

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 www.nena.org in the ENP Certification section.

How the Exam Is Structured

E9-1-1 OPERATIONS (50%)

I. TELECOMMUNICATIONS OPERATIONS (35%)

A. PRINCIPLES OF TELECOMMUNICATIONS

- 1) Radio Communications
 - a) Trunked
 - b) VHF/UHF
 - c) Mobiles/Portables
 - d) Repeater Systems
 - e) Satellite
 - f) Radio over IP (RoIP)

- 2) Network Design and Architecture
 - a) Originating Service Provider (OSP)*
 - 1) Local Exchange Carrier (LEC)
 - 2) Competitive Local Exchange Carrier (CLEC)
 - 3) Interexchange Carrier
 - 4) Local Loop
 - 5) Area Code Overlay/Split
 - 6) N-1-1
 - 7) VoIP Service Providers (VSP)
 - b) Transport Media
 - 1) Copper
 - 2) Fiber optic
 - 3) Microwave
 - 4) Coaxial Cable
 - 5) Broadband

- 3) Network Configurations
 - a) Trunking Requirements
 - b) Switching
 - 1) Direct Trunked
 - 2) Tandem (Analog vs. Digital)
 - 3) End Office Routing
 - c) Alternate routing considerations

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- 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 (ESI net)*

4) Signaling/Transport

- a) Feature Group D
- b) CAMA
- c) Tandem Connections
- d) Trunk Concentration
- e) Dual Tone Multi-Frequency (DTMF)
- f) Intelligent Networks
 - 1) ISDN/SS7
 - 2) Voice Over I/P
 - 3) Frame Relay
 - 4) ATM.

5) Transmission Systems

- a) SXS
- b) Crossbar
- c) Analog
- d) Digital

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

1. Key Systems

- a) Hybrid
- b) Electronic
- c) Mechanical
- d) Digital

2. Types of 9-1-1 Systems

- a) Basic
- b) ANI Only
- c) ANI/ALI
- d) Enhanced
- e) NG9-1-1

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3. 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) Geo-spatial Routing
 - h) Policy Routing

C. PUBLIC SAFETY ANSWERING POINT (PSAP)

1. Types of PSAPs
 - a) Primary/Secondary
 - b) Single Jurisdiction/Multiple Jurisdiction
 - c) Consolidated

2. 9-1-1 Equipment
 - a) ANI Controller
 - b) ALI Controller
 - c) System controllers
 - d) Power Supply
 - e) ANI Displays
 - f) ALI Displays
 - g) ACD
 - h) Intelligent Workstations/Computer Telephony Integration (CTI)
 - i) PS ALI/PBX
 - j) Gateways

3. Other PSAP Equipment
 - a) Dispatch
 - b) Recording
 - c) Electrical
 - d) CAD System

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- e) Records Management System
- f) Mobile Data Terminal
- g) Automatic Vehicle Location
- h) Telecommunications Device for the Deaf (TDD/TTY)
- i) Master Clock Issues
- j) Electronic Mapping

D. PBX/PSP

- 1. Caller Location Identification
 - a) ANI from PS
 - b) Information Transport
 - c) PSEUDO ALI
 - d) Routing Issues

E. WIRELESS

- 1. Cellular/PCS
 - a) Network Routing
 - b) Methods for 9-1-1 Call Routing
 - c) Location Information
 - d) Interconnection Standards

F. VOICE OVER I/P

- 1. I1
- 2. I2
- 3. I3

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II. INFORMATION SYSTEMS (10%)

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

1. Types of Data Bases
 - a) CRIS
 - b) SAG
 - c) MSAG and ESN
 - d) ALI Records
 - e) Selective Routing Systems (SRS) Records
 - f) TN Records
 - g) Geographic Information Systems (GIS)
 1. Latitude/Longitude Based
 2. Relationship to Location Determination Technologies
 3. Global Positioning Systems (GPS)
 4. GIS Data Model
 - h) NG9-1-1 Data Base
 1. Emergency Call Routing Function/Location Validation Function (ECRF/LVF)*
 - i) External Database
 - j) NIEMX
2. Relational Databases
 - a) Interfacing
 - b) Data Stream

B. DATA BASE DEVELOPMENT, IMPLEMENTATION, MAINTENANCE

1. Location of Data Base
 - a) Telco
 - b) Self-Maintained at PSAP
 - c) Stand Alone at PSAP via Telco
 - d) Individual Provided/Maintained
2. ESZ/MSAG Development
 - a) Initial Creation

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- b) Finalization
- c) Error Correction
- d) Maintenance
- e) 3rd Party
- f) MSAG/GIS/ALI Synchronization

C. NENA RECOMMENDED TECHNICAL STANDARDS

- 1. Technical Standards Administration
- 2. Technical Data
- 3. Technical Network
- 4. Technical PSAP
- 5. NG9-1-1 Transition Planning
- 6. Technical ALEC & Private Switch

