Unit #3

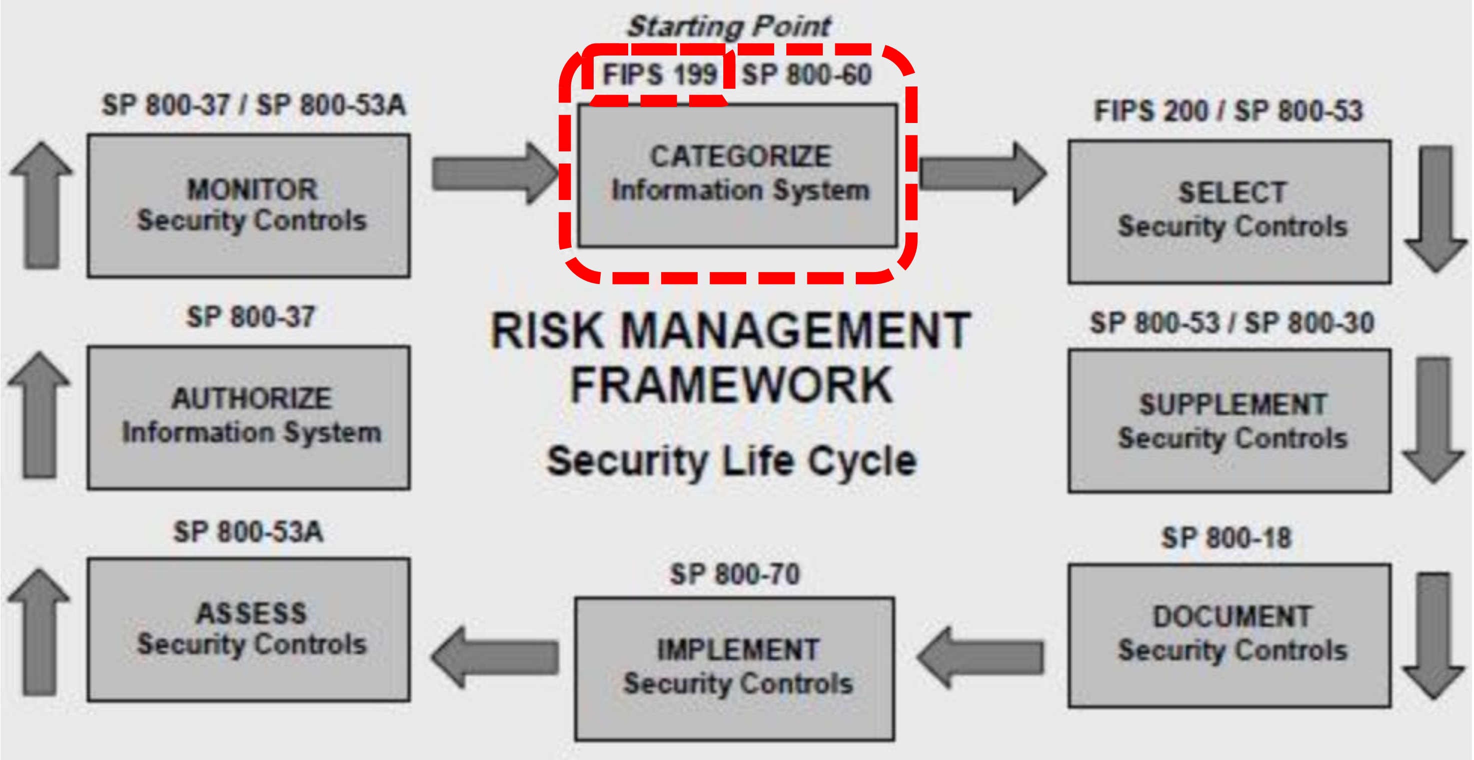
MIS5214

Planning and Policy

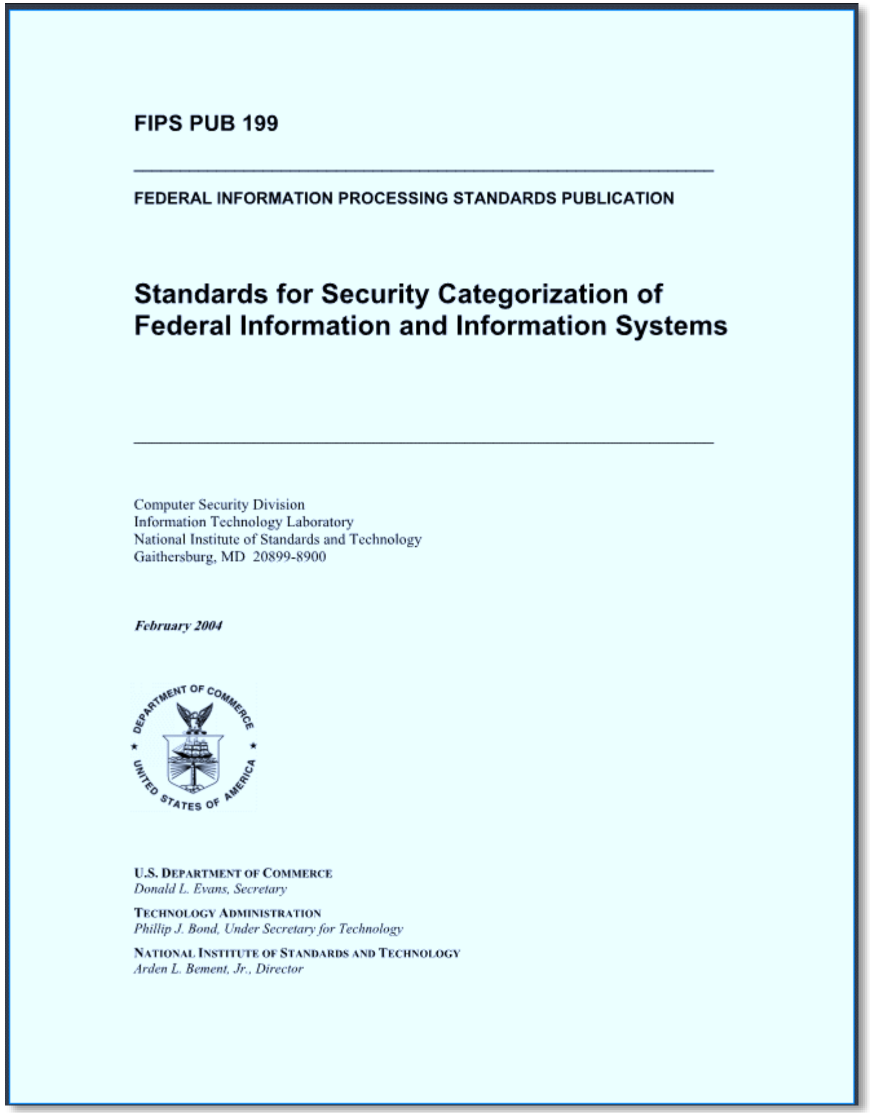
Agenda

- Exercise: Information Security Policy Assessment
- NIST Risk Management Framework and FIPS 199
- Use of NIST SP 800-60 Volume 1 and Volume 2
- Exercise – *Finalize impact levels*
- *Exercise – Determine and finalize impact levels*
- *Exercise – Determine Information and Information System Types and provisional security categorization*
- Security Control Baselines – review
  - FIPS 200 and NIST 800-53 Security Control Baselines
  - Security Control Families
- Risk Assessment Controls
- Exercise *Find and assess risk assessment policy*
- Next Time: Case Study 1

NIST Risk Management Framework



FIPS 199 – Risk Assessment based on security objectives and impact ratings for information and information system



FIPS PUB 199

FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATION

Standards for Security Categorization of Federal Information and Information Systems

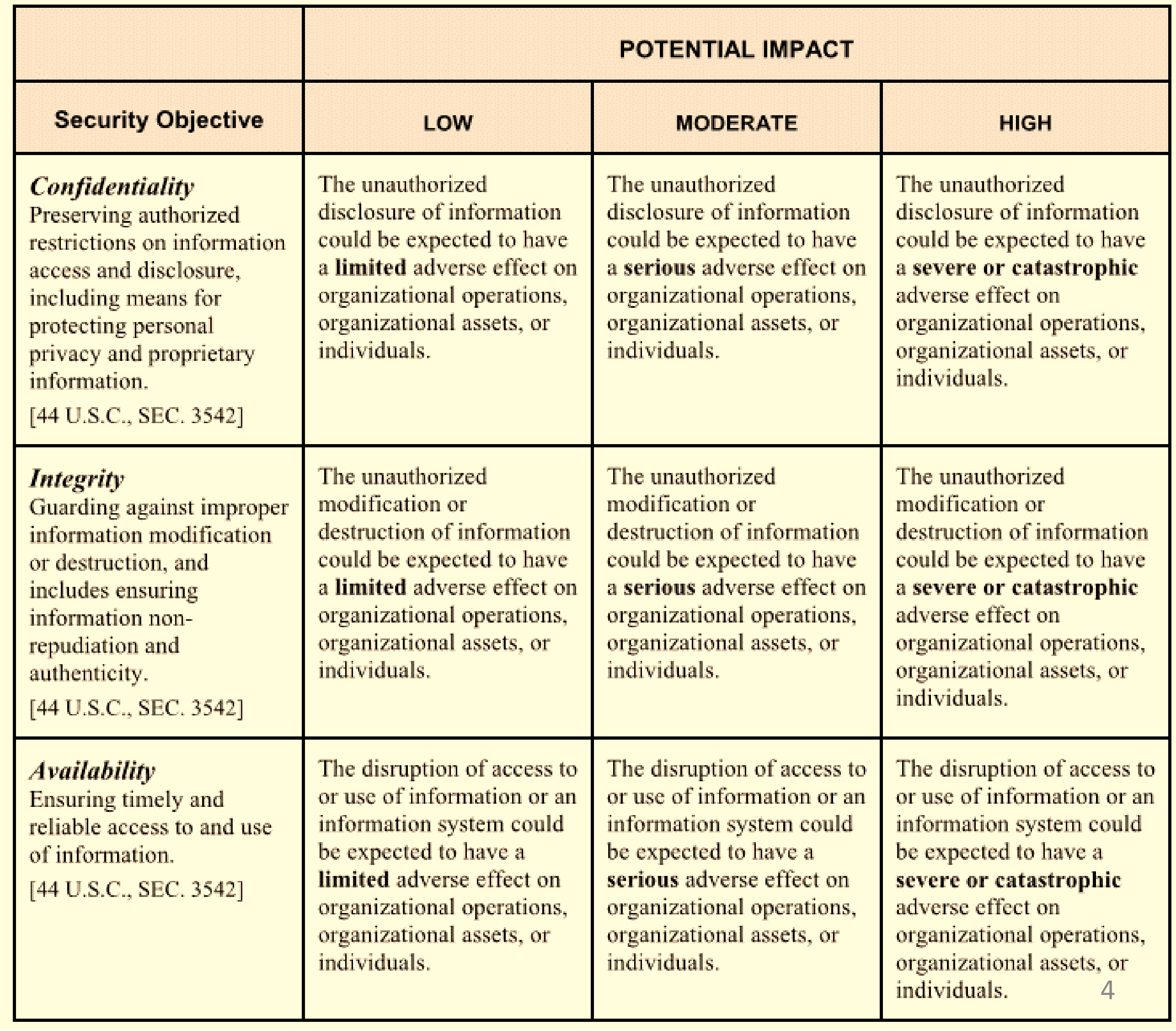
Computer Security Division
Information Technology Laboratory
National Institute of Standards and Technology
Gaithersburg, MD 20899-8900

February 2004

U.S. DEPARTMENT OF COMMERCE
Donald L. Evans, Secretary

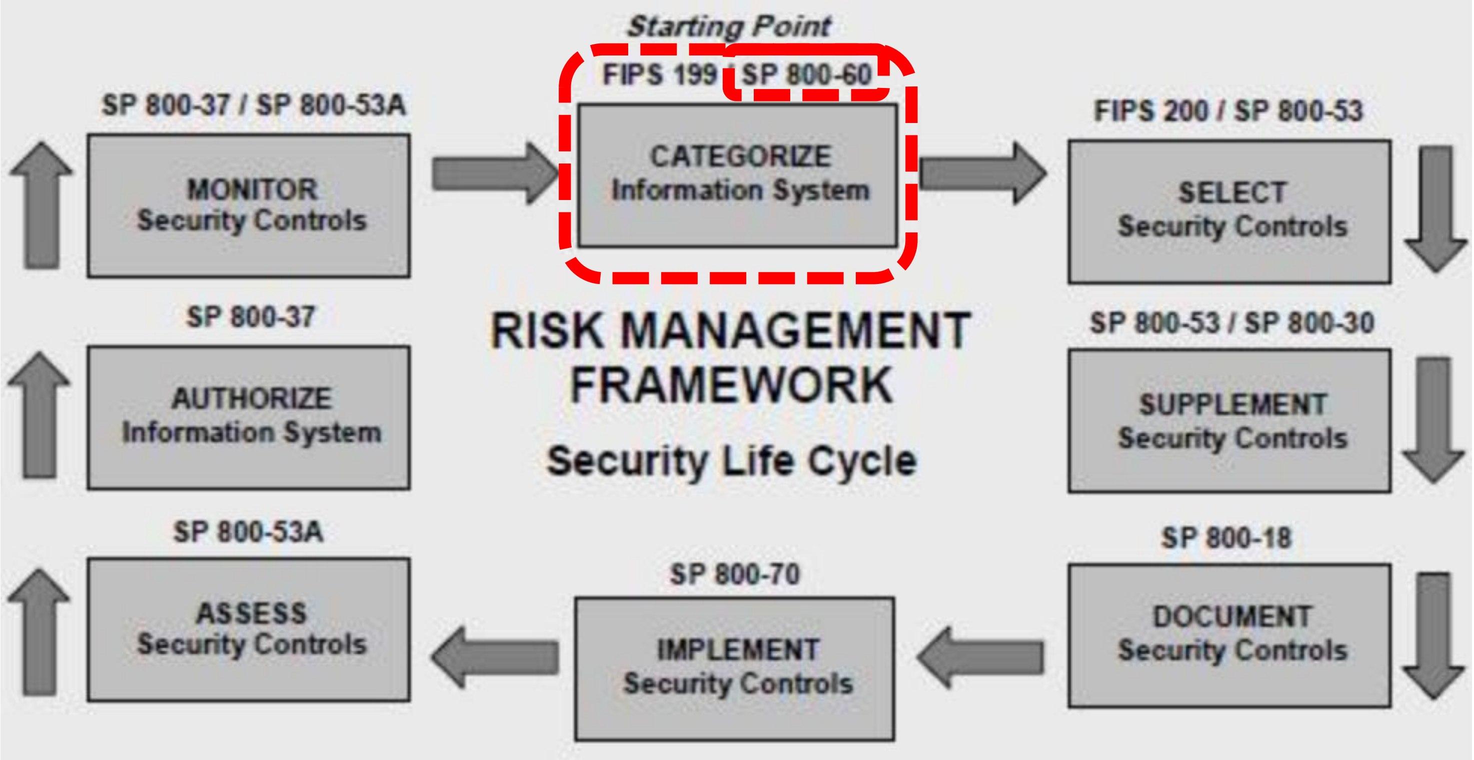
TECHNOLOGY ADMINISTRATION
Phillip J. Bond, Under Secretary for Technology

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
Arden L. Bement, Jr., Director



	POTENTIAL IMPACT		
Security Objective	**LOW**	**MODERATE**	**HIGH**
Confidentiality Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information. [44 U.S.C., SEC. 3542]	The unauthorized disclosure of information could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.	The unauthorized disclosure of information could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals.	The unauthorized disclosure of information could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals.
Integrity Guarding against improper information modification or destruction, and includes ensuring information non-repudiation and authenticity. [44 U.S.C., SEC. 3542]	The unauthorized modification or destruction of information could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.	The unauthorized modification or destruction of information could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals.	The unauthorized modification or destruction of information could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals.
Availability Ensuring timely and reliable access to and use of information. [44 U.S.C., SEC. 3542]	The disruption of access to or use of information or an information system could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.	The disruption of access to or use of information or an information system could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals.	The disruption of access to or use of information or an information system could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals.

NIST Risk Management Framework



Starting Point

FIPS 199 / SP 800-60

CATEGORIZE Information System

FIPS 200 / SP 800-53

SELECT Security Controls

SP 800-53 / SP 800-30

SUPPLEMENT Security Controls

SP 800-18

DOCUMENT Security Controls

SP 800-70

IMPLEMENT Security Controls

SP 800-53A

ASSESS Security Controls

SP 800-37

AUTHORIZE Information System

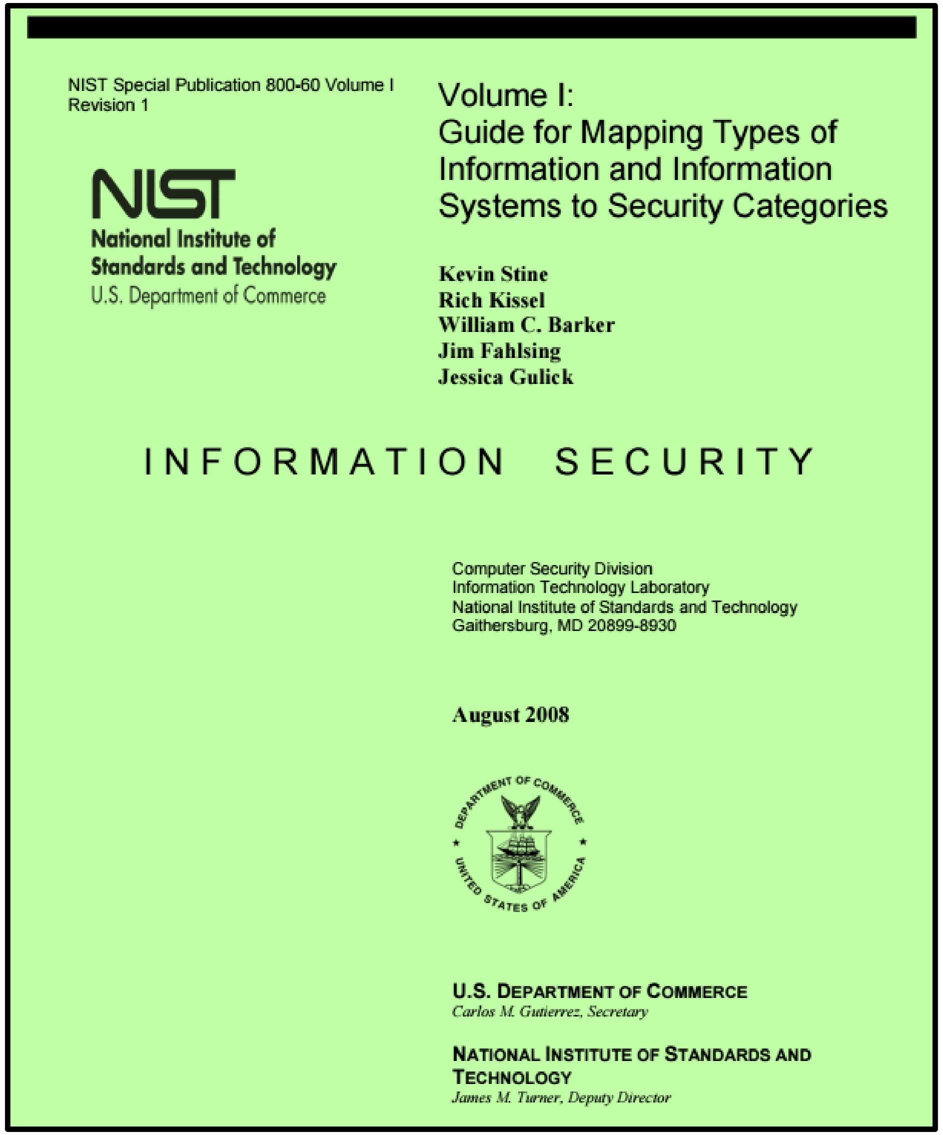
SP 800-37 / SP 800-53A

MONITOR Security Controls

RISK MANAGEMENT FRAMEWORK

Security Life Cycle

NIST SP 800-60 volumes 1 and 2



NIST Special Publication 800-60 Volume I
Revision 1

National Institute of Standards and Technology
U.S. Department of Commerce

Volume I:
Guide for Mapping Types of Information and Information Systems to Security Categories

Kevin Stine
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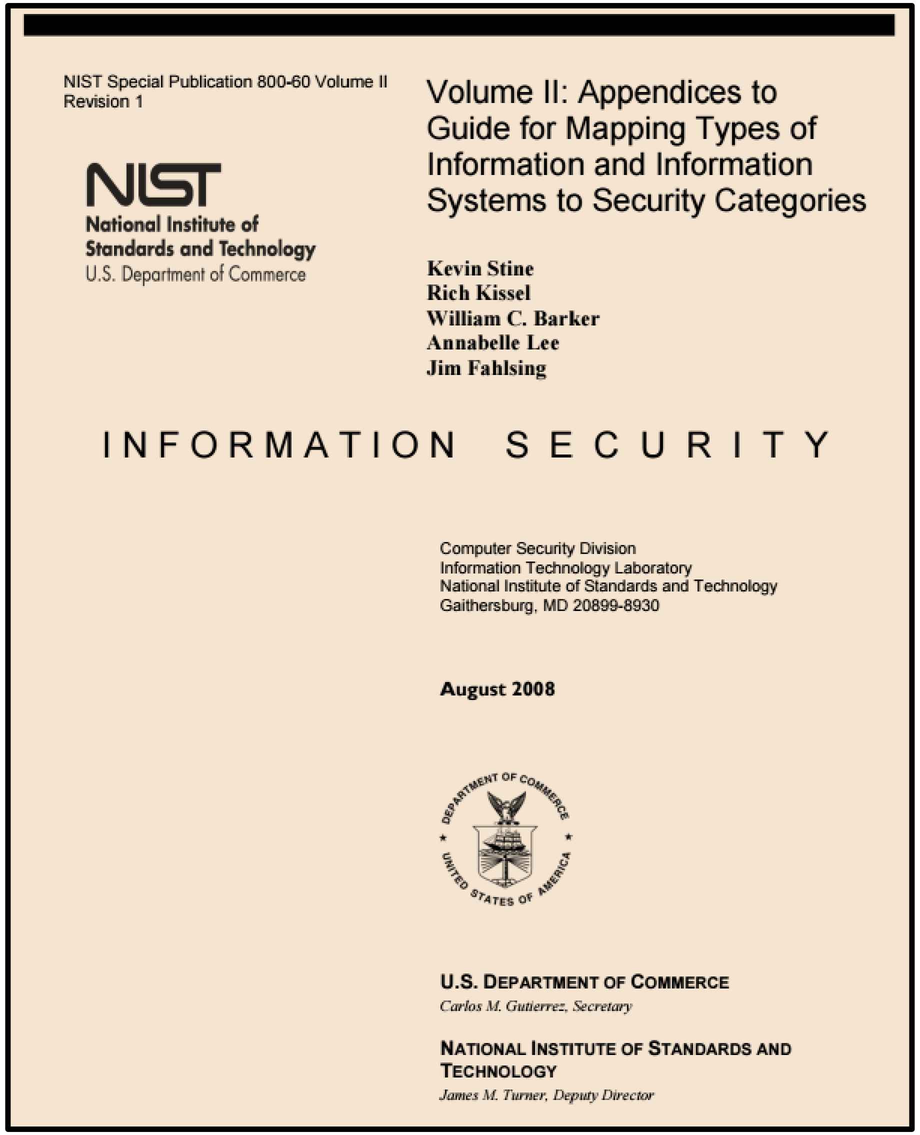

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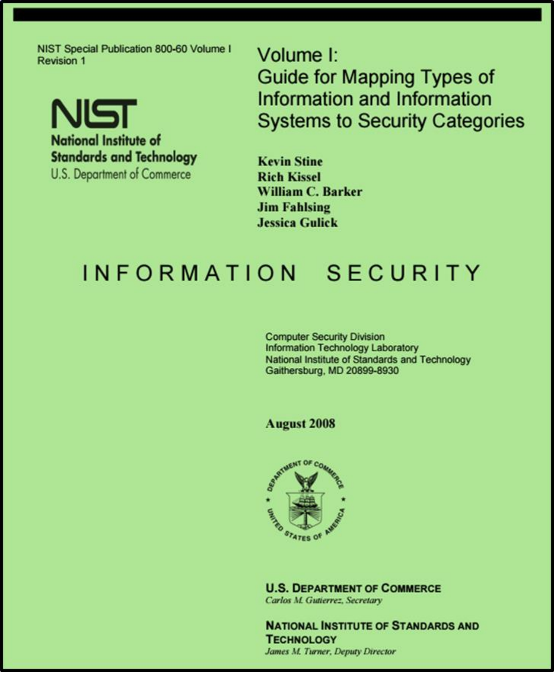

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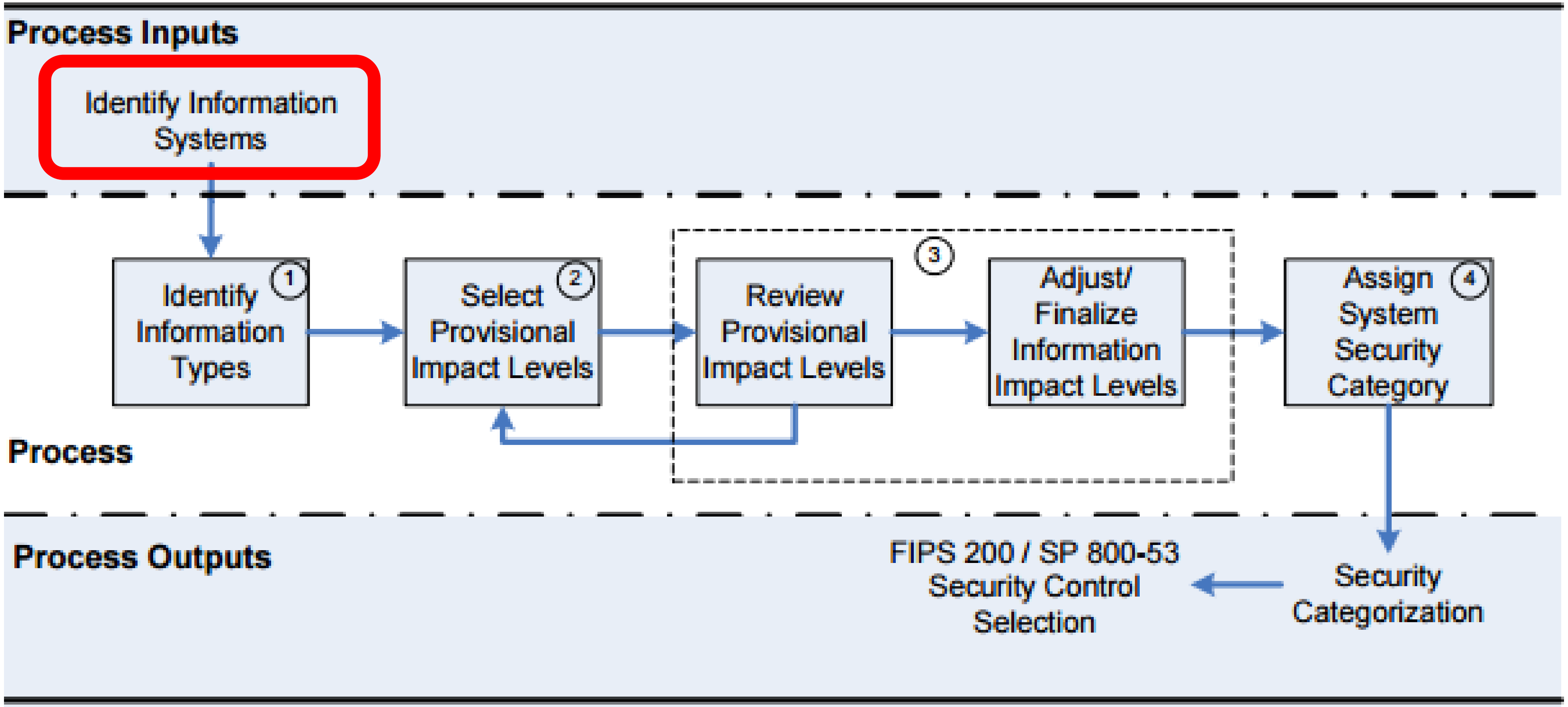
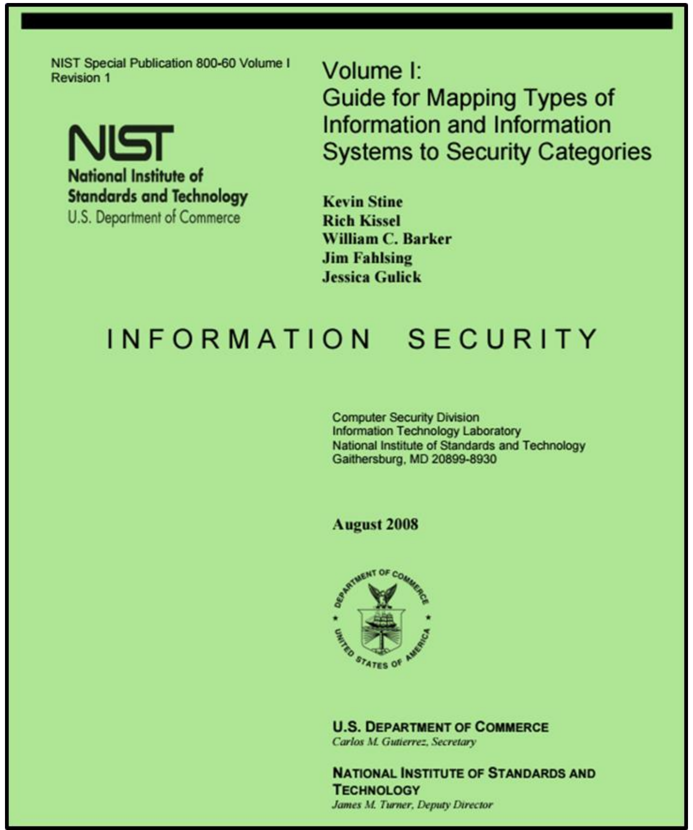

