Recommendations to the Legislative Task Force on Radio from the Utah Communications Authority

1. **STATEWIDE VHF SYSTEM**
   UCA recommends continuing to fund the operations, upgrade and maintenance of the VHF State Law Enforcement System (LES) and State Repeater System (SRS) network currently in place. This includes microwave connectivity, site locations, base stations/repeaters, antennas and ancillary equipment. This system would continue to be supported thru the build out of the new 800 MHz network. We recommend funding equipment replacement at a 10 to 15-percent per year level for the current system (average price for a repeater is $8K plus install cost). This will have to be funded by either the current VHF radio fee at $28.00 per month per user, or a supplemental amount appropriated to fund the capital investment. At the time of completion of the new radio system, a determination will be made where to continue to support VHF operations based on state and local communications coordination expansion and interoperability.

2. **RADIO DISPATCH CONSOLES**
   UCA recommends including the funding of all the dispatch radio consoles attached to the future radio network. As the system moves to an IP (Internet Protocol) based network it will be crucial to maintain and keep current versions of the software for security, reliability, and the viability and maintenance of the connection to the system controllers. While this is a major cost center of the capital budget, the viability of the network depends on connectivity and the ability to access resources statewide. Annual maintenance for the dispatch radio consoles should be the responsibility of the PSAP/dispatch center, billed annually by UCA. This will require UCA to establish initial number of console positions, a predictable rate of console positions growth, and a standardized set of rules for operations.

3. **COVERAGE MAPS**
   UCA will develop coverage maps using the existing inventory of sites and future sites as identified to the Task Force. UCA will utilize existing sites wherever possible to reduce the environmental and economic effects of the project. Additional sites, when needed, will be procured and acquired as necessary and based on the coverage predictions and user needs. There will continue to be a need to develop additional sites after completion of the initial system to support additional growth, new buildings and structures, and to improve coverage, statewide.

4. **SUPPORTING INFRASTURCTURE**
   UCA will assess the infrastructure (site and connectivity) needs across the state. How many buildings, towers, and site upgrades are required will be determined. Network technology and capacity requirements will also be determined. Technologies that will be evaluated include: microwave, fiber, copper or other technologies and services as available for interconnection. The network will be designed to support a public safety grade, broad array of communications services such as high speed data, NG911, CAD, radio connectivity and other potential services.

5. **800 RADIO SYSTEM**

The radio system design goal will be to build out a P25 Phase 2 trunking system where economically feasible. Conventional radio will be utilized in areas where either the capacity requirements do not support the cost or the complexity of trunking. Sites will be built considering the local environmental restrictions and requirements. UCA needs to provide for compatibility between the existing 800 MHz and VHF networks as the system is built out. UCA will use a phased, both geographically and functionally, approach for the build including construction, licensing, funding and infrastructure roll out. A key goal is to make sure the project stays in manageable phases. The project must comply with current and anticipated FCC mandates. The current system will be kept in operation until the new system is completed to ensure continued communications to those served by the systems.

6. **MAINTENANCE**

First year maintenance will be vendor provided. After that, a decision will be made on whether to use in-house resources or contract maintenance, or a combination of both. In-house maintenance is most likely to be less expensive, but will initially require training, test equipment and time to ramp up to meet the need. Existing staff resources will need to be supplemented.

7. **OVERBUILD**

Develop an overbuild of the existing 800 MHz infrastructure in the Salt Lake Valley including UCA's five simulcast sites and Nelson Peak. This will provide a system to test coverage with, learn the nuances, allow users to test radios and features, and get familiar with the new technology. This will serve as the test bed for moving out to the rest of the state. This includes d a VHF interoperability site at Nelson peak to test of 150 MHz system and 800 MHz system interoperability.

8. **MIGRATION PLAN**

Pick a rural area of the state (Cache County/Logan City has indicated an interest) as the starting point of the migration to digital when funded. This would enable a controlled migration in a smaller more manageable area to start the change out. The migration plan would have scheduled dates for engineering, installation, subscriber radio upgrades, training, and cutover.

9. **USER EQUIPMENT**

How user equipment is funded needs to be resolved? Is this the responsibility of the local agency or the UCA? How does UCA provide incentive for users to upgrade equipment as service is built out into their area. What are the options?

10. **INTEROPERABILITY**

UCA will be the leader in interoperability by continuing to work with all public agencies that operate radio system(s) even though they might not utilize the UCA system and by developing interoperable solutions in support of first responders statewide.

11. ALARM SYSTEM
Procure a monitoring and alarm system that supports the system operation and environmental conditions as part of a comprehensive network monitoring system to ensure rapid response to system and site failures allowing for notification of pending failure conditions prior to them happening. Reporting would be to computers, tablet computers and smart phones.

12. TRAINING
UCA recommends that radio systems user training becomes a higher priority in the near future and methods are established to support and fund a formal program that leads in that direction.

13. OPERATIONS AND MAINTENANCE
The possibility exists that this initiative could only fund the capital acquisition and depreciation of the network. The realization is that there is a continued cost to support the operations and maintenance of the network. This includes items such as site leases, connectivity costs, power bills, parts, supplies and labor. These are real costs of any network. These costs must also be funded either by a user fee or another source of funding.

14. USER FEES
UCA recommends that future funding models are developed to support network operations, maintenance and growth with minimum user fees.