D. NON-TRADITIONAL ISSUES

- 1. Phase II Wireless
- 2. Number Portability
- 3. Automatic Crash Notification (ACN)
- 4. Telematics

E. INFORMATION NETWORKS

- 1. Internet
- 2. Intranet
- 3. Local Area Networks (LAN)
- 4. Wide Area Networks (WAN)

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F. NENA Documents

1. Document 57-502
2. Standard 57-001
3. Emergency Telephone Notification Systems
4. Guidelines for Minimum Response to Wireless 9-1-1 Calls

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 Call Takers/Dispatchers/EMD
 - e) Standards for Equipment
 - f) Standards for Addressing and Mapping

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B. TELECOMMUNICATIONS REGULATORY ENVIRONMENT

1. Federal, State, Provincial, 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

2. FCC/CRTC (Canada)
 - a) N11
 - b) Wireless
 - c) PS ALI/PBX
 - d) CLEC

3. Bidding and Purchasing Laws

4. Sovereign Immunity

5. TSP (Telecommunications Services Priority)

6. Confidentiality/Public Information Laws/Privacy Laws

7. Liability

8. Public Utilities Commission Requirements
 - a) Tariffs
 - b) Unbundling
 - c) Political Issues
 - d) Public Safety Entities

9. Radio Communications Act (Canada)

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C. SPECIAL LEGISLATIVE AREAS

1. PBX/ANI
2. TDD Protocols
3. Cellular, PCS
4. Accessibility
5. Emergency Medical Dispatching
6. Nuisance/False Alarms
7. Automatic Alarm Systems
8. Industry Canada (Canada)
9. Emergency Preparedness Canada (Canada)
10. Access to Information Act (Canada)
11. Emergency Notification Systems (ENS) (Reverse 9-1-1)
12. Open Records Legislation
13. Telecommunicates Standards/Legislation

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E9-1-1 MANAGEMENT (50%)

I. MANAGEMENT OF ORGANIZATION (20%)

A. MANAGEMENT FUNCTIONS

1. Budgeting
2. Purchasing
 - a) Writing Bid Specs for RFP
 - b) Vendor ID Process
 - c) Vendor Analysis Process
 - d) Vendor Selection
 - e) Vendor Contracting
3. Decision Making
 - a) Political Issues
 - b) Technological Issues
 - c) Human Resource Issues
 - d) Operational Issues
 - e) Financial Issues
 - f) Legislative Issues
 - g) NG9-1-1 System Administration
 - h) Interoperability Issues

B. CONTINGENCY AND DISASTER PLANNING

1. Types of Disasters
 - a) Localized
 - b) Regional
 - c) PSAP Only
 - d) Network Facilities
2. Phases of Emergency Management
 - a) Mitigation
 - 1) Resource Management
 - 2) Interagency Cooperation
 - 3) Security
 - b) Preparedness
 - 1) Redundancy
 - 2) Relocation/Back-up Site
 - 3) Mutual Aid Agreement
 - 4) Testing
 - 5) Training

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- 6) Notification Plans
(Employees and Families)
- 7) Supplies

- c) Response
 - 1) Transportation of Employees/Equipment
 - 2) Food/Water/Toilets
 - 3) Procedures and Policies
 - 4) National Incident Management System (NIMS)*

- d) Recovery
 - 1) Transportation of Employees/Equipment
 - 2) Restoration of Services

C. HEALTH AND SAFETY

- 1. Environment Factors
 - a) Human Factors
Engineering/Ergonomics
 - b) Job-related Illnesses and Injuries
- 2. Critical Incident Stress Management
- 3. Employee Assistance Programs (EAP)

D. PUBLIC RELATIONS AND EDUCATION

- 1. Research
- 2. Action Plan (Preventive vs. Remedial)
- 3. Information Delivery
- 4. Evaluation
- 5. Media Relations

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II. MANAGEMENT OF EMPLOYEES (25%)

A. DEVELOPMENT of POLICIES and PROCEDURES

B. SCHEDULING of EMPLOYEE TIME

C. 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

D. SELECTION AND PLACEMENT

1. Recruiting
 - a) Determining Needs
 - b) Identifying Selection Criteria
 - c) Internal Sourcing
 - d) External Sourcing
 - e) Evaluation of Recruitment Effectiveness
2. Selection Strategies
3. Retention of Employees

E. TRAINING AND DEVELOPMENT

1. Training Needs Analysis
2. Development of Training Curriculum

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3. Training Methods
4. Ongoing/Long-Term Training
5. Evaluation of Training
6. Career Planning and Development

F. 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

G. EMPLOYEE RELATIONS AND LABOR RELATIONS

1. Policies and Practices
2. Employment Rights and Privacy
 - a) Harassment Legislation
 - 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) Employer Unfair Labor Practices

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- d) Union Unfair Labor Practices
- e) Strikes
- f.) 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)

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3. COBRA (Consolidated Omnibus Reconciliation Act) (1990)
4. Social Security Act (as amended)

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