
ENP Body of Knowledge (BOK)

The ENP Body of Knowledge (BOK) was established in 1995 as a result of interviews conducted at the National NENA Conference in Las Vegas by Dr. Robert Mathis and Carol McKnight, of the University of Nebraska, and a nationwide survey sent to all NENA members. The data from both was compiled and is intended to reflect the knowledge needed to perform in the capacity of an Emergency Number Professional.

The Body of Knowledge was approved by the NENA Executive Board. Once the NENA Institute Board was established, it became the responsibility of the Institute Board to regularly review and update the BOK as needed.

The BOK is the source of the questions used on the ENP exam.

The following pages describe how the various facets of the BOK are aligned with the exam questions. The reader is cautioned to understand that these pages constitute a “snapshot in time” of the BOK. The actual BOK is a living document that changes when the Board members deem it necessary to keep it up to date. The most recent version of the BOK listing may be found on NENA’s web site at nena.org/enp.

How the Exam Is Structured

9-1-1 OPERATIONS (50%)

I. TELECOMMUNICATIONS OPERATIONS (35%)

A. PRINCIPLES OF TELECOMMUNICATIONS

1. Network Design and Architecture
 - a. Originating Service Provider (OSP)
 01. Local Exchange Carrier (LEC)
 02. Competitive Local Exchange Carrier (CLEC)
 03. Interexchange Carrier
 04. Local Loop
 05. Area Code Overlay/Split
 06. N-1-1
 07. VoIP Service Providers (VSP)
 - b. Transport Facilities
 01. Copper
 02. Fiber optic
 03. Microwave
 04. Coaxial Cable
 - c. Quality of Service
 - d. Security
 01. Telephone Denial of Service (TDoS)
 02. Distributed Denial of Service (DDoS)
2. Network Configurations
 - a. Trunking Requirements
 - b. Switching
 01. Direct Trunked
 02. Tandem (Analog vs. Digital)
 03. End Office Routing
 - c. Alternate routing considerations
 - d. Grade of Service/Blocking Probabilities
 - e. Wireless/PCS Call Routing and Interconnects
 - f. PBX/PS ALI Routing and Interconnect
 - g. Emergency Services IP Network (ESInet)

3. Signaling/Transport/Protocol
 - a. Centralized Automated Message Accounting (CAMA)
 - b. Selective Router
 - c. Trunk Concentration
 - d. Dual Tone Multi-Frequency (DTMF)
 - e. Intelligent Networks
 01. Integrated Services Digital Network Signaling System 7 (ISDN/SS7)
 02. Internet Protocol (IP)
 03. Frame Relay
 04. Asynchronous Transfer Mode (ATM)
 05. Multiprotocol Labeling Switching (MPLS)
 - f. Session Initiation Protocol (SIP)

4. Transmission Systems

- a. Analog
- b. Digital

B. TYPES AND FEATURES OF 9-1-1 SYSTEMS

1. Types of 9-1-1 Systems
 - a. Basic
 - b. ANI Only
 - c. ANI/ALI
 - d. Enhanced
 - e. NG9-1-1
2. Features of 9-1-1 Systems
 - a. Selective Routing
 - b. Alternate Routing
 - c. Default Routing
 - d. Call Transferring
 - e. ANI Resend
 - f. Router to Router Transfer
 - g. Geospatial Routing
 - h. Policy Based routing

