Emergency Communications System Lifecycle Planning Tool

The Cybersecurity and Infrastructure Security Agency (CISA) supports and promotes the ability of emergency responders and government officials to continue to communicate in the event of natural disasters, acts of terrorism, and other man-made disasters and works to ensure, accelerate, and attain operable and interoperable emergency communications nationwide. In support of its mission, CISA collaborates with SAFECOM and the National Council of Statewide Interoperability Coordinators (NCSWIC) to ensure public safety stakeholders drive content in guidance documents intended for the entire public safety community. This collaboration resulted in this *Emergency Communications System Lifecycle Planning Guide* (referred hereafter as the Lifecycle Guide), which defines system lifecycle phases (**Figure 1**), goals and products, stakeholder involvement, roles and responsibilities, and items for consideration in each phase. The Lifecycle Guide provides recommendations for agencies interested in building, maintaining, and operating an emergency communications system through decommission and replacement.

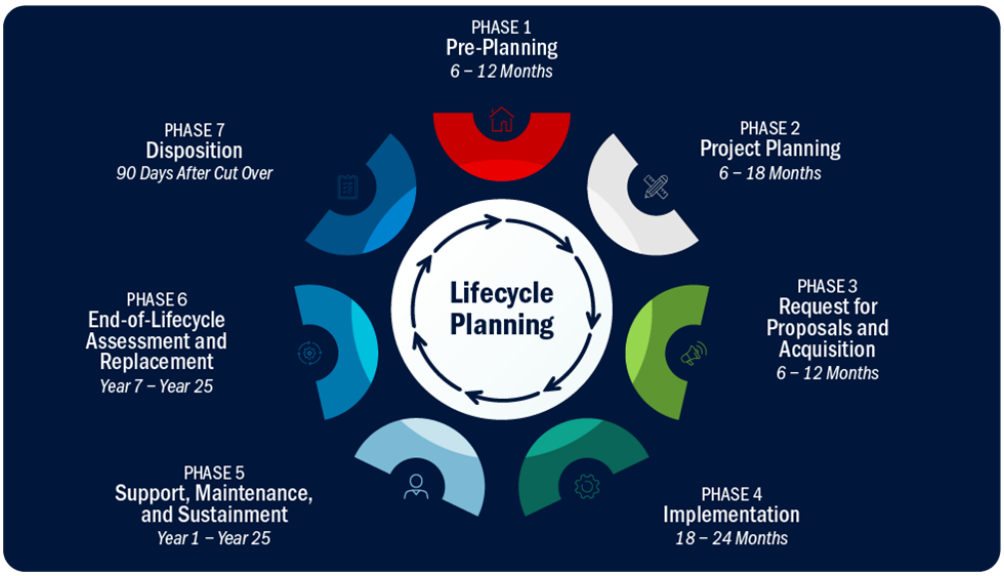

Figure 1: System Lifecycle Planning Model

Each phase of the system lifecycle planning model—Pre-Planning; Project Planning; Request for Proposals and Acquisition; Implementation; Support, Maintenance, and Sustainment; End-of-Lifecycle Assessment and Replacement; and Disposition—includes best practices, considerations, and recommended checklists to assist public safety agencies embarking on system lifecycle planning. These checklists have been copied from the Lifecycle Guide and compiled into this *Emergency Communications System Lifecycle Planning Tool* containing tables designed to be referenced and used by project management teams throughout the system lifecycle. Teams can use the checklists to mark steps as they are completed as well as take notes throughout each phase. Additional funding resources can be found at cisa.gov/safecom/funding.

The Joint SAFECOM and NCSWIC Funding and Sustainment Committee developed this document with support from CISA. This document reflects the expertise and knowledge of SAFECOM and NCSWIC members, and the coordination efforts of CISA in bringing stakeholders together to share technical information, best practices, and lessons learned in funding and deploying public safety communications systems. Questions on this document can be sent to: SAFECOMGovernance@mail.cisa.dhs.gov and NCSWICGovernance@mail.cisa.dhs.gov.

