Novel Methodologies to Identify Potential Duplication, Overlap, and Fragmentation

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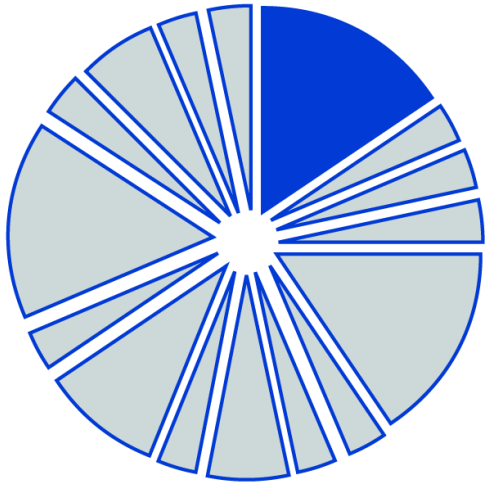
Learning Objectives

Various novel methodologies can sometimes be used to identify or determine the extent of duplication, overlap, or fragmentation of government programs. After this session, attendees will be able to:

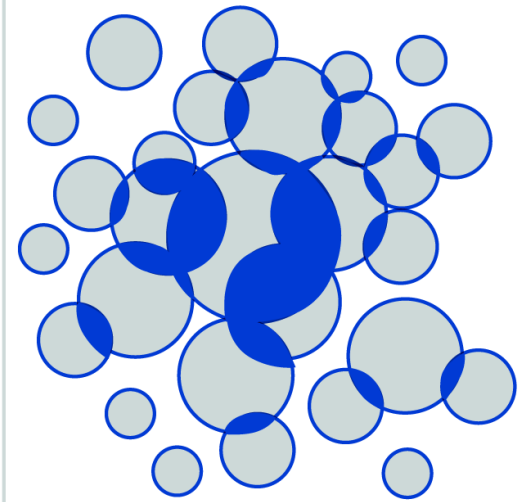
- Identify whether certain “novel” methodologies may be used to identify potential duplication, overlap, or fragmentation of government programs; and
- Design a program evaluation that uses one of these methodologies.

Definitions of Fragmentation, Overlap, and Duplication

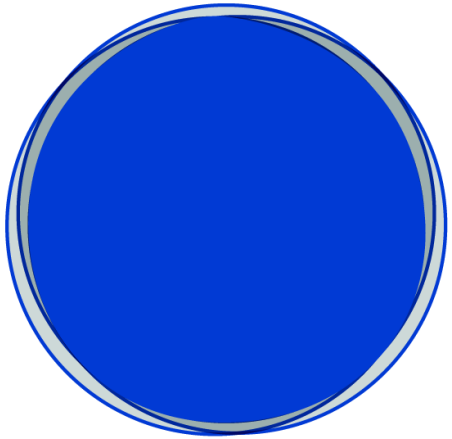
Fragmentation refers to those circumstances in which more than one federal agency (or more than one organization within an agency) is involved in the same broad area of national need and opportunities exist to improve service delivery.



Overlap occurs when multiple agencies or programs have similar goals, engage in similar activities or strategies to achieve them, or target similar beneficiaries.



Duplication occurs when two or more agencies or programs are engaged in the same activities or provide the same services to the same beneficiaries.

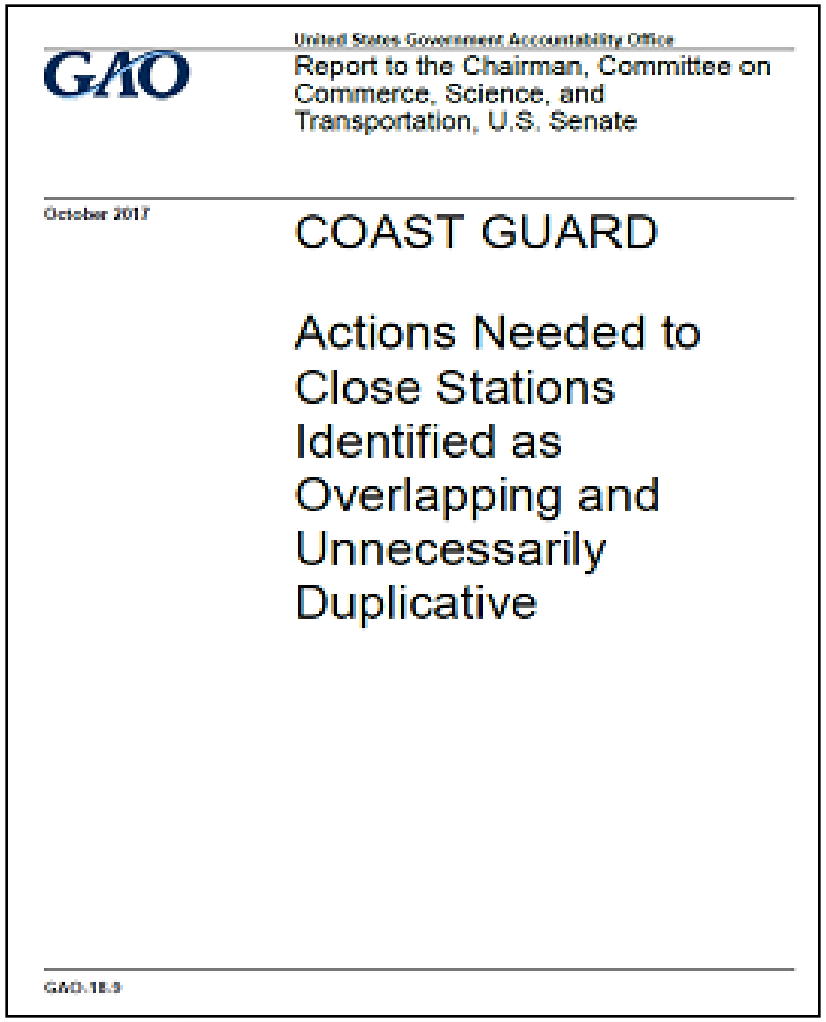


Source: GAO. | GAO-18-371SP

Methodologies

1. Overlap: Use of Geographic Information Systems (GIS) analysis to identify overlap among Coast Guard boat and air stations' coverage (GAO-18-9).
2. Fragmentation (within an agency): Use of spatial analysis to optimize easement acquisitions for migratory bird habitat in the Prairie Pothole region (GAO-07-1093).
3. Fragmentation (among agencies): Use of network analysis to show the need for enhanced coordination among federal agencies providing drinking water and wastewater infrastructure assistance to tribes (GAO-18-309).
4. Duplication: Use of systematic content analysis to identify duplication in Department of Homeland Security vulnerability assessments (GAO-14-507).

