GRADD

Green River Area Development District

Application of the Infrastructure Resiliency Planning Framework (IRPF)

Application of the IRPF

- GRADD planners reviewed the IRPF and developed a planning process to evaluate the regional water and wastewater infrastructure sector.
- The end goal of GRADD's application of the IRPF was to:
  1. Identify and document infrastructure dependencies.
  2. Develop new local mitigation action items for the regional hazard mitigation plan.

Planning Process

1. Assessment of existing data.
2. Identification of data gaps.
3. Creation of a data collection plan.
4. Advertisement of the planning process.
5. Data collection.
6. Data analysis.
7. Community meetings.
8. Regional coordination.
9. Create a risk assessment for GRADD Hazard Mitigation Plan.

Step 1 – Analyze Existing Data

- Area Development Districts in Kentucky have a close working relationship with water and wastewater utilities thanks to the area Water Management Councils.
- Known data points that existed before the planning process began consisted of:
  - Relationships with utilities.
  - Asset inventories.
  - Future projects for water and wastewater utilities.

Step 2 – Identify Gaps

- What are the capabilities of secondary power sources at a system level?
- Existence and functionality of interconnects between neighboring water utilities.
- Transportation and communication dependency data nonexistent.
- Known issue with a shortage of certified operators, who has adequate staffing and who does not?
- What assets are critical to providing service and which have a lower priority?

Step 3 – Data Collection Plan

- The IRPF provides a System Owner/Operator Dependency Interview Guide that served as a starting point for the development of a final question set utilized for this planning process.
- Data collection focused on:
  - Energy sector dependencies and mitigation assets (generators),
  - Communications sector dependencies and mitigation capabilities,
  - Transportation sector dependencies,
  - Critical personnel and critical system components, and
  - Interconnects and hydraulic modeling

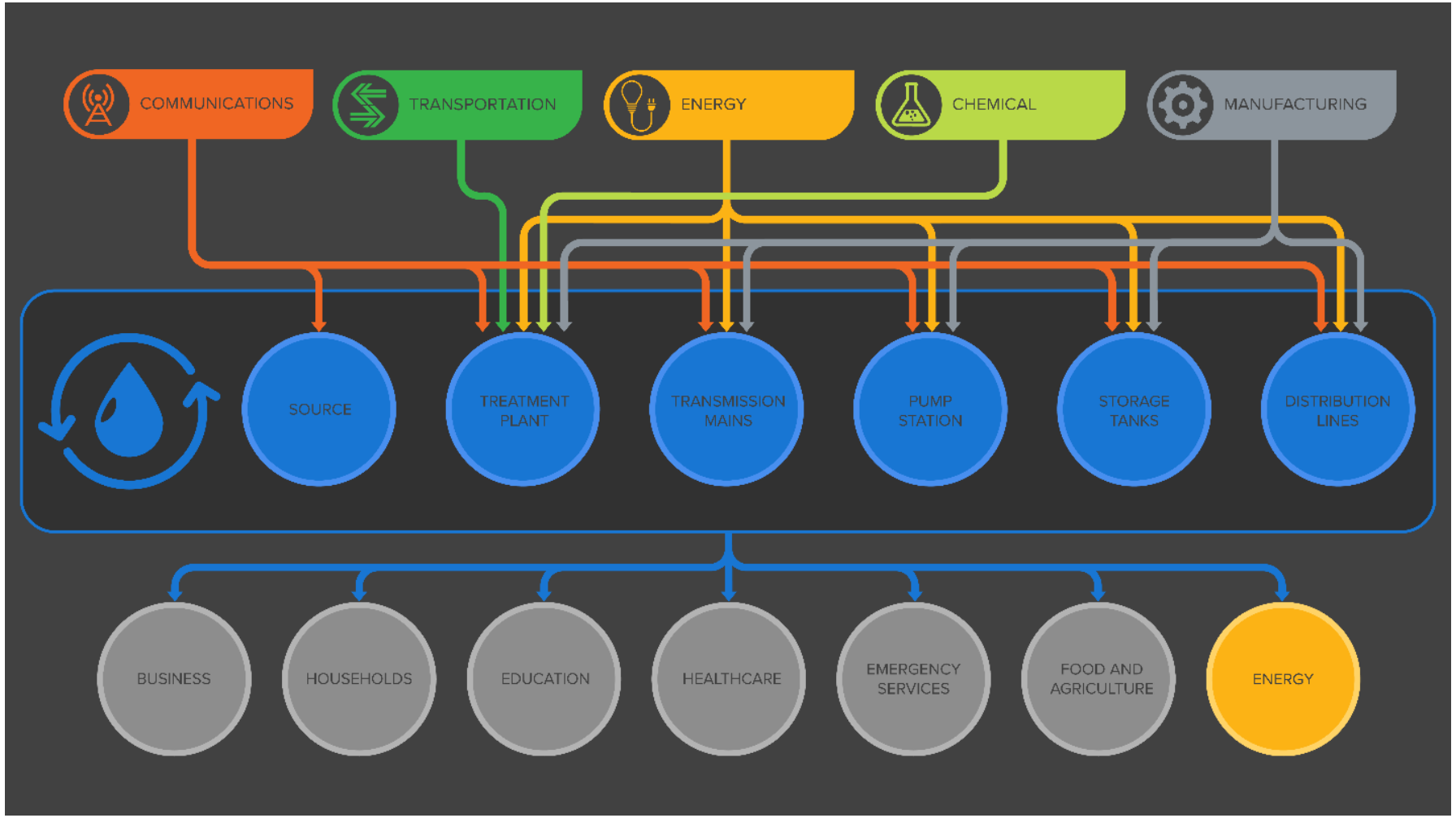
Step 4 – Advertisement

- Educating stakeholders about infrastructure dependencies began with a presentation to water and wastewater utilities via the GRADD Water Management Council.
- An overview of the planning process was provided to utilities immediately prior to conducting each system interview.
- GRADD actions in this step of the planning process illustrate the ability to use resources provided by the IRPF by adhering to principals and best practices instead of using the IRPF verbatim.

Step 5 – Data Collection

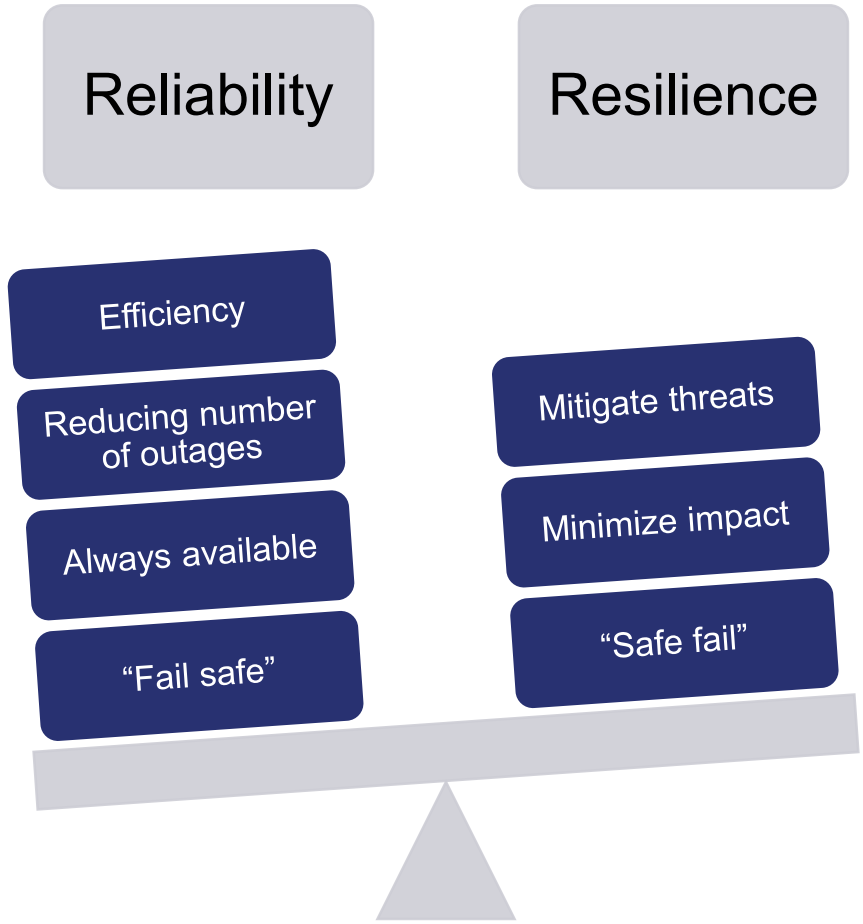
- Individual, in-person, system interviews took place across the seven-county region.
- Data collection spanned three months and GRADD planners traveled a total of 1,784 miles to complete the interview phase of the project.
- Before presenting the infrastructure resiliency survey questions, GRADD planners provided system operators with an overview of infrastructure interdependencies and highlighted the end goal the planning project of increasing resilience for the water and wastewater sector across the region.

