispatch only), City of Clyde Hill, City of Kirkland, City of Medina, City of Snoqualmie, KCFD #27, KCFD #45, Eastside Fire and Rescue, Snoqualmie Pass Fire Department, Shoreline Fire and the Woodinville Fire and Rescue. The City of Redmond also has contracted with NORCOM for fire and EMS dispatch services. The NORCOM Joint Operating Board serves in an advisory capacity to the governing board and is composed of the membership from a Fire/EMS Service Board and a Police Service Board. Both service boards have a membership of chief officers from their respective organizations.

**Governance of PSAPs Operated by Public Safety Agencies**

Each of the city PSAPs, included in the study (Bothell, Enumclaw, Issaquah, Redmond, and Seattle) operate as a unit of a larger body, typically the police department. However, in the case of Seattle, in addition to the Police Department PSAP, the fire department operates a secondary PSAP. In each case, the chief executive of the organization is the chief officer of the respective police or fire department, and the PSAP budget is a component of the overall department budget. The police and fire departments are a unit of the overall city government that is led by a city manager and governed by elected officials.
The King County Sheriff’s Office 9-1-1 Center is organizationally within the Technical Services Division of the King County Sheriff’s Office and is under the direction of a Division Captain. In addition to serving unincorporated King County, the Sheriff’s Office provides contract law enforcement and dispatch services for 13 cities, the King County International Airport, Metro Transit, Sound Transit, and the Muckleshoot Indian Tribe.¹

The University of Washington, Port of Seattle, and Washington State Patrol PSAPs also have law enforcement agencies responsible for the operations of their PSAP. The University of Washington Police is a unit of the Student Life Division of the University, the Port of Seattle Police Department is a unit within the Corporate Division within the overall Port organization and the Washington State Patrol PSAP is part of the Communications Division within Technical Services Bureau of the Washington State Patrol.

**Current Configuration Governance Recommendations**

- The current governing boards should consider whether King County EMS is appropriately represented on their governing and policy boards.

**Financial**

Currently, the region spends $54,717,534 in staffing costs, and another $15,602,845 in operating costs for a total expenditure of $70,320,379. The resulting cost per 9-1-1 call is illustrated in the following table.

¹ [http://www.kingcounty.gov/safety/sheriff/Communities.aspx](http://www.kingcounty.gov/safety/sheriff/Communities.aspx)
### Summary of Status Quo Expenditures

<table>
<thead>
<tr>
<th>Agency</th>
<th>Status Quo Staffing Cost</th>
<th>Status Quo Operating Cost</th>
<th>Status Quo Total Cost Expenditures</th>
<th>Status Quo Cost Per Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>$1,537,821</td>
<td>$81,307</td>
<td>$1,619,128</td>
<td>$23.19</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>$478,817</td>
<td>$84,397</td>
<td>$563,214</td>
<td>$16.34</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>$983,688</td>
<td>$233,282</td>
<td>$1,216,970</td>
<td>$21.23</td>
</tr>
<tr>
<td>King County Sheriff's Office</td>
<td>$7,688,646</td>
<td>$1,457,579</td>
<td>$9,146,225</td>
<td>$13.86</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$8,375,979</td>
<td>$2,220,638</td>
<td>$10,596,617</td>
<td>$26.08</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$1,535,438</td>
<td>$248,781</td>
<td>$1,784,219</td>
<td>$23.77</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>$1,723,120</td>
<td>$373,151</td>
<td>$2,096,271</td>
<td>$26.08</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>$4,154,634</td>
<td>$3,055,083</td>
<td>$7,209,717</td>
<td>$42.98</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$10,989,164</td>
<td>$2,633,969</td>
<td>$13,623,133</td>
<td>$16.80</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>$832,746</td>
<td>$134,926</td>
<td>$967,672</td>
<td>$23.77</td>
</tr>
<tr>
<td>Valley Communications Center</td>
<td>$11,257,161</td>
<td>$4,243,626</td>
<td>$15,500,787</td>
<td>$18.09</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$5,160,320</td>
<td>$836,106</td>
<td>$5,996,426</td>
<td>$23.77</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$54,717,534</strong></td>
<td><strong>$15,602,845</strong></td>
<td><strong>$70,320,379</strong></td>
<td></td>
</tr>
</tbody>
</table>

Revenue is received from several sources. The PSAPs in King County receive annual revenue support from KCE9-1-1 in direct financial support known as an “escrow” account, and for technical PSAP support, training, and equipment. KCE9-1-1 funds up to 26 percent of PSAP budgets in 2011 and is projected to fund up to 22 percent in 2012.

KCE9-1-1 is reviewing the funding formula and the PSAP director’s helped shape the modifications to the budget distribution for 2012 and 2013. In both years, KCE9-1-1 is forecasting a PSAP revenue distribution to escrow accounts of $5,790,617 and an additional $5,898,000 for PSAP support costs.

In addition, general funds from local government augment the support the PSAP receive from KCE9-1-1. Some PSAPs also receive revenue from user fees.

Additional discussion of financial overview is included in the Findings section of this report.
Current Configuration Finance Recommendations

- KCE9-1-1 should continue to refine the funding formula distribution to PSAPs.
- Recommendations in this report will be helpful to the region to consider cost containment options that are available in both staffing and operations.

Local PSAP Operational Assessment

General Operations

As previously stated, the King County 9-1-1 community enjoys a high level of competence, expertise, and professionalism in 9-1-1 operations. PSAPs are required to meet the established KCE9-1-1 operational standards, such as 9-1-1 call answer time in order to receive KCE9-1-1 funding. The call taking and dispatching procedures and processes utilized at all of the 12 PSAPs, according to GeoComm's observations, appeared to be standard services commonly used in public safety communications centers.

GeoComm ascertained from the interview process that Bothell, Redmond, and Issaquah leadership expressed interest in continued discussion on the potential for consolidation or other appropriate partnerships. Redmond recently became a backup PSAP for Issaquah; NORCOM had been Issaquah's backup PSAP in the past.

The City of Bothell PSAP is weighing options from multiple consolidation scenarios, including joining NORCOM. Redmond and Issaquah advised they are open to consolidating with each other, but expressed concerns about joining NORCOM even though NORCOM is currently providing fire department dispatch services to the Redmond and Issaquah jurisdictions. NORCOM would accept additional agencies to join their center. However, the concern of Redmond and Issaquah is that their current culture and service to their communities may be compromised by joining a larger center.

Operational Efficiency

GeoComm consultants spent time in each of the King County PSAPs gathering information about the operations of each and observing delivery of service; gaining further insight by speaking with individuals who do the front line work day in and day out. These observations revealed that public safety communications services are performed within common levels as compared to the industry as a whole. All PSAPs performed some type of measurement to quantify workload and service including several that measure services having an impact on patient survivability, protection of property, etc. One example is measuring call intake times along with the amount of time it takes to dispatch the call. Although it is important to answer emergency calls in a short period of time (within ten seconds) it is equally important to understand how efficiently the call intake and dispatch process is performed. In particular, the amount of time it takes to process and dispatch a choking or a breathing difficulty call will contribute to overall patient outcomes. For example, in the case of a structure fire, the amount of time it takes to process the call not only has an
impact on occupants getting out of a burning building quickly and safely but also how much damage is done to the structure as a result of the fire. A law enforcement example would be obtaining and quickly relaying appropriate descriptive information to field units resulting in immediate apprehension of a suspect involved in an in-progress crime.

**General Operations and Operational Efficiency Recommendation**

- GeoComm recommends that each PSAP measure call answer times and call processing times. In addition to the current measurement of how long it takes to answer an incoming telephone call, PSAPs should measure the amount of time the call taker spends on the call and the total time it takes the call taker to have the call ready for dispatch.

**Call Routing**

Current wireless call routing configurations appear to cause a great tension among and between the PSAPs. Besides NORCOM and Valley Com, which are primary wireless PSAPs, only Enumclaw Police Department and Port of Seattle Police Department provide call taking and dispatch services for all three disciplines: police, fire, and EMS. The other PSAPs are police only dispatch entities, so any wireless fire/EMS calls need to be transferred for dispatch.

Eleven of the 12 PSAPs in King County are primary for wireline and Voice over Internet Protocol (VoIP) and five of the 12 PSAPs are primary for wireless calls. Local communities that currently operate primary PSAPs believe they are in the best position to determine the appropriate response to an incident originating in their community and should be the primary (first) answering point for any wireless 9-1-1 call originating within their jurisdiction. Wireless 9-1-1 calls often require a multi-level response and the need to transfer the caller (often multiple callers) to the local PSAP delays the activation of emergency response.

Wireless call routing is particularly challenging in areas along the shore of Puget Sound. Today’s wireless technology routes 9-1-1 calls based on the cell sector processing the call. Therefore it is common for 9-1-1 calls to be processed by cell sectors located in other counties, which results in the 9-1-1 call being delivered to the other county’s PSAP. A call transfer is then required to redirect the call to the appropriate PSAP for the caller’s location. While the PSAP Directors have been engaged by KCE9-1-1 to discuss wireless call routing issues on a regular basis GeoComm recommends reevaluating wireless call routing to send wireless calls originating in the local community to the local community PSAP.

It is important to note that the GIS-based routing capabilities of Next Generation 9-1-1 (NG9-1-1) are expected to improve the accuracy of delivery for 9-1-1 calls once the technology is capable of determining and plotting the location of the phone before the call is delivered to a PSAP.
Current Configuration Call Routing Recommendation

- Consider reevaluating wireless call routing to send wireless calls originating in the local community to the local community PSAP.
- Consider options, methods, and procedures that will reduce call transfers and call processing time.

Staffing

Most agencies are using the APCO Project RETAINS Toolkit as a component in determining staffing. This is the only public safety communications staffing tool specifically designed to determine appropriate staffing levels for PSAPs. Most of the PSAPs reported being fully staffed or only minor vacancy levels based on their budget authorized positions. One PSAP reported being understaffed indicating the number of authorized positions is too low.

Some of the PSAPs report that they used combined call taker/dispatcher personnel to staff PSAP positions while others separate the two into call receivers and dispatchers. There are a total of 264 call takers staffing the 12 PSAPs. The breakdown per PSAP for the current call takers is reported in the following chart. GeoComm also notes in the chart below that the status quo staffing levels may not reflect the required number of call taking personnel for the current call volumes. GeoComm’s assessment of the current staffing levels revealed, in some cases, that additional call takers are needed to handle the current level of workload. In addition, GeoComm recommends that there be a minimum of two personnel on-duty at all times in a PSAP regardless of call volume. This is not always the case in the current PSAP configuration.
## Status Quo Current and Required Staffing

<table>
<thead>
<tr>
<th>PSAPS</th>
<th>Current Call Taker Staffing Level</th>
<th>2011 Total Call Volume(^2)</th>
<th>Call Taker Workstations Required</th>
<th>Service Level (90% &lt; 10 Sec)</th>
<th>Required Call Taker Staffing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell Police Department</td>
<td>10</td>
<td>69,808</td>
<td>2</td>
<td>97.30%</td>
<td>17</td>
</tr>
<tr>
<td>Enumclaw Police Department</td>
<td>6</td>
<td>34,464</td>
<td>2</td>
<td>99.31%</td>
<td>17</td>
</tr>
<tr>
<td>Issaquah Police Department</td>
<td>9</td>
<td>57,333</td>
<td>2</td>
<td>98.15%</td>
<td>17</td>
</tr>
<tr>
<td>KCSO</td>
<td>18</td>
<td>660,032</td>
<td>6</td>
<td>96.38%</td>
<td>51</td>
</tr>
<tr>
<td>NORCOM</td>
<td>65</td>
<td>406,285</td>
<td>4</td>
<td>93.34%</td>
<td>34</td>
</tr>
<tr>
<td>Port Of Seattle Police</td>
<td>16</td>
<td>75,064</td>
<td>2</td>
<td>96.91%</td>
<td>17</td>
</tr>
<tr>
<td>Redmond Police Department</td>
<td>16</td>
<td>80,369</td>
<td>2</td>
<td>96.48%</td>
<td>17</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>24</td>
<td>167,732</td>
<td>3</td>
<td>97.62%</td>
<td>25</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>43</td>
<td>811,002</td>
<td>7</td>
<td>91.32%</td>
<td>51</td>
</tr>
<tr>
<td>University of Washington</td>
<td>8</td>
<td>40,711</td>
<td>2</td>
<td>99.05%</td>
<td>17</td>
</tr>
<tr>
<td>Valley Com</td>
<td>44</td>
<td>856,802</td>
<td>7</td>
<td>95.94%</td>
<td>59</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>5</td>
<td>252,276</td>
<td>3</td>
<td>93.06%</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>264</td>
<td>3,511,878</td>
<td>42</td>
<td>n/a</td>
<td>347</td>
</tr>
</tbody>
</table>

Utilizing the total call volume per PSAP for 2011, GeoComm calculated the number of required call taker workstations needed to achieve a service level of calls being answered in ten seconds or less 90 percent of the time.

\(^2\) Includes 9-1-1 emergency and 9-1-1 non-emergency administrative calls for 2011 as reported by the King County E9-1-1 Program Office. The volumes include all 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls.
The staffing calculations were based on the Erlang C methodology using a standard call duration time of 120 seconds to arrive at the number of call taker workstations required. The Net Available Work Hours (NAWH), a component of the APCO Project RETAINS Staffing methodology, was provided by the King County 9-1-1 Consolidation Steering Committee. The NAWH is used to determine the number of staff necessary to cover the indicated call taker workstations. Further staffing information about GeoComm’s methodology is available in Appendix A.

The Seattle Fire Department PSAP is staffed by certified firefighters. They are very dedicated to their profession and displayed to GeoComm staff pride in their accomplishments and the high level of service they provide to their citizens. However, the cost to staff a certified firefighter dispatch center is substantial compared to a civilian center. Currently, the average call taker/dispatcher salary for Seattle Fire Department PSAP is 58% higher than all of the other PSAPs’ average call taker salaries. In addition, Seattle Fire Department is a secondary PSAP, which requires all 9-1-1 calls to be initially answered, screened, and transferred from the Seattle Police Department primary PSAP causing an inevitable delay in response.

GeoComm recognizes the political challenge of transition to a completely civilian operation. However, there are numerous examples across the country where highly efficient and effective fire dispatch is carried out every day with civilian dispatchers. The transition is cost effective and requires examination. Just one example of savings can come from comparing the salary of a certified Seattle Fire Department dispatcher to that of civilian Seattle Police dispatcher. The minimum salary of a Seattle Fire Department dispatcher is $85,056, the minimum salary for a Seattle Police Department dispatcher is $45,240. The annual salary savings is $39,816, multiply that by the 24 certified fire staff there are currently, the number of Seattle Fire Department dispatchers, and there is a minimum of $955,584 a year that can be saved in a civilianized center just in call taker staffing if not other changes to staffing levels or consolidation are made.

<table>
<thead>
<tr>
<th>Current Staffing and Salary for Seattle Fire Department and Seattle Police Department</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Position</strong></td>
</tr>
<tr>
<td>Certified Firefighter Combined Call Taker/Dispatcher</td>
</tr>
<tr>
<td>Police Department Combined Call Taker/Dispatcher</td>
</tr>
</tbody>
</table>

Current Configuration Staffing Recommendations

- Increase staffing to appropriate levels to meet call volume demands and public service expectations.
City of Seattle should reevaluate the need to utilize firefighters as call taker/dis dispatchers.

**Facility**

The majority of PSAP facilities are older structures that have been converted for use as a PSAP. However, some facilities were built specifically for use as a PSAP and have modern, current designs that comply with or exceed seismic standards. The oldest building, originally built in 1935, houses the University of Washington Police Department PSAP. The newest building houses the Seattle Fire Department PSAP and was completed and occupied in 2008.

All PSAPs have planned for emergency electricity during power outages and have alternate locations to relocate if a PSAP becomes unusable. The PSAPs have controls in place to restrict access to the PSAPs to authorized personnel only.

PSAP equipment rooms, in most cases, are designed and cabled in accordance with generally accepted industry practices. While few equipment rooms have space for additional racks and cabinets, in most cases the racks and cabinets already in place have sufficient open space for installation of additional or replacement systems. Some equipment rooms are configured to keep racks and cabinets stable during significant seismic events.

Sufficient cooling capacity appears to be in place to handle the heat load of the equipment presently installed, although portable cooling units are being employed at two locations to achieve this. Some equipment rooms have redundant cooling units in case the primary unit fails. There is some variation in the types of grounding systems in place, ranging from rudimentary to comprehensive systems including grounding halos.

**Facility Recommendations**

- GeoComm recommends that PSAP backup power systems and grounding be evaluated and upgraded if necessary to current standards. This should be done in advance of any radio console system upgrades. Newer radio console systems compatible with wide area P25 trunked radio systems, while providing many useful added capabilities, are typically less forgiving with regard to power and grounding issues.

- GeoComm also recommends that alternate PSAP locations be assessed for the level of functionality they provide, both for 9-1-1 call taking and for dispatch. In some cases another facility more geographically distant from the PSAP may be better able to meet the needs of a relocated PSAP, especially if the relocation goes beyond an hour or two in duration. This is especially true of the two PSAPs (Enumclaw and the Port of Seattle) that presently relocate to non-PSAP sites on a temporary basis. If relocating to an alternate PSAP, call taking capability is functional. In relocation facilities that are not PSAPs, full radio communications capabilities for dispatching can be challenged.
**Technology**

A great amount of communications technology sharing is already taking place among the PSAPs and public safety agencies in King County. There is a common 9-1-1 system that serves all PSAPs, using a common technology platform for the customer premise equipment (CPE). With a very few exceptions, the PSAPs and public safety agencies operate on a common shared radio system. The exceptions are the Washington State Patrol, which operates on a radio system with statewide coverage, and the Port of Seattle, which operates on its own radio system. The Port of Seattle system is used for both public safety and non-public-safety functions at the airport and other locations where the Port has operations. One other exception is a subset of the fire agencies dispatched by NORCOM that continue to operate on a VHF radio system.

PSAP technology in the King County PSAPs is generally at a high level. All PSAPs use CAD systems, the Positron VIPER® telephone equipment installed at each PSAP is described by the manufacturer as NG9-1-1 capable, and field units communicate to and from CAD and each other via mobile data computers.

In addition to those mentioned above, there are a number of technology sharing opportunities that might be considered the region. These opportunities are identified in the following sections.

**Technology Sharing Opportunities – CAD**

NORCOM currently uses two CAD systems in their PSAP; one for police dispatching and one for fire dispatching. It is obvious to GeoComm that the call takers and dispatchers at NORCOM are well trained and highly competent. They are able to enter a call into both CAD systems successfully. Regardless of competence, the process does cause a delay which is not acceptable when dealing with emergency situations. NORCOM is taking aggressive action to solve the problems that exist with a dual CAD system. However, the lack of corrective action by the CAD vendor has made other PSAPs in the area that might have considered NORCOM as a viable partner very nervous about joining an operation with an unresolved CAD situation.

While there are a number of disparate CAD systems in use in the region at present, a CAD-to-CAD message switch has been deployed with the capability of interconnecting these disparate systems and allowing them to exchange data and thereby enhancing CAD interoperability. Several PSAPs are active participants in this effort, while others are waiting until after completion of other CAD system milestones to become actively involved in this effort. The value of such a system is highly dependent on the level of participation by the PSAPs in the region.

As the agencies are able to develop and implement interfaces to this message switch, the CAD information sharing will become increasingly valuable in day-to-day operations.

**Technology Sharing Opportunities – Next Generation 9-1-1**

The design of NG9-1-1 includes a robust capability for conditional routing of 9-1-1 calls based on a number
of criteria. The conditional routing rules are established in advance, to be applied automatically whenever the specified conditions occur. This capability will bring additional options for defining what happens when a surge of 9-1-1 calls occurs. Calls can be routed from an overloaded PSAP to one or several other PSAPs located nearby or at a distance. Calls can be routed based on the activity levels at the alternate PSAPs as well as any special capabilities they may have. Calls that receive conditional routing will be accompanied by information that shows why the call was routed to the alternate PSAP, so the call taker answering the call will understand why he/she received the call instead of the PSAP normally responsible for the caller’s location.

Many local decisions will be necessary as this capability is implemented. The concept of local control is central to NG9-1-1. Local and regional policies and procedures will be needed, to ensure that the system performs as desired under normal and abnormal conditions. When properly implemented, NG9-1-1 will assist both larger and smaller PSAPs during periods of unusually high call volume and will provide better service to the citizens who have a need to call for assistance during these times.

Examples of opportunities presented include:

- PSAPs may be in a better position to support overflow and call volume surges than under the separate silo situation that exists today. Call routing rules can be established in advance to take effect automatically in various scenarios so that the inherent delays currently involved in engaging the 9-1-1 service provider in rerouting or redirecting calls can be eliminated.
- Back up and redundancy can be improved through redundant data connections and connection of PSAPs to redundant 9-1-1 switches.
- Shared technology-data hub for routers, logging recorders, CAD, and other technology

**Technology Sharing Opportunities – Other Systems**

Additional technology sharing opportunities exist in multiple areas, including records management systems, access to data from the regional intelligent transportation system, and automated interface with alarm companies using the Automated Secure Alarm Protocol (ASAP) developed by the alarm industry in conjunction with APCO International and the IJIS Institute. In particular, opportunities exist for implementation of the ASAP protocol using the CAD-to-CAD message switch, in order to leverage the work already done to interface that switch with the CAD systems in the region.

**Current Configuration Technology Recommendations**

- Complete integration of the new CAD system at NORCOM.
- Continue progressing the CAD interoperability project towards a single regional CAD to ensure the full value of this integration is realized and experienced by the county’s PSAPs.
- Engage in discussion related to the feasibility of a regional CAD platform for the County’s PSAPs.
- Advance the implementation of NG9-1-1.
Consider opportunities for virtual consolidation of common technologies or systems.

**Strengths and Weaknesses of the Current Configuration**

### Strengths

<table>
<thead>
<tr>
<th>Strength</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSAPs will not change.</td>
<td></td>
</tr>
<tr>
<td>All PSAPs seem to be content with current operations.</td>
<td></td>
</tr>
<tr>
<td>Washington State Patrol is eligible to receive some equipment funding from State 9-1-1.</td>
<td></td>
</tr>
<tr>
<td>With KCE9-1-1 involvement, WSP 9-1-1 equipment is consistent and standard with other King County PSAPs.</td>
<td></td>
</tr>
<tr>
<td>The current PSAPs are strong supporters of the current KCE9-1-1 operations and funding.</td>
<td></td>
</tr>
<tr>
<td>The administration and political leadership in the small PSAP communities are supportive of the current methodology of handling 9-1-1 and want to retain the local control.</td>
<td></td>
</tr>
<tr>
<td>Local control of dispatch services is perceived to be the best model by agencies currently providing service in this manner.</td>
<td></td>
</tr>
<tr>
<td>KCE9-1-1 has the authority to reallocate funds to its programs to fund the 9-1-1 systems.</td>
<td></td>
</tr>
</tbody>
</table>

### Weakness

<table>
<thead>
<tr>
<th>Weakness</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing issues remained unresolved. If no change to current configuration, unresolved issues cause continued financial strain on PSAPs and KCE9-1-1</td>
<td></td>
</tr>
<tr>
<td>Without changing the current funding model for PSAPs, KCE9-1-1 may not be sufficiently funded to implement NG9-1-1.</td>
<td></td>
</tr>
<tr>
<td>The current configuration is not the most economically and operationally efficient.</td>
<td></td>
</tr>
<tr>
<td>Current levels of staffing allocation are insufficient for the workload at some PSAPs. Some PSAPs have inadequate staff supervision and/or redundancy. Small PSAPs are not prepared to handle NG9-1-1, given the current staffing level.</td>
<td></td>
</tr>
<tr>
<td>Inherent delays caused by PSAPs that only dispatch for a single discipline. Many jurisdictions have one PSAP handling law enforcement dispatch while another handles fire/rescue dispatch. This situation causes a number of transfers from the answering PSAP to the dispatching PSAP which may be different. Evaluation of the impact of this situation should be examined and adjustments to E9-1-1 call routing considered if results demonstrate significant impact.</td>
<td></td>
</tr>
<tr>
<td>Although KCE9-1-1 reports that 95 percent of the wireless 9-1-1 calls are routed to the correct PSAP because they were not transferred, wireless 9-1-1 calls might be more efficiently handled with updated routing to local PSAPs in order to minimize transfers to the extent that it is possible to do so. If significant changes in wireless call routing are made, staffing will be impacted both at the PSAP receiving additional call volume and the PSAP losing call volume.</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

It is common knowledge throughout the professional 9-1-1 community that 9-1-1 in King County enjoys a reputation for high quality service, as leading innovators in technology application in public safety communications, and has set the standard of professional and operational effectiveness. Frequently, the participating PSAPs and KCE9-1-1 leads the way in identifying issues of service provider integration, management of public expectations of 9-1-1 service and frequently been responsible for raising operational concerns to the national level for resolution.

The current configuration of PSAPs and support through KCE9-1-1 presents some opportunity for improvements, especially as it relates to technology sharing, advancing NG9-1-1 services, facilities, survivability, and call processing.
Optimum Model Overview

Significant deliberation, analysis, and discussion by GeoComm consultants regarding potential models have resulted in the proposed Optimum Model configuration for King County. GeoComm was asked to provide an Optimum Model without regard to political implication and one that was the most sound; technically and fiscally. The GeoComm team of consultants has been in the position that King County Public Safety Answering Points (PSAPs) and local government now find itself. We understand that it is difficult, if not impossible, to totally ignore political implications. And, in fact, it would not be reasonable in the implementation phase of any changes to how 9-1-1 services are handled in King County to ignore the political implications of service changes. However, as consultants and advisors to King County, we were encouraged to provide the most technically appropriate recommendations possible, and we have welcomed the opportunity to work under this vision. The attitude and vision that prevails in the county, to tackle the challenges in order to ultimately achieve the most efficient and effective service, is one that has always advanced this region to a place of high regard nationally and is respected throughout the 9-1-1 community.

After intensive review and analysis described in previous sections, GeoComm proposes an Optimum Model consisting of several levels of recommendations where existing PSAPs will either (1) remain unchanged, (2) transition to a secondary PSAP status, or (3) those that will be consolidated to form new agencies.

In addition to the King County E9-1-1 Program Office (KCE9-1-1) Enhancements recommendations presented in Section Four, GeoComm recommends the following Optimum Model operational structure:

1. A City of Seattle combined police and fire civilian PSAP as an independent city department.
2. Continuation of the independent PSAPs for the Port of Seattle and the University of Washington Police Department.
3. Combine through contract or partnership of Valley Com and Enumclaw Police Department.
4. Consolidation of the King County Sheriff’s Office (KCSO), North East King County Regional Public Safety Communications Agency (NORCOM), Bothell, Issaquah, and Redmond into a newly structured agency.

5. Washington State Patrol (WSP) transitioning to a secondary PSAP status by no longer being the initial answering point for wireless 9-1-1 calls substantially within the jurisdiction of the local PSAP.

**Rationale**

This consolidation recommendation has benefits for each of the PSAPs involved, including, to the degree that it is feasible, bringing police and fire/EMS dispatch under one organization for as much of the region as possible in order to minimize call transfers and improve call processing time. A single PSAP also alleviates the need for duplication of service via call transferring and obtaining identical information from callers, which can be very frustrating for the caller while also being very time consuming.

Although, all the PSAPs within King County are very progressive in their technology and customer service attitude, the ability to utilize resources from all the communities such as equipment, training, and personnel will provide PSAPs the ability to provide an even higher quality service to their citizens. Under current configurations, services are duplicated for law enforcement and fire/EMS dispatch operations. Having field responders dispatched from a centralized location also creates a better result for interoperability in the field. By combining smaller operations into a larger center, the PSAP will be postured to more effectively respond to larger incidents, particularly those that overlap jurisdictions. Responders will receive critical information in a timelier manner while communications center personnel will have a better understanding of the inter-operational needs, such as operating on common radio channels. With the Optimum Model, resources can be pooled and utilized, such as equipment, staff, and training opportunities that may not be funded in a single PSAP.

The Optimum Model recommendation took several areas of rationale into account. These are summarized below.

- Seattle Fire Department as a secondary PSAP adds call processing time that is not in the best interest of the citizens and visitors to Seattle and does not meet the guiding principles of the region.
- The populations served and the unique requirements of both the Port of Seattle and the University of Washington make them challenging partners for a consolidation with any existing traditional PSAP and would present new challenges if they combined.
- The Enumclaw PSAP, given the low staffing number and its inability to handle the increased data and call processing requirements that will be present with a Next Generation 9-1-1 (NG9-1-1) call, will likely be forced to consider some level of consolidation once NG9-1-1 services are implemented in the region. The most reasonable partnership for Enumclaw is with Valley Com. The sooner that is accomplished the better for Enumclaw and its citizens.
The WSP PSAP as a component of a state agency has a very focused service area and function which is not enhanced by consolidation with local government agencies. This situation is also true for the University of Washington PSAP.

The consolidation of the identified PSAPs into a consortium of public safety agencies consisting of KCSO, NORCOM, Bothell, Issaquah, and Redmond would address both the fiscal responsibilities of KCE9-1-1 and assist in the transition to NG9-1-1 services for the region. The fewer PSAPs to receive the software and possible hardware updates required for NG9-1-1 should result in lower costs for KCE9-1-1. While some of the hardware such as Intrado VIPER® is in place, there could be additional costs for activating “features” to the Intrado VIPER® system.

Larger PSAPs will be better able to manage the staffing needed to handle new call types and better able to schedule the training for staff.

The WSP PSAP has enjoyed a close working relationship with all the PSAPs in the region and that effective working relationship should not change. The treatment of WSP as an equal PSAP in the region in the past has elevated that agency’s standing and effectiveness and has balanced its service to the King County calling public. The funding relationship and support the WSP has received from KCE9-1-1 is no longer sustainable and should be reevaluated.

**Governance**

The current economic and political environment is predisposed and prepared for centralized planning and shared governance. Performance benchmarking is a clear path to more efficient and responsive government that can contribute to ensuring the effective service delivery.

The guiding principles that the 9-1-1 and public safety community developed have been essential in establishing a new vision for the future of 9-1-1 management in King County.

During GeoComm’s meeting with elected and appointed officials representing the PSAPs affected by the Optimum Model recommendation, GeoComm found that the issues identified by all of the organizations were similar. All the government organizations responsible for providing emergency communication services to their constituents independently agreed with the guiding principles of being consistent, competent, collaborative, cost effective, and customer focused.

With respect to those guiding principles, the GeoComm recommendation addresses the following specific concerns:

- Each expressed that the culture of their municipality was to provide a higher level of service than most municipalities and that their citizens expect them to be more responsive than other cities.
- Each was concerned with the equity of a consolidated center’s governance structure. Specifically, would the smaller stakeholders have equal footing with the larger cities when considering policy, financial, and operational matters.
- Each municipality was not convinced that consolidating their PSAP with others would lead to any significant cost savings for the city.
GeoComm understands that governance structure is one of the most critical success factors with respect to the implementation and operation of a consolidated communications center and long-term sustainability. Each member of the consolidated communications center must feel that they have the ability to represent their constituency in an equitable manner and that they have the ability to adequately influence the resolution to matters of concern for their community. We also understand that the development of that structure takes time and collaboration among all the participants.

**Governance Considerations – Consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond**

The recommended model incorporates several changes to the existing PSAP structure in King County, beginning with a creation of a new PSAP which is the result of consolidating the current KCSO, NORCOM, Bothell, Issaquah, and Redmond organizations. This new arrangement impacts all of the PSAPs involved in a significant way.

- Each of these stakeholder groups has legitimate concerns that must be addressed and the planning and the implementation for the new organization must begin with the governance. However, for the new communication center to be successful, each of the stakeholders involved must be open to serious consideration of its potential. The following factors and recommendations must be considered: The governance structure of NORCOM has been successful and the optimum model recommendation requires the organization to amend its governance, become part of a larger set of participating entities and financial structure and relocate to the current KCSO PSAP facility.

- The current NORCOM governance structure is representative of its principal members and each has a seat on the Governance Board. GeoComm recommends that the newly formed organization also have equal representation on the Governance Board with the addition of an appointed official from each of the Bothell, Issaquah, and Redmond cities and the KCSO. The cities that currently contract for dispatch services with Redmond, Bothell, and Issaquah (Carnation, Duvall, Lake Forest Park, and Snoqualmie) would be represented by their “principal” as a part of their contracted service. Cities that currently contract with KCSO could be represented by their “principal” as part of their contracted services. This is only one example; other representative arrangements are certainly possible and could be determined during the implementation phase. City contracts, legal in nature, should stipulate the expectation of the city regarding the level of service, policy input, or representation the city will receive from the agency with whom they are contracting in the consolidated governance structure. Thus, a city contracting with KCSO for patrol services and 9-1-1 call answering and dispatch should stipulate in their contract how calls for their jurisdiction will be handled, how response to a 9-1-1 call will be handled, what level of reporting the city will receive regarding their city’s crime statistics or response times, etc.

- The current NORCOM Interlocal Agreement (ILA) provides voting procedures that are equitable and representative for principal members. Even though the board strives to operate by consensus, in some cases two-prong voting procedures are required. A Two-Prong Simple Majority Vote requires the approval of both the majority of voting members present and the majority by weighted vote of members present constituting a quorum and voting. The ILA also requires a supermajority Vote on predefined issues such as budget approval, the issuance of debt, the acquisition of assets in excess of $500,000, admission of a new principal, appointment of an executive director, amendment to the ILA, expansion and the adoption or amendment to the organization’s bylaws or...
Articles of Incorporation. A Supermajority Vote requires approval by two-thirds of all members of the governing board and not less than two-thirds of the weighted vote of all members of the governing board. The current NORCOM voting procedures are equitable and have protections in place for all size entities. In the Optimum Model, GeoComm recommends that the Interlocal Agreement should define voting procedures that are equitable and representative. This representation may be tied to investment or financial contribution if that is the pleasure of the parties.

- GeoComm recommends that the KCSO, NORCOM, Bothell, Issaquah, and Redmond principals consider enhancing its scope of services to include responding to those callers whose issues may not be considered an emergency in order to achieve true collaboration and to realize all cost efficiencies possible.
- Redmond, Issaquah, Bothell will be required to close their PSAPs and route the 9-1-1 calls to a consolidated center that is not in their city and not answered by an employee of their city. The municipalities will be required to relinquish direct command and control of their individual PSAPs and share in the decision-making.
- Each city will have a single representative to a shared governing structure that must represent the interests of all its members. The new consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond entity will require an expanded governance structure that is politically acceptable to all members participating.
- KCSO is required to become part of a newly formed consortium of PSAPs and to share the county facility where it currently operates, although it is anticipated that the facility itself will remain a King County owned building.

**Governance Considerations – Valley Com/Enumclaw Partnership**

In GeoComm’s discussions with the Valley Com Administrative Board Chair and Operations Board Chair, our project team was advised that the current board structure was very effective and that its members are content with its current size and membership. They reported to GeoComm that the cities of Auburn, Federal Way, Kent, Renton, and Tukwila work well together and were not seeking additional owner city members. The transition to a combined operation will require changes to Valley Com in one of two ways. Either the governance model to accept a new “owner” agency with the same full rights and benefits as the current owners or Enumclaw would need to contract for services from Valley Com.

GeoComm recommends that the current Valley Com Administrative Board add the City of Enumclaw as a contract city. The current governance structure of Valley Com is equitable in that all public safety agencies are represented on the Operations Board which oversees operating policies and procedures and all members have equal vote (simple majority of those present for approval.)

As a contract city, the City of Enumclaw Police and Fire Departments would receive call taking and dispatch services from Valley Com. Even though the city would not have full voting rights at the Administrative Board level, it would be represented on the Operations Board.
**Governance Considerations – An Independent City of Seattle Communications Center**  
GeoComm also recommends that the Seattle Police Department PSAP and the Seattle Fire Department PSAP be combined as an independent civilian city department in a new facility. Establishing a combined PSAP as a primary call taking and dispatch operation for the entire jurisdiction within the city limits of Seattle eliminates transfers and reduces call processing times which translate into more prompt service to the citizens.

In order to accomplish the Seattle Police Department PSAP and Seattle Fire Department PSAP consolidation in an effective and functional way, it is recommended that an independent city department be formed so that both the police and fire departments can participate fully and equally in the joint management and decision making. This new communications department should report to the appropriate city management authority as a department head position. A civilian director would be appropriate for this operation. The call taker, dispatcher, supervisory, and support workforce should also be civilian. The department should also consider establishing an advisory committee which would be representative of police and fire that would serve as an operations policy board and advisory to the director.

**Governance Recommendations – Optimum Model**

- The governance structure of any consolidated agency should define a shared decision-making process that is fair and equitable.
- The newly formed organization, the consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond PSAP, should have equal representation on the Governance Board and should include appointed officials from each of the Bothell, Issaquah, and Redmond cities and the KCSO.
- The cities that currently contract for dispatch services with Redmond, Bothell, and Issaquah (Carnation, Duvall, Lake Forest Park, and Snoqualmie) would be represented by their “principal” as a part of their contracted service. Similarly, the representative of the King County Sheriff will be representative of the KCSO and the KCSO contract cities.\(^1\) As stated earlier in this section, representative arrangements on the Governance Board should be determined during the implementation phase. City contracts, legal in nature, should stipulate the expectation of the city regarding the level of service, policy input, or representation the city will receive from the agency with whom they are contracting in the consolidated governance structure.
- ILAs for contract cities for Redmond and KCSO should be assigned to the new entities.
- GeoComm recommends that an Interlocal Agreement define voting procedures that are equitable and representative. This representation may be tied to investment or financial contribution if that is desired by the parties.
- The KCSO, NORCOM, Bothell, Issaquah, and Redmond principals should consider enhancing their scope of services to include responding to callers whose issues may not be considered an

\(^1\) The KCSO contract cities are contracting for all police services, not just for 9-1-1 and dispatching services. Actual service delivery is by KCSO, which is represented in this proposed governance structure.
emergency in order to achieve true collaboration and to realize all cost efficiencies possible. These are “ancillary duties” of the current PSAP structure and would be “leave behind” responsibilities to be funded by the individual principals.

- KCSO is recommended to become a full partner in the newly formed consortium of PSAPs and to share the county facility where it currently operates. The ILA should clearly define the sharing agreements including costs.
- Valley Com Administrative Board should add the City of Enumclaw as a contract city.
- The Seattle Police Department PSAP and the Seattle Fire Department PSAP should be combined as an independent civilian city department in a new facility.
- The independent City of Seattle department should be formed so that both the police and fire departments can participate fully and equally in the joint management and decision making. This new communications department should report to the appropriate city management authority and a civilian director be appointed. Civilianize all call taker, dispatcher, supervisory, and support workforce. Seattle should establish an advisory committee to be representative of police and fire departments and charge them to serve as an operations policy board.

Financial

It is important to note that during the implementation process, updated data should be used and cost estimates recalculated with every decision that is considered by the implementation team. The financial information provided in this report is based on data obtained during the data collection process of this project for the purposes of considering consolidation feasibility. Every decision or change to assumptions will modify the end result.

The Optimum Model proposed by GeoComm has the most evenly distributed call volume among the three primary PSAPs in the county. Utilizing the actual 2011 call volume (9-1-1 and non-emergency) reported to GeoComm, the model divides the total call volume fairly equally while the current configuration has the Bothell PSAP receiving two percent of the total call volume while the Seattle Police Department reports approximately 23 percent of the call volume. The percentage estimated in the combined Seattle PSAP is overstated because of the calls answered by the Seattle Police Department are also included in the Seattle Fire Department data.
It is GeoComm’s recommendation that wireless call routing be reevaluated again and that cell tower coverage that is substantially within the jurisdiction of a local PSAP be routed to the local PSAP. There are two issues related to this situation. The first is wireless call transfers to the local jurisdiction from WSP. KCE9-1-1 reports that the transfer rate of wireless 9-1-1 calls from the WSP to a local PSAP only accounts for two percent of the calls. This is being interpreted that only two percent of the calls are inappropriately routed to the WSP. While two percent of 252,276 calls only amounts to 5,046 calls, many of the local PSAPs maintain that those calls should be routed to their PSAP initially. This modest increase in call volume will not impact staffing but nevertheless these calls should be initially routed to the local PSAP. If state patrol response is required, the WSP can be notified. This will like increase transfers from local PSAPs back to WSP.

2 Includes 9-1-1 emergency and 9-1-1 non-emergency administrative calls for 2011 as reported by KCE9-1-1. The volumes include all 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls.
The second issue relates to whether the local jurisdiction responsible for local law enforcement, fire, and EMS services is the most appropriate location to receive the initial wireless 9-1-1 call, even if state patrol dispatch is required as a part of the complete response to an incident. Often, local services are required to be dispatched to an incident, even if it is on the interstate or freeway system in order to minimize response delays, the local jurisdiction should be the initial answering point.

While this approach may increase transfers to WSP, the benefits of more prompt local law enforcement, fire and EMS dispatch on calls within the jurisdiction clearly outweigh the drawbacks.

**Staffing and Cost Comparison**
Utilizing the optimum staffing formula for call takers, GeoComm has compared the current staffing and staffing costs with the Optimum Model. Utilizing the current Seattle Police Department, NORCOM, and Valley Com average pay scale for call takers, the call taker cost savings alone compared to the current situation is approximately $2.9 million per year (2012 costs). Since the University of Washington Police Department, Port of Seattle Police Department, and WSP are not included in the consolidation recommendations, they are not included in the staffing comparison. However, it should be noted that the reduction in call volume that the WSP will surely experience due to the majority of their calls being directed to local PSAPs will provide opportunity for staff reductions and cost savings at this PSAP. The call volume that today is directed at the WSP has been calculated into the call volume estimates for the remaining PSAPs in the Optimum Model.

It is also important to note that the number of call takers included in both the Current Status Quo and Optimum models is the optimum based on an industry accepted standard which is discussed in the Operations section.
## Staffing and Cost Comparison between Current (Status Quo) and the Optimum Model

<table>
<thead>
<tr>
<th>Description</th>
<th>Status Quo Staffing Cost</th>
<th>Optimum Staffing Cost</th>
<th>Staffing Costs Savings/ Difference</th>
<th>Status Quo Call Takers</th>
<th>Optimum Call Takers</th>
<th>Call Takers Difference (Optimum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle Fire Department</td>
<td>$4,154,634</td>
<td>$14,602,977</td>
<td>$540,821</td>
<td>24</td>
<td>59</td>
<td>8</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$10,989,164</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enumclaw</td>
<td>$478,817</td>
<td>$12,370,500</td>
<td>$(634,522)</td>
<td>6</td>
<td>59</td>
<td>-9</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$11,257,161</td>
<td></td>
<td></td>
<td></td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Bothell</td>
<td>$1,537,821</td>
<td>$17,315,607</td>
<td>$2,993,647</td>
<td>10</td>
<td>76</td>
<td>42</td>
</tr>
<tr>
<td>Issaquah</td>
<td>$983,688</td>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redmond</td>
<td>$1,723,120</td>
<td></td>
<td></td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCSO</td>
<td>$7,688,646</td>
<td></td>
<td></td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORCOM</td>
<td>$8,375,979</td>
<td></td>
<td></td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Washington Police</td>
<td>$832,746</td>
<td>$832,746</td>
<td>$ -</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Department</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$1,535,438</td>
<td>$1,535,438</td>
<td>$ -</td>
<td>16</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>WSP</td>
<td>$5,160,320</td>
<td>$5,160,320</td>
<td>$ -</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$54,717,534</strong></td>
<td><strong>$51,817,589</strong></td>
<td><strong>$2,899,946</strong></td>
<td><strong>264</strong></td>
<td><strong>223</strong></td>
<td><strong>41</strong></td>
</tr>
</tbody>
</table>

3 The status quo model utilizes the same standardized formula for call taker staffing as the optimum model, but under the current PSAP configuration.

4 Optimum staffing costs includes an average of 35% benefit rate.
The King County PSAPs currently have 44 supervisors. The Optimum Model will require 51 supervisors for adequate staffing. GeoComm did not project a financial increase because we expect the cost of additional supervision to be more than offset by the reductions in administration and other duplicative costs. We also expect that additional efficiencies will be discovered through the implementation planning process.

The total Optimum Model cost for the reduction in call takers, as compared to the current configuration, is $2,899,946, which includes 9-1-1 emergency and 9-1-1 non-emergency administrative calls for 2011 as reported by KCE9-1-1. The volumes include all 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls. It is important to note that for feasibility purposes GeoComm calculated the call taker needs based on call volume. Dispatcher positions were assumed to stay the same as today for our calculations. Because some agencies combine call takers and dispatchers, it is not possible to accurately differentiate between the total number of call takers and dispatchers currently working at the PSAPs. The projected savings is the “worst case scenario” and is conservative. There are additional savings to be achieved related to dispatcher requirements when the implementation and transition team determines the number of radio channels to be assigned to a dispatcher. Those decisions are part of the implementation and transition process.

It is important to note that a large savings can be realized in personnel costs for both the combined Seattle Police and Fire Dispatch operations and the KCSO, NORCOM, Bothell, Issaquah, and Redmond consolidations. There are two primary factors involved in this cost reduction:

- The combined call taking projection requires eight fewer call takers for Seattle Police and Fire.
- The average call taker salary for Seattle Police and Fire is reduced by $39,876 because of the utilization of civilian call taking personnel rather than sworn fire fighters.
- There are economies of scale and reduction in duplication of staff that are realized by combining operations.

There will also be additional savings with the reduction in management and other support salaries. Therefore, it should be noted that for “feasibility” considerations, the estimates provided here are extremely conservative. Depending on the implementation decisions made in the region, the potential exists for even more significant cost containment. Alternatively, if decisions are made during implementation that define a different service level from the assumptions used for these estimates, decision makers should be aware that cost estimates will also change along with the service delivery decisions that the implementation team will determine are appropriate for the region.
Growth Projections

The State of Washington Office of Financial Management projects that the population in King County will grow by 33.75 percent between 2011 and 2032. Using the population growth rate as an indicator of increased call volume, GeoComm has projected the need for call takers for the next 10 and 20 years (years 2021 and 2032). GeoComm projects that the increased call volume will require an additional 33 call takers in 2021 and another nine by 2032. The specific PSAP may change, because population growth patterns may be at a higher rate in other PSAP service areas.

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Optimum Total Volume</th>
<th>Model Call Taker Positions</th>
<th>Annual Hours Needed</th>
<th>NAWH</th>
<th>Projected Call Taker Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCSO, NORCOM, Bothell, Issaquah, and Redmond</td>
<td>1,487,800</td>
<td>10</td>
<td>87,276</td>
<td>1,039</td>
<td>84</td>
</tr>
<tr>
<td>City of Seattle</td>
<td>1,064,194</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>Valley Com/Enumclaw</td>
<td>1,058,289</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>48,340</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>89,131</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>WSP</td>
<td>299,553</td>
<td>4</td>
<td>35,326</td>
<td>1,039</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>4,047,307</td>
<td>34</td>
<td></td>
<td></td>
<td>286</td>
</tr>
</tbody>
</table>

5 NAWH: Net Available Work Hours. NAWH is the amount of time one staff person is available to process calls in a year. This number is used to determine the total number of employees needed to cover a “workstation” 24 hours per day, seven days per week, for one year. Additional description of the use of NAWH in the staffing determinations can be found in Appendix A.
## Optimum Model 2032 Projections

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Optimum Model Total Call Volume</th>
<th>Projected Call Taker Positions</th>
<th>Annual Hours needed</th>
<th>NAWH</th>
<th>Projected Call Taker Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidated KCSO, NORCOM, and Bothell, Issaquah, and Redmond</td>
<td>1,675,874</td>
<td>11</td>
<td>96,627</td>
<td>1,039</td>
<td>93</td>
</tr>
<tr>
<td>Seattle</td>
<td>1,198,720</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>Valley Com/Enumclaw</td>
<td>1,192,068</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>54,451</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>100,398</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>WSP</td>
<td>337,419</td>
<td>4</td>
<td>35,326</td>
<td>1,039</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4,558,930</td>
<td>35</td>
<td><strong>35</strong></td>
<td>1,039</td>
<td><strong>295</strong></td>
</tr>
</tbody>
</table>

Additional positions are required whenever call volume reaches the point that additional staff are needed in order to continue to answer and process calls within the established standards which absent a local agency standard, is assumed to be 90% of calls answered within 10 seconds. There are a number of factors that impact this number including call duration and net available work hours of the agency’s staff. For feasibility evaluation purposes, GeoComm has estimated that call volume threshold of approximately 141,000 calls will require an additional workstation.