Overlap: Coast Guard Boat and Air Stations



United States Government Accountability Office

Report to the Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate

October 2017

COAST GUARD

Actions Needed to Close Stations Identified as Overlapping and Unnecessarily Duplicative

GAO-18-9

Overlap: Coast Guard Boat and Air Stations

What we evaluated

- The Coast Guard is the principal federal agency charged with preventing loss of life, injury, and property damage in the maritime environment through its search and rescue (SAR) mission.
- The Coast Guard maintains boat stations, air stations, and air facilities—with assets such as boats, helicopters, and fixed wing aircraft—along U.S. coasts and inland waterways.
- The Coast Guard considers some overlap or redundancy in its SAR response capability as necessary to account for such things as operational challenges and the need for surge capacity to respond to certain incidents.
- Annual Coast Guard SAR caseloads decreased from about 32,000 cases per year in 2004 to about 17,000 in 2016—a reduction of 47 percent.
- GAO was asked to review whether the Coast Guard's efforts to optimize station locations and allocate resources were sound (i.e., defensible).

Overlap: Coast Guard Boat and Air Stations

How we did it

- We obtained and analyzed Coast Guard boat station, air station, and facility locations and used a mapping program to visually depict potentially overlapping coverage provided by boat and aviation assets.
- The Coast Guard had existing analyses we could leverage and corroborate.
  - Coast Guard Search and Rescue Visual Analytics (cgSARVA) system—an analysis program to visually analyze potential risks associated with station closures such as response time, potential lives, and property lost
  - Aviation Capability and Capacity Assignment Module (ACCAM), an optimization model for Coast Guard air stations to maximize aircraft performance or minimize costs.
- Based on the Coast Guard's standards and their prior analyses, we used a mapping program to visually depict potentially overlapping coverage provided by boat and aviation assets.

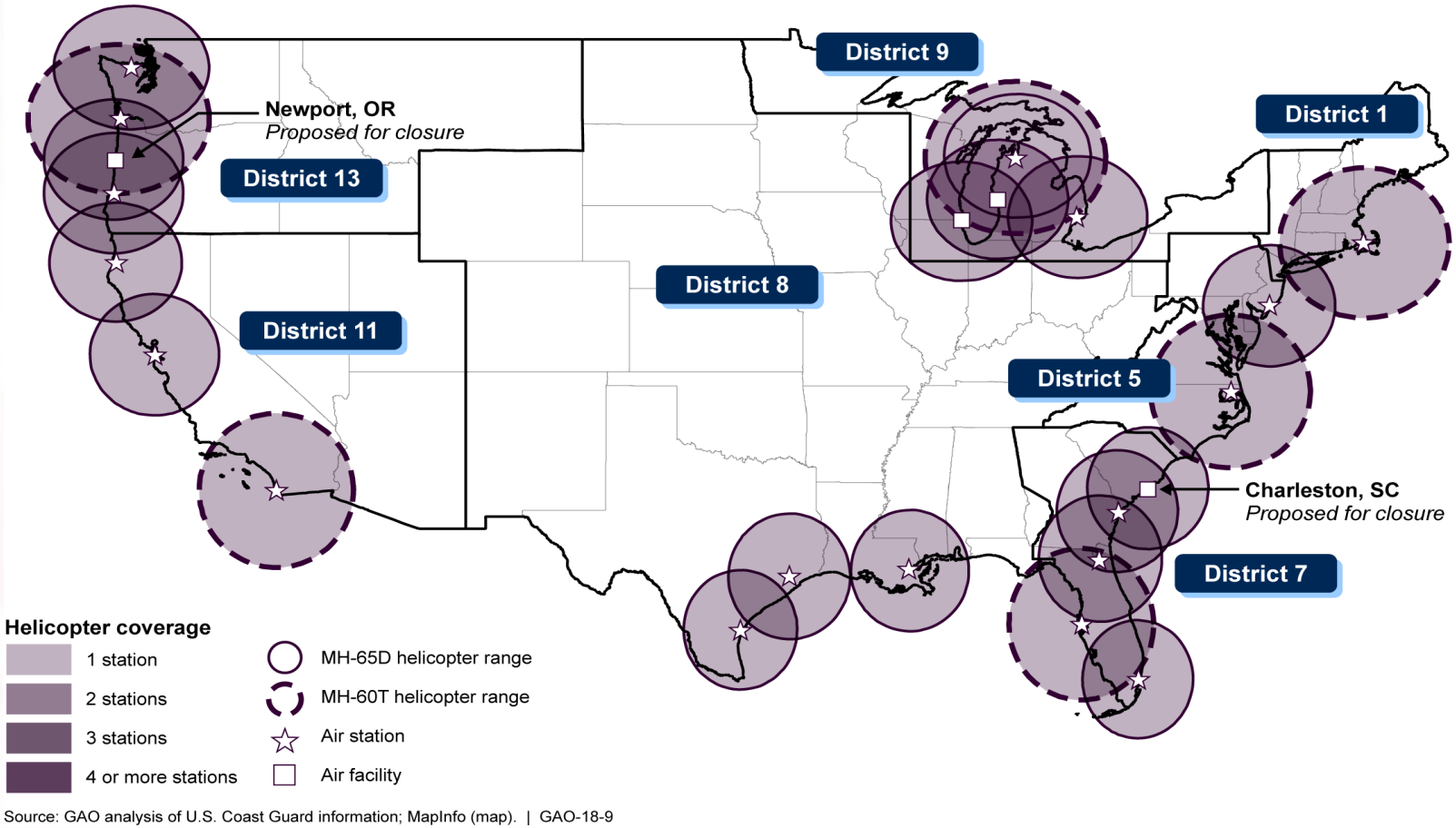
Overlap: Coast Guard Boat and Air Stations