Infrastructure Dependencies



Source: CISA Infrastructure Dependency Primer

Defining Resilience



Step 6 – Data Analysis

- Survey data entered into an online survey tool and exported into spreadsheet format.
- Data analysis focused on identifying trends and GRADD planners were able to dive into data to investigate root causes.
- Data analysis was completed at the regional and county level, and gaps and vulnerabilities were identified for further discussion with stakeholders during the next stage of the planning process.

Data Security

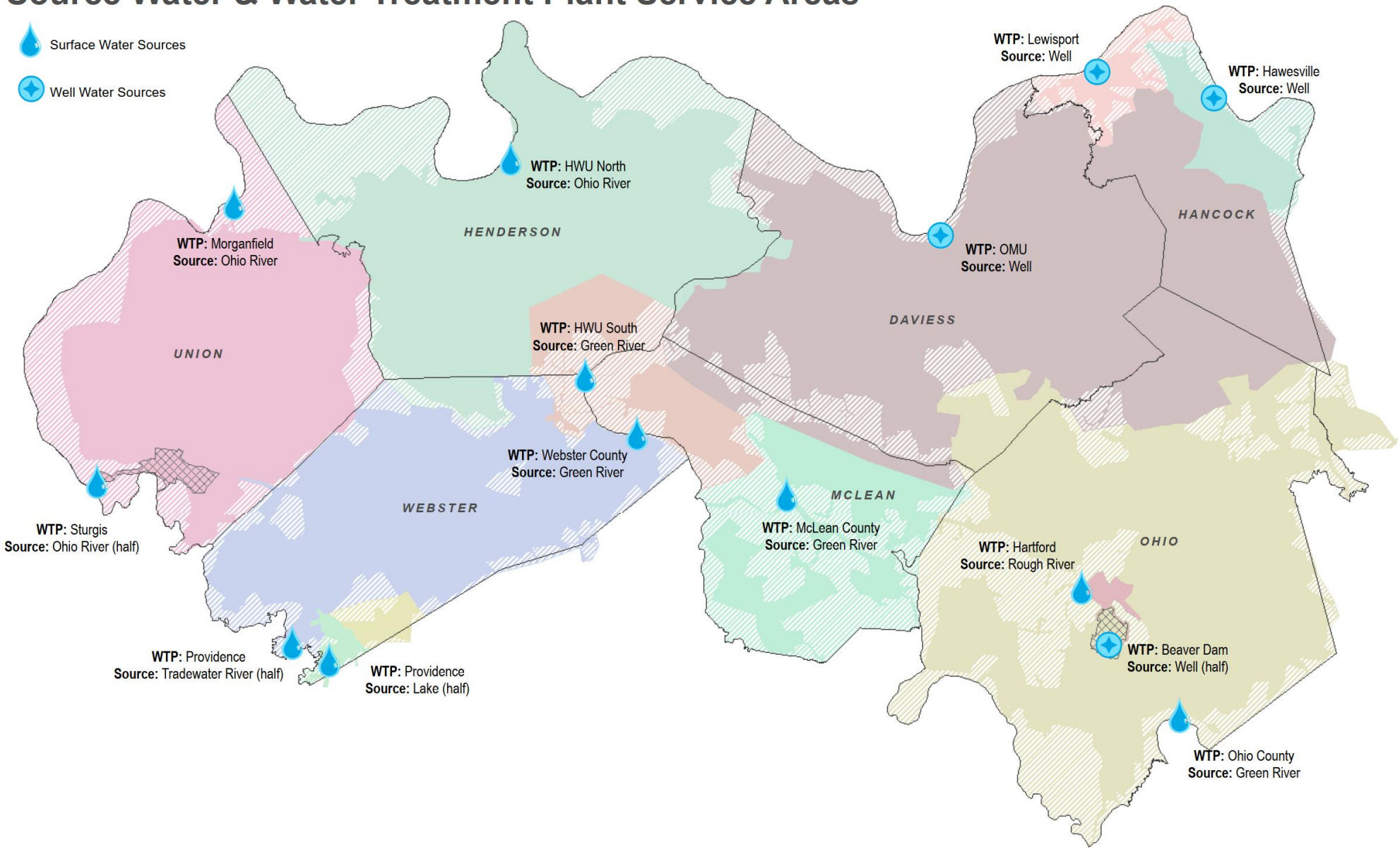
- Some information collected during the application of the IRPF will be sensitive or proprietary.
- Data gathered by this project was carefully vetted by GRADD planners to ensure that proprietary, sensitive, or non-public information was protected while also informing the final output of the planning process.

Future planning efforts should be proactive in creating a data security plan and be prepared for industry concerns about the sharing of proprietary, sensitive, or non-public information.