PHASE 1
Pre-Planning | *6 – 12 Months*

☐	**Establish the core planning team,** with the right mix of experts (e.g., technical, financial, legal, procurement, users) to define needs and basic requirements, research and develop system and funding options, and determine optimal approaches	
☐	**Identify the problem, needs, and requirements**, such as diminishing performance of current systems; lack of availability of replacement equipment; cost of maintenance outweighs replacement; lack of coverage or capacity for critical users; need to improve capabilities; desire to add new users; and potential cost-efficiencies that could be achieved	
☐	**Research system and funding options** – Develop and release a Request for Information (RFI) to solicit input on system capabilities – Reference the *Funding Mechanisms Guide for Public Safety Communications Systems* to understand methods for capital and ongoing costs; develop funding options for entire system lifecycle; and seek cost-saving methods (e.g., asset sharing)	
☐	**Determine an approach** – Research and record options in writing before approaching decision-makers – Weigh strengths and weaknesses of system options, and feasibility of funding – Develop consensus on an optimal approach and "next best" approaches – Create a one-page fact sheet on basic requirements, recommended approach, and summary of alternative approaches	
☐	**Plan for frequency needs and channel programming** to include various interoperability channels. Reference the *Programming Guide and Template for Interoperability Channels*	
☐	**Create a business case, talking points, and marketing materials** to outline the proposal and ensure consistency and clarity in messaging. Reference the *Interoperability Business Case: An Introduction to Ongoing Local Funding*	
☐	**Identify executive-level project champions**, and seek review and input on technical approach, funding options, and presentation materials	
☐	**Present proposal to state or local decision-makers**, after consultation with the project champion(s)	
☐	**Secure funding to support the initial investment and sustain the system** throughout the entire lifecycle	

PHASE 2
Project Planning | *6 – 18 Months*

☐	**Ensure appropriate time for project planning (typically 6-18 months)** – Review past projects to learn how long the Project Planning Phase has taken for other projects in your agency, jurisdiction, and region – Build sufficient time for planning into project work plans (given the time it takes for environmental planning and historic preservation review, zoning review, state/local legislative reviews, optimal times to request funding) – Communicate the expected project timeline to elected officials, including the time needed to adequately plan the project	
☐	**Document user needs and requirements** – Engage with system users early – Collect user needs and requirements – Determine how user needs may affect project timelines and system costs – Document user needs and requirements in project materials	
☐	**Engage with communications leaders for guidance and support,** including – Statewide Interoperability Coordinator – Statewide Interoperability Governing Body or State Interoperability Executive Committee – Regional Emergency Communications Coordination Working Groups – Federal Communications Commission to coordinate spectrum/licensing issues – Elected officials	
☐	**Identify strong Project Sponsors** after Pre-Planning Phase activities are complete, but before engaging in formal project planning (e.g., developing work plans, budgets) – Identify an executive-level leader who has knowledge of the state or local legislative process, procurement processes, and funding options – Share project materials with Project Sponsors – Gain feedback on products and messaging – Support the Project Sponsors in meetings with elected officials, decision-makers, and funders	
☐	**Begin planning the Request for Proposals (RFP)** – Identify experts (e.g., legal, financial, procurement, grant, technical) for the RFP team – Examine past RFPs and approval processes – Reference the project plan for dates, milestones, and timelines to include in the draft RFP – Incorporate the planned RFP development and review timelines into the project plan – Communicate planned RFP timelines to the core planning and project management teams	