### Budget Projections

GeoComm has used the following assumptions in developing a high level budget for the PSAPs participating in the Optimum Model.

Those assumptions include:

- Total wages equals the 2012 budgeted wages for each PSAP less the savings projected with the decrease in call takers. GeoComm understands that there will be some duplicate staffing in management, technical and administrative support during the transition and until full implementation of the new configuration is fully accomplished. Because those implementation decisions are yet to be determined, GeoComm did not include consolidating any of those positions for this budget projection.
- The benefit rate used for the Optimum Model was 35 percent. Again, many labor agreement and collective bargaining discussions will have to occur during the implementation phase and will have impact on these estimates.

- Operating expenditures includes support services, administrative services, technology expenditures, facilities and maintenance, capital expense, and equipment allocation.

- Reserve budgets have not been included as part of the cost models.

The estimates are high level and dependent upon the support systems used for the new structure. These are conservative estimates with the expectation that the final costs for these services will be less than projected. These estimates will need to be refined during the implementation process based on administrative staffing models. There are multiple options to be considered given the current technical and administrative personnel used by the multiple entities. GeoComm estimates that the projected budget assumptions are conservative and are used for feasibility purposes only.

The total projected saving between the current budget and the optimum model is $6,014,172 per year.

### Budget Cost Comparison Current Budget (Status Quo) and Optimum

<table>
<thead>
<tr>
<th>Description</th>
<th>Status Quo Total Expenditures</th>
<th>Optimum Total Expenditures</th>
<th>Savings/ Difference Total Expenditures</th>
<th>Optimum Cost Per Call</th>
<th>Status Quo Cost Per Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle Fire Department</td>
<td>$7,209,717</td>
<td>$18,565,243</td>
<td>$2,267,607</td>
<td>$20.71</td>
<td>$42.98</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$13,623,133</td>
<td></td>
<td></td>
<td></td>
<td>$16.80</td>
</tr>
<tr>
<td>Enumclaw</td>
<td>$563,214</td>
<td>$16,782,919</td>
<td>($718,918)</td>
<td>$18.83</td>
<td>$16.34</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$15,500,787</td>
<td></td>
<td></td>
<td></td>
<td>$18.09</td>
</tr>
<tr>
<td>Bothell</td>
<td>$1,619,128</td>
<td>$20,209,728</td>
<td>$4,465,483</td>
<td>$16.13</td>
<td>$23.19</td>
</tr>
<tr>
<td>Issaquah</td>
<td>$1,216,970</td>
<td></td>
<td></td>
<td></td>
<td>$21.23</td>
</tr>
<tr>
<td>Redmond</td>
<td>$2,096,271</td>
<td></td>
<td></td>
<td></td>
<td>$26.08</td>
</tr>
<tr>
<td>KCSO</td>
<td>$9,146,225</td>
<td></td>
<td></td>
<td></td>
<td>$13.86</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$10,596,617</td>
<td></td>
<td></td>
<td></td>
<td>$26.08</td>
</tr>
<tr>
<td>University of</td>
<td>$967,672</td>
<td>$967,672</td>
<td>$0</td>
<td>$23.77</td>
<td>$23.77</td>
</tr>
</tbody>
</table>
### Budget Cost Comparison Current Budget (Status Quo) and Optimum

<table>
<thead>
<tr>
<th>Description</th>
<th>Status Quo Total Expenditures</th>
<th>Optimum Total Expenditures</th>
<th>Savings/ Difference Total Expenditures</th>
<th>Optimum Cost Per Call</th>
<th>Status Quo Cost Per Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Police Department</td>
<td>$1,784,219</td>
<td>$1,784,219</td>
<td>$0</td>
<td>$23.77</td>
<td>$23.77</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$5,996,426</td>
<td>$5,996,426</td>
<td>$0</td>
<td>$23.77</td>
<td>$23.77</td>
</tr>
<tr>
<td>WSP</td>
<td>$1,784,219</td>
<td>$1,784,219</td>
<td>$0</td>
<td>$23.77</td>
<td>$23.77</td>
</tr>
<tr>
<td>Totals</td>
<td>$70,320,379</td>
<td>$64,306,207</td>
<td>$6,014,172</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total expenditures include salaries, benefits, overtime, insurance, health benefits, operating expenditures includes support services, administrative services, technology expenditures, facilities and maintenance, capital expense, and equipment allocation. The financials for Port of Seattle, University of Washington, and Washington State Patrol where determined by using a cost per call allocation for Bothell Police Department, Issaquah Point Department, and Redmond Police Department and applying that cost to each of the agencies own call volume. Expenditure information was derived from budgetary documentation provided to GeoComm by each PSAP or averaged as noted above, at the direction of KCE9-1-1.

The cost per call is illustrated on the Budget Cost Comparison Current Budget (Status Quo) and Optimum table above.

It is important to note that the implementation and transition team will need to consider the existing consolidated PSAP funding models as examples of how to distribute the cost for each of the jurisdictions. Both the NORCOM and Valley Com models, as others in the country, are sometimes complicated because of the need to provide equity, both perceived and real, in the funding formula.

**Fiscal Considerations – Consolidated KCSO, NORCOM, and Bothell, Issaquah, and Redmond** As the staffing and cost comparison analysis above demonstrates, the Optimum Model configuration results in a minimum estimated costs savings of $2,993,647 call taker salary costs alone.

Because of the mix of combined call taker/dispatcher PSAP environments and the differentiation between the number of radio channels managed by each staff, GeoComm did not include radio dispatch personnel in its projections. The number of dispatch personnel will be dependent upon unique procedures developed during the implementation phase.
The potential cost savings could actually be higher because the estimates are based on average salary. This number also does not take into account the additional savings that would result from the reduction in costs of support from KCE9-1-1 in both equipment and staff support, and the local support required at each of the discontinued PSAPs.

Currently, the King County Sheriff’s Office provides call taking, dispatch, and field law enforcement services for a number of 14 other jurisdictions on a contract basis. GeoComm understands that the cost of PSAP services are part of the contract service fee and KCSO PSAP service is not charged to the contract community separately. The decision of whether to provide 9-1-1 services as a part of a service contract going forward or to bill for those services separately will continue to be a decision made by KCSO as it is today. It should be noted that a change to how KCSO charges their contracts and for what services is entirely up to the KCSO, and is not required to change just because 9-1-1 call taking and dispatching are or may be provided in a consolidated environment. That consideration and decision is independent of the consolidation discussion. The contract parties could decide to change the cost model today even in the current environment. Service contracts between agencies should define the expectations of both parties with regard to service level, representation, or input on policy or funding issues as well as the cost of the service(s).

A full evaluation of governance representation for the newly-formed PSAP will be necessary during the implementation phase. Typically, GeoComm has seen situations in which the Sheriff has a seat on the governing board that is commensurate with the Sheriff’s Office service area or jurisdiction. The governance representation decisions may be based on population served, square miles within the jurisdiction, financial contribution to the operation, or even a combination of the above. Not every city should have or can expect representation. Often representation is tied to financial contribution to the dispatch operation. For example, if a participating city desires a separate call taker or dispatcher dedicated to their jurisdiction, the cost for fully funding such a request could be borne by that city alone and in return, they may request representation on the governing board.

Numerous governance scenarios can be explored during implementation and should be discussed fully until the parties agree at the best and most acceptable model of representative governance. To prescribe a model in advance of those thoughtful and deliberate discussions would jeopardize the consensus building process. Further governance and consolidation information of various agencies across the country are offered in Appendix B.

6 Dispatch service agreements should address service performance standards or set minimum expectations of service delivery for the agency/city. Customer agencies or cities paying for service should have expectations that 9-1-1 calls will be dispatched within an agreed upon stipulated time frame, complaints/inquiries will be acknowledged by an agreed upon timeframe, etc.
The Redmond Police Department also has contract arrangements with Carnation and Duvall. These contract services may or may not need to change depending on how the interlocal agreement terms are written. It may be possible to assign the call taking and dispatch functions to the consolidated entity. If assignment is not possible, the interlocal agreement between Carnation and Duvall and the City of Redmond for 9-1-1 call taking and dispatch service may need to be rewritten to be between Carnation and Duvall and the new consolidated entity.

**Fiscal Considerations – Valley Com/Enumclaw**

If it is agreed that Enumclaw will contract for services with Valley Com, there will be impact and fiscal considerations for Enumclaw and Valley Com.

The staffing configuration necessary to handle the estimated combined call volume will result in a $718,918 increase from the current operating budget compared to the Optimum Model. According to staffing figures, the addition of Enumclaw will not require an increase in the number of call takers at Valley Com. However, it should be noted that current Valley Com staffing is not adequate for their current call volume; notwithstanding the moderate call volume increase that will occur as a result of the Enumclaw partnership. The salary increase of $634,522 is required to achieve minimum staffing levels for Valley Com, even in the current environment.

**Fiscal Considerations – City of Seattle Police and Fire**

The recommendations for the City of Seattle to both combine police and fire emergency communications services by operating an independent, stand-alone, civilian 9-1-1 primary PSAP to answer and dispatch all calls for service within the city would result in an estimated potential savings of $540,821 for call taker salaries annually. There would also be a significant decrease in management, supervisory and support staff and the employee related benefits required to support two PSAPs.

**Fiscal Considerations – Startup Costs**

As detailed in this report, GeoComm has compared the cost of current PSAP operations to current funding and has determined there is feasibility in moving to the next stage of intensive planning. The next steps must be taken locally by appropriate decision-makers from various units of government or PSAP agencies. Agencies currently operating a PSAP should be strongly encouraged to participate in the continuing discussions as the next stage of crucial planning begins with detailed implementation discussions and decisions. The results of these decisions will be the basis for determination of initial start-up and ongoing costs associated with any finally adopted consolidation model.

Every PSAP operation must create and maintain a sustainable budget for all operations including facility improvements and technology upgrades. When no additional revenue is available, plans for scheduled improvements and upgrades are delayed. The delay or inability to begin such improvements builds slowly...
over time, until the need to make changes is forced upon the PSAP. Examples include major system failure, compliance with regulatory actions, or agreements post-civil litigation after a tragic event, etc. Likewise, the cost of consolidation is often regarded as too high due to the initial start-up costs. However, when the price drivers to accomplish such a goal are fully examined, it is often found that much of the expense could be attributed to systems which could be managed in a different or more efficient manner. This situation must be examined when considering the start-up costs associated with consolidation.

The primary goal of any consolidation effort should be to enhance public safety in the region. Service enhancements should be clear and immediate. In addition to the public safety service enhancements and the financial benefits summarized in this report, consolidation of the PSAPs would result in a reduction of 9-1-1 answering workstations in the region. This workstation reduction results in cost-savings associated with 9-1-1 answering equipment and trunks for call delivery. The 9-1-1 answering equipment and telephone trunk savings, although realized in the KCE9-1-1 budget, should also be considered when determining the overall feasibility of consolidation.

The following discussion provides an overview of the items that should be addressed in the next planning phase, conducted locally.

**Administrative Changes and Updates to Policy**

Once an agreed upon PSAP model or configuration is determined by the region a number of activities and discussion forums will need to occur to begin the intense planning and implementation strategies required to fully implement the change in operations, governance, financial strategy, etc. The primary investment for this activity is staff time and while there is an associated cost of refocusing staff to this planning activity, it is likely not an item that will require and additional budgetary allocation. The actual cost per agency will vary widely based upon the level and salary of the participating individuals. Facilitation assistance could be provided by regional staff or through a professional services contract. Changes to policy and procedures are one of these critical activities. Each individual PSAP today has policies and procedures that function in their separated and independent environments. However, whichever agencies are involved in the consolidation will need to establish new and mutually agreeable policies.

**Network**

With any reconfiguration of PSAPs or consolidation from the current network infrastructure to a new network infrastructure, changes to 9-1-1 network call routing will need to occur. This can take the form of reconfiguration of trunk/circuits or other network element quantities at the selected consolidation location, adds/moves/or changes to existing network infrastructure, the installation of additional or new CPE equipment at the PSAP location, etc. The proposed consolidation will also require changes to the 9-1-1 and data networks that support the PSAPs. There is both a cost and potential savings attributable to those changes and the needed reconfiguration of network and data infrastructure. Some of the costs are...
likely tariffed by the 9-1-1 service provider and some will be a time and materials cost. KCE9-1-1 may be able to leverage other contracts or services, or negotiate for network elements either from the 9-1-1 service provider or other ISP-type providers.

During the transition period from the existing configuration of PSAPs to whatever new configuration is pursued, there will likely be a “transition” phase where duplicative, or overlay, network may be necessary. There will be costs associated with that duplication during phase in of the new PSAPs, at least for a limited period of time.

Only after crucial decisions are made regarding shared facilities, shared technology and shared operational costs can agencies complete a final cost/benefit analysis for the purpose of assessing the financial return on the start-up investments. It is at this point where the financial specificity will become clearer to potential funding agencies such as King County 9-1-1 Program Office and the State of Washington as to the detailed financial advantages in terms of reduction or elimination of ongoing duplicative equipment and network costs.

Hardware and Software Technology Radio Consoles
Depending upon decisions reached in the next stage of planning, start-up costs associated with radio technology modification (consoles) and for additional radio console workstations that may be needed at the consolidated centers, and for reprogramming of radio workstations will need to be identified. While the total number of dispatchers in the region is projected to be the same or less after consolidation, there will be more radio dispatchers at the consolidated centers than were located at those centers pre-consolidation. It may be possible to re-purpose some radio workstations from the centers that are closing, but the consolidated centers must be ready for use before the retired centers are decommissioned. With larger service areas will come different radio workstation configuration needs, so funds should be allocated for technicians to create these additional radio console configurations and complete the necessary reprogramming.

Dispatch Staff
Until deliberations are held concerning the potential merger of radio dispatch channels or talk groups, final technology, staffing, support, and facility determinations cannot be cost projected. All of these detailed discussions are part of the implementation action plan to be developed by local agencies.

Telephony and 9-1-1 CPE
There will be costs associated with PSAP CPE modifications to include reprogramming costs for existing telephone workstations, and relocation/reconfiguration costs. No new equipment, since there is sufficient existing equipment in the region available for re-use.

Public Safety Consulting, GIS, and Software  www.geo-comm.com
CAD Hardware and Software

CAD software modification estimates vary greatly, depending on the availability of an existing CAD system for use in the consolidated PSAP. For example, the existing Tiburon CAD system in use at KCSO is capable of also handling fire/EMS dispatching without licensing changes, but there will be configuration costs for the necessary changes, and some additional CAD workstation licenses may be needed. In contrast, the disparate CAD systems in use at Seattle Police and Seattle Fire present a significant challenge to be resolved in that consolidation scenario. Hardware modifications include PC workstation hardware for CAD positions or administrative workstations for technical systems, as well as expansions to capacity for existing logging recorders.

As King County deliberates consolidation through the implementation and planning process, GeoComm strongly encourages consideration of a regional CAD system. In fact, this consideration is recommended regardless of the final consolidation decision. If a regional CAD is implemented, this may not be considered a consolidation cost, or may be a net savings.

GIS/MSAG Modifications

As it relates to GIS mapping updates and MSAG modifications that would be necessitated by a consolidation, minimal additional costs have been identified. There are two areas which might be impacted by consolidation:

1. KCE9-1-1 maintains a regional database and updates the dispatch mapping. As the number of PSAPs changes, jurisdictional boundary updates will be required. The number of PSAPs the regional office would need to interface with would decrease.
2. CAD – the data is being maintained at the local entities then gathered adjusted for CAD specifications and updated into CAD map by CAD administrator. The change in CAD would result in a decrease of CAD administrators.

As the GIS and MSAG modifications are a part of the current staff functions and are a result of software input and changes made with local GIS partners in the PSAP communities, no additional costs are identified.

Training

Estimated training related startup costs are needed to cover the logistical support for training. Anticipated costs include, but are not be limited to, printing, supplies, contract instructors, or the purchase of additional training resource materials. Salaries and benefits of personnel attending training or the cost of any required overtime to backfill positions while employees are in training should also be considered.

Building/Facility

With any consolidation where additional staff must be accommodated in an existing facility there will likely be costs to retrofit or renovate the facility to be occupied or construction of a new facility. The
determination of a new facility cost will be based on the cost of selected real estate, the construction labor market costs, and an in-depth facility plan and architectural design. That in and of itself is a complex and highly involved process with many variables.

If Model B (Bothell, Issaquah, and Redmond consolidation) is determined to be the model to be implemented in the County, projected building costs will be significant due to the cost of remodeling and expanding one of the existing facilities and equipping it with the furniture, lockers, break room, and other necessary furnishings for a PSAP of that size.

**Compensation / Benefit**

Whenever consolidation of two or more existing operations and administrations occurs, one of the most critical elements in merging the workgroups is the consideration of compensation levels, seniority, benefit packages, and labor factors, including the cost of any required payout to the current department or government. The existing host agency may or may not be willing to transfer those reserved funds (pension funds or sick leave banks, for example) to the new organization. Negotiations will need to occur with the new organization and the former organization on the particulars of compensation and benefit assets. As a starting point, it will be necessary to review and determine the total value of compensation to include salary, vacation leave, retirement contributions, and other benefits. Because GeoComm is not in a position to know the investment that each of the PSAPs or their governing body has in each employee, this information will need to be determined by the implementation team.

**Financial Impact of Optimum Model**

The projected 2013 KCE9-1-1 financial plan includes not only expenditures for the provision of the 9-1-1 system and service, but also direct financial support to the 12 PSAPs it supports.

That financial support includes $5,898,000 for PSAP support costs and a revenue distribution (escrow funds) of $5,790,616 as supplemental funding for PSAPs to use for various purposes identified in the PSAP agreement.

The total 2013 projected direct financial support to the PSAPS under the two programs, $11,688,616, represents 41.5 percent of the total budget. The table below provides a breakdown of the 2013 KCE9-1-1 by budget category.

<table>
<thead>
<tr>
<th>2013 KCE9-1-1 PSAP Funding</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial Support Component</strong></td>
<td><strong>Amount of Funding in 2013</strong></td>
</tr>
<tr>
<td>PSAP Support Costs</td>
<td>$5,898,000</td>
</tr>
</tbody>
</table>
GeoComm recommends KCE9-1-1 consider two significant recommendations regarding its current PSAP supplemental funding model. First, GeoComm suggests that KCE9-1-1 consider discontinuing or reducing its funding for technical support at the PSAPs and that agencies accept more of the responsibility for technical support directly within the agency.

This technical support service is normally a cost of doing business as a PSAP. KCE9-1-1 has been generous over the years distributing revenue to its PSAPs to supplement operations. GeoComm believes that if a PSAP chooses not to adopt the configuration for the Optimum Model, KCE9-1-1 should consider foregoing or reducing the supplemental technical support, just as it can withhold support if a PSAP does not meet operational call answering standards adopted by the region.

An alternative to eliminating the technical support would be to provide an incentive for consolidation and to maintain the current level of funding for technical support at the remaining primary PSAPs. A phased in approach to the reduction in PSAP support could be considered by the implementation and transition team in order to ease the financial burden on the affected PSAPs. It is also a path to needed funding for NG9-1-1 service.

The decrease in funding for technical support at PSAPs would be $2,316,060 as depicted in the following table. The savings KCE9-1-1 would realize is in addition to the project cost savings in PSAP operations:

---

<table>
<thead>
<tr>
<th>Financial Support Component</th>
<th>Amount of Funding in 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1-1 PSAP Equipment</td>
<td>$12,905,975</td>
</tr>
<tr>
<td>Escrow</td>
<td>$5,790,616</td>
</tr>
<tr>
<td>9-1-1 System Administration and Overhead</td>
<td>$2,410,588</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>$1,160,540</td>
</tr>
</tbody>
</table>

---

7 The total is an estimate based on the total Direct Services and Intergovernmental Services line items less the technical staff at PSAP and the escrow funding.
8 The total wages, benefits, and retirement plus total Intergovernmental Services less the technical support at PSAP and escrow funding for the King County Sheriff’s PSAP.
### KCE9-1-1 Program PSAP Support Costs

<table>
<thead>
<tr>
<th>PSAP</th>
<th>2012/2013 Current Model</th>
<th>2012/2013 Optimum Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell</td>
<td>$154,560</td>
<td>$</td>
</tr>
<tr>
<td>Issaquah</td>
<td>$141,810</td>
<td>$</td>
</tr>
<tr>
<td>Redmond</td>
<td>$154,560</td>
<td>$</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>$1,102,500</td>
<td>$</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$740,250</td>
<td>$1,102,500</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$1,102,500</td>
<td>$1,102,500</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>$740,250</td>
<td>$</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$1,102,500</td>
<td>$1,102,500</td>
</tr>
<tr>
<td>Enumclaw</td>
<td>$132,630</td>
<td>$</td>
</tr>
<tr>
<td>University of Washington</td>
<td>$132,630</td>
<td>$132,630</td>
</tr>
<tr>
<td>Port of Seattle</td>
<td>$141,810</td>
<td>$141,810</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$252,000</td>
<td>$</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$5,898,000</strong></td>
<td><strong>$3,581,940</strong></td>
</tr>
<tr>
<td><strong>Difference</strong></td>
<td><strong>$</strong></td>
<td><strong>($2,316,060)</strong></td>
</tr>
</tbody>
</table>

### Financial Recommendations – Optimum Model

- Assign the Implementation and Transition Team the responsibility of working through financial implementation considerations and decisions for their entity such as benefit rates, salary ranges, labor agreements, call routing determinations, staffing levels, supervisory ratios, channel loading for dispatch, etc.
- The City of Seattle should move forward with fiscal planning and a facility needs assessment for a consolidated police and fire call center/dispatch operation.
- Develop an appropriate and equitable funding and distribution methodology for 9-1-1 excise tax funds and KCE9-1-1 funding.
- KCE9-1-1 should reevaluate funding support for PSAPs based on new model and financial sustainability.
  - KCE9-1-1 should discontinue or reduce funding for technical support at the PSAPs.
  - KCE9-1-1 should hold 9-1-1 escrow funds in abeyance until NG9-1-1 is implemented in King County.

### Operations – Staffing, Supervision, Facilities

The governance, fiscal, and organizational structure within the optimum model was examined to determine appropriate accountability, fiscally sound planning, and PSAP staffing requirements as they relate to effective industry best practices and standards.
For feasibility purposes, GeoComm assumed the existing complement of dispatchers would be retained. It should be noted, however, that the new consolidated entities should evaluate opportunities for further efficiencies in dispatch. Channel loading and the ability for a dispatcher to monitor several channels should be appraised. As stated throughout the report, many implementation decisions will need to be deliberated and those specific implementation decisions will have impact on the cost estimates provided in this report. As a reminder, the cost estimates in this report are for potential feasibility.

Specific decisions made by King County on how to proceed will change any of those calculations. Additional efficiencies are clearly possible but are dependent on implementation decisions.

GeoComm has calculated the call taker staffing levels for the Optimum Model, and Model B utilizing the reported 2011 call volume for wireline, wireless and VoIP 9-1-1 calls and 9-1-1 non-emergency calls. In this study, the total number of dispatchers for the three models is consistent and was not considered as part of the cost calculations for feasibility purposes. GeoComm did not make recommendations concerning administrative staff in the Optimum Model and Model B as the final administrative structure is highly dependent upon implementation decisions. The cost calculations retained personnel costs for dispatch and administrative positions.

The implementation of whatever model is adopted by King County will need to identify what additional consolidation might occur to achieve even greater enhancements and cost savings. Combining of radio channels to a dispatch position, for example, would allow the region to be even more efficient. For our purposes in this report the number of call takers required is based on 9-1-1 call volume and is significantly less in the Optimum Model and Model B as compared to the current environment.

It is important to note that the same formula was utilized to assess the current configuration as well as the Optimum and Model B options and is based on the current staffing level actuals.

**Operational Considerations – Consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond**

The creation of a consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond will involve considerable changes regarding workload and staffing levels as a combined agency. The KCSO and NORCOM are the primary 9-1-1 answering point for wireline, Voice over Internet Protocol (VoIP), and wireless calls originating within their respective jurisdictions. NORCOM is experienced in dispatching fire and EMS services. The King County Sheriff PSAP does not currently dispatch for any fire or EMS agencies, but rather transfers calls requiring fire or EMS dispatch services to NORCOM or Valley Com due to the configuration of fire districts. Bothell, Issaquah, and Redmond law enforcement services are provided locally, fire/EMS services are provided through NORCOM.
As noted above, it is the intent that in this model, that to the degree possible the majority of law enforcement, fire, and EMS response will be dispatched out of the consolidated operations for the jurisdictions within the KCSO, NORCOM, Bothell, Issaquah, and Redmond service area to the degree that it is possible. GeoComm recognizes that some fire district boundaries do not coincide with the boundary of this newly consolidated jurisdiction and that some transfers back to the appropriate PSAP for fire dispatch, such as Valley Com may still occur. There will be considerable advantages to bringing all of these services into one operation if that can be accomplished, primarily, the amount of dispatch time that will be saved in life-critical situations. In addition, professional advancement opportunities improve with a combined PSAP that has several levels of supervision and administrative duties that will need to be assigned.

For comparison purposes, the current minimum staffing for each current PSAP is:

- NORCOM – three law enforcement dispatchers and two fire/EMS dispatchers with one supervisor per shift
- KCSO – five radio dispatchers and one relief radio dispatcher per shift and a minimum six to nine call takers on duty each shift, depending on call load
- Bothell – two cross trained call taker/dispatchers and one supervisor
- Issaquah – two cross trained call taker/dispatchers and one supervisor
- Redmond – two cross trained call taker/dispatchers from 3 a.m. to 9 a.m., three cross trained dispatchers from 9 a.m. to 3 a.m.; two supervisors oversee hours as needed

**Operational Considerations – Valley Com/Enumclaw**

In this model, Valley Com and Enumclaw Police Department will combine through contract or partnership. Valley Com currently maintains at a minimum, 5 to 10 call takers, and 9 to 12 dispatchers per shift. Enumclaw currently maintains one dispatch position per shift.

Valley Com is well prepared to handle the additional call and dispatch volume without taxing their dispatch resources. On the contrary, Enumclaw is currently in a position to be over taxed.

Valley Com is a primary PSAP for wireline, wireless, and VoIP, and is an Emergency Medical Dispatch (EMD) certified center, as is Enumclaw. Both agencies utilize the King County Criteria Based Dispatch system as their EMD program therefore services provided to the citizens as it relates to EMD should be seamless.

Enumclaw is closer in proximity to the Valley Com jurisdiction than anyone else and the recommended merger is logical geographically. This close proximity allows for dispatch services to be provided in a familiar area allowing current Valley Com staff to easily transition to handling Enumclaw calls. Valley Com’s
current facility and operation already prepare them to effectively handle the additional influx of calls and dispatch duties.

Enumclaw has experienced steadily declining call volumes, likely due to greater and greater reliance by the public on wireless communication technology. Wireless 9-1-1 calls in the Enumclaw jurisdiction are first routed to the KCSO dispatch center and if necessary, transferred to Enumclaw.

The modest call volume at Enumclaw also makes the absorption of these calls into the Valley Com operation reasonable with only moderate additions to staff.

A larger communications operation also provides more robust training opportunities than would be possible in a very small center such as Enumclaw.

The Enumclaw PSAP will be forced to consolidate on some level once NG9-1-1 services are implemented in the region. The most reasonable partnership for Enumclaw is with Valley Com.

**Operational Considerations – City of Seattle Police and Fire**

GeoComm’s assessment determined that Seattle Fire Department and Seattle Police Department would benefit from a consolidation. The operational aspect would involve an efficient use of resources such as civilian staff, supervision, and equipment. There would be an increased ability to communicate between agencies, less duplication, and more integrated service provided to the citizens of Seattle. This combined center could be considered a City of Seattle Communications Center, therefore, providing fair representation from both departments.

This merger will impact workload and staffing levels. The Seattle Police Department currently maintains minimum staffing of ten call takers with eight total dispatchers which includes six dedicated dispatchers with two relief dispatchers and one supervisor.

Seattle Fire Department currently maintains minimum staffing of four call takers, one dispatcher and one supervisor on the floor at any given time but the 24 hour schedule requires seven staff to be on duty at all times to cover scheduled breaks.

Four call taker positions at Seattle Police Department are occupied during the business day by commissioned officers working in the Telephone Reporting Unit (TRU). Moving this function to another location would free up four positions for call taking during the daytime. (The positions can be used now for emergency call taking after hours.)
Civilian dispatchers should be cross trained in fire/EMS and police dispatch and all call takers should be cross trained in EMD to allow for an efficient use of staff.

Seattle Police Department is a primary PSAP for wireline, wireless, and VoIP 9-1-1 calls. Last year, they answered 523,021 combined 9-1-1 calls. Of these calls, 82,495 were transferred to Seattle Fire Department due to their nature and response needs.

The transfer of 9-1-1 calls is an unavoidable delay in response when an emergency call must be circulated between agencies and should be minimized whenever possible. GeoComm project team members observed staff at both Seattle Police Department and Seattle Fire Department receive and transfer 9-1-1 calls.

In a combined facility, the calls are answered by a call taker. If the call requires a response by police and fire/EMS, the one CAD system will automatically and simultaneously send the information to both the police and fire/EMS dispatchers. The call takers must be trained to handle fire/EMS calls as well as police calls. This is possible with specialized training.

**Operations Recommendations-Optimum Model**

- As a part of consolidation determinations, discussions with fire agencies should be conducted to discuss the potential of changing fire district boundaries with an end goal of answering and dispatching 9-1-1 calls from the same agency. In all cases, this may not be possible but if fire, and EMS response can be dispatched out of the consolidated operations for the jurisdictions that should be accommodated.
- Moving this function to another location would free up four positions for call taking during the daytime.
- Cross-train dispatchers in fire/EMS and police dispatch wherever possible. All call takers should be cross trained in EMD to allow for an efficient use of staff at the City of Seattle and elsewhere if appropriate.
- Pursue changes to call handling methods and practices that minimize transfers.

**Staffing**

In order to match local philosophies regarding service levels and cost that addresses workforce needs, GeoComm utilized a proprietary methodology for calculating PSAP staffing recommendations. This method provides effective coverage for essential public safety operations.⁹

---

⁹ **Note:** The financial comparison above does not include the three PSAPs not impacted by consolidation.
<table>
<thead>
<tr>
<th>Optimum Model</th>
<th>Optimum Model Total Call Volume&lt;sup&gt;10&lt;/sup&gt;</th>
<th>Call Taker Positions</th>
<th>Call Taker Personnel</th>
<th>Supervisor Positions</th>
<th>Supervisor Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle Police Department and Fire Department</td>
<td>896,239</td>
<td>7</td>
<td>59</td>
<td>1.7</td>
<td>14</td>
</tr>
<tr>
<td>KCSO, NORCOM, Bothell, Issaquah, and Redmond</td>
<td>1,252,990</td>
<td>9</td>
<td>76</td>
<td>2.0</td>
<td>17</td>
</tr>
<tr>
<td>Valley Com and Enumclaw</td>
<td>891,266</td>
<td>7</td>
<td>59</td>
<td>1.7</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,040,495</strong></td>
<td><strong>23</strong></td>
<td><strong>194</strong></td>
<td><strong>5.4</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

Based on Erlang C calculations utilizing a standard 120 second call duration and 90% of calls answered within 10 seconds; Net Available Work Hours (NAWH)=1,039 per full time equivalent employee per year. Further staffing information about GeoComm methodology is available in Appendix A.

It should be noted that in the staffing recommendations GeoComm used call taking only positions to determine the feasibility of this model. The PSAPs and KCE9-1-1 will have to establish the criteria by which to determine the appropriate number of dispatch positions and personnel needed in the new model, and the evaluation should include whether or not channels can or should be combined. The King County implementation and transition team should be aware that there is further opportunity to improve efficiency even beyond the Optimum call taking personnel complement. In many areas of the county, several radio channels are combined and effectively monitored by a single position. Not combining radio operations for several small departments under a single dispatcher on one channel may be popular approach, but it is very inefficient from a PSAP staffing perspective and is not recommended in the long-term.

**NAWH**
GeoComm examined the personnel benefits from each of the participating PSAPs. As with most data elements, the amount of information and detail available was inconsistent across all agencies.

<sup>10</sup> Includes 9-1-1 emergency and 9-1-1 non-emergency administrative calls for 2011 as reported by KCE9-1-1. The volumes include all 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls.
After review of the draft report, KCE9-1-1 Consolidation Steering Committee challenged GeoComm’s analysis and offered an alternate which they preferred and suggested a modification to the NAWH.

It is that NAWH which was used as the basis to form the recommendation of needed personnel in this final report. Compensation and benefit merging among the agencies that will consolidate will be a major undertaking during the transition planning and implementation and will involve multiple stakeholders. The data included in this report are designed to give decision makers preliminary indication of costs in order to structure effective transition and implementation planning.

As noted above, data for annual time-off (unproductive) benefits such as vacation, sick leave, holiday, and training were provided by King County E9-1-1 Consolidation Steering Committee. GeoComm utilized the Steering Committee results of 1,039 available work hours, including an agent-occupancy rate of 70 percent to allow for normal workload activities such as call follow-up, call transition, minor breaks, logging requirements, supervisor coaching, etc. Further staffing information about GeoComm’s methodology is available in Appendix A.

GeoComm does not include a turnover factor in the staffing methodology due to the vast differences in Human Resources and staffing policies that are resident in most situations. Many agencies are strictly forbidden from over-hiring even with a documented turnover rate that impacts overtime budgets. When consolidation occurs and there is a reduction of authorized positions, there are many different ways to arrive at the target number of appropriate personnel levels, including attrition, which may result in a period of time when there is more staff than the final allocated number. It is also unreasonable to assume that turnover rates in a newly formed consolidated center will mirror those in the previous independent PSAPs. Therefore, any use of turnover factors would be purely arbitrary and without foundation.

**Position Coverage**
Each coverage position must be filled on a continuous basis and therefore, requires 8,760 hours per year. ¹¹ Based on the projected NAWH, each coverage position will require 8.43 ¹² total personnel for adequate coverage for each required position.

Consolidation will provide the opportunity to closely examine call and field unit loading and potentially combine channels to result in fewer operational staffing. These decisions are driven by local operating procedures and inter-agency agreements and should be finalized through the transition planning process.

---

¹¹ 365 days × 24 hours per day = 8,760.

¹² 24 hours per day times 365 days per year divided by NAWH (1.039) = 8.43.
In the future, with greater historical and statistical experience, the PSAPs may be in a position to more effectively evaluate hard, data-driven staffing efficiencies.

**Supervision**

The position of line supervisor in the public safety communications center is a critical one. They act as the liaison between front-line employees and management while acting as a resource for not only employees as they perform their jobs, but supervision of the public safety disciplines the center is providing service to and the general public. Although specific job duties of line supervisors vary from agency to agency, the following is a basic list of core duties performed by most supervisors in the industry:

- Real-time supervision of communications services as they are performed
- Ensure adequate staffing and communications center coverage
- Troubleshoot technical issues and facilitate solutions
- Coach, mentor and evaluate employees
- Handle calls for service that are escalated to the supervisory level
- Handle citizen complaints
- Make general decisions that fall outside of the scope and authority of front line personnel
- Complete necessary correspondence and reports to ensure that critical information is provided to on-duty personnel and passed on to subsequent shifts ensuring continuity of operations
- Oversee critical incidents ensuring appropriate levels of service are provided and proper levels of resources are dedicated within the communications center

Although this is by no means a comprehensive list of the supervisory function, it paints a picture of the criticality of having supervisory resources on duty at all times in the PSAP. Smaller PSAPs are able to have working supervisory or “lead” dispatchers fill this need while using these employees to perform front line communications duties simultaneously. However, this is not always an ideal situation, particularly in large PSAPs. It is very difficult to act in a supervisory role while trying to provide the high level of service appropriate for the front line dispatch function.

In order to provide at least one on-duty supervisor at all times a PSAP needs nine supervisors to fill a single position.\(^{13}\) In a three shift environment, this will allow for two supervisors to be assigned on each shift with overlap days to allow for the completion of administrative tasks along with the facilitation of time off, training, meetings, etc. This also alleviates the need to have supervisors to work “swing shifts” which have shown to be detrimental to employee satisfaction and ultimately retention.

---

\(^{13}\) Nine supervisors (8.34) are necessary to cover one supervisory position 24 hours per day, seven days per week.
Span of control, or the number of employees that a single individual supervises, should also be a consideration when determining staffing levels for this position. In the public safety communications and response community, there is always a debate about span of control and the appropriate number of supervisors to call taker/dispatcher positions. In GeoComm’s professional opinion, and based on what we see throughout the industry, a one to ten ratio is sufficient supervision for a well-trained and efficient workforce with consistent protocols and operational procedures.

The factor does not include training or Quality Assurance staff. Modifications to those factors, for example, agency specific protocols, will impact the ability of the organization to maintain this ratio and will affect budget and staffing.

As the size of the PSAP staff increases, the need for additional supervisors also increases. Although the number of supervisors needed for direct supervision on the floor can be impacted by the particular schedule a PSAP utilizes, it is still very difficult for a single supervisor to directly supervise a large number of employees. In an ideal situation, supervisors should have a professional relationship with their employees, one of substance, and one that allows enough time to properly coach, mentor, and evaluate the employees assigned to them. If the appropriate supervisor to employee ratio is maintained, the result is a much more productive employee who is accountable to the job for which they were hired.

**Staffing Recommendations – Optimum Model**

- Evaluate the channel loading models for the new consolidated operations and pursue efficiency opportunities of combining several radio channels for enhanced dispatch productivity.
- The consolidation Implementation and Transition Team should determine minimum staffing levels for call taking, dispatch, and supervisory staff so that specific cost models can be applied to the agreed upon staffing.

**Facilities**

GeoComm’s facility assessment is limited to facilities involved in the potential consolidation recommendations. GeoComm finds that a suitable facility for a consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond PSAP already exists. A suitable facility for a consolidated independent City of Seattle Communications Center does not exist at this time; without relocation of other city personnel to free up additional space. Existing facility challenges are not a major factor in the recommendation for a consolidated City of Seattle Communications Center. The present fire communications center is well-designed for its function and for anticipated local hazards including seismic events. Although it is an older facility, the police communications center is well designed and provides adequate space for present needs. The challenges identified are not on a level that requires urgent intervention. It is appropriate for those discussions to continue at a deliberate pace, and for the concept of consolidation to be part of the discussion.
Facility Considerations – Consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond

GeoComm recommends the new consolidated PSAP of KCSO, NORCOM, Bothell, Issaquah, and Redmond be located in the existing facility at the King County Sheriff PSAP under a long-term lease from the County or some similar and appropriate legal and financial arrangement that is acceptable to the parties.

As discussed in the Existing Conditions Report, the King County Regional Communications and Emergency Coordination Center (RCECC) was built in 2003 and is located in the city of Renton. The King County Emergency Management office and the Emergency Operations Center (EOC) is located in a portion of the PSAP building. The building is Leadership in Energy and Environmental Design (LEED)-certified and was designed to function after a man-made or natural disaster, including a major seismic event. Secure employee parking is provided.

The PSAP operations area is divided into a primary operations area with 32 consoles, and a secondary operations area with 14 consoles. The secondary operations area is currently used as a backup PSAP facility for Valley Com and as overflow or special operations space. The two areas are separated by a partial glass wall with a door near one end and an open passageway around the other end of the wall. The 46 consoles provide sufficient space for the new consolidated PSAP. The projected call taker staffing complement is 59.

The two supervisor workstations in the primary area are elevated about one foot to facilitate a view of the room. Call taking consoles are in pods of four with call takers facing inward toward each other. Dispatch positions are in pairs with dispatchers seated side by side. The primary area has abundant natural light from clerestory windows with remotely controlled roll-down shades. The secondary area has lower windows with ballistic glazing.

There are two equipment rooms in the facility – a radio room and a server room. Both are well-designed, clean, well-organized, and equipped for effective cable management. Both rooms have space for some additional equipment. The radio room has a halo grounding system.

Cabinets in both rooms are on isolator bases that allow controlled safe lateral movement during a seismic event. Racks are secured at top and bottom, and overhead cable trays are braced with diagonal cables. Clean agent fire suppression systems cover both rooms. A portable “MovinCool” chiller unit has been added to the server room due to concerns about the Heating, Ventilating, and Air Conditioning (HVAC) capacity in that room. The HVAC in the server room should be upgraded to resolve any possible cooling issues prior to occupancy by the consolidated PSAP.
The facility has two diesel generators outside, either of which can power the entire facility. Two UPS units protect all critical loads, with either UPS capable of handling those loads alone for a short time if necessary. A 15,000 gallon fresh water storage tank is on-site.

This facility is exceptionally well-suited to accommodate a larger PSAP operation, including the proposed merger of the current NORCOM PSAP function into the existing structure. Some modifications to locker rooms and similar employee-support spaces may be necessary, and additional storage space for supplies would be helpful, but the dispatch area itself will meet the need without modification.

The previous Sheriff had expressed his willingness to partner, as appropriate, with other communities, including sharing governance and the facility in a manner that might be accepted by the existing NORCOM partners.

GeoComm believes the EOC can continue to share the facility as it does today. The PSAP portion of the facility is adequate for the proposed consolidated PSAP’s operations area. The office space currently occupied by Emergency Management could be used to great advantage as additional PSAP administrative office space, either initially or in the future, if it can be made available.

**Facility Considerations – Valley Com/Enumclaw**

Enumclaw’s facility has a few challenges. As an older facility its ability to withstand a major earthquake is unknown, although it is reported to have come through the region’s recent earthquakes with minimal damage if any. Valley Com’s facility has enough space to absorb the Enumclaw operation without difficulty.

**Facility Considerations – City of Seattle Police and Fire**

The consolidation of police and fire, recommended here, is not a facility-driven decision but rather one of cohesive city services, cost savings measures, and most importantly, eliminating the transfer of 9-1-1 calls to improve service delivery. Both current police and fire facilities are adequate for present needs, although the police facility has limited capacity for growth without relocation of other city personnel and has experienced access challenges due to its location. It is recommended that the city consider combining or, at the very least, co-locating the police and fire operations. If this model is adopted, the City of Seattle will need to begin planning for a new facility for the consolidated operation of Seattle Police and Fire/EMS to accommodate growth in operations.

**Facility Recommendations – Optimum Model**

- The City of Seattle should undertake a study to plan, design, and build a suitable facility to accommodate the consolidated operations of police and fire/EMS communications.
• KCSO facility should be redesigned to accommodate the consolidated operations of KCSO, NORCOM, Bothell, Issaquah, and Redmond.

• The ILA for the KCSO, NORCOM, Bothell, Issaquah, and Redmond consolidated operations should define the facility expectations, requirements, cost sharing, and technology sharing arrangements agreed to by the principles in this consolidation.

Technology
Technology issues, while by no means insurmountable, are significant factors that require much planning and implementation effort in any consolidation. There must be a clear understanding of the technological capabilities of all partners prior to the consolidation, and decisions must be made about how to best select and deploy technology to meet the operational needs of the combined PSAP.

Technology Considerations – Consolidated KCSO, NORCOM, Bothell, Issaquah, and Redmond
The Tiburon CAD system presently used by KCSO is capable of supporting the operation of the consolidated PSAP as proposed. While the fire/EMS dispatch capabilities of the system are not currently utilized, they are available in the system and can be activated for use in dispatching the fire and EMS agencies that will be dispatched by the consolidated PSAP.

The present KCSO effort to replace its Records Management System (RMS) may continue, with that RMS managed by and serving KCSO and possibly other law enforcement agencies. Other agencies could continue to use their present RMS or collaborate on one or more new shared RMS products.

The consolidated center will need a fire station alerting capability. NORCOM has robust and effective fire station alerting systems that can be redeployed for the consolidated center.

Technology Considerations – Valley Com / Enumclaw Partnership
The Enumclaw PSAP presently has a VHF communications capability that is used to communicate with neighboring agencies in Pierce County. It may be necessary to replicate this capability at Valley Com if there is an ongoing need for the dispatcher for Enumclaw to be able to communicate with these neighboring agencies.

Technology Considerations – An Independent City of Seattle Communications Center
The Seattle police and fire PSAPs presently have separate CAD systems from different vendors. The Versaterm CAD system at Seattle Police Department is part of a larger Versaterm software suite that is also used for many other functions at the department. The TriTech CAD system at Seattle Fire Department has been optimized over several years to meet the needs of that department. Both departments view their CAD systems as “best of breed” for their specific needs. While both systems are
used in other locations for both police and fire dispatching, selecting and implementing a single CAD system for a consolidated Seattle PSAP will be a complex project requiring much time and effort.

**Technology Recommendations – Optimum Model**

- Redeploy the existing NORCOM fire station alerting system in the consolidated operation for KCSO, NORCOM, Bothell, Issaquah, and Redmond.
- Replicate the VHF communications capability for communication with Pierce County at Valley Com.
- Determine a single CAD vendor for KCSO, NORCOM, Bothell, Issaquah, and Redmond.
- Determine if a single CAD vendor for the City of Seattle Police and Fire/EMS operation is possible. If feasible, select and implement a single CAD system for a consolidated Seattle PSAP.
- Utilize the Valley Com CAD for the Valley Com/Enumclaw partnership.
- Encourage the Port of Seattle to participate in the regional radio replacement project and to migrate to the regional system.
- Determine consolidation models to be pursued in order to modify design for both NG9-1-1 services and the regional radio replacement project.
- Continue migration of NG9-1-1. Consider implementing technology sharing opportunities discussed in this report in the interim before full NG9-1-1 service can be achieved in order to take advantage of the opportunities presented by NG.
- Continue discussion of the potential a county-wide CAD system in conjunction with consolidation development to optimize planning efforts and potential economies.

**Other Considerations Port of Seattle**

The Port Authority of Seattle is unique among the other PSAPs within King County and would not be a good candidate for consolidation due to a significant disparity in duties and obligations. The Port Authority of Seattle coordinates with Transportation Security Administration (TSA) and with the Department of Homeland Security (DHS) at an operational level. Other King County PSAPs have little experience with these regulations and have no experience coordinating with TSA and DHS in the same setting as the Port Authority of Seattle. In a previous study, these significant operational differences persuaded Valley Com that it would not be wise for the Port Authority to join their organization.

As reported in a previous study conducted by ADCOMM Engineering in 2010, “While the police, fire, and dispatch agencies are focused on life safety and property preservation, there is an undeniable economic pressure on them (Port of Seattle) to get traffic moving again. This is an element not found in municipal dispatch centers. Moving these functions to a municipal dispatch center could easily result in a problem of “serving many masters.” While municipal centers are typically driven exclusively by public safety
requirements as expressed to them by their public safety users, adding the Port of Seattle's commercial concerns would introduce an entirely new element to the municipal center's mix.”  

The Port of Seattle handles a variety of calls. Some of the calls are consistent with a typical police and fire/EMS, however, many of the calls are unique due to the involvement of travelers. The recommendation for the Port of Seattle to remain their own entity is due partly to the types of calls they receive and process in the air and sea terminals. It is also as a result of the specialized training and knowledge the dispatchers must have to handle airline and seaport emergencies.

The requirements for support of field personnel at the Port of Seattle are much higher than at other dispatch agencies. Video camera monitoring is but one example. It would be very difficult to provide all the video requirements to an off-airport PSAP.

Notifications, tracking of responders using both radio communications and video surveillance, occur at a much higher frequency in the Port of Seattle environment than at other agencies which would place special operational requirements for the Port of Seattle environment than on the other communities served by the consolidated PSAP.

There is a significant presence of federal agencies involved with the Port of Seattle, both the airport and the seaport, and they have heightened security issues not present in a local community PSAP.

While it is possible for an off-airport PSAP to handle 9-1-1 call answering functions and crash-fire-rescue dispatching, it is relatively rare in large airports. Where an off-airport PSAP does it, the tower commonly communicates directly to the on-airport fire station(s) when an aircraft emergency arises. This process, while functional, can lead to a less than fully coordinated response effort. The types of events that the Port of Seattle is required to handle vary greatly from those experienced at a local community PSAP. The specialized training and response protocols therefore require different training and call processing for the Port of Seattle. This complicates and compromises the efficiencies that can normally be achieved when consolidation occurs. Any consolidation with the Port of Seattle would either compromise service to the Port of Seattle constituency or require specialized personnel trained at a more specialized level.

**University of Washington**

The specific service mission, service area, and population of the University of Washington Police Department, along with the unique types of 9-1-1 calls handled by the University of Washington Police Department, justify, in GeoComm’s opinion, remaining as a separate entity.