What we found: Extent of SAR Boat Station Coverage in Districts 1, 5, and 9

Source: GAO analysis of U.S. Coast Guard information; MapInfo (maps). | GAO-18-9

Overlap: Coast Guard Boat and Air Stations

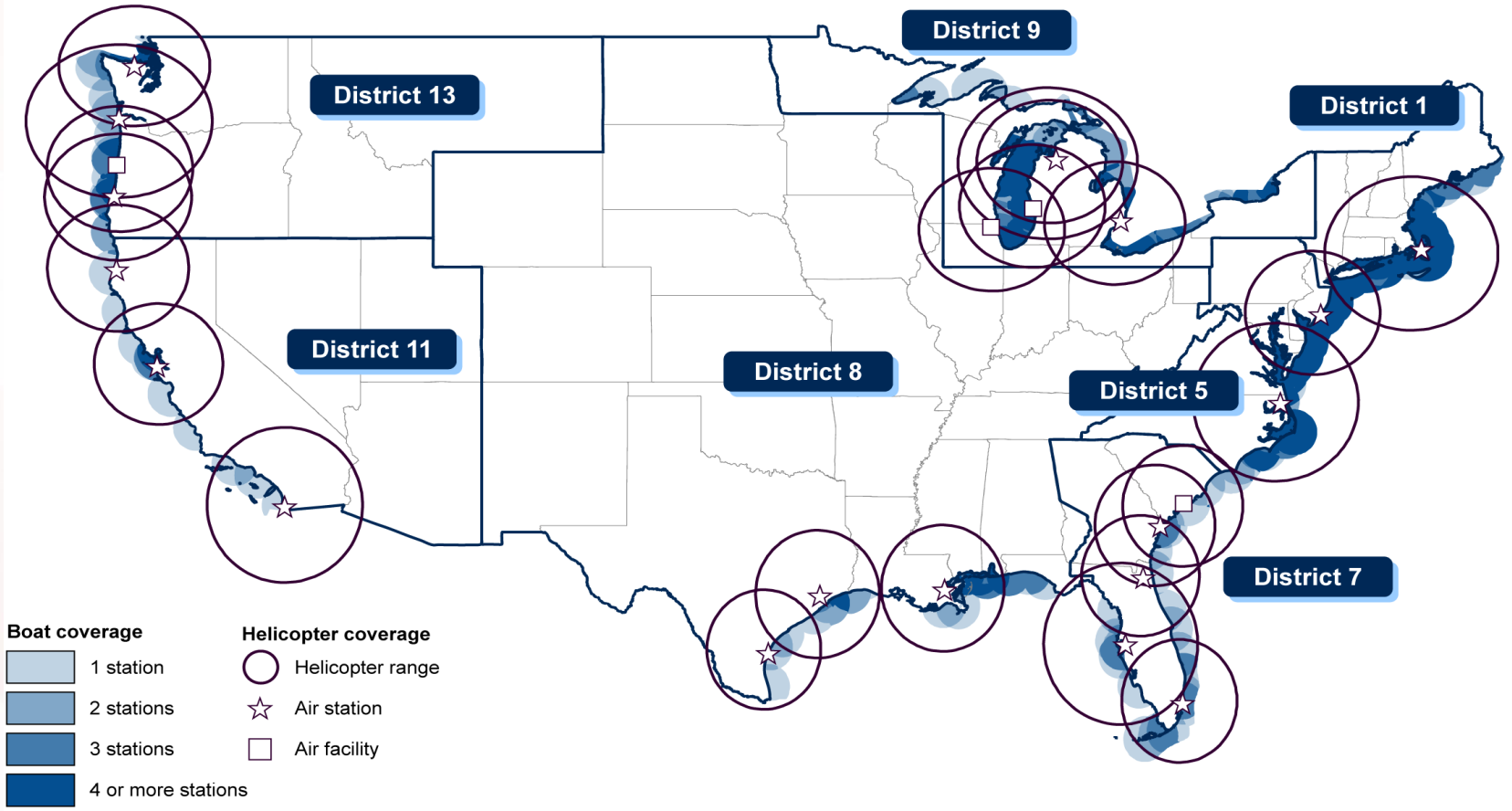
What we found: Coast Guard Helicopter Coverage



Source: GAO analysis of U.S. Coast Guard information; MapInfo (map). | GAO-18-9

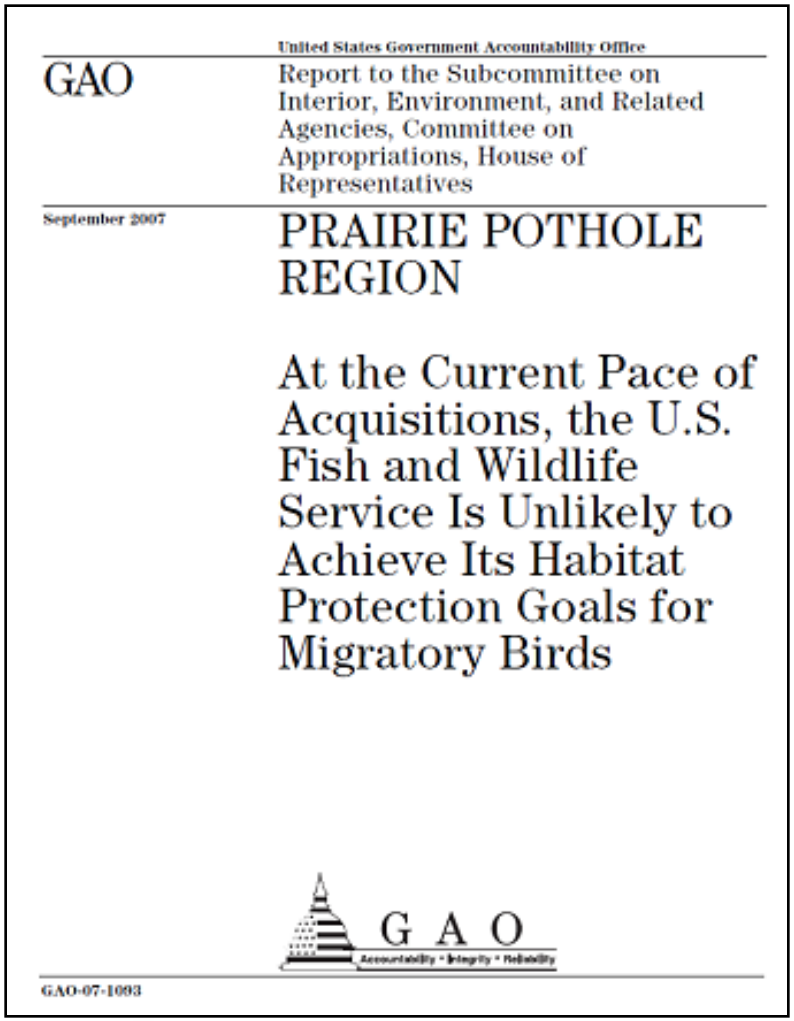
Overlap: Coast Guard Boat and Air Stations