Process Inputs
Identify Information Systems
Identify Information Types
1
Select Provisional Impact Levels
2
Review Provisional Impact Levels
3
Adjust/ Finalize Information Impact Levels
Assign System Security Category
4
Process
Process Outputs
FIPS 200 / SP 800-53 Security Control Selection
Security Categorization

Figure 2: SP 800-60 Security Categorization Process Execution

2 Broad types of Information and Information Systems

1. **Mission-based Information & Information Systems**

2. Management and Support Information & Information Systems



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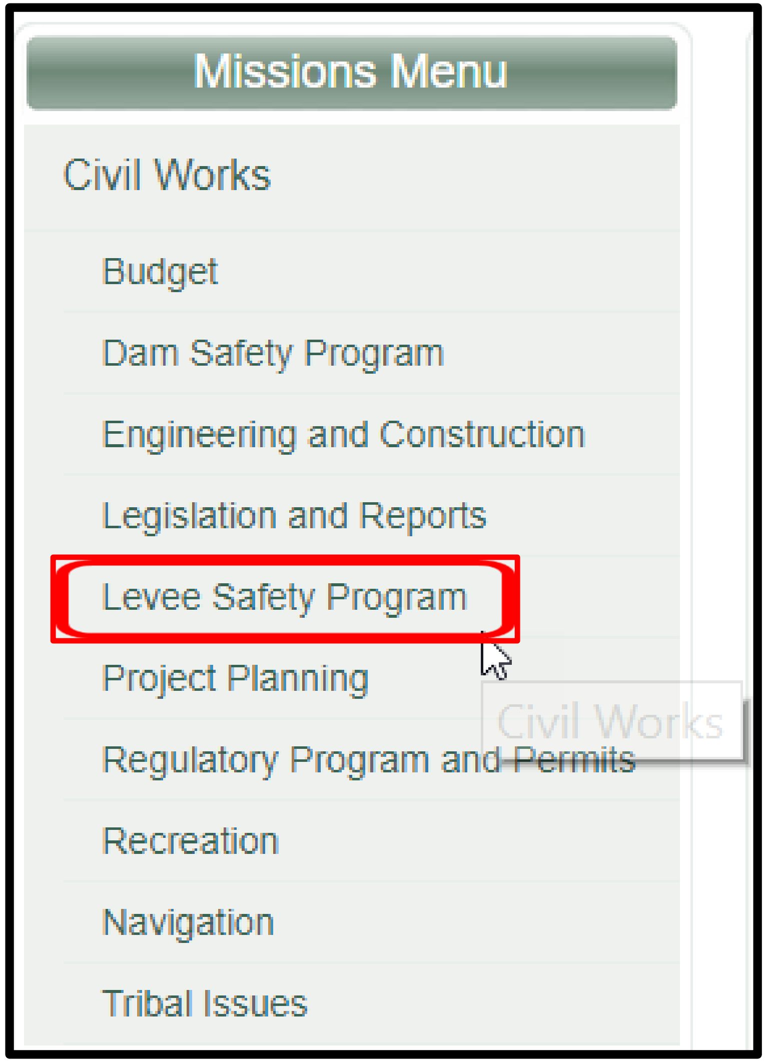
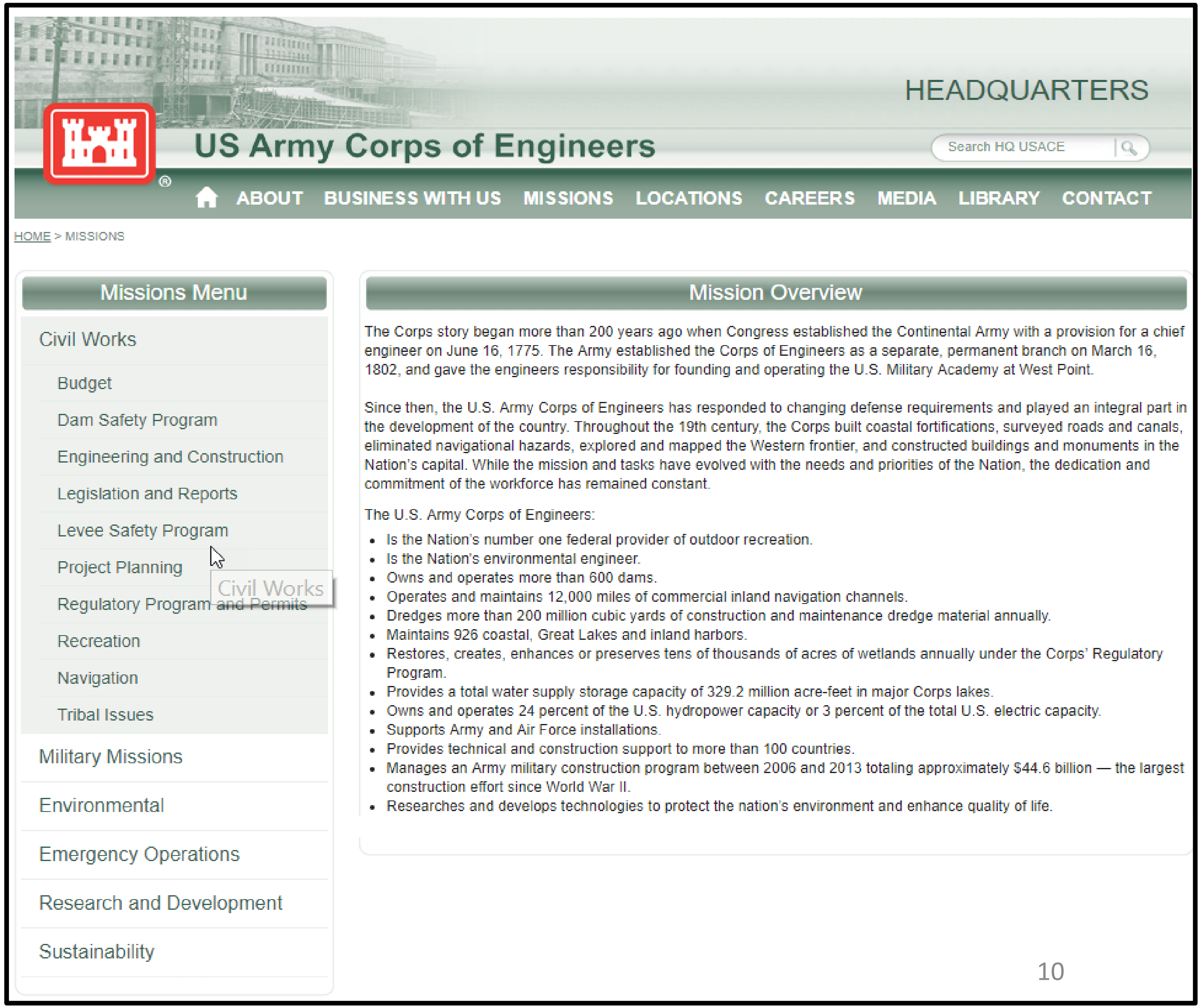
Mission-based Information and Information Systems

1. Defense and National Security
2. Homeland Security
3. Intelligence Operations
4. Disaster Management
5. International Affairs and Commerce
6. Natural Resources
7. Energy
8. Environmental Management
9. Economic Development
10. Community and Social Services
11. Transportation
12. Education
13. Workforce Management
14. Health
15. Income Security
16. Law Enforcement
17. Litigation and Judicial Activities
18. Federal Correctional Activities
19. General Sciences and Innovation
20. Knowledge Creation and Management
21. Regulatory Compliance and Enforcement
22. Public Goods Creation and Management
23. Federal Financial Assistance
24. Credit and Insurance
25. Transfers to State/Local Governments
26. Direct Services for Citizens

Disaster Management Information Systems





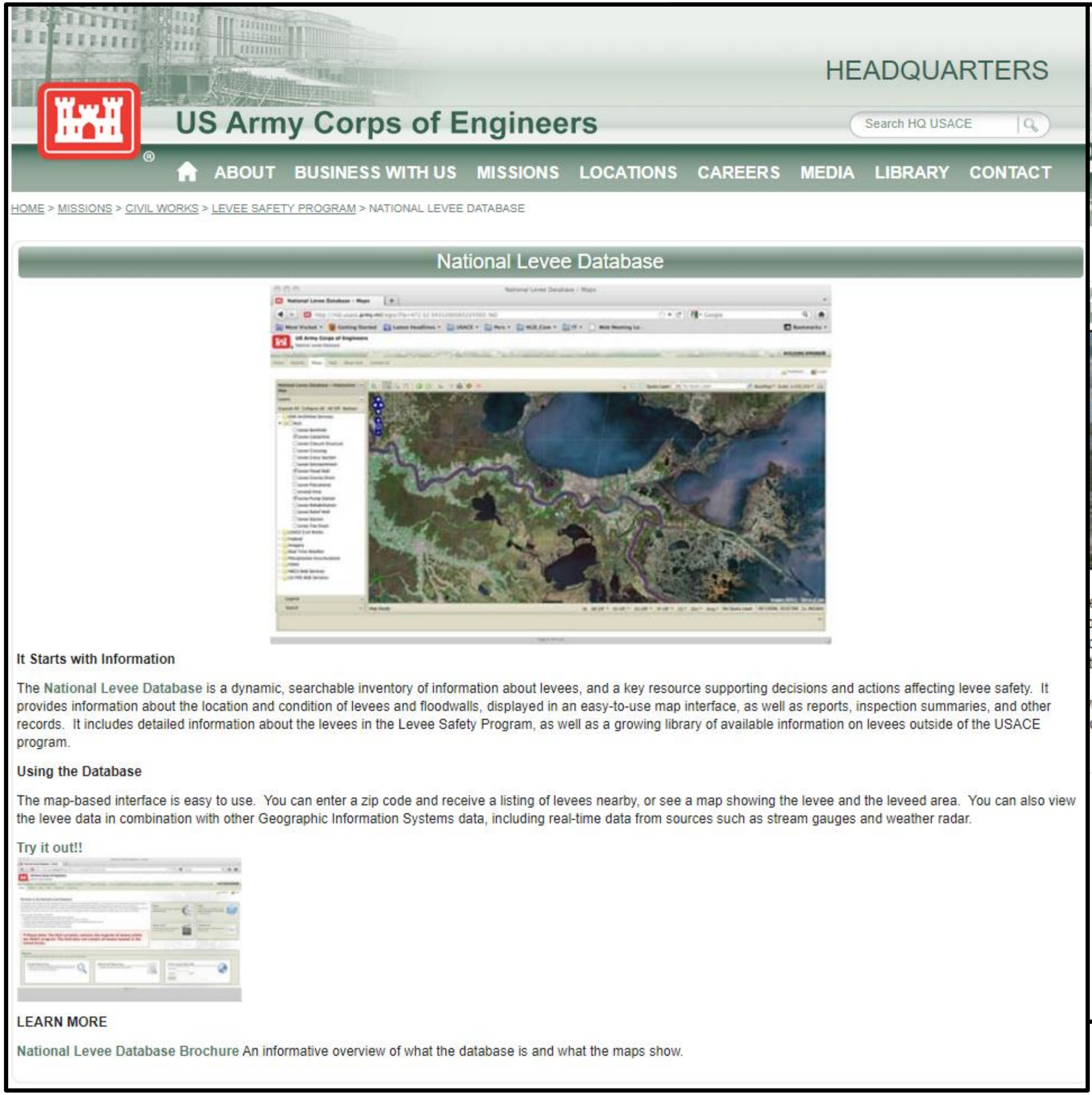
Mission Overview

The Corps story began more than 200 years ago when Congress established the Continental Army with a provision for a chief engineer on June 16, 1775. The Army established the Corps of Engineers as a separate, permanent branch on March 16, 1802, and gave the engineers responsibility for founding and operating the U.S. Military Academy at West Point.

Since then, the U.S. Army Corps of Engineers has responded to changing defense requirements and played an integral part in the development of the country. Throughout the 19th century, the Corps built coastal fortifications, surveyed roads and canals, eliminated navigational hazards, explored and mapped the Western frontier, and constructed buildings and monuments in the Nation's capital. While the mission and tasks have evolved with the needs and priorities of the Nation, the dedication and commitment of the workforce has remained constant.

The U.S. Army Corps of Engineers:

- Is the Nation's number one federal provider of outdoor recreation.
- Is the Nation's environmental engineer.
- Owns and operates more than 600 dams.
- Operates and maintains 12,000 miles of commercial inland navigation channels.
- Dredges more than 200 million cubic yards of construction and maintenance dredge material annually.
- Maintains 926 coastal, Great Lakes and inland harbors.
- Restores, creates, enhances or preserves tens of thousands of acres of wetlands annually under the Corps' Regulatory Program.
- Provides a total water supply storage capacity of 329.2 million acre-feet in major Corps lakes.
- Owns and operates 24 percent of the U.S. hydropower capacity or 3 percent of the total U.S. electric capacity.
- Supports Army and Air Force installations.
- Provides technical and construction support to more than 100 countries.
- Manages an Army military construction program between 2006 and 2013 totaling approximately $44.6 billion — the largest construction effort since World War II.
- Researches and develops technologies to protect the nation's environment and enhance quality of life.



HEADQUARTERS

US Army Corps of Engineers

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ABOUT BUSINESS WITH US MISSIONS LOCATIONS CAREERS MEDIA LIBRARY CONTACT

HOME > MISSIONS > CIVIL WORKS > LEVEE SAFETY PROGRAM > NATIONAL LEVEE DATABASE

National Levee Database

It Starts with Information

The National Levee Database is a dynamic, searchable inventory of information about levees, and a key resource supporting decisions and actions affecting levee safety. It provides information about the location and condition of levees and floodwalls, displayed in an easy-to-use map interface, as well as reports, inspection summaries, and other records. It includes detailed information about the levees in the Levee Safety Program, as well as a growing library of available information on levees outside of the USACE program.

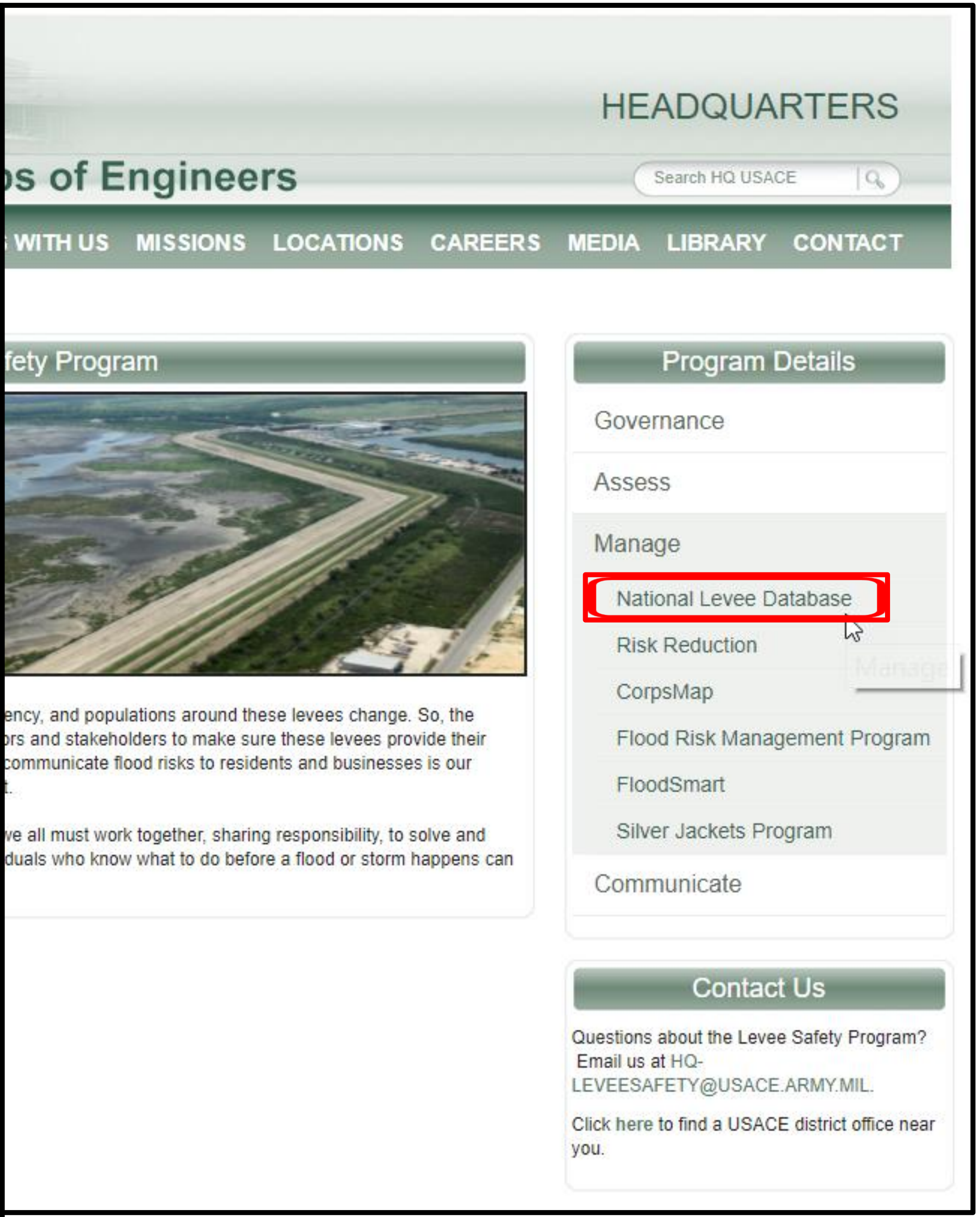
Using the Database

The map-based interface is easy to use. You can enter a zip code and receive a listing of levees nearby, or see a map showing the levee and the leveed area. You can also view the levee data in combination with other Geographic Information Systems data, including real-time data from sources such as stream gauges and weather radar.

Try it out!!

LEARN MORE

National Levee Database Brochure An informative overview of what the database is and what the maps show.



HEADQUARTERS

s of Engineers

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fety Program

ency, and populations around these levees change. So, the
ors and stakeholders to make sure these levees provide their
communicate flood risks to residents and businesses is our
t.

ve all must work together, sharing responsibility, to solve and
duals who know what to do before a flood or storm happens can

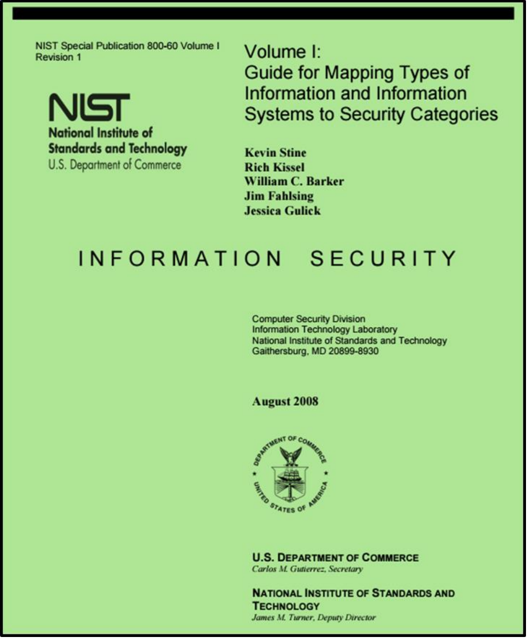
Program Details

- Governance
- Assess
- Manage
  - National Levee Database
  - Risk Reduction
  - CorpsMap
  - Flood Risk Management Program
  - FloodSmart
  - Silver Jackets Program
- Communicate

Contact Us

Questions about the Levee Safety Program? Email us at HQ-LEVEESAFETY@USACE.ARMY.MIL.

Click here to find a USACE district office near you.



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August 2008

DEPARTMENT OF COMMERCE
UNITED STATES OF AMERICA

U.S. DEPARTMENT OF COMMERCE
Carlos M. Gutierrez, Secretary

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
James M. Turner, Deputy Director

2 Broad Types of Information and Information Systems

1. Mission-based Information & Information Systems

2. **Management and Support Information & Information Systems**

   i. **Services Delivery Support Functions**

   ii. **Government Resource Management Functions**

Services Delivery Support Functions and Information Types

1. Controls and Oversight
2. Regulatory Development
3. Planning and Budgeting
4. Internal Risk Management and Mitigation
5. Revenue Collection
6. Public Affairs
7. Legislative Relations
8. General Government

Management and Support Information and Information Systems

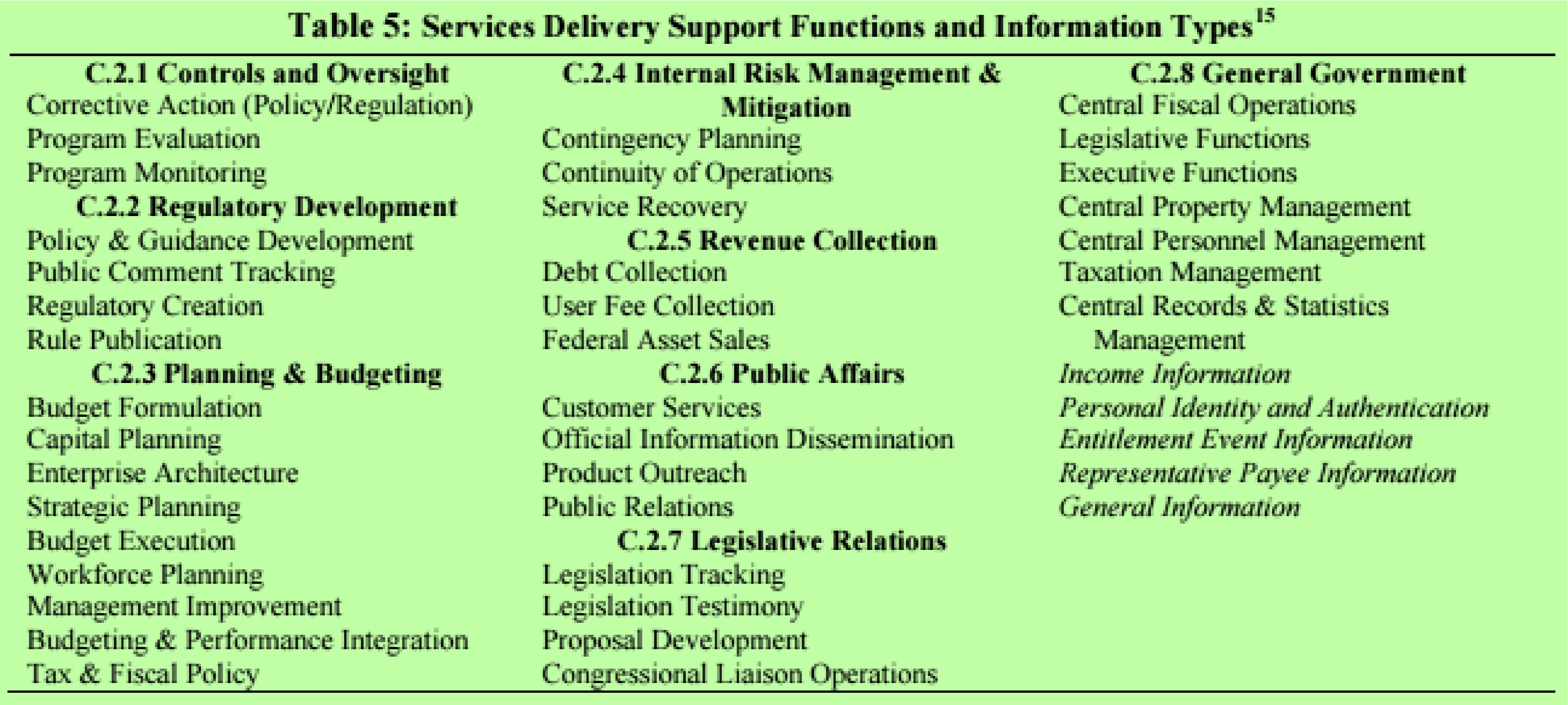


Table 5: Services Delivery Support Functions and Information Types[15]

C.2.1 Controls and Oversight

Corrective Action (Policy/Regulation)
Program Evaluation
Program Monitoring

C.2.2 Regulatory Development

Policy & Guidance Development
Public Comment Tracking
Regulatory Creation
Rule Publication

C.2.3 Planning & Budgeting

Budget Formulation
Capital Planning
Enterprise Architecture
Strategic Planning
Budget Execution
Workforce Planning
Management Improvement
Budgeting & Performance Integration
Tax & Fiscal Policy

C.2.4 Internal Risk Management & Mitigation

Contingency Planning
Continuity of Operations
Service Recovery

C.2.5 Revenue Collection

Debt Collection
User Fee Collection
Federal Asset Sales

C.2.6 Public Affairs

Customer Services
Official Information Dissemination
Product Outreach
Public Relations

C.2.7 Legislative Relations

Legislation Tracking
Legislation Testimony
Proposal Development
Congressional Liaison Operations

C.2.8 General Government

Central Fiscal Operations
Legislative Functions
Executive Functions
Central Property Management
Central Personnel Management
Taxation Management
Central Records & Statistics Management
Income Information
Personal Identity and Authentication
Entitlement Event Information
Representative Payee Information
General Information

Government Resource Management Functions & Information Types

1. Administrative Management
2. Financial Management
3. Human Resources Management
4. Supply Chain Management
5. Information and Technology Management