_____________________
4 Valley Communications/Port of Seattle Dispatch Consolidation Study, ADCOMM Engineering, May 23, 2010.
The University serves an academic and administrative staff population of 22,000. The campus student population in 2011 was reported at 49,046 graduate and undergraduate students. Another 64,961\textsuperscript{15} extension course registrations were reported that same year. While the extension course student is not a full time day student, they nevertheless are on campus at some part of the day adding to the population of the University’s potential call volume. The PSAP reports that as much as 70,000 additional persons could be expected to have access to the campus by 2016 due to expansion of the light rail system further adding to the potential service population and potential call volume.

The University of Washington PSAP has an expanded role from the other King County PSAPs due serving an exclusive make up of faculty, staff, and students. Although they do incorporate the same E9-1-1 duties as the other PSAPs there is also the expectation that they take a more nurturing role to students and provide additional assistance to faculty, staff and alumni than is normally expected from the traditional PSAP. Their field personnel different ancillary duties than other PSAPs such as handling worldwide calls for assistance from students studying abroad and general facility security. The University of Washington PSAP also has federal requirements from the Clery Act\textsuperscript{16} such as publishing an annual report of crime statistics; maintain a publically accessible crime log; disclose crime stats that occur on campus and areas immediately adjacent to campus facilities; issue timely warnings about crimes that pose a serious or ongoing threat to students and employees; devise an emergency response, notification and testing policy; and enact policies and procedures to handle reports of missing students (to minimize delays in response). The University of Washington has a campus in Bothell, as well as another in Tacoma. Currently, the Bothell campus 9-1-1 calls are answered at the Bothell Police Department. The University is considering whether it is more appropriate for all 9-1-1 calls from remote campuses to be routed to the University of Washington PSAP for call taking and dispatch.

The campus consists of hundreds of campus buildings, including the University Medical Center and Surgery Pavilion, the Magnuson Health Sciences Center, marine and oceanography sciences facilities, a 72,500 seat stadium, the 15\textsuperscript{th} largest stadium in the United States, and its own light rail station. These factors contribute to unique campus security needs and specific security issues common to a large campus environment.

As a campus police department, University of Washington Police Department provides several types of services that city police departments do not normally provide. Two examples are responding to vehicle lockouts, and opening locked offices and classrooms.

\textsuperscript{15}\url{http://www.washington.edu/discover/}
\textsuperscript{16}\url{http://www.iaclea.org/visitors/professionaldevelopment/CleryActTrainingProgram.cfm}
Dispatchers at a consolidated PSAP dispatching for University of Washington Police Department would need to interact with callers from the campus differently than with callers from other locations because of the differences in the range of services provided.

The University of Washington Police Department is involved in the traditional campus patrol, specialized after hours escort functions, building monitoring functions, campus-related issue investigations, sports activity patrol, and peacekeeping. These campus-specific response requirements contribute to the unique needs of the University of Washington Police Department, and 9-1-1 calls that would be considered uncommon for a traditional community communications center. The general population at a campus is mostly students. Therefore, the families of these students may have an expectation of individual service, to be provided by dispatchers located within the community of the campus.

The University of Washington Police Department is not the primary PSAP for wireless 9-1-1 calls originating on the campus or within campus buildings even though wireless is the preferred method of communications by most, if not all, college students. They are, however, the primary PSAP for landline 9-1-1 calls from the University’s proprietary phone system. There is one significant concern with the above noted situations. In a large campus event such as a Virginia Tech type of shooting, whichever PSAP gets their wireless calls first would be inundated, while all of the wired calls about the same event would go to the University of Washington Police Department. The lack of full situational awareness could be of significant concern and potentially cause the response to the event to be uncoordinated.

The campus is spread over large geographic area on Lake Washington and the University of Washington Police Department monitors fire alarms for all of the facilities and is responsible for video monitoring of specific high-security locations on the campus.

The University of Washington Police Department facility, as reported in the Existing Conditions Report has significant challenges due to the age, location and functional issues. While the police chief is seeking a new location, if for some reason a new facility is not an on-campus PSAP, they would be a good candidate for co-location in a suitable facility somewhere else. The present PSAP facility is inadequate.

**Washington State Patrol**

The Washington State Patrol (WSP) answered 232,910 wireless calls in 2011. Routing decisions were originally made by evaluating the coverage area of each cell site and sector of the wireless carriers providing service in the region. Five large PSAPs were determined to be best suited to handle the influx of multiple 9-1-1 calls reporting an incident. Many of the cell coverage areas cover large geographic areas that are not confined to the political jurisdictional boundaries of the PSAP service area.
GeoComm recommends that the WSP no longer serve as a primary PSAP and that wireless routing be reconfigured to direct wireless 9-1-1 calls to the local jurisdiction. If WSP response is required, those calls should be transferred to WSP. EMS or fire response or local law enforcement response will be dispatch from the primary PSAP.

WSP faces a significant workload issue as it relates to the amount of radio traffic they endure on two channels. In order to effectively keep up, they actually have two dispatchers monitoring each. They report that they are moving to a new radio system with more resources which will ease this up a little but it is still a concern to note. GeoComm is concerned that the excellent regional radio system the State Patrol could be using is not being given due consideration. Instead the state is building a new system that covers a wider area but doesn’t provide as much portable radio coverage as the existing King County system.

We believe the long-term radio plan for King County includes bringing the new state trunked system into the King County system-of-systems. One rationale GeoComm can see for the state to build its own system is that it will cover the entire Puget Sound area, which is more area than the King County Regional Radio System is expected to cover. One positive to note is the new WSP field radios can also have the King County system programmed into them if the state chooses to do so.

It is further recommended that direct financial escrow support for WSP from KCE9-1-1 be reassessed to include reduction or discontinuation. The initial rational for viewing a state agency PSAP such as WSP on an equal footing for financial support as other local government or county PSAPs was to assist the WSP in achieving the standards for call answering and processing. This has proven to be correct, and the WSP meets the standards established by KCE9-1-1. However, the decision should be revisited in light of the current fiscal constraints on KCE9-1-1.
Next Generation 9-1-1

It is important that any consideration of PSAP configuration include NG9-1-1 as a factor. One of the key elements of NG9-1-1 is the ability to receive new types of non-voice emergency calls, including text messages, photos, and videos.

While there is very little actual NG9-1-1 implementation experience from which to make determinations, the expectation in the industry is that the number of non-voice messages arriving at an NG9-1-1 PSAP will be substantial.

Unlike a voice call, which has a distinct termination point, a non-voice call will be made up of a series of separate messages. The series of messages could extend over a long period of time, perhaps as much as several hours, and portions of the series could be handled by different dispatchers or even by different PSAPs.

For example, a person who believes he or she is being followed by a stalker might begin reporting the situation via text message. Continued encounters could be reported via text message while the reporting party was in another jurisdiction, causing the text message to go to a different PSAP than the first reported incident. The situation might even continue past a shift change at the PSAP, so a different dispatcher would receive the later messages but perhaps not the originating messages.

GeoComm believes it will not be feasible for a dispatcher in a single-position PSAP to attempt to handle both voice calls and non-voice calls. While it may be practical for a single dispatcher to be involved in multiple non-voice messages at the same time, with the help of automated systems that organize the incoming messages appropriately, we do not believe that a single dispatcher can wait until the conclusion of a lengthy voice call before viewing and responding to non-voice messages that arrived during the voice call.

GeoComm also believes it will be necessary for a call taker receiving non-voice calls to be able to hand off the task of dispatching emergency assistance to another position, allowing the call taker to continue receiving and responding to additional messages from the person requesting assistance.

With the exception of the very small PSAP as described above, the deployment of NG9-1-1 is not in itself a driving force toward or away from consolidation. NG9-1-1 can be implemented in large consolidated PSAPs or in smaller PSAPs just as effectively. However, the number of PSAPs that must be equipped for NG9-1-1 is a significant cost factor. The use of fewer centralized 9-1-1 switches will reduce system costs, since there will not be as many systems that must receive the hardware and software updates necessary for NG9-1-1 implementation. A diverse, redundant data network is less expensive to deploy and maintain if fewer locations must be connected. The ability of the NG9-1-1 system to perform conditional call routing...
during unusual circumstances will give all PSAPs a greater ability to cope with rapid surges in call volume, by sending overflow calls to other PSAPs for screening and triage.

Ancillary Duties
GeoComm finds that there would be a higher degree of acceptance of consolidation if the issue of what to do about ancillary duties (leave behind duties) could be resolved.

There are functions performed by the PSAP personnel that will need to be reassigned or modified within each local agency or transition to the new entity. This may require additional staffing or duty reassignment. Some of the ancillary duties include but are not limited to, handling after-hours public works and parks department calls, monitoring security video of jail activity and entry/exit doors and also monitoring fire alarms, entering pawn tickets and impounded vehicles, etc.

In addition, several of the smaller PSAPs take pride in a culture of assistance to their communities by specific non-emergency services in which the larger PSAPS do not participate.

GeoComm recommends the consolidated PSAPs which have ancillary duty responsibilities address this issue by establishing a specialized call taker position(s) that can assist the general public in these non-emergency service issues for the region. Ancillary duties, where feasible, can be incorporated into the new model.

King County E9-1-1 Program Office
In the Optimum Model, as in the Status Quo and Model B, KCE9-1-1 is impacted significantly. The recommendations outlined in the sections of this report should be considered part of the Optimum structure GeoComm proposes.

Obviously, the changes proposed to KCE9-1-1 will improve the service in the region, and it will be even more critical to adopt these recommendations directed at KCE9-1-1 in order to achieve the maximum benefit that can be derived from the Optimum PSAP configuration. KCE9-1-1 is the backbone of the 9-1-1 system in King County. For it to function at peak performance, technically, managerially, and fiscally for the region, will require that it elevates its scope and governance to an even higher level than it has today.
## Strengths and Weaknesses of the Optimum Model

### Strengths

<table>
<thead>
<tr>
<th>Strengths</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PSAPs strengths will be combined.</td>
<td></td>
</tr>
<tr>
<td>Fewer number of PSAPs helps contain costs and improve KCE9-1-1 funding sustainability.</td>
<td></td>
</tr>
<tr>
<td>Smaller agencies will benefit from additional funding.</td>
<td></td>
</tr>
<tr>
<td>Fewer transfers of 9-1-1 calls results in lower call processing time and more prompt service.</td>
<td></td>
</tr>
<tr>
<td>Adequate backup capability.</td>
<td></td>
</tr>
<tr>
<td>There should be sufficient KCE9-1-1 funding available to meet the NG9-1-1 needs.</td>
<td></td>
</tr>
<tr>
<td>The Washington State Patrol, Port of Seattle Police Department, and University of Washington will be able to maintain the autonomy needed, given their unique environment.</td>
<td></td>
</tr>
<tr>
<td>The most cost effective model and efficient for KCE9-1-1.</td>
<td></td>
</tr>
<tr>
<td>The governance model can be designed to be fair and equitable.</td>
<td></td>
</tr>
<tr>
<td>KCE9-1-1 governance model should be more representative.</td>
<td></td>
</tr>
<tr>
<td>Policy level participation on the governing board or advisory committee helps to ensure political support and appropriate policy guidance.</td>
<td></td>
</tr>
<tr>
<td>All PSAPs (with the possible exception of the University of Washington) will be of sufficient size to be able to deal with surges in activity from larger routine incidents without difficulty.</td>
<td></td>
</tr>
<tr>
<td>The recommended configuration should meet the King County EMS medical director’s objective of limited transferred EMS calls.</td>
<td></td>
</tr>
<tr>
<td>Combining City of Seattle Police and Fire into a single, independent, civilian agency offers significant cost saving opportunity to the City of Seattle.</td>
<td></td>
</tr>
<tr>
<td>A ‘stand-alone’ entity of Seattle government, being a function of neither the Seattle Police Department or the Seattle Fire Department, but responsive to an Operations Advisory Board consisting of executive and field staff from all the served agencies should provide operational and financial efficiencies not realized in today’s configuration.</td>
<td></td>
</tr>
<tr>
<td>Will expect all agencies to participate in an operations plan that addresses the needs of all subscribers at the new combined center, especially with regards to meeting the concerns with local needs.</td>
<td></td>
</tr>
</tbody>
</table>

### Weaknesses

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential for political issues to interfere with progress of the consolidation.</td>
<td></td>
</tr>
<tr>
<td>Smaller agencies complete control over decisions is diminished and now shared with other partners.</td>
<td></td>
</tr>
<tr>
<td>Anticipate that the reaction of smaller PSAPs that will be incorporated in the consolidation may not be favorable.</td>
<td></td>
</tr>
</tbody>
</table>
**Weaknesses**

Ancillary duties will have to be dealt with in some acceptable manner for the community, and local communities may need to potentially fund duties left behind in their agency that will no longer be handled by the PSAP.

Jail management system at NORCOM may become a leave-behind duty that some agency will need to assume.

Could be perceived as a KCE9-1-1 attempt to “build an empire” with the centralization of technical services and the addition of staff.

Transitional issues such as personnel, training, and labor issues will take discussion, planning, time, and money to resolve.

Civilian fire dispatchers will be met with skepticism by Seattle Fire Department and others; building Seattle Fire Department confidence in a new consolidated dispatch center will take time.

The question of new Seattle PSAP backup will need to be resolved.

CAD system investments should be leveraged for the new entities; some CAD costs may be stranded investment. Data exchange between CAD and local agency RMS systems will need to be resolved.

**Conclusion**

Highly functioning organizations are perpetually striving to increase efficiencies and find more effective ways of conducting their work. Successful organizations seek service enhancements for their constituency and responders and put that goal above many others, if not paramount, in their processes and procedures. These successful organizations seek opportunities to improve and enhance operations at every level of the organization and within every task. In the spirit of seeking the same outcomes for the PSAPs in the King County region, GeoComm believes that the potential enhancement to 9-1-1 service in the area recommended in this report are possible through the Optimum Model.

GeoComm has reviewed the current PSAP configurations and developed an Optimum Model for how these 9-1-1 related tasks could be organized, staffed, and performed. If adopted, this model could offer the nine PSAPs directly impacted by consolidation an opportunity to:

- At a minimum, reduce annual PSAP expenditures by 9.1 percent or $6,014,172
- Reduce the number of call takers by 41 positions
- Reduce the need to transfer 9-1-1 calls to a second and third dispatch center

Creating a more inter-operative holistic emergency communications system in the entire County would mean better coordination and information sharing among and between emergency response agencies, while
creating far greater “flex” capability to efficiently handle a massive influx of 9-1-1 calls that would accompany a disaster such as an earthquake, volcano eruption, or massive wild fire.

GeoComm believes there is sufficient opportunity to continue the discussions about potential in King County. The specific decisions including the actual cost savings and service levels determinations that will be achieved will be more significantly impacted by the implementation decisions that will be made in the future.

GeoComm encourages King County to consider adoption of the Optimum Model recommendation. While enhancements under the current structure are possible and will clearly improve service, they only go part way toward realization of the guiding principles articulated as the ultimate goal for the region. The Optimum Model, if adopted with a spirit of collaboration and resolve, will be most faithful to the principles and effectively enhance 9-1-1 service in King County.
Model B Overview
GeoComm has considered an alternate model that would reduce the number of primary PSAPs in King County from twelve to six. This alternate model to the Optimum Model recommended consolidates Issaquah, Bothell, and Redmond (IBR) into a single, primary PSAP because of their size and service philosophy. NORCOM and the King County Sheriff’s Office (KCSO) consolidate. It combines the primary Seattle Police Department and secondary Seattle Fire Department PSAPs into a civilian and independent city department, as does the Optimum Model, and also consolidates Enumclaw with Valley Communications Center (Valley Com) as in the Optimum Model.
Because of their unique structure and mission, the University of Washington and the Port of Seattle PSAPs would not change as in the Optimum Model. This model also includes transition of the Washington State Patrol (WSP) to a secondary PSAP and wireless 9-1-1 calls currently answered by WSP would be routed to the local jurisdictional PSAP.

Rationale
The only difference between the Optimum Model and this Model B is the separation of the Bothell, Issaquah, and Redmond cities into their own consolidated PSAP. Many of the Optimum Model recommendations are applicable to Model B; however, justification is not repeated within this section but the recommendations are noted.

Governance
The four primary PSAPs of a consolidated Bothell, Issaquah, and Redmond; partnership of Valley Com and Enumclaw; NORCOM and KCSO; and the City of Seattle combined police and fire PSAP, will require some level of change to operations and structure that will greatly impact current governance structures.

Bothell, Issaquah, and Redmond PSAP
During its discussions with officials in the cities of Issaquah, Bothell, and Redmond, GeoComm became aware that each has a similar philosophy in the responsive customer service that is both expected and provided in their city. One of the alternatives that GeoComm considered in its assessment is the creation of a separate, independent PSAP organization that includes the cities of Bothell, Issaquah, and Redmond.
The consolidated Bothell, Issaquah, and Redmond PSAP would dispatch law enforcement, fire, and Emergency Medical Services (EMS) agencies serving the three cities. Current technology infrastructure investments of the communities, such as CAD systems, are also factors that were taken into consideration when making decisions whether to consolidate and with whom.

A similar governance model to the one used by Valley Com, with the mayor of each of the three cities comprising the Governing Board should be considered for the Bothell, Issaquah, Redmond consolidation model. Each would have an equal vote and a majority of two votes would be required for approval of a motion. The model would also include an Operations Board that is advisory to the Administrative Board and provides operations direction to the staff. The Operations Board’s membership would consist of membership from the public safety agencies that use the dispatch services provided by the new organization. The contract Redmond has with the cities of Carnation and Duval will need to be assigned to the new joint entity, with the approval of Carnation and Duval.

**KCSO and NORCOM**

Because of their size, facility needs, and the current services provided by the KCSO and NORCOM PSAP, GeoComm recommends the two organizations combine resources and form a larger, more cost effective operation. Utilizing the current NORCOM governance structure would offer a smooth transition while providing the sheriff’s department equitable participation in the decision-making. Not only would the Sheriff have at least one seat on the Governing Board, representing the county and the jurisdiction for which they are contracted to provide service, the county would also be able to participate as a substantial partner in voting decisions. Fortunately, for any decision to become effective, and assuming the current voting rules are not changed, both the majority of the members on the board and the majority of the weighted votes must approve a motion. In some cases a super-majority or two-thirds vote of both are required. KCSO would also participate as a member of the NORCOM Operations Board that provides direction and support for PSAP operations.

The KCSO currently contracts with a number of cities to provide law enforcement service and as such the 9-1-1 call taking and dispatch is a part of that service. The KCSO representation on the Board should, as should NORCOM’s representation, be commensurate with the service population it services and represents. The same logic would apply to Bothell, Issaquah, and Redmond representation on the Governing Board. In other words, the contract cities of Duval and Carnation would likely be represented by their principal agency, Redmond, on a governing board. The same would be true for the cities under contract with the KCSO, although, additional seats on a governing board may be in order for the larger jurisdiction for which the KCSO is responsible. During the implementation process of this or any model, discussions and potential revision of the governing composition of the board, representation, and voting rules of the participants may be necessary.
As was discussed in the Optimum Model section, the current contracts between the KCSO and cities should not be impacted by this proposed change. The contracts may need to reflect that 9-1-1 call taking and dispatch services are to be provided by a joint operation, but the law enforcement services for which these cities contract with the Sheriff’s office and the service level expectations of the cities is not proposed to change. City contracts should define the expectations of the cities with regard to service level, representation or input on policy or funding issues as well as the cost of the service(s). As stated in other sections of this report, other representative arrangements on the governing board are certainly possible and, if desired, alternate representation on the Governance Board might be determined during the implementation phase. In addition, further information regarding successful governance structures, PSAP

consolidation, technology-sharing successes, etc., has been included in Appendix B of this report, as well.

**City of Seattle Police and Fire/EMS Communications**

In the Optimum Model, GeoComm recommends that the Seattle Police Department PSAP and the Seattle Fire Department PSAP be combined into an independent civilian city department. Determinations that a new facility was needed for the Seattle Police Department are in the planning stages and can be modified to adjust for consolidating the fire/EMS dispatch operation into the same facility.

The independent City of Seattle department should be formed so that both the police and fire departments can participate fully and equally in the joint management and decision making as described in the Optimum Model discussion.

**Governance Recommendations – Model B**

- GeoComm recommends that an Interlocal Agreement (ILA) define voting procedures that are equitable and representative. This representation may be tied to investment or financial contribution if that is desired by the parties.
- ILAs for contract cities for Redmond and KCSO should be assigned to the new entities.
- The ILA should clearly define the sharing agreements including costs.
- The governance structure of any consolidated agency should define a shared decision-making process that is fair and equitable.
- Each of the consolidated PSAPs should have a Governing Board. Each city would have an equal vote and representation. Sheriff should have a seat on the new consolidated Governing Board.
- The cities that currently contract for dispatch services with Redmond, Bothell, and Issaquah (Carnation, Duvall, Lake Forest Park, and Snoqualmie) would be represented by their “principal” as a part of their contracted service. Similarly, the Sheriff will be representative of the KCSO and the

¹ Dispatch service agreements should address service performance standards or set minimum expectations of service delivery for the agency/city. Customer agencies or cities paying for service should have expectations that 9-1-1 calls will be dispatched within an agreed upon and stipulated time frame, that complaints/inquiries will be acknowledged by an agreed upon timeframe, etc.
KCSO contract cities. Other representative arrangements are certainly possible and, if desired, alternate representation on the Governance Board might be determined during the implementation phase. City contracts, legal in nature, should stipulate the expectation of the city regarding the level of policy influence or representation the city will receive from the agency with whom they are contracting.

- The cities of Bothell, Issaquah, and Redmond principals should determine how they can include responding to callers whose issues may not be considered an emergency in order to achieve true collaboration and to realize all cost efficiencies possible. These are “ancillary duties” of the current PSAP structure and would be “leave behind” responsibilities to be funded by the individual principals.

- Valley Com Administrative Board should add the City of Enumclaw as a contract city.

- The Seattle Police Department PSAP and the Seattle Fire Department PSAP should be combined as an independent civilian city department.

- The independent City of Seattle department should be formed so that both the police and fire departments can participate fully and equally in the joint management and decision making. Seattle should establish an advisory committee to be representative of police and fire departments and charge them to serve as an operations policy board. This new civilian communications department should report to the appropriate city management authority and a civilian director be appointed. All call taker, dispatcher, supervisory, and support workforce should be civilian.
Financial

The creation of this model will result in changes in workload and staffing levels and is used in the cost comparison calculations below. If the PSAPs in King County implement the Model B scenario, the breakdown in calls per PSAP would be distributed as depicted in the table below:

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Status Total Volume</th>
<th>Quo Call</th>
<th>Percent of Total Call Volume</th>
<th>Model B Total Call Volume</th>
<th>Percent of Total Call Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell</td>
<td>69,808</td>
<td>1.99%</td>
<td>207,510</td>
<td>6.09%</td>
<td></td>
</tr>
<tr>
<td>Issaquah</td>
<td>57,333</td>
<td>1.63%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redmond</td>
<td>80,369</td>
<td>2.29%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCSO</td>
<td>660,032</td>
<td>18.79%</td>
<td>1,045,480</td>
<td>30.67%</td>
<td></td>
</tr>
<tr>
<td>NORCOM</td>
<td>406,285</td>
<td>11.57%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>167,732</td>
<td>4.78%</td>
<td>896,239</td>
<td>26.29%</td>
<td></td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>811,002</td>
<td>23.09%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valley Com</td>
<td>856,802</td>
<td>24.4%</td>
<td>891,266</td>
<td>26.151%</td>
<td></td>
</tr>
<tr>
<td>Enumclaw</td>
<td>34,464</td>
<td>.98%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port of Seattle</td>
<td>75,064</td>
<td>2.14%</td>
<td>75,064</td>
<td>2.20%</td>
<td></td>
</tr>
<tr>
<td>University of Washington</td>
<td>40,711</td>
<td>1.16%</td>
<td>40,711</td>
<td>1.19%</td>
<td></td>
</tr>
<tr>
<td>WSP</td>
<td>252,276</td>
<td>7.18%</td>
<td>252,276</td>
<td>7.40%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3,511,878</td>
<td>100.00%</td>
<td>3,408,546</td>
<td>100.00%</td>
<td></td>
</tr>
</tbody>
</table>

2 Includes 9-1-1 emergency and 9-1-1 non-emergency administrative calls for 2011 as reported by the King County E9-1-1 Program Office. The volumes include all 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls.
Staffing and Cost Comparison

Based on the breakdown in 2011 total call volume for the nine PSAPs directly impacted by consolidation recommendations, the call taker and dispatcher staffing recommendations for the impacted PSAPs would be below:

### Staffing and Cost Comparison between Status Quo and Model B

<table>
<thead>
<tr>
<th>Description</th>
<th>Status Quo Staffing Cost</th>
<th>Model B Staffing Cost</th>
<th>Staffing Costs Savings/Difference</th>
<th>Status Quo Call Takers</th>
<th>Model B Call Takers</th>
<th>Call Takers Difference (Model B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle Fire Department</td>
<td>$4,154,634</td>
<td>$14,602,977</td>
<td>$540,821</td>
<td>24</td>
<td>59</td>
<td>8</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$10,989,164</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enumclaw</td>
<td>$478,817</td>
<td>$12,370,500</td>
<td>$(634,522)</td>
<td>6</td>
<td>59</td>
<td>-9</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$11,257,161</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bothell</td>
<td>$1,537,821</td>
<td>$3,504,910</td>
<td>$739,719</td>
<td>10</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Issaquah</td>
<td>$983,688</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redmond</td>
<td>$1,723,120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCSO</td>
<td>$7,688,646</td>
<td>$14,988,859</td>
<td>$1,075,766</td>
<td>18</td>
<td>67</td>
<td>16</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$8,375,979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>$832,746</td>
<td>$832,746</td>
<td>$ -</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>$1,535,438</td>
<td>$1,535,438</td>
<td>$ -</td>
<td>16</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>WSP</td>
<td>$5,160,320</td>
<td>$5,160,320</td>
<td>$ -</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$54,717,534</strong></td>
<td><strong>$52,995,750</strong></td>
<td><strong>$1,721,784</strong></td>
<td><strong>264</strong></td>
<td><strong>239</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

3 Model B staffing costs includes an average of 35% benefit rate.
As noted in the Optimum Model, savings can be realized in personnel costs for both the combined Seattle Police and Fire Dispatch operations and the KCSO and NORCOM, and now in Model B with Bothell, Issaquah, and Redmond consolidations. The primary factors involved in this cost reduction include the reduction in call taker positions due to consolidated operations, the reduction in salary due to civilianizing the Seattle fire/EMS call takers and the reduction in duplication of staff that are realized by combining operations.

GeoComm has used the following assumptions in developing a high level budget for the PSAPs participating in the Model B. Those assumptions include:

- Reserve budgets have not been included as part of the cost models.
- Total wages equals the 2012 budgeted wages for each PSAP less the savings projected in the decrease in call takers. GeoComm understands that there will be some duplicate staffing in management, technical, and administrative support during the transition and did not include consolidating any of those positions for this budget projection.
- Again, many labor agreement and collective bargaining discussions will have to occur during the implementation phase and will have impact on these estimates.
- Operating expenditures includes support services, administrative services, technology expenditures, facilities and maintenance, capital expense, and equipment allocation.

**Growth Projections**

Growth projections do not change overall with this model, but the annual hours needed and project call taker personnel are illustrated in the chart below.

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Model B Total Call Volume</th>
<th>Projected Call Taker Positions</th>
<th>Annual Hours Needed</th>
<th>NAWH</th>
<th>Projected Call Taker Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCSO and NORCOM</td>
<td>1,241,403</td>
<td>9</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>Bothell, Issaquah, and Redmond</td>
<td>346,397</td>
<td>3</td>
<td>25,975</td>
<td>1,039</td>
<td>25</td>
</tr>
<tr>
<td>City of Seattle</td>
<td>1,064,194</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
</tbody>
</table>

*Net Available Work Hours (NAWH) is the amount of time one staff person is available to process calls in a year. This number is used to determine the total number of employees needed to cover a “workstation” 24 hours per day, seven days per week, for one year.*
### Model B 2021 Projections

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Model B Total Call Volume</th>
<th>Projected Call Taker Positions</th>
<th>Annual Hours Needed</th>
<th>NAWH[^]</th>
<th>Projected Call Taker Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valley Com/Enumclaw</td>
<td>1,058,289</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>48,340</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>89,131</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>WSP</td>
<td>299,553</td>
<td>4</td>
<td>35,326</td>
<td>1,039</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,147,307</strong></td>
<td><strong>36</strong></td>
<td><strong>294</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Model B 2032 Projections

<table>
<thead>
<tr>
<th>PSAP</th>
<th>Model B Total Call Volume</th>
<th>Projected Call Taker Positions</th>
<th>Annual Hours Needed</th>
<th>NAWH</th>
<th>Projected Call Taker Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCSO and NORCOM</td>
<td>1,398,330</td>
<td>9</td>
<td>78,964</td>
<td>1,039</td>
<td>76</td>
</tr>
<tr>
<td>Bothell, Issaquah, and Redmond</td>
<td>277,545</td>
<td>3</td>
<td>25,975</td>
<td>1,039</td>
<td>25</td>
</tr>
<tr>
<td>City of Seattle</td>
<td>1,198,720</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>Valley Com/Enumclaw</td>
<td>1,192,068</td>
<td>8</td>
<td>69,613</td>
<td>1,039</td>
<td>67</td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>54,451</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>Port of Seattle Police Department</td>
<td>100,398</td>
<td>2</td>
<td>17,663</td>
<td>1,039</td>
<td>17</td>
</tr>
<tr>
<td>WSP</td>
<td>337,419</td>
<td>4</td>
<td>35,326</td>
<td>1,039</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,558,931</strong></td>
<td><strong>36</strong></td>
<td><strong>303</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Budget Projections

The total projected saving between the status quo and the Model B is $4,873,561 per year.

<table>
<thead>
<tr>
<th>Description</th>
<th>Status Quo Total Expenditures</th>
<th>Model B Total Expenditures</th>
<th>Savings/ Difference Total Expenditures</th>
<th>Model B Cost Per Call</th>
<th>Status Quo Cost Per Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle Fire Department</td>
<td>$7,209,717</td>
<td>$18,565,243</td>
<td>$2,267,607</td>
<td>$20.71</td>
<td>$42.98</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$13,623,133</td>
<td></td>
<td></td>
<td>$16.80</td>
<td></td>
</tr>
<tr>
<td>Enumclaw</td>
<td>$563,214</td>
<td>$16,782,919</td>
<td>($718,918)</td>
<td>$18.38</td>
<td>$16.34</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$15,500,787</td>
<td></td>
<td></td>
<td>$18.09</td>
<td></td>
</tr>
<tr>
<td>Bothell</td>
<td>$1,619,128</td>
<td>$4,105,291</td>
<td>$827,078</td>
<td>$19.78</td>
<td>$23.19</td>
</tr>
<tr>
<td>Issaquah</td>
<td>$1,216,970</td>
<td></td>
<td></td>
<td>$21.23</td>
<td></td>
</tr>
<tr>
<td>Redmond</td>
<td>$2,096,271</td>
<td></td>
<td></td>
<td>$26.08</td>
<td></td>
</tr>
<tr>
<td>KCSO</td>
<td>$9,146,225</td>
<td>$17,245,047</td>
<td>$2,497,795</td>
<td>$16.49</td>
<td>$13.86</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$10,596,617</td>
<td></td>
<td></td>
<td>$26.08</td>
<td></td>
</tr>
<tr>
<td>University of Washington Police Department</td>
<td>$967,672</td>
<td>$967,672</td>
<td>$0</td>
<td>$23.77</td>
<td>$23.77</td>
</tr>
<tr>
<td>Port of Seattle</td>
<td>$1,784,219</td>
<td>$1,784,219</td>
<td>$0</td>
<td>$23.77</td>
<td>$23.77</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$5,996,426</td>
<td>$5,996,426</td>
<td>$0</td>
<td>$23.77</td>
<td>$23.77</td>
</tr>
<tr>
<td>Totals</td>
<td>$70,320,379</td>
<td>$65,446,818</td>
<td>$4,873,561</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As in the Optimum Model, total expenditures includes salaries, benefits, overtime, insurance, health benefits, operating expenditures includes support services, administrative services, technology expenditures, facilities and maintenance, capital expense, and equipment allocation. The model is a snapshot in time view of the feasibility of consolidation. It is based on a certain set of assumptions. Decisions that will be made during the implementation process and through continued and more intense discussions of the participants will certainly influence and impact these estimates.

Financial implication of KCSO’s agreements with contract cities, the decision to continue to absorb the cost of 9-1-1 services in the contract or by the Sheriff’s Office outside of the contract rate is entirely within
the purview of the Sheriff’s Office. Such a decision is independent and unrelated to whether the Sheriff’s Office consolidates services or has another entity involved in call taking and dispatching.

A decision to charge cities today for 9-1-1 call taking and dispatching or not is made by the Sheriff’s Office and is not dependent on how those services are provided. The Sheriff’s Office can decide to begin to charge contract cities for 9-1-1 services but consolidation does not require it.

The budgetary figures were obtained from the PSAP Consolidation Assessment of the King County E9-1-1 System PSAP for those that completed that portion of the Data Collection Tool. The figures for Port of Seattle, University of Washington, and Washington State Patrol where determined by using a cost per call allocation for Bothell Police Department, Issaquah Police Department, and Redmond Police Department and applying that cost to each agencies’ call volume. The funding/revenue for these agencies was not a determining factor for budgeted dollars. The figures are taken from the expenditure budgets provided to GeoComm.

### KCE9-1-1 Program PSAP Support Costs

<table>
<thead>
<tr>
<th>PSAP</th>
<th>2012/2013 Current Model</th>
<th>2012/2013 Model B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bothell</td>
<td>$154,560</td>
<td>$</td>
</tr>
<tr>
<td>Redmond</td>
<td>$154,560</td>
<td>$</td>
</tr>
<tr>
<td>Issaquah</td>
<td>$141,810</td>
<td>$154,560</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>$1,102,500</td>
<td>$</td>
</tr>
<tr>
<td>NORCOM</td>
<td>$740,250</td>
<td>$1,102,500</td>
</tr>
<tr>
<td>Seattle Fire Department</td>
<td>$740,250</td>
<td>$</td>
</tr>
<tr>
<td>Seattle Police Department</td>
<td>$1,102,500</td>
<td>$1,102,500</td>
</tr>
<tr>
<td>Valley Com</td>
<td>$1,102,500</td>
<td>$1,102,500</td>
</tr>
<tr>
<td>Enumclaw</td>
<td>$132,630</td>
<td>$</td>
</tr>
<tr>
<td>University of Washington</td>
<td>$132,630</td>
<td>$132,630</td>
</tr>
<tr>
<td>Port of Seattle</td>
<td>$141,810</td>
<td>$141,810</td>
</tr>
<tr>
<td>Washington State Patrol</td>
<td>$252,000</td>
<td>$</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$5,898,000</strong></td>
<td><strong>$3,736,500</strong></td>
</tr>
<tr>
<td><strong>Difference</strong></td>
<td>$</td>
<td><strong>($2,161,500)</strong></td>
</tr>
</tbody>
</table>

**Finance Recommendations – Model B**

- Assign the implementation and transition team the responsibility of working through financial implementation considerations and decisions for their entity such as benefit rates, salary ranges, labor agreements, staffing levels, supervisory ratios, channel loading for dispatch, etc.
- Develop an appropriate and equitable funding and distribution methodology for 9-1-1 excise tax funds and KCE9-1-1 funding.
- KCE9-1-1 should reevaluate funding support for PSAPs based on new model and financial sustainability.
  - KCE9-1-1 should discontinue or reduce funding for support at the PSAPs.
  - KCE9-1-1 should hold 9-1-1 escrow funds in abeyance until NG9-1-1 is implemented in King County.

**Operations – Staffing, Supervision, Facilities**

The proposed consolidation of the three PSAPs of Bothell, Issaquah, and Redmond in Model B would allow them to keep the desired service philosophy of a smaller communications center in addition to benefiting from continuity of service within the communities. Their resources can be pooled and utilized such as staff, equipment, and training opportunities.

Transition and implementation decisions may well identify additional cost efficiencies. Every decision or assumption that is made during implementation will impact the financial estimates.

### Model B Staffing Recommendations

<table>
<thead>
<tr>
<th>Model B</th>
<th>Wireline 9-1-1 Calls</th>
<th>Wireless 9-1-1 Calls</th>
<th>VoIP 9-1-1 Calls</th>
<th>Total 9-1-1 Emergency and Non-Emergency 9-1-1 Calls</th>
<th>Call Taker Positions</th>
<th>Call Taker Personnel</th>
<th>Supervisor Positions</th>
<th>Supervisor Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle Police Department and Seattle Fire Department</td>
<td>145,255</td>
<td>354,335</td>
<td>23,431</td>
<td>896,239</td>
<td>7</td>
<td>59</td>
<td>1.7</td>
<td>14</td>
</tr>
<tr>
<td>NORCOM and KCSO</td>
<td>105,417</td>
<td>318,354</td>
<td>38,749</td>
<td>1,045,480</td>
<td>8</td>
<td>67</td>
<td>1.7</td>
<td>14</td>
</tr>
<tr>
<td>Bothell, Issaquah, and Redmond</td>
<td>19,876</td>
<td>20,837</td>
<td>5,142</td>
<td>207,510</td>
<td>3</td>
<td>25</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Valley Com and Enumclaw</td>
<td>123,042</td>
<td>283,258</td>
<td>35,145</td>
<td>891,266</td>
<td>7</td>
<td>59</td>
<td>1.7</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>393,590</strong></td>
<td><strong>976,784</strong></td>
<td><strong>102,467</strong></td>
<td><strong>3,040,495</strong></td>
<td><strong>25</strong></td>
<td><strong>210</strong></td>
<td><strong>6.1</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

*Based on Erlang C calculations utilizing a standard 120 second call duration and 90% of calls answered within 10 seconds; NAWH=1,039. Further staffing information about GeoComm calculations is available in Appendix A.*
The Model B supervisory needs increase the requirements to 22 supervisors for these four PSAPs as compared with the Optimum Model.

**Operations Recommendations – Model B**

- As in the Optimum Model, if Model B is pursued, and as a part of consolidation determinations, discussions with fire agencies should be conducted to discuss the potential of changing fire district boundaries with an end goal of answering and dispatching 9-1-1 calls from the same agency. In all cases, this may not be possible but if fire and EMS response can be dispatched out of the consolidated operations for the jurisdictions that should be accommodated.
- Pursue changes to call handling methods and practices that minimize transfers.
- Evaluate the channel loading models for the new consolidated operations and pursue efficiency opportunities of combining several radio channels for enhanced dispatch productivity.
- The consolidation implementation and transition team should determine minimum staffing levels for call taking, dispatch, and supervisory staff so that specific cost models can be applied to the agreed upon staffing.

**Facilities**

The merger of Bothell, Issaquah, and Redmond into a single PSAP will require the construction of a new facility to house the PSAP. None of the three PSAPs has a facility large enough to house a three-city PSAP in its present quarters. It may be possible, with extensive remodeling, to construct a new PSAP of suitable size in one of the present facilities.

For example, the Bothell PSAP adjoins a large conference room/Emergency Operations Center (EOC) for the city. That space could be combined with the present PSAP space, providing enough room for a three-city PSAP, but the EOC would need to be relocated somewhere. The Redmond PSAP also adjoins a city EOC, which could be combined with the present PSAP space if the EOC is relocated elsewhere. In point of fact, which existing facility might be remodeled will also affect the cost estimates. Those decisions are part of transition and implementation and will require an architectural evaluation.

**Facility Recommendations – Model B**

- Bothell, Issaquah, and Redmond will need to determine if an existing facility will meet their needs or if a new facility is desired.
- The City of Seattle should move forward with planning for a facility that is suitable for consolidated PSAP.
Technology

As with the enhancements that are possible under the Optimum Model for King County, Model B also presents some technology options consideration.

The Bothell PSAP uses a New World CAD system. Issaquah and Redmond PSAPs use Spillman CAD. All three CAD systems have associated records management systems. In addition, Issaquah’s CAD has associated jail and patrol modules. A combined three-city PSAP will need to select a single CAD system, or as has been recommended, the King County region transitions to a single countywide CAD platform. Decisions will need to be made about functions provided by existing systems including records, jail and patrol modules, and about migration of data from the existing systems to the combined system.

Technology Recommendations – Model B

- Bothell, Issaquah, and Redmond should select a single CAD system, or as has been recommended, the King County region transitions to a single countywide CAD platform.
- Functions provided by existing systems including records, jail and patrol modules, and about migration of data from the existing systems to the combined system.

Strengths and Weaknesses of Model B

<table>
<thead>
<tr>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSAPs strengths will be combined.</td>
</tr>
<tr>
<td>Smaller agencies that come together will benefit from additional funding.</td>
</tr>
<tr>
<td>If the Bothell, Issaquah, and Redmond communities’ fire and EMS dispatch can be modified to be handled by Bothell, Issaquah, Redmond as with call taking, fewer 9-1-1 calls will be transferred thus resulting in service improvements.</td>
</tr>
<tr>
<td>There is an opportunity to reduce costs while addressing the concerns of Redmond, Bothell, and Issaquah regarding the level of customer service provided by the PSAP.</td>
</tr>
<tr>
<td>The consolidation of the three PSAPs (Bothell, Issaquah, and Redmond) should reduce the need for supplemental funding from KCE9-1-1 due to the reduction in PSAP support costs.</td>
</tr>
<tr>
<td>NG9-1-1 costs are reduced with fewer PSAPs to establish with technology and network connectivity.</td>
</tr>
<tr>
<td>The model is more cost effective than the current model.</td>
</tr>
<tr>
<td>The model would allow the smaller cities to directly receive wireless 9-1-1 calls, preventing transfers for the dispatch of local services.</td>
</tr>
<tr>
<td>There may be an opportunity for the new PSAP to perform some of the current ancillary duties currently performed at the three PSAPs.</td>
</tr>
</tbody>
</table>
Weaknesses

Potential for political issues to interfere with progress of the consolidation.

The issues of local concerns raised by the three PSAPs could be addressed through governance and policy at NORCOM. This would require a commitment on all parties to develop SOP’s that work for all PSAPs.

There may be a competition between PSAPs for member and service contracts.

Fire and EMS calls will continue to be transferred unless the combined three-city PSAP assumes the responsibility for dispatching those calls in its service area which is recommended.

Some transfers to WSP for dispatch of State Patrol may be required.

There will be a significant cost to provide a suitable facility for the three-city PSAP, whether it involves new space or enlarging one of the existing facilities.

Conclusion

Model B offers King County an alternative that might be considered more acceptable politically and even operationally to some of the PSAPs in the region but does not offer the most efficient option fiscally. The goal of this assessment was to consider other options and evaluate those options on several levels in order for the best decisions to be made for the long-term stability in the region. Model B, while operationally sound, presents new challenges financially and in terms of timelines if additional facilities are necessary to implement this model.
Staffing

GeoComm has examined the current staffing levels at the Public Safety Answering Points (PSAPs) participating in this consolidation feasibility project in addition to assessing staff needs of the optimum consolidation model contained within this report. Agencies that commit to full consolidation frequently cite the efficiencies of merging staff as a primary motivator. Staffing efficiencies is the most common area where cost savings are identified in feasibility studies. Additional items that must be considered include the agency service philosophies and citizen’s expected standard of care, insufficient staff allocations in the current environment, ancillary, and leave-behind duties, etc. There are potential advantages to consolidation that transcend the financial impact of staffing efficiencies, including improved interoperability, enhanced situational awareness, increases in call processing capability over that existing in any of today’s stand-alone PSAPs, elimination of duplicate infrastructure, enhancements in training, supervision, and career paths.

As part of this feasibility study, GeoComm has provided long-term call volume projections for the participating agencies. These projections have been included in the call taking staffing assessment for the determination of consolidation feasibility. It is important for participating agencies to be able to compare the current operation to the optimum model.

GeoComm uses a comprehensive method to evaluate PSAP staffing that merges several scientific and subjective inputs to arrive at final staffing recommendations that are useful when determining feasibility of consolidation. Once the participating agencies decide on a model and embark on implementation planning, long-term staffing needs should be projected based on future population and call volume estimates. Thus, the staffing recommendations in this report are made with several assumptions and are provided strictly for determining feasibility of pursuing further discussion of consolidation. Once it is accepted that there is sufficient information that demonstrates consolidations are feasible, refinement of specific staffing requirements, desired level of supervision, policy decisions on how dispatch will be handled, determinations of service levels to be made by the participants in the implementation phase of this project will all have impact on the estimated cost projections or any savings identified as feasible.

Call Taking

GeoComm uses the popular and widely-accepted Erlang C assessment tool for call centers to ensure a baseline of adequate call taking positions to meet industry standards is provided.
Referenced in the APCO/NENA ANSI 1.102.2-2010, 3.2.15.1 Standard Criteria, the base standard for answering calls in 9-1-1 centers is recommended by NENA. Call Answer Time minimums are also a requirement established by KCE9-1-1.

“NENA 3.1 Standard for Answering 9-1-1 Calls: Ninety percent (90%) of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) shall be answered within ten (10) seconds during the busy hour (the hour each day with the greatest call volume, as defined in the NENA Master Glossary 00-001). Ninety-five (95%) of all 9-1-1 calls should be answered within twenty (20) seconds.”

When the busy hour data is unavailable or cannot be extrapolated for the consolidated model, GeoComm uses a baseline of 90 percent of all calls being answered within ten seconds without regard to busy hour. It is important to note that in order to achieve this standard, call takers must be able to maintain the performance level on all incoming calls, including those received via non-emergency and administrative lines. GeoComm includes administrative telephone call volume on the assumption that these calls will continue to need processing post consolidation. If it is determined through the implementation planning process that administrative phone calls will not be a function of a newly consolidated operation then arrangements must be made for these leave behind duties and the costs associated with performing them wherever and by whoever it might be.

GeoComm requested 9-1-1 emergency and 9-1-1 non-emergency administrative calls for 2011 as reported by the King County E9-1-1 Program Office. Call volumes were also reported in the region’s Final Existing Conditions Report. The call volume data used in this study included 9-1-1 calls, ten-digit emergency calls, ten-digit non-emergency calls, incoming administrative calls, and outgoing administrative calls.

Another factor to be considered in total call volume is the number of abandoned 9-1-1 calls. Abandoned calls are defined as a call placed to 9-1-1 in which the call is physically delivered to the PSAP but the caller disconnects before the call can be answered. These calls are included in the total 9-1-1 call count.

While the Erlang assessment models were originally developed for private commercial call centers, the underlying approach is sound for public safety call center application. It must be understood that the Erlang results assume a consistent call flow throughout the year. In the PSAP world, this is not the case. Therefore, PSAP managers must be prepared to allocate staffing across shifts based on actual call flow trends. To reiterate, PSAP managers must have the flexibility and must assume the responsibility of allocating coverage positions based on statistical analysis of actual workload trends.
Another important input to the determination of sufficient minimum staffing is the amount of time it takes public safety call taking personnel to effectively process incoming calls. The total call duration includes the actual time it takes answer, process, and wrap up calls.

The call answer and processing time is generally measured by management information software. Call completion time is more difficult to quantify in most systems. This includes the additional time related to a call such as time spent entering data in to the Computer Aided Dispatch (CAD) system, handling the call internally, transferring calls, address verification, etc. In environments where they do not have Automatic Call Distribution (ACD) the time must be estimated based on workflow observation. The two highest call duration times reported by the participating agencies are consistent with GeoComm’s observations nationally. The average of all call duration statistics provided was 117.88 seconds which almost exactly matched the standard duration factor of 120 seconds, and which is consistent with GeoComm’s observations throughout the country. The GeoComm analysis was based on consistent call duration of 120 seconds per call, and the report discusses how the number of PSAPs and enhancements within the Optimum model is expected to reduce the call processing time.

Once the baseline call taking position requirement is determined GeoComm conducts a more subjective examination incorporating the principles and practices of APCO’s Project RETAINS.

Finally, all of the input is combined with GeoComm’s assessment of operations and workflow by the subject matter experts who participated in PSAP evaluation and observation. GeoComm consulted with hundreds of local stakeholders in group workshops and individual interviews over the course of the study. Consultants assessed operational workflow and service levels, service delivery culture and adherence to guiding principles through data collection, and direct, on-site observations of PSAP activity. The consulting team assessed data and processed observations thorough group discussion to arrive at the final recommendations. As noted above, GeoComm utilizes special assessment tools such as Erlang calculations and Project RETAINS methodologies. It is important to note that the GeoComm process is much more involved, broader, more detailed, and thus brings greater value to the assessment as well as calculations more applicable to a feasibility study.