What we found: Coast Guard SAR Coverage Provided by all stations



Source: GAO analysis of U.S. Coast Guard information; MapInfo (map). | GAO-18-9

Fragmentation (within an agency): Migratory Bird Habitat in the Prairie Pothole Region



United States Government Accountability Office

GAO

Report to the Subcommittee on Interior, Environment, and Related Agencies, Committee on Appropriations, House of Representatives

September 2007

PRAIRIE POTHOLE REGION

At the Current Pace of Acquisitions, the U.S. Fish and Wildlife Service Is Unlikely to Achieve Its Habitat Protection Goals for Migratory Birds

GAO

Accountability * Integrity * Reliability

GAO-07-1093

GAO

Fragmentation: Migratory Bird Habitat in the Prairie Pothole Region

What we evaluated

- Prairie wetlands, or “potholes,” are freshwater depressions and marshes that were created by glaciers thousands of years ago. Before European settlement, the 64-million-acre Prairie Pothole Region was one of the largest grassland-wetland ecosystems in the world.
- Throughout the 20th century, the draining of wetlands and the conversion of native prairie to cropland reduced breeding habitat for migratory birds.
- Under the Small Wetlands Acquisition Program, the Department of the Interior’s Fish and Wildlife Service (FWS) aims to sustain remaining migratory bird populations by acquiring critical breeding habitat in perpetuity.
- We examined the status and goals of the FWS’s Small Wetlands Acquisition Program in the Prairie Pothole Region and challenges to achieving these goals.

Fragmentation: Migratory Bird Habitat in the Prairie Pothole Region

How we did it

- We used computer mapping software to analyze grassland easements that the FWS recently acquired by translating a digital map of the habitat priority zones into MapInfo Geographic Information System software.
  - We plotted the boundaries of grassland easements that FWS acquired in South Dakota between January 1, 2002, and September 30, 2006, and used MapInfo software to identify the habitat priority zone in which each of these easements is located.
  - For each easement, we calculated the cost per acre that FWS paid to acquire the property by combining data on habitat priority zones with data on easement purchase amounts.
- We performed an optimization analysis on 450 grassland easements that FWS acquired in 2002 through 2006 to determine if opportunities existed to spend funds more efficiently by more effectively targeting low-cost, high-priority habitats.

Fragmentation: Migratory Bird Habitat in the Prairie Pothole Region

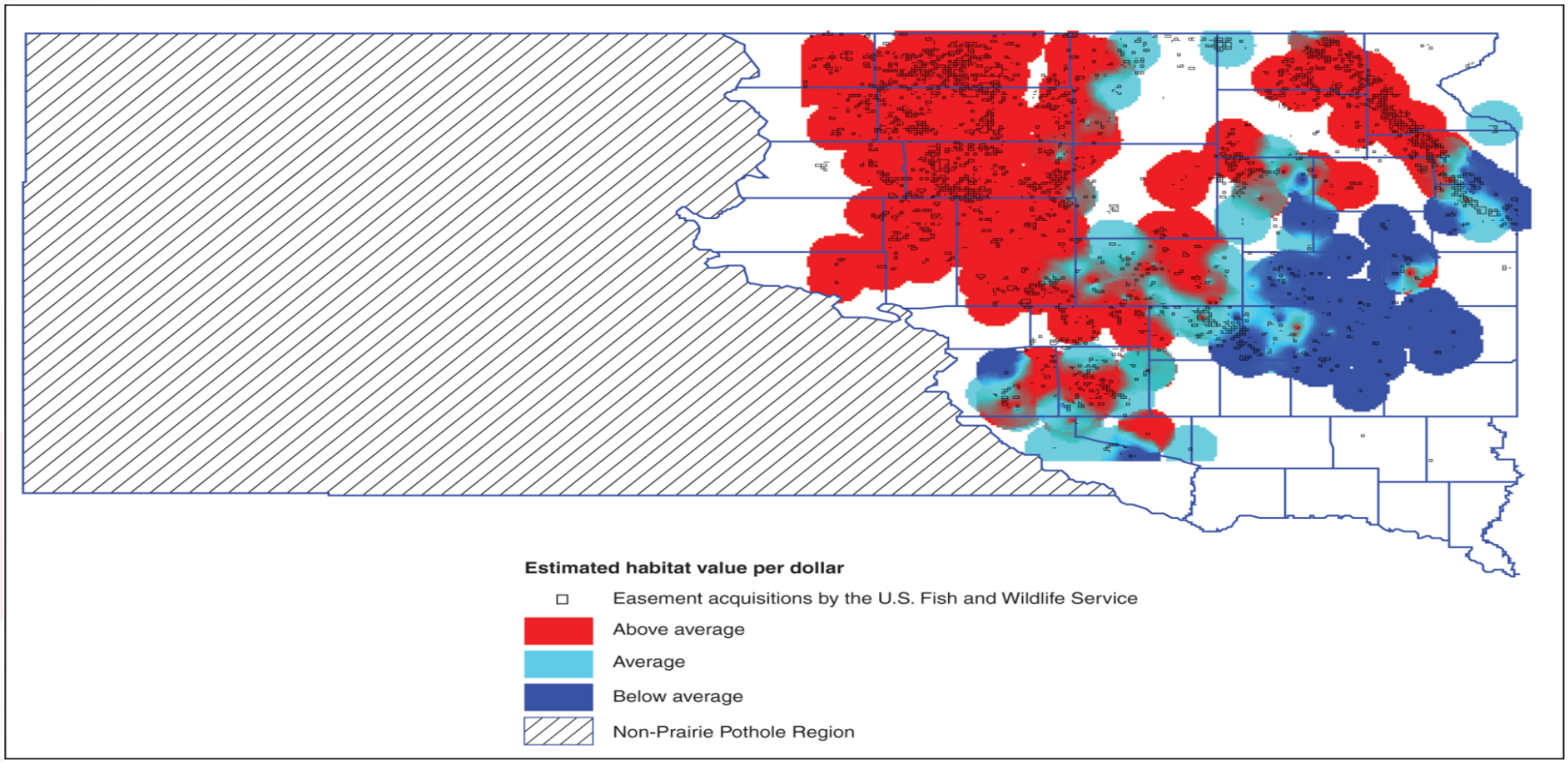
What we found: Cost in relation to habitat value