Management and Support Information and Information Systems

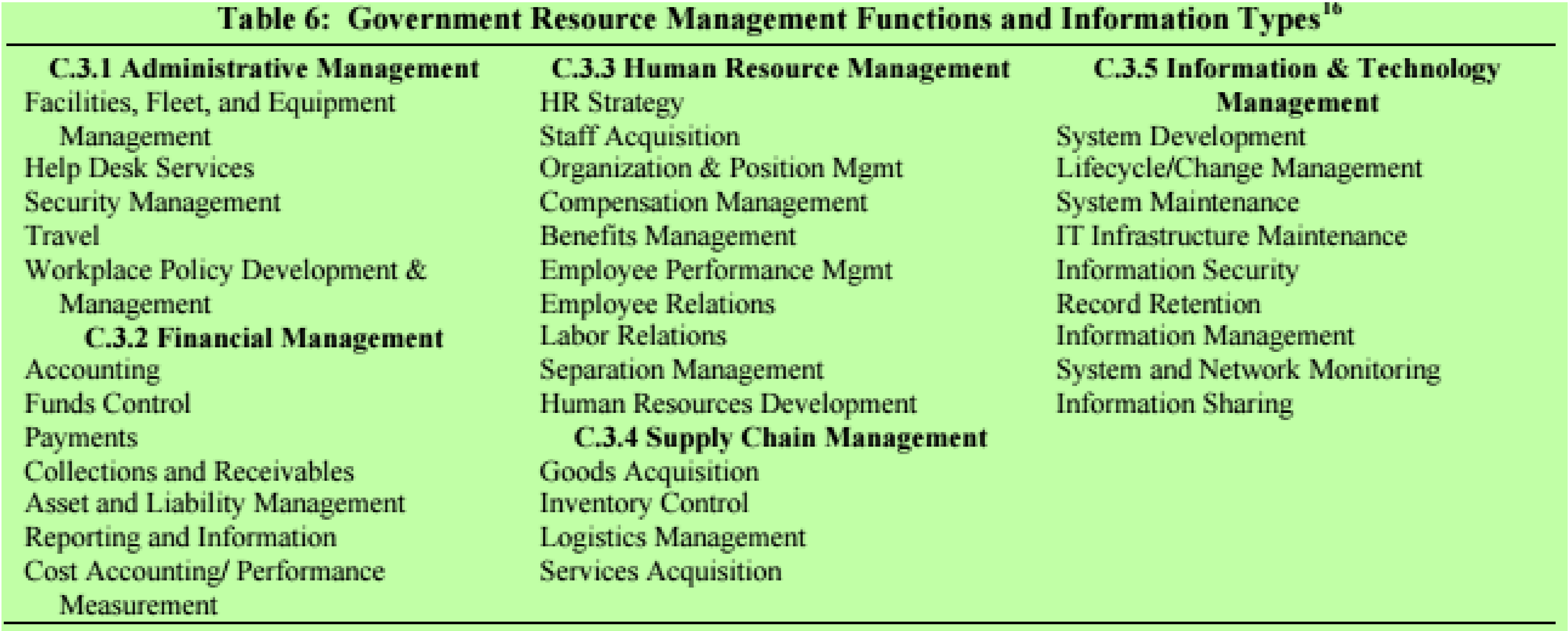


Table 6: Government Resource Management Functions and Information Types[16]

C.3.1 Administrative Management

- Facilities, Fleet, and Equipment Management
- Help Desk Services
- Security Management
- Travel
- Workplace Policy Development & Management

C.3.2 Financial Management

- Accounting
- Funds Control
- Payments
- Collections and Receivables
- Asset and Liability Management
- Reporting and Information
- Cost Accounting/ Performance Measurement

C.3.3 Human Resource Management

- HR Strategy
- Staff Acquisition
- Organization & Position Mgmt
- Compensation Management
- Benefits Management
- Employee Performance Mgmt
- Employee Relations
- Labor Relations
- Separation Management
- Human Resources Development

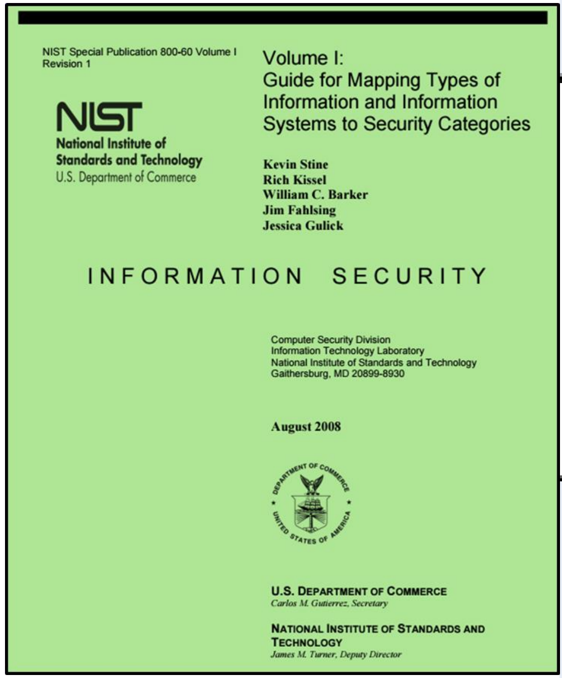
C.3.4 Supply Chain Management

- Goods Acquisition
- Inventory Control
- Logistics Management
- Services Acquisition

C.3.5 Information & Technology Management

- System Development
- Lifecycle/Change Management
- System Maintenance
- IT Infrastructure Maintenance
- Information Security
- Record Retention
- Information Management
- System and Network Monitoring
- Information Sharing

1. Identify Information Types



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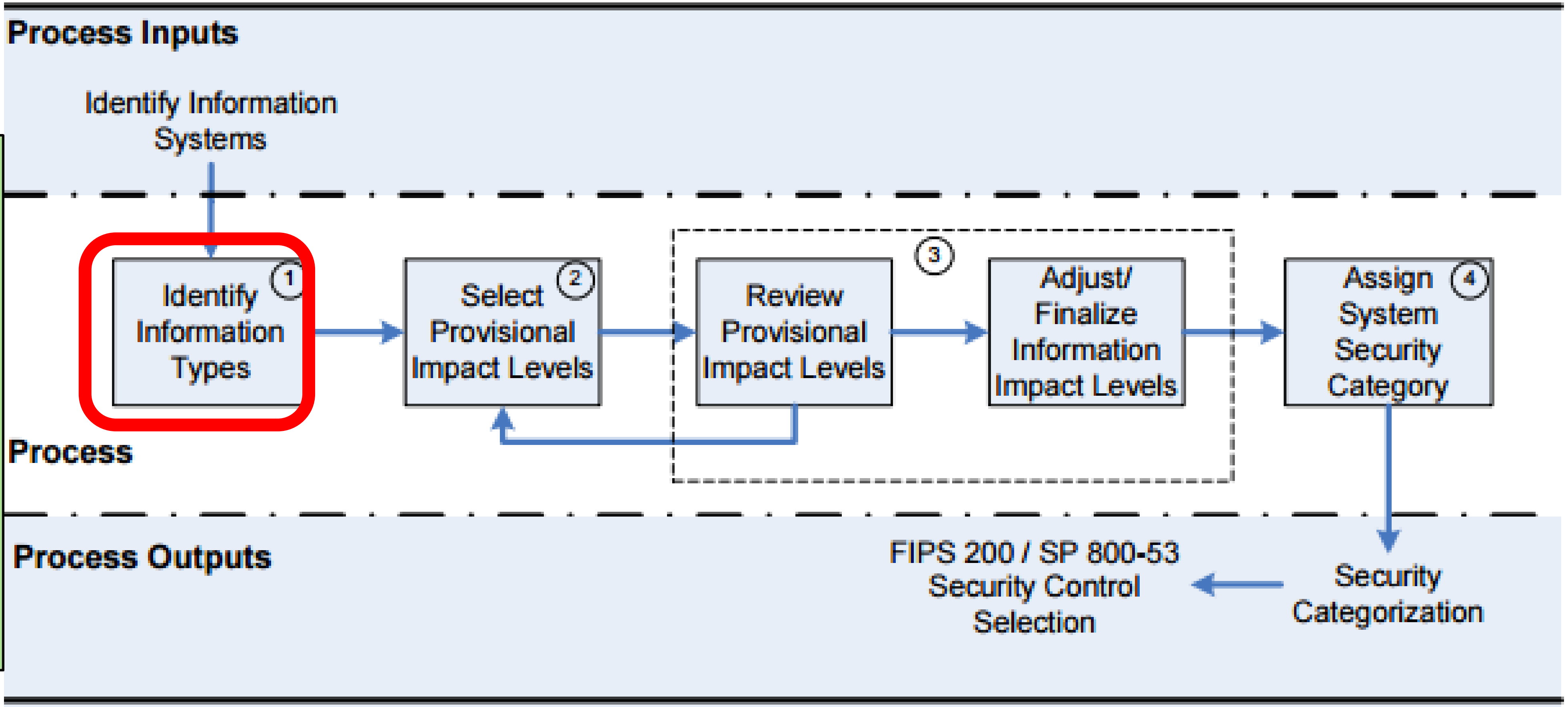

Process Inputs
Identify Information Systems
Process
Identify Information Types 1
Select Provisional Impact Levels 2
3
Review Provisional Impact Levels
Adjust/ Finalize Information Impact Levels
Assign System Security Category 4
Process Outputs
FIPS 200 / SP 800-53 Security Control Selection
Security Categorization

Figure 2: SP 800-60 Security Categorization Process Execution

http://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-60v1r1.pdf

Disaster Management Information Types

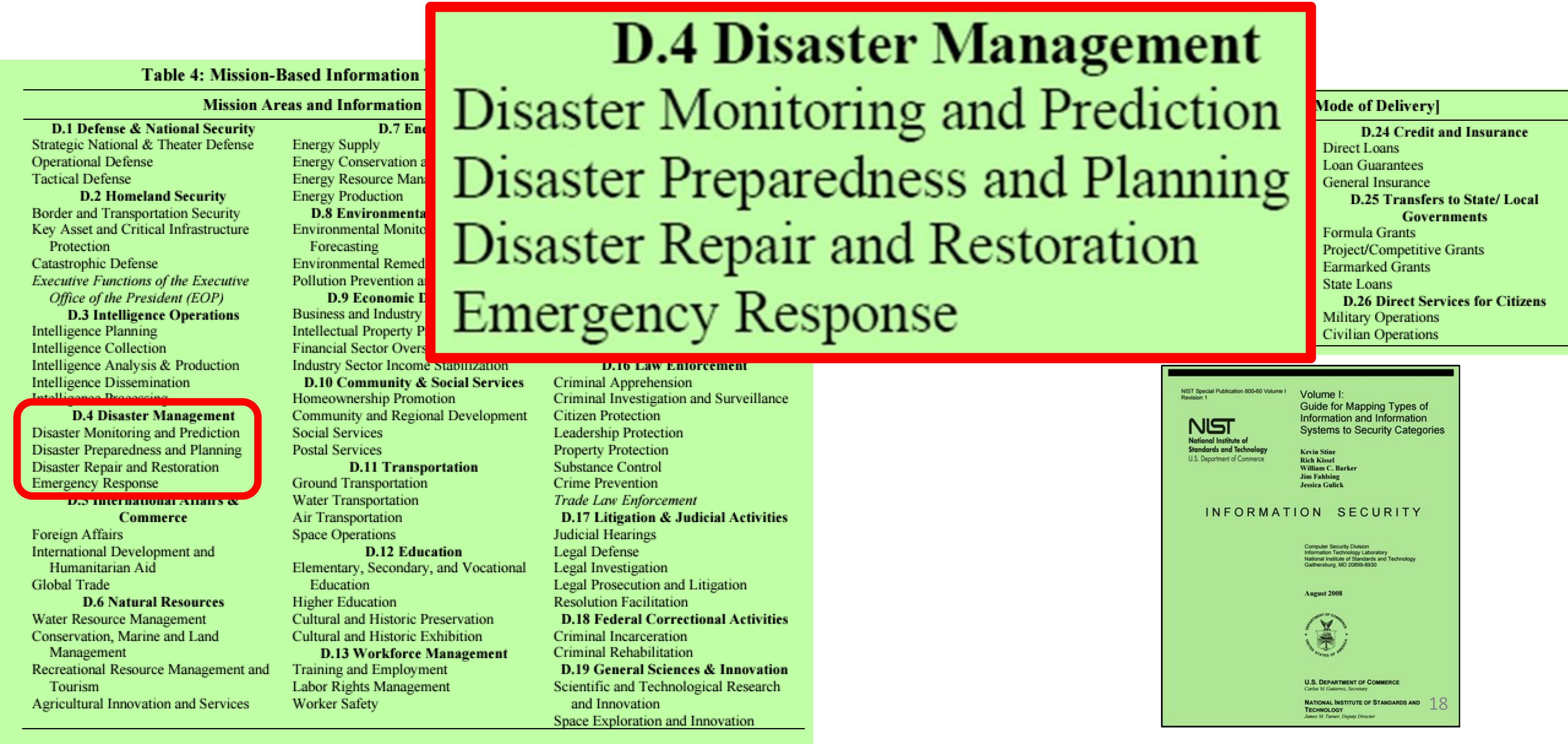

Table 4: Mission-Based Information

Mission Areas and Information

D.1 Defense & National Security
Strategic National & Theater Defense
Operational Defense
Tactical Defense
D.2 Homeland Security
Border and Transportation Security
Key Asset and Critical Infrastructure Protection
Catastrophic Defense
Executive Functions of the Executive Office of the President (EOP)
D.3 Intelligence Operations
Intelligence Planning
Intelligence Collection
Intelligence Analysis & Production
Intelligence Dissemination
Intelligence Processing
D.4 Disaster Management
Disaster Monitoring and Prediction
Disaster Preparedness and Planning
Disaster Repair and Restoration
Emergency Response
D.5 International Affairs & Commerce
Foreign Affairs
International Development and Humanitarian Aid
Global Trade
D.6 Natural Resources
Water Resource Management
Conservation, Marine and Land Management
Recreational Resource Management and Tourism
Agricultural Innovation and Services

D.7 Ene
Energy Supply
Energy Conservation a
Energy Resource Mana
Energy Production
D.8 Environmenta
Environmental Monito Forecasting
Environmental Remed
Pollution Prevention a
D.9 Economic D
Business and Industry
Intellectual Property P
Financial Sector Overs
Industry Sector Income Stabilization
D.10 Community & Social Services
Homeownership Promotion
Community and Regional Development
Social Services
Postal Services
D.11 Transportation
Ground Transportation
Water Transportation
Air Transportation
Space Operations
D.12 Education
Elementary, Secondary, and Vocational Education
Higher Education
Cultural and Historic Preservation
Cultural and Historic Exhibition
D.13 Workforce Management
Training and Employment
Labor Rights Management
Worker Safety

D.16 Law Enforcement
Criminal Apprehension
Criminal Investigation and Surveillance
Citizen Protection
Leadership Protection
Property Protection
Substance Control
Crime Prevention
Trade Law Enforcement
D.17 Litigation & Judicial Activities
Judicial Hearings
Legal Defense
Legal Investigation
Legal Prosecution and Litigation
Resolution Facilitation
D.18 Federal Correctional Activities
Criminal Incarceration
Criminal Rehabilitation
D.19 General Sciences & Innovation
Scientific and Technological Research and Innovation
Space Exploration and Innovation

Mode of Delivery]

D.24 Credit and Insurance
Direct Loans
Loan Guarantees
General Insurance
D.25 Transfers to State/ Local Governments
Formula Grants
Project/Competitive Grants
Earmarked Grants
State Loans
D.26 Direct Services for Citizens
Military Operations
Civilian Operations

D.4 Disaster Management
Disaster Monitoring and Prediction
Disaster Preparedness and Planning
Disaster Repair and Restoration
Emergency Response

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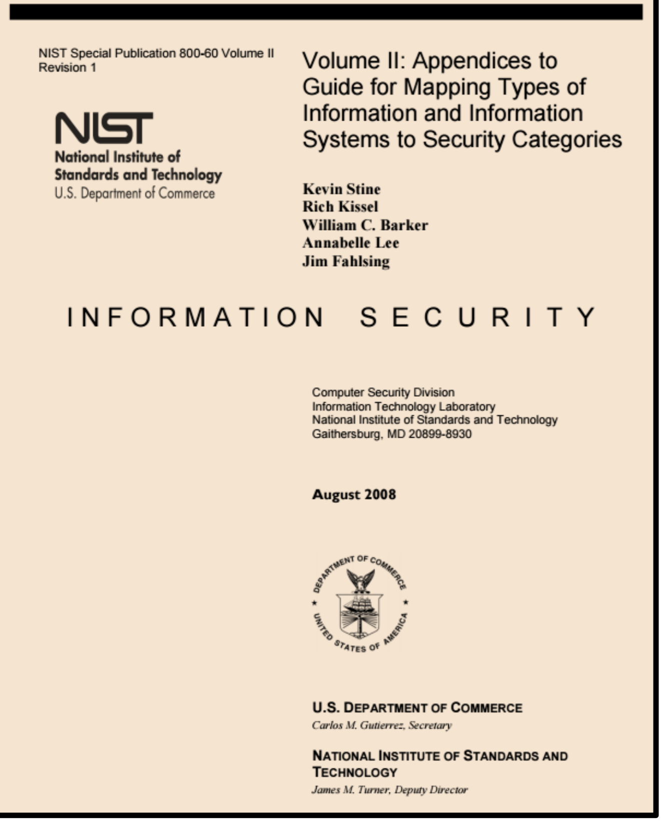

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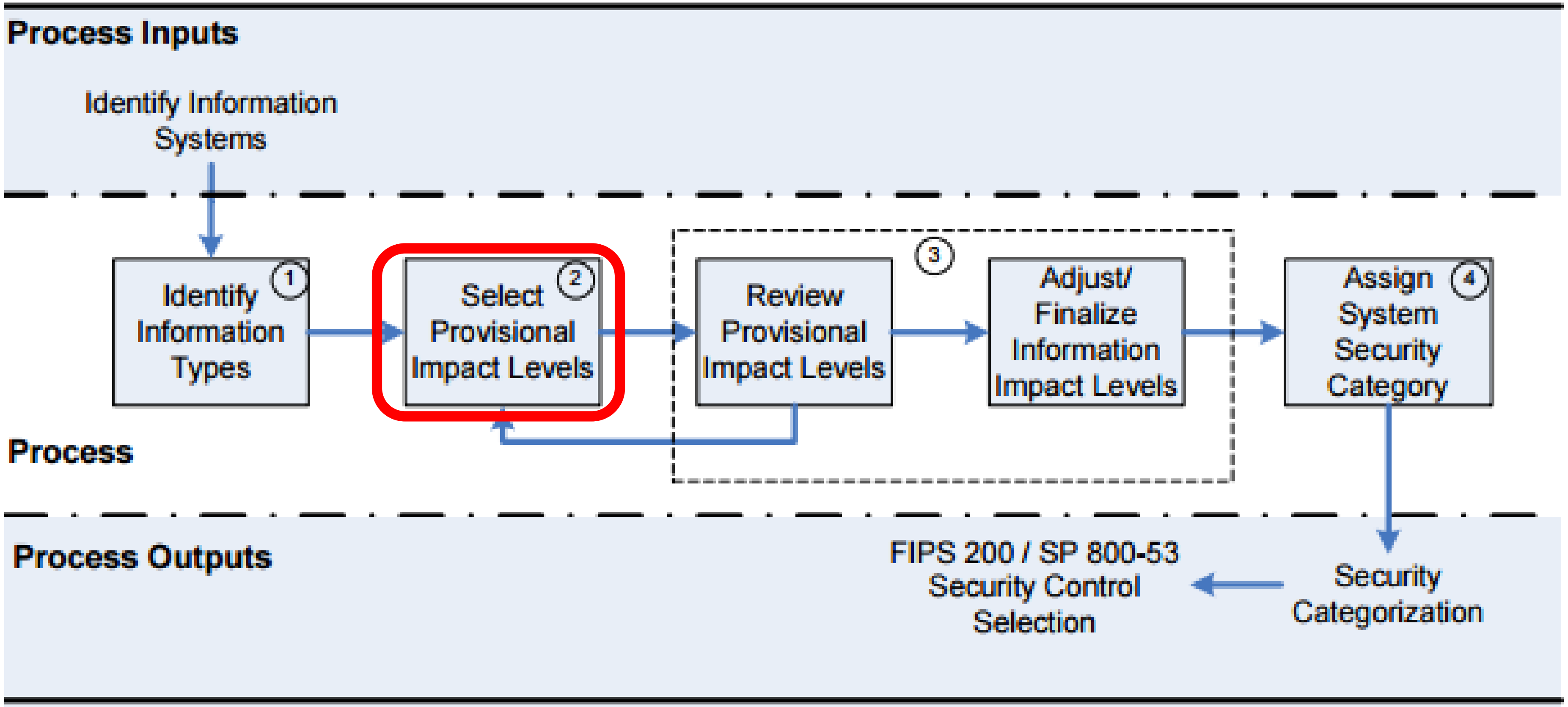
2. Select Provisional Impact Levels for the identified information system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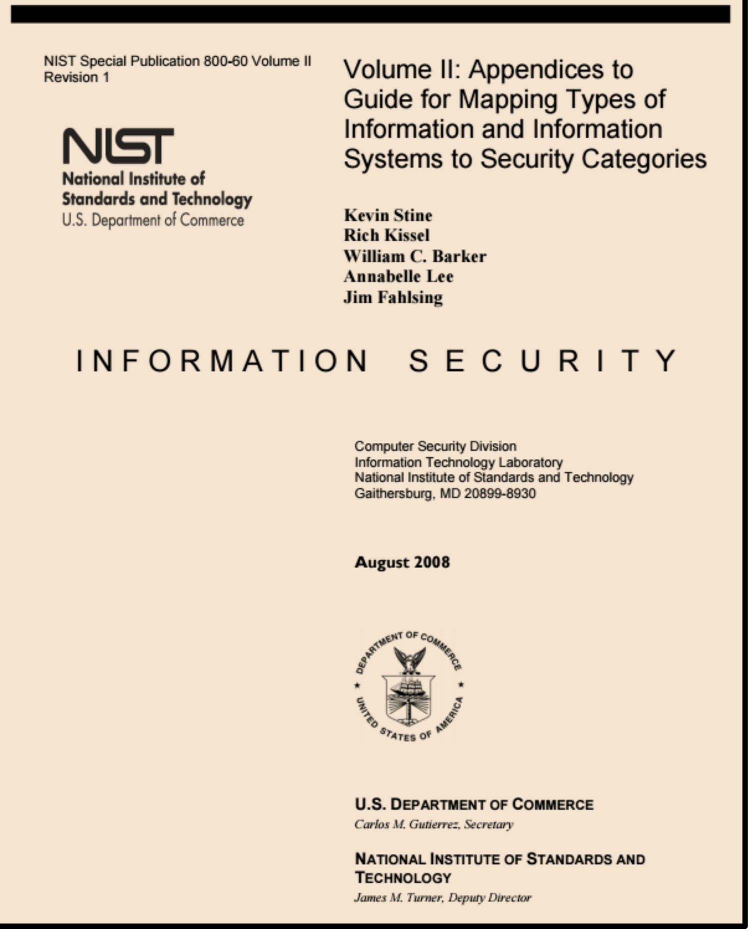
Security Categorization

Figure 2: SP 800-60 Security Categorization Process Execution

Disaster Management Information Types



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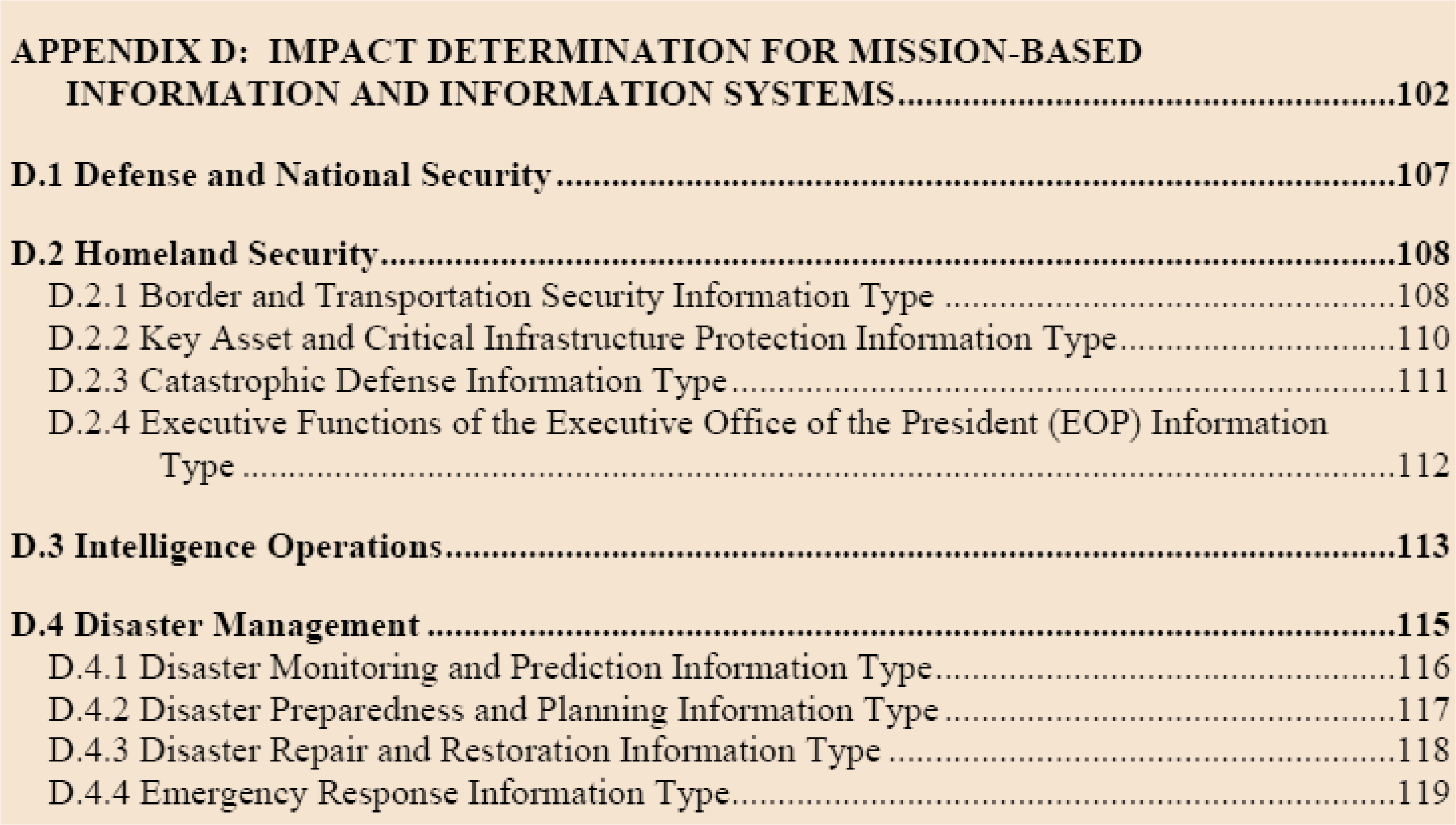
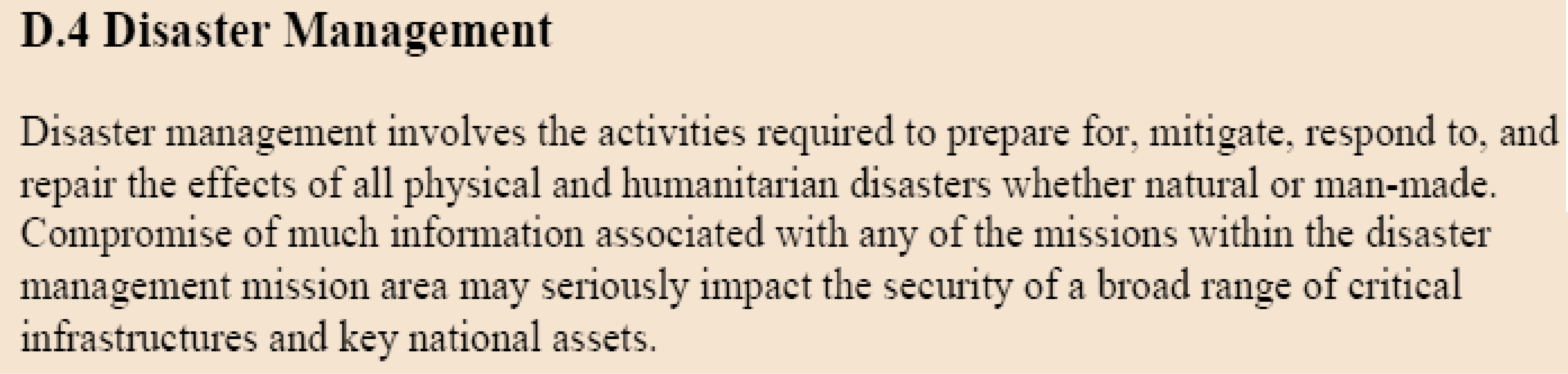


Disaster Management Information Impact

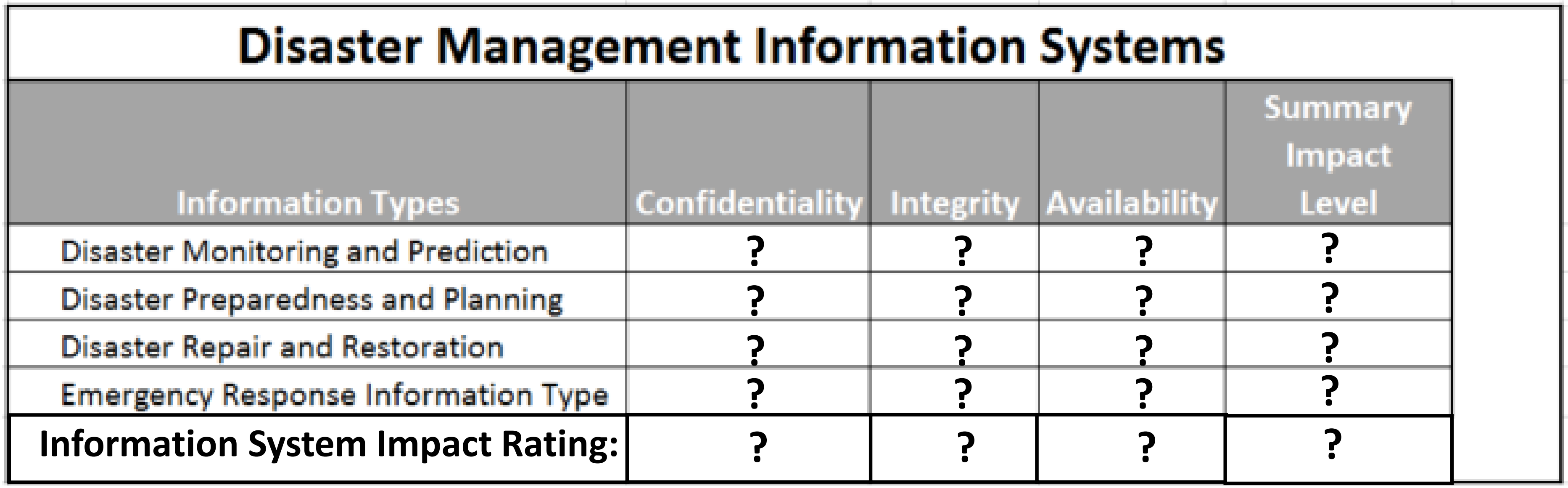


D.4 Disaster Management

Disaster management involves the activities required to prepare for, mitigate, respond to, and repair the effects of all physical and humanitarian disasters whether natural or man-made. Compromise of much information associated with any of the missions within the disaster management mission area may seriously impact the security of a broad range of critical infrastructures and key national assets.