**Dispatch Staff**

In many ways determination of appropriate staffing levels for radio dispatch positions is a much more difficult process. From a feasibility analysis standpoint, GeoComm could use a standard dispatcher to field unit ratio to determine the number of the dispatcher positions needed in a consolidated environment. There are many variables that could negatively impact a recommendation based upon a standard ratio. For example a dispatcher can adequately handle many more administrative and investigative units than field units assigned to patrol or traffic control activities. Additional and increasingly difficult impacts to evaluate are radio discipline and agency culture. While a push to talk analysis of current radio positions can be helpful,
alone this is not adequate to determine the most effective public safety dispatch structure. There are strong opinions among public safety personnel as to which field units should be on the same channels or talk groups. In this specific case, GeoComm finds the agencies frequently utilize combined call taker/dispch positions. While this is normally contrary to GeoComm’s interpretation of effective practices, the practice is feasible in the current environment based upon the law enforcement dispatcher to field unit ratio of many of the current dispatch positions.

Dispatch Analysis
GeoComm’s subject matter experts have thoroughly assessed the workflow of each of the current radio dispatch positions and have made professional determinations regarding the availability and capacity of these coverage positions to support call taking responsibilities. Although there is no absolute right or wrong decision relative to which or how many channels or talk groups field units are assigned, there are many factors that must be considered in making the most appropriate decision for local agencies. APCO Project RETAINS also reports that there is no equation or formula to estimate the most appropriate ratio of dispatcher to unit, dispatcher to number of channels, or number of units per channel. The depth of analysis normally needed to make these decisions is not conducted during the feasibility assessment phase of a consolidation consideration. In GeoComm’s experience the final determination of law enforcement radio dispatch structure is not a “make or break” component to the consolidation decision. This feasibility study documents some assumptions and provides recommendations regarding radio dispatch structure, but it must be acknowledged that actual decisions will be a result of careful and comprehensive examination involving all major stakeholders as part of an implementation process should consolidation advance. To reiterate, many of the current radio dispatch positions have been partially allocated to call taking functions. Any changes to either call taking or dispatch allocations during implementation planning should trigger a full reassessment of needed staffing levels.

Fire dispatch channels are both coverage positions and volume influenced positions. Unlike the normal law enforcement operation, fire dispatch channels are designed to go from practically no activity to near-capacity activity in a matter of seconds. The number of field units being monitored is less relevant for a fire dispatcher than it is for a law enforcement dispatcher. Therefore, incident volume is a better predictor of staffing needs. The actual incident pattern is very crucial in assessing fire dispatch coverage needs.

Coverage positions are jobs that must be “covered” regardless of the number of incoming calls or dispatch activity. Jobs such as law enforcement dispatch, fire/EMS dispatch, and shift supervisor are typical “coverage” positions. Staffing for coverage positions is based on balancing the number of hours each position must be covered and worker availability. Coverage position need is the number of positions that must be covered multiplied by the number of hours per day, the number of days per week, and the number of weeks per year. Worker availability calculation is known as Net Available Work Hours (NAWH).
discussed in detail other portions of this report and in Appendix A. The hours needed are then divided by the NAWH to get a base estimate of the number of personnel needed in order to provide adequate staff coverage of the position.

In the APCO Project RETAINS model, the base estimate is multiplied by a turnover rate to obtain an estimate of full time equivalent employees (FTE) needed for the coverage required.

FTE is the most common unit of measurement for staffing. The basic formula for coverage positions is:

\[ \text{FTE} = \frac{\text{Hours Needing Coverage}}{\text{Employee Availability} \times \text{Turnover Adjustment}} \]

GeoComm does not use, nor does it recommend using, a turnover factor when considering staffing in newly created consolidated models. Although the RETAINS formula includes application of a turnover adjustment as indicated above, RETAINS has been designed for assessment of an existing operation where historical data on turnover rate can be ascertained. GeoComm utilizes appropriate elements of RETAINS as valuable components to assessment of dispatch center staffing needs with the understanding that the formula was not designed to estimate staffing needs in a future consolidated environment. GeoComm has found that any application of a turnover rate at this stage in the feasibility determination process is arbitrary when building a new operation with a new management structure, new supervisory structure, adequate staffing, effective training, and other factors that traditionally contribute to turnover in a PSAP. Applying a turnover rate in a newly created environment is inserting an unfounded factor. A full discussion of turnover rate is included in the Net Available Work Hours portion of this section.

GeoComm frequently finds that PSAPs are challenged to establish accurate information regarding the elements of dispatch and operations that are necessary to establish reliable estimates on positions needed in a reconfigured operational environment, as was the case for King County PSAPs, despite data collection efforts. Many PSAPs operate in complex and dynamic staffing structures that vary or change by hour of day, day of week, week of month, etc. Special events, shifts and shift shortages, training requirements, and jurisdiction-wide activities can also impact staffing, the number of radio positions staffed, and even the number of radio channels managed by a position on a daily basis. With this in mind, GeoComm understands the difficulty PSAPs face when asked to provide detailed information about number of current radio positions staffed and the number of radio channels monitored. However, these elements are needed to assess requirements going forward in a consolidated scenario. Many of the participating agencies had difficulty providing detailed information relating to the number of dispatch positions, the number of radio channels or talk groups monitored, or the number of field units managed. Assumptions can be made, but

---

1 APCO Project RETAINS.
without accurate and reliable base numbers, and implementation decisions, projection of future needs is not reliable.

Through the call taking assessment, GeoComm believes that consolidation is feasible for the region regardless of dispatch tasks reported. GeoComm focused on whether or not consolidation is feasible, and without the necessary elements requested during the data collection process, GeoComm could not make dispatch assumptions. However, should assumptions be made, it would likely result in the projected cost savings at a much higher level. GeoComm did not believe this would be in the best interest of the region and strongly believes that this is a local implementation planning decision; stakeholders should determine what tasks continue and remain. Going further with implementation assumptions, would only create false expectations.

Further complicating the establishment of any dispatch position recommendation is the fact that most of the smaller agencies have assigned staff that currently shares the dispatching and call taking functions at a single position. If the amount of radio traffic does not justify a dedicated dispatch position today, it certainly wouldn’t in a consolidated environment staffed appropriately to handle the call volume. Without making specific radio dispatch adjustment recommendations, GeoComm is confident that further consolidations and synergies will be identified through the implementation planning process resulting in additional financial savings over the number reported for call taking alone. Should any consolidation be pursued, the King County implementation team should work with the PSAPs to determine the necessary information and appropriate policy decisions in order to calculate dispatch needs.

If specific data is not possible (e.g. not tracked at the PSAP by reliable management collection software) the implementation team should work with the PSAP managers to establish agreed upon estimates and assumptions that are reasonable based on the institutional knowledge of the participants.

Management, Supervision, and Administration

Following assessment of call taker staffing requirements, GeoComm examined the administrative management and supervisory support needed in order to effectively manage a potentially consolidated operation. Again, there are many variables to consider. GeoComm has made supervisory recommendations. Recommendations pertaining to administrative support functions are more challenging to develop. When one or more of the potential consolidation partners is a stand-alone agency with its own administrative structures this may be somewhat easier - but still challenging. Even when components of local government are consolidating into a new stand-alone entity there are options available for administrative support. As an example, depending upon the size of the newly formed agency, human resources support functions, Information Technology (IT) support, or financial management support.
functions could be obtained from participating local governments through a contract or agreement structure.

As noted for the dispatch assessment GeoComm, has made recommendations based on observations that will guide the decision-makers in considering consolidation feasibility. We have once again stressed that there are many alternatives to the final structure that must be carefully considered through formal implementation planning.

The position of line supervisor in the public safety communications center is a critical one. They act as the liaison between front-line employees and management while acting as a resource for not only employees as they perform their jobs, but supervision of the public safety disciplines the center is providing service to and the general public. Although specific job duties of line supervisors vary from agency to agency, the following is a basic list of core duties performed by most supervisors in the industry:

- Real-time supervision of communications services as they are performed
- Ensure adequate staffing and communications center coverage
- Troubleshoot technical issues and facilitate solutions
- Coach, mentor, and evaluate employees
- Handle calls for service that are escalated to the supervisory level
- Handle citizen complaints
- Make general decisions that fall outside the scope and authority of front-line personnel
- Complete necessary correspondence and reports to ensure that critical information is provided to on-duty personnel and passed on to subsequent shifts ensuring continuity of operations
- Oversee critical incidents ensuring appropriate levels of service are provided and proper levels of resources are dedicated within the communications center

Although this is by no means a comprehensive list of the supervisory function, it paints a picture of the criticality of having supervisory resources on duty at all times in the PSAP. Smaller PSAPs are able to have working supervisory or “lead” dispatchers fill this need while using these employees to perform front-line communications duties simultaneously. However, this is not always an ideal situation, particularly in large PSAPs. It is very difficult to act in a supervisory role while trying to provide the high-level of service appropriate for the front-line dispatch function.

Span of control, or the number of employees that a single individual supervises, should also be a consideration when determining staffing levels for this position. In the public safety communications and response community, there is always a debate about span of control and the appropriate number of supervisors to call taker/dispatcher positions. GeoComm understands the span of control must be evaluated and modified based on a number of factors including the type and intensity of employee duties.
and work environment. In GeoComm’s professional opinion and based on what we see throughout the industry, a one to ten ratio is sufficient supervision for a well-trained and efficient workforce with consistent protocols and operational procedures.

As the size of the PSAP staff increases, the need for additional supervisors also increases. Although the number of supervisors needed for direct supervision on the floor can be impacted by the particular schedule a PSAP utilizes, it is still very difficult for a single supervisor to directly supervise a large number of employees. In an ideal situation, supervisors should have a professional relationship with their employees, one of substance, and one that allows enough time to properly coach, mentor, and evaluate the employees assigned to them. If the appropriate supervisor to employee ratio is maintained, the result is a much more productive employee who is accountable to the job for which they were hired. Even this ratio is subject to modification based on the specific scenario. For example, it may not be reasonable to expect all governmental entities to add a second shift supervisor when the number of operational personnel reaches eleven, thereby creating a 5.5:1 ratio. When facing a choice between a 5.5:1 or an 11:1 ratio, executive management must consider all risks and benefits and not merely rely on a staffing formula.

**Net Available Work Hours**

GeoComm examined the personnel benefits reported by each of the participating PSAPs and utilized the appropriate data elements for the purpose of determining the Net Available Work Hours (NAWH) input as a component to the staffing recommendation. As noted elsewhere in the Feasibility report, compensation and benefit merging will be a major undertaking during the implementation planning phase for the final structure. This level of advanced planning will involve multiple stakeholders and may involve multiple discussion sessions before an agreed upon process can be achieved. The data included in this report is designed to give decision-makers preliminary indication of costs in order to structure effective planning activities and refine cost estimates. As there are a number of service level determinations that will be made during the implementation phase, decision makers are cautioned against using these preliminary estimates as the final expected result of the consolidation effort.

Calculations used for annual time-off (unproductive) benefits such as vacation, sick leave, holidays, and training were derived from the most liberal data received from the participating PSAPs within the specific consolidation model. GeoComm utilized the leave totals provided by NORCOM during the data collection process, since NORCOM had the most generous leave totals.

The resulting non-productive hours were subtracted from a base work year of 2,080 hours to arrive at the NAWH. The NAWH are generally calculated with an agent-occupancy rate percentage as defined by industry effective practices to allow for normal workload activities such as call follow-up, call transition,
minor breaks, logging requirements, supervisor coaching, etc. GeoComm modified its standard occupancy rate to use 70 percent agent occupancy rate at the request of the PSAP Consolidation Steering Committee. The resulting NAWH calculation of 1,039 is most conservative using the NORCOM provided leave totals and the provided occupancy rate.

GeoComm does not usually include, nor does it recommend a turnover factor be used in staffing calculations due to the vast differences in Human Resources and staffing policies that are resident in most situations. Many agencies are strictly forbidden from over-hiring even with a documented turnover rate that impacts overtime budgets. When consolidation occurs and there is a reduction of authorized positions, there are many different ways to arrive at the target number of appropriate personnel levels, including attrition, which may result in a period of time when there is more staff than the final allocated number. It is also unreasonable to assume that turnover rates in a newly formed consolidated center will mirror those in the previous independent PSAPs. To simply take an average of the agencies being consolidated would not be reasonable either, as the reasons for low or high turnover vary and may be specific to the current agency. There is no way to evaluate or predict how the new organization will experience turnover without several years of historical data to support it. Therefore, any use of turnover factors, GeoComm believes, would be purely arbitrary and without foundation.

**Position Coverage**

A “coverage position” is a “chair” that operational practices dictate must be filled 24/7/365. A good example would be the primary fire/EMS dispatcher chair. Each coverage position must be filled on a continuous basis and therefore, requires 8,760 hours per year. The total number of personnel needed to provide adequate coverage for each required coverage position is based on the NAWH each person contributes toward the required 8,760 hours.

**Staffing Costs**

In order to provide credible cost projections comparisons, GeoComm assessed the current salary structure of each participating jurisdiction. It is highly unlikely that any consolidation efforts would result in a salary reduction for staff. Therefore, GeoComm utilized the average salary range reported for each position by the agencies involved in each consolidation scenario when determining reasonable salary factors and average pay scales.

Understanding that detailed benefit analysis, labor agreement review, and collective bargaining discussions will be necessary in the implementation planning phase for any consolidation effort, GeoComm utilized a standard benefit rate of 35 percent for this feasibility study.
**Future Staffing Projections**

Staffing estimates for future years are based on GeoComm’s assessment of the call volume estimates and based on population increase projections. GeoComm examined population increase projections for the years 2011-2032. Based on the projected population of each of the service areas for these years an estimate of call volume was determined utilizing a number of assumptions. These assumptions include a relatively stable mix of today’s demographics, crime rates, traffic patterns, urban/rural mix, etc. Future staffing projections are primarily focused on call taker positions which are call-volume influenced.

**Staffing in the NG9-1-1 Environment**

While the current 9-1-1 system is certainly limited, there is good news. Significant work has been done to design and prepare for the transition to an Internet Protocol (IP)-based Next Generation 9-1-1 (NG9-1-1) system to handle all of the communications services. NG9-1-1 is the future of emergency communications. Consumers will have more ways to access 9-1-1 using the types of technology they use to communicate every day. 9-1-1 centers will receive more and better information about emergencies of all magnitudes to effectuate a more intelligent emergency response. The system will be based on the most modern technology, with increasing intelligence in the network and the use of shared services to potentially lower overall system costs.

In sum, NG9-1-1 can mean increased capabilities, efficiencies, and opportunities for consumers and public safety agencies, more lives saved, and potentially lower costs for state and local governments facing increasingly tight budgets.2

While the staffing model put forward in this report is sound for today’s system, when NG9-1-1 is implemented in the King County, all staffing models and estimates will have to be revisited. NG9-1-1 services and technology will bring an entirely new dimension to the call taking and dispatching function, as well as the recruitment, hiring, supervision, and training components of operations. Because of the new call types, communication methods, and technology that will be employed in NG9-1-1, staffing will have to be augmented, at least during an implementation period, which may be prolonged and extensive in order to allow sufficient time to evaluate the needs under the changed environment.

There will be new expectations and responsibilities of call takers and dispatchers. The increase quantity of available multimedia data will enhance and expand existing call taking functions.

It may also extend the time it takes to process 9-1-1 calls, increase the workload of the call taker, and significantly change the call takers experience (e.g. seeing and hearing the incident versus only hearing the incident). Revamped introductory training, as well as continuing education (retraining in some cases) for

---

experienced staff, will be critical to the success of any NG 9-1-1 implementation. Properly designed training programs can enable PSAP managers and supervisors to effectively prepare dispatchers and call takers to respond to the needs of an IP-enabled system, while maintaining the level of service expected by the public.

All of these factors will require a re-evaluation of the staffing element of operations and should be considered as part of the implementation decision-making process. It is our understanding that staffing models for NG9-1-1 are under discussion by NENA but standards have not yet been developed that take into account the call taking and dispatch elements identified above. King County is encouraged to monitor the development of these standards.
### MESB
- **Membership:** County Commissioners (nine county metro region); plus city of Minneapolis City Council member; weighted membership based on population; full participation required; 9-1-1 Regional Radio/EMS Programming; Only elected officials permitted on Board.
- **Authorization for Organization:** Minnesota statutes 465.717 and 471.59 empowers political subdivisions to act in coordination with other political subdivisions.
- **Governance Documents:** Joint Powers Agreement (JPA) and Bylaws.
- **Structure:** Executive Committee Finance Committee Board Technical Operations Committees (9-1-1, Regional Radio, EMS).
- **Voting Rules:** Small population counties allowed one member/one vote; medium population counties = two members each with one vote; large county = two to four members with four votes.
- **Support Commitment:** Financial support based on population formula adjusted each year; larger member counties supply in-kind services to help reduce costs (legal, HR, payroll, accounting services).
- **Scope of Authority:** Regional 9-1-1 network and database management; establishing service standards; contracts with Service Providers; 9-1-1 Plan approval; regional 900MHZ board; set interoperability priorities and protocols; administer radio licenses and tower contracts; monitor standards compliance; allocate system capacity; cost allocation; regional EMS Program and grant administration; set MESB Budget and Assessment Allocation.
- **Renewal Rules:** PA renewed every seven years; no withdrawal can occur during the term of the JPA; Member wishing to withdraw may do so upon termination of the JPA with written notice by June 1 previous to expiration.
- **Lessons Learned:** Collaborative governance is the most responsible form for core public services; cost-sharing is essential (skin in the game). All participants must have fair representation.

### Denco
- **Special Purpose District:** Board of Managers; All cities and the county have representation on the board.
- **Resolutions of Participation by County and City Governing Bodies:** Created by voter referendum in single county (Denton) and within the 34 cities; Cities overlapping in adjacent counties are members of Denco. Created under Texas Health and Safety Code 772.305.
- **Board of Managers:** Representative of participating municipalities, county, and fire chief association. Executive authority provided by Board to Executive Director.
- **Denco:** Has two at large City Government Representatives, two County Appointees, one Fire Chief Association Representative, and one non-voting Advisory Member (appointed by largest incumbent Local Exchange Carrier).
- **Annual Operating Budget:** Must be approved by both the county government and the majority of the participating cities.
- **9-1-1 Call Taking:** Equipment installation and support, database maintenance and accuracy performance, routing and equipment maintenance. Broader program of training for telecommunicators, public education, legislative and regulatory advocacy and technology planning and coordination for its region; testing for potential telecommunicators. Denco does not provide PSAP dispatch operation services.
- **Board Conducts:** A public hearing every three years regarding the continuation or dissolution of district. Passes a resolution to continue or dissolve the district and the 9-1-1 service fee.
- **Consistent Level of Service:** Predicted revenue stream; having “at-large” appointed board members keeps the control well distributed across the district. The same equalization can be demonstrated in terms of budget approval. The important lesson is to treat all stakeholder participants equally.

### MAAC
- **County Based:** Nine-county metro region. Each County has one seat on the board; cities consolidate voting based on defined board positions; total board size is approximately 30 voting members. Board expanded to include policy oversight for regional interoperable radio system in early 2000s.
- **Interlocal Cooperation Agreement:** Defining the Regional 9-1-1 System, board structure, authority, and cost-sharing mechanisms.
- **Interlocal Cooperation Agreements:** Bylaws.
- **Public Safety Communications Board (PSCB):** Provides overall policy and budgetary approval; Public Safety User’s Committee (one vote per PSAP) provides operational recommendations to the PSCB. Various subcommittees focused on specialty areas such as public education, training, and interoperability.
- **Each County’s President:** Commissioner (or designee) has one vote; Others include: two fire chiefs, four police chiefs, two sheriffs, two EMS chiefs, four at-large elected officials, four PSAP managers, co-chairs of the User’s Committee. Voting on User’s Committee is one vote per agency.
- **9-1-1 Surcharge:** Remitted to the counties by telephone companies. The PSCB adopts an annual budget allocating those county funds based on population formula. Counties can spend any remaining funds and agree to make up any shortfall.
- **Regional 9-1-1 Network and Database Management:** Contracts with service providers; cost allocation; 9-1-1 call taking equipment coordination, owns and operates wireless selective routers, extensive telecommunicator training program, public education, legislative and regulatory advocacy, and technology planning and coordination.
- **Perpetual Provisions:** Exist in the interlocal cooperation agreement to withdraw from the regional system with advance notice. New members can be added upon majority approval of existing members. Establishment of relationships and demonstration of working together has provided the framework for expansion of programs and services to agencies that would be unable to provide adequate resources on their own. For example, region was positioned with existing relationships and governance structure to accept homeland security grants as soon as they became available.
<table>
<thead>
<tr>
<th>Membership</th>
<th>Authorization for Organization</th>
<th>Governing Documents</th>
<th>Structure</th>
<th>Voting Rules</th>
<th>Support Commitment</th>
<th>Scope of Authority</th>
<th>Renewal Rules</th>
<th>Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essex County, MA</td>
<td>Essex Regional Communication Center (RECC)</td>
<td>Intergovernmental Agreements</td>
<td>They have an Executive Committee and three policy boards: Fire, Police, and Finance. Police and Fire Boards are comprised of the chief of each member community. They develop operating policy and procedures for their disciplines. Finance Advisory Board consists of mayors of each member community; have authority to approve budgets, develop formula to apportion costs; approve annual operating plan. The Executive Committee includes the chairs of the Police, Fire, and Finance Advisory Boards.</td>
<td>One vote per member.</td>
<td>Cost allocation is based on population; funding based on state 9-1-1 grant plus user fees.</td>
<td>The RECC shall provide direct services to all municipal parties and to other First Responders; providing emergency services on behalf of the parties. The RECC shall not be prohibited from providing incidental indirect services to other governmental units and First Responders; providing emergency services in the region, as deemed necessary by the Director to coordinate emergency response by and with the Parties. The RECC is not authorized to render direct and continuous services to Governmental Units that are not Parties to their intergovernmental agreements.</td>
<td>Biggest challenge of consolidation effort has been the &quot;parochialism in local government&quot; and &quot;stakeholders who want to guard their authority makes getting to consensus difficult.&quot; Training, certification, and accreditation will &quot;allow for a reduction in insurance rates and will lessen the opportunity for frivolous lawsuits.&quot;</td>
<td></td>
</tr>
<tr>
<td>Dakota County, MN</td>
<td>Eleven cities plus county; any unit of government with 10,000 plus population and maintains Law Enforcement agency is eligible for membership. Elected and appointed officials.</td>
<td>Minnesota statutes §665.717 and §471.59 empowers political subdivisions to act in coordination with other political subdivisions. JPA and Bylaws.</td>
<td>Executive Committee; Board of Directors; Operations Committee</td>
<td>One member per political jurisdiction; one vote except when voting on matters of budget, finance, and legal contracts with third parties; adopting or changing Bylaws; approving changes to membership; contracting and purchasing; approving annual operating and capital budgets; hiring Executive Director; incur debt. When weighted voting is necessary, weights are determined by the proportionate share of the operating and capital budget for that calendar year.</td>
<td>Funding based on three-year average of CAD events assigned to each member.</td>
<td>Acquire and provide facilities, infrastructure, hardware, software, services, and other items necessary and appropriate for the establishment and maintenance of a joint law enforcement/fire/EMS and other emergency communications system for the mutual benefit of the members; contract with other non-members; set annual operating and capital budget; determine cost allocation to members.</td>
<td>Remains in effect until 4/5ths of members agree by non-weighted voting to dissolve; no party may withdraw until 5 years from date of initial operation; withdrawal shall not discharge any liability of any member. Individual members may withdraw upon written notice at least 18-months prior to intended date of withdrawal.</td>
<td>Funding mechanisms are greatest challenge.</td>
</tr>
<tr>
<td>St. Louis County (SLC), MN</td>
<td>Twenty-five cities, multiple townships, and unincorporated area; 285+ public safety agencies including paid and volunteer fire; multiple EMS agencies; city law enforcement, Sheriff's office, and local constable.</td>
<td>Minnesota statutes §665.717 and §471.59 empowers political subdivisions to act in coordination with other political subdivisions JPA and Bylaws.</td>
<td>Independent County Department, Board consists of Executive Committee (officer); User Board representative of all disciplines dispatched.</td>
<td>User Board has two law enforcement, two fire, two EMS, largest city Police Department, largest Fire Department, 2 elected officials, radio representative; one member one vote; no weighting.</td>
<td>All funding from county general funds and 9-1-1 excise tax; no user fees.</td>
<td>Acquire and provide facilities, infrastructure, hardware, software, services, and other items necessary and appropriate for the operation and maintenance of an emergency communications system for the mutual benefit of the members; contract with other non-members; set annual operating and capital budget.</td>
<td>N/A</td>
<td>Shared governance works; requires strong leadership and a champion to garner support; all have to share goals and believe in collaboration as a positive means to better service</td>
</tr>
<tr>
<td>Membership</td>
<td>Authorization for Organization</td>
<td>Governing Documents</td>
<td>Structure</td>
<td>Voting Rules</td>
<td>Support Commitment</td>
<td>Scope of Authority</td>
<td>Renewal Rules</td>
<td>Lessons Learned</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------</td>
<td>---------------------</td>
<td>-----------</td>
<td>--------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Minneapolis Emergency Communications Center (MECC), MN</td>
<td>In Minneapolis, the city council created (year 1979) a new standalone entity called the MECC which combined the previously sworn dispatcher/civilian call taker Police communications division with the previously civilianized fire emergency dispatch operation.</td>
<td>Minnesota statutes §465.717 and §471.59 empower political subdivisions to act in coordination with other political subdivisions.</td>
<td>Independent City department; User Board consists of representatives of police, fire and EMS response agencies.</td>
<td>One member one vote.</td>
<td>9-1-1 fees; city general funds.</td>
<td>Provide facilities, staffing, infrastructure, hardware, software, services, and other items necessary and appropriate for the establishment and maintenance of an emergency communications system for the city of Minneapolis jurisdiction; establish annual operating and capital budget.</td>
<td>N/A</td>
<td>Effective leadership and governance is essential for success.</td>
</tr>
<tr>
<td>Allegheny County, PA</td>
<td>County mandated the consolidation formed Allegheny County 9-1-1. This consolidation includes the city of Pittsburgh Police Department and Fire Department.</td>
<td>Public Safety Emergency Telephone Act, 4 Ps. Code §120b, 1992.</td>
<td>Merger agreements with each of the original regional centers and the City of Pittsburgh. There is no formal agreement, contract, or resolution for joining. Upon joining, each new community is required to comply with ACR-1-1’s operational policies and procedures.</td>
<td>Each participating entity has one vote on the Policy/Operations Board.</td>
<td>9-1-1 wireless and wireline fees plus county general funds provide support.</td>
<td>30 municipalities in Allegheny County; includes 87 police departments, 166 fire departments, and 43 EMS departments.</td>
<td>N/A</td>
<td>Consolidation can occur for a variety of reasons, including state mandates or cost savings. The Allegheny County 9-1-1 consolidation was motivated largely by a desire to save money and avoid duplication of equipment and operating costs. Consider optimal size (what is the greatest number of communities that are likely to participate) and plan accordingly. This forward thinking will enhance cost-effectiveness and provide for the ability to expand, even in times of stagnant revenues. Deal with employee concerns early to avoid building resentment.</td>
</tr>
<tr>
<td>Johnson County, KS Emergency Management and Communications (EMC)</td>
<td>The Emergency Communications Center dispatches for all fire and EMS agencies in Johnson County, KS, and is co-located with Sheriff dispatch which dispatches for many of the county’s cities.</td>
<td>EMC is a county department funded by the county general fund. Specific emergency communications costs are fully or partially funded by 9-1-1 fees.</td>
<td>The Director reports to a deputy county manager, who reports to the county manager, who reports to the Board of County Commissioners.</td>
<td>N/A</td>
<td>The departments dispatched are not assessed fees for service, since the agency is funded by the county general fund.</td>
<td>Receive and dispatch all calls for fire or EMS assistance (approximately $0,000 discrete incidents per year), manage the county’s P25 digital trunked radio system used by all public safety agencies in the county whether or not they are dispatched by the Center, serve as the county’s emergency management agency, provide space and support services for Sheriff dispatch, provide a backup PSAP location for other law enforcement PSAPs in the county.</td>
<td>N/A</td>
<td>While the agency is independent of the agencies it dispatches, a high degree of collaboration and consultation has resulted in excellent working relationships between agencies.</td>
</tr>
</tbody>
</table>
Appendix N
Consolidation Studies
District 3
Yakima County Sheriff’s Office (YSO)

Yakima County
Washington

Detailed Implementation for Consolidation of Dispatch Centers
Introduction

This Report is the third in a series of three to be submitted to the Yakima County, Washington authorities in fulfillment of an Agreement between Yakima County and GeoComm Corporation to study the feasibility of consolidating any/all public safety dispatch services and the potential for interoperable communications among public safety agencies within the County. This report, which we have entitled Volume 3, drafts an implementation plan for the consolidation options identified in Task 2.

Our previous two submittals (Volumes 1 and 2) were constructed in two parts, addressing the two projects separately. This third and final report combines both projects, since they are both intimately linked to the successful implementation of both consolidation and radio communications. The reader will find it much shorter than the previous volumes since this report is meant to put forth an implementation plan as succinctly as possible, using – but not repeating --- all of the data developed during Tasks 1 and 2.

It is the intention of this report to provide Yakima County officials with a step-by-step plan for consolidating all call taking and dispatch services relating to public safety Calls For Service (CFS). The plan uses a phased approach over a two and a half year period, culminating in September, 2008.

The schedule may be altered as needed; but we feel that it is the most feasible depending on two critical factors: 1) Accumulation of necessary funds; and 2) Revision of current Jail Management/Prisoner Transport policies. Without enough money, and with the existing duties of local police dispatch personnel as jail monitors, very little (if any) consolidation will occur. Inefficiencies of the current patchwork of systems will continue to grow, and the Public will eventually suffer from diminished effectiveness of the communications system.
Executive Summary

The Purpose

Webster’s definition of Communication shown on the Introduction page helps to focus on the purpose of public safety communication. That is, to give or exchange information regarding a person, incident, situation, or location requiring a law enforcement/police, fire, or medical response to the professionals who are responding. The communication process, then, must be conducted by as competent communicators as possible, and contain as complete and accurate information as available.

To attain the highest levels of competent communicators and completeness/accuracy of information, GeoComm Corporation believes that Consolidation of the communications centers and systems in Yakima County is necessary. Currently, there are many and varied levels of communicator skills as well as several disparate technical information systems. Consolidating these people and technologies into a single, cohesive public safety communications system will provide more timely and more appropriate responses for the people of the Yakima Valley.

System Components

To understand what consolidating public safety communications in the Yakima Valley entails, it is necessary to identify the individual components of the “system.” In general, any “system” is comprised of people, places, equipment, and information.

In summary, GeoComm’s Task 1 and Task 2 reports identified the following issues surrounding Yakima County’s current communications people, places, equipment, and information:

People

There are 80 plus people in six agencies (not counting the Yakama Nation and Yakima Training Center) working in public safety communications. These numbers also do not reflect other people who work in different departments to support the communications operations (e.g., city and county computer staff). Call taker/dispatcher salaries range from $12.50 per hour to $21.66 per hour with differing levels of benefits, depending on the agency. They are represented by different unions (those at Fire District #5 are not unionized).
They also work different schedules and perform different jobs (jailers, records clerks, front desk receptionists, etc.) depending on their agency’s needs, in addition to public safety communicating.

Places
There is only one E9-1-1 Public Safety Answering Point (PSAP) in Yakima County, but there are six dispatch centers. There is no permanent location for backup answering of 9-1-1 calls. Many of the communication centers are in crowded facilities, although the sheriff’s center is moving into a renovated facility at the former McGuire Lumber yard. Telephone Calls For Service (CFS) are frequently transferred from one center to another before a field unit can be dispatched. This induces confusion in both the caller and the call takers, and delays field unit response.

Equipment
There are many disparate, isolated systems that accept, process, and communicate information among the public safety agencies in Yakima County. For instance, Computer Aided Dispatch (CAD) systems vary from Hitech, Inc. to Spillman Technologies, Inc., with even different versions of the Spillman systems operating independently.

The County is also working with Montgomery Technology, Inc. on developing a Windows® based integrated data management application known as ProTrak. The Yakima Police Department has agreed to evaluate MTI’s Records Management system as well.

Radio systems are virtually all in the VHF spectrum, but use different tower sites throughout the Upper and Lower Valleys for police and fire communications.

There are some common pieces, however. The computer servers for the Hitech and Spillman systems are all Unix-based, with the operators’ position PC’s being Windows® based. So the call takers and dispatchers could move from one PC to another with a certain degree of familiarity. The county’s fiber optic network runs nearly the length of the county. It is being joined to the City of Yakima’s fiber optic network to provide redundancy in the most populous area of the county. Most, if not all, inter-departmental voice and data communications could eventually use this network for speedy exchanges of public safety information.

But even with these commonalities and advancements, the fact that the computers and their networks are maintained by separate entities (local agencies, county technology services, private contractors, etc.) creates a maze of individuals and processes that interferes with the County’s ability to provide timely, accurate information to those who need it most.

For example, it is virtually impossible to assure that a Sheriff’s Deputy, a Sunnyside Police Officer, and a Fire District #5 Firefighter will all receive the same information, while they are responding to a traffic accident with injuries and fire, resulting in a fight at a tavern in Sunnyside. Consolidation of the equipment and systems necessary to communicate all the relevant information for this incident would greatly enhance that assurance.
Information

Which brings us to our summary discussion of Information.

The ability to provide timely appropriate response to a public safety CFS is directly dependent on the accuracy of information that is provided to the agency(ies) responsible for responding to it. Therefore, it is imperative that information be collected, processed and transmitted in the most efficient and effective manner. Having individual systems and centers inhibits both efficiency and effectiveness.

In 1968, the United States Congress adopted the phone number 9-1-1 nationwide for people to call when they need police, fire, or medical assistance. Today, in Yakima County, there are departments who are telling their residents that they should call 9-1-1 for fire or ambulance service, but if you need the police call our department directly on our seven-digit phone line. What should the public do, then, in the incident described in our previous section above? If they call the local department to report the fight, the dispatcher, concentrating on who’s fighting and where, may not discover that there are people injured in the accident, or that the cars are on fire. Thus, an opportunity to obtain complete, accurate, and timely information can be missed.

Additional complications arise from the different information databases that are kept by the individual departments. If the call is made to 9-1-1, it will be answered at the Yakima City communication center and entered into the Hitech CAD system. However, the information in the Hitech CAD must then be transmitted to the Spillman system in the sheriff’s department, or different Spillman systems at Sunnyside and Toppenish Police Departments. These four systems may all have varying ways of displaying the location of the incident; they may also all have differing degrees of information previously collected about the location or people.

For instance, Sunnyside’s Spillman system might have a record of previous fights at the tavern; Fire District #5’s Hitech system might have a record of hazardous materials kept at the photo lab next door to the tavern; the Sheriff’s Spillman system may have a record of an aggravated battery warrant on one of the drivers. Obviously, ALL of this information is important to ALL of the public safety personnel responding to the accident – fire – fight incident. But with separate information and communication systems, there is no way that all of this information will be communicated to all of the responders at the same time.

We could continue the discussion of this example indefinitely. But we will refer requests for more detail on Yakima County’s Needs to our Task 1 and Task 2 reports.
At this point, we would summarize the needs for improved exchange of information by stating that the consolidation of public safety communications (people, places, equipment, and information) would greatly enhance every agency’s ability to efficiently and effectively respond to Calls For Service.

Consolidation Options

In our Task 2 report, we identified three options for consolidation. Since that report, we have been asked to provide what we (GeoComm) think is the best option, and to provide a strategy for implementing it.

The three options identified previously are:

1) Consolidate all Call Taking and Dispatch functions into one center

2) Consolidate all of the Call Taking and Most of the Dispatch functions into three centers: YPSCC, YSO, and Fire District #5

3) Consolidate Call Taking and Dispatching, but only “Virtually”

Our work with many individuals and observations of the various and sometimes conflicting operations and conditions in Yakima County, coupled with our extensive experience with other consolidation projects, leads us to recommend that Yakima County pursue Option #1. This option consists of a single communications system and center that would receive and dispatch ALL Calls For Service of a public safety nature. The system would consist of the following elements:

- A single, independent communications center providing
  - Call Taking,
  - Dispatch, and
  - Emergency Management operations
- A single Computer Aided Dispatch (CAD) system for all agencies
- A common, unified network backbone for voice and data transmissions
- Shared Voice radio systems
- Meshed (or otherwise linked) Data radio systems
- Backup Call Taking and Dispatch facilities

To be sure, Yakima County officials cannot turn off their current operations and facilities today, and turn on a consolidated communications system tomorrow. Therefore, we envision a transition to Option #1 over a period of about two and a half years working toward ultimate consolidation in incremental steps throughout several Phases.
Consolidation Phases

In this section we summarize the phases that would be involved in the consolidation process. The remainder of this report explains them in more detail, itemizing specific steps that need to be taken. GeoComm has developed these phases and steps using our Task 1 and Task 2 Reports as their foundation.

Phase 1: Create a Yakima Valley Office of Emergency Communications and Management ("OECM?").

This office, or department, would be an independent agency whose mission would be to provide communications and information management services for all public safety entities in Yakima County. It would be responsible to answer all Calls For Service requiring a public safety field unit, and to dispatch all of those units throughout the County.

Vest this department with the authority to establish county-wide public safety communications policies, procedures, and response plans. Give it responsibility for specifying, procuring, implementing, operating, and maintaining the equipment and facilities necessary for radio, telephone, and computer systems.

Phase 2: Implement Backup Call Taking and Dispatch Systems.

There is a pressing need for alternative call answering and dispatch capabilities. Currently, backup operations involve a cumbersome process of transferring the telephone calls to the Yakima Fire Station #1, driving a van there, and then running cables from the van to the station basement to connect call takers and dispatchers. Clearly, this can result in a slow activation of backup call taking and dispatch operations. This process likely adds confusion at a serious time that could interfere with the processing of Calls For Service.

Since the State of Washington will not reimburse the County for 9-1-1 trunks and equipment at alternative PSAPs, creating a permanent backup communication center could be costly to the County. However, we believe that there are a few steps that can mitigate this issue. The first would be to establish the new YSO communication center as the backup PSAP, at least until this center is assimilated into the new OECM.

In the event that the Primary PSAP was disabled, calls could be routed to the YSO facility over the newly installed city/county fiber optic network. With this capability, there would be no delay in answering or dispatching calls while the mobile van is activated or people were transported to the backup facility.
Phase 3: Implement a uniform Computer Aided Dispatch (CAD) system over a common network infrastructure.

This is perhaps the simplest step, in that the County has almost completed its installation of fiber optic cabling. This project is creating a common network infrastructure that will link almost every county and municipal agency office to each other.

We recommend that once this infrastructure is in place, that the Hitech CAD workstations be deployed at each remaining dispatch center. The Hitech system contains the most complete and accurate geographic information, is used by the most communications operators, and is the least expensive to deploy additional workstations.

It is important to clarify that this Step refers ONLY to CAD; not Records Management, nor Jail Management. A CAD system’s purpose is to provide information that is pertinent to the initial response by a field unit. It assists call takers with identifying incident types and their locations while providing a structured information gathering process for eliciting details from the caller. A CAD system aids the dispatcher by assigning priorities to an incident, and suggesting specific field units that should be dispatched, based on incident location and type, while tracking unit and incident statuses. Finally, A CAD system assists the field personnel by identifying previous incidents at a location and the presence of hazardous materials or other situations at the location to which they are responding.

Records Management Systems (RMS), on the other hand, has more of a historical information purpose than CAD systems. For example, the Spillman systems in place at many of the Yakima dispatch centers provide excellent records of individuals and their past encounters with law enforcement. These records can be critical to a police officer when making a traffic stop, but fall far short of providing the information needed by fire departments about construction materials, access/egress routes, etc. when responding to a fire.

The Hitech CAD system is capable of serving both fire and law enforcement dispatch needs, contains the most accurate geographic information, and is capable of sending information to, and obtaining information from, the other RMS systems currently being used or looked at by local agencies. We therefore recommend that the Hitech CAD system be adopted as the tool to use in a consolidated communications system.
Phase 4: Assimilate each call taking, dispatching, and emergency management operation into the OECM.

This step will likely be the most complicated, taking virtually all of the time allotted to the implementation plan. To accomplish it, many local issues need to be resolved such as labor/personnel matters, Jail Management, Records/Receptionist operations, budgeting, etc. While formidable, the tasks are not impossible to achieve --- if all elected and appointed officials work together toward the common goal of providing timely, appropriate responses to their constituents’ calls for help.

The first candidates for assimilation would be the City of Yakima Public Safety Communications Division and the Yakima Valley Office of Emergency Management. We envision these two operations being incorporated within the first year. This could be accomplished with minor modifications to the existing 9-1-1 communications center, rearranging some workstations. The other dispatch centers would be assimilated over the next few years, once their local issues are resolved and a new center has been constructed.

Phase 5: Build a new Communications Center.

This step will be the most costly in terms of capital expenditures and take a significant length of time to plan and complete. However, it represents the pinnacle of the consolidation effort. A single facility in which call takers, dispatchers, communications managers, and emergency management officials can work side-by-side will create an environment of cooperation and professionalism that enables the provision of the highest quality of public safety communications service.

The center should provide space for:

- Four Call Taker consoles
- Nine Dispatcher consoles (six primary dispatch, three auxiliary dispatch)
- One Supervisor console (equipped for both call taking and dispatch)
- Emergency Operations Center (“war room” for combined agency incident management)
- One Communications Director’s Office
- One Emergency Management Director’s Office
- Three Emergency Management Program Assistant work areas
- Three Administrative Support work areas (two Secretarial, one Personnel/Timekeeping)
- Three Technical Support work areas (CAD Administrator, Geographic Information Systems Administrator, Network Administrator)
- Telephone and Radio Equipment room
- Computer Equipment room
- Break room
- Kitchen/Pantry
Wash rooms
Fitness room/Lockers/Shower
- Male and female sleeping quarters (for potential extended work periods)
- One large conference room (EOC could double as this)
- Two small conference rooms

Phase 6: Build Out New Radio Systems

We recommend that all new voice systems remain in the VHF spectrum, using the tower sites being planned by the Lower and Upper Valley Fire Districts. Both of these projects, currently in the planning stages, will provide Fixed Network Equipment (FNE) that is capable of complying with the FCC’s narrow-band requirements as well as providing next generation digital capability. The tower sites can also provide the ability to add the law enforcement FNE with the same, county-wide coverage. One note of caution, though --- when building the fire district sites, the County should ensure that sufficient space is designed into the towers and equipment shelters so that the law enforcement radio equipment can be added.

“Instant Interoperability” can be had by following the lead of the police and fire departments in Toppenish. These departments are programming each other’s frequencies into their mobile and portable radios. Thus, when a police officer has to talk to a fire fighter, the capability is there instantly by merely changing channels on his/her radio.

Another easy-to-implement option for interoperability is to program all public safety Subscriber Units (mobile and portable radios) with the VHF Interoperability frequencies. There are five channels, designated nationwide for public safety interoperability in the VHF spectrum band. They are known as “V-Call” and “V-Tac 1 through 4.” We have listed the specific frequencies in the Phase 6 section of this report.

Schedule

Appendix A contains a detailed listing of the steps and their start/finish dates. This schedule assumes a two and one half year period over which all of the communications centers would be assimilated into the new Yakima Valley Office of Emergency Communications and Management. The two biggest factors affecting the schedule are the County’s ability to revise its jail management policies (to free up the local departmental dispatchers/jailers), and the ability to fund the construction of a new building for the consolidated center.
Highlights of the schedule are as follows:

<table>
<thead>
<tr>
<th>TASK</th>
<th>DATES</th>
</tr>
</thead>
</table>
| Creation of Office of Emergency Communication and Management | **Start: January 2, 2006**  
Fully Operational: December, 2006 |
| Implement Backup Facilities | |
| Install Equipment at YSO | Operating by July 14, 2006 |
| Negotiate Neighboring County Agreement | Permanent Backup PSAP operating by July 2, 2008 |
| Implement Uniform CAD system | Begin: January 2, 2006  
Complete by January 17, 2007 |
| Establish 0.1 percent Sales Tax for Revenue | April 3, 2007 |
| Assimilate Existing Centers | |
| Yakima 9-1-1 and Dispatch | January 1, 2007 |
| Yakima Valley Office of Emergency Management | January 1, 2007 |
| Yakima Sheriff’s Office Dispatch | September 10, 2008 |
| Grandview Police Department | September 10, 2008 |
| Sunnyside Police Department | September 10, 2008 |
| Toppenish Police Department | September 10, 2008 |
| Fire District #5 | September 10, 2008 |
| Build New Communications Center | Begin Process: January 2, 2007  
**Consolidated Center Operational September 10, 2008** |
| Build out Radio System FNE | Start: January 2, 2006  
Completed: August 10, 2007 |
| Subscriber Unit Interoperability | Complete by June 16, 2006 |
| Interoperable FNE Completed | August 10, 2007 |

Thus, a new communications center could be operational, serving all Yakima Valley public safety agencies, by September 10, 2008. Field unit radio Interoperability could be achieved much earlier, with car-to-car inter-communications by June 2006, and full network interoperability by August 10, 2007.
Budget

The initial budget for a new OECM will consist primarily of personnel costs. These will be comparable to the current YPSCC costs, with the addition of a few call taker personnel.

We have included cost estimates for each phase in their respective sections of this report. We have also included a Cost Summary section at the end of the report which illustrates the overall budget over time.
Phase 1 Create a Yakima Valley Office of Emergency Communications and Management ("OECM?")

The first task in consolidating public safety communications is to establish an independent agency which is responsible to provide the highest level of professional service to the public and to the Public Safety Agencies throughout the Valley.

We recommend that this agency consist of both public safety communications and emergency management sections. Together, and as representatives of all public safety entities in Yakima County, they will be able to provide unified Command, Control and Communications for any Call For Service or major incident affecting the public’s safety. As an integrated and consolidated unit, this agency will also be able to apply for grant funding for many projects, which individual agencies might not have time for, nor be qualified for. This will enhance the opportunity for funding county radio and computer system procurements as a “Regional, Interoperable” system.

Many other areas of the nation are forming such centralized agencies. For example, Adams County, Illinois is building a new communications center that incorporates an Emergency Operations Center and work space for the EMA director and assistants. When the City of Chicago built its new police/fire communications center, it removed these functions from each individual department, and incorporated the Emergency Management department to form the Chicago Office of Emergency Management and Communications. Each of these centers, and others like them, are continually successful on grant applications because of their stated recognition of the need for managing and communicating in all levels of public safety service – From a single domestic disturbance to an explosion at a factory. Moreover, the federal government is increasingly requiring grant applicants to demonstrate cooperation among all agencies, and awarding funds to those who do.

The steps in creating such an independent Office of Emergency Communications and Management (OECM) would be:

1. County Commissioners draft a resolution establishing the Office.
3. All municipal and county government agencies review the Mission Statement and work with the Yakima County 9-1-1 Administration and Operations Boards to develop an agreement outlining, in general, the authorities, responsibilities, policies and services that will govern the Office.
4. OECM Management is established.
   a. An Oversight Board should be created, representative of the public safety entities, to
      provide review and advice to the Office.
      i. The existing “Yakima County Intergovernmental 9-1-1 Agreement” and the existing
         “Agreement for Yakima Valley Office of Emergency Management” should be used
         as models, or amended as appropriate, to establish the OECM Board.
      ii. The OECM Board should establish working committees to reduce the number of
          members required to vote and approve individual requests.
   b. Appoint a Director of the Communications section. This section will be responsible for
      receiving, processing, and dispatching all Calls For Service (CFS) of a public safety
      nature.
   c. Appoint a Director of the Emergency Management section. This section will be
      responsible for planning, implementing, and coordinating multi-agency, multi-
      jurisdiction public safety agency responses. An initial duty would be to develop a
      “common language,” in accordance with National Incident Management System
      (NIMS) principles, to be used by all public safety agencies in Yakima County.