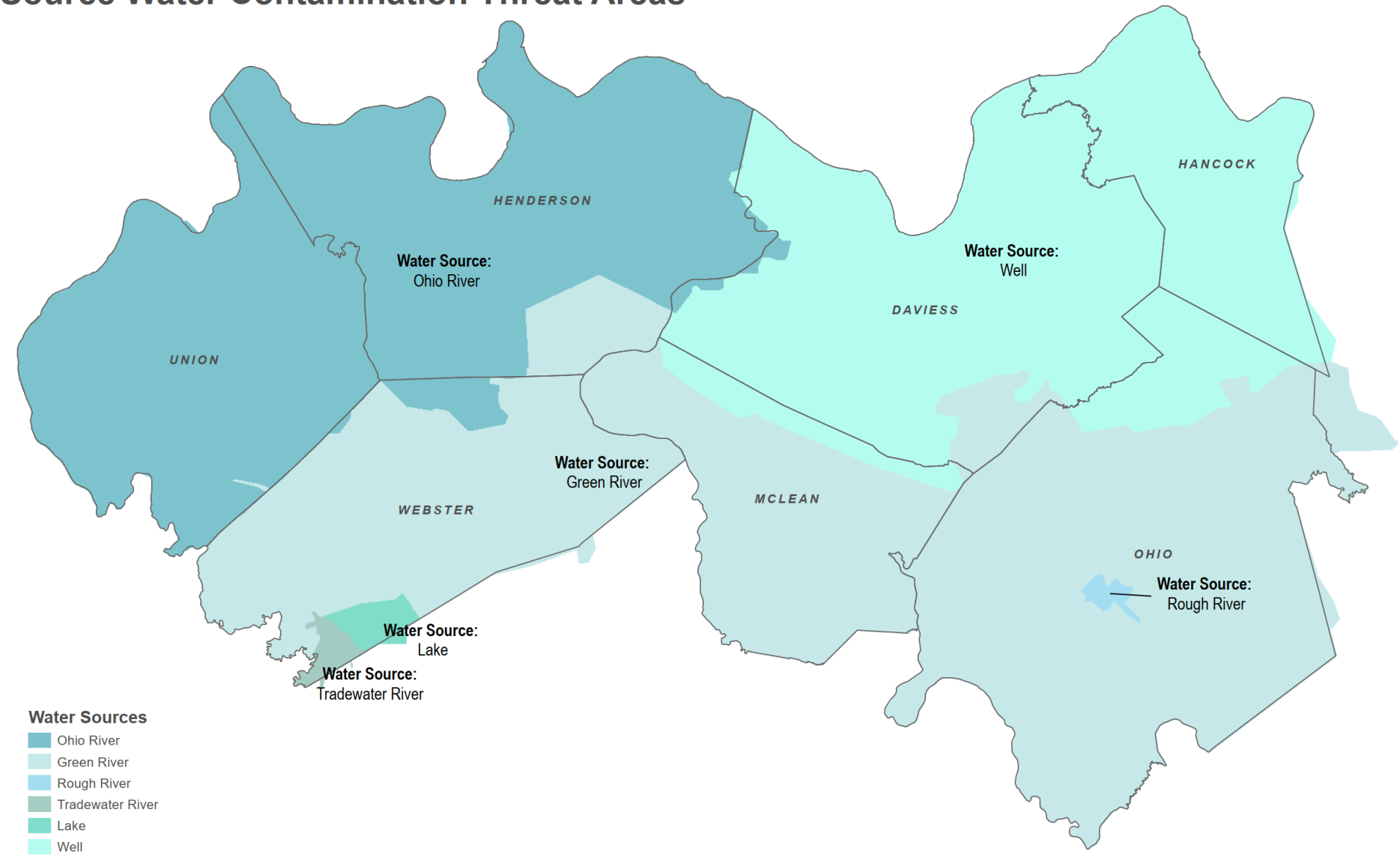
Step 6 – Data Analysis

ID	TYPE	Service Connections	Personel Primary	Personel Alternate	Personel Contingency	Personel Emergency
46	Drinking Water	2,315	Certified operator	Certified operator	Certified operator	Certified operator
36	Drinking Water	1,852	Certified operator	Certified operator	Certified operator	Certified operator
31	Drinking Water	13,700	Certified operator	Certified operator	Certified operator	Certified operator
24	Drinking Water	4,800	Certified operator	Certified operator	Certified operator	Certified operator
59	Drinking Water	11,261	Certified operator	Certified operator	Certified operator	Certified operator
60	Drinking Water	3	Certified operator	Certified operator	Certified operator	Certified operator
55	Drinking Water	1,133	Certified operator	Certified operator	Certified operator	Certified operator
15	Drinking Water	60,651	Certified operator	Certified operator	Certified operator	Certified operator
30	Drinking Water	2,130	Certified operator	Certified operator	Certified operator	Certified operator
57	Drinking Water	1,210	Certified operator	Certified operator	Certified operator	Certified operator
42	Drinking Water	1,650	Certified operator	Certified operator	Certified operator	Borrow Operator
39	Drinking Water	1,052	Certified operator	Certified operator	Certified operator	Borrow Operator
28	Drinking Water	1,650	Certified operator	Certified operator	Certified operator	Borrow Operator
51	Drinking Water	5	Certified operator	Certified operator	Certified operator	Operator in Training
52	Drinking Water	6,492	Certified operator	Certified operator	Certified operator	Operator in Training
67	Drinking Water	1,300	Certified operator	Certified operator	Retired Operator	Borrow Operator
19	Drinking Water	6,116	Certified operator	Certified operator	Certified operator	Uncertified Staff
49	Drinking Water	631	Certified operator	Certified operator	Borrow Operator	Borrow Operator
23	Drinking Water	465	Certified operator	Certified operator	Borrow Operator	Borrow Operator
17	Drinking Water	540	Certified operator	Certified operator	Borrow Operator	Retired Operator
63	Drinking Water	600	Certified operator	Certified operator	Borrow Operator	Retired Operator
44	Drinking Water	512	Certified operator	Certified operator	Uncertified Staff	Borrow Operator
20	Drinking Water	1,140	Certified operator	Certified operator	Borrow Operator	Uncertified Staff
25	Drinking Water	1,436	Certified operator	Operator in Training	Retired Operator	Uncertified Staff
40	Drinking Water	538	Certified operator	Borrow Operator	Borrow Operator	Borrow Operator
34	Drinking Water	565	Certified operator	Borrow Operator	Borrow Operator	Operator in Training
53	Drinking Water	465	Certified operator	Operator in Training	Borrow Operator	Borrow Operator
68	Drinking Water	272	Certified operator	Uncertified Staff	Borrow Operator	Borrow Operator
47	Drinking Water	809	Certified operator	Uncertified Staff	Uncertified Staff	Borrow Operator
32	Drinking Water	674	Certified operator	Borrow Operator	Borrow Operator	Uncertified Staff

Source Water & Water Treatment Plant Service Areas



Source Water Contamination Threat Areas



Step 7 – Community Meetings

- Community meetings were held in each county with the following stakeholders:
  - Water and wastewater system operators
  - Emergency management personnel
  - Elected officials (or their designated representatives)
- Limiting stakeholders ensured candid conversations could take place about gaps and vulnerabilities while also protecting proprietary, sensitive, or non-public data.
- After discussing gaps and vulnerabilities, stakeholders suggested project ideas that could be developed into local hazard mitigation strategies to increase the resilience of the water and wastewater sector supporting their community.

Step 8 – Regional Coordination

- Throughout the planning process, the GRADD Water Management Council and GRADD Hazard Mitigation Council was continually briefed on the purpose and progress of the planning activity.
- Regional coordination allowed communities to capitalize on best practices and adopt mitigation ideas from across the region.

Step 9 – Risk Assessment

- Natural Hazards:
  - Source water may be vulnerable to dam and levee failures and drought.
  - Flooding may impact source water if raw water intakes are silted over or damaged by flood debris.
  - Underground pipes are vulnerable natural hazards that causes ground movement such as: earthquakes, extreme temperatures, landslides, and land subsidence.
  - Tornados, severe thunderstorms, and straight-line winds can uproot trees and often damage buried pipe.
  - Above ground infrastructure components (water towers, treatment plants, communication components, etc.) are vulnerable to damage from tornados, severe thunderstorms, and earthquakes.
  - Pandemics impact critical personnel and add stress to water systems due to higher consumption rates.

Step 9 – Risk Assessment

Energy Sector Dependencies Drinking Water

- Less than half of utilities (47%) suppling drinking water in the GRADD region have backup power to mitigate the effects of a power outage.
- Only 57% of utilities with backup power in place can support all operations, while 43% would have degraded service to customers.

Energy Sector Dependencies Wastewater

- Most utilities (70%) have some mitigation capabilities.
- 44% can support all operations and 56% would experience degraded operations.
- Wastewater utilities may be easier to equip with backup power since portable generators can support multiple nodes.

Electric power is the primary vulnerability to water/wastewater infrastructure in the GRADD region.

Step 9 – Risk Assessment

- Transportation Sector Dependencies:
  - Twenty-eight utilities are dependent on chemicals for treatment and have, on average, a one-month supply of necessary product kept on hand. The minimum amount of inventory kept on hand was two weeks.
  - Ten acute vulnerabilities were identified where poor or limited access exists for critical system components as well as critical nodes that are regularly cut off due to flooding.

Step 9 – Risk Assessment

- Communication Sector Dependencies:
  - About half of utilities (47%) rely on SCADA to monitor and control all or portions of their systems.
  - Most water and wastewater infrastructure in the GRADD region was constructed before SCADA existed, therefore providing service to customers is still *possible* if the region experienced a disruption to communications infrastructure.
  - Workforce turn over and a loss of institutional knowledge can leave a system vulnerable to loss of service if manual back-up procedures are not documented and regularly exercised.

Step 9 – Risk Assessment

- Critical Personnel:
  - Title 401 of the Kentucky Administrative Regulations (KAR) mandates that certified operators have direct responsible charge of water and wastewater systems in order to safeguard the life, health, and welfare of the public and the environment.
  - Across the region, 50% of the water and wastewater utilities are protected from the loss of critical personnel, 20% are vulnerable, and 30% are at risk.

A robust professional network exists across the water and wastewater sector in the GRADD region, and many vulnerable utilities have relationships with neighboring systems who can supply critical personnel if the needs arises.

Step 9 – Risk Assessment

- Critical Nodes:
  - Eighty-five percent of water and wastewater utilities reported some type of critical node in their system that, if lost, would cause significant disruption to their ability to provide service or cause a full shutdown of the system.