Exercise

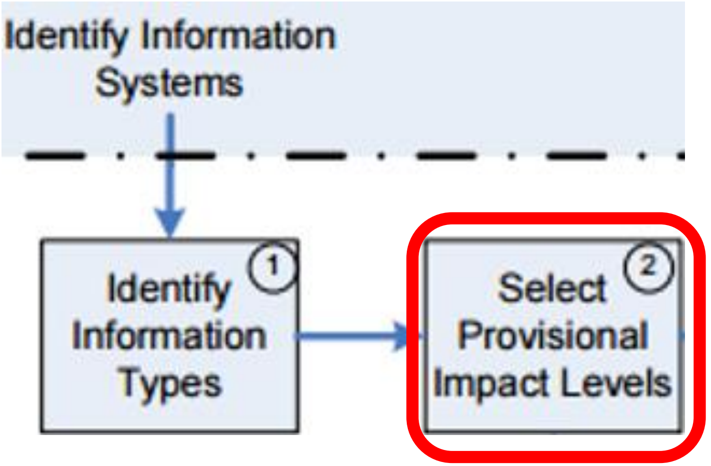
- *Using NIST SP 800-60 V.2 R1 determine the Impact Levels for the Disaster Information Types*

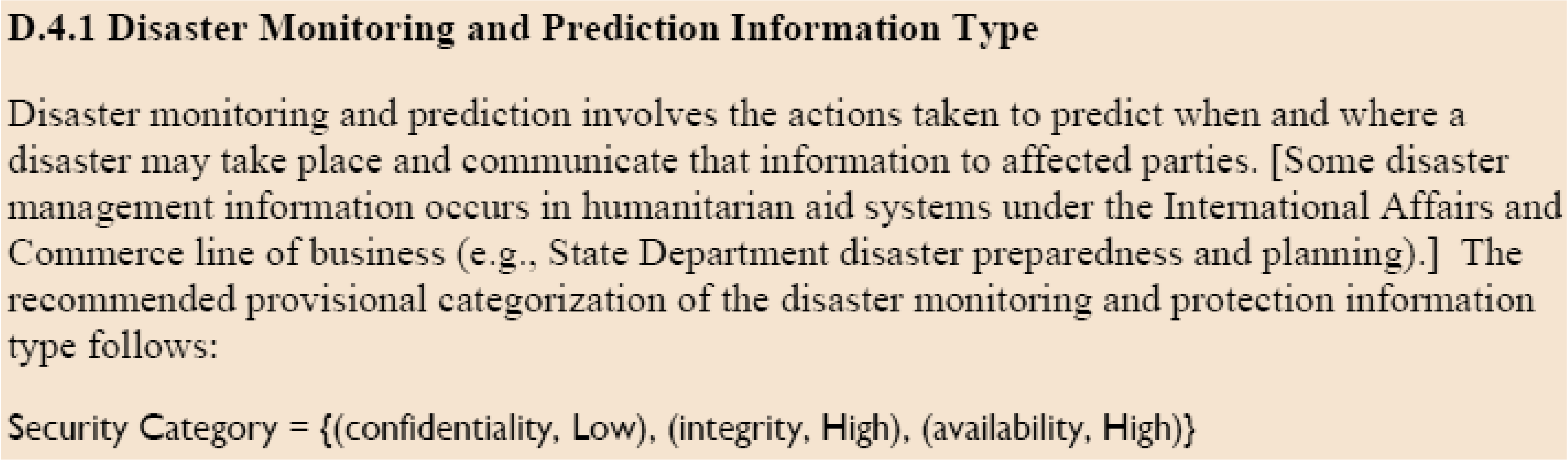


Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	?	?	?	?
Disaster Preparedness and Planning	?	?	?	?
Disaster Repair and Restoration	?	?	?	?
Emergency Response Information Type	?	?	?	?
Information System Impact Rating:	?	?	?	?

Disaster Management Information Types

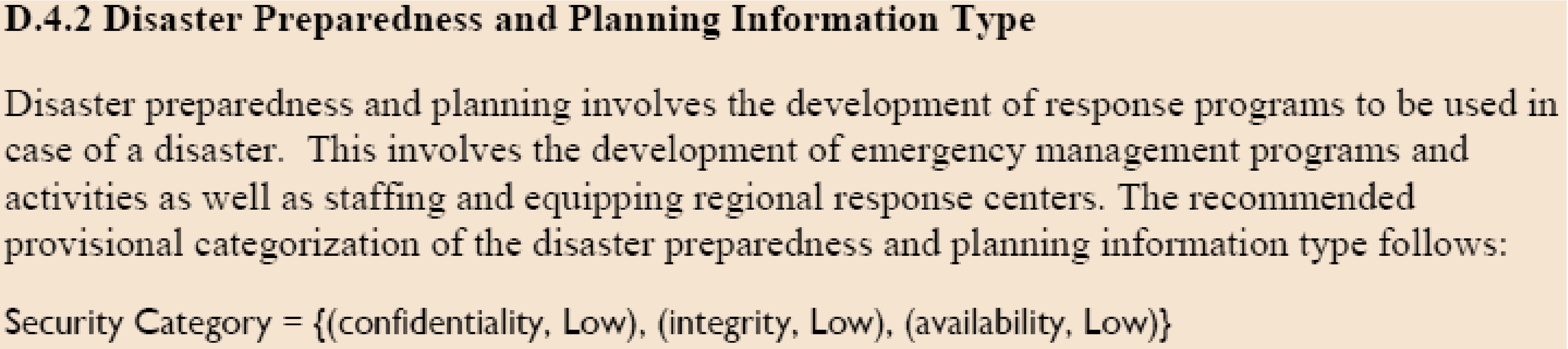

Identify Information Systems
Identify Information Types
1
Select Provisional Impact Levels
2



D.4.1 Disaster Monitoring and Prediction Information Type

Disaster monitoring and prediction involves the actions taken to predict when and where a disaster may take place and communicate that information to affected parties. [Some disaster management information occurs in humanitarian aid systems under the International Affairs and Commerce line of business (e.g., State Department disaster preparedness and planning).] The recommended provisional categorization of the disaster monitoring and protection information type follows:

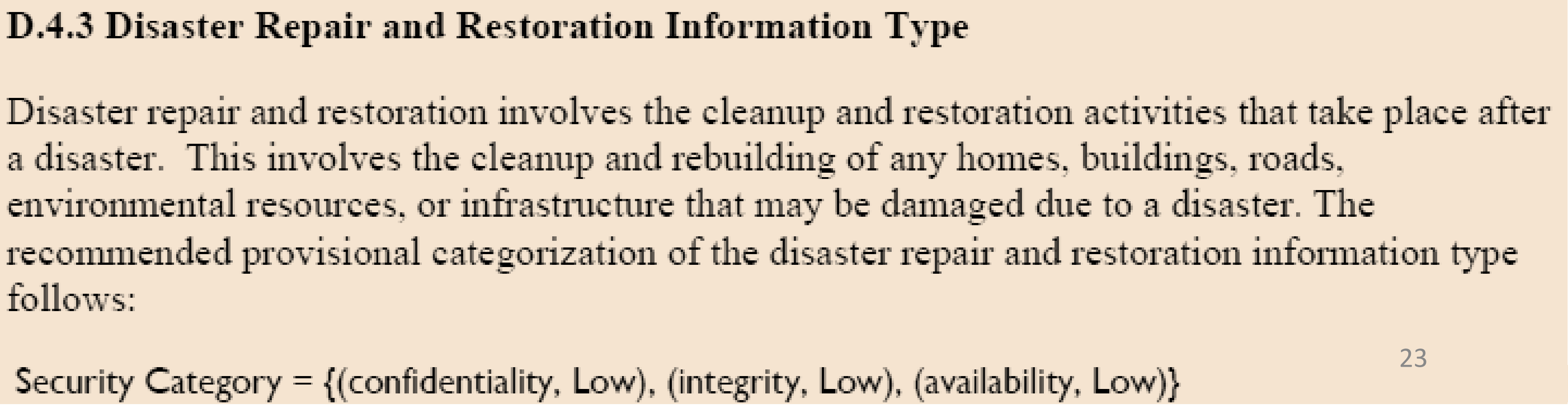
Security Category = {(confidentiality, Low), (integrity, High), (availability, High)}



D.4.2 Disaster Preparedness and Planning Information Type

Disaster preparedness and planning involves the development of response programs to be used in case of a disaster. This involves the development of emergency management programs and activities as well as staffing and equipping regional response centers. The recommended provisional categorization of the disaster preparedness and planning information type follows:

Security Category = {(confidentiality, Low), (integrity, Low), (availability, Low)}

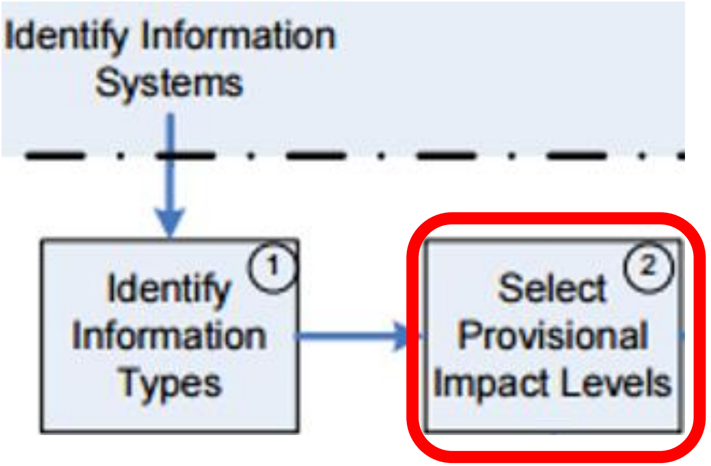


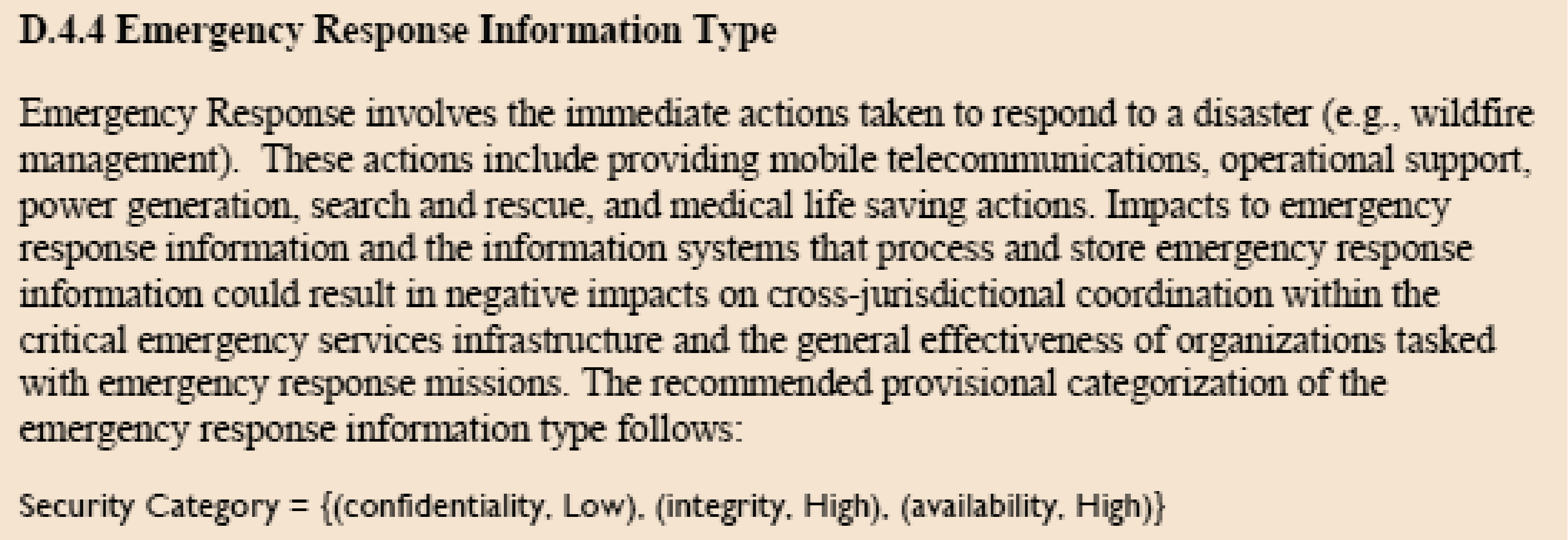
D.4.3 Disaster Repair and Restoration Information Type

Disaster repair and restoration involves the cleanup and restoration activities that take place after a disaster. This involves the cleanup and rebuilding of any homes, buildings, roads, environmental resources, or infrastructure that may be damaged due to a disaster. The recommended provisional categorization of the disaster repair and restoration information type follows:

Security Category = {(confidentiality, Low), (integrity, Low), (availability, Low)}

Disaster Management Information Types


Identify Information Systems
Identify Information Types
1
Select Provisional Impact Levels
2



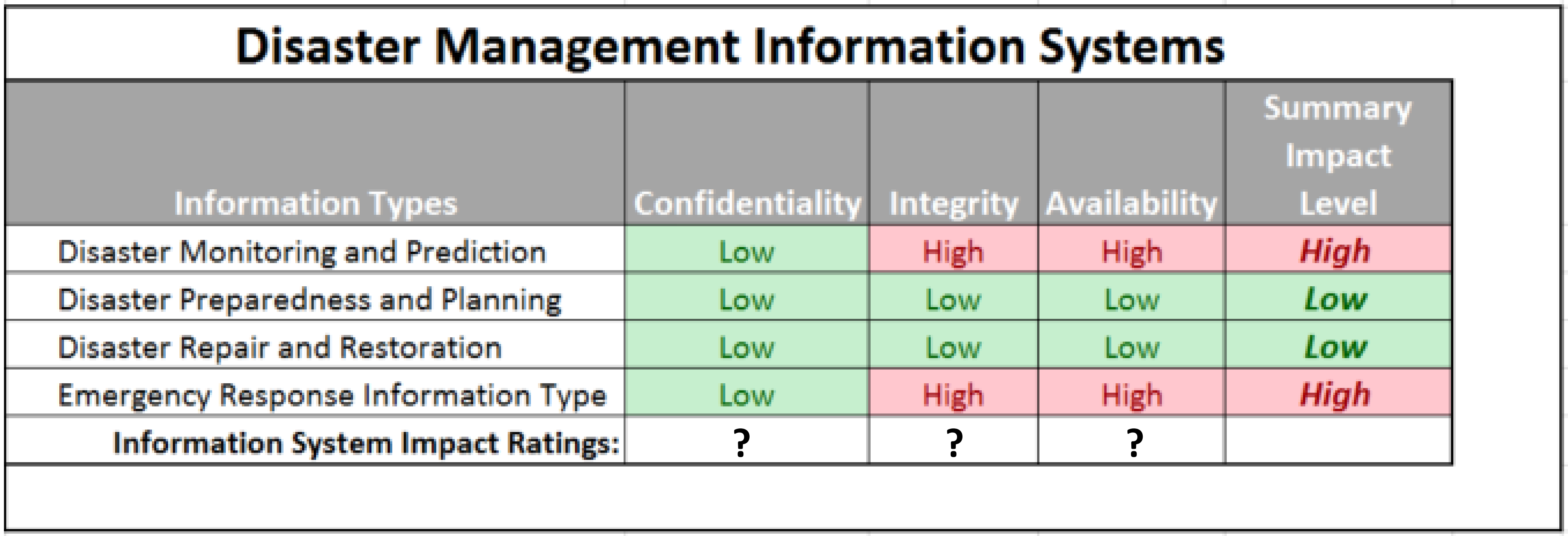
D.4.4 Emergency Response Information Type

Emergency Response involves the immediate actions taken to respond to a disaster (e.g., wildfire management). These actions include providing mobile telecommunications, operational support, power generation, search and rescue, and medical life saving actions. Impacts to emergency response information and the information systems that process and store emergency response information could result in negative impacts on cross-jurisdictional coordination within the critical emergency services infrastructure and the general effectiveness of organizations tasked with emergency response missions. The recommended provisional categorization of the emergency response information type follows:

Security Category = {(confidentiality, Low), (integrity, High), (availability, High)}

Exercise -

- *Determine the Overall Impact Levels for the Disaster Information Types*

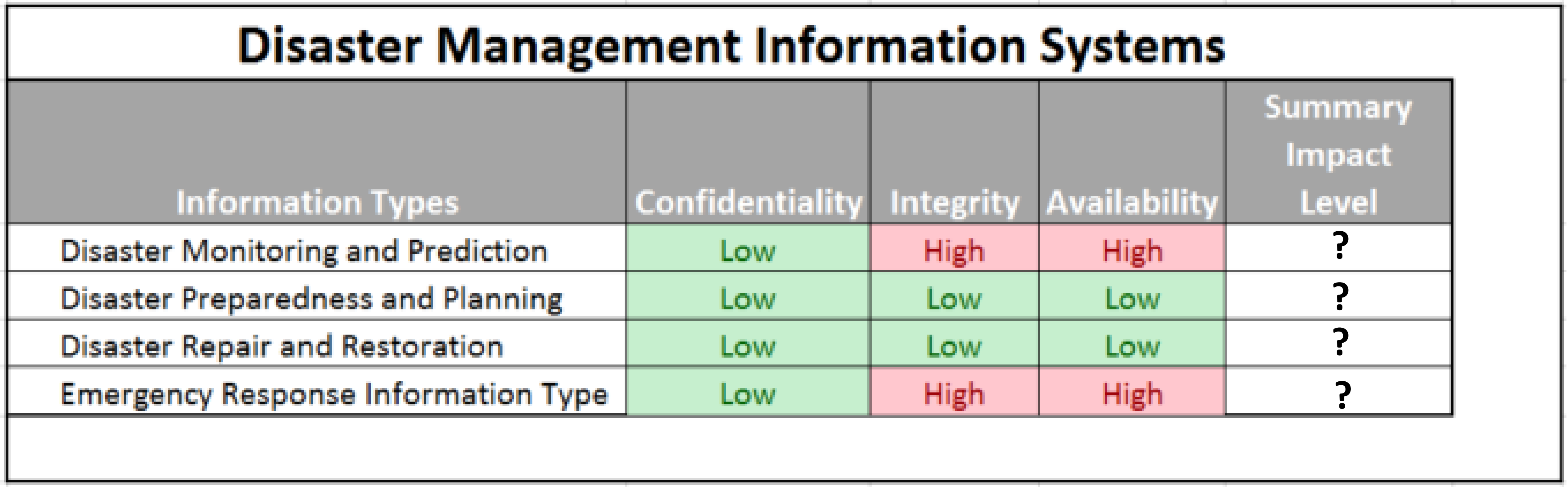


Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	***High***
Disaster Preparedness and Planning	Low	Low	Low	***Low***
Disaster Repair and Restoration	Low	Low	Low	***Low***
Emergency Response Information Type	Low	High	High	***High***
Information System Impact Ratings:	**?**	**?**	**?**	

Exercise

- *Determine the Summary Impact Levels for the Disaster Information Types*

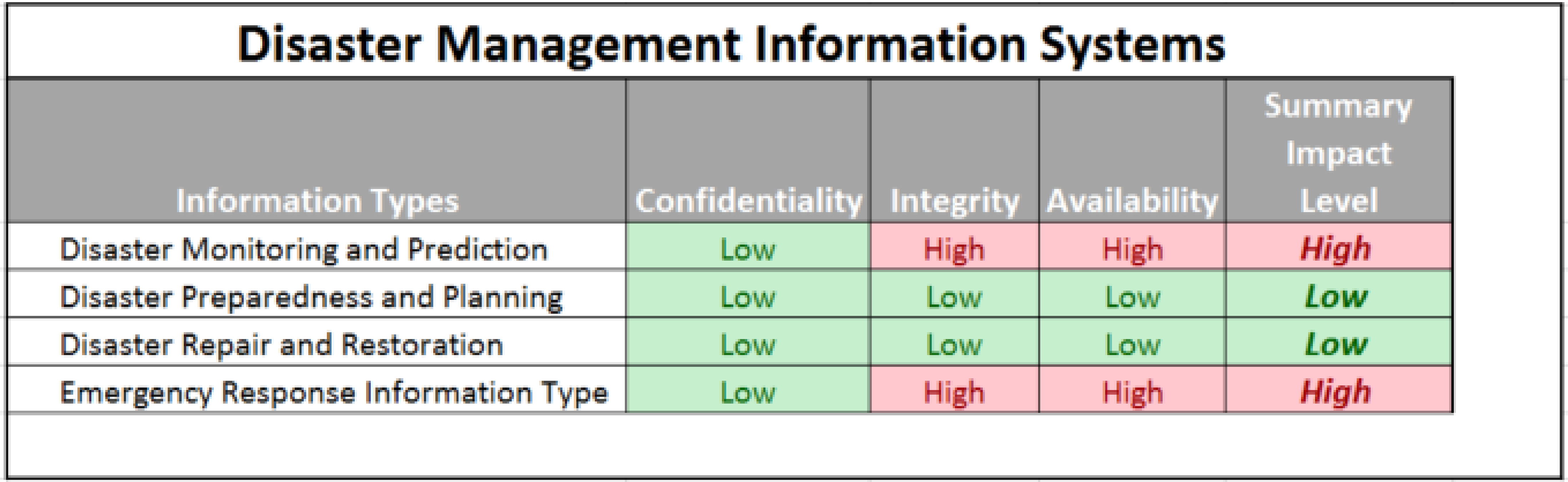


Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	?
Disaster Preparedness and Planning	Low	Low	Low	?
Disaster Repair and Restoration	Low	Low	Low	?
Emergency Response Information Type	Low	High	High	?

Exercise – Answer…

- *Summary Impact Levels for the Disaster Information Types*

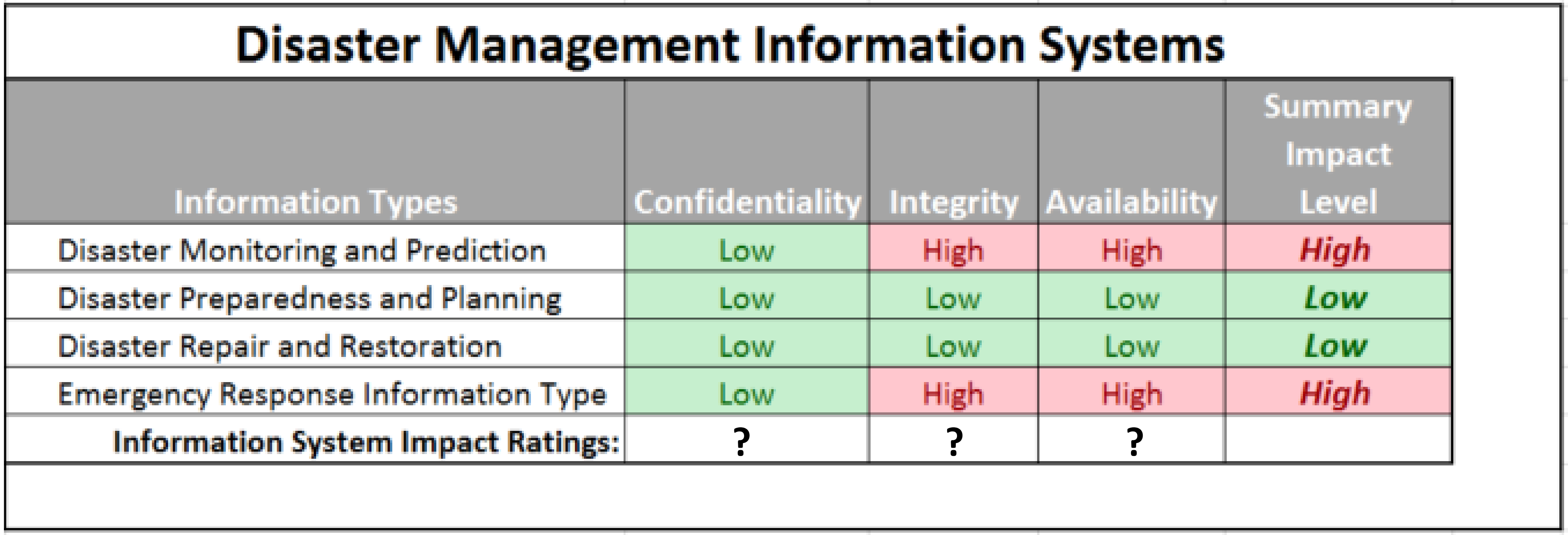


Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	***High***
Disaster Preparedness and Planning	Low	Low	Low	***Low***
Disaster Repair and Restoration	Low	Low	Low	***Low***
Emergency Response Information Type	Low	High	High	***High***

Exercise -

- *Determine the Overall Impact Levels for the Disaster Information Types*

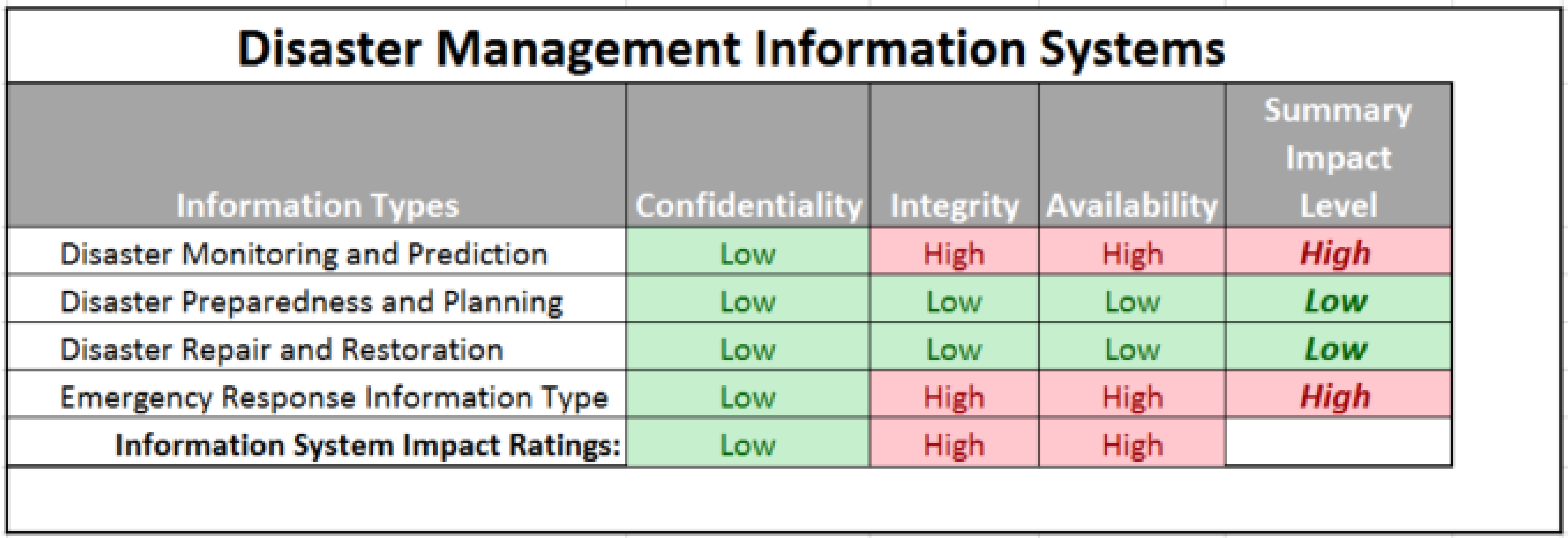


Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	***High***
Disaster Preparedness and Planning	Low	Low	Low	***Low***
Disaster Repair and Restoration	Low	Low	Low	***Low***
Emergency Response Information Type	Low	High	High	***High***
Information System Impact Ratings:	**?**	**?**	**?**	