5. Establish Job Descriptions for Call Taker, Dispatcher, Administrative Support, and
   Technical Support positions.
   a. Each Director should have at least one Administrative Support assistant.
   b. Technical support for the OECM’s equipment and systems should include employees
      capable of installing and maintaining the following types of equipment.
      i. E9-1-1 Customer Premise Equipment (CPE) and Admin Phone system.
      ii. Computer Aided Dispatch (CAD) hardware, software, and databases.
      iv. Geographic Information System (GIS) software and databases.
   c. Technical Support for agencies’ Subscriber Unit equipment should be provided by the
      agencies themselves, either by employees, or by contract to a service provider.

6. Negotiate with existing unions and/or bargaining representatives to develop an employee
   transitioning process that will provide the opportunity for current employees to move from
   their current employment to a position in the OECM.

7. Conduct a county-wide Public Education campaign informing Yakima Valley residents,
   visitors and businesses that should they need a police, fire, or medical unit dispatched,
   “CALL 9-1-1.” Also inform the public of situations which would require them to dial the
   seven-digit telephone number of their local agency:
   a. When desiring to talk with a specific individual.
   b. When an incident would qualify for an agency’s Telephone Reporting procedures.

8. Begin discussions of amending the county’s Jail Management and Prisoner Transport
   procedures to relieve local departments of their dispatchers’ supplemental jail
   responsibilities.
With respect to the ongoing operation and governance of the Yakima Office of Emergency Communications and Management, we are unsure of the County’s taxation legalities. It would seem that the County Commissioner’s, as the elected representatives of the people, would be the individuals responsible for instituting, collecting any new revenues that would be needed to fund the OECM. As an example, the potential 0.1 percent sales tax that could be presented in a referendum to the voters would seem to be a responsibility of the County Commissioners. However, it might be possible to delegate these responsibilities to a combined body of elected officials representing both county-wide and local government.

Additionally, there are always variations on a theme. For instance, the Yakima County Sheriff is elected at large by the voting public. He controls the sheriff’s department operation pretty much independently from the County Commissioners, but still must present his budget to them and request funding from the general revenues. Moreover, in Yakima County there are three other organizations that operate independently for county government: 1) Yakima Health District; 2) Yakima Valley Conference of Government; and 3) the Yakima Valley Office of Emergency Management.

In the case of the YVOEM, participating members contribute to an “Emergency Services Fund” that is administered by the Yakima County Treasurer. This fund, along with grants and other sources of revenue, provides the budget for the YVOEM. While YVOEM maintains a close relationship with the County Commissioners, it derives its actual authority from a combined “Yakima County Emergency Services Council” which is comprised of the County Commissioners AND the Mayors of each participating incorporated city and town. The YVOEM is created pursuant to R.C.W. 38.52.070 which provides for “the establishment of a local organization for emergency services in which two or more political subdivisions may join…”

GeoComm believes that this is an excellent model for the creation of a combined Office of Emergency Communications and Management. It affords all jurisdictions and public safety agencies the opportunity to determine their own best practices, without having to seek County Commissioner approval for every levy and expenditure. In fact, the simplest solution to the establishment of a new, combined department (OECM) might be to merely amend the existing Agreement to incorporate the public safety communications functions. Different revenue streams (such as 9-1-1 funds, the potential 0.1 percent sales tax, per capita assessments for participating jurisdictions, etc.) could then be funneled into the Emergency Services Fund to pay for the newly expanded scope of services of providing public safety call taking and dispatch. This one department (OECM) would then ultimately be responsible for All public safety communications, command, control, and planning --- for responses to the infrequent disaster requiring many responders from different towns and agencies, to the daily calls for service requiring only one or two police cars or fire trucks.

Both long range, strategic planning and daily, tactical operations are equally important in the accomplishment of the task of ensuring a timely appropriate response to any incident. As a result, we believe it important that the leaders of each section of the OECM be appointed, and treated, as equals or peers. While it is natural to desire a single individual as the head of any organization, we do not feel it is a requirement.
Two Directors, working in concert for all of Yakima Valley, would enhance decision-making regarding major policies and expenditures. Furthermore, we recommend that police and fire agencies be represented on an Oversight Board, (similar to today’s 9-1-1 Admin and Operations Boards) to whom requests for expenditures and policies would be submitted by both Directors, together. This will create a deeper feeling of participation and representation, eventually eliciting full participation by all public safety entities.

We suggest the following organizational structure for governance of the Yakima Office of Emergency Communications and Management.

This Phase should involve minimal costs --- mostly for meeting time and travel by the members. We have allotted approximately one year for completion of this Phase, allowing the first assimilation of call taking, dispatch, and emergency management functions by January, 2007.
Phase 2 Implement Backup Call Taking and Dispatch System

Initial improvement in the current Backup systems could be had by moving the facilities from YFD Fire Station #1 to the newly developing communications center at the Yakima Sheriff’s Office.

This would involve minimal cost and allow dispatching operations to be conducted inside, in direct proximity to the call takers; rather than continuing the cumbersome process of answering calls in the fire station basement and dispatching them from the mobile van outside.

With the city and county fiber optic networks connected and extended to the McGuire facility, calls and data can be routed over this network. The answering equipment need only be moved from Fire Station #1 to the new YSO facility.

The mobile van should not be eliminated; though. This vehicle provides communications mobility in the event that a hazardous situation occurs that necessitates the entire evacuation of the City of Yakima.

Backup dispatching functionality can be initially implemented at the City PSAP by installing Control Stations for the Lower Valley Fire dispatch frequency and the Upper and Lower Valley Sheriff’s dispatch frequencies. The reverse should also occur: installation of control stations of the City’s police and fire dispatch channels at the YSO communication center.

Ultimately, the OECM should negotiate a permanent backup facility with a neighboring county, or the City of Yakima, or the Sheriff’s Office. Benton County PSAP is a logical choice since there is potential connectivity to them via Yakima County’s fiber optic network. As an alternative, a permanent backup facility could be maintained at the ultimately-vacated 9-1-1 PSAP; or, if the Yakima Police Department needs the space vacated by the PSAP, a permanent facility could be established at the YSO’s dispatch center. In either case, the equipment and telecom lines will already be present, assuming that the initial step of moving the backup from Fire Station #1 to the McGuire facility is taken.

Thus, the implementation of Backup equipment should take the following steps:

1. Move existing backup equipment from Fire Station #1 to YSO (McGuire’s) facility
2. Maintain and periodically test the Mobile Communications Van to ensure proper functioning
3. Install control stations at YPSCC for Lower Valley Fire dispatch, and Upper and Lower Valley Sheriff’s dispatch
4. Install control stations for City of Yakima Police and Fire dispatch at YSO facility
5. Negotiate terms of permanent call taking and dispatch services with Benton County, City of Yakima, or Yakima Sheriff’s Office

Again this Phase 2 would initially involve only the time and materials costs for City’s electronics technicians to move the telecom facilities from Fire Station #1 to YSO. We believe that this step could be accomplished by February, 2006.

Permanent facility costs and schedule would be dependent on the terms negotiated with the OECM’s neighboring agencies.
Phase 3 Implement a Uniform Computer Aided Dispatch (CAD) System over a Common Network Infrastructure

This Phase will actually begin the process of consolidation. As we described in our previous reports, we believe that a single, uniform CAD system is critical to improving public safety communications in Yakima County. The current situation of creating calls in one CAD system and trying to transfer the information to other CAD systems is prone to frequent errors and omissions. Implementing a single CAD system with workstations at each remote dispatcher’s console will reduce those errors and omissions. This is a step toward “Virtual consolidation” which we described during Task 2.

We recommend that additional client licenses be acquired from Hitech, Inc. and deployed at each of the dispatch positions at YSO, Grandview Police Department, Sunnyside Police Department, and Toppenish Police Department. This will allow easier transmission and monitoring of information about units and incidents among all of the communication centers. It will also reduce the addressing errors inherent in keeping multiple databases current.

We recommend expansion of the Hitech system because it has the most complete geographic files and unit recommendation tables. The Spillman systems in Toppenish and Sunnyside are independent systems and do not contain data for the entire county. The Sheriff’s Spillman system is being upgraded, but basically on only a high level. The databases, particularly Geofile and premise history tables, need an extraordinary effort to revise. The Hitech Geofile is very complete and accurate, interfaces well with the ESRI Geographic Information system, and needs only some data entry to complete premise information alerts for the rest of the county.

Another advantage to implementing a uniform CAD system is that all incident types and disposition codes will be the same throughout the county. This will enhance interoperability to the point of defining terms, and ultimately the language used on the radio, universally. There is increased emphasis on using a “common language” in interoperable radio systems. When one agency calls for assistance at a “10-50” or traffic accident, the other agencies on the air should not have to look up a table to see what a 10-50 is. It will be up to the OECM Oversight Board, under advisement from the Emergency Management division, to specify the language and terms to be used in CAD and over the air so that everyone (police, fire, and ambulance personnel) “speaks the same language.”
Implementing the Hitech CAD system at each dispatch center does not negate the use of the Spillman, or other, systems for Records Management purposes. It is possible to develop an interface that would allow the exchange of data between the Hitech CAD and the Spillman Records Management systems, in much the same way that the Hitech CAD feeds the Fire Records systems with the initial CFS data. However, given Spillman’s recent removal of Yakima from their “favored client” status, it is likely to be a very costly development project.

The ProTrak development project offers another opportunity for creating an interface between the Hitech CAD system and a common Records System. Since the development costs for this particular project are minimal, it may be more advantageous to consider creating an interface between Hitech and ProTrak. Demonstrations of the developed ProTrak product as well as other Hitech applications are being considered for this coming January. As part of an existing Addendum to GeoComm’s contract we would be happy to assist all of Yakima Valley with the evaluation of their options for a unified CAD --- Records Management System. We reiterate, though, that the two applications, while being integrated for data flow, should remain functionally independent.

Other software applications that are in the overall criminal justice information flow, such as Jail Records and Prosecutors’ files should be examined as well. Revision of access authorities for the county Prosecutor’s files may be necessary to allow OECM personnel to look up and confirm warrants for field units who inquire over the radio. Our conversations with the various Fire department personnel indicate that their Records Management systems are satisfying their needs.

We also recommend that the Yakama Nation implement the Hitech CAD workstation, if they are so inclined. However, since the Yakama Tribal Police are not considered Peace Officers certified by the State of Washington, negotiations will be necessary among all law enforcement agencies to determine Tribal Police access to county records, as well as vice versa.

The steps required to implement the Hitech CAD system at all of the remote dispatch workstations are:

1. Purchase nine additional Hitech CAD client applications (three YSO, one GPD, two SPD, two TPD, one Yakama Nation)
2. Install application at remote dispatch centers
3. Connect workstations over county data network
4. Verify interface between Hitech and Spillman systems
5. Train dispatchers
6. Complete the Geofile for entire county
7. Import any premise information from existing Spillman systems
8. Enter additional premise information from other sources (building inspections, fire records)
9. Create unit recommendation tables for fire and law enforcement agencies
10. Create common terms for incident types and dispositions
The costs quoted by Hitech for this phase include the application software for CAD, Mapping, Message Switching, and interfaces for AVL (Automatic Vehicle Location) and alphanumeric Paging. The Hitech quote also includes Annual Maintenance and Implementation services. We have included a copy of their budgetary quote of $18,960.50 per client position in Appendix B.

The total budgetary cost for nine workstations then is $170,644.50.
Phase 4 Assimilate each Call Taking, Dispatching, and Emergency Management Operation into the OEM

The assimilation of call taking and dispatch operations into the new OEM can begin without any modifications to existing communications center facilities. GeoComm recommends that the first two agencies to transition into the purview of the OEM be the Yakima 9-1-1 Communications Center and the Yakima Valley Office of Emergency Management. Both operations could continue operating in their current facilities, with no changes other than the “Chain of Command.”

We envision this transfer of reporting responsibility can occur at the start of the next fiscal year, January, 2007. Negotiations with both the Teamsters and IAFF unions regarding representation of employees should be substantially complete by this time as well. This transfer of operations will affect the budgets of each agency significantly in form, but only slightly in amount. Additional 9-1-1 funds will be needed to hire more call takers, as the effects of the Public Education campaign begin to increase the 9-1-1 call volumes; but we do not think that increased call taker staffing will exceed a need for more than five additional personnel to staff the existing four call taker positions. Therefore, the revenues contributed by the 9-1-1 Board will increase slightly during 2007, while the revenues contributed by the City of Yakima should remain the same. We do not anticipate any increased funding requirements for the OEM beyond what is normally budgeted. We recommend that the OEM prevail upon both the City and the County continue to provide the physical space and utilities services (heat, light, telephone, etc.) for the 9-1-1 and OEM operations until a new facility is built.

Assimilation of the remaining communications centers into the OEM would occur in September of 2008, when the new facility is completed.

The steps for Phase 4, then are as follows:

1. Transfer all Yakima Public Safety Communications (YPSCC) operations from the city to OEM in January, 2007
2. Hire five additional call takers in late 2006 as call volumes increase
3. Transfer YVOEM into the OEM in January, 2007
4. Maintain operations of both YPSCC and YVOEM in their existing facilities
5. Hire 18 additional dispatchers in 2008 to staff four new dispatch consoles (24 x 7)
6. Transfer all remote communications center operations (YSO, GPD, SPD, TPD, FD #5) to the new building in September, 2008
While it is difficult to project salary levels two years out, we have used the current YPSCC and YVOEM budgets for labor ($1,329,833 and $230,000, respectively), increased by ten percent for 2007, and by another five percent for 2008. We have also added five call taker personnel in 2007 to more fully staff the four positions; and 18 dispatchers in 2008 to staff the four additional dispatch consoles 24 hours per day. The personnel costs involved for Phase 4 for the years of 2007 and 2008 would thus be as follows:

<table>
<thead>
<tr>
<th>2007 Personnel</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Management Section</td>
<td>$253,000</td>
</tr>
<tr>
<td>$230,000 * 1.1 = $253,000</td>
<td></td>
</tr>
<tr>
<td>Communications Section</td>
<td>$1,462,816</td>
</tr>
<tr>
<td>Five Additional Call Takers</td>
<td>$256,250</td>
</tr>
<tr>
<td>$16/hr. * 1.1 (inflation) = $17.60/hr.</td>
<td></td>
</tr>
<tr>
<td>$17.60 * 2080 hrs. = $36,608 / yr.</td>
<td></td>
</tr>
<tr>
<td>$36,608 * 1.4 (benefits) = $51,250</td>
<td></td>
</tr>
<tr>
<td>$51,250 * 5 persons = $256,250</td>
<td></td>
</tr>
<tr>
<td>Total 2007 Personnel Costs</td>
<td>$1,972,066</td>
</tr>
</tbody>
</table>

| 2008                                                  |              |
| Emergency Management Section                          | $265,650     |
| $253,000 * 1.05 = $265,650                           |              |
| Communications Section                               | $1,805,019   |
| $1,719,066 (2007) * 1.05 = $1,805,019                |              |
| 18 Additional Dispatchers                            | $1,153,152   |
| $19.00 * 1.1 * 1.5 = $22.00/hour                     |              |
| $22.00 * 2080 hrs. = $45,760 / yr.                   |              |
| $45,760 * 1.4 (benefits) = $64,064                    |              |
| $64,064 * 18 persons = $1,153,152                    |              |
| Total 2008 Personnel Costs                           | $3,223,821   |

“Other” costs involved in operating the YPSCC center include 91-1 Network lease fees, Insurance, etc. The current budget for these costs is approximately $750,000. Using the inflation factor of 1.1 (ten percent over today) for 2007 increases the OEMC budget by $825,000; for 2008, another five percent increase results in an additional $866,250 in the budget.

Thus, the OEMC’s costs related to personnel and other factors in OEMC’s budget for 2007 would be $2,797,066; for 2008, they would total $4,090,071.
Phase 5 Build a new Communications Center

GeoComm recommends that Yakima County build a new communications center devoted to public safety communications and emergency management. We believe that this option presents the best method of achieving professional service to both the public and the agencies that serve the public.

As an independent agency, with its own building, the Office of Emergency Communications and Management can reduce the Upper Valley/Lower Valley rivalries that seem to persist in the minds of some individuals. The building as well as the operation will not be the City of Yakima’s, nor the Sheriff’s, nor even the Upper or the Lower Valley’s. It will represent and serve all of the agencies.

Security of the building should be such that only OEMC employees can enter and leave without another’s authorization. The building and its employees will eventually assume their own identity as a county-wide department. This may be difficult to achieve while the OEMC is still operating in the Yakima Law and Justice building and the County building on 2nd street. But creating the OEMC before the new building is built is the first step in the process of creating its identity.

We recommend that the new building be centrally located, near the Interstate 82 freeway to provide easy access for employees living in both the Upper and Lower Valleys. A site in or near Union Gap might be advantageous for both travel and network connectivity.

The search for a site should begin as soon as a funding source is identified. Revenue sources, whether they are Grants, General Obligation Bonds, an additional 0.1 percent sales tax, or increased agency fees, can take as much as a year to identify, debate, and agree upon. Therefore, we do not see Phase 5 beginning until the year 2007.

The steps involved in building a new communications and emergency management center are:

1. Identify and institute Revenue sources for capital costs
2. Contract with an Architectural/Engineering firm to develop the building plans and specifications
3. Search for and acquire a suitable site for the building
4. Publish the construction specifications and let them out to Bid
5. Construct the building
6. Occupy the building and begin consolidated operations
This process will likely take at least a year and a half, resulting in all communications centers to be consolidated into it by September, 2008.

The costs for such a building will be higher than what we estimated in our Task 2 Report ($750,000) due to the increased size to accommodate the Office of Emergency Management operations. In our current suggestion, the building should afford space for the Emergency Management personnel, as well as a centralized Emergency Operations Center. We recommend that the building contain the following functional areas:

- Four Call Taker consoles
- Nine Dispatcher consoles (six primary dispatch, three auxiliary dispatch)
- One Supervisor console (equipped for both call taking and dispatch)
- Emergency Operations Center ("war room" for combined agency incident management)
- One Communications Director’s Office
- One Emergency Management Director’s Office
- Three Emergency Management Program Assistant work areas
- Three Administrative Support work areas (two Secretarial, one Personnel/Timekeeping)
- Three Technical Support work areas (CAD Administrator, Geographic Information Systems Administrator, Network Administrator)
- Telephone and Radio Equipment room
- Computer Equipment room
- Break room
- Kitchen/Pantry
- Wash rooms
- Fitness room/Lockers/Showers
- Male and female sleeping quarters (for potential extended work periods)
- One large conference room (EOC could double as this)
- Two small conference rooms (one for each section)

Including all of these functional spaces will at least double the square footage required by our last estimate, which contained basic call taking and dispatching areas with a few administrative and equipment rooms. For a 6,000 square foot building at $250 per square foot, the cost of the new OECM building would be approximately $1,500,000. Additional building costs would include professional design/engineering/consulting fees and site acquisition costs. This could add an additional 20 percent to 25 percent to the building’s budget.

Nine radio/telephone consoles at approximately $50,000 (average, including electronics and furniture) per console would add $450,000. EOC video projection and conferencing equipment is estimated at $200,000. Finally, an administrative telephone system for the building should be budgeted at about $100,000 to ensure there are enough lines and instruments to serve multiple agencies in the EOC.

Thus, with office furniture and PC’s, we estimate that building a new communications and emergency management center would cost approximately $2.5 million.
Phase 6 Build out new Radio Systems

In this section of our Task 3 Report, we are deviating somewhat from the format of the previous two reports. In the Task 1 and Task 2 reports, we separated the radio system Fact Finding and Options Development from the Consolidation discussion. We are intentionally including it as a section within the Task 3 overall report to highlight its integral nature in the entire Yakima County project. You cannot consolidate dispatch operations without consolidating the radio dispatch systems.

Establishing interoperable radio communications is an integral component, woven into the fabric of the County’s entire effort of improving public safety communications. There are many levels on which inter-agency, or inter-unit communication can be established. There are also ongoing efforts, particularly by the Upper and Lower Valley fire districts that will serve both the consolidation of radio dispatch consolidation and interoperability very well.

Thus we begin our discussion with reference to the Lower Valley Fire District project. Fire District #5 has begun a project that requires the successful vendor to build a four-site, narrowband VHF, simulcast radio system. The system infrastructure will also be digital capable adhering to the Project 25 standards, affording a migration toward this emerging technology. It will provide portable radio coverage that is 95 percent reliable within Fire District #5’s district boundaries and mobile coverage that is at least 80 percent reliable in areas outside of the district’s boundaries. This system’s costs are being funded by a federal grant.

With this infrastructure scheduled to be in place by February, 2006 it is possible to quickly improve the sheriff’s coverage in the Lower Valley, particularly with respect to the LERN network. All that would be needed is to place new repeaters at the Fire District #5 sites and link them back to a control station at the YSO dispatch center and the YPSCC. The same could be done for other frequencies (e.g., dispatch channel OSCCR, V-Tac, etc.). By using duplexers and combiners, multiple VHF frequencies can operate at the same tower sites with fewer antennas, thus saving space and loading on the towers themselves. The equipment shelters will necessarily have to be designed with extra space needed for the added law enforcement FNE, however.

In the Upper Valley, the fire districts are also anticipating a grant of approximately $950,000 to install a new digital, narrowband simulcast VHF radio network. We assume that, while larger in scope than the Lower Valley project, this system will be equal in terms of portable and mobile radio coverage. Since the funding is only now being received, we anticipate that the Upper Valley Fire District radio system will probably not be completed until at least the latter part of 2006. At that time, the law enforcement network in the Upper Valley can be enhanced by adding FNE (base stations, repeaters, etc.) at those sites.
This sharing of radio network infrastructure that we propose is a good example of one of the authorities that the OECM should assume. As an independent agency, OECM’s ownership of the FNE removes the perception that the system “belongs” to a fire department, or a police department, an Upper Valley group or a Lower Valley group. Rather, the radio infrastructure will belong to all public safety agencies, as they are represented by the OECM. The OECM will also be able, then, to specify the types of subscriber units (end-user radios) that each agency should purchase for use on the system. This whole approach offers a tremendous opportunity for improved coverage for all agencies, as well as enhanced interoperability among them.

The police and fire departments in the Toppenish area are purchasing radios with a capacity of 250 channels. This will allow them to program their radios with each other’s frequencies and provide “instant interoperability.” We believe this is a good approach; one which can be followed throughout the county while the radio channels are re-configured for compliance with the FCC Narrowbanding mandates.

We must note that while the new fire district FNE will be digital capable, it will operate in an analog mode to allow the existing analog radios to continue to talk to each other. It would defeat the purpose of interoperability if one or more agencies purchased digital subscriber units, while their neighbors did not have the funds to buy them. Thus, existing analog radios - even those being purchased in the Lower Valley today --- will have to be replaced at some future date to take advantage of the digital infrastructure being installed. However, as we mentioned in previous reports, there is no requirement to implement digital technology, like there is a federal mandate to reduce frequency bandwidths.

Moreover, there is new technology being developed for subscriber units that will allow them to operate on a multitude of spectrum bands and different networks. This technology is known as “Software Defined Radio” (SDR) and is probably a few years away from being commonly available at affordable prices. But as the end-user radios purchased in Yakima County wear out, the OECM will be able to recommend replacements that have even more capabilities that can be conceived of today.

Given the potentials of the systems described above, we do not think that an 800/700 MHz trunked radio system is necessary. Implementing a trunked system in this spectrum might afford some efficiency to the County, but it would tend to isolate Yakima County public safety agencies from state and neighboring agencies. The State of Washington and its various Homeland Security regions are planning interoperable radio systems founded in the VHF spectrum. For example, the OSCCR (On Scene Command and Coordination Radio) frequency is 156.135 MHz. There are also five VHF frequencies designated nationwide for public safety interoperability.

Yakima county public safety agencies are currently licensed on almost 50 VHF channels. When these are divided up into narrowband channels, their number will increase. Thus, there is no shortage of spectrum available to Yakima County in the VHF band.
For these reasons, and many others (not the least of which is expense) GeoComm recommends that the Yakima Office of Emergency Communications and Management assume ownership of, and the responsibility for implementing, a VHF, narrowband, digital-capable simulcast radio system infrastructure to provide ubiquitous coverage throughout the Upper and Lower Valleys. The OECM should also be vested with the authority to specify the types of end user subscriber unit radios that will be compatible with the Fixed Network Equipment. Each public safety agency can then purchase its own mobile and portable radios as their budgets allow.

As stated in our Task 2 report, we suggest that dispatch operations for all public safety agencies could be conducted from a centralized communications center on fewer channels than are in use now. We recommend the following configuration for building out the radio systems.

Primary Dispatch Channels, using simulcast transmission:

- Sheriff Upper Valley Main channel to include all local police
- Sheriff Lower Valley Main channel to include all local police
- Yakima City Police
- Yakima City Fire
- Upper Valley Main Fire
- Lower Valley Main Fire

Based on our previous calculations and observations, these six primary channels should suffice to conduct all dispatching operations in Yakima County. Other channels can be implemented for tactical operations, fire ground operations, or car-to-car field conversations. During busy times, we would expect that each primary dispatch channel console would be staffed and operate individually. However, during slower periods, the OECM might staff fewer console positions, placing, for example, the Yakima City police on the Sheriff’s Upper Valley dispatch channel.

Primary Interoperability Channels

- OSCCR (156.135)
- V-Call (155.7525)
- V-Tac 1 (151.1375)
- V-Tac 2 (154.4525)
- V-Tac 3 (158.7375)
- V-Tac 4 (159.4725)
- LERN (155.370)

The OECM should consider applying to put a narrowband transmitter on the OSCCR channel. We also recommend installing repeaters for the V-Call and V-Tac channels as well as the LERN channel, at least in the Lower Valley where coverage on LERN is problematic.
New narrowband VHF subscriber unit radios should be purchased over the years by each agency. They need not be digital at this time, but if analog/digital-capable radios are affordable, we recommend buying them. The radios should have enough channel capacity to be programmed with all of the dispatch channels, as well as all of the primary interoperability channels.

This radio system configuration will provide enhanced interoperability, centralized dispatch, and improved coverage for all public safety agencies throughout the county.

To summarize, the steps involved in building out Yakima County public safety agency radio systems:

1. Program OOSCCR, LERN and the V-Call/Tac channels into existing portable and mobile radios, as possible
2. Program all existing subscriber units with neighboring agency dispatch channels, as possible
3. Install control stations for Sheriff's LV dispatch channel at YPSCC consoles
4. Install control stations for Sheriff's UV dispatch channel at YPSCC consoles
5. Install control stations for LV fire dispatch channel at YPSCC
6. Complete the build-out of Lower Valley fire department radio system
7. Complete the build-out of Upper Valley fire department radio system
8. Add Lower Valley law enforcement dispatch channels to LV fire system sites
9. Add Upper Valley law enforcement dispatch channels to UV fire system sites
10. Install control stations for all public safety channels at the new communications center

Since the Lower and Upper Valley fire department radio systems are already being funded by federal assistance grants, most of the FNE to be used by the OECM will have already been paid for. Remaining costs for building out the systems will be primarily in labor for programming existing subscriber units and for the additional base stations/repeaters necessary to move the other agencies on to these two networks.
Using the estimates that we have for digital simulcast equipment, the OECM should budget for the following costs to build out the primary dispatch and interoperability channels:

VHF Digital Repeater with duplexer and antenna at $35,000 per site; Control stations at $5,000 per channel

<table>
<thead>
<tr>
<th>CHANNEL</th>
<th># SITES</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheriff Upper Valley Main channel to include all local police</td>
<td>8 (estimated)</td>
<td>$280,000</td>
</tr>
<tr>
<td>Sheriff Lower Valley Main channel to include all local police</td>
<td>4</td>
<td>$140,000</td>
</tr>
<tr>
<td>Yakima City Police</td>
<td>7</td>
<td>$245,000</td>
</tr>
<tr>
<td>Yakima City Fire</td>
<td>7</td>
<td>$210,000</td>
</tr>
<tr>
<td>OSCCR</td>
<td>6</td>
<td>$140,000</td>
</tr>
<tr>
<td>LERN (Lower Valley)</td>
<td>4</td>
<td>$140,000</td>
</tr>
<tr>
<td>LERN (Upper Valley)</td>
<td>8</td>
<td>$280,000</td>
</tr>
<tr>
<td>V-Call /Tac</td>
<td>12</td>
<td>$420,000</td>
</tr>
<tr>
<td>Backup Control stations at YPSCC</td>
<td>3</td>
<td>$15,000</td>
</tr>
<tr>
<td>TOTAL FNE COSTS</td>
<td></td>
<td>$1,870,000</td>
</tr>
</tbody>
</table>

The following estimates for subscriber unit costs are provided to give the agencies an idea of their forecasted budgets for equipment on the new systems,

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Cost per Radio</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 W VHF Analog Mobile</td>
<td>$750</td>
</tr>
<tr>
<td>100 W VHF Analog Mobile</td>
<td>$1500 - $1800</td>
</tr>
<tr>
<td>5 W VHF Analog Portable</td>
<td>$500 - $800</td>
</tr>
<tr>
<td>45 W VHF Digital Mobile</td>
<td>$2000 - $3000</td>
</tr>
<tr>
<td>100 W VHF Digital Mobile</td>
<td>$3000 - $4000</td>
</tr>
<tr>
<td>5 W VHF Digital Portable</td>
<td>$1,000 - $1,500</td>
</tr>
</tbody>
</table>
Cost Summary

For an idea of the overall costs pertaining to the creation of a consolidated public safety communications system, we provide the following summary table. We have placed the costs generally into the years according to the developed plan schedule. Some, like the building construction costs, we simply averaged over the two—year planning/construction schedule. Whatever financing method(s) Yakima County adopts will likely stretch the other-than-personnel costs over a longer period of time.

<table>
<thead>
<tr>
<th>Cost Factor</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish OECM Officials’ time and travel to meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creation of temporary Backup facility at YSO Technician Labor to move answering equipment from Fire Station 1 to McGuire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implement Hitech CAD county wide $170,644</td>
<td></td>
<td>Negotiated Annual Maintenance</td>
<td>Negotiated Annual Maintenance</td>
</tr>
<tr>
<td>Personnel</td>
<td>$1,972,066</td>
<td>$3,223,821</td>
<td></td>
</tr>
<tr>
<td>Other Comm Center Costs</td>
<td>$825,000</td>
<td>$866,250</td>
<td></td>
</tr>
<tr>
<td>Construct New Communications Center $1,250,000</td>
<td></td>
<td>$1,250,000</td>
<td></td>
</tr>
<tr>
<td>Install Backup radio control stations $15,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Install Interoperability FNE $980,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Build out remaining FNE $875,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL Annual Budgets $1,165,644+</td>
<td>$4,922,066</td>
<td>$5,340,071</td>
<td></td>
</tr>
<tr>
<td>Total Consolidation Budget: $11,427,781</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix A Schedule

<table>
<thead>
<tr>
<th>ID</th>
<th>NAME</th>
<th>DURATION</th>
<th>START</th>
<th>FINISH</th>
<th>PRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Phase 1: Create OECM</td>
<td>703.d</td>
<td>01/02/06</td>
<td>09/10/08</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Establish Oversight Board</td>
<td>120.d</td>
<td>01/02/06</td>
<td>06/16/06</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Appoint Communications Section Director</td>
<td>10.d</td>
<td>06/19/06</td>
<td>06/30/06</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Appoint Emergency Management Section Director</td>
<td>10.d</td>
<td>06/19/06</td>
<td>06/30/06</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Designate Primary PSAP at YPSCC</td>
<td>5.d</td>
<td>06/19/06</td>
<td>06/23/06</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Designate Backup PSAP at YSO</td>
<td>5.d</td>
<td>06/19/06</td>
<td>06/23/06</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Negotiate Service Contracts with Agencies</td>
<td>120.d</td>
<td>06/19/06</td>
<td>12/01/06</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Conduct PE Campaign</td>
<td>240.d</td>
<td>03/01/06</td>
<td>01/30/07</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Dial 9-1-1 for PS Response</td>
<td>240.d</td>
<td>03/01/06</td>
<td>01/30/07</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Dial Local Dept. for Specific Info or People</td>
<td>240.d</td>
<td>03/01/06</td>
<td>01/30/07</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Dial XXX-XXXX for Telephone Reports</td>
<td>240.d</td>
<td>03/01/06</td>
<td>01/30/07</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Develop Job Specifications</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Call Taker</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Dispatcher</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>Administrative Support</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Technical Support</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>E9-1-1</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>CAD</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>Radio</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>GIS</td>
<td>7.d</td>
<td>07/03/06</td>
<td>07/11/06</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>Negotiate with Unions</td>
<td>60.d</td>
<td>07/12/06</td>
<td>10/03/06</td>
<td>12</td>
</tr>
<tr>
<td>22</td>
<td>Hire Additional Staff</td>
<td>566.d</td>
<td>07/12/06</td>
<td>09/10/08</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Call Taker</td>
<td>14.d</td>
<td>10/02/06</td>
<td>10/19/06</td>
<td>13</td>
</tr>
<tr>
<td>24</td>
<td>Dispatcher</td>
<td>5.d</td>
<td>09/04/08</td>
<td>09/10/08</td>
<td>77SS</td>
</tr>
<tr>
<td>25</td>
<td>Administrative Support</td>
<td>14.d</td>
<td>07/12/06</td>
<td>07/31/06</td>
<td>15</td>
</tr>
<tr>
<td>26</td>
<td>Technical Support</td>
<td>14.d</td>
<td>07/12/06</td>
<td>07/31/06</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>E9-1-1</td>
<td>14.d</td>
<td>07/12/06</td>
<td>07/31/06</td>
<td>17</td>
</tr>
<tr>
<td>28</td>
<td>CAD</td>
<td>14.d</td>
<td>07/12/06</td>
<td>07/31/06</td>
<td>18</td>
</tr>
<tr>
<td>29</td>
<td>Radio</td>
<td>14.d</td>
<td>07/12/06</td>
<td>07/31/06</td>
<td>19</td>
</tr>
<tr>
<td>30</td>
<td>GIS</td>
<td>14.d</td>
<td>07/12/06</td>
<td>07/31/06</td>
<td>20</td>
</tr>
<tr>
<td>31</td>
<td>Phase 2: Implement Backup Equipment</td>
<td>653.d</td>
<td>01/02/06</td>
<td>07/02/08</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Move Backup Facility from Fire Station #1 to YSO</td>
<td>15.d</td>
<td>06/26/06</td>
<td>07/14/06</td>
<td>6</td>
</tr>
<tr>
<td>33</td>
<td>Voice Circuits</td>
<td>15.d</td>
<td>06/26/06</td>
<td>07/14/06</td>
<td>6</td>
</tr>
<tr>
<td>34</td>
<td>Data Circuits</td>
<td>15.d</td>
<td>06/26/06</td>
<td>07/14/06</td>
<td>6</td>
</tr>
<tr>
<td>35</td>
<td>CPE</td>
<td>15.d</td>
<td>06/26/06</td>
<td>07/14/06</td>
<td>6</td>
</tr>
<tr>
<td>36</td>
<td>Verify Mobile Van Capabilities</td>
<td>1.d</td>
<td>01/02/06</td>
<td>01/02/06</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Choose Permanent Backup PSAP</td>
<td>502.d</td>
<td>08/01/06</td>
<td>07/02/08</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Benton County (?)</td>
<td>20.d</td>
<td>08/01/06</td>
<td>08/28/06</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Existing City PSAP (?)</td>
<td>20.d</td>
<td>08/01/06</td>
<td>08/28/06</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Developing YSO Center (?)</td>
<td>20.d</td>
<td>06/05/08</td>
<td>07/02/08</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Install RF Control Stations at YPSCC</td>
<td>40.d</td>
<td>08/01/06</td>
<td>09/25/06</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>NAME</td>
<td>DURATION</td>
<td>START</td>
<td>FINISH</td>
<td>PRED</td>
</tr>
<tr>
<td>----</td>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
<td>-------------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>42</td>
<td>Lower Valley Fire Dispatch Frequency</td>
<td>40.d</td>
<td>08/01/06</td>
<td>09/25/06</td>
<td>29</td>
</tr>
<tr>
<td>43</td>
<td>Lower Valley YSO Dispatch Frequency</td>
<td>40.d</td>
<td>08/01/06</td>
<td>09/25/06</td>
<td>29</td>
</tr>
<tr>
<td>44</td>
<td>Upper Valley YSO Dispatch Frequency</td>
<td>40.d</td>
<td>08/01/06</td>
<td>09/25/06</td>
<td>29</td>
</tr>
<tr>
<td>45</td>
<td>Phase 3: Implement Uniform CAD</td>
<td>273.d</td>
<td>01/02/06</td>
<td>01/17/07</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Acquire Additional Hitech Software</td>
<td>60.d</td>
<td>01/02/06</td>
<td>03/24/06</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Train dispatchers</td>
<td>80.d</td>
<td>03/27/06</td>
<td>07/14/06</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>YSO</td>
<td>20.d</td>
<td>03/27/06</td>
<td>04/21/06</td>
<td>46</td>
</tr>
<tr>
<td>49</td>
<td>Grandview</td>
<td>20.d</td>
<td>04/24/06</td>
<td>05/19/06</td>
<td>48</td>
</tr>
<tr>
<td>50</td>
<td>Sunnyside</td>
<td>20.d</td>
<td>05/22/06</td>
<td>06/16/06</td>
<td>49</td>
</tr>
<tr>
<td>51</td>
<td>Toppenish</td>
<td>20.d</td>
<td>06/19/06</td>
<td>07/14/06</td>
<td>50</td>
</tr>
<tr>
<td>52</td>
<td>Yakama Tribal Police</td>
<td>20.d</td>
<td>06/19/06</td>
<td>07/14/06</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Deploy Hitech Remote Workstations</td>
<td>193.d</td>
<td>03/27/06</td>
<td>12/20/06</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>YSO</td>
<td>40.d</td>
<td>03/27/06</td>
<td>05/19/06</td>
<td>46</td>
</tr>
<tr>
<td>55</td>
<td>Grandview Police Department</td>
<td>40.d</td>
<td>05/22/06</td>
<td>07/14/06</td>
<td>46,49</td>
</tr>
<tr>
<td>56</td>
<td>Sunnyside Police Department</td>
<td>40.d</td>
<td>06/19/06</td>
<td>08/11/06</td>
<td>46,50</td>
</tr>
<tr>
<td>57</td>
<td>Toppenish Police Department</td>
<td>40.d</td>
<td>07/17/06</td>
<td>09/08/06</td>
<td>46,51</td>
</tr>
<tr>
<td>58</td>
<td>Yakama Tribal Police</td>
<td>40.d</td>
<td>07/17/06</td>
<td>09/08/06</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Create Uniform Geofile</td>
<td>102.d</td>
<td>08/01/06</td>
<td>12/20/06</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Correct MSAG</td>
<td>40.d</td>
<td>08/01/06</td>
<td>09/25/06</td>
<td>28</td>
</tr>
<tr>
<td>61</td>
<td>Merge County and City GIS files</td>
<td>60.d</td>
<td>08/01/06</td>
<td>10/23/06</td>
<td>30</td>
</tr>
<tr>
<td>62</td>
<td>Scrub GIS Files</td>
<td>40.d</td>
<td>10/24/06</td>
<td>12/18/06</td>
<td>61</td>
</tr>
<tr>
<td>63</td>
<td>Transfer GIS Data to CAD Geofile(s)</td>
<td>2.d</td>
<td>12/19/06</td>
<td>12/20/06</td>
<td>62</td>
</tr>
<tr>
<td>64</td>
<td>Create Premise Info Files</td>
<td>171.d</td>
<td>01/02/06</td>
<td>08/28/06</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>Import Existing from CADs</td>
<td>20.d</td>
<td>08/01/06</td>
<td>08/28/06</td>
<td>28</td>
</tr>
<tr>
<td>66</td>
<td>Collect Additional Info</td>
<td>120.d</td>
<td>01/02/06</td>
<td>06/16/06</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>From Inspector Reports</td>
<td>120.d</td>
<td>01/02/06</td>
<td>06/16/06</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>From Property Owners</td>
<td>120.d</td>
<td>01/02/06</td>
<td>06/16/06</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>Create Unit Recommendation Tables</td>
<td>20.d</td>
<td>12/21/06</td>
<td>01/17/07</td>
<td>59</td>
</tr>
<tr>
<td>70</td>
<td>YSO</td>
<td>20.d</td>
<td>12/21/06</td>
<td>01/17/07</td>
<td>59</td>
</tr>
<tr>
<td>71</td>
<td>Local Police Department's</td>
<td>20.d</td>
<td>12/21/06</td>
<td>01/17/07</td>
<td>59</td>
</tr>
<tr>
<td>72</td>
<td>Fire Departments</td>
<td>20.d</td>
<td>12/21/06</td>
<td>01/17/07</td>
<td>59</td>
</tr>
<tr>
<td>73</td>
<td>Ambulance Services</td>
<td>20.d</td>
<td>12/21/06</td>
<td>01/17/07</td>
<td>59</td>
</tr>
<tr>
<td>74</td>
<td>Phase 4: Assimilate Existing Centers</td>
<td>447.d</td>
<td>12/26/06</td>
<td>09/10/08</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Yakima 9-1-1 and Dispatch Center</td>
<td>5.d</td>
<td>12/26/06</td>
<td>01/01/07</td>
<td>7</td>
</tr>
<tr>
<td>76</td>
<td>Yakima Valley Office of Emergency Management</td>
<td>5.d</td>
<td>12/26/06</td>
<td>01/01/07</td>
<td>7</td>
</tr>
<tr>
<td>77</td>
<td>Yakima Sheriff Office</td>
<td>5.d</td>
<td>09/04/08</td>
<td>09/10/08</td>
<td>82</td>
</tr>
<tr>
<td>78</td>
<td>Grandview Police Department</td>
<td>5.d</td>
<td>09/04/08</td>
<td>09/10/08</td>
<td>82</td>
</tr>
<tr>
<td>79</td>
<td>Sunnyside Police Department</td>
<td>5.d</td>
<td>09/04/08</td>
<td>09/10/08</td>
<td>82</td>
</tr>
<tr>
<td>80</td>
<td>Toppenish Police Department</td>
<td>5.d</td>
<td>09/04/08</td>
<td>09/10/08</td>
<td>82</td>
</tr>
<tr>
<td>81</td>
<td>Fire District #5</td>
<td>5.d</td>
<td>09/04/08</td>
<td>09/10/08</td>
<td>82</td>
</tr>
<tr>
<td>82</td>
<td>Phase 5: Build New Comm. Center</td>
<td>372.d</td>
<td>04/03/07</td>
<td>09/03/08</td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>Establish Funding</td>
<td>21.d</td>
<td>04/03/07</td>
<td>05/01/07</td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>Offer Referendum on 0.1 percent Sales Tax</td>
<td>1.d</td>
<td>04/03/07</td>
<td>04/03/07</td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Implement 0.1 percent Sales Tax</td>
<td>10.d</td>
<td>04/04/07</td>
<td>04/17/07</td>
<td>84</td>
</tr>
<tr>
<td>86</td>
<td>General Bond Issue</td>
<td>10.d</td>
<td>04/18/07</td>
<td>05/01/07</td>
<td>85</td>
</tr>
<tr>
<td>87</td>
<td>Contract Architect/Engineer</td>
<td>20.d</td>
<td>04/18/07</td>
<td>05/15/07</td>
<td>85</td>
</tr>
<tr>
<td>88</td>
<td>Acquire site</td>
<td>60.d</td>
<td>05/02/07</td>
<td>07/24/07</td>
<td>83</td>
</tr>
<tr>
<td>ID</td>
<td>NAME</td>
<td>DURATION</td>
<td>START</td>
<td>FINISH</td>
<td>PRED</td>
</tr>
<tr>
<td>----</td>
<td>------------------------------------------------</td>
<td>----------</td>
<td>-------------</td>
<td>--------------</td>
<td>------</td>
</tr>
<tr>
<td>89</td>
<td>Prepare Specifications</td>
<td>60.d05/16/07</td>
<td>08/07/07</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>Let Bid</td>
<td>40.d08/08/07</td>
<td>10/02/07</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>Award construction Contract</td>
<td>1.d10/03/07</td>
<td>10/03/07</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>Construct Center</td>
<td>240.d10/04/07</td>
<td>09/03/08</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>Phase 6: Build Out of New Voice Radio Systems</td>
<td>718.d01/02/06</td>
<td>10/01/08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>Lower Valley Fire (Fire District # 5)</td>
<td>33.d01/02/06</td>
<td>02/15/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>Upper Valley Fire</td>
<td>180.d01/02/06</td>
<td>09/08/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Upper Valley Law</td>
<td>240.d09/11/06</td>
<td>08/10/07</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>Lower Valley Law</td>
<td>240.d02/16/06</td>
<td>01/17/07</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>Install control stations at new center</td>
<td>20.d09/04/08</td>
<td>10/01/08</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>Establish Interoperable Frequencies</td>
<td>420.d01/02/06</td>
<td>08/10/07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>Program Subscriber Units</td>
<td>120.d01/02/06</td>
<td>06/16/06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Install VHF I/O Channel FNE</td>
<td>240.d09/11/06</td>
<td>08/10/07</td>
<td>95</td>
<td></td>
</tr>
</tbody>
</table>

**Appendix O**

**Consolidation Studies**

**FCSO/SECOM**
Project Background

- Project Background
- Objectives of the Project & Presentation
- Project Phases
- Conceptual Technology Integration
- Benefits of Technology Integration
- Proposed Implementation Areas
- Impending Investments
- Next Steps
Project Background

- Franklin and Benton Counties have increased the amount of operational interactivity between their public safety and emergency services.

- Assessment of the Current Environment:
  Technical Environment - Complex, with no coherent overall interoperable systems structure.
  Systems Support - No single point of problem resolution leading to inconsistent service for field personnel.
  Functional Needs - Many officers/deputies return to the office to complete reports because field reporting is ineffective.
  Downstream effect makes crime analytics challenging.
  Technical Management – Convoluted, providing little overall strategic systems direction.
  Costs - No integrated management makes cost management difficult.
Project Background

- Objectives of the Project

Improve service delivery for Public Safety, Emergency Services

Address service limitations identified in the Assessment, including
  - Reducing ongoing upgrade and maintenance costs over time
  - Providing for backup of both systems and dispatch capabilities
  - Reducing support complexity.

- Objectives of this Presentation

Get Commissioners to review the proposed direction, and if are in agreement with the concept, move forward with Phase 2, Detailed Design

The only commitment we are looking for is to move on to Phase 2
• Updated Proposed Interlocal Document
• Updated Conceptual Design
• Conceptual Staffing Recommendations
• Framework for Moving Forward

• More specific, detailed design for technology components required to deliver MATRICS services
• Bill of materials
• Recommendation for equity partnership based on provided assets

• Project Planning for PSAP, Dispatch and CAD Consolidation
• Project Implementation

• Project Planning for Law Enforcement Records Migration
• Project Implementation support
- **Primary Operations Center (at Benton County Dispatch site):**
  Acts as operations center and PSAP.
  Existing physical capacity to handle positions (10) in the call center.
  Acts as operational data center virtualized to Secondary Data Center.

- **Secondary Operations Center (Warm, unstaffed at Franklin County Dispatch site):**
  Unstaffed, warm facility with all required dispatching components available and connected to the Secondary Data Center for instantaneous access to CAD.
  Physical site could require upgrades to provide radio redundancy.
Technology Integration – Components

- **Public Safety Answering Point (PSAP):**
Answering point for all emergency calls in the bi-county area, consolidated to a single PSAP.
Under normal conditions, the PSAP is housed at the Primary Operations Center.

- **Primary Data Center:**
Located in Benton County Dispatch.
Virtualized systems management with Secondary Data Center.

- **Secondary Data Center:**
Located in a physically remote location (To Be Determined) on the Local Government Network (LGN).
Virtualized systems management with Primary Data Center.
Provides backup to the Primary Data Center.
Network & Network Management:
End-to-end network and routing provided by NoaNet over the Local Government Network (LGN).
100 Mb connections to all user sites.
5 Gb connections to Data Center, Primary Operations Center. 1Gb connection to the Secondary Operations Center.
Redundant Internet connections.
NoaNet to provide Network Operations Center (24x7 monitoring) services.
Technology Integration – Components

- Strategic, Integrated Management – A single governance body overseeing all emergency response within the bi-county area will provide:

  Holistic, strategic management and direct improved services to residents.

  Coordinated oversight of communications and information technology investments for improved services.

  Improved cost management and keeping contributions manageable and appropriately apportioned to the user agencies.

  End to end management of the data network would improve serviceability and recovery time.
Service Improvement
Integration of PSAPs would significantly reduce misdirected calls, potentially saving lives.

