



# UTAH Statewide 800 MHz Upgrade



Legislative Task Force Presentation

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## ADCOMM Engineering

- Started in 1979
- Currently nine employees, over 700 radio projects ranging from small sites to large systems
- Specialize in public safety communications engineering
- Staff have system operations experience
- Worked with UCAN since 2000 providing engineering services



## ADCOMM Staff

- Two Registered Professional Engineers including one registered in Utah
- Six engineers and two operations/project management personnel
- Hands-on experience
- Extensive experience in all facets of public safety communications design



## Project Experience

- First 800 MHz public safety trunked system in the Northwest in 1988. Most of the existing systems in the PNW had ADCOMM involvement
- Major 800 MHz upgrade projects
  - Benton County, WA first P25 upgrade in the NW
  - Dakota County, MN (urban rural mix)
  - Portland Regional Four-County Preliminary design and Cost Estimate (140 sites)
  - City of Salem, OR (P25 upgrade)
- Washington State Patrol VHF P25 statewide project management QA and technical support



## UCAN Experience

- Working with UCAN since 2000
- Experience with Utah terrain and radio system conditions
- Provided rebanding project management and technical support
- Provided RF engineering and system engineering
- Performed UCAN's FCC licensing
- Experienced with UCAN's network



## Projects with similar needs

- Benton County, Washington P25 upgrade
  - Replacing a system with existing system user expectations
- Dakota County, MN
  - System covered urban core and rural areas
- Portland Regional Radio System Planning
  - System covered urban core and rural areas
- Washington State Patrol
  - Very large project replacing an existing analog technology with digital. Different operating needs between rural and urban. Widely varying terrain throughout the state

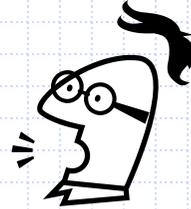




## Considerations going forward

*"If you're putting in a new technology.... pay attention to the organizational impact rather than the technology. The technology will take care of itself; the organization will never take care of itself."*

- Ira Morrow, American Express Company



## Basic Project Process

- Research and Analyze
- Determine Course of Action
- Execute



- Seems simple but looks are deceiving



## Planning considerations

- Manage user expectations, manage information
- Develop a realistic even if unpopular project plan
- Digital – neither better nor worse than analog but it is different
- Don't forget dispatch and ancillary systems
- Carefully measure the change in coverage/audio quality due to digital, additional sites may be required
- Plan to minimize disruption to existing operations
- New site environmental issues can delay a project. Define and complete early
- Interoperability – How is it defined?



## Basic Project Approach

- Do not try to do too much at once
- Complex systems are best broken down into smaller pieces
  - Develop high level design for each region or area
  - Start small and implement the system in a regional/sub-regional fashion
  - Verify the technical approach and user acceptance prior to moving on to the next area
  - As user experience and acceptance grows the project process may be able to be accelerated
  - Avoid temptation to migrate users before system is done



## Process going forward

- Determine the work division, UCAN or vendor, for all systems because it affects costs
- Refine project to determine high level design and estimated costs
- Develop a reasonable project schedule
- Obtain funding
- Develop master project plan at a high level and then detailed project plans for specific implementations.



## Cost estimate development

- Details are important
- Review existing traffic and project into the future to size the sites
- Estimate facility upgrades required
- Estimate inter-site transport systems and costs
- Determine ancillary systems that are past useful life and need to be replaced
- Costs are estimated using recent bids and state contract pricing
- Include labor, engineering, project management costs





# Schedule

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Complete cost estimate</li> </ul>  | <ul style="list-style-type: none"> <li>▪ June 2014</li> </ul>   |
| <u>Task</u>   | <u>Duration</u>   |
| <ul style="list-style-type: none"> <li>▪ Initial design and planning</li> <li>▪ Regional planning</li> <li>▪ Vendor negotiations</li> <li>▪ System upgrades started</li> <li>▪ System upgrades continue</li> <li>▪ Estimated system completion</li> </ul> | <ul style="list-style-type: none"> <li>▪ 0-6 months</li> <li>▪ 6- 24 months</li> <li>▪ 9-30 months</li> <li>▪ 18 months</li> <li>▪ 18-48 months</li> <li>▪ 60 months</li> </ul> |



# Schedule

Estimated project schedule

Actual completion date will be dependent on actual start date

ID	Task Name	Start	Finish	Duration	2014		2015				2016				2017				2018				2019	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	Cost Estimate Complete	4/1/2014	7/1/2014	13.2w																				
2	Project Start	8/1/2014	8/1/2014	0w																				
3	Initial Design and Planning	8/1/2014	2/27/2015	30.2w																				
4	Regional Planning	11/3/2014	11/3/2016	104.8w																				
5	Vendor Negotiations	2/2/2015	4/29/2016	65w																				
6	System Testing	8/3/2015	1/1/2016	22w																				
7	System Implementation	1/1/2016	1/1/2019	156.6w																				
8	Project Close out	1/1/2019	4/1/2019	13w																				



# UCAN System Upgrade

- Questions?
- Joe Blaschka Jr., PE