A key takeaway from this planning process is to remove, to the extent possible, single points of failure within critical infrastructure systems and to harden (mitigate) nodes which are critical by nature.

Step 9 – Risk Assessment

- Case Study: Marion, KY
  - In April of 2022 inspectors discovered water at the toe of the dam for the city lake that served as the source water for the local water treatment plant
  - Days later a sinkhole appeared in the face of the dam which caused fears of a total failure to spread throughout the community.
  - Local officials decided to proactively breach the dam to reduce the water levels in the reservoir and relieve pressure on the dam.
  - The breach combined with a lack of rainfall, pushed the city into a water emergency lasting months.
  - Local and state officials were repeatedly at odds during this event, highlighting the need for proactive planning and coordination between officials at various levels of government about how to handle water emergencies before they occur.
  - This case study also serves as an example of a utility losing a critical node necessary to provide service to the public.

Step 9 – Risk Assessment

Source: Kentucky Energy And Environment Cabinet / Public Records

Step 9 – Risk Assessment

- Case Study: 2009 Western Kentucky Ice Storm
  - Over a period of several days the region received three to four inches of liquid equivalent precipitation, including two inches of ice.
  - The days immediately after the precipitation were cold and windy and lead to the largest power outage on record with 609,000 homes and businesses without power.
  - As communications and energy infrastructure failed due to power loss over 200,000 residents also lost water and/or wastewater service.
  - Emergency management resources were deployed to bring water systems back online as quickly as possible, but some rural utilities were without power for three weeks.
  - This event serves as an example of how a natural hazard event can trigger cascading impacts throughout critical infrastructure sectors.

Step 9 – Risk Assessment

Source: Owensboro Radio

Step 9 – Risk Assessment

- Summary:
  - Water emergencies can bring local communities to a standstill within hours and could trigger regional impacts if an incident impacts a water treatment plant or water sources.
  - Mitigation actions for the water and wastewater sector have focused on protection from its reliance on the energy sector by installing secondary power sources (generators).
  - Gaps and vulnerabilities of equal concern exist from interdependencies with the transportation and communications sectors.
  - Critical personnel and critical nodes within the water sector also warrant attention for future mitigation efforts.
  - A total of 72 new local hazard mitigation strategies are being added to the GRADD Hazard Mitigation Plan because of this planning effort.

Lessons Learned

IRPF

- The IRPF can be used across a variety of planning areas and can be easily scaled based on the available planning resources and the needs of the community.

Recommendations

- Be intentional about how you collect data and have a data security plan in place before you solicit data from stakeholders.
- Lean on existing relationships.
- Build new relationships.
- Engage the community.
- Think creatively.

Links

- CISA
  - Critical Infrastructure Sectors
  - Infrastructure Resiliency Planning Framework
  - IRPF Launchpoint
  - IRPF Case Study – Hazard Mitigation Planning in KY
- National Association of Development Organizations (NADO)
  - Tips from a Planner: Implementing the IRPF

GRADD

Green River Area Development District

CISA'S INFRASTRUCTURE RESILIENCE PLANNING FRAMEWORK (IRPF)

NADO Annual Training Conference

November 9, 2023

Agenda

- Introduce CISA's mission and activities
- Describe key critical infrastructure concepts
- Lay out the steps and tools included in the IRPF

Cybersecurity and Infrastructure Security Agency (CISA)

VISION

Secure and resilient infrastructure for the American people.

MISSION

Lead the national effort to understand, manage, and reduce risk to the nation's cyber and physical infrastructure.

CISA

STRATEGIC PLAN 2023–2025

GOAL 1

CYBER DEFENSE:

Spearhead the National Effort to Ensure Defense and Resilience of Cyberspace

GOAL 2

RISK REDUCTION & RESILIENCE:

Reduce Risks to, and Strengthen Resilience of, America's Critical Infrastructure

GOAL 3

OPERATIONAL COLLABORATION:

Strengthen Whole-of-Nation Operational Collaboration and Information Sharing

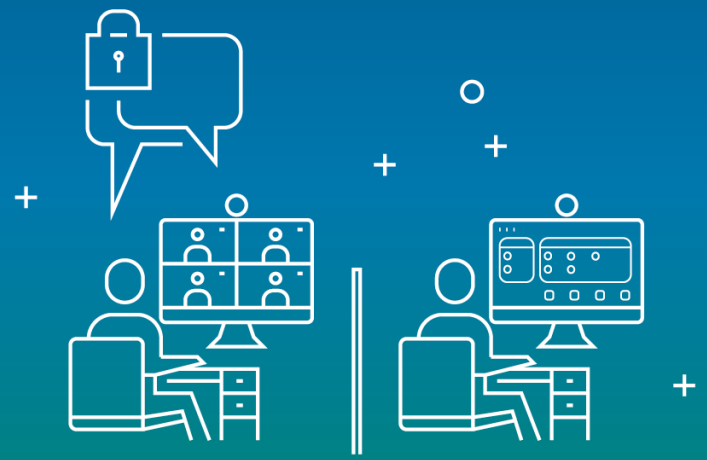
GOAL 4

AGENCY UNIFICATION:

Unify as One CISA Through Integrated Functions, Capabilities, and Workforce

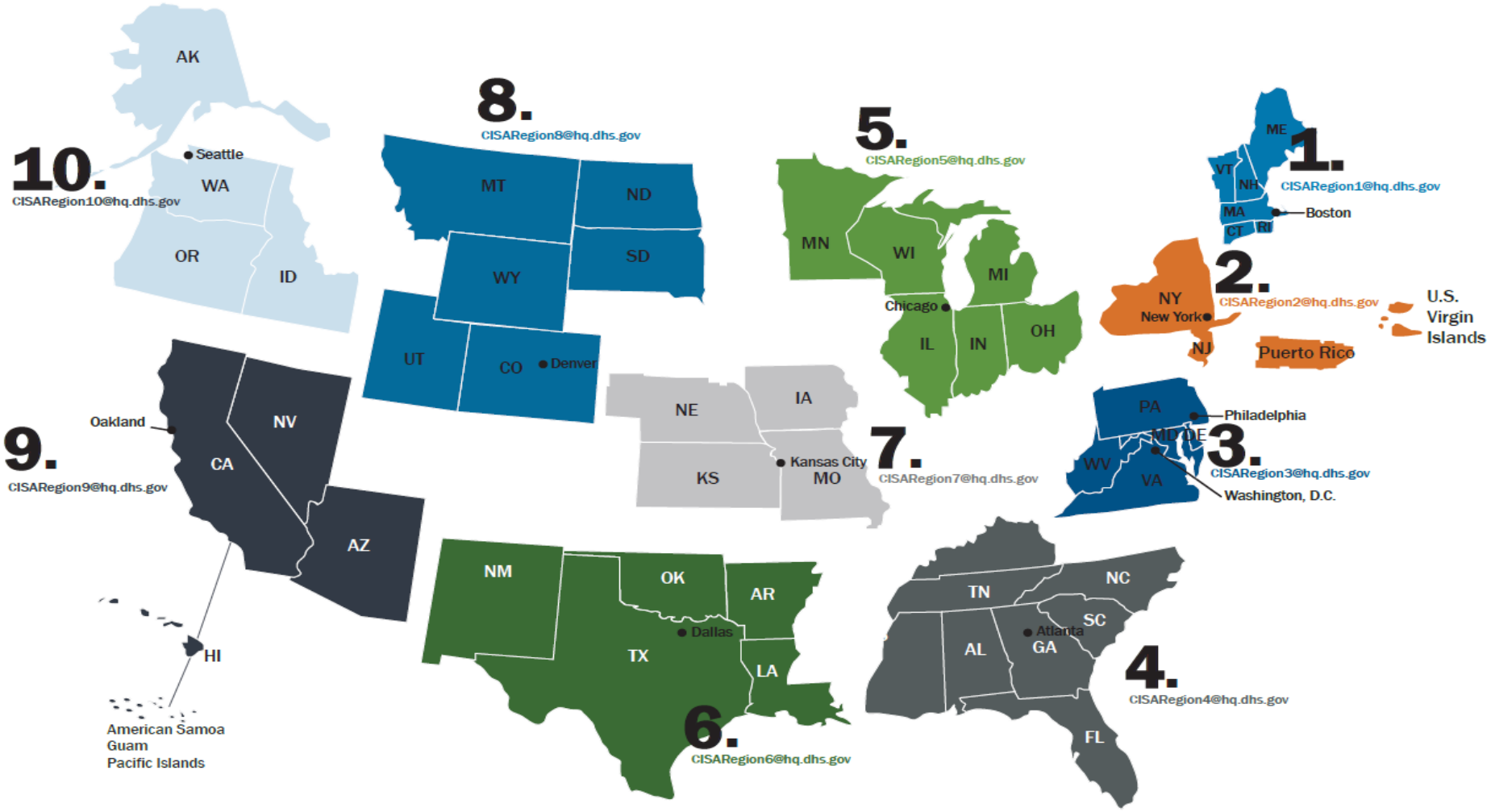
CISA's Core Capabilities

AT A GLANCE



- PARTNERSHIP DEVELOPMENT
- INFORMATION AND DATA SHARING
- CAPACITY BUILDING
- INCIDENT MANAGEMENT & RESPONSE
- RISK ASSESSMENT AND ANALYSIS
- NETWORK DEFENSE
- EMERGENCY COMMUNICATIONS

CISA Regional Offices and Outreach Staff



Courtesy of DHS

CISA Regional Operations

Information Sharing –

- Get data and alerts that support decision making
- Connect to government and industry partners
- Recognize and report suspicious activity
- Share best practices

Assessments – both Cybersecurity and Physical

Training – diverse curriculum designed to build core capabilities

Exercises – both Physical and Cyber Tabletop Exercise packages customized to your organization

CYBERSECURITY & INFRASTRUCTURE SECURITY AGENCY

Infrastructure Security Division

The Infrastructure Security Division (ISD) leads the coordinated effort to reduce risks posed to our critical infrastructure, whether from man-made or natural causes.

Resilience Planning Program

- Develop guidance & resources to support stakeholders to better plan for infrastructure resilience at the local and regional levels.

Critical Infrastructure

Critical Infrastructure: Systems and assets, whether physical or virtual, so vital that its incapacity or destruction may have a **debilitating impact** on the security, economy, public health or safety, environment, or any combination of these matters, **across any Federal, State, regional, territorial, or local jurisdiction**.

(Source: National Infrastructure Protection Plan 2013)

- **16 Sectors:** Critical Infrastructure Partnership Advisory Council of government and private sector members
- **National Infrastructure Protection Plan** & Partnership

Courtesy of DHS

Resilience Concepts

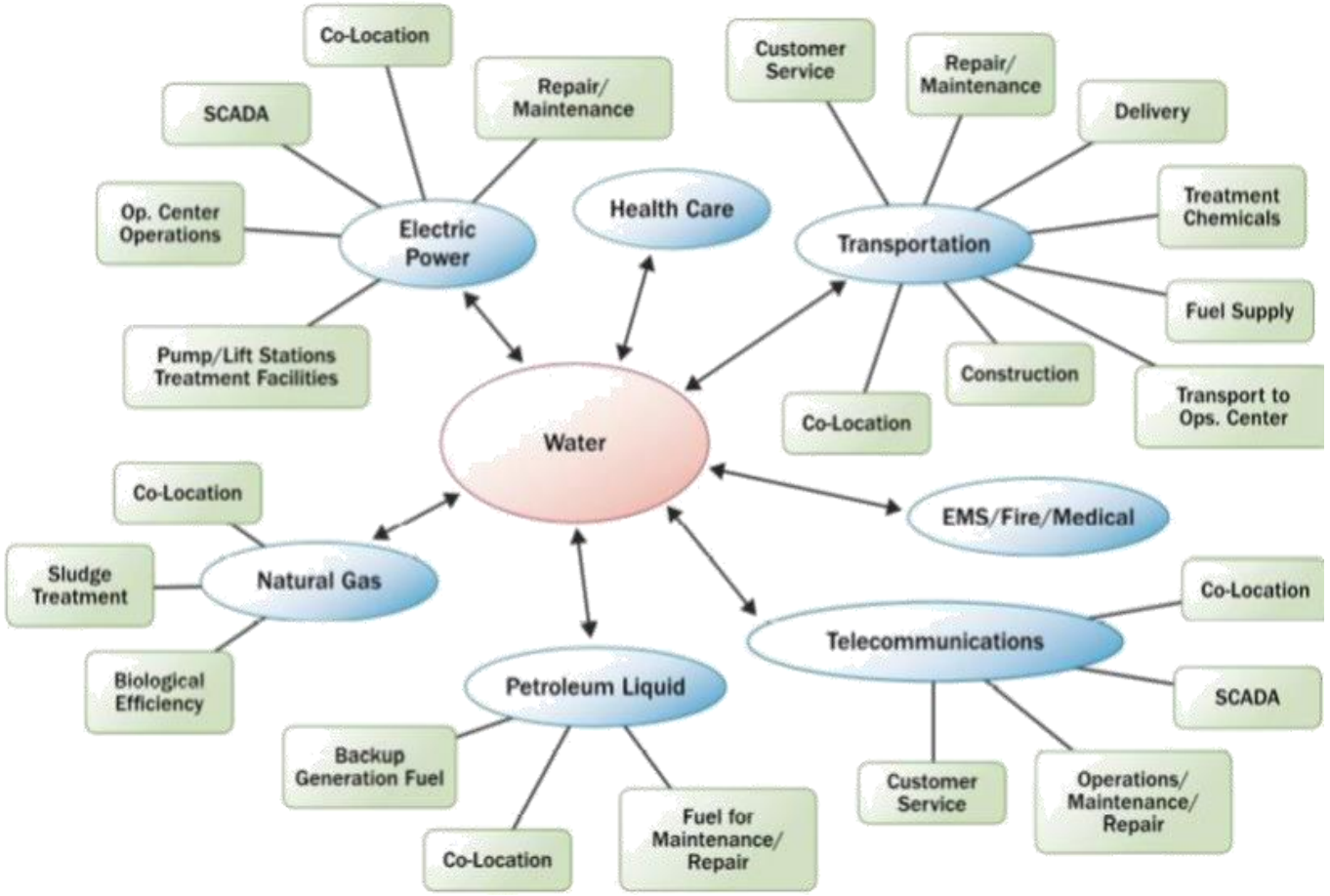
The ability to **prepare for** and **adapt to** changing conditions and to **withstand** and **recover** rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents.

(Presidential Policy Directive 21)

- **Resilience** is a property of systems rather than assets.
- Infrastructure systems are interdependent and enable community functions.
- **Resilience** goal is to maintain or restore function or services after a disruption without detrimental impacts.