PHASE 3
Request for Proposals and Acquisition | *6 – 12 Months*

☐	**Develop a written action plan** – Identify members for a Request for Proposal (RFP) team and establish roles and responsibilities – Set expectations for confidentiality – Understand procurement rules and timelines – Develop a clear understanding of services and products needed – Set milestones for the procurement schedule	
☐	**Form the RFP team,** including the Procurement Manager, Procurement Officer, General Counsel, Program Manager, Subject Matter Experts, and Evaluation Committee	
☐	**Develop the Statement of Work (SOW)** in clear and concise language – Identify and incorporate minimum requirements – List basic services and products to be delivered	
☐	**Include specifications or requirements in the RFP** – Identify minimum requirements for vendors – Ensure non-price requirements are provided at no additional cost – Include technical standards to ensure interoperability is established and maintained – Provide an opportunity for vendors to differentiate themselves – Confirm the SOW and the RFP specifications or requirements are consistent – Use specifications to convey project requirements and gain clarity on vendor products – Set evaluation criteria in alignment with the specifications or requirements – Ensure requirements meet user needs specified in Pre-Planning and Project Planning Phases	
☐	**Establish written evaluation criteria,** well before the award – Align criteria to user needs, SOW, and RFP requirements – Assign weight to every criterion – Categorize the criteria in priority order and by evaluation weight (priority) – Develop an Objective Review Plan that includes evaluation criteria and selection factors	
☐	**Conduct a formal objective review process and document results** – Conduct an initial review to reject proposals that don't meet minimum requirements – Document the objective review process and outcomes – Ensure all team members adhere to confidentiality agreements, procurement rules, and the formal objective review process as written – Communicate results to vendors based on evaluation criteria and selection factors	

PHASE 4
Implementation | *18 – 24 Months*

☐	**Develop the implementation plan,** including: – List of tasks (e.g., install new system, test the system, train users, cut-over) and owners – Percentage completed and current status of each task – Task start/end dates and completion date (planned or actual) – Project- and budget- focused milestones – Risk (e.g., issues that have not occurred but are at-risk of occurring) and issues trackers (e.g., issues that have occurred and are being addressed by mitigation plans)	
☐	**Understand and document testing procedures in coordination with the Technical Committee:** Factory testing – Request and retain documentation of factory testing Staging – Compare costs associated with off-site or on-site staging/testing – Choose off-site or on-site staging – Understand residual costs during staging (e.g., personnel, backfill, travel) – Assess staging performance/results Site installation and testing – Seek out cost-saving methods on installation and testing – Understand the proposed schedule for site installation and testing – Oversee the vendor during site installation and testing Coverage verification – Understand coverage requirements in the RFP – Assess and verify coverage analysis – Ensure changes to the system do not affect vendor warrantees and guarantees – Adjust agreements as necessary to reflect coverage changes Testing and acceptance – Discuss residual costs and ensure they are funded (e.g., technical staff, backfill, training) – Conduct vendor testing of entire system after installation – Ensure all system components, equipment, and features are functioning – Integrate sub-systems into the new system – Test network performance, interoperability, and failure scenarios – Record results and compare to requirements in the RFP – Address any deficiencies Cut-over – Develop a cut-over plan – Ensure residual costs are considered/funded (e.g., personnel, training, technical assistance) – Train operators to avoid attributing system errors	

	– Confirm legacy and backup communications are available Final acceptance – Engage the Procurement Officer – Discuss expected lifecycle, ongoing costs, and refreshment options with the vendor – Retain vendor to provide initial support – Initiate the warranty	
☐	**Update operational procedures and train users,** to include new communications capabilities – Ensure proficient personnel through ongoing training and exercising across the whole community – Address gaps identified in response and recovery operations, testing resiliency and continuity	
☐	**Promote new communications capabilities and benefits to the community,** including: – Project successes to users, elected officials, and citizens – Future funding needs to officials – Continued need for training to users	