- Communications Centers report that 80% of calls are coming in over cell phones (compared with 50% average *).
- Five percent (5%) of calls (approximately 4,000 calls annually) must be transferred because they were directed to the wrong PSAP.

Redundant backup capabilities will mean no interruptions in service provision to the communities.

Single integrated CAD system would mean complete access to available information by all units responding to a call and would benefit mutual aid with real time view for accurate resource deployment.

All fire departments on a single radio system will improve coordinated response activities.

Opportunity to have all law enforcement agencies on a single radio system will improve interoperability and coordinated response activities.

Data sharing would continue to improve crime analysis and response capabilities across the bi-counties.
- Potential Savings Areas

Both PSAPs' equipment are reaching end-of-life. Consolidation should trim the overall cost of PSAP equipment replacement. In addition, it potentially makes available State 911Office funds for equipment replacement.

While consolidation may not result in significant reductions of communications staff, there may be some reductions in the number of support staff required.

The two Communications Centers are paying for maintenance on two separate Intergraph CAD systems; consolidation would produce some savings.

Both PSAPs are approaching NG 911. Consolidation will reduce overall migration costs.
Asset Valuation

- Members to the Agreement
- Purpose
- Definitions
- MATRICS Organization Structure (Executive Board, Executive Director, Staff, Strategic Advisory Committee, Ad Hoc Committees)

Roles and Responsibilities of each Organizational Component

- Adding New Members & Subscribers
- Finances
- Asset Transfer (Property & Equipment)
- Terms, ICA Compliance, Notices, Venue, Representation, Entirety, Severability, Ratification, Execution & Filing
- Exhibits
Asset Valuation

- During Phase 2, Detailed Design, we will:
  - Identify specific asset needs critical to the functioning of MATRICS.
  - Identify possible sourcing of those assets (e.g., existing within the bi-counties, vendors).
- The Steering Committee will recommend the Asset Model to be used.
- Decision Points:

  Assets that will be outsourced
  - Assets that will be transferred or leased to MATRICS
    Valuation of those assets transferred to MATRICS

  Cost apportionment to achieve an equity partnership arrangement on the MATRICS Board
## Asset Valuation

### Franklin County

<table>
<thead>
<tr>
<th>Management</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>(1)</td>
</tr>
<tr>
<td>Manager</td>
<td>(0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dispatch Supervisor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisors</td>
<td>(3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dispatch/Call Taking</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Dispatchers</td>
<td>(0)</td>
</tr>
<tr>
<td>Dispatcher/Call Takers</td>
<td>(15)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical Support</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm Technician</td>
<td>(1)</td>
</tr>
<tr>
<td>CAD Sys Admin</td>
<td>(1)</td>
</tr>
<tr>
<td>Outsourced Technical/Radio Support from Franklin County IT</td>
<td></td>
</tr>
</tbody>
</table>

### SeCOMM

<table>
<thead>
<tr>
<th>Management</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Manager</td>
<td>(1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dispatch Supervisor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisors</td>
<td>(2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dispatch/Call Taking</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Dispatchers</td>
<td>(4)</td>
</tr>
<tr>
<td>Dispatcher/Call Takers</td>
<td>(25.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical Support</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IS Manager</td>
<td>(0.8)</td>
</tr>
<tr>
<td>CAD Technician</td>
<td>(1)</td>
</tr>
<tr>
<td>GIS Technician</td>
<td>(1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Support TOTAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Specialist</td>
<td>(0.5)</td>
</tr>
<tr>
<td>Accounting Specialist</td>
<td>(0.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STAFFING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>21.0 Staff</td>
<td></td>
</tr>
<tr>
<td>36.6 Staff</td>
<td></td>
</tr>
</tbody>
</table>

* Bi-PIN: There is one full-time System Administrator assigned to Bi-PIN.
## Asset Valuation

<table>
<thead>
<tr>
<th>Function</th>
<th>Current Franklin/SeCOMM/BiPIN</th>
<th>MATRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>• Director {1.25}</td>
<td>• Executive Director {1}</td>
</tr>
<tr>
<td></td>
<td>• Manager {1}</td>
<td>• Manager {0}</td>
</tr>
<tr>
<td>Dispatch Supervisor</td>
<td>• Supervisors {5}</td>
<td>• Supervisors {4}</td>
</tr>
<tr>
<td>Dispatch/Call Taking</td>
<td>• Lead Dispatchers {4}</td>
<td>• Lead Dispatchers {4}</td>
</tr>
<tr>
<td></td>
<td>• Dispatcher/Call Takers {40.5}</td>
<td>• Dispatcher/Call Takers {34}</td>
</tr>
<tr>
<td>Technical Support</td>
<td>• IS Manager {0.8}</td>
<td>• Technology Manager {1}</td>
</tr>
<tr>
<td></td>
<td>• Comm Technician {1}</td>
<td>• Systems Administrator {1}</td>
</tr>
<tr>
<td></td>
<td>• CAD Sys Admin {1}</td>
<td>• Network Administrator {1}</td>
</tr>
<tr>
<td></td>
<td>• CAD Technician {1}</td>
<td>• GIS Technician {1}</td>
</tr>
<tr>
<td></td>
<td>• GIS Technician {1}</td>
<td>• Radio Technician {1}</td>
</tr>
<tr>
<td></td>
<td>• RMS Sys Admin {1}</td>
<td>• Computer Technician {1}</td>
</tr>
<tr>
<td></td>
<td>• Outsourced Technical/ Radio</td>
<td>• Outsourced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Accounting Support</td>
</tr>
<tr>
<td>Support from Franklin County IT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Support</td>
<td>• Support Specialist {0.5}</td>
<td>• Administrative {1}</td>
</tr>
<tr>
<td></td>
<td>• Accounting Specialist {0.5}</td>
<td></td>
</tr>
<tr>
<td>TOTAL STAFFING</td>
<td>• 58.6 Staff</td>
<td>• 50.6 Staff</td>
</tr>
</tbody>
</table>

*Support from Franklin County IT*
Based on the conceptual organization, the Staffing costs for MATRICS (2014 Budget) are shown below, with a comparison to the current structure (2013 Budgets).

<table>
<thead>
<tr>
<th>Cost</th>
<th>Franklin</th>
<th>SeCOMM</th>
<th>BiPIN</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries/Wages *</td>
<td>$934,150</td>
<td>$2,246,879</td>
<td>$118,610</td>
<td>$3,299,639</td>
</tr>
<tr>
<td>Benefits **</td>
<td>$302,931</td>
<td>$1,200,399</td>
<td>$49,780</td>
<td>$1,553,110</td>
</tr>
<tr>
<td>Training</td>
<td>$0</td>
<td>$0</td>
<td>$3,974</td>
<td>$3,974</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1,237,081</td>
<td>$3,447,278</td>
<td>$172,364</td>
<td>$4,856,723</td>
</tr>
</tbody>
</table>

For purposes of this analysis and comparison, the following assumptions were made:

* Salaries/Wages are budgeted at SeCOMM rates.
** The benefit load used was 47%.
Integration will require some one-time investments in order to make MATRICS operational. These are required to maintain current quality of service.

<table>
<thead>
<tr>
<th>Consolidation</th>
<th>1. Migration to Intergraph 9.3</th>
<th>$605,211</th>
<th></th>
<th></th>
<th>$605,211</th>
<th></th>
<th></th>
<th>$450,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Harden Primary OC Data Center</td>
<td>$200,000</td>
<td>-</td>
<td>$500,000</td>
<td>-</td>
<td>$200,000</td>
<td>-</td>
<td>-</td>
<td>$500,000</td>
</tr>
<tr>
<td>UPS Replacement</td>
<td>$100,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$100,000</td>
<td>-</td>
<td>-</td>
<td>$100,000</td>
</tr>
<tr>
<td>Fire Suppression *</td>
<td>$24,645</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$24,645</td>
<td>-</td>
<td>-</td>
<td>$24,645</td>
</tr>
<tr>
<td>Unified Communications PBX</td>
<td>$250,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$250,000</td>
<td>-</td>
<td>-</td>
<td>$250,000</td>
</tr>
<tr>
<td>Replicate Radio Capabilities of Primary OC</td>
<td>$1,179,856</td>
<td>$500,000</td>
<td>-</td>
<td>-</td>
<td>$1,679,856</td>
<td>-</td>
<td>-</td>
<td>$1,679,856</td>
</tr>
</tbody>
</table>

* Currently, the Benton County Data Center uses water for fire suppression. This would upgrade it to methods that do not threaten system operations if deployed.
Conceptual 2014 Operating Expenses include

- **20% Equipment Reserve**
- **Year 1 Consolidation Expense of $1,179,856**
- **2014 Expense Total of $7,157,996**

<table>
<thead>
<tr>
<th>Operating Expenses</th>
<th>Salaries and Wages</th>
<th>Benefits</th>
<th>Training</th>
<th>Equipment, Software &amp; Supplies</th>
<th>IT Support</th>
<th>Services</th>
<th>Other</th>
<th>Operating Expenses Subtotal</th>
<th>Operating Reserve (20% of Equipment)</th>
<th>Consolidation Capital Expense</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 3,299,639</td>
<td>$ 2,530,000</td>
<td>$ 63,875</td>
<td>$ 12,250</td>
<td>$ 6,875</td>
<td>$ 64,750</td>
<td>$ 46,000</td>
<td>$ 4,250</td>
<td>$ 4,250</td>
<td>$ 40,500</td>
<td>$ 17,250</td>
<td>$ 5,634,642</td>
</tr>
<tr>
<td>$ 1,553,100</td>
<td>$ 1,189,000</td>
<td>$ 30,021</td>
<td>$ 5,758</td>
<td>$ 3,231</td>
<td>$ 30,433</td>
<td>$ 21,620</td>
<td>$ 1998</td>
<td>$ 1,998</td>
<td>$ 19,035</td>
<td>$ 8,108</td>
<td>$ 400,872</td>
</tr>
<tr>
<td>$ 3,974</td>
<td>$ 13,750</td>
<td>$ 5,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 1250</td>
<td>$ 1250</td>
<td>$ 625</td>
<td>$ 625</td>
<td>$ 1,250</td>
<td>$ 1,250</td>
<td>$ 18,008</td>
</tr>
<tr>
<td>$ 1,179,064</td>
<td>$ 480,000</td>
<td>$ 180,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 300,000</td>
<td>$ 120,000</td>
<td>$ -</td>
<td>$ 60,000</td>
<td>$ 60,000</td>
<td>$ -</td>
<td>$ 4,043,001</td>
</tr>
<tr>
<td>$ 453,548</td>
<td>$ 115,936</td>
<td>$ 80,976</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 3,968</td>
<td>$ 1,992</td>
<td>$ -</td>
<td>$ 14,492</td>
<td>$ 55,976</td>
<td>$ 12,500</td>
<td>$ -</td>
</tr>
<tr>
<td>$ 942,286</td>
<td>$ 30,000</td>
<td>$ 5,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 5,000</td>
<td>$ 5,000</td>
<td>$ -</td>
<td>$ 2,500</td>
<td>$ 2,500</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>$ 537,768</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>$ 7,969,389</td>
<td>$ 4,358,786</td>
<td>$ 364,872</td>
<td>$ 18,008</td>
<td>$ 10,106</td>
<td>$ 469,401</td>
<td>$ 195,862</td>
<td>$ 6,873</td>
<td>$ 83,865</td>
<td>$ 179,261</td>
<td>$ 39,108</td>
<td>$ -</td>
</tr>
<tr>
<td>$ 96,000</td>
<td>$ 36,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 72,000</td>
<td>$ 24,000</td>
<td>$ -</td>
<td>$ 12,000</td>
<td>$ 12,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>$ 1,179,856</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Consolidation Capital Expense</td>
<td>$ 5,634,642</td>
<td>$ 400,872</td>
<td>$ 18,008</td>
<td>$ 10,106</td>
<td>$ 541,401</td>
<td>$ 219,862</td>
<td>$ 6,873</td>
<td>$ 95,865</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
</tbody>
</table>

CONSULTING
Based on the previous year service utilization, the conceptual charge basis for services are shown below.

<table>
<thead>
<tr>
<th>Charge Basis for Service *</th>
<th>Number of Calls</th>
<th>2014 Proposed</th>
<th>Total Units</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISDa</td>
<td>$5,634,642</td>
<td>$195,047</td>
<td>$28.89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$2132.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$96.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$1443.751</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$615.231</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combined</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$254.541</td>
<td>$342.371</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$3187.681</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$558.79</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* May want to consider availability costs as well as calls for service (demand)

** Includes support for 145 radios for Pasco PD
Based on the previous year tax revenues and calls for service (CFS), conceptual estimates for 2014 are shown below.

<table>
<thead>
<tr>
<th>Description</th>
<th>IS</th>
<th>$</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced 911 Tax - Switched</td>
<td>214,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhanced 911 Tax - Wireless</td>
<td>420,000</td>
<td>801,150</td>
<td>1,221,150</td>
</tr>
<tr>
<td>911 Added Tax</td>
<td>-</td>
<td>444,720</td>
<td>444,720</td>
</tr>
<tr>
<td>Total</td>
<td>634,500</td>
<td>1,577,370</td>
<td>2,211,870</td>
</tr>
<tr>
<td>Total Calls for Service</td>
<td>70,487</td>
<td>124,560</td>
<td>195,047</td>
</tr>
</tbody>
</table>
Using the conceptual estimates covered in the previous slides, and including the e911 Tax Credits, the conceptual 2014 Revenue is shown by source.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pasco</td>
<td>$1,047,685</td>
<td>$1,795,222</td>
<td>$55,288</td>
<td>$497,684</td>
<td>$1,297,538</td>
<td>$249,853</td>
<td></td>
</tr>
<tr>
<td>Kennewick</td>
<td>$1,260,810</td>
<td>$1,781,010</td>
<td>$53,458</td>
<td>$676,967</td>
<td>$1,104,042</td>
<td>$(156,767)</td>
<td></td>
</tr>
<tr>
<td>Richland</td>
<td>$970,995</td>
<td>$1,243,894</td>
<td>$37,244</td>
<td>$471,641</td>
<td>$772,253</td>
<td>$(198,742)</td>
<td></td>
</tr>
<tr>
<td>Franklin County</td>
<td>$500,549</td>
<td>$370,401</td>
<td>$10,650</td>
<td>$95,868</td>
<td>$274,533</td>
<td>$(226,016)</td>
<td></td>
</tr>
<tr>
<td>Franklin County Jail</td>
<td>$45,864</td>
<td>$69,138</td>
<td>0</td>
<td>-</td>
<td>$69,138</td>
<td>$69,138</td>
<td></td>
</tr>
<tr>
<td>Franklin County Fire</td>
<td>$32,025</td>
<td>$78,470</td>
<td>1,043</td>
<td>$9,389</td>
<td>$69,081</td>
<td>$69,081</td>
<td></td>
</tr>
<tr>
<td>Benton County</td>
<td>$834,087</td>
<td>$866,799</td>
<td>$20,412</td>
<td>$258,488</td>
<td>$608,311</td>
<td>$608,311</td>
<td></td>
</tr>
<tr>
<td>Benton County Jail</td>
<td>$215,960</td>
<td>$240,843</td>
<td>0</td>
<td>-</td>
<td>$240,843</td>
<td>$240,843</td>
<td></td>
</tr>
<tr>
<td>Benton County Fire</td>
<td>$208,272</td>
<td>$122,440</td>
<td>2,686</td>
<td>$34,014</td>
<td>$88,426</td>
<td>$88,426</td>
<td></td>
</tr>
<tr>
<td>Connell</td>
<td>$68,646</td>
<td>$128,057</td>
<td>3,506</td>
<td>$31,560</td>
<td>$96,497</td>
<td>$96,497</td>
<td></td>
</tr>
<tr>
<td>West Richland</td>
<td>$227,666</td>
<td>$201,741</td>
<td>5,010</td>
<td>$63,444</td>
<td>$138,297</td>
<td>$138,297</td>
<td></td>
</tr>
<tr>
<td>Prosser</td>
<td>$112,099</td>
<td>$226,688</td>
<td>5,750</td>
<td>$72,815</td>
<td>$153,873</td>
<td>$153,873</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>$46,389</td>
<td>$12,353</td>
<td>0</td>
<td>-</td>
<td>$12,353</td>
<td>$12,353</td>
<td></td>
</tr>
</tbody>
</table>

Subtotal - Members & Subscribers 1 $5,571,047 $7,137,057 $195,047 $2,211,870 $4,925,187 $
The information below summarizes the conceptual MATRICS revenue and expenses for 2014, with a comparison to the combined Counties' dispatch and technology organizational budgets for 2013.

<table>
<thead>
<tr>
<th>Category</th>
<th>2014</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Wages</td>
<td>$3,299,639</td>
<td>$1,553,110</td>
</tr>
<tr>
<td>Benefits</td>
<td>$ 3,974</td>
<td>$ 1,179,064</td>
</tr>
<tr>
<td>Training</td>
<td>$ 1,179,064</td>
<td>$ 453,548</td>
</tr>
<tr>
<td>Equipment, Software &amp; Supplies</td>
<td>$ 942,286</td>
<td>$ 942,286</td>
</tr>
<tr>
<td>IT Support</td>
<td>$ 537,768</td>
<td>$ 537,768</td>
</tr>
<tr>
<td>Services</td>
<td>$ 7,969,389</td>
<td>$ 7,969,389</td>
</tr>
<tr>
<td>Other</td>
<td>(7,969,389)</td>
<td>(7,969,389)</td>
</tr>
<tr>
<td>Operating Expenses Subtotal</td>
<td>$ 7,969,389</td>
<td>$ 7,969,389</td>
</tr>
<tr>
<td>Operating Reserve (20% of Equipment)</td>
<td>$ (20,939)</td>
<td>$ (20,939)</td>
</tr>
<tr>
<td>Consolidation Capital Expense</td>
<td>$ (20,939)</td>
<td>$ (20,939)</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>$ 7,782,917</td>
<td>$ 7,137,057</td>
</tr>
<tr>
<td>Enhanced 911 Tax - Wireless</td>
<td>$ 122,150</td>
<td>$ 122,150</td>
</tr>
<tr>
<td>911 Added Tax</td>
<td>$ 444,720</td>
<td>$ 444,120</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>$ 1,182,911</td>
<td>$ 1,131,051</td>
</tr>
<tr>
<td>Surplus (Overage)</td>
<td>$ (186,472)</td>
<td>$ (186,472)</td>
</tr>
</tbody>
</table>

PV CONSULTING
Planned and proposed capital improvement projects are shown below. Those listed in Year 1 have been approved by the BCES board for the 2014 budget year. Also shown is the cost differential if the two dispatch centers undergoing projects separately.

<table>
<thead>
<tr>
<th>Capital Improvement Projects</th>
<th>2000 MHz Upgrade</th>
<th>Intrado Infrastructure</th>
<th>800 MHz Interference Study / Mitigation</th>
<th>3. Migration to Web-based FRMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NG 911 Migration</td>
<td>- $</td>
<td>$21,000</td>
<td>- $</td>
<td>- $</td>
</tr>
<tr>
<td>Benton City Area Coverage</td>
<td>$21,000</td>
<td>- $</td>
<td>- $</td>
<td>- $</td>
</tr>
<tr>
<td>Remediation</td>
<td>$1,000,000</td>
<td>- $</td>
<td>$50,000</td>
<td>- $</td>
</tr>
<tr>
<td>Antennae Redesign</td>
<td>- $</td>
<td>$41,000</td>
<td>- $</td>
<td>- $</td>
</tr>
<tr>
<td>Purchase of a replacement</td>
<td>- $</td>
<td>- $</td>
<td>$200,000</td>
<td>- $</td>
</tr>
<tr>
<td>FRMS</td>
<td>$21,000</td>
<td>$109,100</td>
<td>$1,200,000</td>
<td>$2,312,000</td>
</tr>
</tbody>
</table>
| TOTAL                       | $21,000          | $109,100               | $1,200,000                             | $2,312,000                    | $500,000
• Cost Perspective - ROI in 3-5 years:
While this budget is based upon estimates, we anticipate that moving to a consolidated structure, such as MATRICS, saves the region approximately $500-650,000 in annual operating costs.
Investments must be made to achieve this consolidated structure. These investments are also based upon estimates, but are expected to be around $1.5-2.5 million.
This places the most conservative return on investment in MATRICS to be 3-5 years.

• Services Perspective - Approach supports our objectives:
Improved service delivery through streamlined, interoperable systems
Reduced ongoing upgrade and maintenance costs over time
Backup of both systems and dispatch capabilities
Reduced support complexity.
• Should the Commissioners provide a go-ahead, the following next steps will be undertaken.

Proceed to Phase 2, Detailed Design, in which the specific technical design and bill of materials required to implement MATRICS is created. The Steering Committee will provide a list of assets currently in use and determine which will be needed by MATRICS, their valuation and cost apportionment to achieve an equity partnership. Utilizing this information, we will be able to develop information to comply with State requirements regarding potential cost savings from the project.
<table>
<thead>
<tr>
<th>Phase 1 Commissions Review</th>
<th>Phase 2 Commissions Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Updated Proposed Interlocal Document</td>
<td>• Project Planning for Law Enforcement Records Migration</td>
</tr>
<tr>
<td>• Updated Conceptual Design</td>
<td>• Project Implementation support</td>
</tr>
<tr>
<td>• Conceptual Staffing Recommendations</td>
<td>• More specific, detailed design for technology components required to deliver MATRICS services</td>
</tr>
<tr>
<td>• Framework for Moving Forward</td>
<td>• Bill of materials</td>
</tr>
<tr>
<td></td>
<td>• Recommendation for equity partnership based on provided</td>
</tr>
<tr>
<td></td>
<td>• Project Planning for PSAP, Dispatch and CAD Consolidation</td>
</tr>
<tr>
<td></td>
<td>• Project Implementation support</td>
</tr>
</tbody>
</table>
• **Public Safety Answering Point (PSAP)** - entity responsible for answering emergency telephone numbers; usually this will be the Primary OC but could also be the Secondary OC or other location depending upon the need.

• **Calls for Service (CFS)** – an assignment directed by the Dispatch Center to law enforcement, fire and/or emergency services that require their presence to resolve, correct or assist a particular situation. CFSs are initiated by Dispatch Center and issued through normal channels (e.g., digitally through the CAD system, via radio).

• **Seats** – the number of licenses for software that a jurisdiction may use, typically as measured through the number of authorized log-ins to the software.
• **Primary Data Center** – where we host systems, store data.

• **Secondary Data Center** - backup data center.

• **Network** – how we connect everyone to the systems and data.

• **Primary Operations Center (Primary OC)** – where we house staff to perform call taking and dispatch functions and normally point the PSAP.

• **Secondary Operations Center (Secondary OC)** – warm, unstaffed facility where we function out of in case the Primary OC is no longer operational. Where the PSAP is pointed to in the event of a Primary OC failure.
• With available call data, staffing levels were calculated using models from the National Emergency Number Association (NENA) and the Association of Public-Safety Communications Officials (APCO) that utilize Erlang tables to determine optimal staffing levels.

• Key data points were:

Call volumes, including: 9-1-1 vs. non-emergency; busy vs. normal

Average call durations

Number and types of shifts

• Using this analysis, staffing recommendations are as follows: Construct staffing based on four 12-hour shifts.

Cross-train functions (call taker, dispatcher, radio, data support).

Staff each shift with at least 6 call taker/dispatchers, plus one lead dispatcher and one supervisor; day shift and peak events may require more staff, whereas night shift and non-peak times will require less.
Multi-Agency Three Rivers Information and Communication Services Interlocal Cooperation Agreement

THIS AGREEMENT ("Agreement") is made and entered into by and between Franklin County, Benton County, and the Cities of Pasco, Kennewick and Richland (hereinafter referred to as the "Members").

WHEREAS, the Interlocal Cooperation Act - ICA (Chapter 39.34 R.C.W.) authorizes and allows municipal corporations to make the most efficient use of their powers by enabling them to cooperate with each other on the basis of mutual advantage through the execution of Interlocal cooperative agreements; and,

WHEREAS, the Members desire to create a single services management organization to provide law enforcement, fire and emergency medical information technology, communications technology and related support services to the Members as the most efficient and economical method to support each of the Members’ respective constituents; and,

WHEREAS, the Members believe that their respective constituents, the public in general, and the users of the services to be provided by said organization will benefit through regional coordination and economies of scale as such activities are consolidated; and,

WHEREAS, This Agreement replaces and supersedes the Bi-County Police Information Network ("BI-PIN") Interlocal Agreement entered into in 1982, and amended in 1988, 1992, 1995, and 2003; the non-emergency management functions of Benton County Emergency Services ("BCES") Interlocal Agreement entered into in 1996, and amended in 2006 and 2008; and,

NOW THEREFORE: it is hereby agreed among the undersigned as follows:
1. Purpose

The purposes of this Agreement are:

A. To replace and supersede previous agreements, specifically Bi-PIN and BCES as stated above;

B. To establish the organization as a separate legal entity as authorized by ICA (R.C.W. 39.34.030(3)(b));

C. To establish a process of administrative oversight for said organization;

D. To establish a process for other jurisdictions and public service entities to become participants in this agreement; and

E. To enhance the provision of the law enforcement, fire and emergency medical information technology, communications technology and related support services to the Members through regional coordination and economies of scale.

2. Definitions

Unless a different meaning is plainly required by the context, words and phrases used in this agreement, they shall have the meanings attributed to them in ICA (R.C.W. 39.34), provided that in case of any conflict, Franklin County Ordinance, codified at Ch. ##.## Franklin County Code, shall control:

A. "Agreement" means this Multi-Agency Three Rivers Information and Communication Services Interlocal Cooperation Agreement.

B. "Member" or "Members" means those jurisdictions who are fully participating, having contributed significant assets to the MATRICS, are meeting financial obligations and have voting rights as determined within this Agreement. At the onset of this Agreement, this shall mean Franklin County, Benton County, and the Cities of Pasco, Kennewick, and Richland.
C. "Subscribers" means those municipal jurisdictions who are receiving some or all of the services provided by this organization for a contract fee, who do not have voting rights on the Executive Board and may not participate on the Strategic Advisory Committee.

D. "Service Line" means a major category of service being offered by MATRICS to its customers, having a fee schedule/formula associated with it.

E. "Quorum" means a majority of the number of members of the Executive Board. The Executive Board is required to have a quorum in order to conduct business.

F. "Simple Majority" means a majority of the members of the Executive Board present at the meeting that are entitled to vote.

G. "Super Majority" means a majority of the members of the Executive Board entitled to vote, plus one.

H. "Unanimous" means that all members of the Executive Board entitled to vote either agreeing or abstaining.

I. "Public Safety Answer Point" or "PSAP" is the entity responsible for answering emergency telephone numbers for law enforcement, fire and emergency medical services. The PSAP is often associated with a physical place, but its location is determined by where the phone company points incoming calls.

J. "Dispatch Center" is the physical location where emergency telephone numbers are answered by trained staff and from which law enforcement, fire and emergency medical services are directed to respond to emergency calls.

K. "Calls for Service" or "CFS" refers to an assignment directed by the Dispatch Center to law enforcement, fire and/or emergency services that require their presence to resolve, correct or assist a particular situation. The calls are initiated by the Dispatch Center and issued through normal channels (e.g., digitally through the CAD system, via radio).
L. "Data Center" is the facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communications connections, environmental controls (e.g., air conditioning, fire suppression) and security devices.

M. "Seats" refers to the number of licenses for software that a jurisdiction may use, typically as measured through the number of authorized log-ins to the software.

3. Organization
Under this Agreement, the Members agree to establish and participate in consolidated information and communication services hereby designated as the "Multi-Agency Three Rivers Information and Communication Services" (hereafter "MATRICS"), under the direct supervision of the MATRICS Executive Board herein created; and that MATRICS shall perform the information and communications services work for the Members, including budgeting, staffing, equipment procurement and management, service provisioning, and operations.

4. Structure
A. Components: The organization shall consist of an Executive Board, Executive Director, staff, Strategic Advisory Committee, and various ad hoc committees as created by the Executive Board. (See Exhibit A, Organizational Structure.)

B. Executive Board: The Executive Board shall:
   i. Consist of one voting representative from each Member, as designated by the legislative body of the Member.
   ii. Have responsibility for:
      1. Overseeing the strategic direction, policies, processes, contracts, and budget of the organization.
2. Reviewing and approving or rejecting applications for Membership from other jurisdictions.

3. Hiring, supervising and terminating the Executive Director, who shall serve at the behest of the Executive Board; the Executive Director may be hired for a term not to exceed three (3) years, unless re-appointed; appointment and re-appointment shall require a Super Majority of the Executive Board.

4. Establishing by-laws that govern the proceedings of the Executive Board.

5. Recommending appropriate actions to the legislative bodies of each of the participating Members.

6. Overseeing the provision of information technology and communications services to Members and Subscribers as Service Lines, and determining under what terms they shall be offered. (See Exhibit B, Service Lines.)

7. Establishing cost allocation formulas, rates and appropriate service charges for such services provided to Members or Subscribers.

8. Acquiring and holding radio frequency licenses to enable the organization to operate radio communications and dispatch systems to meet its responsibilities.

9. Establishing or causing to be established a fund or funds for the operations of the organization, as authorized by ICA (R.C.W. 39.34.030).

10. Entering into agreements with third parties for services necessary to fully implement the purposes of this agreement.
11. Applying for grants, enter into agreements with, and receive and distribute funds from any federal, state, or local agencies.

12. Reviewing and adopting an annual budget and associated amendments.

13. Reviewing and approving budget expenditures and, in the case of expenditures related to financing for which bonds were issued, including any expenditures for arbitrage rebate liability associated with those bonds.

14. Purchasing, taking, receiving, leasing, taking by gift, or otherwise acquiring, owning, improving, using and otherwise dealing in and with real or personal property, or any interest therein, in the name of the organization.

15. Selling, conveying, mortgaging, pledging, leasing, exchanging, transferring, and otherwise disposing of its property and assets.

16. Suing and being sued, complaining and defending, in all courts of competent jurisdiction in the organization's name.

17. Entering into contracts or agreements with prospective participating Members and Subscribers for MATRICS to provide services.

18. Reviewing and adopting personnel, purchasing and financial policies.

19. Performing any and all other acts necessary to further the organization's goals and purpose.

iii. Meet at least one time per quarter and be required to have a quorum in order to conduct MATRICS business.
C. **Strategic Advisory Committee**: The Executive Board shall establish a standing Strategic Advisory Committee for the purposes of providing ongoing recommendations to the Executive Board on matters critical to the strategic direction, and policies and procedural implementation within the Member and Subscriber agencies.

   i. The Strategic Advisory Committee shall:

      1. Meet at such time as the Committee shall determine.

      2. Select a Chairperson who shall:

         a. Advise the Executive Board as requested and required by the Executive Board;

         b. Conduct the meeting; and,

         c. Assume other functions as the Committee determines.

3. Work together to advise the Executive Board on changes to standardized policies and procedures and related technologies.

D. **Ad Hoc Advisory Committees**: The Executive Board may, from time to time, establish ad hoc Advisory Committees for limited duration and purpose as needed for the purpose of providing recommendations to the Executive Board on matters critical to the strategic direction, policies and budget of the organization. By Simple Majority, the Executive Board shall establish the membership of each ad hoc Advisory Committee, as well as its duration and purpose. The ad hoc Advisory Committees shall:

   i. Meet at such time as the Committee shall determine.

   ii. Select a Chairperson who shall:

      1. Advise the Executive Board as requested and required by the Executive Board;

      2. Conduct the meeting; and,
3. Assume other functions as the Committee determines.

   iii. Work together to advise the Executive Board on changes to standardized policies and procedures and related technologies.

E. **Executive Director:** The Executive Director shall:

   i. Have full responsibility and authority for the operation and maintenance of the organization and its assets, accomplishment of the goals of the organization as established by the Executive Board, supervision of staff, implementation of policies, procedures and directives of the Executive Board, and shall provide all necessary support for the organization.

   ii. Perform duties pursuant to the execution of this Agreement, and other duties and responsibilities as may be assigned by the Executive Board, and in particular shall:

1. Prepare for consideration and adoption by the Executive Board an annual budget of revenues and expenditures for the organization for the next fiscal year.

2. Prepare for consideration and adoption by the Executive Board an annual work plan for the organization, and the organization’s performance against the previous year’s work plan.

3. Through the Agreement established herein, and other appropriate contracts and agreements, direct and manage the provision of information technology and communications services to meet the goals and objectives as established by the Executive Board, and obligations to Service Line users.

4. Have the authority, delegated by the Executive Board, to hire, discipline, and discharge all MATRICS personnel in accordance with personnel policies approved by the Executive Board.
5. Subject to the approval of the Executive Board, negotiate and execute any collective bargaining agreements with MATRICS employees.

6. Administer all MATRICS day-to-day operations consistent with the policies adopted by the Executive Board.

7. Perform any and all other activities necessary to further the organization's goals and purpose, as directed by the Executive Board.

5. Addition of New Members and Subscribers

A. The Executive Board shall stipulate the application process and buy-in fee for a jurisdiction that is not a signatory to this Agreement who may desire to become a full Member. In addition to the buy-in fee, such new members would also be subject to the Service Line costs based upon their usage. The admission of such an additional Member shall be by written addendum to this Agreement, agreed to and signed unanimously by the Members at that time and a legitimate representative of the interested jurisdiction.

B. The Executive Board shall stipulate the application process for a municipal jurisdiction that is not a signatory to this Agreement but which is located either within a County that is a signatory or is adjacent to a County that is a signatory, and desires to become a Subscriber for all or partial Service Lines offered by MATRICS. The Executive Board may choose to delegate authority to offer such services without its specific review to the Executive Director. Such new Subscribers would be subject to the Service Line costs based upon their usage, and responsible for paying a network attachment fee to connect to the MATRICS network.
6. Finances

A. MATRICS shall be financed by the proceeds of the telephone excise taxes, 911 taxes, buy-in fees, and Service Line fees paid by subscribing agencies, as determined by the Executive Board.

B. Members shall direct any phone taxes and 911 taxes they would normally receive to the normal operation and administration of MATRICS.

C. In the event of an emergency which results in costs to MATRICS in excess of the budgeted expenses for operations and administration, or of capital investments required in excess of those included in the organization’s Capital Improvement Plan (“CIP”), the Executive Board shall have the authority, by Unanimous agreement, to

   i. Proportionately levy, by percentage of total budget responsibility, additional fees to the Members to cover the unexpected liability.

   ii. Assess the cost overrun to an agency or agencies, should the cost overrun be the result of that agency or agencies.

D. The Executive Director shall prepare an annual budget for MATRICS for review and approval by the Executive Board and in accordance with the policies and procedures of the organization. The budget shall include:

   i. Proposed Service Lines, service levels, baseline operations budget, any proposed enhancements, recommended capital equipment acquisitions, and proposed financing methods.

   ii. Financing recommendations to include funding of long term capital debt, equipment replacement, and ongoing operations as established under appropriate agreements and/or resolutions.

   iii. Recommendations for any adjustments to cost allocation formulas, rates, and appropriate charges for services provided to the Member or Subscriber agencies.
E. Upon approval of the budget by the Executive Board, the Executive Director shall be authorized to make expenditures on behalf of MATRICS in accordance with the policies and procedures of the organization.

7. Property and Equipment

A. Upon ratification of this Agreement, the following properties, equipment and monies shall become the property of MATRICS:

i. TO BE DETERMINED BY THE STEERING COMMITTEE

ii.

B. The ownership of property, equipment or monies acquired by or through MATRICS on or after the execution of this agreement shall be the property of the MATRICS.

C. The ownership of property, equipment, or monies transferred to the organization from agencies superseded by this Agreement shall be the property of the MATRICS.

D. The ownership of property, equipment, or monies acquired through the receipt of 911 taxes shall be the property of MATRICS.

8. Terms

A. Duration of the Agreement: After signature by all the Members hereto, this Agreement shall become effective on January 1, 2012, and shall replace and supersede the BI-PIN and BCES Interlocal Agreements. The rights and obligations of BI-PIN, and the non-Emergency Management rights and obligations of BCES, having those rights and obligations by virtue of any existing contract and agreements, are hereby assumed by MATRICS. This Agreement shall have duration of ten (10) years from January 1, 2012. This Agreement shall be extended for five (5) year periods by Unanimous agreement of the Members.

B. Amendments: Amendments to this Agreement shall only be made upon a Super Majority vote of the Members. This section shall not affect how the Executive Board operates and conducts its business.
C. Withdrawals: Any agency may withdraw from this Agreement upon written request made to the Executive Board not less than six (6) months prior to the effective date of the withdrawal.

   i. Such agency shall remain liable for obligated payments during that six (6) month period, and shall be refunded any payments made but not obligated prior to the date of actual withdrawal.

   ii. Any agency so withdrawing shall be responsible for complying with State law regarding its obligations to provide the services previously provided by MATRICS.

   iii. The withdrawing agency releases ownership to the property, equipment, or monies eligible to them as part of this Agreement.

D. Liability: Each of the Members shall be solely responsible for its own negligence, and shall indemnify and hold harmless each of the other Members for its own negligence.

E. Termination: The Executive Board may, by a Super Majority vote, direct MATRICS to conclude business and set a date for final termination of the organization's function, which shall be at least one (1) year from that date.
9. Interlocal Cooperation Act Compliance

This is an agreement entered into under Chapter 39.34, R.C.W. Its purposes are described in Section 1. The organization, composition and nature of the MATRICS Executive Board are specified in Section 4. Its manner of financing and budgeting are described in Section 6. Its duration is as specified in Section 8. Its termination is as described in Section 8. The method for disposing of property upon withdrawal or termination is set forth in Section 8.

10. Notices

Notices required to be given under the terms of this Agreement shall be directed to the following unless all Members are otherwise notified in writing:

MATRICS Executive Board Chair
Multi-Agency Three Rivers Information and Communication Services [address]
(city) (state) [zip] [telephone]

11. Venue

The venue for any action related to this Agreement shall be in the Superior Court in and for Franklin County, Washington.

12. Representation

The Franklin County Prosecuting Attorney’s Office shall provide legal advice and act as counsel for MATRICS; provided that in the event that a conflict exists between MATRICS and any other client represented by the Prosecutor’s Office, then the Benton County Prosecutor’s Office shall provide such representation; and provided further that in the event that a conflict exists between MATRICS and any client represented by both Prosecutors’ Offices, MATRICS may retain outside legal counsel in that matter only.
13. Entirety
This document with its listed and attached Exhibits constitute the entire Agreement of the Members.

14. Severability
If any part of this agreement is held to be illegal or unenforceable, to the extent possible and practicable, the remaining parts of the Agreement shall remain in effect and binding upon all Members hereto.

15. Ratification
Acts taken in conformity with this Agreement but prior to its execution are hereby ratified and affirmed.

16. Execution and Filing
The Members agree that there shall be multiple original signature pages of the Agreement distributed for signature by the authorized representatives of the Members. Upon execution, the original signature pages of this Agreement shall be returned to the Franklin County Clerk, which shall file an executed original of this Agreement with the Franklin County Auditor. The Pasco City Clerk shall distribute duplicate conformed copies of the Agreement to each of the Members.
Appendix P

Evaluation of Consolidation of WSP/WSDOT Wireless Communications Systems and Operations
Washington State Department of Transportation

Washington State

Business Analysis

Evaluating Consolidation of WSP/WSDOT Wireless Communications Systems and Operations

“Service With Humility”
Final Report

May 31, 2011

“Service With Humility”
Table of Contents

1. EXECUTIVE SUMMARY .................................................. 7
   1.1 Scope of Work ................................................................ 7
   1.2 Sharing vs. Consolidating .................................................. 9
   1.3 A "System of Systems" ....................................................... 10
   1.4 Funding ........................................................................ 12

2. INTRODUCTION ................................................................. 13
   2.1 Project Scope ................................................................ 13
   2.2 Premise ........................................................................ 14
   2.3 Assumptions .................................................................. 15
   2.4 Definitions .................................................................... 16

3. BACKGROUND ..................................................................... 17
   3.1 Industry Standards and Guidelines ..................................... 18
      3.1.1 APCO Interoperability Improvement Levels .................. 18
      3.1.2 SAFECOM Interoperability Continuum ......................... 18
      3.1.3 APCO P25 Standard ................................................... 20

4. OPERATIONAL NEEDS ..................................................... 22
   4.1 WSDOT Mission Critical Activities .................................. 22
      4.1.1 WSDOT Construction and Engineering ....................... 22
      4.1.2 WSDOT Traffic Management Centers (TMCs) and Incident Response ........................................ 22
      4.1.3 WSDOT Regional and Area Maintenance ..................... 25
      4.1.4 Summary .................................................................. 26
   4.2 WSP Mission-Critical Activities ....................................... 27
   4.3 Washington State Fire Marshal (WSFM) Mission-Critical Activities .................................................. 28
   4.4 Washington Fire Training Academy (WFTA) Mission-Critical Activities ........................................... 29
   4.5 Summary ........................................................................ 29

5. ADVANTAGES AND DISADVANTAGES OF CONSOLIDATION .................................................. 31

Washington State Business Analysis Final Report
5.1 Information Gathered – Operations ................................................................. 31
5.1.1 Operations Consolidation - Definition.........................................................31
5.1.2 Consolidation Scenarios - Introduction .......................................................31
5.1.3 Consolidation Scenarios - Investments .......................................................32
5.1.4 Consolidation Scenarios - Savings ..............................................................34
5.1.5 Consolidation Scenarios – Service Impact .......................................................... 35
5.2 Observations and Findings - Property ........................................................................ 35
  5.2.1 Information Gathered - Building and Land Leases .................................................. 40
5.3 Sharing Spectrum ...................................................................................................... 40
5.4 Single Spectrum ........................................................................................................ 40
6. RECOMMENDATONS • EFFICIENCIES ........................................................................ 41
  6.1 Efficiency Recommendations .................................................................................... 41
7. FINDINGS AND RECOMMENDATIONS: CONSOLIDATION ........................................ 49
8. FUNDING OPTIONS ........................................................................................................ 60
  8.1 Overview and Assumptions ....................................................................................... 60
  8.2 Funding Options and Recommendations ................................................................. 65
    8.2.1 General Obligation Bonds for 6 years ................................................................. 65
    8.2.2 Annual Vehicle License Plate Renewal Tab for 6 years ....................................... 65
    8.2.3 Radio site lease income (both agencies) ............................................................ 65
    8.2.4 Federal Contributions due to the 700 MHz Broadband Initiative ...................... 65
    8.2.5 Expansion of Current Funding Initiatives ............................................................ 66
List of Figures

Figure 3-1: APCO Six Levels of Interoperability ................................................................. 18
Figure 3-2: SAFECOM Interoperability Continuum .......................................................... 20

List of Tables

Table 8-1: Funding Forecast, by Biennium ........................................................................ 64
# List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>APCO</td>
<td>Association of Public Safety Communications Officials</td>
</tr>
<tr>
<td>CAD</td>
<td>Computer Aided Dispatch</td>
</tr>
<tr>
<td>CB</td>
<td>Citizen's Band</td>
</tr>
<tr>
<td>DIS</td>
<td>Department of Information Services</td>
</tr>
<tr>
<td>EOC</td>
<td>Emergency Operations Center</td>
</tr>
<tr>
<td>ESD</td>
<td>Electronic Services Division (WSP)</td>
</tr>
<tr>
<td>FCC</td>
<td>Federal Communications Commission</td>
</tr>
<tr>
<td>FTE</td>
<td>Full Time Equivalent</td>
</tr>
<tr>
<td>HAR</td>
<td>Highway Advisory Radios (WSDOT)</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>IRT</td>
<td>Incident Response Truck</td>
</tr>
<tr>
<td>ISB</td>
<td>Information Services Board</td>
</tr>
<tr>
<td>ITS</td>
<td>Intelligent Transportation Systems</td>
</tr>
<tr>
<td>WN</td>
<td>Integrated Wireless Network</td>
</tr>
<tr>
<td>JOPS</td>
<td>A Joint Operations Policy Statement</td>
</tr>
<tr>
<td>LERN</td>
<td>Law Enforcement Radio Network</td>
</tr>
<tr>
<td>MHz</td>
<td>Megahertz</td>
</tr>
</tbody>
</table>
Computer Consultants International, Inc.

Washington State Business Analysis
Operations Consolidation

MOPA - Microwave Operating Policy Agreement

NPSPAC - National Public Safety Planning Advisory Committee

Final Report
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSCCR</td>
<td>On-Scene Command and Coordination Radio</td>
</tr>
<tr>
<td>P25</td>
<td>Project 25</td>
</tr>
<tr>
<td>SCIP</td>
<td>Statewide Communications Interoperability Plan</td>
</tr>
<tr>
<td>SIEC</td>
<td>Statewide Interoperability Executive Committee</td>
</tr>
<tr>
<td>SWAT</td>
<td>Special Weapons and Tactics</td>
</tr>
<tr>
<td>TA</td>
<td>Transition Administrator</td>
</tr>
<tr>
<td>TEF</td>
<td>Transportation Equipment Fund</td>
</tr>
<tr>
<td>TIP</td>
<td>Technical Implementation Plan</td>
</tr>
<tr>
<td>TMC</td>
<td>Traffic Management Center</td>
</tr>
<tr>
<td>VHF</td>
<td>Very High Frequency</td>
</tr>
<tr>
<td>UHF</td>
<td>Ultra High Frequency</td>
</tr>
<tr>
<td>WSCA</td>
<td>Western States Contracting Alliance</td>
</tr>
<tr>
<td>WSFM</td>
<td>Washington State Fire Marshal</td>
</tr>
<tr>
<td>WFTA</td>
<td>Washington Fire Training Academy</td>
</tr>
<tr>
<td>WSDOT</td>
<td>Washington State Department of Transportation</td>
</tr>
<tr>
<td>WSP</td>
<td>Washington State Patrol</td>
</tr>
</tbody>
</table>
1. Executive Summary

1.1 Scope of Work

Computer Consultants International, Inc. was contracted by the State of Washington to perform a business analysis pertaining to the Washington State Department of Transportation’s (WSDOT) wireless resources consolidating with the Washington State Patrol (WSP). The project scope was arranged in ten tasks, each with an area of focus pertaining to consolidation. The ten tasks that comprised the project scope were:

- Task I
- Task II
- Task III
- Task IV
- Task V
- Task VI
- Task VII
- Task VIII
- Task IX
- Task X
Task I of this business analysis reviewed the many studies and plans developed for the State Interoperable Executive Committee (SIEG), which are primarily focused on the needs of the entire state to deploy and operate a standards based statewide wireless interoperable network for the benefit of all state and local public safety agencies. Also reviewed were the additional plans developed by WSP and WSDOT.
Task II of this business analysis has clearly shown that "grand scheme" consolidation efforts in other states are high risk, and have led to delays, significant cost overruns, lack of sustainable maintenance and operations, and challenging system acceptance by users. Task II has also shown that "phased and carefully planned" deployment over multiple years has lower risks and leads to lower costs, sustainable maintenance and operations costs, and wide acceptance by users.

Task III of this business analysis has shown that the communications networks owned and operated by each state agency, most notably the WSP and the WSDOT have been uniquely developing over the years to support the widely divergent mission critical objectives of each agency. At this time, these wireless communications networks have little technical commonality that would support an immediate consolidation of networks and services without immediately adding costs to that which is presently budgeted.

Task IV demonstrates the efforts to meet federal mandates for the wireless communications networks of both WSP and WSDOT. The WSP must meet the Narrow Banding mandate; the cost of same must be borne by the WSP. The WSDOT must meet the rebanding mandate; the cost of which is to be borne by Sprint/Nextel, but some items of infrastructure will have to be converted by the WSDOT at a later date.

Although the wireless communications networks of other Washington State agencies were not reviewed, it is known that the Department of Corrections (DOC) has a large fleet of BOO MHz radios that also are going through the rebanding process and may in fact end up with P25 capable or upgradeable equipment. It is also known that the Washington State Department of Natural Resources (DNR) has recently upgraded their entire Very High Frequency (VHF) wireless communications network to a P25 standards capable digital network. The Department of Fish and Wildlife also should be undergoing a FCC mandated narrowbanding initiative that should position them for a transition to P25 standards. Other state agencies may be rebanding or narrowbanding their systems as well since many of them use either the WSP or the WSDOT infrastructures or the DNR infrastructure for their mobile fleets.