Resilience Concepts

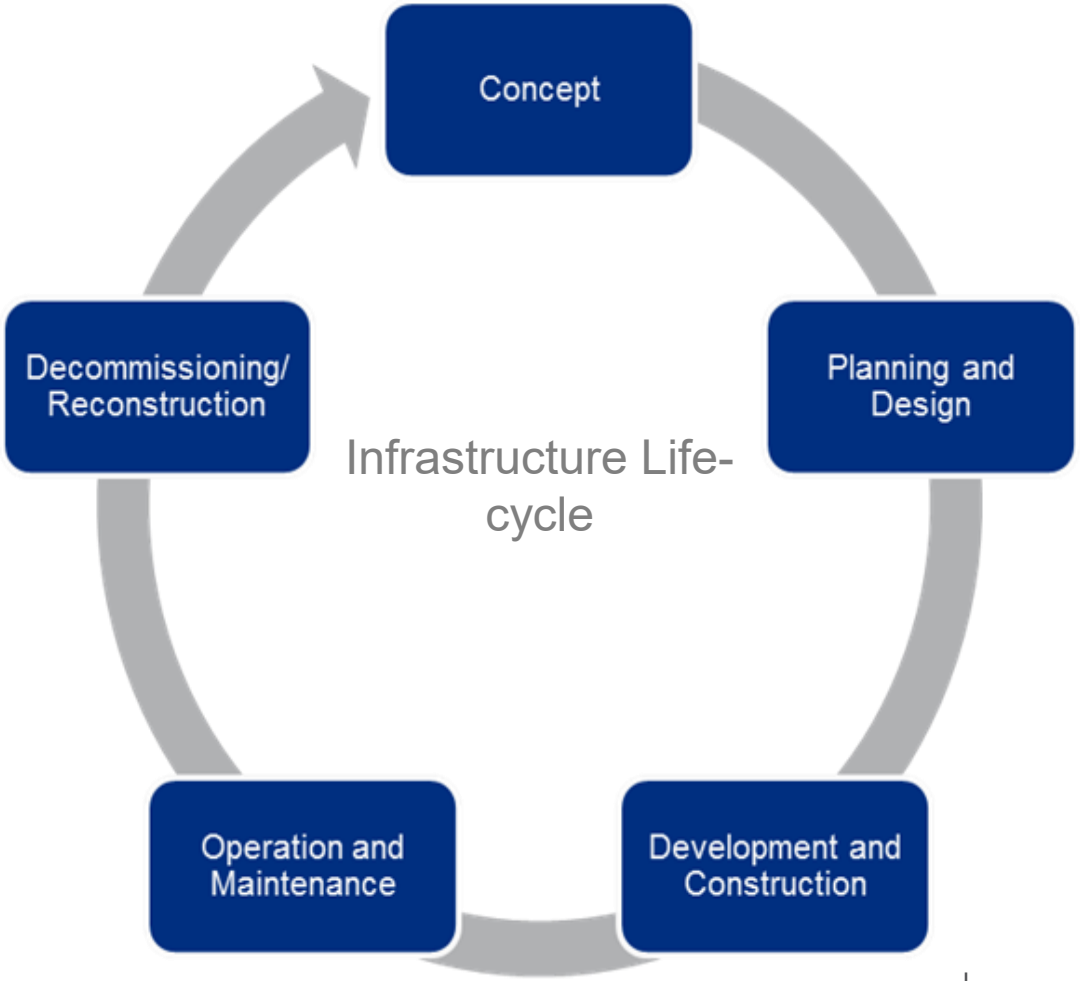
- Dependencies
- Cross-boundary interconnectedness
- Diverse stakeholders
- Information needs



Courtesy of DHS

The Issue

- SLTTGs are a critical part of the critical infrastructure system but most lack planning and development capacity
- A framework is needed to inform effective decisions leading to enhanced resilience that can be implemented through existing plans
- CISA can contribute critical infrastructure resilience knowledge and expertise at each step in the infrastructure life-cycle



An Identified Problem

Current planning not effectively leading to more resilient infrastructure

Planning
-Siloed planning requirements
-Jurisdictionally focused
-Asset concentrated
-Data/knowledge constrained
-Resource limited

→

Inaccurate Assumptions and/or Incomplete Analysis

→

Ineffective Solutions and/or No Action

Critical infrastructure security and resilience can benefit from the transfer of CISA knowledge, assessment, and planning capabilities to SLTTGs

Infrastructure Resilience Planning Framework

- Includes step-by-step planning guidance, templates, and other resources to inform long-term planning and investment decisions
- Five steps from stakeholder engagement to risk assessment and implementation
- Can be used in many different local and regional plans such as:
  - Hazard Mitigation Planning
  - Emergency Response Planning
  - Post-Disaster Recovery Planning

IRPF Process

Flexible Step-by-Step Guidance

Lay the Foundation

- Identify a project champion
- Define and scope the effort
- Collect & review information
- Form collaborative planning group
- Establish resilience goals

Identify Critical Infrastructure

- Identify infrastructure
- Prioritize infrastructure
- Identify dependencies among infrastructure systems

Assess Risk

- Identify threats and hazards to infrastructure
- Assess vulnerability of infrastructure
- Assess consequences to infrastructure systems
- Prioritize infrastructure system risks

Develop Actions

- Refine resilience goals and objectives
- Identify resilience solutions to mitigate risks
- Assess existing resources and capabilities
- Select resilience solutions for implementation
- Develop implementation strategies

Implement & Evaluate

- Implement through existing planning mechanisms
- Monitor, evaluate, and assess effectiveness
- Update plans

IRPF Integration into Existing Planning

Plan Type	IRPF Guidance and Resources can inform:
Hazard Mitigation Plan	▪ Infrastructure stakeholder identification ▪ Critical systems and services identification ▪ Planning goals & objectives ▪ Vulnerability and consequence analysis ▪ Project identification toward resilience ▪ Infrastructure investment priorities ▪ Development decisions ▪ Project prioritization ▪ Response and recovery activities/procedures
Comprehensive Economic Development Strategy (CEDS)	
Comprehensive or General Plan	
Capital Improvement Plan (CIP)	
Specific or Area Development Plan	
Emergency Operations or Emergency Response Plan	
Long-term Recovery Plan	

IRPF Benefits

- The dependency and co-benefit analysis is a way to help reprioritize mitigation actions. In the end, it leads to developing multi-faceted projects that address the total problem. *~ Kentucky Division of Emergency Management*
- The dependency questions that referenced community functions really "got them thinking" about backup services. It resulted in development of a project for backup power for lift stations – a tangible benefit of the facilitated discussion. *~ Green River Area Development District*
- Used the dependency questions to show the importance of drilling down to the utility level for public works mitigation. *~ Green River Area Development District*

Community Hazard Mitigation Planning Meeting, Green River Area Development District

IRPF Resources

General

- Methodology for Assessing Regional Infrastructure Resilience
- Alignment of IRPF to other federal planning processes

Lay the Foundation

- Planning participant information sheet
- Stakeholder invitation letter
- Data collection list
- Link to plan integration evaluation guidebook
- Sample goals and objectives

Identify Critical Infrastructure

- Infrastructure asset data matrix
- Online Infrastructure Dependency Primer
- HIFLD datasets for infrastructure
- Dependency identification worksheet
- Dependency discussion guides
  - Community systems discussion
  - System owner/operator interview
  - Meeting facilitation

Assess Risk

- Hazard information resource list
- Drought planning guide
- Summary of risk assessment methodologies

Develop Actions

- Sample capability assessment worksheet
- Mitigation alternatives evaluation guide
- Link to NIST economic decision guide software
- Resilient solutions strategy worksheet
- List of sources for resilience solution ideas