PHASE 5
Support, Maintenance, and Sustainment | *Year 1 – Year 25*

☐	**Maintain an accurate inventory of equipment,** through enforcement and reminders of asset inventorying policies and requirements	
☐	**Determine and execute an ongoing Maintenance and Operations (M&O) model,** in consideration of the agency's needs, staffing ability, and funding. M&O may be provided by the vendor, by in-house staff, by a third-party provider (e.g., another public agency or private entity), or through a combination of providers	
☐	**Upgrade hardware and software, as needed,** to avoid negative impacts to operations, compatibility with partner agencies, security, access, and functionality of equipment	
☐	**Manage the budget** and build M&O expenses and personnel to effectively manage system assets (e.g., continually monitor asset inventory) into plans from the start – Report any unexpected costs to project managers immediately	
☐	**Share emergency communications needs with decision-makers early and continually** – Coordinate with the Statewide Interoperability Coordinator (SWIC), Statewide Interoperability Governing Body (SIGB)/ State Interoperability Executive Council (SIEC), state and local, officials, state planners, Statewide Administrative Agency (SAA), risk managers, and users to convey ongoing communications system needs and costs – Prepare an annual report and brief state/local legislature regularly on the status of the communications system and funding priorities	

PHASE 5

Checklist: Asset Inventory

☐	**Determine the inventory scope** (e.g., conduct an enterprise-wide inventory including all communications equipment, or update an existing inventory system)	
☐	**Identify all data elements to collect and track,** including: – Agency: Department in possession of the radio – Make: Manufacturer of the radio – Model Name: The manufacturer-assigned model name – Model #: The manufacturer-assigned model number – Serial #: The equipment's serial number – License #: There may be a need for a license # (for software) – Type: Control station, portable, mobile, etc. – Asset #: Your agency's asset number affiliated with the radio, if any – Band(s): VHF, UHF, 800 MHz, etc. – Condition: Create a consistent code to indicate the physical condition (e.g., simple 1-5 scale, with 1 meaning "This radio should be replaced" to 5 meaning "Like new condition") – LOC1: Primary location to which this piece of equipment is assigned – LOC2: Specific location where equipment is permanently mounted or stored when not in use – Channels: Number of channels in the radio (if applicable) – MFG date: Date of manufacture, as shown on a manufacturer's plate – Firmware version: Version number and date of radio's firmware – Radio ID: Push to talk or internal ID of radio – Alias: If an alias has been programmed for the radio, show it here – Program: If your agency uses standard templates to program your radios, indicate here (e.g., "EMS Supervisor") – Rebanded: Status of rebanding (if applicable) – Narrowband: Status of narrowband (if applicable) – Encryption capable: Yes or No – Encryption type: AES, DES-OFB, etc. – Encryption enabled: Yes or No – Purchase date: Date radio was purchased, if known – Purchase price: Price paid for initial purchase of radio, if known – Funding Source: Grant, state funds, etc. – Accessories: Holster, charger, speaker/mic, etc. either provided upon issuance or later – Last Inspected: Dates on when the equipment was last inspected – Last Upgraded: Dates on when the equipment/software was last upgraded	

	– Upgrade Due: Dates on when the equipment is scheduled for upgrade (if applicable) – Notes: Free-form notes about the radio (e.g., repair notes, transfer notes) – Fleet information: some agencies keep a separate list for vehicles – FCC Licenses: Number and status of licenses	
☐	**Determine and list sites for all inventory,** which may include fire/police stations, substations, dispatch centers, transmitter sites, satellite receiver sites, and other sites where assets are stored	
☐	**Consider options and develop/purchase the inventory tool,** such as an Excel spreadsheet with drop-down boxes, or a Web-based tool enabling multiple agencies to update information online	
☐	**Determine how data will be collected** (e.g., initial inventory list provided by vendor; automatically via radio test/diagnostic mode to provide serial number, firmware version, etc. through a key combination/cable connection to a laptop; manually during a physical examination of the equipment; or a combination of solutions)	
☐	**Determine how equipment will be tracked and marked,** such as asset tags affixed to equipment corresponding to number in asset inventory; bar codes; Quick Response codes; or color-coded stickers	
☐	**Determine the inventory team,** including personnel who are savvy about communications equipment	
☐	**Prepare to collect information** – Distribute data elements to inventory team, solicit feedback, and update the tool as needed – Ensure laptops being used to collect data have the software needed to read equipment numbers and software versions are up-to-date – Coordinate with each site to schedule an inventory session; ensure all users have or bring all equipment to the inventory session – Schedule training for inventory team	
☐	**Train and assign locations to the inventory team** – Train the inventory team on capturing data in the selected tool – Create a mechanism (feedback loop) to capture idiosyncrasies found while collecting data so team members are managing idiosyncrasies in the same way (i.e., standardized data collection) – Assign team members to specific locations – Provide targeted milestone and completion dates	
☐	**Conduct the inventory** – Survey all equipment information and record into the inventory tool – Make note of missing information – Keep a list of departments/agencies that need to be revisited	