Cost per acre	Habitat priority zone (maximum number of duck pairs per square mile with access to grassland easements)			
	Low (<20)	Medium low (20–39)	Medium high (40–59)	High (60 or more)
Greatly below average	None	11 easements 2,524 acres $115 per acre $282,975	13 easements 2,894 acres $120 per acre $344,375	88 easements 32,798 acres $102 per acre $3,348,745
Somewhat below average	3 easements 946 acres $149 per acre $137,610	9 easements 4,031 acres $184 per acre $842,600	22 easements 3,911 acres $160 per acre $652,545	79 easements 21,818 acres $181 per acre $3,743,215
Somewhat above average	2 easements 404 acres $272 per acre $109,050	10 easements 1,633 acres $292 per acre $539,845	11 easements 1,911 acres $359 per acre $707,765	76 easements 24,276 acres $276 per acre $6,730,924
Greatly above average	2 easements 144 acres $600 per acre $87,975	22 easements 4,172 acres $558 per acre $2,213,200	28 easements 3,753 acres $662 per acre $2,294,180	60 easements 13,168 acres $506 per acre $6,227,710

Source: GAO analysis of U.S. Fish and Wildlife Service data.

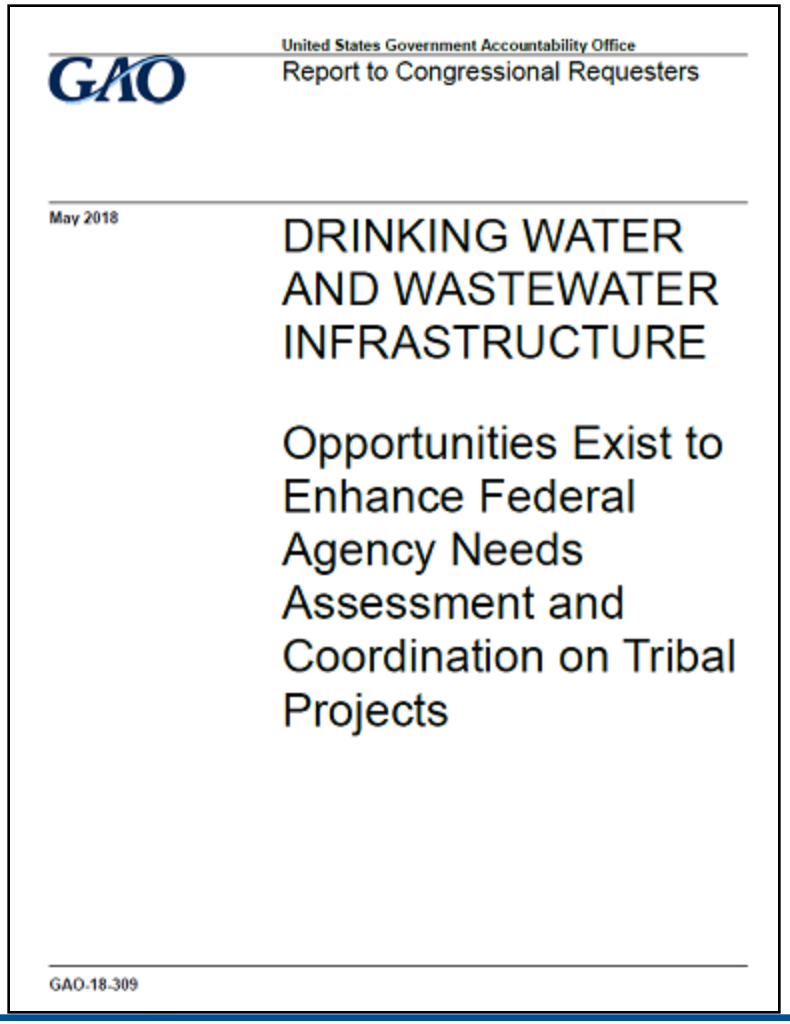
Fragmentation: Migratory Bird Habitat in the Prairie Pothole Region

What we found: Estimated habitat value per dollar for grassland easement acquisitions



Source: GAO analysis of U.S. Fish and Wildlife Service data.