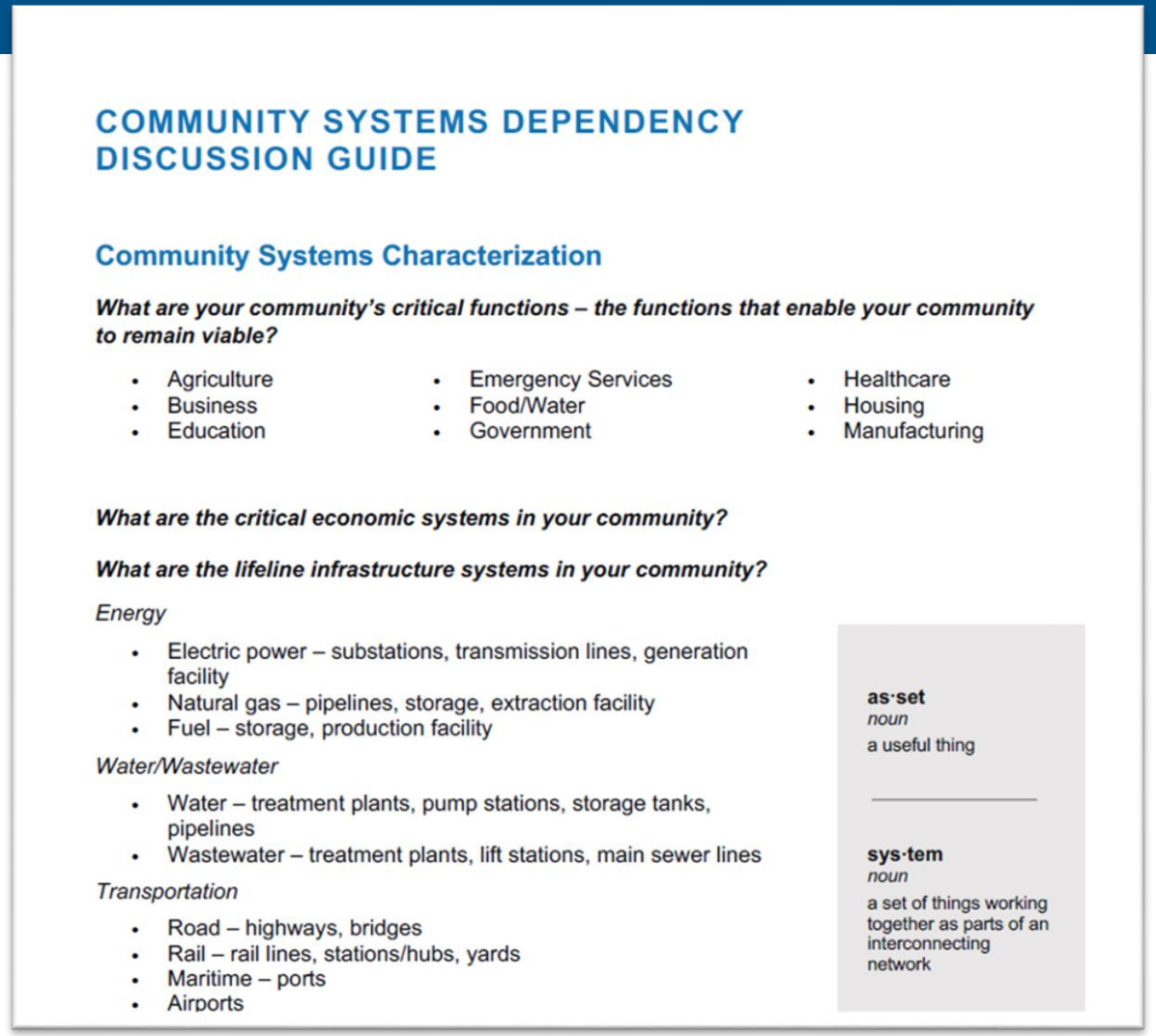
Implementation & Maintenance

- Inventory of funding opportunities (grants & loans)
- General recommendations for plan integration

Participation

Community Systems Dependency Discussion Guide

- Help community members think about the systems that support and impact them
- Gives community members the language to communicate with system owners and operators



COMMUNITY SYSTEMS DEPENDENCY DISCUSSION GUIDE

Community Systems Characterization

What are your community's critical functions – the functions that enable your community to remain viable?

- Agriculture
- Business
- Education
- Emergency Services
- Food/Water
- Government
- Healthcare
- Housing
- Manufacturing

What are the critical economic systems in your community?

What are the lifeline infrastructure systems in your community?

Energy

- Electric power – substations, transmission lines, generation facility
- Natural gas – pipelines, storage, extraction facility
- Fuel – storage, production facility

Water/Wastewater

- Water – treatment plants, pump stations, storage tanks, pipelines
- Wastewater – treatment plants, lift stations, main sewer lines

Transportation

- Road – highways, bridges
- Rail – rail lines, stations/hubs, yards
- Maritime – ports
- Airports

as·set
noun
a useful thing

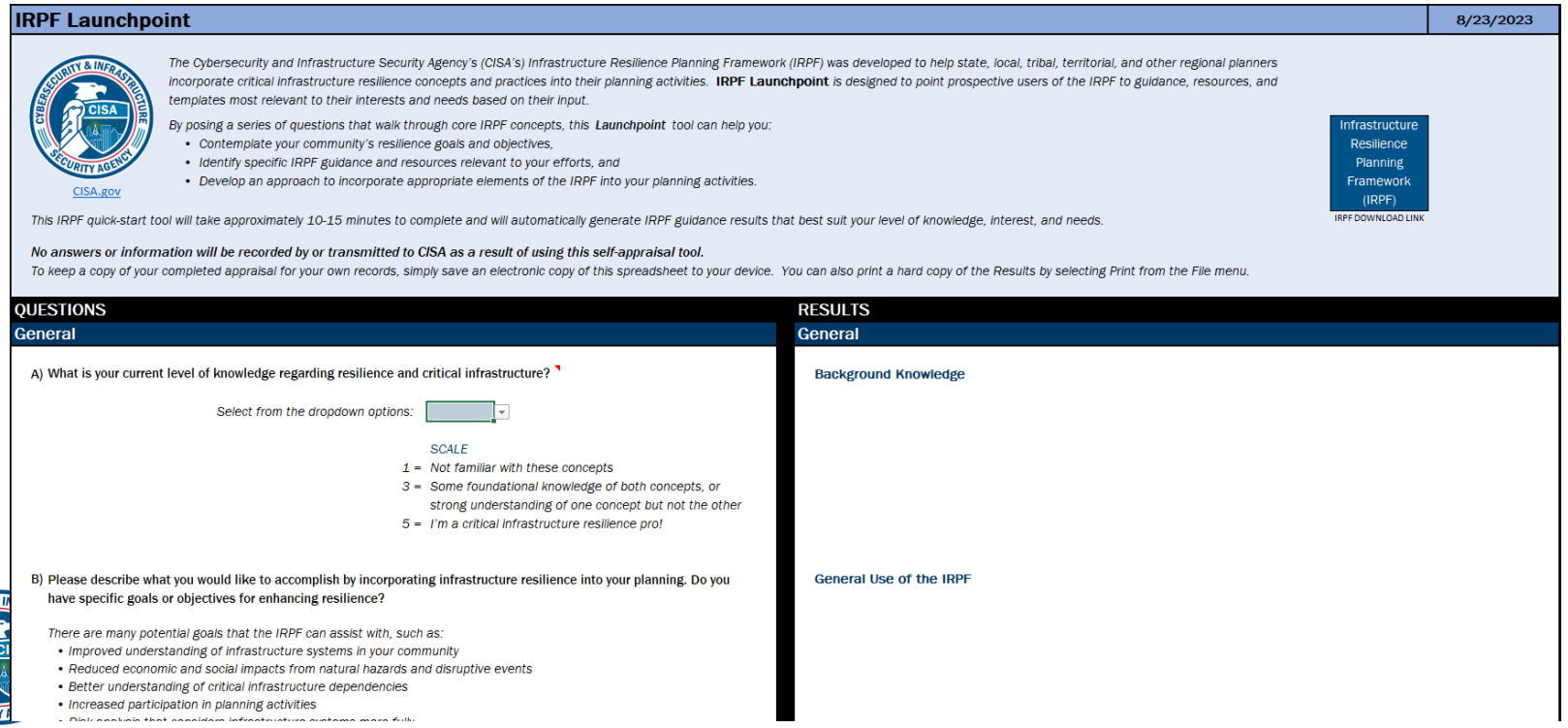
sys·tem
noun
a set of things working together as parts of an interconnecting network

Additional Resource:

IRPF Launchpoint

www.cisa.gov/resources-tools/resources/irpf-launchpoint

- An IRPF quick-start tool (approx. 10-15 minutes to complete)
- Automatically generates IRPF guidance that best suits the user's level of knowledge, interest, and needs



IRPF Launchpoint 8/23/2023

CISA.gov

The Cybersecurity and Infrastructure Security Agency's (CISA's) Infrastructure Resilience Planning Framework (IRPF) was developed to help state, local, tribal, territorial, and other regional planners incorporate critical infrastructure resilience concepts and practices into their planning activities. ***IRPF Launchpoint*** *is designed to point prospective users of the IRPF to guidance, resources, and templates most relevant to their interests and needs based on their input.*

By posing a series of questions that walk through core IRPF concepts, this ***Launchpoint*** *tool can help you:*

- *Contemplate your community's resilience goals and objectives,*
- *Identify specific IRPF guidance and resources relevant to your efforts, and*
- *Develop an approach to incorporate appropriate elements of the IRPF into your planning activities.*

Infrastructure Resilience Planning Framework (IRPF)

IRPF DOWNLOAD LINK

This IRPF quick-start tool will take approximately 10-15 minutes to complete and will automatically generate IRPF guidance results that best suit your level of knowledge, interest, and needs.