☐	**Revisit departments/agencies to collect any missing information** – Prepare a list of missing information and send to specific departments/agencies – Revisit to collect missing information	
☐	**Compile data** – Appoint a single person to review, assure, and compile data – Conduct quality assurance on data – Make a list of any remaining information to be tracked down – Indicate any caveats in the Notes section of the database – Record best practices and lessons learned	
☐	**Develop processes for maintaining data** – Create policies and processes for updating inventory (e.g., reporting transfer or loss of equipment) – Distribute policies and processes to personnel – Remind personnel frequently of the importance of an accurate inventory	

PHASE 6
End-of-Lifecycle Assessment and Replacement | *Year 7 – Year 25*

☐	**Conduct ongoing assessments of current systems** – Meet with users to determine the status of communications capabilities – Assess operational suitability and stability – Identify system weaknesses, both technical and operational – Analyze system expenses including capital expenditures, recurring costs, and maintenance – Review the potential impacts of future demographic and operating environment shifts, including expansion of services, workforce, and areas of operation – Implement a balanced scorecard to plan for technology maturity	
☐	**Refresh or upgrade systems as needed to extend the life** – Review possible technologies to extend the life of mission critical communications systems – Upgrade hardware and install software versions to maintain operations and security	
☐	**Determine potential replacement solutions,** with considerations to: – Support national, state, and regional interoperability initiatives – Consider early adoption of new technologies – Adhere to widely-used technical standards; reference the *SAFECOM Guidance on Emergency Communications Grants* and products from the Federal Partnership for Interoperable Communications	

PHASE 7
Disposition | *90 Days After Cut-Over or Transition*

☐	**Develop a disposition plan** – Incorporate disposition planning early in the project planning process – Review past projects to learn how long the Disposition Phase has taken for similar projects – Build sufficient time for planning into project work plans	
☐	**Engage stakeholders and partners early to understand user needs and requirements** – Convene a meeting with disposition leadership, managers, and appropriate team members – Discuss activities in the disposition plan and assign leads to relevant activities – Determine how users and user needs may affect project disposition and the timeline	
☐	**Identify disposition options in consideration of legal limitations and business requirements** – Reuse old components for the new system – Repurpose old components into another department – Consider space availability for equipment – Convey surplus property to partner agencies regardless of jurisdictional boundaries	
☐	**Brief leaders on disposition plans** – Obtain final, formal approvals on the disposition plans – Consider rolling unresolved issues and changes into the next phase of a new project – Communicate user needs to elected officials – Share results with relevant stakeholder bodies (e.g., Statewide Interoperability Governing Bodies, Regional Emergency Communications Coordination Working Group)	
☐	**Identify lessons learned following disposition** – Ensure compliance with funding closeout requirements, if applicable – Conduct a post-disposition survey or session to solicit feedback with stakeholders – Compile a closeout report showing final status of system issues, changes, risks, and costs – Share lessons learned with stakeholders and officials to assist with future decision-making – Reassign remaining disposition staff to other assignments	