Exercise - Answer

- *Overall Impact Levels for the Disaster Information Types*

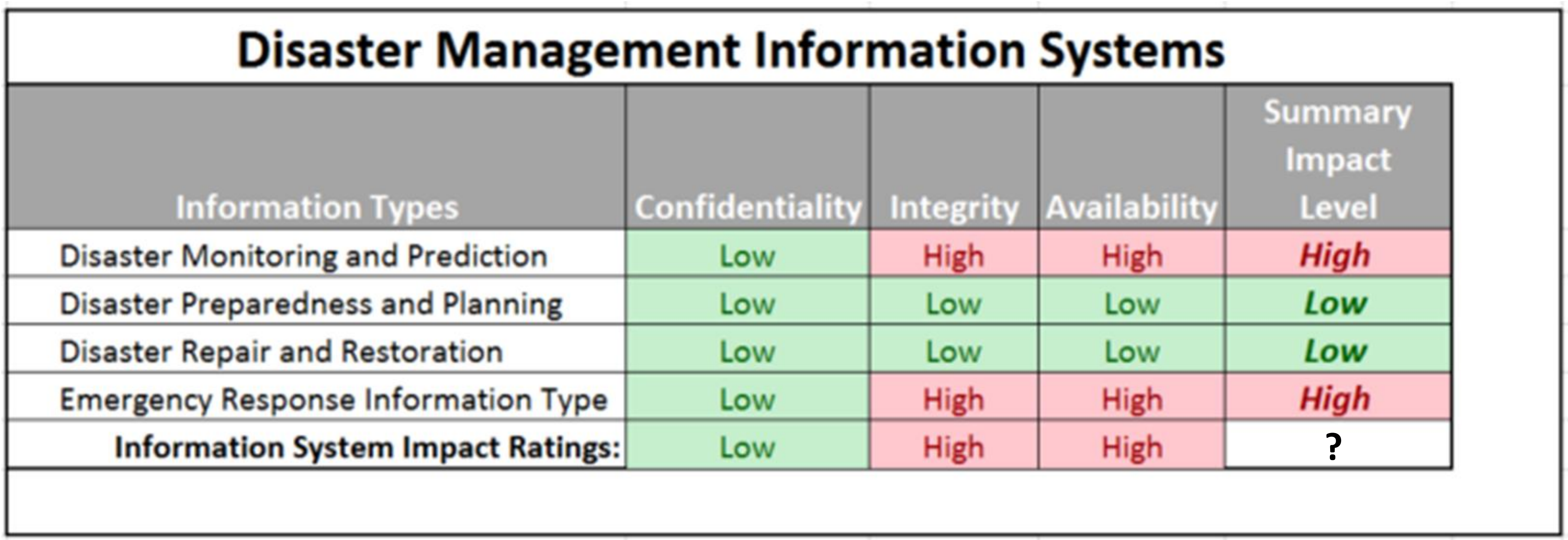


Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	***High***
Disaster Preparedness and Planning	Low	Low	Low	***Low***
Disaster Repair and Restoration	Low	Low	Low	***Low***
Emergency Response Information Type	Low	High	High	***High***
Information System Impact Ratings:	Low	High	High	

Exercise

- *Determine the Overall Impact Level of Disaster Information Systems*

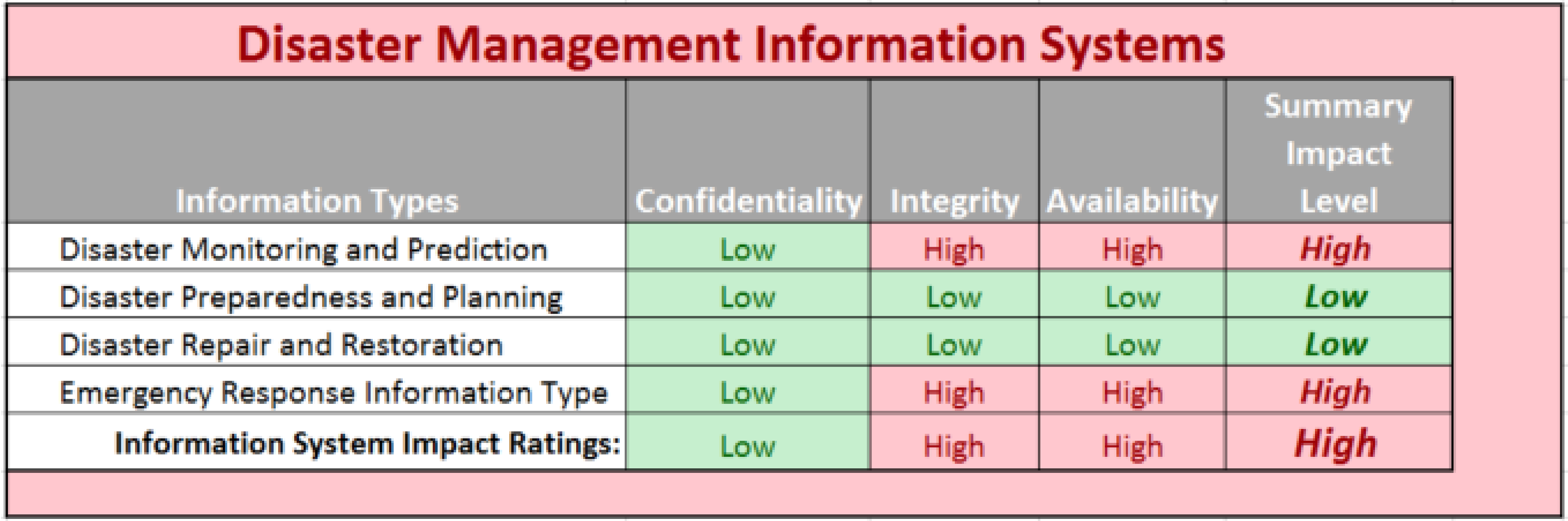


Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	***High***
Disaster Preparedness and Planning	Low	Low	Low	***Low***
Disaster Repair and Restoration	Low	Low	Low	***Low***
Emergency Response Information Type	Low	High	High	***High***
Information System Impact Ratings:	Low	High	High	**?**

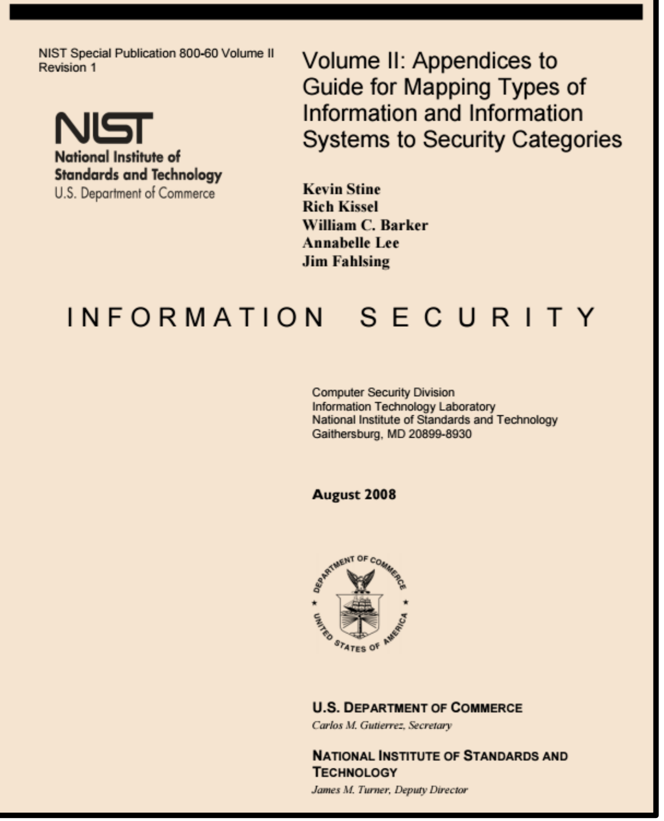
Exercise - Answer

- *Overall Impact Level of Disaster Information Systems*



Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	***High***
Disaster Preparedness and Planning	Low	Low	Low	***Low***
Disaster Repair and Restoration	Low	Low	Low	***Low***
Emergency Response Information Type	Low	High	High	***High***
Information System Impact Ratings:	Low	High	High	***High***



NIST Special Publication 800-60 Volume II
Revision 1

National Institute of Standards and Technology
U.S. Department of Commerce

Volume II: Appendices to Guide for Mapping Types of Information and Information Systems to Security Categories

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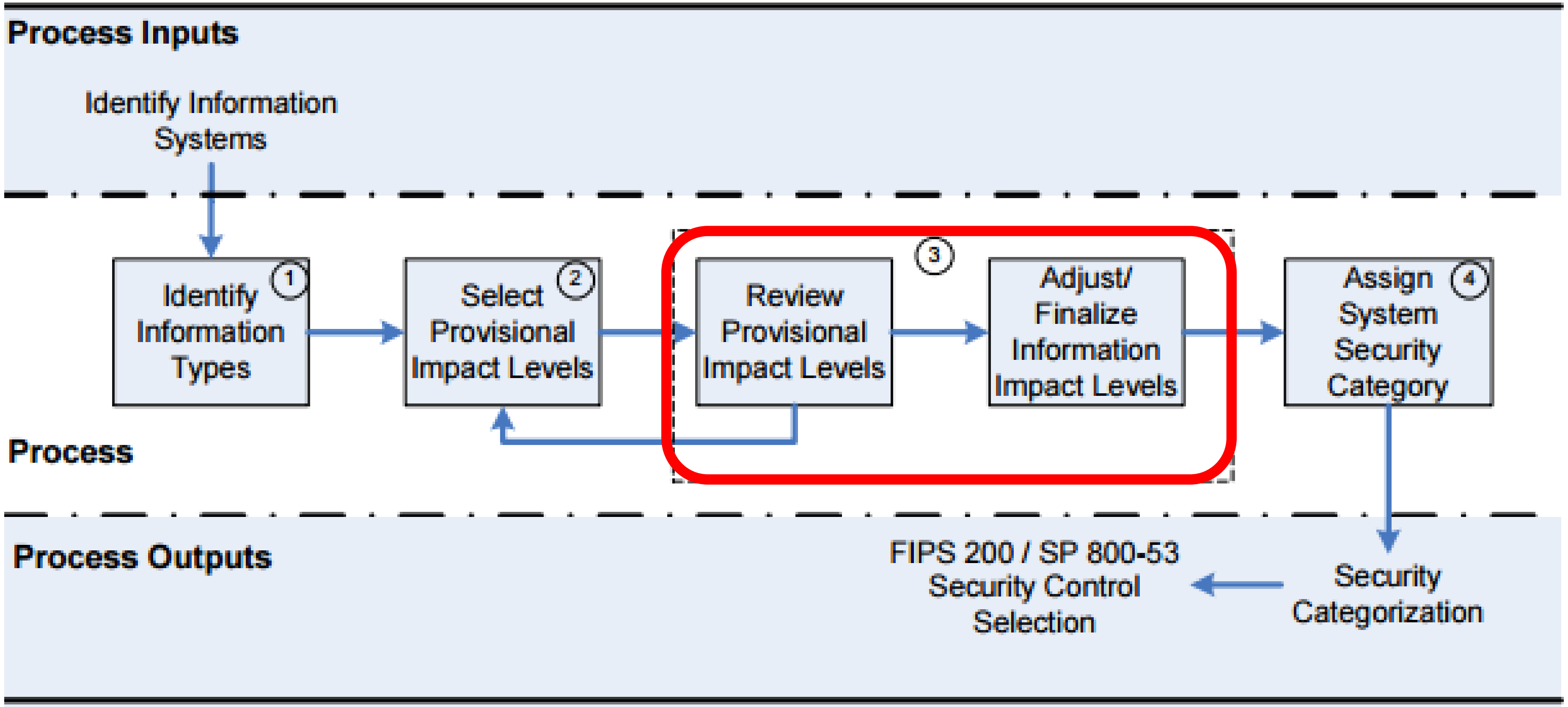
Gaithersburg, MD 20899-8930

August 2008

U.S. DEPARTMENT OF COMMERCE
Carlos M. Gutierrez, Secretary

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
James M. Turner, Deputy Director

3. Adjust Information Impact Level



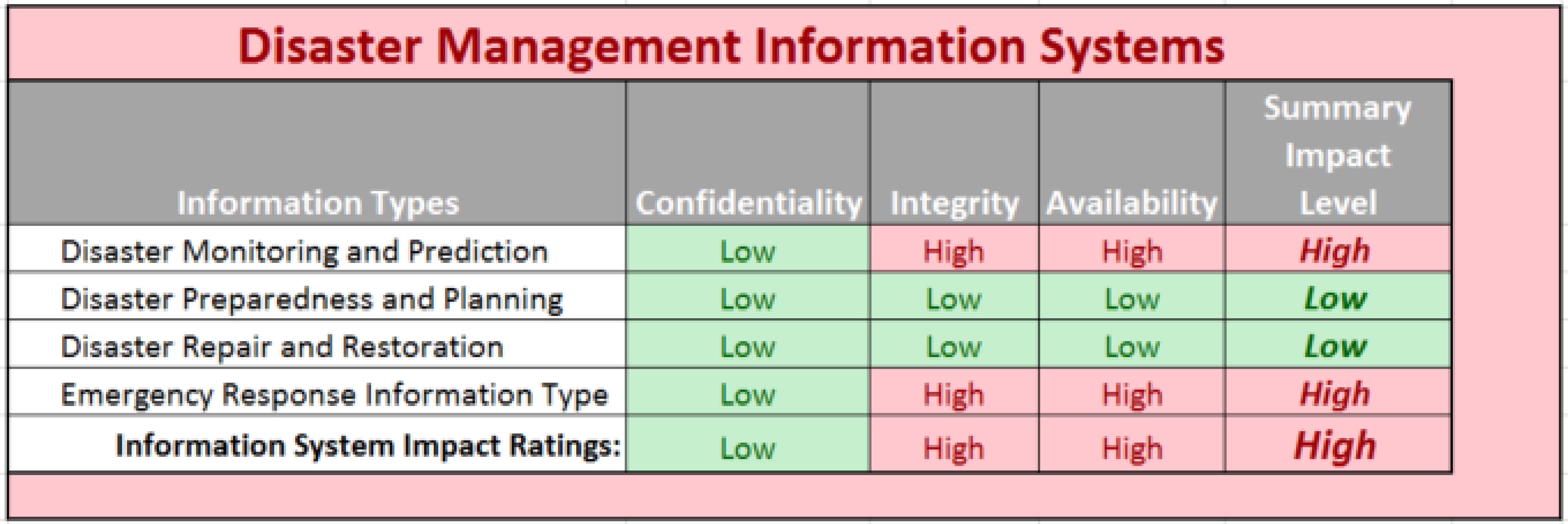
Process Inputs
Identify Information Systems
Identify Information Types 1
Select Provisional Impact Levels 2
3
Review Provisional Impact Levels
Adjust/ Finalize Information Impact Levels
Assign System Security Category 4
Process
Process Outputs
FIPS 200 / SP 800-53 Security Control Selection
Security Categorization

Figure 2: SP 800-60 Security Categorization Process Execution

Exercise

Using NIST SP 800 60 V2R1

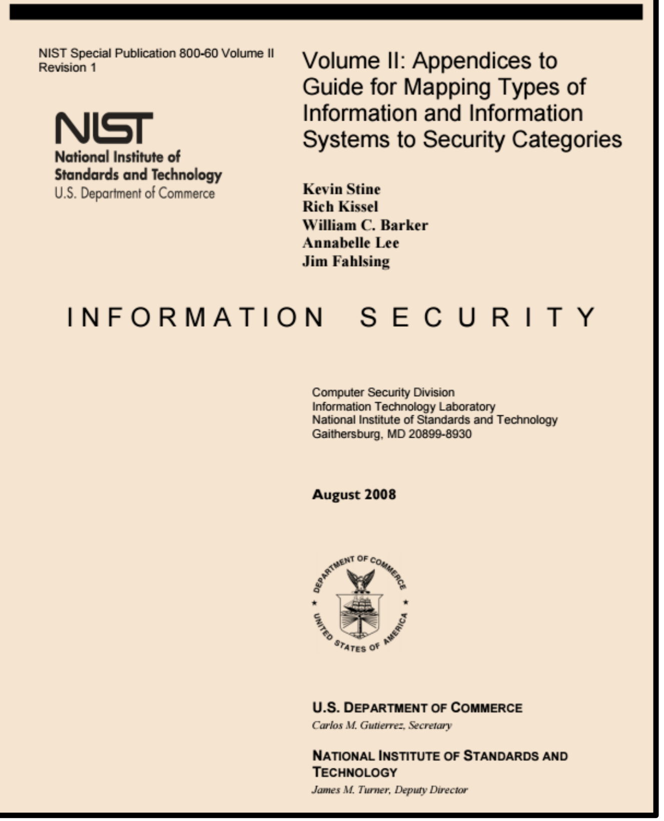
- Look at the “Special Factors” affecting CIA impact levels for each Disaster Management information type and adjust the table accordingly adding a column “Adjusted Summary Impact Level”



Disaster Management Information Systems

Information Types	Confidentiality	Integrity	Availability	Summary Impact Level
Disaster Monitoring and Prediction	Low	High	High	***High***
Disaster Preparedness and Planning	Low	Low	Low	***Low***
Disaster Repair and Restoration	Low	Low	Low	***Low***
Emergency Response Information Type	Low	High	High	***High***
Information System Impact Ratings:	Low	High	High	***High***

- 20 minutes, then class discussion



NIST Special Publication 800-60 Volume II Revision 1

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James M. Turner, Deputy Director

2. Select Provisional Impact Levels for the identified information system

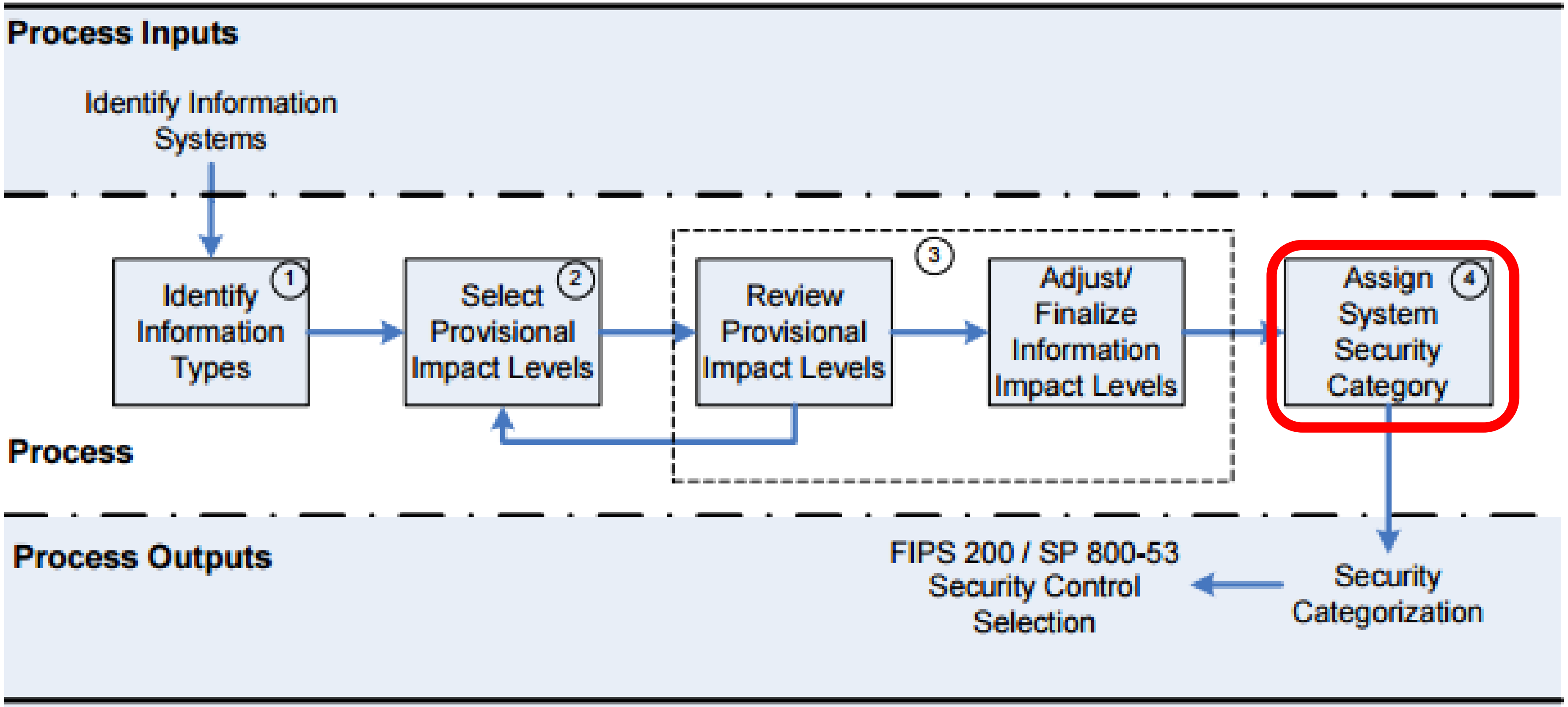

Process Inputs
Identify Information Systems
Identify Information Types
1
Select Provisional Impact Levels
2
Review Provisional Impact Levels
3
Adjust/ Finalize Information Impact Levels
Assign System Security Category
4
Process
Process Outputs
FIPS 200 / SP 800-53 Security Control Selection
Security Categorization

Figure 2: SP 800-60 Security Categorization Process Execution

Exercise

Find a preliminary categorization for the following information system and adjust the categorization based on your analysis – present justifications for both preliminary and adjusted categorizations

Purpose: The system has two overarching purposes:

1. For clients it is a system intended to help understand sewage and storm water collection and treatment systems (i.e. pipe networks, pump stations, and treatment plants) and their capacities, overflow characteristics and controls
2. For the firm the system is intended to provide revenue through pay by clients for:
   - Direct use of the service(s) of the system
   - Help in benefiting from the service(s) of the system
   - Having the firm apply the service(s) of the system to derive beneficial information for the clients

Users:

1. Municipal and regional water and sewer utilities and governmental organizations will use the system to help plan capital improvement, operations, and maintenance of sewer systems (i.e. treatment plants and collection networks)
2. External consultants helping municipal and regional water and sewer utilities and organizations will use the system to help their clients plan capital improvement, operations, and maintenance of sewer systems
3. Internal consultants within the firm helping municipal and regional water and sewer utilities and organizations will use the system to help their client plan capital improvement, operations, and maintenance of sewer systems
4. The firm's technical information system development staff will work directly on the information system to provide, maintain, enhance and extend the services of the information system to (1), (2) and (3) above

The system will be developed in a phased approach

- The first phase ("V1") will provide capabilities for sewer system pipe network information CRUD (create, read, update and delete) and read = display and query
- Subsequent phases ("V2", "V3"…) focus on providing modeling and analysis services including: capacity planning, overflow prediction and management, defect prediction, and maintenance management

Agenda

- ✓NIST Risk Management Framework and FIPS 199
- ✓Use of NIST SP 800-60 Volume 1 and Volume 2
- ✓Exercise – *Finalize impact levels*
- ✓*Exercise – Determine and finalize impact levels*
- Security Control Baselines – review
  - FIPS 200 and NIST 800-53 Security Control Baselines
  - Security Control Families
- Risk Assessment Controls
- Exercise – *Find and assess risk assessment policy*
- Next Time: Case Study 1

Agenda

✓NIST Risk Management Framework and FIPS 199

✓Use of NIST SP 800-60 Volume 1 and Volume 2

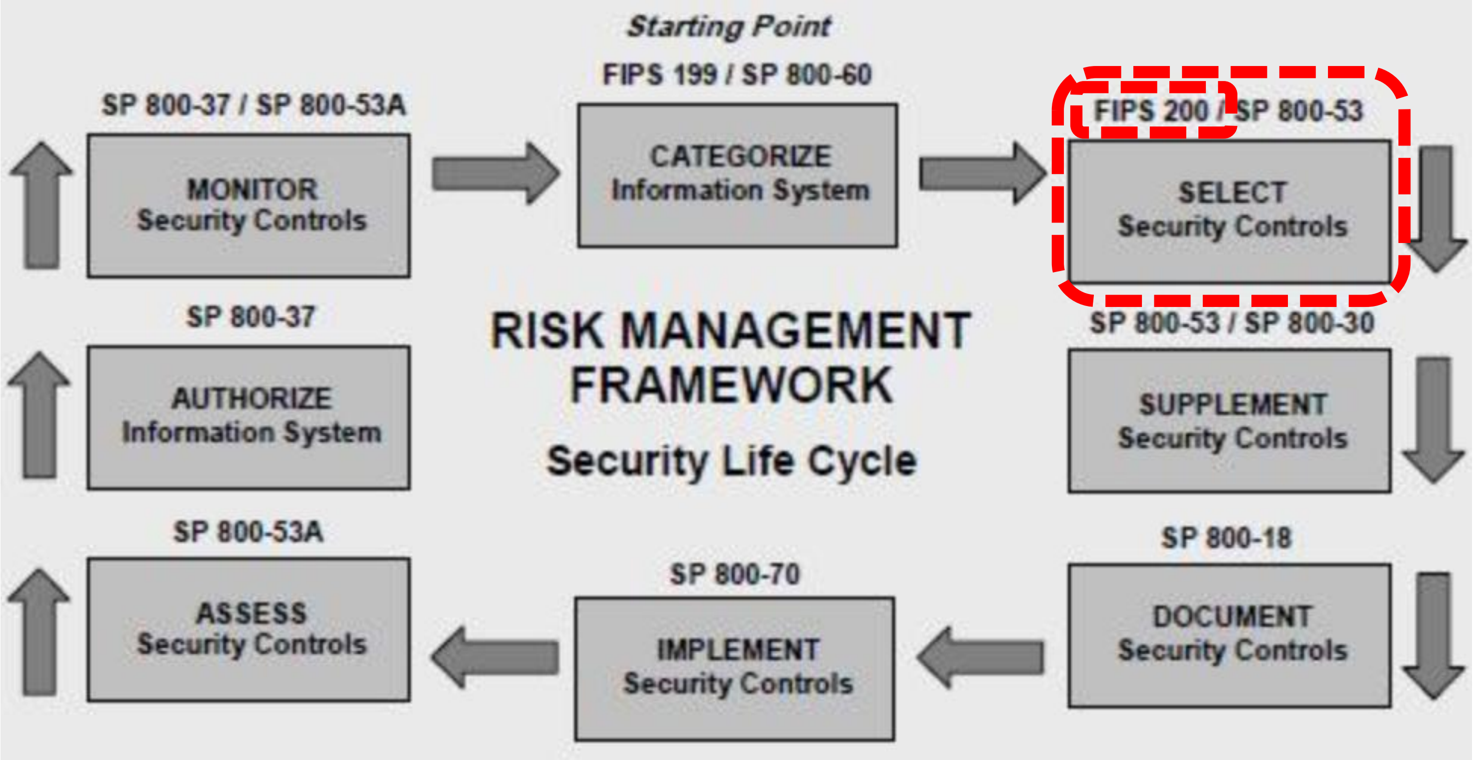
✓Exercise – *Finalize impact levels*

✓*Exercise – Determine and finalize impact levels*

✓*Exercise – Determine Information and Information System Types and provisional security categorization*