C. PUBLIC SAFETY ANSWERING POINT (PSAP)

1. Types of PSAPs
 - a. Primary/Secondary
 - b. Single Jurisdiction/Multiple Jurisdiction
 - c. Consolidated
 - d. Co-located
 - e. Virtual
2. PSAP 9-1-1 Equipment
 - a. ANI Controller
 - b. ALI Controller
 - c. System controllers
 - d. Uninterrupted Power Supply (UPS)
 - e. ANI Displays
 - f. ALI Displays
 - g. ACD
 - h. Intelligent Workstations/Computer Telephony Integration (CTI)
 - i. Gateways
 - j. Call Handling Equipment (CHE)
 01. On premise
 02. Host/Remote
 03. Call Handling as a Service (CHaaS)
3. Other PSAP Equipment
 - a. Dispatch
 - b. Recording
 - c. Power Systems
 - d. CAD System
 - e. Records Management System
 - f. Mobile Data Systems
 - g. Automatic Vehicle Location (AVL)
 - h. Telecommunications Device for the Deaf (TDD/TTY)
 - i. Time Synchronization
 - j. Mapping Systems
 - k. Management Information Systems (MIS)
4. Radio Communications
 - a. Trunked
 - b. VHF/UHF
 - c. Mobiles/Portables
 - d. Repeater Systems
 - e. Satellite
 - f. Radio over IP (RoIP)

D. PBX/PSP

1. Caller Location Identification
 - a. Private Switch ANI/ALI
 - b. Information Transport
 - c. Routing

E. WIRELESS

1. Wireless Devices
2. Network Routing
3. Methods for 9-1-1 Call Routing
4. Location Information
5. Interconnection Standards
6. Phase II
7. Long-term evolution (LTE)
8. Non Service Initialized (NSI)
9. Device Based Hybrid
10. FirstNet

F. NEXT GENERATION 9-1-1 FRAMEWORK

1. NG9-1-1 Core Services Architecture (i3)
 - a. NG9-1-1 Terms
 - b. IP Networking
 - c. Emergency Services IP Network (ESInet)
 - d. Next Generation Functional Elements
 01. Emergency Call Routing Function (ECRF)
 02. Emergency Services Routing Proxy (ESRP)
 03. Location Validation Function (LVF)
 04. Location Information Service (LIS)
 05. Border Control Function (BCF)
 06. Legacy Network Gateway (LNG)
 07. Legacy PSAP Gateway (LPG)
 - e. NG9-1-1 Public Safety Answering Point
 - f. Emergency Incident Data Object (EIDO)
 - g. Spatial Interface (SI)
 - h. Forest Guide)
 - i. Domain Name Service (DNS)
2. NG9-1-1 Transitional Elements
 - a. Location Data Base (LDB)
 - b. Legacy Selective Routing Gateway (LSRG)
3. Additional Data Repository / Identity Searchable Additional Data Repository
4. NG-SEC

II. INFORMATION SYSTEMS (10%)

A. DATA BASES IN SUPPORT OF 9-1-1

1. Types of Data Bases
 - a. Service Order Input System
 - b. SAG
 - c. MSAG, ESN, and ESZ
 - d. ALI Records
 - e. Selective Routing Systems (SRS) Records
 - f. TN Records
 - g. Geographic Information Systems (GIS)
 01. Latitude/Longitude Based
 02. Relationship to Location Determination Technologies
 03. Global Positioning Systems (GPS)
 04. GIS Data Model

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- h. NG9-1-1 Data Bases
 - i. Third Party Databases
 - j. National Information Exchange Model (NIEM)
 - k. Number Portability Administration Center (NPAC)
 - l. National Forest Guide
 - m. PSAP Credentialing Authority (PCA)
2. Relational Databases
- a. Interfacing
 - b. Data Stream
- B. DATA BASE DEVELOPMENT, IMPLEMENTATION, MAINTENANCE
1. Location of E9-1-1 Database
- a. Telco
 - b. Self-Maintained at PSAP
 - c. Stand Alone at PSAP via Telco
 - d. Individual Provided/Maintained
2. ESZ/ESN/MSAG Development
- a. Initial Creation
 - b. Finalization
 - c. Error Correction
 - d. Maintenance
 - e. MSAG/GIS/ALI Synchronization
 - f. NG9-1-1 Data Base Management
- C. NENA STANDARDS AND OTHER DOCUMENTS
- Please link to the following for the latest NENA Standards and other documents:
nena.org/standards
- D. NON-VOICE COMMUNICATIONS
- 1. Telematics
 - 2. Text Messaging (SMS)
 - 3. Real-Time Text
 - 4. Email
 - 5. Multimedia
 - 6. Social Media networking
 - 7. Device Applications (Apps)
- E. INFORMATION NETWORKS
- 1. Internet
 - 2. Intranet
 - 3. Local Area Networks (LAN)
 - 4. Wide Area Networks (WAN)
 - 5. Wireless Local Area Network (WLAN)
- F. SECURITY
- 1. Physical
 - 2. Cyber
 - 3. Network
 - 4. Personnel