Task V of this business analysis has clearly shown that both of the WSP and the WSDOT wireless communications departments have been finding ways to share personnel resources, capital resources, and network resources where the business case supports such activities. As a result, both agencies are moving forward on a converging path towards the systems and activities outlined in previous SIEC and Agency studies in Task I. Task V also clearly shows that a forced consolidation will require both agencies to increase budgets, rather than realize any savings.
Task VI shows that overall, the lease income to both agencies is loosely based on the latest schedules generated by the Washington State Department of Natural Resources studies and combined, do not generate any significant income over and above lease expenses of WSP or WSDOT.

Task VII identified several efficiency improvements that can be gained in lieu of a mandated consolidation of the wireless communications systems, departments, and services of WSP and WSDOT. The savings that could be gained are real, but if enacted, will help avoid significant cost increases in the future, and therefore act as "cost containment" strategies.

Task VIII is the final report that is being provided at the conclusion of this project.

Task X compared operating costs of both agencies, but could not identify the costs related to a consolidation of both agency's wireless operations into a single recommended consolidated system. The operative word is "recommended" since this business analysis has determined that a forced consolidation would result in increased costs to both agencies. Task V demonstrated that a continued effort to encourage sharing and careful planning and funding on future required replacement needs and new Internet Protocol (IP) and P25 networks will result in the desired goal of an interoperable statewide "system of systems" for WSP and WSDOT within 6 to 8 years. This will provide the necessary basic infrastructure platform for other agencies to build upon to meet their interoperable needs.

Task X identifies funding methods that could be available to WSP and WSDOT. It is understood that this Business Analysis was driven by the desire to find a way towards a future statewide operable and interoperable wireless network for all state and local public safety entities.

I2 Sharing vs. Consolidating

Sharing makes more sense than consolidation. WSP and WSDOT have combined and shared sites, electronic infrastructure, and resources throughout the state where there was a business case supporting the needs of each agency's unique mission. Most of those instances involved sharing resources with other local, state or federal agencies where either the location or missions converged. In those cases where WSP and WSDOT do not share a common location or electronic infrastructure, the agencies continue to share with other
state and local agencies. Often, sharing is achieved through an exchange of services, assets or points of presence. A radio site that is occupied solely by WSP or WSDOT is the exception, not the rule; out of 193 sites, 139 involve some form of sharing. In those exceptional cases, circumstances are often driven by the agency's mission and individual coverage requirements.
Examination of each agency's mission and its relationship to other dependencies, such as partnerships requiring communications interoperability, show that for some time into the near future, WSP voice operations must remain operating on High Band VHF (150 MHz) spectrum and are moving toward a multi-band, multi-protocol approach. The spectrum presently used by WSP is severely limited in capacity with periods of traffic overloading. Further, the current technology is limited in its ability to accommodate additional users such as demanded by interoperability. WSDOT voice operations must remain operating on the 800 MHz spectrum during the FCC mandated rebanding process, also making limited use of the newer multi-band multi-protocol radio equipment. The spectrum used by WSDOT is also severely limited in capacity with occasional periods of overloading and cannot handle the additional users demanded by interoperability. Both agencies, however, can make effective voice and mobile data use of the 700 MHz digital spectrum, without excessive operations disruption, as products and applications are developed.

Although this business analysis has not uncovered any potential significant cost savings through a consolidation of WSP and WSDOT communications groups that could provide a path to a future statewide operable and interoperable communications network, there are some efficiency gains and some recommendations that are considered feasible, and could help pave the way for a future statewide interoperable network. This project has concluded that a consolidation of the WSDOT wireless Intelligent Transportation Systems (ITS) into the WSP Electronics Services Division will result in additional short- and long-term costs for both agencies. A more detailed analysis of the cost impact is provided in the appendices of this report.

B A "System of Systems"

The research conducted has identified that WSP primarily operates in the VHF band using voice as its first method of communication. WSP also provides interoperability with other State agencies in the VHF band. WSDOT primarily provides in the 700/800 Megahertz (MHz) band for mobile data and voice. In short, WSP operates and utilizes a statewide VHF voice network, and WSDOT operates and utilizes a statewide 700/800 MHz mobile data and voice network. Although each agency operates a statewide network in a specific frequency band, operations are not necessarily limited to that band. Each agency may operate network equipment in a certain band, but communications do not need to be limited to, or defined in any particular band.

It is believed that a case can be made to permit other State agencies to use the WSP or WSDOT wireless networks and infrastructures with exchange of mutual value, or fair market value if the services meet the critical missions of the WSP or
WSDOT. The case is less clear regarding said use of the infrastructure for the benefit of local public safety agencies.

Should the State of Washington plan to use part or all of the WSP or the WSDOT wireless communications network and infrastructure for interoperable use by local or Federal public safety entities in the future, the constitutionality of such action should be determined and a fair method of exchange of goods and services be developed if appropriate.

The proposed "system of systems" for WSP and WSDOT would primarily provide interoperable communications among its participants. Although efficiencies in capacity may be realized, congestion of frequencies would not ultimately be addressed by this strategy alone. Accordingly, it is also proposed that the infrastructure be expanded in phases to permit additional users through two funding measures. One, the joining entity must provide some form of infrastructure additions according to its local area needs, and two, that the appropriation of enhanced 911 funds be done in accordance with RCWs' 82.148.030; 82.148.060; 38.52.540(3); and 38.52.545(3). The justification for using Enhanced 911 funds for capital equipment to develop an expanded P25 statewide interoperable network is that it serves to route needed emergency services faster and more accurately to those needing the assistance. This is in direct correlation to the goals of enhanced 911 and it closes the loop and provides the final link to the service of communications from those needing help to those able to provide the help.

For other state agencies to join or use the WSP or the WSDOT wireless communications infrastructure now or in the future, the Washington State Constitution needs to be reviewed for appropriateness to use systems and highway infrastructure (includes radio sites, right of way, wireless infrastructure, etc) that have been purchased by highway funds. This business analysis will defer to a Constitutional Scholar, but the sections to be reviewed are "Article II, Legislative Department, Section 40, Highway Funds, Amendment 18, 1943 HJR No. 4 P938, approved November, 1944.

Other pertinent RCWs that refer to the acquisition, use, and disposition of highway property are 47.02; 47.12.010; 47.12.066; 47.12.120; 47.12.125; and 47.12.244. These RCWs include language referring to the need use the property only for highway purposes, and to return funds back into the Highway Fund or the Highway Right of Way Revolving Fund on the use, lease, rental or sale of said property. It can be easily argued that since the WSP is funded through the Highway Fund, that the WSP and WSDOT can share, join, use, or otherwise be part of each other's systems without exchange of funds or other value.
1.4 Funding

WSP and WSDOT were on a parallel growth path for communications until the early seventies. Since then, the communications development paths have been on a convergent path. Sharing sites, facilities, resources, and services is a viable strategy for operating in budgets that continue to tighten. This environment has forced the two agencies to share in a proactive fashion, with only the convergent technologies remaining. This report recommends that efforts continue toward a statewide interoperable radio network in the "system of systems" manner as detailed in the Technical Implementation Plan (TIP) and mandated by the SIEG (www.sieg.wa.gov). The lowest possible cost to the state and its taxpayers is for the two agencies' wireless groups to remain separate, each providing their special skill sets in support of their respective missions. WSP primarily provides mission critical public safety voice communications and digital microwave backbone. WSDOT primarily provides mission critical voice communications, ITS data and video, and star topology microwave backhaul.

If the end goal is for state agencies to be operable first, then interoperable, a funding solution must be in place. If the agencies are going to utilize wireless technology, it will require funding, and that funding must be made available. Options to ensure funding is secured should be vigorously pursued. Both initial and sustainable funding must be addressed and must include:

- Initial technology deployment
- Recurring annual technology management and maintenance
- Technology refresh (can be incremental refresh, not necessarily a forklift upgrade)
2. Introduction

2.1 Project Scope

WSDOT and WSP have been directed to investigate and identify any operational efficiencies to be gained by consolidating all or parts of WSP and WSDOT wireless communications systems operations. This business analysis will be used to help determine if such a merger is feasible, or result in any cost savings.

The Phase 1 report provides detail on the following key issues:

- What efficiencies and savings are available by consolidating all or parts of WSP and WSDOT wireless communications systems and personnel.

- A specific recommended most efficient path to achieve statewide P25 level 5 wireless radio capabilities for both WSDOT and WSP.

- Funding scenarios with timelines that present optimal optional approaches to implementation of any system or operational challenges.

- A detailed governance structure for operating any recommended system(s) which provides for the required operational needs of WSP and WSDOT.

- Comparative analysis of any recommended new system(s)’ costs to the cost of operating current WSP and WSDOT systems over ten (10) and twenty (20) year horizons.

- Identification of recommended efficiencies, if any, that can be implemented to reduce the cost of the current operations of each of the agency's statewide systems. This may include recommendations on system consolidation where the business case supports this.

- Evaluation of the wireless site lease income of both agencies with recommendations on how best to set rates and how best to capture and utilize
the funds to support funding of the recommended system. Include any recommended changes in statute required to support these recommendations.

- The impact federally mandated rebanding and narrowbanding transition may have on deployment of the recommended system.
• How the recommended system or systems can be used by other agencies including possible efficiencies or costs associated with their use.

• Identify what wireless functionality, if any, operated by each agency should not be included as part of the recommended interoperable capability.

• Analysis of current interoperability planning and deployment efforts, and the testing and deployment of P25 systems by State agencies, as well as local and regional interoperability efforts, with recommendations on how these efforts can continue to be used to promote and advance interoperability and leveraging of local and state investments.

This final report is being provided in accordance with the requirements set forth in project Task 8 - *Provide Recommendation Regarding Possible Consolidation of WSP/IWSDOT-owned Wireless Communications Operations*.

In this report, collected information is taken into account, and results produced from the previous project tasks, and provide the following:

• A recommendation regarding consolidating WSP and WSDOT-owned wireless communications operations, property, building and land leases, and equipment

• Recommend a preferred governance structure for any consolidation recommendation

• Recommend the most efficient path to achieve statewide P25 level 5 wireless radio capabilities for WSDOT and WSP

### 2.2 Premise

Recent proposed legislation discussed the opportunities of consolidating the WSDOT and the WSP radio communications systems, networks and staff under the WSP to save money, which could be used to further interoperability by developing a new common statewide
Wireless network infrastructure for the agencies. This is then presumed to be able to also provide the necessary infrastructure for other Federal, State, and Local public safety agencies on which to interoperate with each other in times of emergencies and disasters.
2.3 Assumptions

During this project, the consulting team identified and documented several assumptions, both written and verbal, commonly noted during discussions regarding the basis of consolidation during this work and review of the compiled material. These assumptions are based on documentation provided by the state and reviewed by the team. Many of these same assumptions were also found during the research of other states' efforts at consolidation of wireless communications services. Surprisingly, often the assumptions that drove the discussions of consolidation forward were later found to be either misunderstood, incorrect, or values changed with new technology and the passage of time. Assumptions that were captured during the research regardless of validity are provided below.

The SIEC Systems Architecture Report (SAR), published on August 1, 2005, assumes that all state agencies will spend approximately $220 million (2005 dollars) in replacements and upgrades to their radio systems over a ten-year period beginning in the year 2006. The report also assumes a ten-year maintenance and operations cost of $124 million (2005 dollars) over the same period.

The SAR assumes the ten-year capital expenditure for the recommended new system of multiple sub-systems to be approximately $278 million (2005 dollars) and the ten-year maintenance and operations cost to be approximately $223.5 million (2005 dollars).Although not explicitly stated in the SAR, it does appear that mobile and portable voice radio equipment replacements and upgrades by each agency will still be required. The increase in maintenance and operations costs are a result of additional Full Time Equivalent (FTE) positions required to manage a new all-inclusive wireless system. What is not clear are the costs attributed to the additional facilities and support requirements.

The original staff report to the SIEC by lead agency representatives disputed the SAR figures and indicated the total 10-year acquisition cost with maintenance and operations of this new system would be nearly $800 million.

Consolidating the WSP and WSDOT wireless technical staff could be accomplished without additional hidden cost consequences to the respective agencies.

Other states have applied the strategy of consolidated wireless functions, systems, and staff. This strategy was intended to save limited operating funds and improve interoperability for all public safety agencies within each state.
WSP and WSDOT have the legislative authority to acquire, construct, and maintain mountain top remote radio facilities and to own and operate wireless mission critical radio networks.
The State agencies, including WSP and WSDOT, have made little progress in cooperation, consolidation, and interoperability in recent years.

2.4 Definitions

Since this project is focused on the issue of consolidation, it is necessary to define consolidation, and distinguish consolidation from sharing.

Within the context of the Technical Implementation Plan (TIP), consolidation is referred to as "the centralized and consolidated control of shared infrastructure", "Consolidated assets under a single subsystem", and "implementing shared systems between agencies that can consolidate fixed assets."

Sharing is commonly understood to mean the joint use of a resource or space. However, sharing does not include the transfer of ownership of any assets or resources that are jointly used. Sharing, as used in the TIP, is an apparent qualifier of assets not exclusively used by one entity. Often, sharing may be considered a prerequisite to consolidation.

The Statewide Communications Interoperability Plan (SCIP) also references sharing as a solution for spectrum and governance. According to the SCIP, an interoperable system should allow for the sharing of data with other jurisdictions and levels of government during planning and deployment. In this context, the definition of sharing is supported, in that ownership of the data remains with the originating agency, but is shared with others.

Discussions took place during this project that focused on consolidation and sharing, as well as what is being done now and what is proposed. Many assets are already shared assets, such as sites, buildings, towers, and microwave channels. Some state owned sites are consolidated, such as Burlington Hill, Concrete, Parkland, and Orchards. However, these sites are also under shared management and control. Many lease-held properties are shared areas and other assets may be shared, but are not consolidated under a single agency management, maintenance, and control.
3. **Background**

The question initially posed within the scope of this project appears to be no longer "how much money can be saved by consolidation that can be applied towards a future interoperable radio network" but has morphed into "how much more will it cost the state and its agencies to force consolidation in areas where it makes no business sense, in order to position the two state agencies for the inevitable future interoperable radio network" as mandated by the SIEC.

The initial question, if asked circa 1975, would have yielded significant results in terms of cost savings and future state investments of communications infrastructure. Prior to 1965, the world of wireless communications belonged primarily to the highly licensed and regulated professional services and users such as the broadcast radio and television industry, business and industrial, public safety, and amateur radio services. The advent and use of the Citizens Band (CB) radio service made wireless communications affordable for the average citizen. The advent of cellular telephone technology in the late 1980's to late 2000's has enhanced the digital technology much more. The employees of government agencies, enlightened by the same media and available technology were then, and are now, the drivers behind deployment of newer technology used by the agencies to meet the needs and service demands of the general public.

Although slow to respond due to budgets and lack of funding, government agencies rose to the occasion to deploy newer technology to meet the growing demand to "do more with less" and "work smarter, not harder". This culture exists to this day and still is a force behind the two agencies' wireless communications groups.

Beginning circa 1973, WSP and WSDOT began to deploy newer technology envisioned in the early 1960's. This newer technology along with the demands from the public to provide public safety services in remote and rural areas, combined with the needs of the completed massive Interstate Highway road building projects, forced the requirement to construct and operate remote mountain top communications sites. WSP and WSDOT shared in the State Highway Funds, and the respective wireless communications groups devised methods to purchase real estate, lease real estate, construct, build, and share remote mountain top communications radio sites and towers. The practice of "cost avoidance by sharing" permitted each agency to continue their wireless missions and use fewer dollars that otherwise would have consumed more of each agency's budget. The informal policies and procedures that were developed also allowed the agencies to construct and share electronic infrastructure in those cases where the sites and electronic infrastructure met the unique business case and the mission of each agency.
3.1 Industry Standards and Guidelines

There are several standards and guidelines referenced in this report. The following are descriptions of the standards and guidelines that are referenced.

3.1.1 APCO Interoperability Improvement Levels

Guidelines adopted by the Association of Public-Safety Communications Officials (APCO) have been used to measure the levels of interoperability improvements provided by the proposed radio system components. APCO defines six levels of interoperability as displayed in the table below.

<table>
<thead>
<tr>
<th>Level</th>
<th>Interoperability Method</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Standards-based shared systems</td>
<td>The ultimate interoperability solution, which is useful for any scale of event from small to massive</td>
</tr>
<tr>
<td>5</td>
<td>System-specific roaming</td>
<td>Radios are programmed to work on the other's infrastructure within a set of pre-planned channels</td>
</tr>
<tr>
<td>4</td>
<td>Gateway/console patch</td>
<td>An effective way of connecting disparate systems with the possibility of different frequency bands</td>
</tr>
<tr>
<td>3</td>
<td>Mutual aid channels</td>
<td>Extends the communications range and allows connection to a console dispatcher</td>
</tr>
<tr>
<td>2</td>
<td>Talkaround</td>
<td>Provides interoperability where multiple radio users talk radio-to-radio on the same frequencies</td>
</tr>
<tr>
<td>1</td>
<td>Swap radios</td>
<td>The simplest and most basic method to physically exchange radios with other agencies involved in an event</td>
</tr>
</tbody>
</table>

Figure 3-1: APCO Six Levels of Interoperability

3.1.2 SAFECOM Interoperability Continuum
SAFECOM is a communications program of the Department of Homeland Security (OHS). SAFECOM provides research, development, testing and evaluation, guidance, tools, and templates on interoperable communications-related issues to state, local, tribal, and Federal emergency response agencies. SAFECOM published an Interoperability Continuum document, designed to capture and communicate the following critical success factors:

- Governance

- Standard Operating Procedures (SOP's)
- Technology

- Training & Exercises

- Usage

The Interoperability Continuum is intended to assist emergency response agencies and policy makers to plan and implement interoperability solutions for data and voice communications. The italicized text below is an excerpt from the SAFECOM website, and briefly explains the basics of the Interoperability Continuum:

The Interoperability Continuum is a tool designed to aid the emergency response community and local, tribal, state, and Federal policy makers and ensure they address critical elements for success as they plan and implement interoperability solutions. These elements include governance, standard operating procedures, technology, training and exercises, and usage of interoperable communications. This tool was established to depict the core facets of interoperability according to the stated needs and challenges of the emergency response community. The Continuum will aid emergency response practitioners and policy makers in their short- and long-term interoperability efforts.

The updated version of the Continuum presents both data and voice aspects of the technology element. This version was developed with practitioner input from the Continuum Working Group, which was comprised of members from the Office for Interoperability and Compatibility Practitioner Steering Group and the SAFECOM Emergency Response Council. With the group’s input, the updated version includes data communications as part of the technology element and emphasizes the importance of data communications in achieving a successful interoperability solution.
Interoperability Continuum

- Informal Coordination Between Agencies
- Joint SOPs
- Planned Events
- Common Application
- Gateway

Washington State Business Analysis
Operations Consolidation
Final Report
3.1.3 APCO P25 Standard

APCO Project 25 (P25) is a suite of digital radio communication standards intended for use by federal, state and local public safety organizations. The intent of the P25 standards was to enable interoperability and to promote competition among equipment vendors, through the application of open standards.

The P25 suite of standards is comprised of the following eight interfaces:

- Common Air Interface (CAI) - standard specifies the type and content of signals transmitted by compliant radios. One radio using CAI should be able to communicate with any other CAI radio, regardless of manufacturer.

- Subscriber Data Peripheral Interface - standard specifies the port through which mobiles and portables can connect to laptops or data networks.

- Fixed Station Interface - standard specifies a set of mandatory messages supporting digital voice, data, encryption and telephone interconnect.
necessary for communication between a Fixed Station and P25 RF Subsystem

- **Console Subsystem Interface** - standard specifies the basic messaging to interface a console subsystem to a P25 RF Subsystem

- **Network Management Interface** - standard specifies a single network management scheme which will allow all network elements of the RF subsystem to be managed

- **Data Network Interface** - standard specifies the RF Subsystem's connections to computers, data networks, or external data sources

- **Telephone Interconnect Interface** - standard specifies the interface to Public Switched Telephone Network (PSTN) supporting both analog and ISDN telephone interfaces

- **Inter RF Subsystem Interface (ISSI)** - standard specifies the interface between RF subsystems which will allow them to be connected into wide area networks
4. Operational Needs

4.1 WSDOT Mission Critical Activities
The mission of WSDOT is to keep people and business moving by operating and improving the state's transportation systems vital to the taxpayers and communities. WSDOT’s mission also includes building, modifying, and maintaining the state's highway systems, including Ferries and General Aviation, for better efficiency, safety, and capacity to minimize delays, reduce collisions and incidents, and improve the environmental qualities of Washington.

4.1.1 WSDOT Construction and Engineering
The Construction and Engineering sections of WSDOT are responsible for the planning, design, and construction of the statewide highway infrastructure. These sections require close communications with manufacturers, contractors, materials suppliers, and many other WSDOT, state, and private sector interest groups. Wireless communications capability for the Construction and Engineering groups is vital to communicate with the Maintenance and Operations sections and WSP during construction phases to manage traffic and information flow, keeping the travelling public safe. Construction and Engineering Groups also work with the ITS and Wireless Communications sections on pre-planning the ITS systems, device locations, and related traffic control systems along the highway infrastructure.

4.1.2 WSDOT Traffic Management Centers (TMCs) and Incident Response
The WSDOT TMCs are responsible for monitoring traffic flow and all situations that can affect the reasonable speed and safety of traffic on the state highway system. TMCs also monitor conditions and planned events on the local roadways in the urban as well as rural areas. There are seven TMCs operating throughout the state. A TMC exists in each of the WSDOT regions, as well as a second smaller TMC in the Northwest Region. The additional Northwest Region TMC is due to the large population and volumes of traffic in the Puget Sound Metropolitan Area, and is close to the Canadian border. This is a small, co-located TMC for WSDOT and WSP.

The Northwest Region TMC is located in the Regional Headquarters building in Shoreline (Seattle metropolitan area) and is several miles from the Washington State Patrol 911 Public Safety Answering Point (PSAP) and Dispatch Center in Bellevue. This geographic separation is not an issue since WSDOT and WSP
interconnect communications via fiber optical networks, microwave networks,
wireless radio systems, and traditional telephone networks. The technology employed between these facilities allows the agencies to work as if they co-existent.

However, some centers are co-located. Examples of co-location of the WSDOT and the WSP communications and traffic monitoring centers and networks are found in Yakima and Vancouver. Coordination of incident responses and other activities are accomplished by personal, face-to-face interaction and exchange.

One example of a "same building, but not co-located" configuration is the WSDOT Olympic Region TMC, which operates in the same building as the WSP 911 PSAP and Communications Center. Each center is located in the same building in Parkland. Coordination is accomplished by "in building" telecommunications wiring and internal fiber optic connectivity. Both centers share incoming and outgoing communications information and data via the WSDOT video networks, fiber optics, road and weather sensors and the WSP backbone microwave infrastructure and telecommunications networks. In the event of a large-scale emergency, both agencies deploy a command officer to the other agency's center to coordinate response efforts.

The WSDOT North Central Region TMC is located in Wenatchee, across the street from the WSP District Headquarters that houses the WSP 911 PSAP and Dispatch Center. The two agencies share information via fiber optic and telecommunications cables between the buildings. In the event of a large-scale emergency, both agencies deploy a command officer to the other agency's center to coordinate response efforts.

The WSDOT Eastern Region (Spokane) TMC is a regional multi-jurisdictional facility controlled and funded by the Cities of Spokane and Spokane Valley, Spokane Transit Authority, Spokane County, the Spokane Regional Transportation Council and WSDOT. It is co-located with the transportation nodes of Spokane and Spokane County in the same building, but the WSP center is located several miles away. The separation issues could be reduced by co-locating, but physical space prevents that. The coordination issues are presently and adequately handled by fiber optic connectivity, wireless radio, and microwave connectivity.

TMCs typically access and gather traffic information and flow data via a number of technical means. All TMCs access, control, and monitor video camera images of the critical points on the state highway infrastructure. Additionally, sensors embedded in the highway pavement and along rights of way provide critical data, and reports of incidents are received via traditional telephone systems. WSDOT video highway camera traffic flow and incident images are typically provided to the WSP centers and to local 911 dispatch
centers. Camera control access is typically granted to the WSP dispatch center and the WSP typically provides a certain level of Computer
Aided Dispatch (CAD) information back to the WSDOT TMCs to maximize the response coordination to traffic incidents and large-scale emergencies.

The WSDOT TMCs receive data and operational information from a myriad of sources. These sources include incoming telephone reports from citizens, reports from other agencies and 911 PSAP and dispatch centers. Other sources include automated sensors, ITS devices, synchronized traffic signal networks, video traffic monitoring cameras, wireless data transmitters from fleet vehicles, a few WSDOT geopositional truck sensors, and real time voice radio transmissions from WSDOT field employees, and the Incident Response Trucks (IRTs) that are roving the highways.

In response to the incoming information and data, the TMCs manage traffic flows, place appropriate digital messages on the variable message signs, change the variable speed limits in critical areas, prepare and place messages on the 511 travel information systems, and place appropriate messages on the Highway Advisory Radio networks for motorists to access. The TMCs also coordinate the activities of the Incident Response Trucks and other maintenance response vehicles and in partnership with the WSP, help to coordinate other teams that respond to collisions and incidents on the highway infrastructure. Among the most visible duties of the TMCs is coordination and control of the video feeds from highway traffic cameras to the television and radio broadcast outlets that keep the public informed of important transportation blockages and delays.

Each WSDOT TMC is in contact with its adjacent regional TMC and with Emergency Operating Centers (EOC) throughout its jurisdiction. Information is shared as necessary.

There are approximately 50 WSDOT vehicles, Incident Response Trucks (IRTs), and personnel assigned to Incident Response tasks. Approximately 20 of these vehicles are specially constructed and fully equipped to handle most serious incidents that occur on and off the highway system. Their duties include carrying specialty equipment for first-on-scene activities to mitigate collisions and incidents that block the highway corridor, managing traffic to enable emergency fire, rescue police and ambulance to safely arrive and coordinate blockage and debris removal and keeping the scene safe for motorists. These IRTs carry and use WSP radio equipment as well as WSDOT radio equipment. The trucks and personnel are dispatched directly by either the WSP dispatch center or the WSDOT Regional TMC. The other 30 vehicles assigned duties for Incident Response are support vehicles carrying traffic control signs and devices to direct traffic well in advance of the incident. They also provide motorist assistance to help disabled vehicles and their
drivers to resume travel in order to clear the roadway thus preventing the opportunity for more serious incidents to occur.

4.1.3 WSDOT Regional and Area Maintenance

WSDOT Regional and Area Maintenance crews are responsible for the day-to-day maintenance and operations of the highway infrastructure. The infrastructure includes the rights of way, the highway corridors, bridges, walkways, bike lanes, park and ride lots, and nearly everything else installed on or within the infrastructure. The highway infrastructure also includes property and facilities that are not on the highway rights of way, but are purchased by federal and state highway funds and used to support the construction, maintenance, and operations of the highway system. These include borrow pits, sand and gravel extraction areas, storage areas, critical wetlands, water mitigation ponds, low level radio sites and facilities, mountain top radio sites and facilities and land purchased to secure wireless beam paths for microwave and wireless transmission from potential and future interference.

The regional and area Maintenance and Operations sections of WSDOT are responsible for the highway infrastructure in their jurisdiction. A few of the easily recognizable duties range from repairing and maintaining guardrails, pot holes, signs and replacing other damaged items to painting, striping, snow and ice control, avalanche control, roadside maintenance, highway lighting systems, traffic signals, lane controls, and building and facilities maintenance.

At the regional level, there are region-wide special work groups that have unique skills. Among these region-wide work groups are bridge maintenance, Traffic Management Engineering, ITS wireless and wireline specialists, radio wireless and microwave specialists, facilities construction and maintenance, electricians, information technologists (IT), signal technicians, and mechanics.

These work groups often blur the lines of duties between them to accomplish work tasks involving more than one type of skill set. For example, the construction of a radio tower may involve statewide employees for land acquisition, soil analysis, survey work, environmental assessments and microwave wireless engineering. The work will also involve the region-wide bridge crew for foundation and erection work, the region wide electrician for electrical work, the area maintenance crew for materials handling and the radio wireless crew to install the antennas, microwave, cameras and cables. Also involved will often be the region IT specialist and the ITS specialist for installation of their specialized devices and microwave equipment. Although each person or crew has a specialty, they each assist each other to maximize work efficiency.
WSDOT Maintenance and Operations is the largest field force and is the largest user group requiring wireless communications networks and equipment that provides immediate and reliable communications for both routine and emergency needs of the motoring public. Although not officially designated in the category as a First Responder, members of WSDOT M&O should be designated as Initial Responders to incidents, collisions, emergencies, and disasters both on and off the highway right of way. Due to the nature of their work duties, which place them on the highway system, members of this group are often first on the scene of serious problems ranging from automobile collisions, visual house and field fires, natural disasters and motorists medical emergencies. Following the arrival of the First Responders, these WSDOT employees revert to their duties of protecting the scene, managing traffic, and keeping the citizens and first responders from further harm.

There are very few field crews in WSDOT that do not have a day-to-day working relationship with wireless radio and ITS. The most common and visible form of wireless communication is the use of agency owned mobile and portable radios (for routine and emergency voice contact with work groups and larger audiences), and cellular hand held devices (for routine voice contact with individuals in the private sector). Some CB radio equipment is installed in WSDOT maintenance vehicles to provide direct contact with truckers on the highway system and also to logging trucks for the more rural roadways. Agency owned voice radio equipment is extensively used statewide for all operations but is relied upon completely in the rural areas lacking cell phone coverage, and also extensively used statewide for individual work tasks such as surveying, GIS operations, flagging, traffic control, ferry operations, ferry loading, ferry security, avalanche control, winter search and rescue, disaster recovery, and intra-agency communications. The agency radio networks are used extensively for interoperable communications when required with and between other agencies in the field and also select work groups that provide interoperable connectivity between most state agencies EOCs (including the State EOC at Camp Murray and local agency EOCs). A select workgroup also connects all WSDOT and some WSP EOCs and the Governor's Office for use during disaster situations. Less visible perhaps are the backhaul ITS wireless networks (used where the business case dictates) that connect roadside message signs, road and weather data gathering and transmissions, variable speed limit signs, automated data geo-positional and performance/operational transmissions from fleet vehicles, and highway advisory radio networks, video feeds from critical parts of the highway system, mountain passes, and border crossing points.

**4.1.4 Summary**
Excluding some of the office staff personnel of WSDOT, virtually all WSDOT divisions use wireless radio communications of some kind. In fact, most divisions
must use the WSDOT wireless communications network in order to meet their operational and mandated mission critical goals to provide a safe, secure, and efficient multimodal transportation network for the citizens of Washington, and to meet those needs in times of disasters.

To better meet the operational mission critical mandates and improve work efficiency of the various sections of WSDOT, a statewide mobile data network is required, as well as an interference-free higher capacity voice mobile radio system.

4.2 WSP Mission-Critical Activities

The mission of WSP is to enhance the safety and security of Washington by providing the best in public safety services. WSP provides basic and advanced law enforcement activities, criminal investigations, traffic law enforcement, fire protection training, fire agency coordination, communications interoperability coordination, and protection of the citizens of Washington on the highways, places of work and recreation, on the waterways and ferries, and in the communities both urban and rural.

The WSP operates a Field Operations Bureau, Forensic and Laboratory Services, Technical Services, Support Services, Investigation, and State Fire Marshal's Office.

The Field Operations Bureau has the most extensive use of wireless communications devices in the trooper's work providing safety services, law enforcement, and collision investigation on the states' highway system and support to the Federal and local law enforcement agencies.

WSP has eight district headquarters offices. They are located in Bremerton, Tacoma, Vancouver, Wenatchee, Spokane, Yakima, Marysville, and Seattle (Bellevue). Each district headquarters office has a 911 Answering Point and Dispatch Center. Each dispatch center is either co-located in the same room, co-located in the same building or electronically linked with the WSDOT TMCs.

The function of the WSP Communications Dispatch Center is to provide emergency dispatching for law enforcement officers, receive 911 calls from the public, and interface with the other PSAPS in their districts. In some cases, this includes working with counterparts in adjacent districts, adjacent states and with British Columbia. Each of the WSP dispatch centers receives information via 911 calls, traditional telephone calls, and wireless
radio communications from local agencies, the troopers on the road, the WSDOT IRT vehicles and the WSDOT TMCs. The centers are open 24/7 and available for walk in reports and requests for assistance. Pertinent information is entered into the WSP Computer Aided Dispatch (CAD)
system and is made available to authorized and affected jurisdictions such as the WSDOT TMCs. Critical information is transmitted to WSP responding units and if the situation warrants, to the WSDOT Incident Response Trucks.

WSP vehicles are equipped with VHF high band transceivers (136 – 174 MHz). These radios are programmed with all the WSP primary (area) frequencies, as well as designated car-to-car frequencies, and designated interoperability frequencies. Through the use of "frequency use authorizations" with other agencies, the radios are programmed with local and county police and fire frequencies. Some of the WSP vehicles have additional UHF (local and county police and fire frequencies. Some of the WSP vehicles have additional UHF (450 or 800 MHz) radios installed to utilize county law enforcement radio systems for interoperability or operational situation awareness. WSP also utilizes shared cross-band repeaters to bridge the frequency band gaps. Examples of this are WSP/WSDOT repeaters in the mountain pass areas that enable the troopers and the snow plow operators to talk directly with each other to coordinate snow and ice removal and collision mitigation operations, the MARS cross-band system in King County, and the cross-band repeaters on the OPSCAN system in Clallam County. In Benton County, some WSP troopers have multi-band radios that operate on both the WSP analog VHF system and the Benton County 800 MHz P25 trunked system.

WSP interoperates with; WSDOT, Department of Corrections (DOC), Department of Natural Resources (DNR), State Fisheries and Wildlife, US Forest Service law enforcement, United States Coast Guard, and others through designated interoperability channels. These communications channels are the Law Enforcement Radio Network (LERN), On-Scene Command and Coordination Radio (OSCCR), and the WSP State Common Frequency for VHF users. Additionally, several troopers have the ability to communicate with Federal Law Enforcement agents utilizing the trunked Integrated Wireless Network (IWN) system, and numerous city and county agencies throughout the state.

Some specialty teams of the WSP utilize radio equipment with encryption technology for communications security purposes.

4.3 Washington State Fire Marshal (WSFM) Mission-Critical Activities
The Washington State Fire Marshal's Office is organized as a Bureau within WSP and performs the duties of providing approvals for mobilizing and in coordinating fire agencies throughout the state when fire situations require more resources than available in
individual jurisdictions. The WSFM will dispatch an Incident Management Team to large fire scenes to coordinate resources being brought in. They utilize wireless air cards with laptop computers and cell phones where
coverage exists to send and receive voice and data information. The Washington Emergency Management Division also provides satellite connectivity for those functions if terrestrial cellular coverage is not available.

In addition to the requirement to interoperate with other state agencies and city and county public safety agencies, the WSFM interoperates with the US. Forest Service, National Parks Service, Bureau of Land Management, Bureau of Indian Affairs and the U.S. Fisheries and Wildlife.

4.4 Washington Fire Training Academy (WFTA) Mission-Critical Activities

The Fire Training Academy is a division of the Fire Protection Bureau and its duties are to provide live fire training to fire and emergency response personnel, both public and private, via both initial and follow on training.

WFTA, located just east of North Bend and north of I-90, has classrooms for providing structured standardized curriculum on fire protection, fire suppression, and emergency response. The training facility includes full sized buildings, vehicles and other facilities in which to provide realistic fire activities to reinforce and practice the classroom training. The Training Academy uses VHF portable radios to provide communications during realistic training exercises.

Clients of the WFTA include the marine industry, airports, tribal governments, and fire services throughout the State of Washington, and Federal agencies such as Homeland Security. The WSP Bomb Squad and Special Weapons and Tactics (SWAT) Teams use the facility for their specialized training, but in general do not receive fire training per se.

4.5 Summary

Excluding some of the office staff and the WSFM, virtually all of WSP relies upon a well maintained and engineered wireless communications system to perform their mission critical activities. The welfare of the general public of the State of Washington and all of the agency dependencies of the WSP rely upon the WSP wireless radio network during day-to-day activities and especially during times of emergencies. To adequately meet these needs, WSP itself requires, but does not have a radio network with adequate frequency capacity. In other words, the statewide signal coverage on the VHF network seems
adequate, but the statewide frequency (radio channel) capacity is piecemeal and operating at maximum capacity such that during times of crisis, the network is frequently overloaded causing
message delays. Presently, WSP often relies upon sharing agreements with local agencies to provide local frequency capacity.

It should be noted that WSP uses a very limited mobile data network available only on UHF in the Puget Sound Metropolitan Area. WSP requires a statewide efficient mobile data platform to handle emerging data information applications that will improve troopers' efficiency and effectiveness in serving and protecting the citizens of Washington.
5. **Advantages and Disadvantages of Consolidation**

Within the project effort, a significant amount of time was spent on researching and analyzing the advantages and disadvantages of consolidating WSP and WSDOT. This section presents a summary of the information collected during that effort.

5.1 **Information Gathered - Operations**

The following sections present the information gathered relevant to discussions held and research conducted on the operations aspect of consolidation.

5.1.1 **Operations Consolidation • Definition**

The first point to be discussed as part of this task component is to define the term "operational consolidation". From discussions held with the project team members from WSDOT and WSP, operational consolidation could be defined as the creation of a single pool of technical resources charged to manage and maintain the state's wireless emergency communications network. The technical resource pool would be managed by a single agency, with a single set of responsibilities and mission objectives.

However, it is also possible to realize and define alternate methods of operationally consolidating without taking the step of merging all of the wireless communications technical resources under one agency banner. Part of this task included research and discussions to explore the concept of a technician sharing program. State agencies could share, exchange and/or borrow wireless systems, software, and technologies' technical and technical management resources, when needed, to manage and maintain wireless networks.

In summary, there is a classic definition and approach to operational consolidation. There are also variables to the classic model that might result in efficiencies and savings. WSDOT and WSP are already working to realize some of the efficiencies of consolidation by an informal technician sharing program that leverages resources from the other agency when needed.

5.1.2 **Consolidation Scenarios • Introduction**

The other aspect of savings that could be realized by operational consolidation is the reduction of the overall number of technicians if both groups were brought together as a single group. In other words, could the combination of WSDOT technical resources (21 people),
combined with WSP technical resources (39 people) result in an overall reduction in head count from the total of 60 people. Further, would the net
result be a cost savings when the investment of consolidating is compared to the savings of the consolidation itself. This investment vs. savings issue was reviewed and discussed in a variety of scenarios, they are:

- Scenario #1: WSDOT and WSP Technicians combining as a group in a separate organization

- Scenario #2: WSP Technicians moving to WSDOT

- Scenario #3: WSDOT Technicians moving to WSP

Scenario #1 was only briefly researched by the group. It was quickly determined that the cost of establishing a completely new organization would be cost prohibitive and unnecessarily complicated.

Scenario #2 was researched at some length, and is being practiced by some states such as Kansas where dispatch functions are separate but the technical systems maintenance is done entirely by Kansas DOT. It is possible to transfer WSP technical staff and their responsibilities to WSDOT in the state of Washington, although issues arise with the concept of WSDOT managing and maintaining law enforcement equipment due to the inclusion of Federal Law agencies. It was agreed that the political and logistical challenges associated with this scenario would render it unfeasible.

Scenario #3 was researched the most of all the scenarios considered. In this scenario, all WSDOT wireless technical personnel would be transferred to WSP. Additional detail is provided in the sections that follow, and are focused solely on scenario #3.

5.1.3 Consolidation Scenarios • Investments
As mentioned in the previous section, consolidation scenario #3 is the scenario that was investigated in depth during this task effort. Scenario #3 involves the transfer of all WSDOT wireless technical personnel to the WSP. This scenario would also include the transfer of wireless ITS personnel. However, there are some resources supporting WSDOT communications that would not migrate, they are:

- Non-wireless ITS personnel
There are non-wireless aspects to WSDOT's ITS program. These aspects are primarily network and content based, but are not considered wireless. Since there
are some of the 21 ITS personnel that work both the wireless and non-wireless components of ITS, a transfer of wireless personnel to WSP would require WSDOT to back fill some of those vacated positions with non-wireless personnel. This means there would actually be an increase in personnel required to support the ITS program. Due to the specialized nature of the ITS work, these responsibilities cannot be absorbed by other WSDOT personnel.

All fulltime, non-technical support personnel that are directly involved in supporting wireless infrastructure would need to be transferred in any consolidation effort. For example, draftspersons support the WSDOT wireless program but are not technical in nature.

Since these resources would not transfer with the technical personnel, providing these resources in-house requires a change by the union. As such, provisions would need to be made to have these services available to WSP when they are needed. This means it is possible that WSP personnel costs would increase since more non-technical resources would be required through interagency agreement or contract.

Additional FTEs, as identified in the TIP, will be required. The statement in the TIP, suggesting that consolidation to provide one common interoperable network first for state agencies and second for local entities would require 20 additional FTEs within the immediate 10 years, if true, would negate potential cost savings in the long run. If there are no cost savings in the immediate and none in the future, then consolidation as a cost savings measure is no longer a viable option.

WSP would require 21 FTEs for maintenance of WSDOT equipment, compared to 14 regional FTEs performing this work within WSDOT today. The reason the WSDOT FTE numbers are lower is because the other work is provided by non-technical WSDOT personnel.

WSDOT engineering personnel would also transfer (including ITS responsibilities as well). This transition would not be an additional cost to the state.

- 3 engineers
- 1 engineering manager
• 1 draftsman

• 1 communications systems manager

• 1 program manager
In summary, the investment side of this value proposition results in the following:

- $725,000 non-recurring costs
- $98,557 recurring annual costs
- Some additional non-technical resource costs
- Some additional shop space to be charged by WSDOT

5.1.4 Consolidation Scenarios • Savings

Along with the investments detailed in the previous section, research was conducted on potential savings that could be realized with an operational consolidation.

Currently, WSP and WSDOT manage and maintain their own separate communications network. This work is performed by in-house technicians employed by each agency. For WSP, there are 55 wireless personnel currently employed to manage, maintain and support a conventional high band and microwave network deployed and operating throughout the state. For WSDOT, there are 21 wireless personnel employed to manage, maintain and support an 800 MHz trunked radio system, as well as their own microwave networks, deployed and operating throughout the state. The two agencies’ microwave networks do not duplicate functions. They are interconnected at key points in the state in order for each agency to share capacity and enhance the wireless networks of each.

Each organization’s technicians maintain their own equipment and there is informal, courteous, cross agency support. One aspect of any operational consolidation benefit is the efficiency that would be recognized by combining maintenance efforts.

In order for true savings to be realized, there would need to be circumstances whereby a single technician could respond to multiple outages at a time. In other words, if two boxes are broken at one site, it would be more efficient to send one technician to fix both boxes, than sending two technicians, (one technician for each box). During interviews that were conducted with WSP and WSDOT, it was noted that the frequency of occurrences where multiple technicians responded to outages at the same location, at the same time, was very low. Further, as was mentioned earlier, an informal program exists whereby technicians of one agency already notify technicians of the other agency that work will take place at a particular site. This approach is mostly ad-hoc and informal in nature. To mandate or formally enact a program so that all technicians are cross trained for a low probability
benefit does not make fiscal sense. Simply put, the investment required to formally establish a
cross training and exchange program is very likely more than the savings that may be realized.

WSP provides an equal level of service to all of its customers. Therefore, the equipment and responsibilities that would be transferred to WSP from WSDOT would be serviced as any of the other WSP managed equipment assets.

The WSP mission demands a different standard of maintenance for infrastructure. This standard for maintenance is based on a mission-critical, 24/7 public safety format. For this reason, WSDOT non-technical resources cannot be used via cross agency agreement, 7 additional technician FTEs must be added. Further, WSP escorts would be required anyhow to conduct site maintenance.

5.1.5 Consolidation Scenarios - Service Impact

There is a different organizational structure that exists between WSDOT and WSP. WSDOT runs a de-centralized structure, and WSP runs a centralized structure.

For WSDOT, there is a level of autonomy at a regional level. WSDOT technician planning and scheduling is performed at a more regional level. The WSDOT technicians are imbedded into the regions and serve/report to the regions directly.

A big difference is the number of groups that support, and are directly supported within a region. The method of delivering service would change. With that change, it may result in increased complexity and turnaround time. Also, a more centralized decision process occurs within WSP, and would result in the re-definition of proposed projects to ensure alignment with the WSP strategic technology plan. Ultimately, the WSP is impacted because they need to take on new missions and new priorities.

There may need to be a WSDOT liaison to WSP, that could be a resource from the pool of 7 engineers.

5.2 Observations and Findings - Property

The following data was received from WSDOT/WSP through the process of data review and discussions held in a series of on-site working sessions. This data was developed
during an earlier joint effort to research the issue of sharing/consolidating of all state agency communications locations.

- There are 284 state occupied (not necessarily owned) locations that have communications equipment.
85 facilities that have some level of communications equipment operating (a facility is typically a building where communications is not a primary function, it is often an office or administrative building)

7 ITS locations

192 mountaintop sites

- 139 of the 192 mountaintop radio sites are consolidated/shared to some degree.

- ITS locations are typically roadside locations that are not conducive to sharing.

- 15 of the 84 fixed facilities are consolidated/shared to some degree.
Figure 5-1: Shared Sites and Facilities - All Agencies
As can be seen in the figure above, consolidation is being recognized by, and for agencies in Washington State. For all radio sites, 139 of 199 total sites (mountaintop and ITS) are accommodating some level of consolidating/sharing among state agencies, representing a consolidation percentage of 69.8%.

As previously stated, 15 of 84 fixed facilities are accommodating some level of consolidation among state agencies. The consolidation percentage for fixed facilities is 17.8%, which is lower than the percentage for radio sites. The reason for the lower percentage is multi-fold. First, a state agency's fixed facilities requirements are more unique than for radio sites. Radio sites are typically selected based on their ability to provide a good coverage footprint and connectivity throughout a region. These requirements are fairly common, regardless of the agency that is utilizing the service being provided. Fixed facilities tend to have a more unique set of requirements from each agency, including location, size, and amenities. This uniqueness makes it more difficult to consolidate or share fixed facilities.

Another aspect of site sharing is the issue of site ownership. Ownership of a radio site has an influence on the options presented for sharing among state agencies. State owned sites present a greater degree of flexibility for sharing than leased sites. Therefore, site ownership was reviewed as part of the task as well.
As can be seen in Figure 1-2, there are a total of 199 sites in the data set for ownership by state agencies. Of these sites, 59 have been identified as not being shared among agencies. Of these 59 non-shared sites, only 19 are state owned properties, the other 40 are owned by federal, local or private entities. This means the following conclusions can be drawn from the data provided:

- Total number of communications locations 199
  - Total number of ITS communications locations 7
  - Total number of mountaintop sites 192
- Total number of state-owned mountaintop sites 77
- Total number of shared, state-owned mountaintop sites 58

There are different sharing models, based on ownership for the state agencies. Obviously, state owned sites provide the greatest flexibility and opportunity to share with other state agencies. However, sites that are owned by federal, local and
private entities may also realize a benefit from sharing, but in a different way from state owned sites.

There is little or no opportunity to save money on leased sites. In fact, it is more cost effective to build a site than to lease over the long term.

There are instances where the WSDOT and the WSP each receive funds through the leasing of land space, tower space, or building space from other entities. This is primarily from commercial companies such as cellular service providers.

Funds received from leasing WSDOT assets must be returned directly to the Highway Fund according to The Washington State Constitution (Amendment 18, Section 40, 1943 HJR No. 4 p 938, approved 1/1/1944).

It is uncertain if the same requirement exists for the WSP since Capital improvements and expenditures for the WSP are often derived from the Highway Fund, but laws pertaining to the disposition of WSP assets have not been located. Further, it is uncertain if WSP assets acquired via the Highway Fund remain as Highway assets. At the present time, it is understood that the funds acquired from the leasing of WSP controlled assets are deposited into the state General Fund.

The state constitution precludes the use of transportation dollars for non-state transportation expenditures. If there is any consolidation effort proposed to include agencies other than WSDOT or WSP, then there needs to be a method whereby transportation funds are made whole if they are used for non transportation use.

WSDOT has refined a method of sharing with other public safety agencies by identifying and valuing services and assets on an equal basis. Appendix V of this report illustrates instances of mutual benefit arrangements to accomplish tasks with minimum expenditures.

Sites can also be shared in different ways from the perspective of facilities. There may be cases where just a shelter or tower is shared.

Communications systems design also influences the consolidation opportunities that may or may not exist.
Washington State Business Analysis

Computer Consultants International, Inc.
DBE Certified.