Fragmentation (among agencies): Drinking water and wastewater infrastructure



United States Government Accountability Office

Report to Congressional Requesters

May 2018

DRINKING WATER AND WASTEWATER INFRASTRUCTURE

Opportunities Exist to Enhance Federal Agency Needs Assessment and Coordination on Tribal Projects

GAO-18-309

Fragmentation: Drinking water and wastewater infrastructure

What we evaluated

- Tens of thousands of American Indians and Alaska Natives do not have safe, potable water available in their homes for drinking, cooking, and cleaning, or adequate facilities to safely dispose of wastewater, according to the Department of Health and Human Services' Indian Health Service (IHS).
- Seven federal agencies administer programs that provide drinking water and wastewater infrastructure assistance to Indian tribes.
- The types of assistance these agencies provide vary by program, and each program has its own eligibility requirements and authorities.
- GAO was asked to review federal efforts to provide drinking water and wastewater assistance to Indian tribes, including interagency collaboration efforts.

Fragmentation: Drinking water and wastewater infrastructure

How we did it

- To quantify the extent of interagency collaboration during the past 3 years and the potential for future collaboration among the federal agencies we surveyed, we conducted a Network Analysis—a method of analyzing the patterns of interaction among multiple entities.
  - We surveyed the agencies and aggregated the survey responses about drinking water and wastewater activities, including recent and potential future collaborative mechanisms for each pair of agencies.
  - We configured these aggregated data into networks representing the pattern of collaboration among the agencies, we and analyzed the networks to determine how extensively the agencies have collaborated and the extent to which additional future collaboration could be beneficial for them.

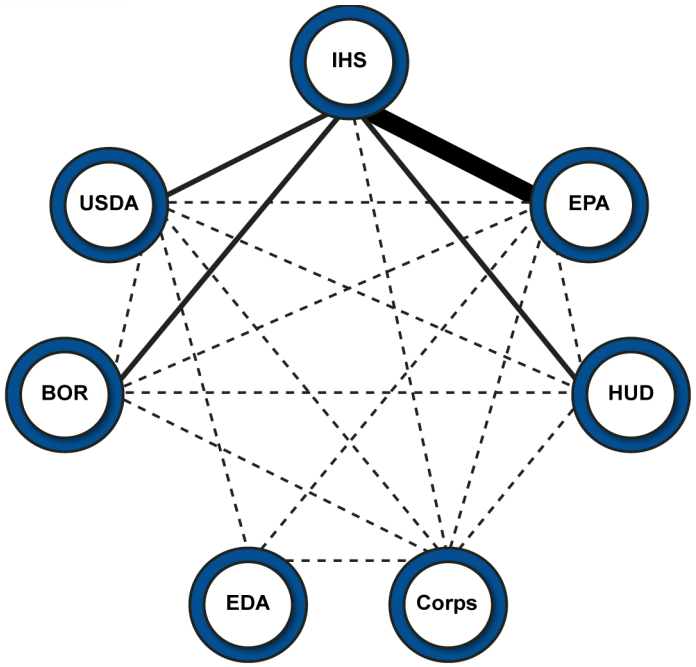
Fragmentation: Drinking water and wastewater infrastructure

What we found: Federal agency collaboration (quantified)

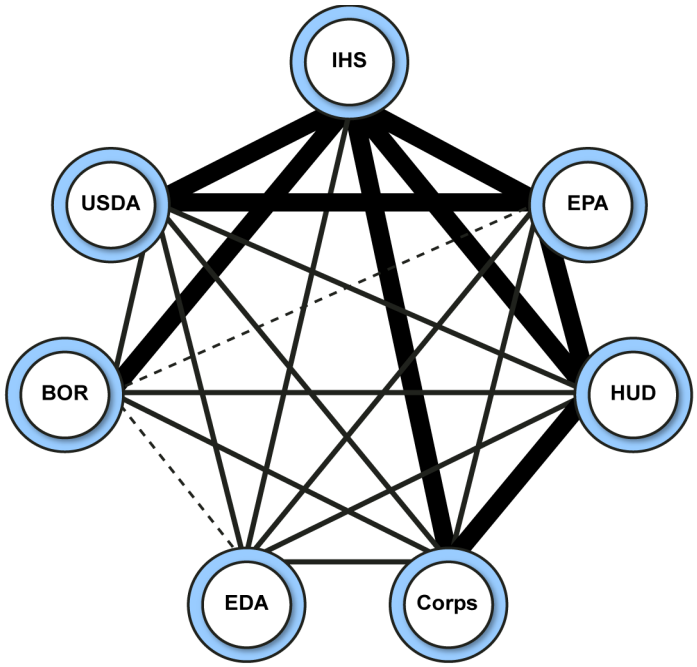
Agency pair	Instances of agencies reporting having used a mechanism to collaborate	Instances of agencies reporting it would be beneficial to use an additional mechanism to collaborate in the future
EPA – IHS	96	9
IHS – USDA	60	38
EPA – USDA	28	39
HUD – IHS	31	57
IHS – Reclamation	36	38
EDA – USDA	22	31
HUD – USDA	19	40
Corps – HUD	23	43
EPA – HUD	20	48
Corps – USDA	12	47
Reclamation – USDA	14	28
Corps – Reclamation	10	29
Corps – EPA	6	49
Corps – EDA	6	44
Corps – IHS	6	69
EDA – EPA	4	42
EPA – Reclamation	7	23
HUD – Reclamation	3	31
EDA – HUD	0	53
EDA – IHS	0	60
EDA – Reclamation	0	28
Total	403	846

Fragmentation: Drinking water and wastewater infrastructure

What we found: Federal agency recent and potential future collaboration



Recent collaboration (number of collaborative mechanisms that agencies reported using in six states)



Potential future collaboration (number of collaborative mechanisms that agencies reported using in six states, plus the number of mechanisms they reported would be beneficial to use in the future)