- Security Control Baselines – review
  - FIPS 200 and NIST 800-53 Security Control Baselines
  - Security Control Families
- Risk Assessment Controls
- Team Exercise *Find and assess risk assessment policy*
- Next Time: Case Study 1

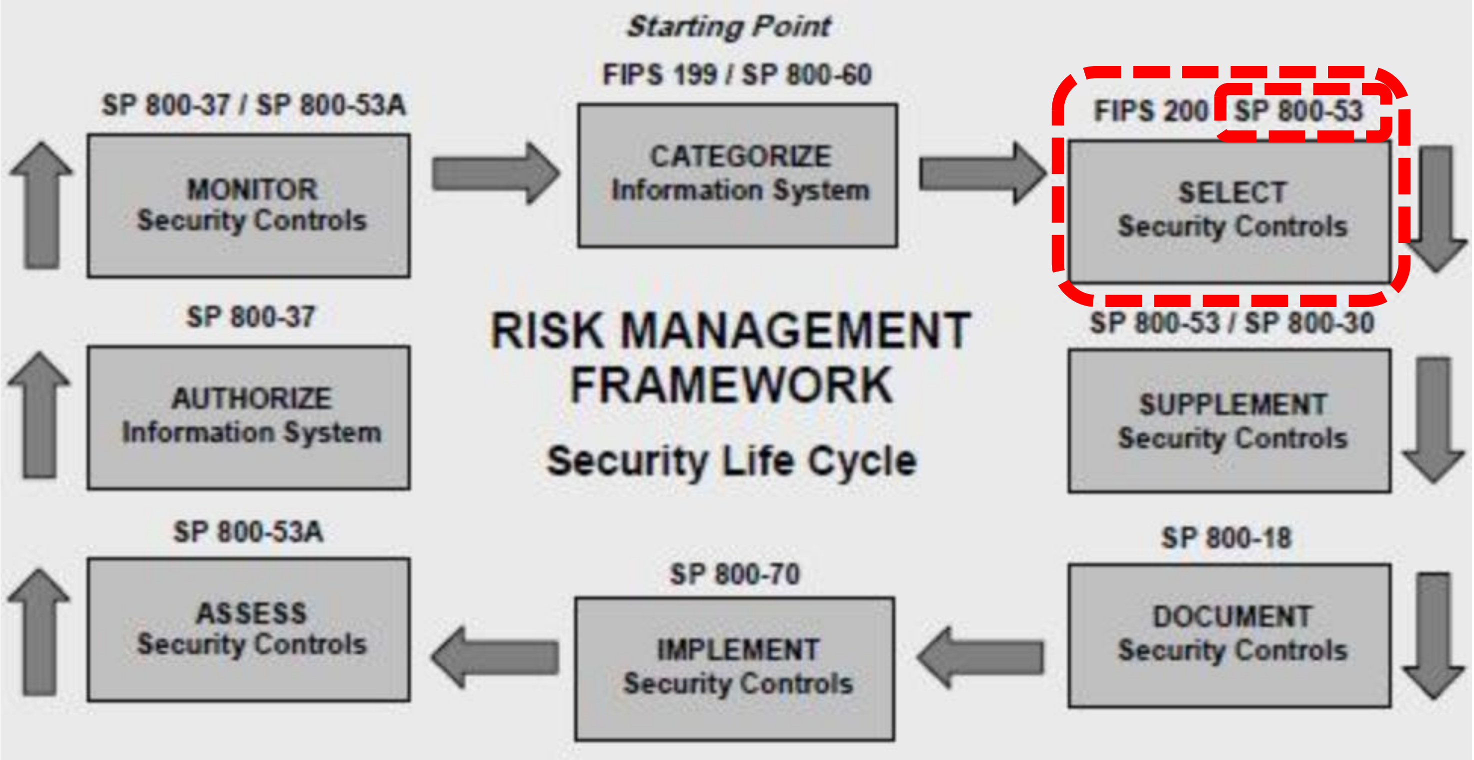
NIST Risk Management Framework

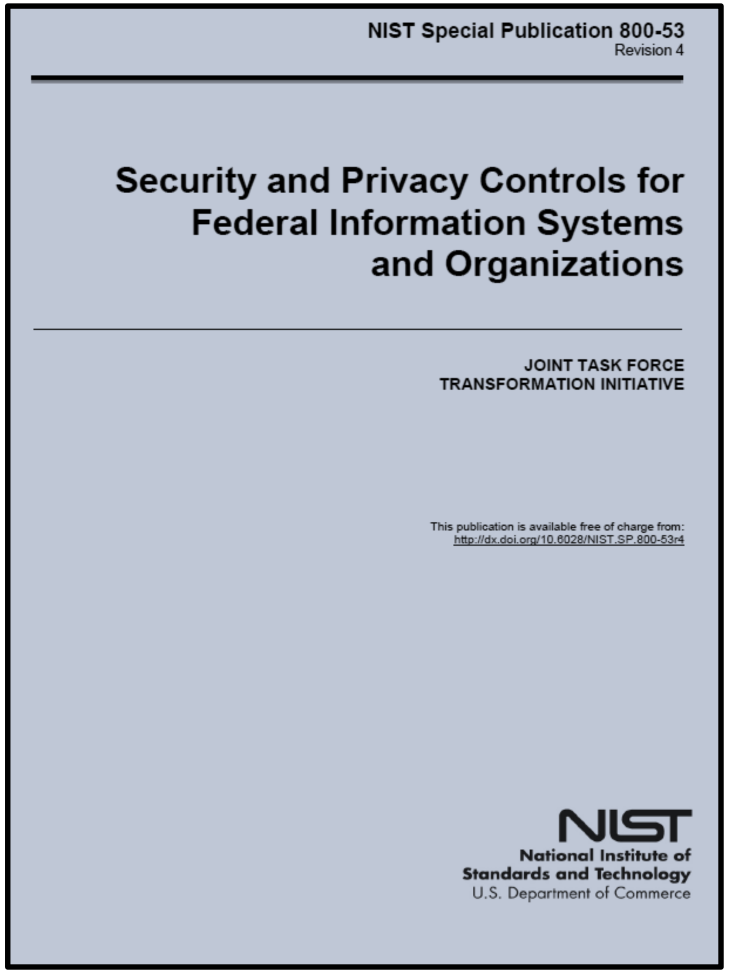


FIPS 200 *Minimum Security Control Requirements*

1. Access Control (AC)
2. Awareness and Training (AT)
3. Audit and Accountability (AU)
4. Certification, Accreditation, and Security Assessment (CA)
5. Configuration Management (CM)
6. Contingency Planning
7. Identification and Authentication
8. Incident Response (IR)
9. Maintenance (MA)
10. Media Protection (MP)
11. Physical and Environmental Protection *PE)
12. Planning (PL)
13. Personal Security (PS)
14. Risk Assessment (RA)
15. System and Services Acquisition(SA)
16. System and Communications Protection (SC)
17. System and Information Integrity (SI)

NIST Risk Management Framework





NIST Special Publication 800-53
Revision 4

Security and Privacy Controls for Federal Information Systems and Organizations

JOINT TASK FORCE
TRANSFORMATION INITIATIVE

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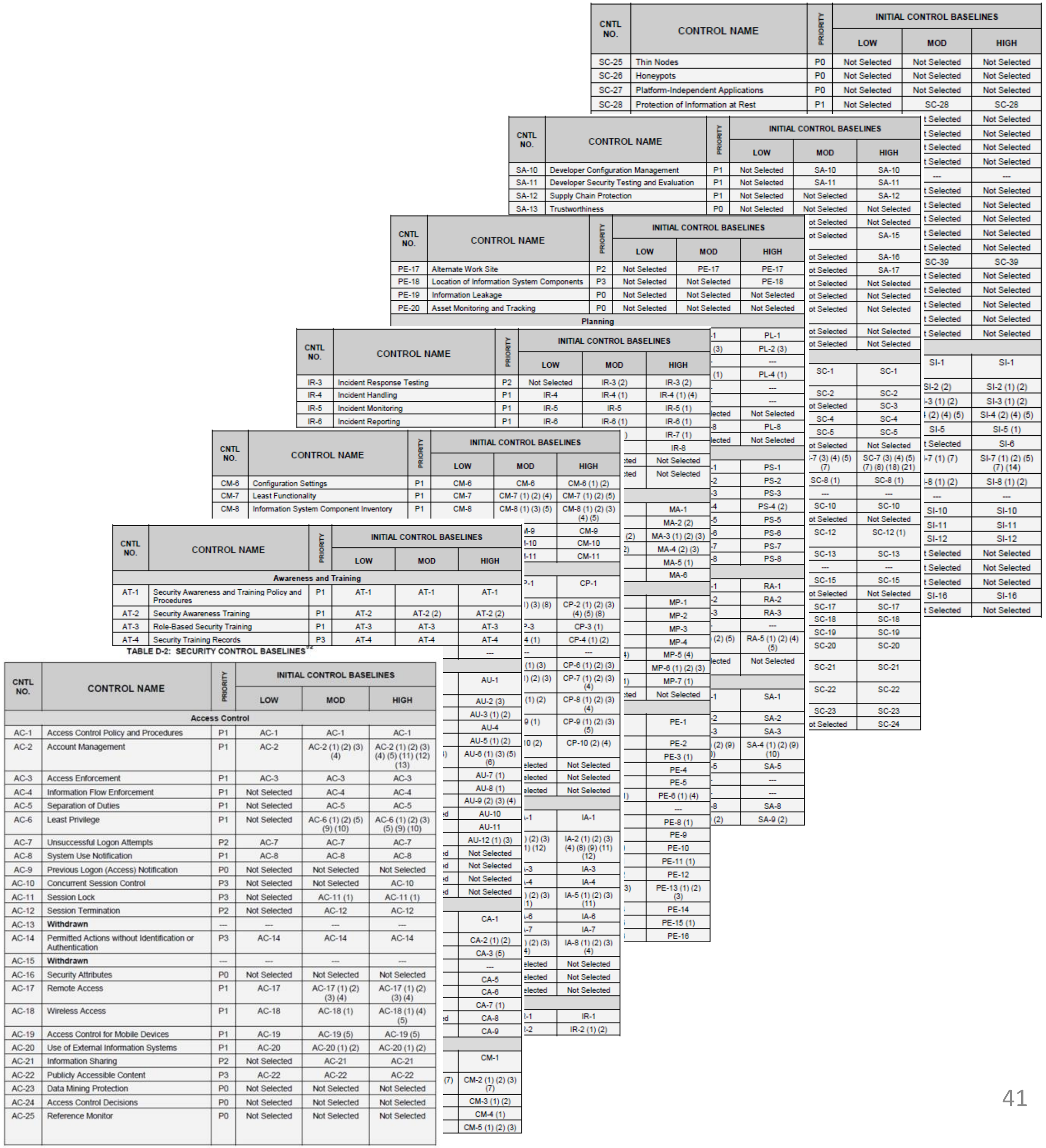


CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
SC-25	Thin Nodes	P0	Not Selected	Not Selected	Not Selected
SC-26	Honeypots	P0	Not Selected	Not Selected	Not Selected
SC-27	Platform-Independent Applications	P0	Not Selected	Not Selected	Not Selected
SC-28	Protection of Information at Rest	P1	Not Selected	SC-28	SC-28

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
SA-10	Developer Configuration Management	P1	Not Selected	SA-10	SA-10
SA-11	Developer Security Testing and Evaluation	P1	Not Selected	SA-11	SA-11
SA-12	Supply Chain Protection	P1	Not Selected	Not Selected	SA-12
SA-13	Trustworthiness	P0	Not Selected	Not Selected	Not Selected

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
PE-17	Alternate Work Site	P2	Not Selected	PE-17	PE-17
PE-18	Location of Information System Components	P3	Not Selected	Not Selected	PE-18
PE-19	Information Leakage	P0	Not Selected	Not Selected	Not Selected
PE-20	Asset Monitoring and Tracking	P0	Not Selected	Not Selected	Not Selected
Planning					

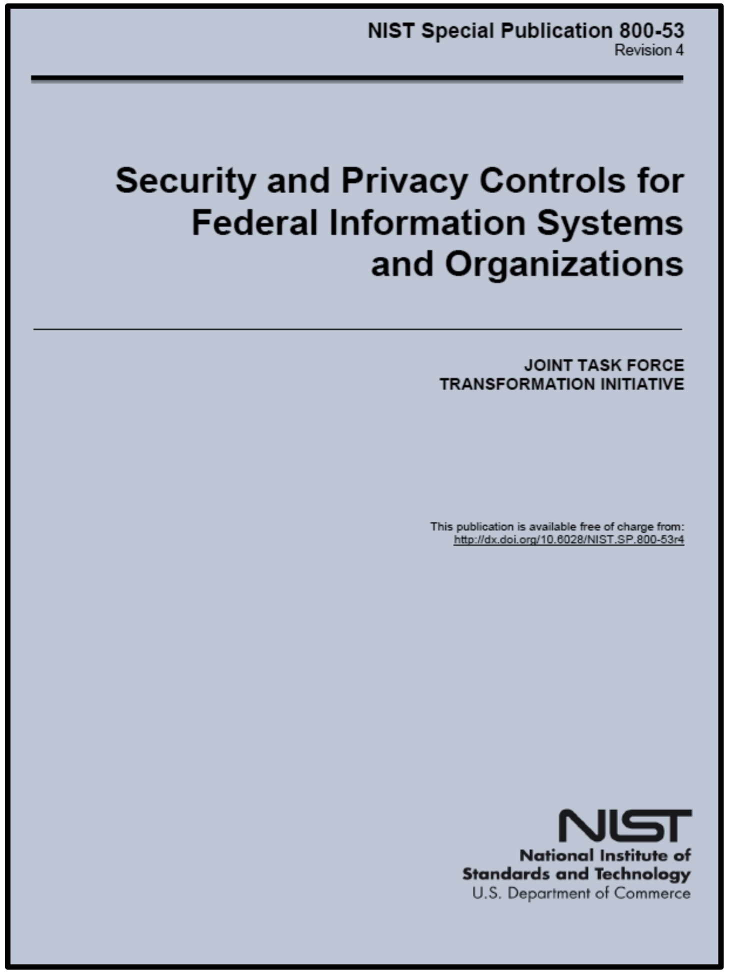
CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
IR-3	Incident Response Testing	P2	Not Selected	IR-3 (2)	IR-3 (2)
IR-4	Incident Handling	P1	IR-4	IR-4 (1)	IR-4 (1) (4)
IR-5	Incident Monitoring	P1	IR-5	IR-5	IR-5 (1)
IR-6	Incident Reporting	P1	IR-6	IR-6 (1)	IR-6 (1)

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
CM-6	Configuration Settings	P1	CM-6	CM-6	CM-6 (1) (2)
CM-7	Least Functionality	P1	CM-7	CM-7 (1) (2) (4)	CM-7 (1) (2) (5)
CM-8	Information System Component Inventory	P1	CM-8	CM-8 (1) (3) (5)	CM-8 (1) (2) (3) (4) (5)

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
Awareness and Training					
AT-1	Security Awareness and Training Policy and Procedures	P1	AT-1	AT-1	AT-1
AT-2	Security Awareness Training	P1	AT-2	AT-2 (2)	AT-2 (2)
AT-3	Role-Based Security Training	P1	AT-3	AT-3	AT-3
AT-4	Security Training Records	P3	AT-4	AT-4	AT-4

TABLE D-2: SECURITY CONTROL BASELINES[92]

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
Access Control					
AC-1	Access Control Policy and Procedures	P1	AC-1	AC-1	AC-1
AC-2	Account Management	P1	AC-2	AC-2 (1) (2) (3) (4)	AC-2 (1) (2) (3) (4) (5) (11) (12) (13)
AC-3	Access Enforcement	P1	AC-3	AC-3	AC-3
AC-4	Information Flow Enforcement	P1	Not Selected	AC-4	AC-4
AC-5	Separation of Duties	P1	Not Selected	AC-5	AC-5
AC-6	Least Privilege	P1	Not Selected	AC-6 (1) (2) (5) (9) (10)	AC-6 (1) (2) (3) (5) (9) (10)
AC-7	Unsuccessful Logon Attempts	P2	AC-7	AC-7	AC-7
AC-8	System Use Notification	P1	AC-8	AC-8	AC-8
AC-9	Previous Logon (Access) Notification	P0	Not Selected	Not Selected	Not Selected
AC-10	Concurrent Session Control	P3	Not Selected	Not Selected	AC-10
AC-11	Session Lock	P3	Not Selected	AC-11 (1)	AC-11 (1)
AC-12	Session Termination	P2	Not Selected	AC-12	AC-12
AC-13	**Withdrawn**	---	---	---	---
AC-14	Permitted Actions without Identification or Authentication	P3	AC-14	AC-14	AC-14
AC-15	**Withdrawn**	---	---	---	---
AC-16	Security Attributes	P0	Not Selected	Not Selected	Not Selected
AC-17	Remote Access	P1	AC-17	AC-17 (1) (2) (3) (4)	AC-17 (1) (2) (3) (4)
AC-18	Wireless Access	P1	AC-18	AC-18 (1)	AC-18 (1) (4) (5)
AC-19	Access Control for Mobile Devices	P1	AC-19	AC-19 (5)	AC-19 (5)
AC-20	Use of External Information Systems	P1	AC-20	AC-20 (1) (2)	AC-20 (1) (2)
AC-21	Information Sharing	P2	Not Selected	AC-21	AC-21
AC-22	Publicly Accessible Content	P3	AC-22	AC-22	AC-22
AC-23	Data Mining Protection	P0	Not Selected	Not Selected	Not Selected
AC-24	Access Control Decisions	P0	Not Selected	Not Selected	Not Selected
AC-25	Reference Monitor	P0	Not Selected	Not Selected	Not Selected



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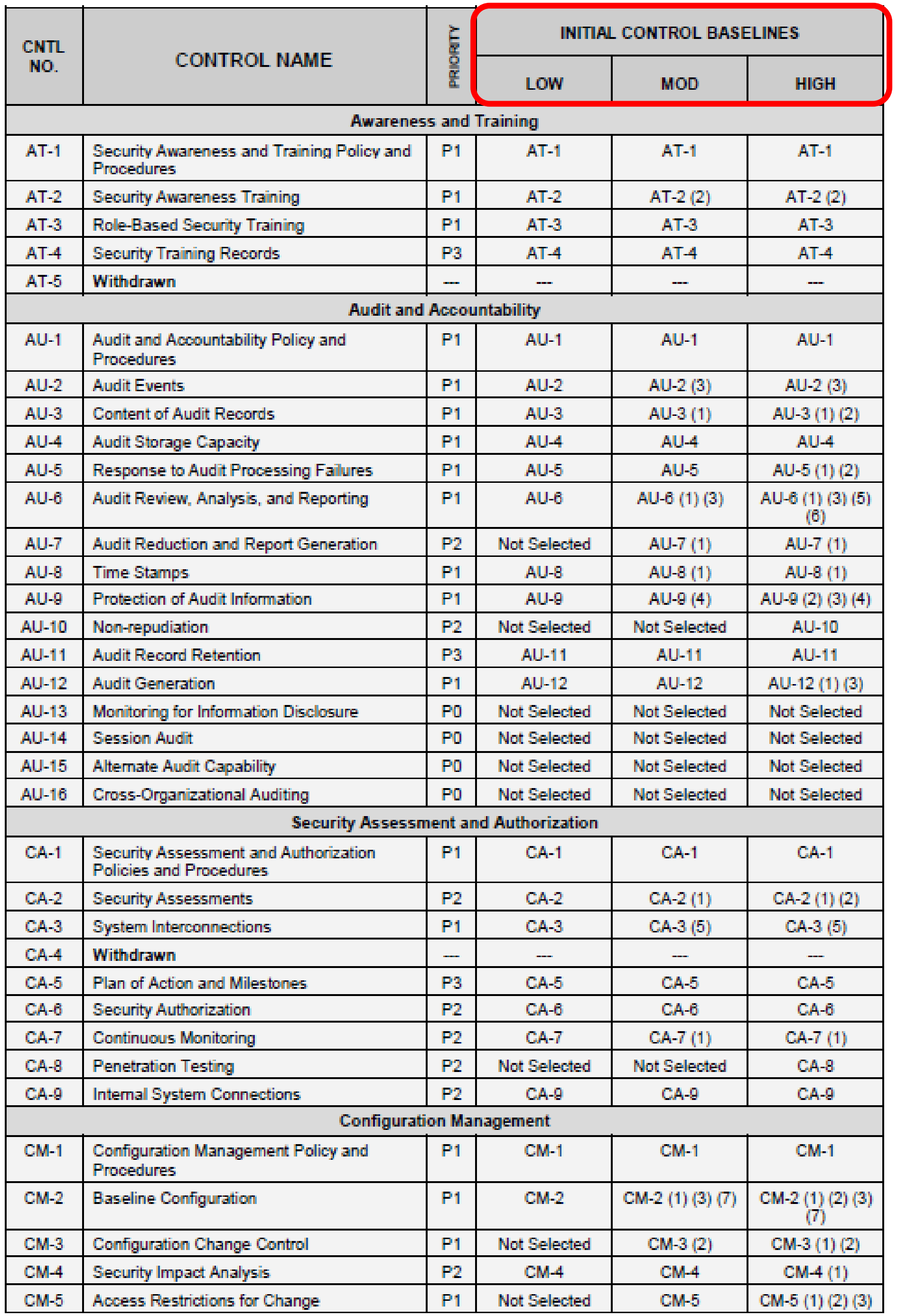
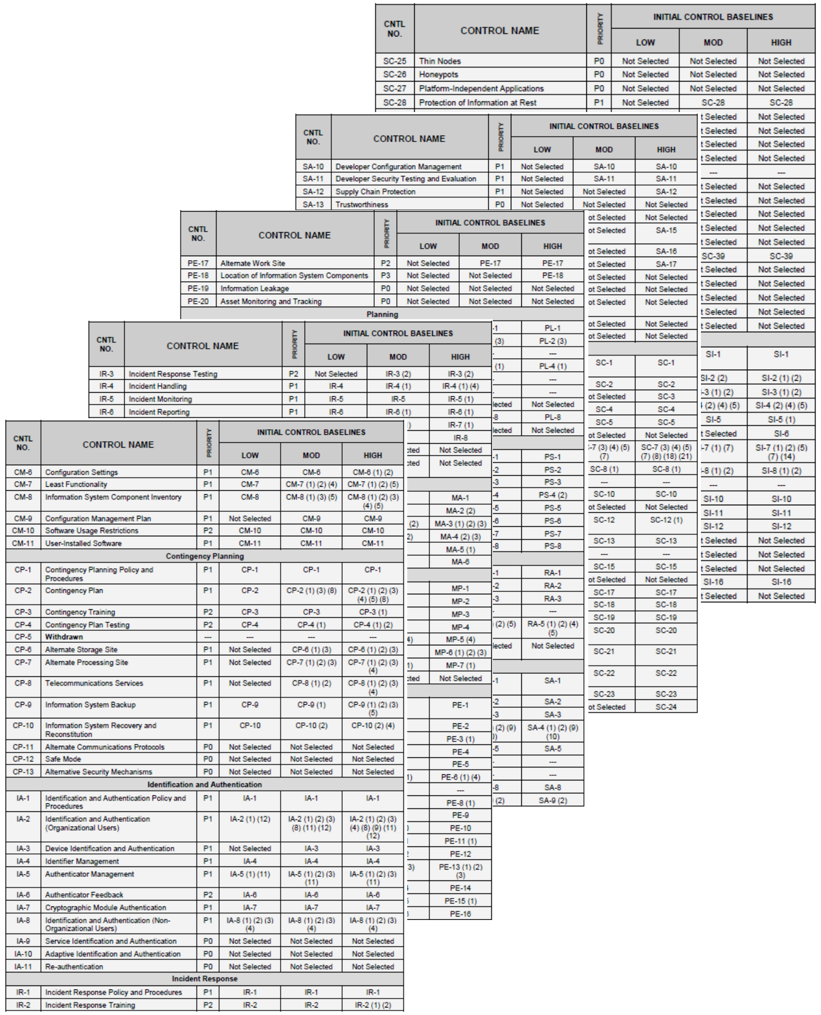


CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
	Awareness and Training				
AT-1	Security Awareness and Training Policy and Procedures	P1	AT-1	AT-1	AT-1
AT-2	Security Awareness Training	P1	AT-2	AT-2 (2)	AT-2 (2)
AT-3	Role-Based Security Training	P1	AT-3	AT-3	AT-3
AT-4	Security Training Records	P3	AT-4	AT-4	AT-4
AT-5	**Withdrawn**	---	---	---	---
	Audit and Accountability				
AU-1	Audit and Accountability Policy and Procedures	P1	AU-1	AU-1	AU-1
AU-2	Audit Events	P1	AU-2	AU-2 (3)	AU-2 (3)
AU-3	Content of Audit Records	P1	AU-3	AU-3 (1)	AU-3 (1) (2)
AU-4	Audit Storage Capacity	P1	AU-4	AU-4	AU-4
AU-5	Response to Audit Processing Failures	P1	AU-5	AU-5	AU-5 (1) (2)
AU-6	Audit Review, Analysis, and Reporting	P1	AU-6	AU-6 (1) (3)	AU-6 (1) (3) (5) (6)
AU-7	Audit Reduction and Report Generation	P2	Not Selected	AU-7 (1)	AU-7 (1)
AU-8	Time Stamps	P1	AU-8	AU-8 (1)	AU-8 (1)
AU-9	Protection of Audit Information	P1	AU-9	AU-9 (4)	AU-9 (2) (3) (4)
AU-10	Non-repudiation	P2	Not Selected	Not Selected	AU-10
AU-11	Audit Record Retention	P3	AU-11	AU-11	AU-11
AU-12	Audit Generation	P1	AU-12	AU-12	AU-12 (1) (3)
AU-13	Monitoring for Information Disclosure	P0	Not Selected	Not Selected	Not Selected
AU-14	Session Audit	P0	Not Selected	Not Selected	Not Selected
AU-15	Alternate Audit Capability	P0	Not Selected	Not Selected	Not Selected
AU-16	Cross-Organizational Auditing	P0	Not Selected	Not Selected	Not Selected
	Security Assessment and Authorization				
CA-1	Security Assessment and Authorization Policies and Procedures	P1	CA-1	CA-1	CA-1
CA-2	Security Assessments	P2	CA-2	CA-2 (1)	CA-2 (1) (2)
CA-3	System Interconnections	P1	CA-3	CA-3 (5)	CA-3 (5)
CA-4	**Withdrawn**	---	---	---	---
CA-5	Plan of Action and Milestones	P3	CA-5	CA-5	CA-5
CA-6	Security Authorization	P2	CA-6	CA-6	CA-6
CA-7	Continuous Monitoring	P2	CA-7	CA-7 (1)	CA-7 (1)
CA-8	Penetration Testing	P2	Not Selected	Not Selected	CA-8
CA-9	Internal System Connections	P2	CA-9	CA-9	CA-9
	Configuration Management				
CM-1	Configuration Management Policy and Procedures	P1	CM-1	CM-1	CM-1
CM-2	Baseline Configuration	P1	CM-2	CM-2 (1) (3) (7)	CM-2 (1) (2) (3) (7)
CM-3	Configuration Change Control	P1	Not Selected	CM-3 (2)	CM-3 (1) (2)
CM-4	Security Impact Analysis	P2	CM-4	CM-4	CM-4 (1)
CM-5	Access Restrictions for Change	P1	Not Selected	CM-5	CM-5 (1) (2) (3)