III. LEGISLATION (5%)

A. FUNDING AND ENABLING LEGISLATION

- 1. Mechanisms and Sources
 - a. Telephone Service Surcharge and Levies
 - b. Wireless Surcharges
 - c. Taxes
 - d. Government Funding
 - e. Grants
- 2. Factors to Consider
 - a. Limitation on Use of Funds
 - b. Collection and Distribution Methods
 - c. Governing Board Requirements
 - d. Standards for Telecommunicators
 - e. Standards for Equipment
 - f. Standards for Addressing and Mapping

B. TELECOMMUNICATIONS REGULATORY ENVIRONMENT

- 1. Federal, State, Provincial, County, Municipal
 - a. Telecommunications Act of 1996
 - b. Wireless Communication and Public Safety Act of 1999
 - c. ENHANCE 9-1-1 Act of 2004
 - d. IP-Enabled Voice Communications and Public Safety Act of 2007
 - e. NET911 Improvement Act of 2008
 - f. Middle Class Tax Relief & Job Creation Act of 2012
 - g. Kari's Law 2020
- 2. FCC/CRTC (Canada)
 - a. N-1-1
 - b. Wireless
 - c. PS ALI/PBX
 - d. CLEC
 - e. NG9-1-1
- 3. Sovereign Immunity
- 4. TSP (Telecommunications Services Priority)
- 5. Confidentiality/Public Information Laws/Privacy Laws
- 6. Liability
- 7. Public Utilities Commission Requirements
 - a. Tariffs
 - b. Unbundling
 - c. Political Considerations
 - d. Public Safety Entities
- 8. Radio Communications Act (Canada)

C. SPECIAL LEGISLATIVE AREAS

1. MLTS
2. TDD Protocols
3. Cellular, PCS
4. Accessibility
5. Emergency Medical Dispatching (EMD)
6. Nuisance/False Alarm Legislation
7. Automatic Alarm Systems
8. Industry Canada (Canada)
9. Emergency Preparedness Canada (Canada)
10. Access to Information Act (Canada)
11. Mass Notification Systems
12. Open Records Legislation
13. Telecommunications Standards/Legislation
14. Bidding and Purchasing Laws
15. Pipeline

- b. Preparedness
 01. Redundancy
 02. Relocation/Back-up Site
 03. Mutual Aid Agreement
 04. Housing
 05. Health
 06. Testing
 07. Training
 08. Notification Plans (Employees and Families)
 09. Supplies
- c. Response
 01. Transportation of Employees/Equipment
 02. Food/Water/Toilets
 03. Procedures and Policies
 04. National Incident Management System (NIMS)*
 05. Telecommunicator Emergency Response Taskforce (TERT)
- d. Recovery
 01. Facilities
 02. Restoration of Services

9-1-1 MANAGEMENT (50%)

I. MANAGEMENT OF ORGANIZATION (20%)

A. MANAGEMENT/GOVERNANCE FUNCTIONS

1. Budgeting
2. Purchasing
 - a. Developing Specifications
 01. Vendor Selection and Contracting Request for Qualifications
 02. Request for Information
 03. Request for Proposal
3. Decision Making
 - a. Political
 - b. Technological
 - c. Human Resource
 - d. Operational
 - e. Financial
 - f. Legislative
 - g. NG9-1-1 System Administration
 - h. Interoperability
 - i. Database Management
4. Planning
 - a. Short Range
 - b. Long Range
 - c. Strategic
 - d. Continuity of Operations