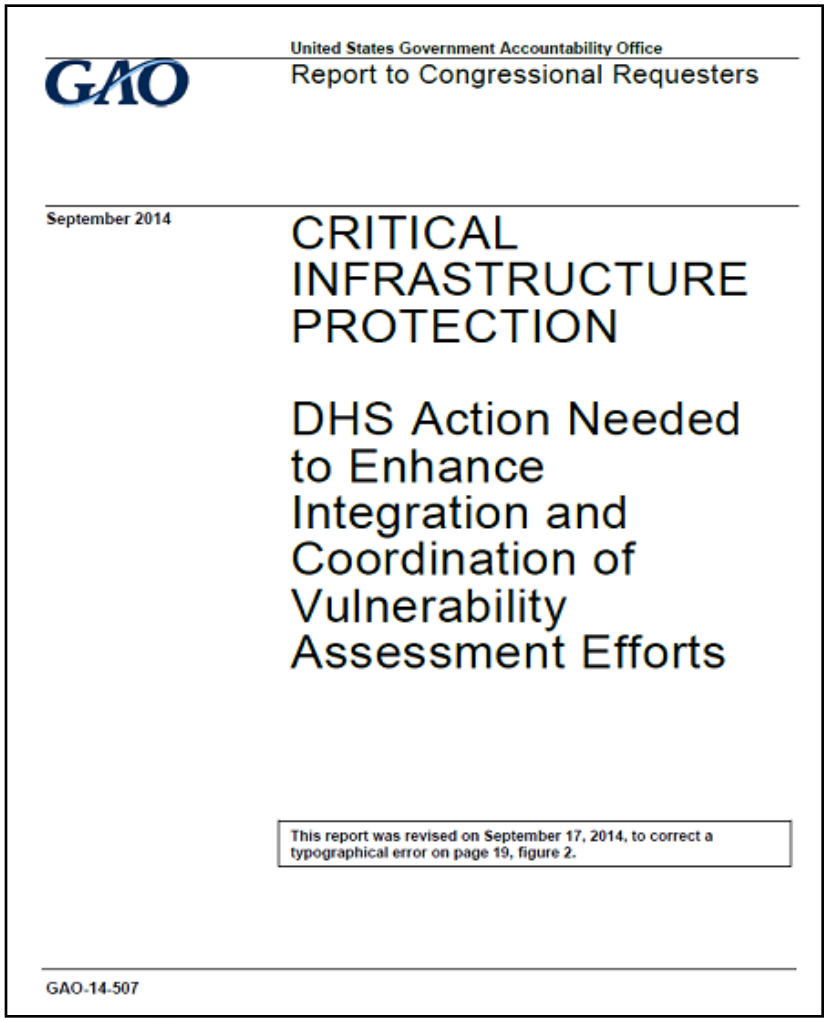
Number of collaborative mechanisms

- 1 to 30
- 31 to 60
- 61 or more

Corps – U.S. Army Corps of Engineers
EDA – Economic Development Administration
EPA – Environmental Protection Agency
HUD – Department of Housing and Urban Development
IHS – Indian Health Service
BOR – Bureau of Reclamation
USDA – U.S. Department of Agriculture

Source: Analysis of GAO survey of seven federal agencies in six states. | GAO-18-309

Duplication: DHS Vulnerability Assessments



United States Government Accountability Office

Report to Congressional Requesters

September 2014

CRITICAL INFRASTRUCTURE PROTECTION

DHS Action Needed to Enhance Integration and Coordination of Vulnerability Assessment Efforts

This report was revised on September 17, 2014, to correct a typographical error on page 19, figure 2.

GAO-14-507

Duplication: DHS Vulnerability Assessments

What we evaluated

- From 2011 to 2013, various Department of Homeland Security (DHS) offices and components conducted or required thousands of vulnerability assessments of critical infrastructure.

- GAO was asked to identify duplication and gaps in assessments of critical infrastructure.

Duplication: DHS Vulnerability Assessments

How we did it

- To identify potential overlap across sectors where DHS offices and components conduct vulnerability assessments, we searched the names of the assets and facilities listed in the assessment records provided by each office and component for key words that might be expected to be found within the respective sectors.

- We electronically searched key words such as transportation, food, agriculture, commercial, business park, dams, emergency services, water, airport, government, nuclear, defense, health care, financial, communications, chemical, critical manufacturing, information technology, energy, and pipeline, among others.

- We used SAS to match the different data sets and summarize the results. Where the SAS output indicated that facility may have been assessed multiple times by different agencies, our analysts reviewed the specific records.

Duplication: DHS Vulnerability Assessments

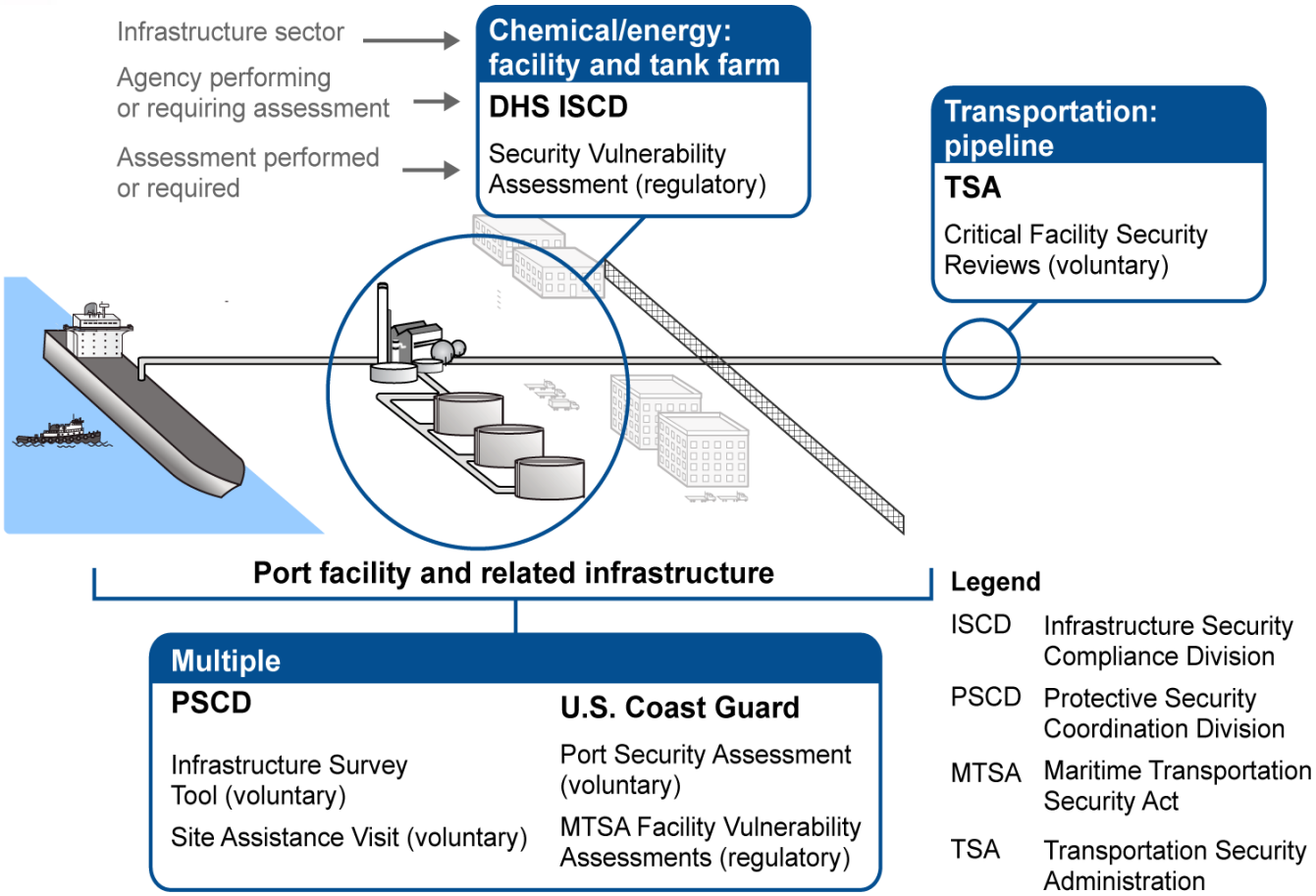
What we found: Content analysis indicated duplicative assessments