No answers or information will be recorded by or transmitted to CISA as a result of using this self-appraisal tool.
To keep a copy of your completed appraisal for your own records, simply save an electronic copy of this spreadsheet to your device. You can also print a hard copy of the Results by selecting Print from the File menu.

QUESTIONS | **RESULTS**

General | **General**

A) What is your current level of knowledge regarding resilience and critical infrastructure?

Select from the dropdown options:

SCALE
1 = Not familiar with these concepts
3 = Some foundational knowledge of both concepts, or strong understanding of one concept but not the other
5 = I'm a critical infrastructure resilience pro!

Background Knowledge

B) Please describe what you would like to accomplish by incorporating infrastructure resilience into your planning. Do you have specific goals or objectives for enhancing resilience?

There are many potential goals that the IRPF can assist with, such as:

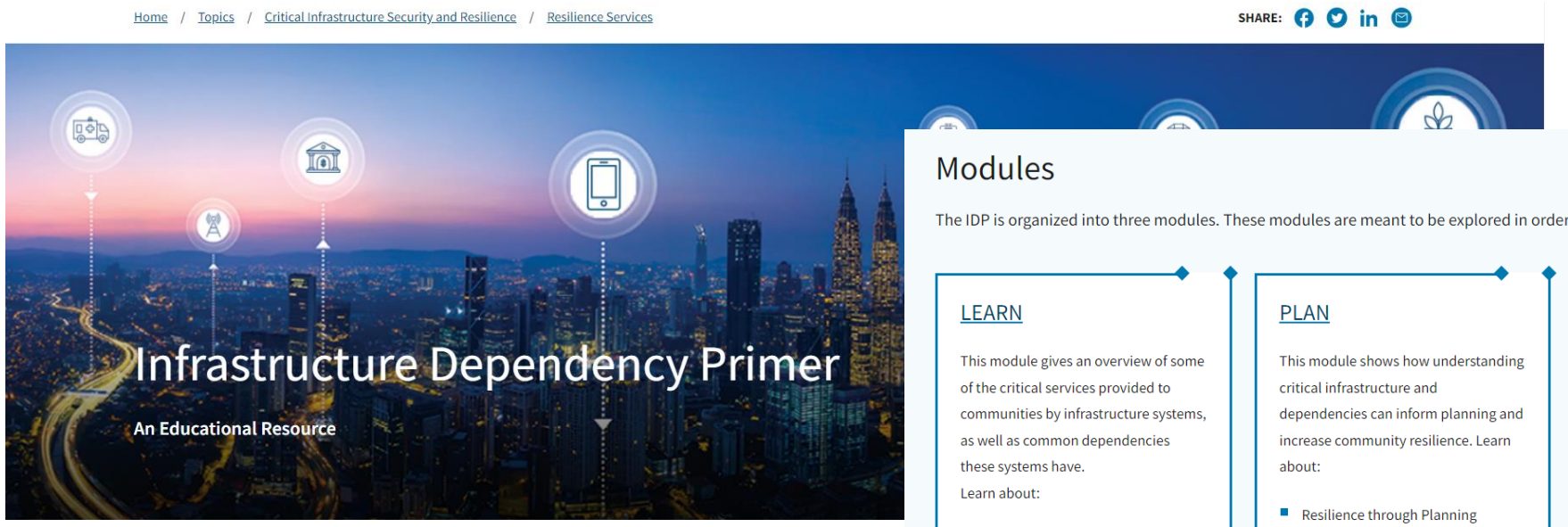
- *Improved understanding of infrastructure systems in your community*
- *Reduced economic and social impacts from natural hazards and disruptive events*
- *Better understanding of critical infrastructure dependencies*
- *Increased participation in planning activities*

General Use of the IRPF

Additional Resource:

Infrastructure Dependency Primer

www.cisa.gov/idp



Modules

The IDP is organized into three modules. These modules are meant to be explored in order or referenced individually based on your current knowledge, interests, and needs.

LEARN

This module gives an overview of some of the critical services provided to communities by infrastructure systems, as well as common dependencies these systems have.
Learn about:

- Communities as Systems
- What are Dependencies?
- A Closer Look

PLAN

This module shows how understanding critical infrastructure and dependencies can inform planning and increase community resilience. Learn about:

- Resilience through Planning
- Stakeholder Involvement
- Dependency Assessment
- Integration into Plans

IMPLEMENT

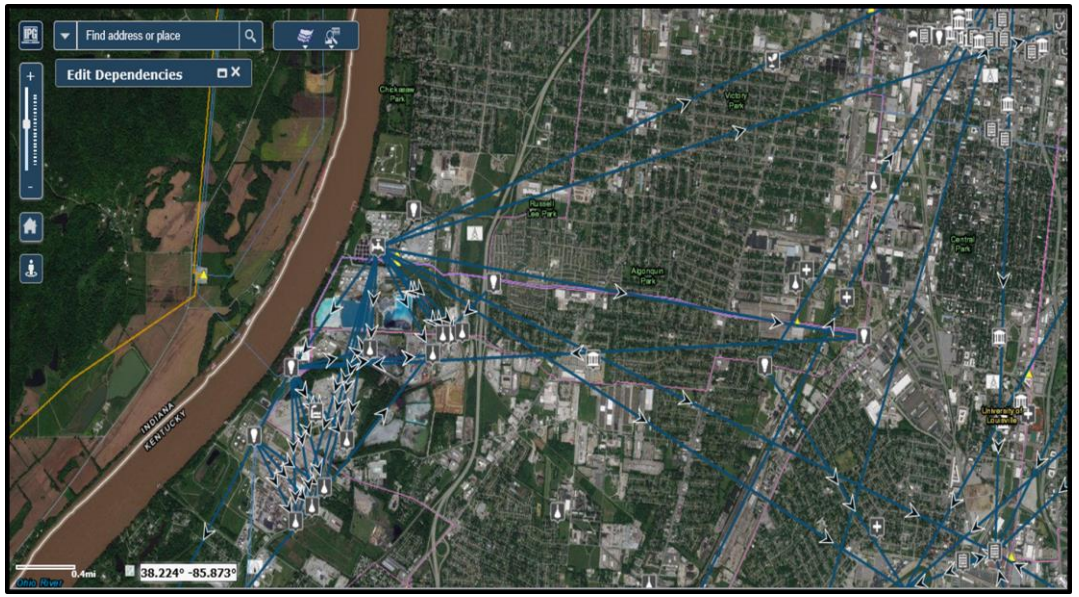
This module identifies example mitigation measures, case studies, and best practices that can be used to help manage dependencies and increase community resilience.
Learn about:

- Resilience Solutions
- Case Studies
- Best Practices
- Resources

Importance of Regional Districts

- Infrastructure transcends local boundaries
  - Shared infrastructure dependencies/interdependencies
  - Single infrastructure systems at regional scale

  Examples:
  - Ports/multimodal transportation systems
  - Electrical grid
  - Regional water/wastewater systems that serve more than one locality and are essential for development or recovery



Courtesy of DHS

- Rural and metropolitan regional districts are logical partners for integrating hazard mitigation into other plans and funding proposals

Conclusion

CISA's **Infrastructure Resilience Planning Framework (IRPF) –**

- Useful infrastructure resilience planning guidance and resources
- Tested application for effective local hazard mitigation planning

Download the IRPF from CISA's *Resilience Planning Program* webpage today!
https://www.cisa.gov/resources-tools/programs/resilience-planning-program

- IRPF resources are hyperlinked within the document
- Supplemental resources are also available on the webpage – IRPF Launchpoint, Infrastructure Dependency Primer, and others
- Additional resources are in development – case studies, introductory videos, a playbook

For more information:

Visit CISA's Resilience Planning webpage at https://www.cisa.gov/resources-tools/programs/resilience-planning-program

Questions?

Email: Resilience_Planning@cisa.dhs.gov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