B. EMERGENCY MANAGEMENT

1. Types of Disasters
 - a. Localized
 - b. Regional / National
 - c. PSAP Only
 - d. Network/Transport Facilities
2. Phases of Emergency Management
 - a. Mitigation
 01. Resource Management
 02. Interagency Cooperation
 03. Security

C. HEALTH AND SAFETY

1. Environment Factors
 - a. Human Factors
 - b. Engineering/Ergonomics
 - c. Job-related Illnesses and Injuries
2. Critical Incident Stress Management
3. Employee Assistance Programs (EAP)
4. Post-Traumatic Stress Disorder (PTSD)
5. Wellness

D. PUBLIC EDUCATION AND MEDIA RELATIONS

1. Public Education Plan (Preventive vs. Remedial)
2. Information Delivery
3. Evaluation
4. Media Relations
5. Social Media

II. MANAGEMENT OF EMPLOYEES (25%)

A. STAFFING AND SCHEDULING

B. QUALITY AND PERFORMANCE MANAGEMENT

1. Performance Planning: Identification of Goals and Desirable Behaviors
2. Setting and Communicating Performance Standards
3. Employee Attitudes, Opinions, and Satisfaction
4. Measuring Results and Feedback
5. Implementation of Performance Improvement Strategies
6. Evaluation of Results
7. Discipline / Corrective Action
8. Customer Service & Stakeholder Satisfaction

C. RECRUITING AND HIRING

1. Recruiting
 - a. Determining Needs
 - b. Candidate outreach and education
 - c. Identifying Selection Criteria
 - d. Internal Sourcing
 - e. External Sourcing
 - f. Evaluation of Recruitment Effectiveness
2. Hiring Procedures and Practices
 - a. Applicant Testing
 - b. Interview Panels
 - c. Agency Tours and Information
 - d. Criminal Backgrounds and Reference Checks

D. TRAINING AND DEVELOPMENT

1. Training Needs Analysis
2. Development and Implementation of Training Programs
3. Evaluation of Training
4. Quality Assurance/Quality Improvement of Training Programs

E. COMPENSATION AND BENEFITS

1. Job Analysis and Job Descriptions
2. Setting Pay Rates
3. Types
4. Philosophies and Strategies
5. Economic Factors
6. Pay Adjustments and Increases
7. Medical Benefits

F. EMPLOYEE RETENTION

1. Career Planning and Development
2. Job satisfaction and work culture
3. Promotional opportunities
4. Negligent Retention

G. SUCCESSION PLANNING

1. Mentoring
2. Leadership Development
3. Cross Training

H. EMPLOYEE RELATIONS AND LABOR RELATIONS

1. Policies and Practices
2. Employment Rights and Privacy
 - a. Harassment and Bullying
 - b. Affirmative Action Plans
 - c. Workers Compensation Laws/Regulations
 - d. Unemployment Compensation Laws/Regulations
 - e. Social Security
 - f. Canada Labour Relations Board (Canada)
3. Labor/Management Relations
 - a. Union Representation of Employees
 - b. Collective Bargaining
 - c. Unfair Labor Practices
 - d. Strikes
 - e. Boycotts

III. Legislation (5%)

A. EMPLOYMENT LAWS AND REGULATIONS

1. Title VII of the Civil Rights Act (1964) as amended (1972, 1991)
2. Age Discrimination in Employment Act (1967) as amended
3. Pregnancy Discrimination in Employment Act (1978)
4. Uniform Guidelines on Employee Selection Procedures
5. Occupational Safety and Health Act (1971)
6. Americans with Disabilities Act
7. Family Medical Leave Act
8. Canadian Charter of Rights and Freedoms (Canada)
9. Canadian Human Rights Act (Canada)
10. Canadian Centre for Occupational Health and Safety Act (Canada)
11. Constitution Act (Canada)

B. COMPENSATION LAWS AND REGULATIONS

1. Fair Labor Standards Act (1938) as amended (Wage and Hour)
2. Equal Pay Act (1963)
3. COBRA (Consolidated Omnibus Reconciliation Act) (1990)
4. Social Security Act (as amended)
5. Patient Protection Affordable Care Act