Number of CI vulnerability assessments conducted by DHS office or component		Number of CI vulnerability assessments conducted by facilities
National Protection and Programs Directorate		
Protective Security Coordination Division (PSCD)	3,255[a]	Infrastructure Security Compliance Division (ISCD)-Chemical Facility Anti-Terrorism Standards regulated facilities	3,300 to 4,100[c]
Federal Protective Service (FPS)[b]	1,458[a]	
U.S. Coast Guard		
Office of International and Domestic Port Assessment	93[a]	Office of Port and Facility Activities Maritime Transportation Security Act regulated facilities	2,800 to 3,500[c]
Transportation Security Administration (TSA)		
Office of Law Enforcement	74[a]	
Office of Security Operations/Compliance	349[a]	
Office of Security Operations/Compliance/ Office of Security Policy and Industry Engagement	122[a]	
Total	**5,351**	**6,100 to 7,600**

Source: GAO analysis of data and information from DHS PSCD and ISCD, FPS, TSA, and U.S. Coast Guard. | GAO-14-507

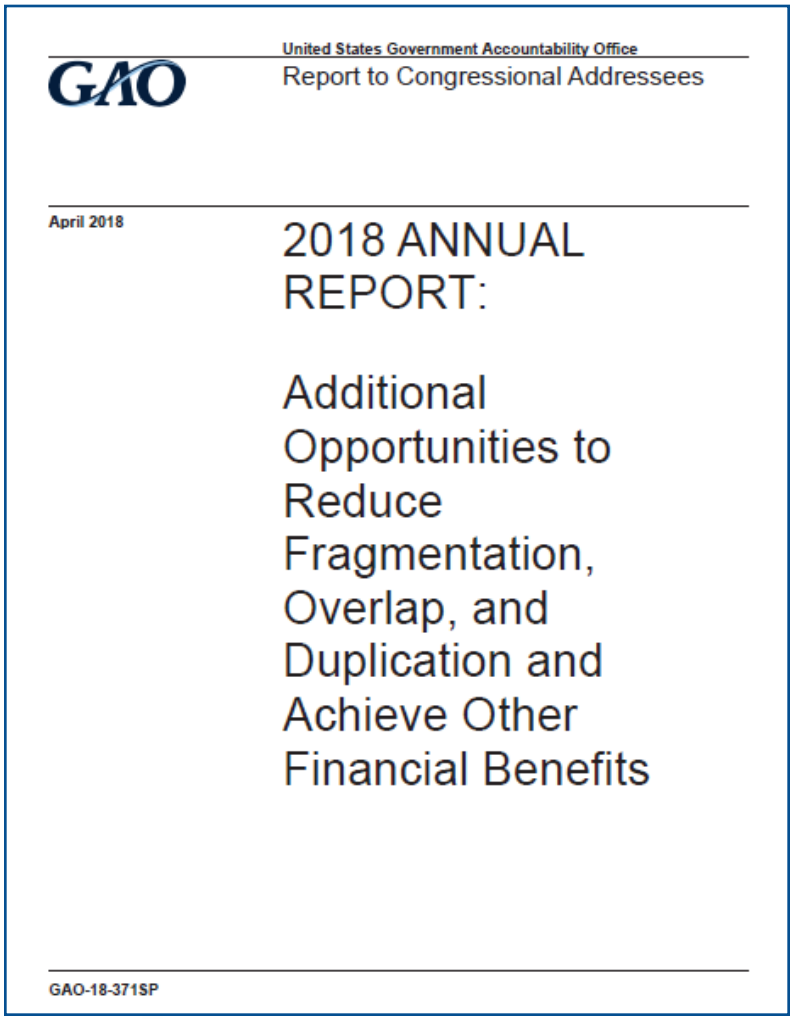
Duplication: DHS Vulnerability Assessments

What we found: Multiple agencies conducted assessments of the same facility



Source: GAO analysis of DHS data. | GAO-16-791T

Check out our annual report on duplication, overlap, and fragmentation



United States Government Accountability Office

Report to Congressional Addressees

April 2018

2018 ANNUAL REPORT:

Additional Opportunities to Reduce Fragmentation, Overlap, and Duplication and Achieve Other Financial Benefits

GAO-18-371SP