The level of consolidating and/or sharing that has been realized is a clear indicator that such opportunities are already being considered. Appendix V of this final report presents a representative list of sites that have been consolidated or shared, along with an explanation of the level of consolidating and sharing that was realized.
Many sites have been shared to some degree through partnerships among state agencies. However, some sites appear not to be shared for a variety of reasons. Appendix V of this final report presents a sampling of sites that have that appearance, along with an explanation of why consolidation was not feasible or advisable.

Today, a common practice exists among state agencies to check consolidation and sharing opportunities before a site is constructed. The present SIEC was born through the effort of establishing a forum for discussing consolidation possibilities. MOPA also speaks to the requirement of seeking out sharing opportunities before site construction.

5.2.1 Information Gathered - Building and Land Leases

There have been some lease and/or real estate issues that have limited consolidation opportunities from being realized. As an example, Hansons Ranch required 2 buildings due to the needed expansion to accommodate The Department of Justice (DOJ). The WSDOT building was too small to add WSP and DOJ. However, a tower is being shared with both buildings. Another example is State Parks. State agencies cannot sub-let with State Parks sites due to State Parks facility policies.

5.3 Sharing Spectrum

In order to realize efficiencies in consolidating equipment and spectrum, technology will need to be deployed to aUow users the ability to utilize VHF High Band and 700/800 MHz trunking as a single system. Although this technology is available, it will be costly to design, purchase and deploy.

5.4 Single Spectrum

The other option is consolidating both agencies onto a single spectrum choice, VHF High Band or 700/800 MHz. However, capacity limitations exist and extensive traffic studies would need to be conducted to ensure the licensed channels, and equipment, could accommodate an increase in the subscriber base.
6. Recommendations - Efficiencies

Much of the reasoning behind consolidation of the personnel and functions of two disparate groups performing similar tasks is the assumption that savings can be realized through the "economies of scale" and the elimination of duplicate effort. There has been no discovery of duplication that was not justified by a business case and agency mission. Productivity of employees was examined and it was discovered that the unique missions of each agency were best served by unique wireless networks, equipment and services.

This business analysis did not uncover any significant possible cost savings through a consolidation of the WSP and WSDOT communications groups that could provide a path to a future statewide interoperable communications network. However, there are some efficiency findings and recommendations that appear to be feasible in paving the way for a future statewide interoperable network that would support the system of systems approach as identified in the TIP. The work performed indicates that a complete consolidation of the wireless communications group (WSDOT ITS and Wireless Communications) into the WSP Electronics Services Division will result in both short term and long term additional costs for both agencies.

Recommendations are presented to present actionable points for the State to consider. Observations are also provided to highlight significant points noted throughout the project. Findings are also presented as supporting information for each recommendation or observation.

The recommendations provided in this section are numbered sequentially. The order in which they are presented does not suggest any sort of priority or precedence.

6.1 Efficiency Recommendations

(ER1) Recommendation: Develop a plan to utilize VHF channels licensed by WSDOT and WSP
Findings: WSDOT presently has five licensed statewide VHF channels that are used for roaming crews, cross band repeating with WSP, dock and port operations for Washington State Ferries, and other portable-to-portable radio activities. These frequencies are impacted by the federal mandate that requires them to be narrowband compliant by January 2013. In a properly engineered design, the two WSP VHF frequencies and the five WSDOT VHF frequencies together could provide
a future statewide trunked interoperable radio network that will increase WSP's capacity, while still providing limited use of the VHF band to WSDOT.

It is recommended that a technical implementation and operational plan be developed that details the shared use of the VHF spectrum licensed by WSDOT and WSP. The work groups of WSDOT presently using the existing VHF channels could be assigned talkgroups on the newly created trunked radio network, which will provide them enhanced coverage and interoperability throughout the state. The newly created VHF trunked radio system would also provide greater communications capabilities and flexibility for the WSP and would become the platform for a SAFECOM Level 5 / APCO Level 6 interoperability network.

(ER2) Recommendation: Assign the roles of statewide Wireless Engineering Manager and Wireless Electronic Design Engineer.

Findings: Locating and efficiently managing all state spectrum resources could result in bandwidth that is sufficient to deploy a robust interoperability radio communications network, but it will require spectrum management by the SIEC. It is speculated that more inefficiencies exist with VHF spectrum licensed by other state agencies as well. Holding frequencies in reserve for emergencies or other incidents requiring greater communications capacity is a very real need for every agency that depends upon radio communications to meet its mission. However, examples in other states have shown that combining channels into a trunked radio system increases channel capacity exponentially over capacity available in a conventional system. The SIEC is charged with the spectrum management of state communications networks in RCW 43.105.330(3)(b) and is to use the services of one wireless engineering manager and one wireless electronic design engineer assigned to the Department of Information Services (DIS). It is understood that in separate legislation, two Full Time Equivalent (FTE) positions had been approved by the Legislature for this function, however the positions were never filled, resulting in an uncertain status of this mandated activity.

(ER3) Recommendation: Re-assign the WSP Tower Crew to operate under the WSP Electronics Services Division (ESD)
Findings: “During the construction period of the late 90's and early 2000's, the WSP transferred the ESD Tower climbing crew over to WSP Property Management to assist in construction and maintenance activities such as painting and floor management and the time frame to attend critical antenna work on towers has been...
extended. It is recommended that this WSP tower crew be returned to the management of WSP ESD, and that the Joint Operating Policy Statement (JOPS) and Microwave Operating Policy Agreement (MOPA) agreements between the WSP and WSDOT be extended to include the ability for the WSDOT to access the services of this tower crew that has specialized skills as needed and based on availability. This should be a reciprocal agreement wherein the WSP could benefit from the same access to the WSDOT bridge crews for tower inspections, etc.

(ER4) Recommendation: Extend the WSP/WSDOT JOPS and MOPA Agreements

Findings: WSP and WSDOT each have employees and work teams with unique skill sets to meet their day-to-day mission requirements. However, periodically the each agency requires the use of specialized skills to perform or complete a particular task and thus contracts the work out to the private sector.

The WSP/WSDOT JOPS and MOPA agreements should be formally extended to include the services of each agency's skill sets, allowing each agency to utilize the services available in the other agency. These skill sets include construction, major project management, drafting, and engineering. Consideration should also be given to extending those agreements to property acquisition, disposal, and lease activities, especially as it relates to radio sites, radio facilities, and major networks that may be planned in the future.

(ER5) Recommendation: Explore the use of the WSP Fire Training Academy

Findings: Interviews with mission critical staff uncovered the fact that the WSP Fire Training Academy in North Bend trains fire services and public safety agencies of many local governments both in-state and out-of-state agencies. The exception seems to be that no Washington State agency utilizes their services except for occasional safety classes. The interviewees expressed concern that the Fire Training Academy seemed to be an orphan in state services. It was also noted that the Washington State Ferries utilized the services of the Fire Training Academy at one time, but now utilizes commercial services. This situation may bear further examination for savings to state agencies. It should be noted however, that the WSP Fire Training Academy mission is to train agencies that have primary
missions of fire prevention, fire suppression and fire safety, and most state agencies do not have that mission.
(ER6) Recommendation: Designate WSP as the primary service provider for a public safety statewide radio network

Findings: WSP operates an existing statewide VHF radio network, and has extensive skill and experiences in that frequency band. The radio sites have been chosen to provide statewide VHF radio coverage. The WSP communications plan includes the necessary audio/digital switches and the microwave backbone upgrades that will enable deployment of a network described in the SCIP. WSP could become the primary service provider for a statewide public safety trunked radio network. This network may also provide a technological interoperability platform for eventual use by local law enforcement agencies by utilizing the funds dedicated for a phased narrowbanding approach. The WSP plan could be the start of a "system of systems" that allows local law enforcement participation and joining the interoperability platform on an "as needed basis and when ready". As the P25 infrastructure becomes complete, the WSP could then successfully migrate to the 700 MHz band also on an "as needed" basis.

(ER7) Recommendation: Designate WSDOT as the primary service provider for a 700/800 MHz statewide radio network

Findings: WSDOT operates an extensive statewide UHF trunking 800 MHz network and additional deployed systems in the 700 MHz band, and has extensive skills and experience in that spectrum and technology. The radio sites have been chosen for statewide UHF radio coverage. The WSDOT communications plan includes the necessary P25 infrastructure for 700/800 MHz networks, and could become the service providers for a statewide 700/800 MHz trunking and digital interoperability network by leveraging the equipment and infrastructure that must be deployed under the rebanding mandate. Interconnecting with the future switches deployed by WSP, the 700/800 MHz radio network could support future local agency interoperability activity at a SAFECOM level 5 / APCO Level 6. As of this writing, tests are being conducted by WSP to determine if the WSDOT 700 MHz pilot data project could support the WSP Mobile Office initiative. If successful, the 700 MHz band could be used for statewide voice and data by WSDOT and WSP, and could provide a viable migration path for state and local agencies.

(ER8) Recommendation: Investigate methods of measuring and evaluating productivity
Findings: The measurement of productive effort and proficiency of each agency's technical staff has evolved independently and reflects no commonality of process or results. WSP has developed a method of measuring productivity, but lacks the baseline and target for success. WSDOT is efficient in fulfilling their duties and responsibilities, but they lack a method of measuring productivity. Each agency has developed dependencies and relationships that enable them to be effective in accomplishing much more than is initially apparent. Accordingly, methods to define and understand how to measure and analyze productivity do not exist. As such, it is difficult to determine the productivity levels for servicing and maintaining wireless equipment as it may relate to consolidation. It is recommended that each agency increase its efforts and focus on measuring and tracking productivity levels of their technical resources. It is also recommended that further study on this matter be undertaken so managers can best evaluate and manage the employees in their charge.

(ER9) Recommendation: Utilize the 700 MHz spectrum to address interference and congestion in the Puget Sound region

Findings: The radio communications capabilities of WSDOT Area 5 (Seattle/Bellevue Metro area) and the WSP District #2 (Seattle/Bellevue) are severely limited due to lack of available radio channel capacity and usable radio signal coverage. The lack of usable radio signal coverage is negatively impacting the performance of the WSDOT maintenance, construction, bridge and incident response crews and the WSP field forces. These impacts affect the safety of motorists and state employees working on the state highway system. Radio Frequency Interference (RFI) from cellular carriers and industrial operators is very heavy in this area. Each radio channel in the Puget Sound Metropolitan Area is heavily used by other public safety agencies allowing no room for expansion. The exceptions to this spectrum congestion are the channels within the 700 MHz band. 800 MHz system rebanding mandate is intended to mitigate cellular carrier interference, and the narrowbanding mandate targets the channel availability issues. However, for the Puget Sound Metro Area, rebanding will help mitigate, but not completely solve, the industrial interference and narrowbanding will not solve the channel availability issues. Although the FCC-mandated 800 MHz rebanding initiative, when completed, should solve some of the WSDOT usable coverage problems, the most complete solution is to deploy a 700 MHz digital data network and a 700 MHz P25 digital voice network.
(ER10) Recommendation: Provide Incident Response Trucks (IRTs) with the ability to access Computer Aided Dispatch (CAD) and Mobile Office

Findings: The WSDOT Incident Response Trucks (IRTs) respond to collisions and other causes of traffic congestion on state highways. IRTs are often dispatched to a problem in parallel with the WSP troopers. The IRTs are deployed to keep incidents from escalating into much larger problems, but they are often limited by a lack of situational awareness of the scene they are trying to protect and the traffic they are trying to manage. The IRTs have mobile computers installed and they communicate with both the WSP dispatchers and the WSDOT dispatchers. It is recommended that an application be developed to enable the WSDOT IRTs to access the WSP CAD system and the WSP mobile office network. This access would allow closer operation and cooperation with the WSP troopers on the scene of collisions and incidents.

(ER11) Recommendation: Expand the use of mobile data networks

Findings: One of the biggest bottlenecks to efficiency in communications is the manual transcribing of information from notes onto paper for reports and record keeping. Both WSP and WSDOT must keep accurate records for numerous reasons, such as court cases, tort claims, and budget justifications. It is recommended that WSP and WSDOT automate the record keeping of information through the use of mobile data networks. This automation would keep the trooper and the maintenance employee "working on the road" carrying out their assigned duties instead of manually documenting their activities "back in the office", allowing each agency to increase the efficiency and value of their skills. Mobile data networks, when designed properly, reduce voice air time, radio channel saturation and improve accuracy of record keeping.

(ER12) Recommendation: Expand the deployment of Emergency Operations control stations

Findings: WSDOT has deployed a control station operating on a WSDOT 800 MHz Emergency Operations Center (EOC) trunking group assignment into each county's EOC in the Puget Sound Metro area. They are deployed in the Northwest Region and the Olympic Region for the purpose of communications and coordination of transportation and traffic on the state and local highways. These WSDOT control stations are of
particular importance during emergencies when public services fail such as during earthquake events, ice storms, wind storms and other natural or
manmade disasters. It is recommended that this deployment be expanded to the remaining four WSDOT regions as a means to provide closer communications and coordination with the EOCs of counties and major cities throughout the state.

(ER13) **Recommendation:** Grant the Department of General Administration (GA) the ability to administer the Western State Contracting Alliance (WSCA)

**Findings:** The budget for wireless communications projects is largely driven by the cost of goods and services. Since 1975, the WSDOT and the WSP have long enjoyed the buying power of the radio communications contracts developed and administered by the Department of General Administration (GA). This buying power in scale and quantity was greatly enhanced when GA became the lead agency for administering the wireless communications (radio) contract for WSCA and the large volumes of equipment purchases kept prices competitive. Developed in the late 90s, cities, counties, state agencies, and other public safety entities have used this contract to purchase equipment and services at costs lower than by other means. Technology has changed over the years, and newer products have been developed. However, these new products and services are not available on the WSCA contract. Although this contract has been periodically renewed, the renewal process has not included the rebidding of newer products and services. This issue has not arisen due to a lack of skill or desire on the part of GA. Rather, it has come about due to legislation stating that the Department of Information Services (DIS) is responsible for the acquisition of wireless equipment and services, a category in which "radio" is included.

It is understood through the interviews conducted as part of Task 3, that the DIS has minimal public-safety-grade wireless radio expertise and numerous meetings have been held that determined the DIS would tender a letter of authorization to the GA enabling the contract specialists in GA to proceed with developing a new WSCA radio contract. To date, no letter has been forthcoming, and the GA has no authority to proceed. Without a new WSCA radio contract that includes modem technology presently manufactured and marketed by most manufacturers, many states including the State of Washington and all the political sub-divisions throughout the western United States, must complete their purchases through the long and arduous process of requesting proposals and bidding. The loss of the WSCA contract buying power is costing governmental entities, including Washington State, up to 40% more in the price of goods and services. It is recommended that GA be granted the authority to develop and administer an updated radio contract as done in the past and as soon as possible.
(ER14) **Recommendation:** Consider upgrade options as part of the 800 MHz rebanding initiative

**Findings:** The Federal Communications Commission (FCC) Rules regarding allowable expenses for rebanding 800 MHz communications networks only allow for equal equipment with equal capabilities. Replacing equipment with rebanding equipment having newer and greater features is permitted only if the Public Safety entity absorbs the cost of the upgrade. The WSDOT network that is to be rebanded has technology and features that are obsolete at nineteen years of age. Functionality and agency usefulness of the rebanded 800 MHz voice network will be improved and will support future interoperability as called for in the SIEC TIP provided WSDOT budgets, plans, and implements appropriate upgrades during the rebanding process. The overall costs for upgrades should be reduced if performed during rebanding, thus avoiding the requirement to duplicate labors in the future.
7. Findings and Recommendations: Consolidation

Although this report has not concluded that consolidation is a recommended path for WSP and WSDOT, recommendations, observations and findings have been discovered throughout this project that pertain to consolidation. This section presents those recommendations, observations and findings that pertain to consolidation.

Recommendations are presented to propose actions for the State to consider. Observations are also provided to highlight significant points noted throughout the project. Findings are also presented as supporting information for each recommendation or observation.

(CR1) Recommendation: Fully utilize and leverage the 700 MHz spectrum for the deployment of Public Safety digital wireless services for WSDOT and WSP

Findings: The WSP has been designated by the Governor's Office as "lead agency" in keeping with the SIEG Technical Implementation Plan (TIP) for interoperability. Goal #4 of the WSP 5-year Strategic Plan calls for improving efficiency by leveraging technology to enhance and sustain business processes, public safety infrastructure, and statewide interoperability for Local, State, and Federal agencies. This will be done by deploying digital P25 standards based equipment both in the VHF 150 MHz and also in the 700 MHz bands. Interviews during Task #3 of this analysis indicate the WSP cannot expand using the 150 MHz band due to lack of available spectrum and must also remain on existing frequencies and narrow band the equipment or purchase new in keeping with the FCC Rules and Regulations and to maintain interoperability with Federal Law Enforcement and Homeland Security agencies.

(CR2) Recommendation: Continue the efforts associated with microwave and 700 MHz enhancements and pilot projects

Findings: The WSDOT ITS 10-year plan calls for improving and developing interoperability with other agencies, state and local, and to complete the 800 MHz rebanding plan in compliance with the FCC Rules and Regulations. Plans call for enhancing the statewide microwave infrastructure in partnership with the WSP under the JOPS rules and to deploy 700 MHz digital mobile data pilot projects leading to a final
Computer Consultants International, Inc.

statewide system in keeping with the SIEG TIP and SCIP plans. Both the microwave partnership and the 700 MHz mobile data programs are underway.
(CR3) Recommendation: WSDOT and WSP should proceed with the statewide communications study recommendations

Findings: WSDOT funded a Statewide Communications Plan Final Report in March 2003 that produced a report on all wireless connectivity networks used by the agency and included the WSP microwave networks. The report made several recommendations on strategies for closer sharing of data and voice networks to enhance both agencies' efficiencies. Although some of the fiber usage recommendations have not been implemented, the microwave uses and strategies for upgrades have been implemented as much as opportunities and funding have permitted. These opportunities have identified successes and provided greatly improved operations including interoperability for Federal, state and local public safety agencies.

WSDOT also funded a wireless mobile needs assessment in June 2005 that identified several shortcomings with the present statewide 800 MHz wireless voice network, including the problem of interference, coverage, inability to meet the needs for data, and lack of expansion frequencies. The assessment further made several recommendations that would greatly improve the agency's field communications and interoperability through equipment life cycle of the next 20 years and developed a strategy to leverage the upcoming mandatory rebanding and the routine TEF radio maintenance program to launch a minimal 700 MHz digital data system to meet the department's need for statewide mobile data. Accordingly, WSDOT chose elements out of each forward looking recommendation that provided the most impact for the funding available, which was in keeping with both the SIEG plans and the FCC Rules and Regulations, and to provide a future platform for other state and local agencies on which to participate. These recommendations are being closely followed and implemented by the WSDOT ITS and Wireless Communications section. The WSDOT 700 MHz pilot projects are presently being tested by WSP for applicability to their needs.

(CR4) Recommendation: Avoid the use of commercial services for critical, public safety grade wireless communications

Findings: All wireless communications studies conducted for the SIEC in the furtherance of interoperability by Federal Engineering and wireless needs studies
conducted for the WSP and the WSDOT by 181, Inc. in the furtherance of operability strongly advise against relying upon the use of commercial communications services (cell phone, mobile data, text) for primary communication since they are commerce
Driven and not public safety grade. This difference in focus results in unreliability during times of disasters and emergencies.

Case studies of incidents and disasters involving WSP and WSDOT support this recommendation.

**(CR5) Recommendation:** Revisit the cost model for a new statewide public safety wireless network

**Findings:** Each state is a unique model and the pricing is dependent on what is included, site development, connectivity, subscriber radios, maintenance, etc. However, a statewide public safety radio system for the WSP and WSDOT will represent a significant capital investment, and could end up in the price range of $300 – 600 million (the TIP estimated a proposed system cost of $438 million, in 2005 dollars). Further, the recurring costs of operating a new consolidated radio system has been underestimated by those states that were interviewed. Any consolidation cost savings would fall far short of the funding requirements, leaving Washington State to search for ways to fund a significant cost gap.

In nearly every case, where a single, multi-agency wireless communications systems was contemplated, the initial funding was found to be inadequate due to incomplete planning and definition for the proposed system. Further, a single wireless system demands a level of definition that is nearly impossible to develop in advance of a procurement and implementation. The TIP proposes an interoperable system of systems that evolves over time, allowing for the development of requirements and the flexibility to accommodate those requirements as the network is being developed. This evolutionary approach is similar to the Kansas model, and appears to have the greatest opportunity for success.

**(CR6) Recommendation:** Define and document the details of a statewide public safety wireless network
Findings: During the research and interviews, the average range of costs for a statewide public safety radio system vary widely. This wide range is a result of a myriad different design, funding and implementation approaches adopted by various states. Obviously, some states, such as New York, were significantly higher in cost, and others, such as Florida, had different pricing models, which prevented an "apples to apples" comparison.
It is recommended that Washington State devote efforts to clearly define and detail the specifics of a statewide public safety wireless network. The greater the detail and specificity, the more accurate the plan and budget can become.

(CR7) Recommendation: Determine the technology path for narrowbanding compliance

Findings: WSP and WSDOT should work collaboratively to identify the technology to be applied for narrowbanding. This technology approach drives the purchasing decisions that WSDOT is required to make to become narrowband compliant for their frequencies operating below 512 MHz. Once this technology approach is determined, WSDOT must take steps to ensure they are funded to be narrowband compliant by the end of 2012.

(CR8) Recommendation: Determine strategy for 800 MHz rebanding negotiations and implementation

Findings: Regarding rebanding, the process that exists is one that creates risk for any affected 800 MHz licensee. It is recommended that WSDOT fully understand the risks associated with options that may be presented as a result of negotiations with Nextel. These options should be discussed and strategies developed to deal with the potential scenarios they create. In other words, if the rebanding negotiations, and subsequent mediation proceedings, result in a rebanding project budget shortfall, the State should strategize now about how it will deal with that situation.

(CR9) Recommendation: Create a cross-agency agreement that allows WSP and WSDOT to leverage currently outsourced resources from one another

Findings: Currently, WSP and WSDOT contract certain non-wireless resources such as tower inspections and fabrication. It is recommended that WSP and WSDOT work to create a cross-agency agreement that allows each agency to utilize non-wireless resources from the other when practical.
(CR10) **Recommendation:** Conduct a review of all wireless locations for further sharing opportunities

**Findings:** From the research conducted for this task, it is concluded that the best approach to location (site, facility) consolidation is a pragmatic case-by-case review of each location. Mandating consolidation may result in a "force fit" approach as a method of adherence to the mandate, and could cost more than not consolidating at all. Further, sharing of wireless communications locations seems to be much more beneficial and prevalent between WSP and WSDOT. Rather than consolidating locations through the transfer of ownership of the location, and its assets, agencies are recognizing efficiencies by sharing locations when and where practical.

WSP and WSDOT should take time to review and audit the level of sharing and consolidation for each site that is in use. This effort will take time and energy, but the efficiencies that may be found are worth the effort put forth.

(CR11) **Recommendation:** Endorse and promote sharing efficiencies and opportunities

**Findings:** Instead of mandating consolidation, it may be more advantageous to take steps to mitigate the obstacles that may exist in realizing some sharing and/or consolidation opportunities. Streamlining the real estate and contracting process, promoting sharing and/or consolidation within state agencies, and conducting outreach to federal and local entities in order to seek out other sharing and/or consolidation options, are just a few ways to help increase the level of location use efficiency.

However, it is important to note that sharing and consolidation are cost avoidance strategies envoked by nearly all state agencies. This effort is necessary to compensate for budget shortfalls that have plagued the state. This means the recognized sharing and consolidation efforts have been helpful in offsetting agency budget shortages, allowing those agencies to continue to provide the services that are critical to their missions and objectives.
(CR12) Recommendation: Re-visit lease rates for radio sites

Findings: The major determining factor or multiplier for lease rates will be population of an area based on coverage plot or the highest traffic counts in the coverage area. WSP and WSDOT are facing the challenge of leases that are at
least 10 years old. The old leases have lessees that are paying as much as 30% more than new lessees because the initial base rates have not changed. Both WSDOT and WSP agencies should set a starting year of fiscal year 2012 for revising its lease income base rate structure standards. The rate or multiplier on leased sites should then increase by the Consumer Price Index (CPI) each year. With the new structure, all lease base rates would be set at new levels for FY 2012. Every 5 years thereafter, a revised base rate (adjusted to the current CPI) is calculated for all leases. This new rate would utilize the class of leasing properties plus a special site demand factor and public safety factors value formula be derived and lease value computed and published to the public for leasing. This way, state government properties leasing prices is determined in a fair and equitable manner.

(CR13) Recommendation: WSDOT and WSP should adopt a common property leasing rate structure, based on the structure used by the Department of Natural Resources (DNR)

Findings: Although both agencies utilize the rate structure adopted by DNR, disparities still exists. It is recommended that both agencies collaboratively develop a common, progressive value, rate schedule based on several factors such as antenna height on the tower, number of antenna radiating elements, number of transmitting frequencies, population area served, equipment location, connections to back up electrical power, access road maintenance costs, etc. Rates should be adjusted annually based upon the CPI and renegotiated in five-year increments.

(CR14) Recommendation: Commission a fee study to examine the structure of recovering costs of microwave circuits through the use of circuit lease fees

Findings: It is recommended that both agencies endorse and participate in a study to examine microwave lease fees utilized offsetting the depreciation and repair maintenance cost of the electronic circuits. The current leasing fee ($102 per month) and the annual maintenance fee ($504 per year) on microwave circuits for the WSP has not changed in many years. As the cost of equipment and maintenance increases, this fee may no longer be sufficient to cover the costs, as they exist today. A fee structure should also be sufficient to cover the eventual necessary upgrade and/or replacement of microwave system components.
(CR15) Recommendation: Develop a plan, design, and budget for a WSDOT / WSP statewide wireless network solution

Findings: WSDOT is required to reconfigure and replace via rebanding their entire 800 MHz subscriber radio fleet (mobiles and portables) and is being done at the expense of Sprint/Nextel and will become fully P25 upgradeable. Any upgrade to P25 for the replacement radios provided by rebanding would be a cost to the state. Rebanding should also provide new subscriber radios capable of upgrade to P25 mode and multi-band (700/800 MHz) operation. Accordingly, WSDOT will be seeking funding in the 2013-2015 biennium for this vital upgrade to the voice radio system and mobile data network in the amount of $50 million over an eight year span. WSP has submitted a budget request (subsequently approved 2011-2013 Biennium) in the amounts of $40.1 million for narrowbanding and $8.2 million for the Mobile Office Platform initiative for P25 compliant equipment. Part of this request is to upgrade the mountain top backhaul microwave infrastructure and repeater systems to better support the requirements of P25. WSP must also submit another request for $13 million in the 2013-2015 biennium to complete the P25 subscriber upgrades. Therefore the total 10 year upgrade and replacement costs (funded and yet to be funded) of both the WSDOT and the WSP going forward will be approximately $112 million and not the $220 million cited in the SAR.

In the research with other states (Task 2), it was discovered that a massive multi-agency statewide network is the most challenging approach with the highest risk to achieving a P25, APCO Level 6 interoperable statewide network. Rather, a phased, planned evolution of a network of networks, similar to the Kansas model, seems to reap the best results for achieving the goal of statewide, interoperable communications network. This approach allows for the early qualification and validation of technology, as well as a more linear investment plan over a period of years. It also allows for a statewide communications network to develop as technology develops, without the risk of deploying a system that is obsolete before it is installed and accepted.

Therefore, the current effort of migrating to P25 by the WSP and WSDOT is sound. What is missing is a comprehensive plan and budget to internetwork these systems for efficiency and interoperability at some point in the future. It is recommended that the State develop such a plan and budget to determine the most effective way to develop these systems in a collaborative fashion. This effort should focus on a sound and sensible evolutionary approach. It is recommended that the State adopt an approach of "shared" P25 systems, as opposed to a consolidated one.
This shared system of systems is in alignment with the SIEC’s TIP. As noted in the TIP, the focus has been on choosing *ita* standards-based, shared infrastructure.
solution to implement a statewide interoperable public safety communications system. Further, the TIP defines its unproposed system to represent the overall set of technical and process capabilities outlined as the "multiple subsystems approach" in the SIEC May 2005 Alternatives Report.

(CR16) Recommendation: Foster and support the effort of sharing resources and assets among state agencies, but do not consolidate

Findings: In this project, specifically in the research and analysis conducted in Task 5, it was found that a direction of consolidation, as opposed to sharing, would ultimately result in a more expensive endeavor for the state, and as such, is not recommended.

(CR17) Recommendation: Refine the budget model for a fully funded, shared, statewide wireless network

Findings: Obviously, the success of any plan is primarily based on the requisite that it is fully funded. Therefore, a shared statewide wireless network approach, which is in alignment with the TIP, must be fully supported and funded, in order for the State to realize its full potential for success.

The SIEC TIP identified the total cost for all state agencies to fund and implement an APCO Level 6 interoperable statewide wireless network to be $257,481,000 (2005 dollars). This figure did not include the need to operationally maintain existing systems until the new system was ready to use so an additional recurring cost figure of $177,336,000 (2005 dollars) is required to be added. Although the TIP assumed that there would be a gradual migration over to the new system as it was being built out, neither the WSP nor the WSDOT can afford to fractionalize the existing systems with the new system that could result in significant inefficiencies and have serious consequences in emergencies. Therefore, both agencies would have to duplicate system maintenance costs for the implementation period raising the total expenditures for a new system as envisioned in the TIP to $434,817,000.00 (2005 dollars).
WSP and WSDOT must narrowband and reband in place due to the need to maintain critical communications with their dependencies and with most agencies in the state that cannot afford to replace their systems with P25 compliant equipment, much less change system spectrum band and operations. However, both agencies have plans in place that, if funded, will permit a gradual 6 to 8 year migration to P25.
that also includes the use of a 700 MHz statewide P25 shared infrastructure. Together, these plans provide nearly one-fourth of the building blocks towards a statewide APCO Level 6 interoperable network.

(C01) Observation: Sharing is a more viable cost avoidance strategy than operational consolidation

Findings: As this research has concluded, consolidation of the WSP and WSDOT would not only result in initial costs, but will also result in an increase of recurring costs for the state. The cultures that exist in WSP and WSDOT are very different, and as such, methods of fulfilling duties and responsibilities vary widely.

(C02) Observation: There is already a level of sharing being recognized for radio sites throughout the state

Findings: At this point in time, without any changes in the State Constitution or RCWs, it appears that consolidation of the WSP and WSDOT operations wireless voice networks will not result in any cost savings. Most radio sites are already jointly shared to the extent practical, and the unique coverage required by each agency. Any funds realized by the sale or leasing out of WSDOT radio sites must be returned to the highway fund and cannot be used for other purposes. The enterprise rental funds of the WSDOT radio networks must be returned to the TEF highway fund for maintenance and equipment depreciation.

(C03) Observation: Non-consolidated resources for WSDOT and WSP will create a need for additional staff in a consolidated scenario

Findings: Both the WSP and the WSDOT utilize their wireless technical staff to the maximum extent possible. Both agencies have duties and mission critical activities that require the services of wireless engineering, drafting, installing and maintenance of equipment and systems not planned to be consolidated. Most of these activities are outside of contracts and commitments to other agencies, but relate to services to the motoring public and citizens.
of Washington in terms of safety and security. Interviews with agency managers, both technical and operational indicate that should the wireless communications networks and staff be transferred to another agency the gaps will need to be filled.
(C04) Observation: Spectrum allocations limit the options for multi-agency sharing without proper governance

Findings: The WSP and the WSDOT wireless networks are governed by a common set of Federal Laws called the Rules and Regulations of the Federal Communications Commission. In general, the WSP and WSDOT are considered public safety and are governed by Part 90 of the Rules and Regulations (R&R). Sections of these rules clearly identify that agencies operating under these rules and other sections of the R & R are not allowed to lease out spectrum or otherwise permit non-eligible entities to use the public safety licensed systems. The rules do permit shared use with other public safety entities and also permit public safety entities to lease or otherwise share use of commercial networks.

WSP and WSDOT wireless systems are both governed by RCW 43.105.330 that establishes regulations for coordination and interoperability under the auspices of the SIEG. Both agencies are also governed by RCW 82.148.020(1), which is the Emergency Services Communications System.

Although no specific RCWs or WACs are found that authorize or govern the WSP wireless radio network, historical practices indicate this is not an issue since the WSP wireless network supports the prime mission of the Patrol in meeting the needs of the citizens. However, consideration for a statewide wireless system that includes other non-public safety entities would require proper sharing arrangements be put in place.

(C05) Observation: Highway Funds allocations are restricted by state law

Findings: WSDOT and WSP operate under the Washington State Constitution and receive funding through the Highway Fund. Amendment 18, Section 40 identifies the use of Highway Funds and the collecting and distribution of same, wherein all fund expenditures must be for the state highway system. RCW 47.01.260 provides the departments' authority. RCW 47.02 provides authority for the department to own buildings, facilities, and by definition radio sites in support of highway construction and operations. RCW 47.12.010 identifies rules and procedures governing the acquisition and disposition (and lease) or rental of state highway property, wherein all funds acquired through the disposition
or lease or rental of state highway property must be returned to the Highway Fund in compliance with Amendment 18 of the State Constitution.
(C06) Observation: WSDOT and WSP are proceeding in alignment with the Technical Implementation Plan (TIP)

Findings: Through the research in this project, specifically in this task, and that of task 1, it is noted that the work that has been put forth by WSP and WSDOT is in alignment with the system of systems approach recommended by the TIP. This recommendation supports the continued pursuit of a shared, subsystem architecture intended to meet the Operability needs of each respective agency, as well as the Interoperability objectives set forth in the TIP.
8. Funding Options

8.1 Overview and Assumptions

In order to present funding options, the following assumptions have been identified and validated as much as possible through the work performed on numerous tasks for this project.

- WSP and WSDOT will continue to seek methods and funding to implement and expand standards based wireless interoperability networks statewide that are capable of providing wireless connectivity services as called out in the Statewide Communications Interoperability Plan (SCIP) in accordance with the SIEC directions and mandate of RCW 43.105.330.

- The economy of the State of Washington will improve within two years to permit consideration of bonding initiatives.

- WSP and WSDOT will continue to secure the appropriate levels of funding to complete the Rebanding and the Narrowbanding initiatives within the established deadlines mandated by the Federal Communications Commission (FCC).

- The SIEC will work with the Governor’s Office to establish the office of Spectrum Management as originally planned and legislatively approved to manage the frequencies (analog radio channels and digital spectrum) of all state agencies for the greatest efficiencies looking towards the development of a statewide interoperable "system of systems" infrastructure as called for in the TIP.

- WSP will continue its role as Lead Agency to develop and deploy P25 infrastructure to include statewide interoperability.

- WSP will continue in its role as overall Interoperability System Coordinator, to implement the necessary microwave and other backhaul networks, and deploy appropriate equipment and interoperable sub-systems.
• WSDOT will be assigned the role as technical lead to develop and deploy a 700 MHz P25 voice and mobile data statewide infrastructure that can be used as needed to meet its communications capacity needs, and as the basis to develop expanded infrastructure for statewide interoperability.
- WSP and WSDOT JOPS and MOPA agreements will continue to be formally reviewed, modified and expanded as necessary to enable each agency to readily avail themselves of the unique services available within each agency.

- To meet its mission needs, WSP will continue wireless voice operations in the VHF 150 MHz spectrum band in the near future and through the use of multi- band subscriber equipment be capable of voice operations into the 800 MHz analog and 700 MHz digital P25 spectrum band as technology continues to evolve and WSP mission needs change. WSP is also expected to deploy its Mobile Office Platform Initiative into the 700 MHz digital spectrum band as technology evolves, and continue to utilize whatever carrier service best meets their needs on a temporary basis. Accordingly, WSP will effectively utilize multi-band, multi-mode wireless radio equipment for mobile operations.

- That to meet its mission needs, WSDOT will continue wireless voice operations in the 800 MHz spectrum band throughout its rebanding activities while simultaneously deploying mobile data and eventually migrating to P25 voice in the 700 MHz spectrum band. The interference problems commonly associated with the 800 MHz bands will not be completely solved through FCC mandated Rebanding, therefore WSDOT is expected to leverage the newer rebanded equipment (some infrastructure and all mobiles/portables) and add additional programming and equipment to upgrade into the 700 MHz digital P25 spectrum band.

The Washington State Patrol is operating legacy VHF high band 150 MHz mobile radio equipment and has recently submitted a two-part budget request. The first part is in the current biennium budget cycle for partial equipment replacement, multi- band, multi-mode equipment, and modifications in the amount of $40.1 million to meet its FCC mandated Narrowbanding effort by 2013. (See Task 4, Narrowbanding Mandate) and $8.2 million to deploy the Mobile Office Platform Initiative for the troopers. The second part is for approximately $13 million to replace equipment, in the 2013 biennium to meet the P25 standards in accordance with the SJECP TIP Plan. These budget requests, if granted, only provide the ability for the WSP mobile and portable fleet to be capable of interoperability with other entities, which is defined in the SJECP TIP Plan as APCO Interoperability Level 5. However, that level of requested funding for the P25 standards based equipment automatically provides nearly one eighth of the basic building blocks towards a statewide APCO Level 6 interoperable network.

WSDOT is beginning its mandated 800 MHz Rebanding effort, a Federal mandate funded by Sprint/Nextel. Presently operating old legacy mobile equipment, the rebanded equipment to be supplied is new. Except for the infrastructure, the new
radios have the capability to be upgraded to P25 standards and have the ability to be adjusted to operate in both the 700 MHz digital band as well as the 800 MHz band. To upgrade to P25 digital operation following Rebanding, the appropriate software will have to be purchased, which is an expense that is not covered in the FCC Rebanding agreement and plan. WSDOT’s migration to 700 MHz is comprised of two operationally and technologically separate network needs. Those needs are mobile data communications and P25 digital voice communications, both of which are technically and operationally independent from each other. This system independence is advantageous because it provides for a redundancy of communications for each agency’s field personnel. The first migration need is driven by the fact that there is no available expansion channel spectrum in the 800 MHz band in the Puget Sound Metro area. Although the 800 MHz Rebanding mandate will reduce the amount of interference, some interference will continue to hamper operations in the 800 MHz spectrum in this congested part of the state. The second migration need is to deploy a digital mobile data network to improve efficiency of the Incident Response Teams and the day-to-day maintenance and operations of the highway system to improve safety on the highway.

WSDOT also operates a fleet of mobile and portable VHF High Band radio equipment that, in addition to supporting its operational needs, the fleet of radios must also support and communicate directly with the WSP VHF High Band users. Accordingly, WSDOT will need to delay funding requests for narrowbanding the WSDOT fleet of VHF High Band radio equipment until WSP has been able to determine what products and modifications they are going to purchase and use. At that time, WSDOT will be required to match the type of equipment purchased by WSP.

WSDOT is following their ITS and Wireless Communications 10 year Plan within the context of the SIEM TIP and plans to begin deploying a statewide 700 MHz mobile data system as well as a statewide 700 MHz P25 voice system beginning in fiscal year 2013. The pilot projects for these two initiatives should be completed in fiscal year 2011–2012.

WSDOT identifies the needed funding over a four biennium schedule as approximately $12.7 million per biennium beginning with the 2013 – 2015 biennium and ending in the 2019 - 2021 biennium for an eight year implementation. The expenditure is planned to be $50649 million. This effort will only bring the WSDOT radio fleet up to APCO Interoperable Level 5 with agencies other than WSP. WSP and WSDOT will enjoy the capability of much higher operability. However, this figure equals nearly one eighth of the costs for the basic building blocks for the infrastructure of a statewide interoperable network, APCO Interoperability Level 6.
Although both WSP and WSDOT must be funded in the amounts identified in order for the agencies to continue to provide mission critical services, the projects put them on paths that will converge in eight years, and provide the ability for both agencies to operate on an interoperability network while maintaining the new found abilities to communicate with other agencies.

The SIEG TIP Plan, which is now six years old, identified the total cost for all state agencies to fund and implement a Level 6 interoperable statewide wireless system to be $257,481,000 (2005 dollars). This did not include the need to operationally maintain existing systems until the new system was ready to use so an additional reoccurring cost figure of $177,336,000 (2005 dollars) is required to be added. Although the TIP Plan assumed that there would be a gradual migration over to the new system as it was being built out, neither the WSP nor the WSDOT can afford to fractionalize the existing systems with the new system that could result in significant inefficiencies and leading to the loss of life and property. Therefore, both agencies would have to duplicate system maintenance costs for the implementation period raising the total expenditures for a new system as envisioned in the TIP to $434,817,000.00 (2005 dollars). Based on the research from other states, the cost could exceed this initial estimate. A detailed engineering study, design, and operational analysis are required to develop complete business requirements for each agency to determine the actual estimated cost.

The total cost identified in these plans is $112,449,000 distributed over an 8-year period in the following manner:
<table>
<thead>
<tr>
<th>Blennla</th>
<th>Agency</th>
<th>Funding Amount</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-13</td>
<td>WSP</td>
<td>$40,100,000.00</td>
<td>narrowbanding mandate• Mobile Office system•</td>
</tr>
<tr>
<td>2011-13</td>
<td>WSDOT</td>
<td>$500,000.00</td>
<td>Narrowbanding mandate •</td>
</tr>
<tr>
<td>2013-15</td>
<td>WSP</td>
<td>$13,000,000.00</td>
<td>Replacement equipment</td>
</tr>
<tr>
<td>2013-15</td>
<td>WSDOT</td>
<td>$12,576,000.00</td>
<td>700 MHz mobile data system**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>700 MHz P25 voice infrastructure....</td>
</tr>
<tr>
<td>2015-17</td>
<td>WSDOT</td>
<td>$12,735,000.00</td>
<td>700 MHz mobile data system....</td>
</tr>
</tbody>
</table>
**Washington State Business Analysis**

<table>
<thead>
<tr>
<th>Year</th>
<th>Agency</th>
<th>Budget Item</th>
<th>Budget Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-19</td>
<td>WSDOT</td>
<td>700 MHz P25 infrastructure and mobile equip**</td>
<td>$12,710,000.00</td>
</tr>
<tr>
<td>2019-2021</td>
<td>WSDOT</td>
<td>700 MHz mobile data system... 700 MHz P25 infrastructure and mobile equip**</td>
<td>$12,628,000.00</td>
</tr>
<tr>
<td></td>
<td>WSP</td>
<td>WSP Total:</td>
<td>$61,300,000.00</td>
</tr>
<tr>
<td></td>
<td>WSDOT</td>
<td>WSDOT Total</td>
<td>$51,149,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grand Total:</td>
<td>$112,449,000.00</td>
</tr>
</tbody>
</table>

*Funding for the WSP narrowbanding mandate and the Mobile Office Platform initiative has been approved by the legislature.

**Should funding for these services become available sooner, the time tables can be shortened.

***WSDOT plans to fund narrowbanding within the existing budget.

Table 8-1: Funding Forecast, by Biennium

It should be noted that the figures in table 8-1 do not include the costs associated with normal maintenance and mandatory equipment replacement of existing systems. In previous sections of this report, these expenses have been shown to increase in a consolidation approach. Since this report recommends encouraging sharing instead of consolidation, those expenses are anticipated to remain at or below the present levels and therefore do not significantly affect the calculations in the table above. The above figures do however, include necessary contract expenses for either vendor personnel or additional state forces to perform engineering, installation, and set up of the new systems and equipment.

Biennial totals to upgrade and enable the WSP and WSDOT to full operability between the two agencies, to meet their emerging mission critical needs, improve efficiency and achieve APCO Interoperability Level 5 with most other agencies.
<table>
<thead>
<tr>
<th>Period</th>
<th>Amount</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2013</td>
<td>$48,800,000</td>
<td>($48,300,000 has been funded) ***</td>
</tr>
<tr>
<td>2013-2015</td>
<td>$25,576,000</td>
<td></td>
</tr>
<tr>
<td>2015-2017</td>
<td>$12,735,000</td>
<td></td>
</tr>
<tr>
<td>2017-2019</td>
<td>$12,710,000</td>
<td></td>
</tr>
<tr>
<td>2019-2021</td>
<td>$12,628,000</td>
<td></td>
</tr>
<tr>
<td>Total unfunded</td>
<td>$64,149,000</td>
<td></td>
</tr>
</tbody>
</table>
8.2 Funding Options and Recommendations

The following are recommended funding sources and options for the requirements detail in Section 7.

8.2.1 General Obligation Bonds for 6 years

This option is based on the assumption that the State of Washington budget predictions are correct, and the economy will improve significantly within two years. If so, general obligation bonds may be issued to provide funding.

8.2.2 Annual Vehicle License Plate Renewal Tab for 6 years

3.5 million (approximate) vehicles with a $3.00 increase in tab fees per annum will generate approximately $640 million. According to the Washington State Department of Licensing statistics, there are presently approximately 4.8 million licensed vehicles in the state. Of these, approximately 3.5 million vehicles traverse the state highway system. The funds generated by the temporary $3.00 increase in renewal fees will go towards providing increased safety for the motorists, improved maintenance efficiencies of the roadways, reduced congestion due to collisions and other events and improved travelling conditions for the citizens of Washington.

8.2.3 Radio site lease income (both agencies)

From General fund, Highway fund, and Right of Way fund. Overall, the annual lease income from commercial communications providers that lease WSDOT radio site properties is twice that of the WSDOT expense to lease from others. This leaves a net income of approximately $500,000 per year. This income is returned either to the Highway Right of Way fund or the Highway fund as called for in the State Constitution to be used exclusively for highway purposes or RCW 47.12.010 also to be used for highway purposes, depending upon whether the lease was on Radio Site properties (highway designated infrastructure) or Right of Way properties (IE: highways park and ride lots). The WSP annual lease income from commercial communications providers and other entities is approximately $250,000 while the WSP annual expense is approximately $375,000. This is due in part to the fact the WSP leases more radio site land from private owners and leases out to fewer commercial provides due to security concerns and remaining in compliance with National regulations. It is recommended that any funds derived from either WSP or WSDOT leasing programs to radio sites are used to establish a sustainable site/facilities maintenance and preservation fund.

8.2.4 Federal Contributions due to the 700 MHz Broadband Initiative
There is national legislation being proposed by Representative Jay Rockefeller that is intended to fund statewide broadband 700 MHz systems. Although not expected to pass this year, or even perhaps next year, it is important to maintain a watch on this as it may eventually be made available to help fund a combination of P25 and broadband statewide initiatives in rural areas.

8.2.5 Expansion of Current Funding Initiatives

In order to meet their critical missions, WSP and WSDOT have developed plans in accordance with the SIIEC TIP that will require 6 to 8 years to complete, result in a statewide 700 MHz interoperable P25 network for both agencies, and cost approximately $64.149 million above that required by mandatory Federal Regulations. Accordingly, careful planning by both agencies over several years in the sharing of resources, technical expertise, and judicious use of funds have reached a point where $48.1 million (mandatory) plus $64.149 million will provide nearly one-fourth of the required completion of a future all state agency interoperable network as envisioned in the SIIEC TIP. The networks deployed by WSP and WSDOT can thus be incrementally expanded in a phased and "managed risk" manner sometime in the future.

Insofar as funding a wireless interoperable communications network that will benefit both WSP and WSDOT, both agencies are largely funded via the Transportation (Highway Fund) budget and no state laws or constitutional issues should arise. Accordingly, incremental allocations from the Transportation Fund were completed for the recent WSP budget request is the most logical method of funding. Should the resulting interoperable network ever be made available to other agencies, a method of cost additions and cost recovery will need to be developed in order to be consistent with the Washington State Constitution.

The SIIEC TIP approach to develop and deploy an interoperable P25 "System of Systems" for all State agencies that can be accessed by local public safety entities for interoperability during emergencies was envisioned to cost as much as $434,817,000 and require 6 years to build out.

Looking toward the future, it is noted that since the date of writing the TIP in 2005, Washington State DNR, in anticipating the FCC narrowbanding mandate, has completed their VHF high band statewide radio system changeout to a new narrowband P25 capable network. It has been reported that other state agencies have also upgraded and modified their VHF high band radio equipment to meet the P25 standards and the narrow band mandates. DOC operating 800 MHz radio equipment is presently undergoing rebanding. In effect, it appears that most state agencies have or will be narrow banded or rebandied with P25 capabilities in the
The goal of enjoying a statewide P25 interoperable "system of systems" network for most state agencies as envisioned in the TIP and in the SCIP may be closer than anyone realizes. The costs to engineer, purchase, and deploy the required statewide infrastructure may be significantly different than stated in the TIP and should be re-examined.