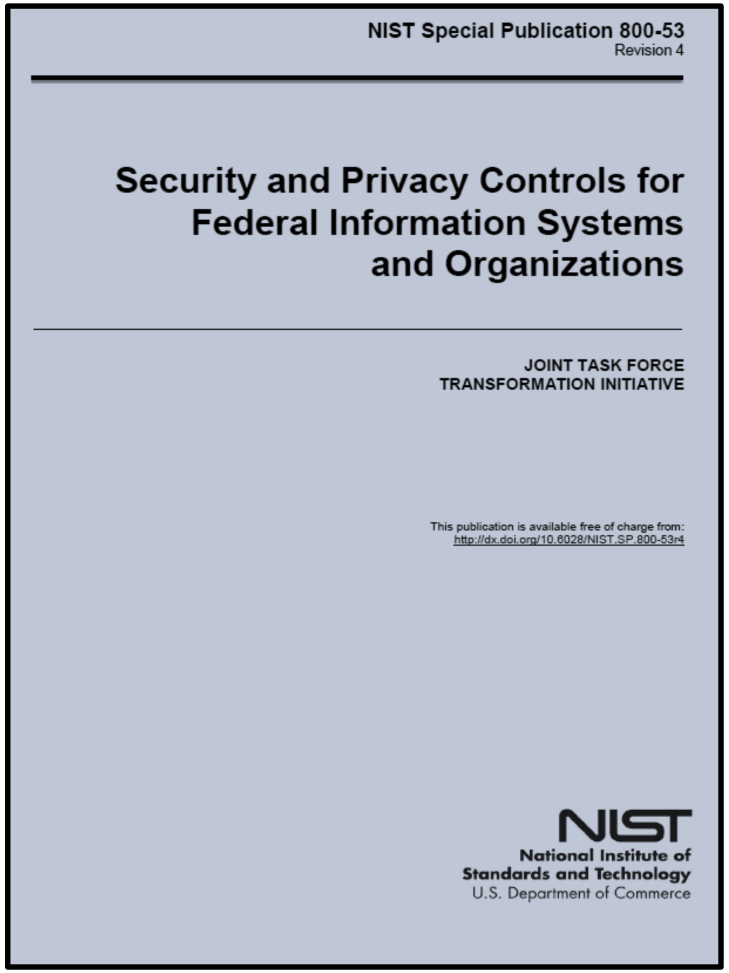
CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
SC-25	Thin Nodes	P0	Not Selected	Not Selected	Not Selected
SC-26	Honeypots	P0	Not Selected	Not Selected	Not Selected
SC-27	Platform-Independent Applications	P0	Not Selected	Not Selected	Not Selected
SC-28	Protection of Information at Rest	P1	Not Selected	SC-28	SC-28

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
SA-10	Developer Configuration Management	P1	Not Selected	SA-10	SA-10
SA-11	Developer Security Testing and Evaluation	P1	Not Selected	SA-11	SA-11
SA-12	Supply Chain Protection	P1	Not Selected	Not Selected	SA-12
SA-13	Trustworthiness	P0	Not Selected	Not Selected	Not Selected

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
PE-17	Alternate Work Site	P2	Not Selected	PE-17	PE-17
PE-18	Location of Information System Components	P3	Not Selected	Not Selected	PE-18
PE-19	Information Leakage	P0	Not Selected	Not Selected	Not Selected
PE-20	Asset Monitoring and Tracking	P0	Not Selected	Not Selected	Not Selected
	Planning				

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
IR-3	Incident Response Testing	P2	Not Selected	IR-3 (2)	IR-3 (2)
IR-4	Incident Handling	P1	IR-4	IR-4 (1)	IR-4 (1) (4)
IR-5	Incident Monitoring	P1	IR-5	IR-5	IR-5 (1)
IR-6	Incident Reporting	P1	IR-6	IR-6 (1)	IR-6 (1)

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
CM-6	Configuration Settings	P1	CM-6	CM-6	CM-6 (1) (2)
CM-7	Least Functionality	P1	CM-7	CM-7 (1) (2) (4)	CM-7 (1) (2) (5)
CM-8	Information System Component Inventory	P1	CM-8	CM-8 (1) (3) (5)	CM-8 (1) (2) (3) (4) (5)
CM-9	Configuration Management Plan	P1	Not Selected	CM-9	CM-9
CM-10	Software Usage Restrictions	P2	CM-10	CM-10	CM-10
CM-11	User-Installed Software	P1	CM-11	CM-11	CM-11
	Contingency Planning				
CP-1	Contingency Planning Policy and Procedures	P1	CP-1	CP-1	CP-1
CP-2	Contingency Plan	P1	CP-2	CP-2 (1) (3) (8)	CP-2 (1) (2) (3) (4) (5) (8)
CP-3	Contingency Training	P2	CP-3	CP-3	CP-3 (1)
CP-4	Contingency Plan Testing	P2	CP-4	CP-4 (1)	CP-4 (1) (2)
CP-5	**Withdrawn**	---	---	---	---
CP-6	Alternate Storage Site	P1	Not Selected	CP-6 (1) (3)	CP-6 (1) (2) (3)
CP-7	Alternate Processing Site	P1	Not Selected	CP-7 (1) (2) (3)	CP-7 (1) (2) (3) (4)
CP-8	Telecommunications Services	P1	Not Selected	CP-8 (1) (2)	CP-8 (1) (2) (3) (4)
CP-9	Information System Backup	P1	CP-9	CP-9 (1)	CP-9 (1) (2) (3) (5)
CP-10	Information System Recovery and Reconstitution	P1	CP-10	CP-10 (2)	CP-10 (2) (4)
CP-11	Alternate Communications Protocols	P0	Not Selected	Not Selected	Not Selected
CP-12	Safe Mode	P0	Not Selected	Not Selected	Not Selected
CP-13	Alternative Security Mechanisms	P0	Not Selected	Not Selected	Not Selected
	Identification and Authentication				
IA-1	Identification and Authentication Policy and Procedures	P1	IA-1	IA-1	IA-1
IA-2	Identification and Authentication (Organizational Users)	P1	IA-2 (1) (12)	IA-2 (1) (2) (3) (8) (11) (12)	IA-2 (1) (2) (3) (4) (8) (9) (11) (12)
IA-3	Device Identification and Authentication	P1	Not Selected	IA-3	IA-3
IA-4	Identifier Management	P1	IA-4	IA-4	IA-4
IA-5	Authenticator Management	P1	IA-5 (1) (11)	IA-5 (1) (2) (3) (11)	IA-5 (1) (2) (3) (11)
IA-6	Authenticator Feedback	P2	IA-6	IA-6	IA-6
IA-7	Cryptographic Module Authentication	P1	IA-7	IA-7	IA-7
IA-8	Identification and Authentication (Non-Organizational Users)	P1	IA-8 (1) (2) (3) (4)	IA-8 (1) (2) (3) (4)	IA-8 (1) (2) (3) (4)
IA-9	Service Identification and Authentication	P0	Not Selected	Not Selected	Not Selected
IA-10	Adaptive Identification and Authentication	P0	Not Selected	Not Selected	Not Selected
IA-11	Re-authentication	P0	Not Selected	Not Selected	Not Selected
	Incident Response				
IR-1	Incident Response Policy and Procedures	P1	IR-1	IR-1	IR-1
IR-2	Incident Response Training	P2	IR-2	IR-2	IR-2 (1) (2)



NIST Special Publication 800-53
Revision 4

Security and Privacy Controls for Federal Information Systems and Organizations

JOINT TASK FORCE
TRANSFORMATION INITIATIVE

This publication is available free of charge from:
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National Institute of
Standards and Technology
U.S. Department of Commerce

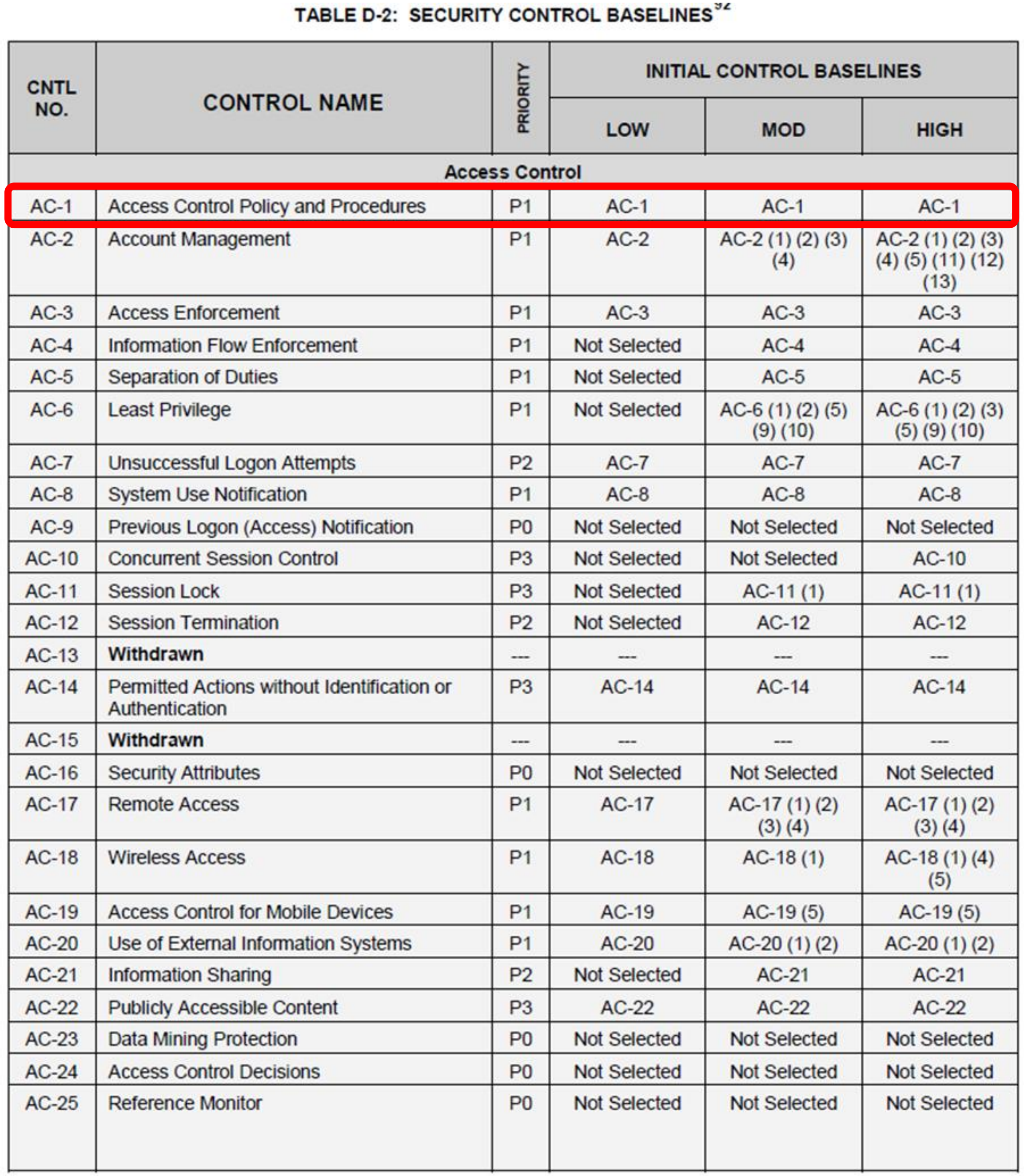
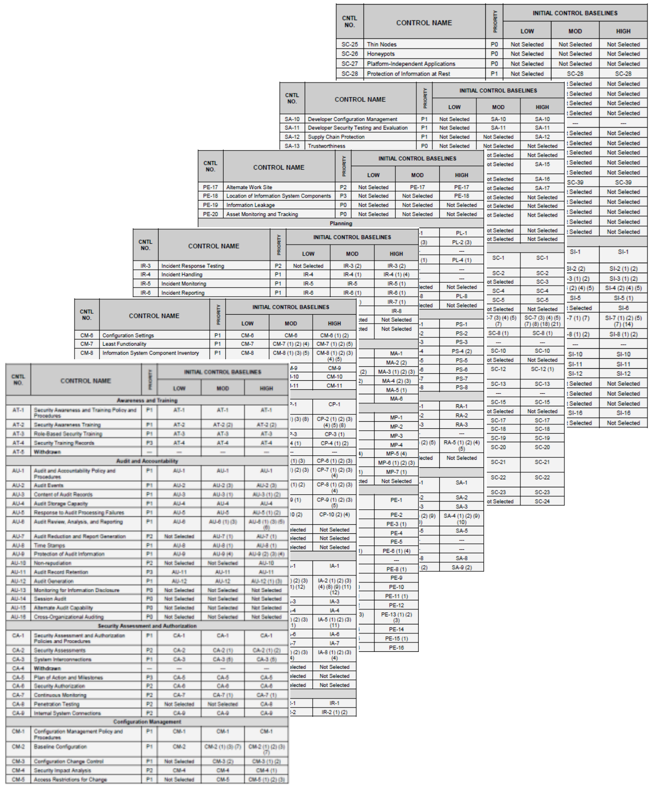
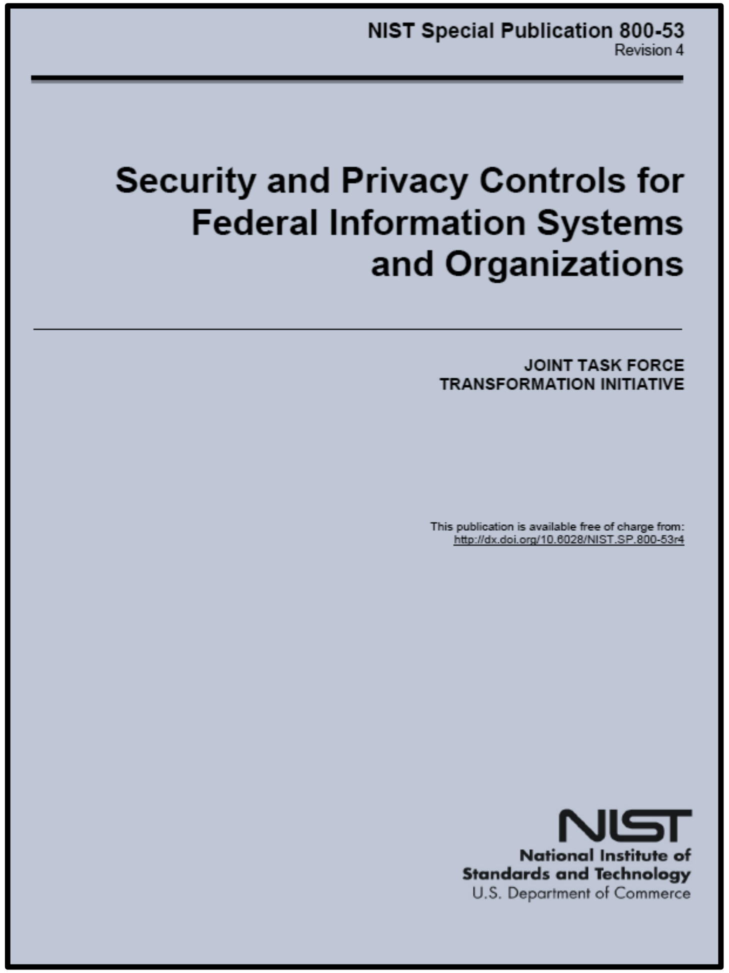


TABLE D-2: SECURITY CONTROL BASELINES[92]

CNTL NO.	CONTROL NAME	PRIORITY	INITIAL CONTROL BASELINES		
			LOW	MOD	HIGH
	Access Control				
AC-1	Access Control Policy and Procedures	P1	AC-1	AC-1	AC-1
AC-2	Account Management	P1	AC-2	AC-2 (1) (2) (3) (4)	AC-2 (1) (2) (3) (4) (5) (11) (12) (13)
AC-3	Access Enforcement	P1	AC-3	AC-3	AC-3
AC-4	Information Flow Enforcement	P1	Not Selected	AC-4	AC-4
AC-5	Separation of Duties	P1	Not Selected	AC-5	AC-5
AC-6	Least Privilege	P1	Not Selected	AC-6 (1) (2) (5) (9) (10)	AC-6 (1) (2) (3) (5) (9) (10)
AC-7	Unsuccessful Logon Attempts	P2	AC-7	AC-7	AC-7
AC-8	System Use Notification	P1	AC-8	AC-8	AC-8
AC-9	Previous Logon (Access) Notification	P0	Not Selected	Not Selected	Not Selected
AC-10	Concurrent Session Control	P3	Not Selected	Not Selected	AC-10
AC-11	Session Lock	P3	Not Selected	AC-11 (1)	AC-11 (1)
AC-12	Session Termination	P2	Not Selected	AC-12	AC-12
AC-13	**Withdrawn**	---	---	---	---
AC-14	Permitted Actions without Identification or Authentication	P3	AC-14	AC-14	AC-14
AC-15	**Withdrawn**	---	---	---	---
AC-16	Security Attributes	P0	Not Selected	Not Selected	Not Selected
AC-17	Remote Access	P1	AC-17	AC-17 (1) (2) (3) (4)	AC-17 (1) (2) (3) (4)
AC-18	Wireless Access	P1	AC-18	AC-18 (1)	AC-18 (1) (4) (5)
AC-19	Access Control for Mobile Devices	P1	AC-19	AC-19 (5)	AC-19 (5)
AC-20	Use of External Information Systems	P1	AC-20	AC-20 (1) (2)	AC-20 (1) (2)
AC-21	Information Sharing	P2	Not Selected	AC-21	AC-21
AC-22	Publicly Accessible Content	P3	AC-22	AC-22	AC-22
AC-23	Data Mining Protection	P0	Not Selected	Not Selected	Not Selected
AC-24	Access Control Decisions	P0	Not Selected	Not Selected	Not Selected
AC-25	Reference Monitor	P0	Not Selected	Not Selected	Not Selected



AC-1



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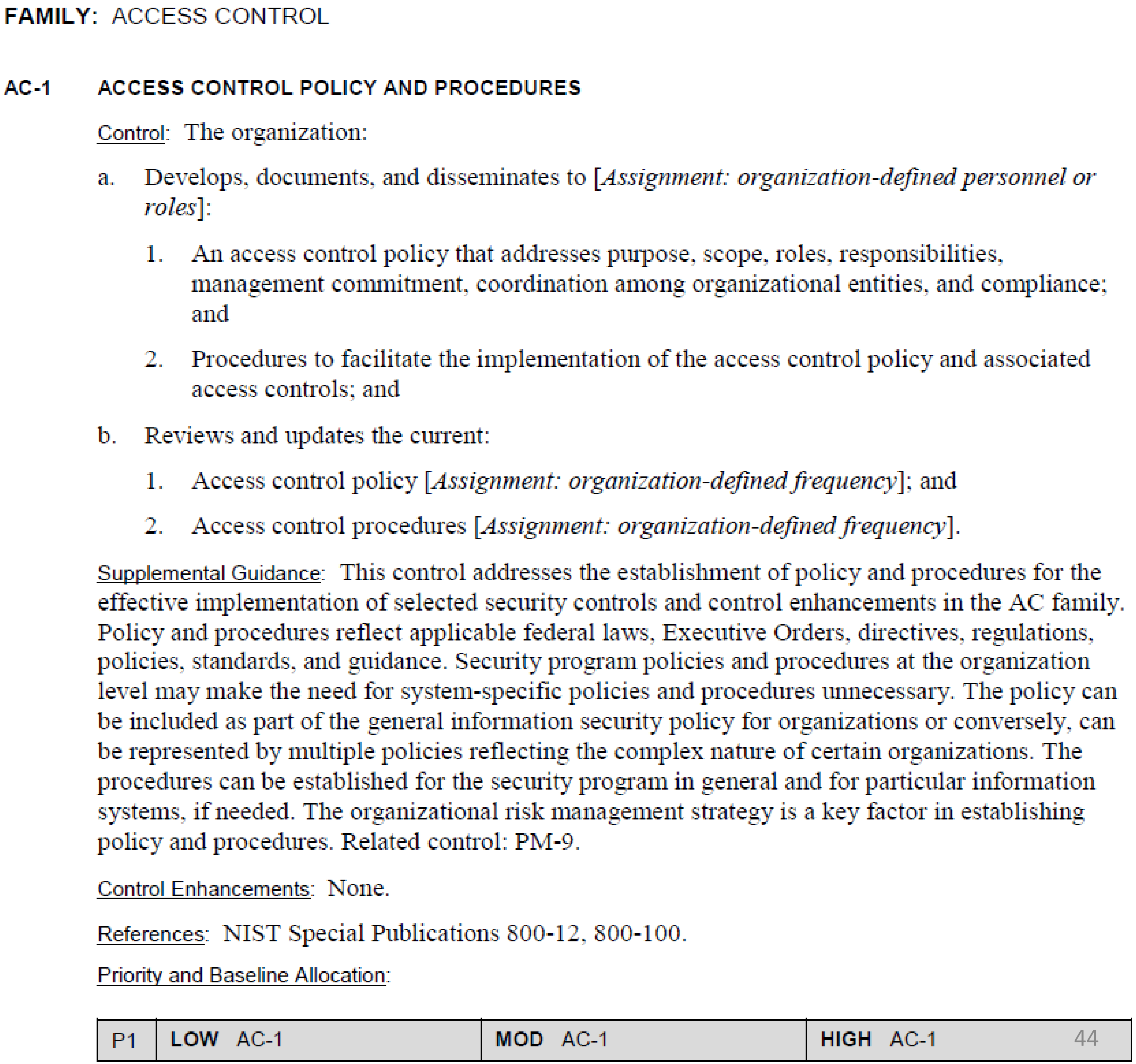


FAMILY: ACCESS CONTROL

AC-1 ACCESS CONTROL POLICY AND PROCEDURES

Control: The organization:

a. Develops, documents, and disseminates to [*Assignment: organization-defined personnel or roles*]:

   1. An access control policy that addresses purpose, scope, roles, responsibilities, management commitment, coordination among organizational entities, and compliance; and

   2. Procedures to facilitate the implementation of the access control policy and associated access controls; and

b. Reviews and updates the current:

   1. Access control policy [*Assignment: organization-defined frequency*]; and

   2. Access control procedures [*Assignment: organization-defined frequency*].

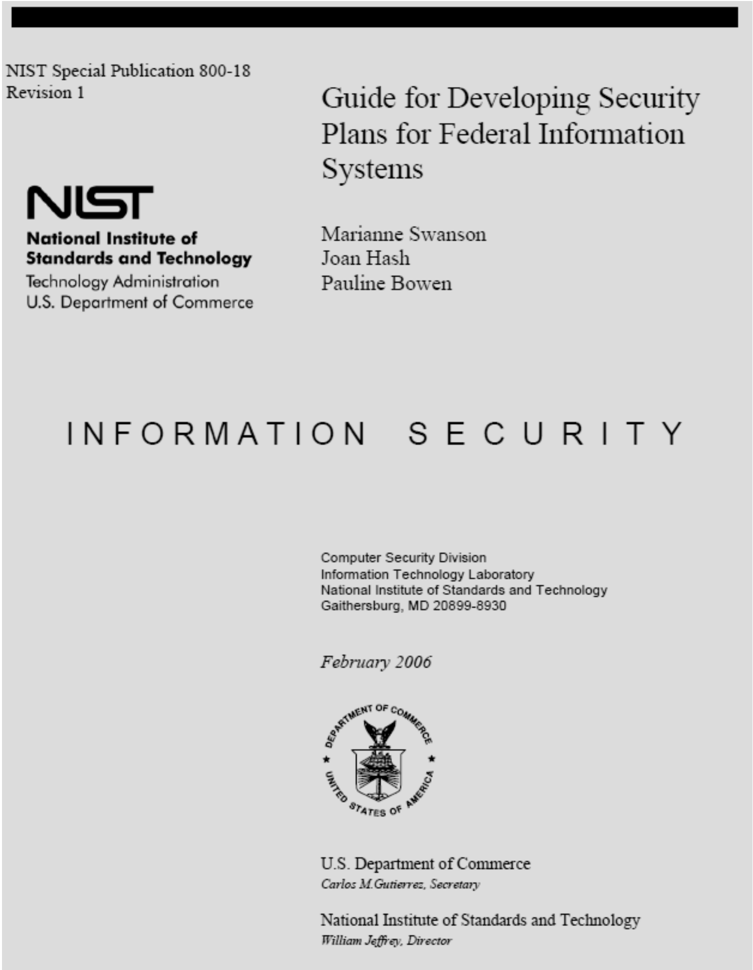
Supplemental Guidance: This control addresses the establishment of policy and procedures for the effective implementation of selected security controls and control enhancements in the AC family. Policy and procedures reflect applicable federal laws, Executive Orders, directives, regulations, policies, standards, and guidance. Security program policies and procedures at the organization level may make the need for system-specific policies and procedures unnecessary. The policy can be included as part of the general information security policy for organizations or conversely, can be represented by multiple policies reflecting the complex nature of certain organizations. The procedures can be established for the security program in general and for particular information systems, if needed. The organizational risk management strategy is a key factor in establishing policy and procedures. Related control: PM-9.

Control Enhancements: None.

References: NIST Special Publications 800-12, 800-100.

Priority and Baseline Allocation:

P1	**LOW** AC-1	**MOD** AC-1	**HIGH** AC-1



NIST Special Publication 800-18
Revision 1

Guide for Developing Security Plans for Federal Information Systems

NIST
National Institute of Standards and Technology
Technology Administration
U.S. Department of Commerce

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INFORMATION SECURITY

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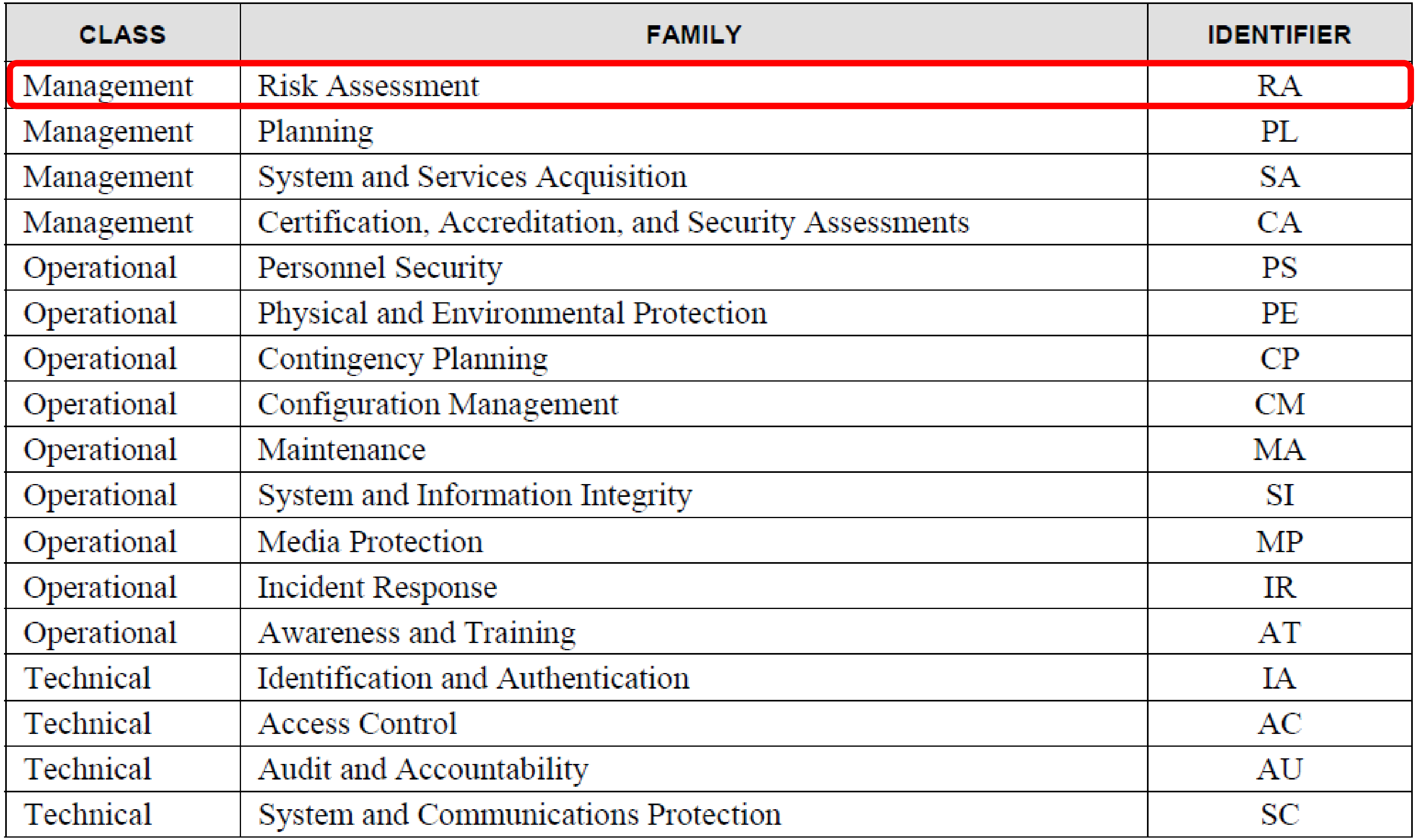
February 2006

U.S. Department of Commerce
Carlos M. Gutierrez, Secretary

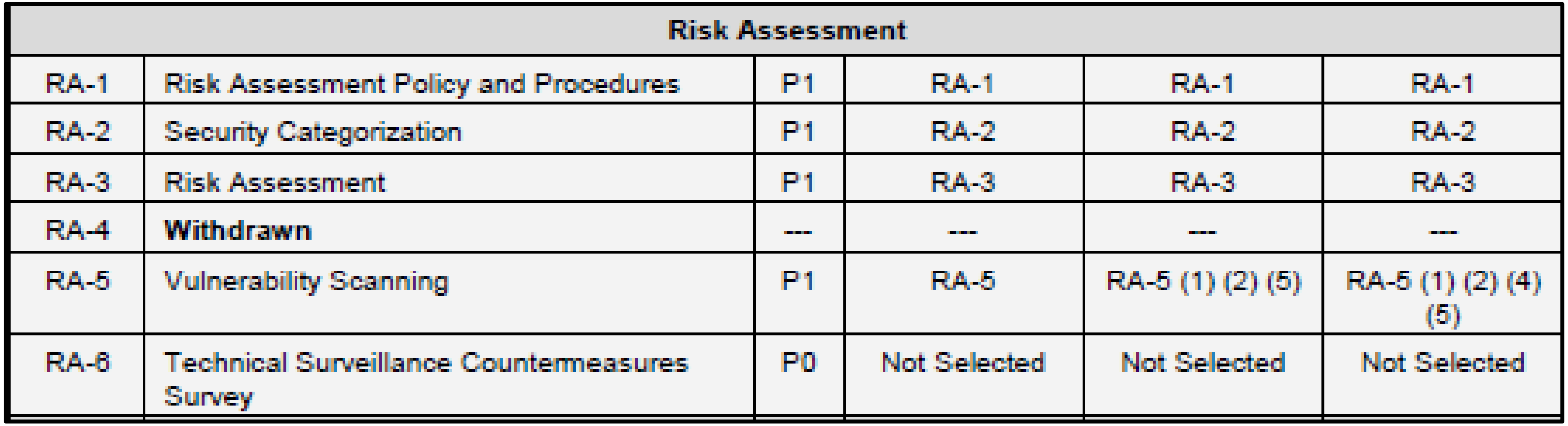
National Institute of Standards and Technology
William Jeffrey, Director



CLASS	FAMILY	IDENTIFIER
Management	Risk Assessment	RA
Management	Planning	PL
Management	System and Services Acquisition	SA
Management	Certification, Accreditation, and Security Assessments	CA
Operational	Personnel Security	PS
Operational	Physical and Environmental Protection	PE
Operational	Contingency Planning	CP
Operational	Configuration Management	CM
Operational	Maintenance	MA
Operational	System and Information Integrity	SI
Operational	Media Protection	MP
Operational	Incident Response	IR
Operational	Awareness and Training	AT
Technical	Identification and Authentication	IA
Technical	Access Control	AC
Technical	Audit and Accountability	AU
Technical	System and Communications Protection	SC

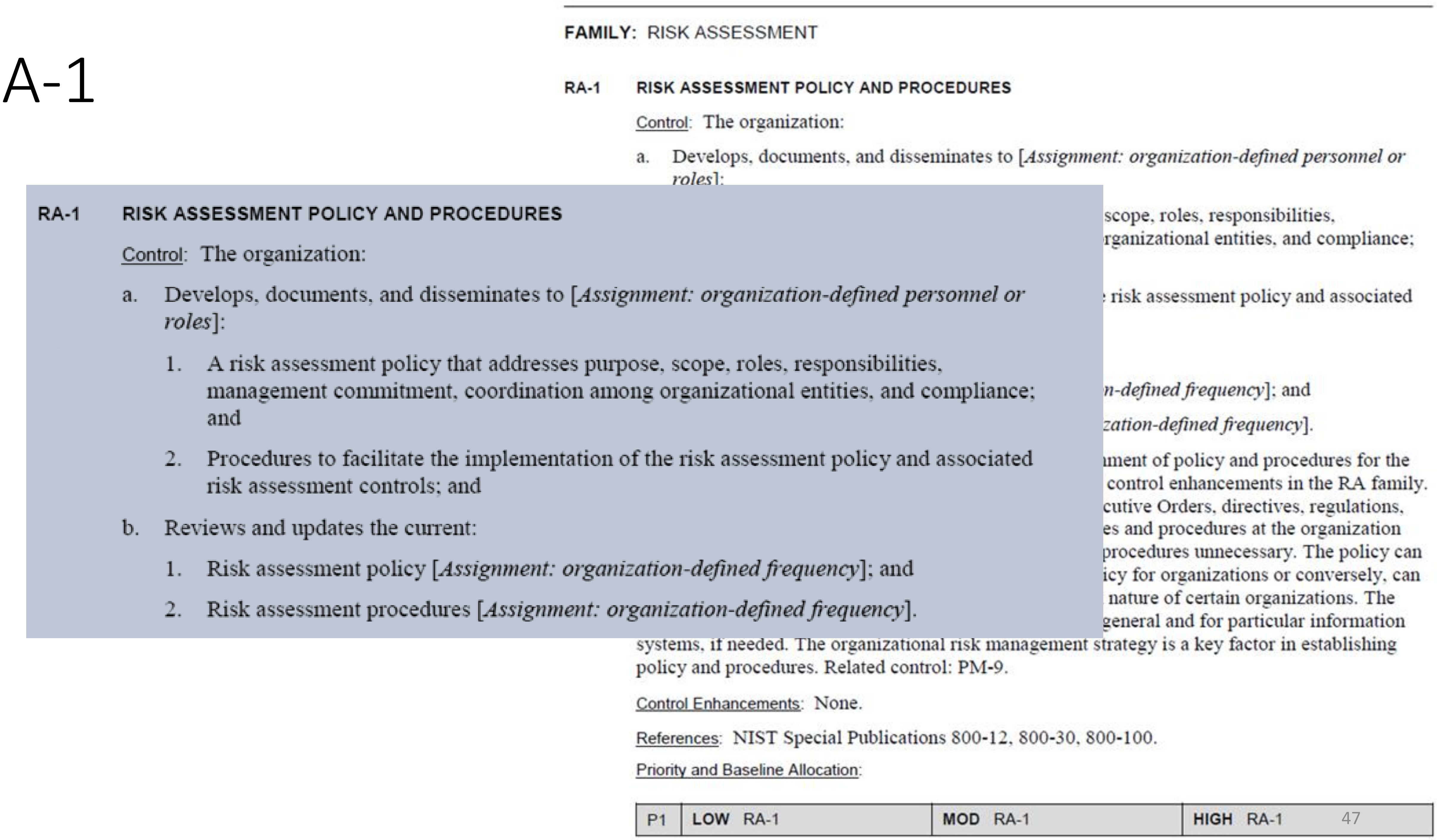
Table 2: Security Control Class, Family, and Identifier

Risk Assessment (RA) Controls



Risk Assessment					
RA-1	Risk Assessment Policy and Procedures	P1	RA-1	RA-1	RA-1
RA-2	Security Categorization	P1	RA-2	RA-2	RA-2
RA-3	Risk Assessment	P1	RA-3	RA-3	RA-3
RA-4	**Withdrawn**	---	---	---	---
RA-5	Vulnerability Scanning	P1	RA-5	RA-5 (1) (2) (5)	RA-5 (1) (2) (4) (5)
RA-6	Technical Surveillance Countermeasures Survey	P0	Not Selected	Not Selected	Not Selected

RA-1



FAMILY: RISK ASSESSMENT

RA-1 RISK ASSESSMENT POLICY AND PROCEDURES

Control: The organization:

a. Develops, documents, and disseminates to [*Assignment: organization-defined personnel or roles*]:

1. A risk assessment policy that addresses purpose, scope, roles, responsibilities, management commitment, coordination among organizational entities, and compliance; and
2. Procedures to facilitate the implementation of the risk assessment policy and associated risk assessment controls; and

b. Reviews and updates the current:

1. Risk assessment policy [*Assignment: organization-defined frequency*]; and
2. Risk assessment procedures [*Assignment: organization-defined frequency*].

ıment of policy and procedures for the
control enhancements in the RA family.
cutive Orders, directives, regulations,
es and procedures at the organization
procedures unnecessary. The policy can
icy for organizations or conversely, can
nature of certain organizations. The
general and for particular information
systems, if needed. The organizational risk management strategy is a key factor in establishing policy and procedures. Related control: PM-9.

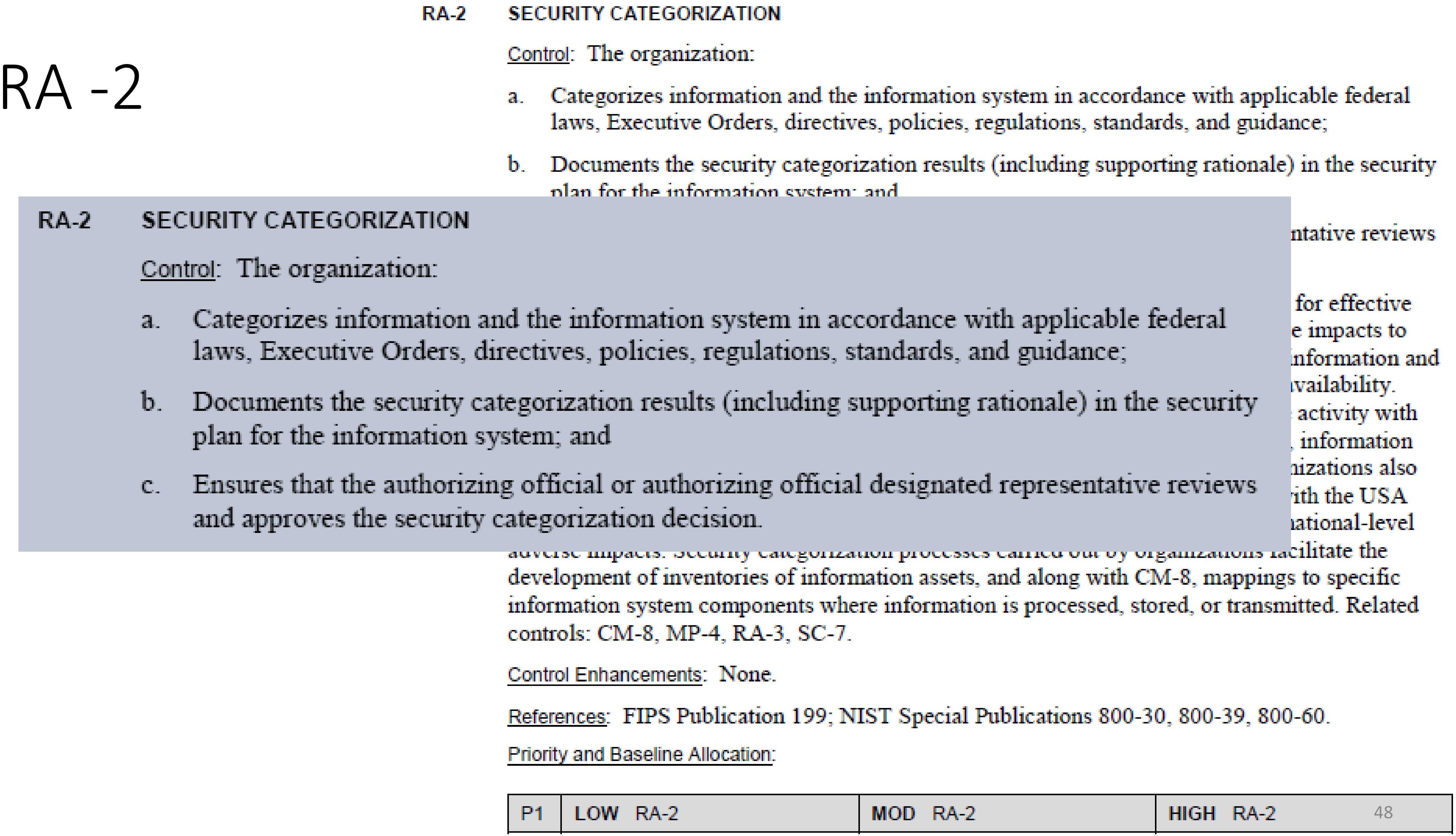
Control Enhancements: None.

References: NIST Special Publications 800-12, 800-30, 800-100.

Priority and Baseline Allocation:

P1	**LOW** RA-1	**MOD** RA-1	**HIGH** RA-1

RA -2



RA-2 SECURITY CATEGORIZATION

Control: The organization:

a. Categorizes information and the information system in accordance with applicable federal laws, Executive Orders, directives, policies, regulations, standards, and guidance;

b. Documents the security categorization results (including supporting rationale) in the security plan for the information system; and

ntative reviews

for effective
e impacts to
information and
vailability.
activity with
, information
nizations also
ith the USA
national-level
adverse impacts. Security categorization processes carried out by organizations facilitate the development of inventories of information assets, and along with CM-8, mappings to specific information system components where information is processed, stored, or transmitted. Related controls: CM-8, MP-4, RA-3, SC-7.

Control Enhancements: None.

References: FIPS Publication 199; NIST Special Publications 800-30, 800-39, 800-60.

Priority and Baseline Allocation:

P1	LOW RA-2	MOD RA-2	HIGH RA-2

RA-2 SECURITY CATEGORIZATION

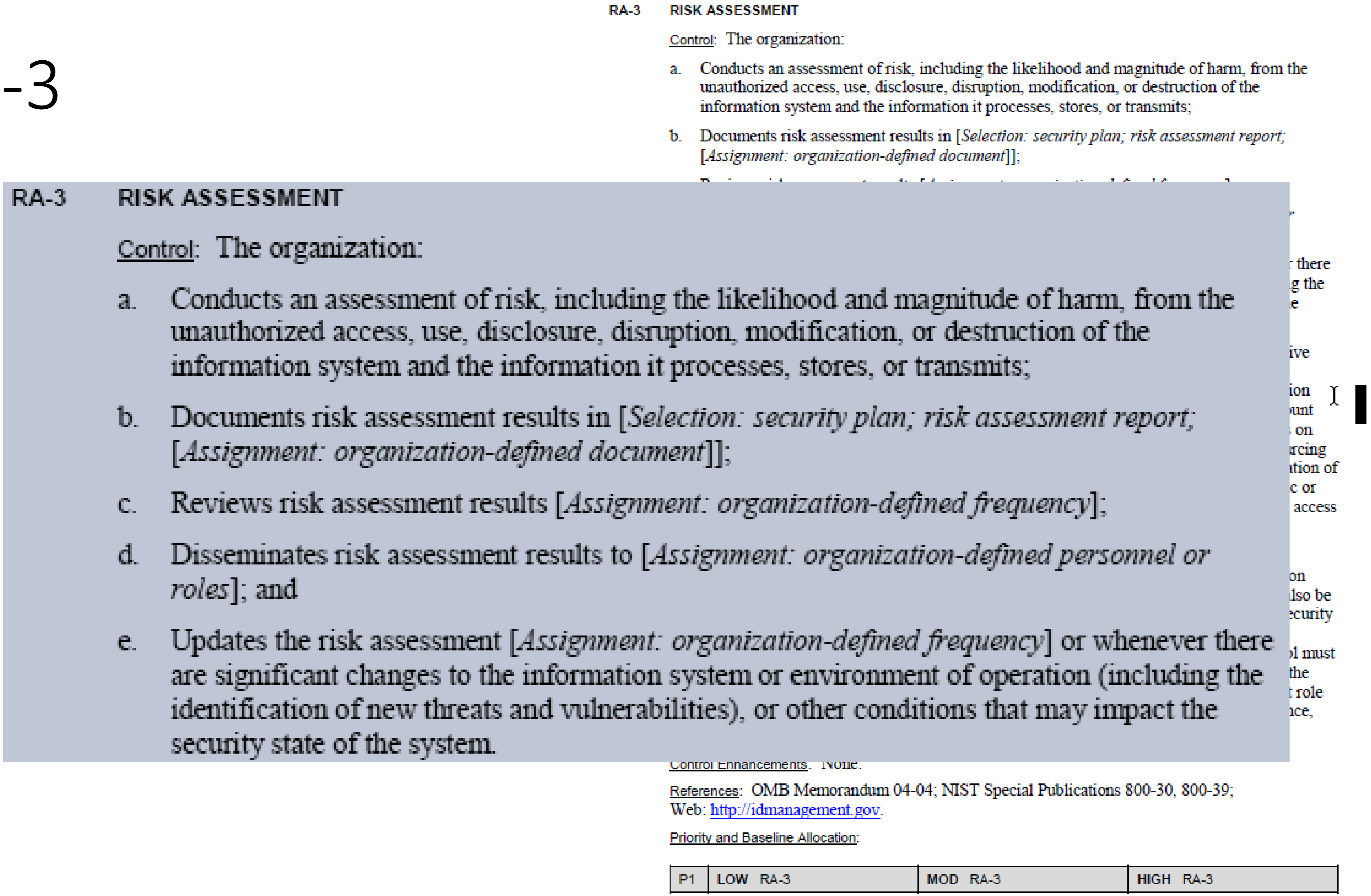
Control: The organization:

a. Categorizes information and the information system in accordance with applicable federal laws, Executive Orders, directives, policies, regulations, standards, and guidance;

b. Documents the security categorization results (including supporting rationale) in the security plan for the information system; and

c. Ensures that the authorizing official or authorizing official designated representative reviews and approves the security categorization decision.

RA -3



RA-3 RISK ASSESSMENT

Control: The organization:

a. Conducts an assessment of risk, including the likelihood and magnitude of harm, from the unauthorized access, use, disclosure, disruption, modification, or destruction of the information system and the information it processes, stores, or transmits;

b. Documents risk assessment results in [*Selection: security plan; risk assessment report;* [*Assignment: organization-defined document*]];

RA-3 RISK ASSESSMENT

Control: The organization:

a. Conducts an assessment of risk, including the likelihood and magnitude of harm, from the unauthorized access, use, disclosure, disruption, modification, or destruction of the information system and the information it processes, stores, or transmits;

b. Documents risk assessment results in [*Selection: security plan; risk assessment report;* [*Assignment: organization-defined document*]];

c. Reviews risk assessment results [*Assignment: organization-defined frequency*];

d. Disseminates risk assessment results to [*Assignment: organization-defined personnel or roles*]; and

e. Updates the risk assessment [*Assignment: organization-defined frequency*] or whenever there are significant changes to the information system or environment of operation (including the identification of new threats and vulnerabilities), or other conditions that may impact the security state of the system.

Control Enhancements: None.

References: OMB Memorandum 04-04; NIST Special Publications 800-30, 800-39; Web: http://idmanagement.gov.

Priority and Baseline Allocation:

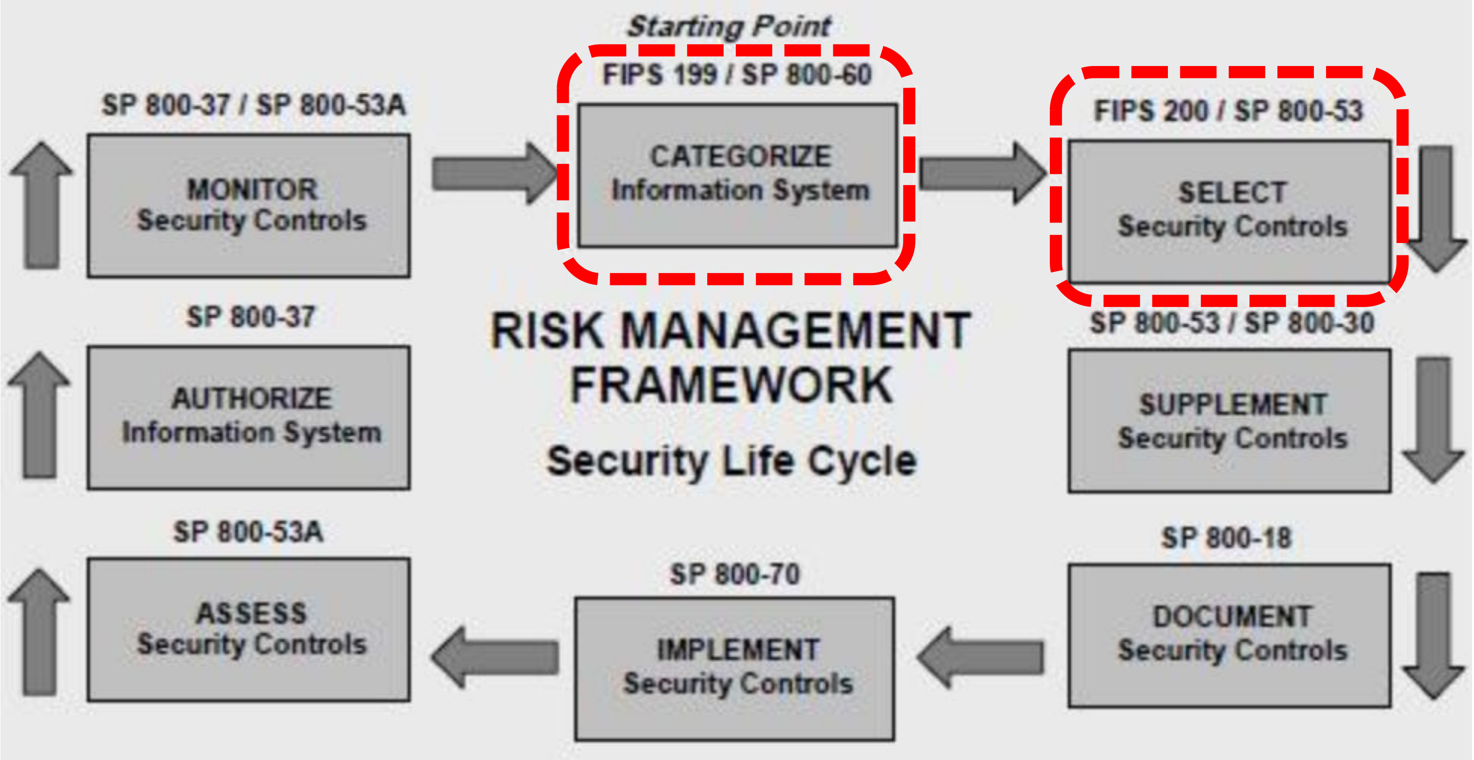
P1	LOW RA-3	MOD RA-3	HIGH RA-3

Exercise

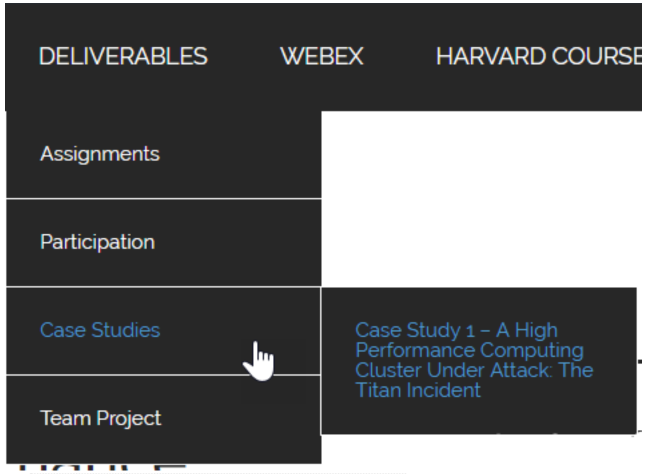
1. Using Google or your favorite search engine…
   - Find an organization’s IT risk assessment policy and procedures
     - *Assess how well the policy meets requirements of RA-1*
     - *Assess how well the procedures meet RA2 and RA3*

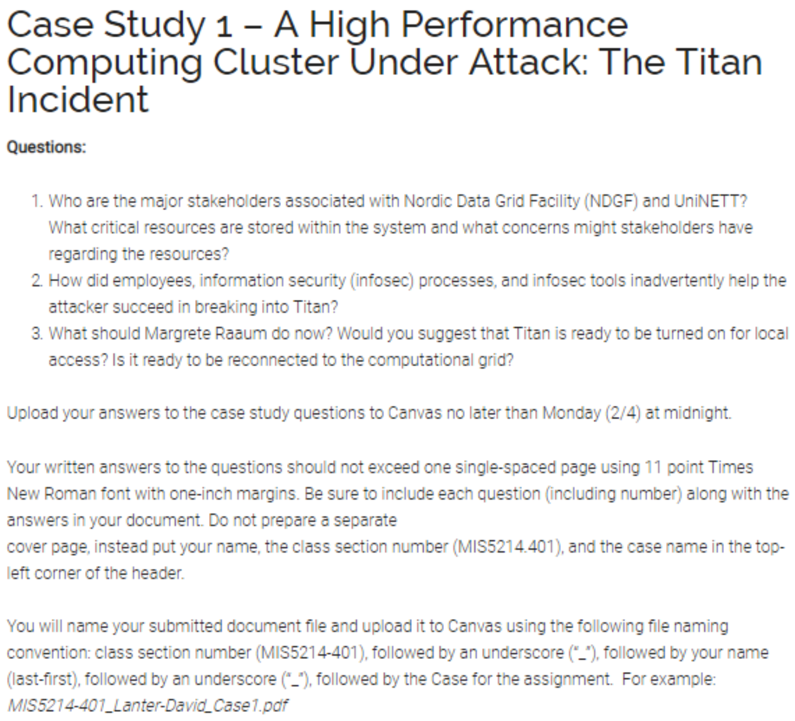
2. Return to class discussion in 20 minutes
3. Present your findings

NIST Risk Management Framework



Case Study Assignment – due 2/4 midnight


DELIVERABLES
WEBEX
HARVARD COURSE
Assignments
Participation
Case Studies
Team Project
Case Study 1 – A High Performance Computing Cluster Under Attack: The Titan Incident



Case Study 1 – A High Performance Computing Cluster Under Attack: The Titan Incident

Questions:

1. Who are the major stakeholders associated with Nordic Data Grid Facility (NDGF) and UniNETT? What critical resources are stored within the system and what concerns might stakeholders have regarding the resources?
2. How did employees, information security (infosec) processes, and infosec tools inadvertently help the attacker succeed in breaking into Titan?
3. What should Margrete Raaum do now? Would you suggest that Titan is ready to be turned on for local access? Is it ready to be reconnected to the computational grid?

Upload your answers to the case study questions to Canvas no later than Monday (2/4) at midnight.

Your written answers to the questions should not exceed one single-spaced page using 11 point Times New Roman font with one-inch margins. Be sure to include each question (including number) along with the answers in your document. Do not prepare a separate
cover page, instead put your name, the class section number (MIS5214.401), and the case name in the top-left corner of the header.

You will name your submitted document file and upload it to Canvas using the following file naming convention: class section number (MIS5214-401), followed by an underscore ("_"), followed by your name (last-first), followed by an underscore ("_"), followed by the Case for the assignment. For example: *MIS5214-401_Lanter-David_Case1.pdf*

Questions:

1. Who are the major stakeholders associated with Nordic Data Grid Facility (NDGF) and UniNETT? What critical resources are stored within the system and what concerns might stakeholders have regarding the resources?
2. How did employees, information security (infosec) processes, and infosec tools inadvertently help the attacker succeed in breaking into Titan?
3. What should Margrete Raaum do now? Would you suggest that Titan is ready to be turned on for local access? Is it ready to be reconnected to the computational grid?

Agenda

- ✓Exercise: Information Security Policy Assessment
- ✓NIST Risk Management Framework and FIPS 199
- ✓Use of NIST SP 800-60 Volume 1 and Volume 2
- ✓Exercise – *Finalize impact levels*
- ✓*Exercise – Determine and finalize impact levels*
- ✓*Exercise – Determine Information and Information System Types and provisional security categorization*
- ✓Security Control Baselines – review
  - ✓FIPS 200 and NIST 800-53 Security Control Baselines
  - ✓Security Control Families
- ✓Risk Assessment Controls
- ✓Team Exercise *Find and assess risk assessment policy*
- ✓Next Time: Case Study 1

Unit #3

MIS5214

Planning and Policy