

U.S. Coast Guard Navigation Center



NAVCEN Overview



Homeland
Security

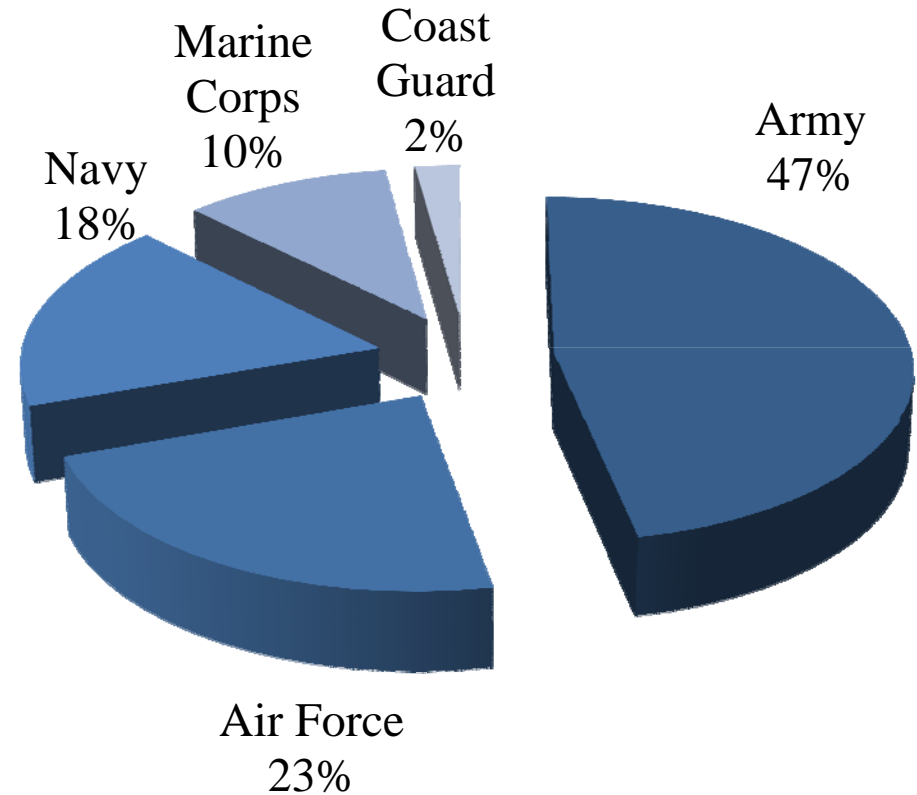
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Personnel Strength of Armed Forces

Service	Military personnel	Percent of total
Army	1,015,100	47%
Air Force	491,700	23%
Navy	386,700	18%
Marine Corps	222,900	10%
Coast Guard	47,992	2%
Total	2,164,392	100%



*Active duty and Reserve Estimates
Source: DOD FY16 Defense Manpower
Requirements Report*



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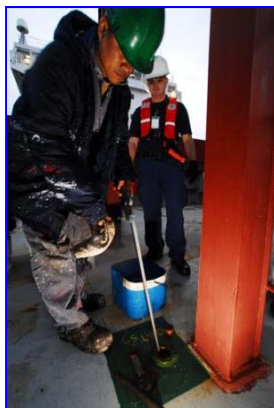




US Coast Guard's Missions

By Law, the US Coast Guard has 11 Missions:

- Marine Safety
- Aids to Navigation
- Ports, Waterways, and Coastal Security
- Search and Rescue
- Marine Environmental Protection
- Living Marine Resources
- Other Law Enforcement
- Drug Interdiction
- Defense Readiness
- Migrant Interdiction
- Ice Operations



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USCG Atlantic and Pacific Commands



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USCG Service Structure



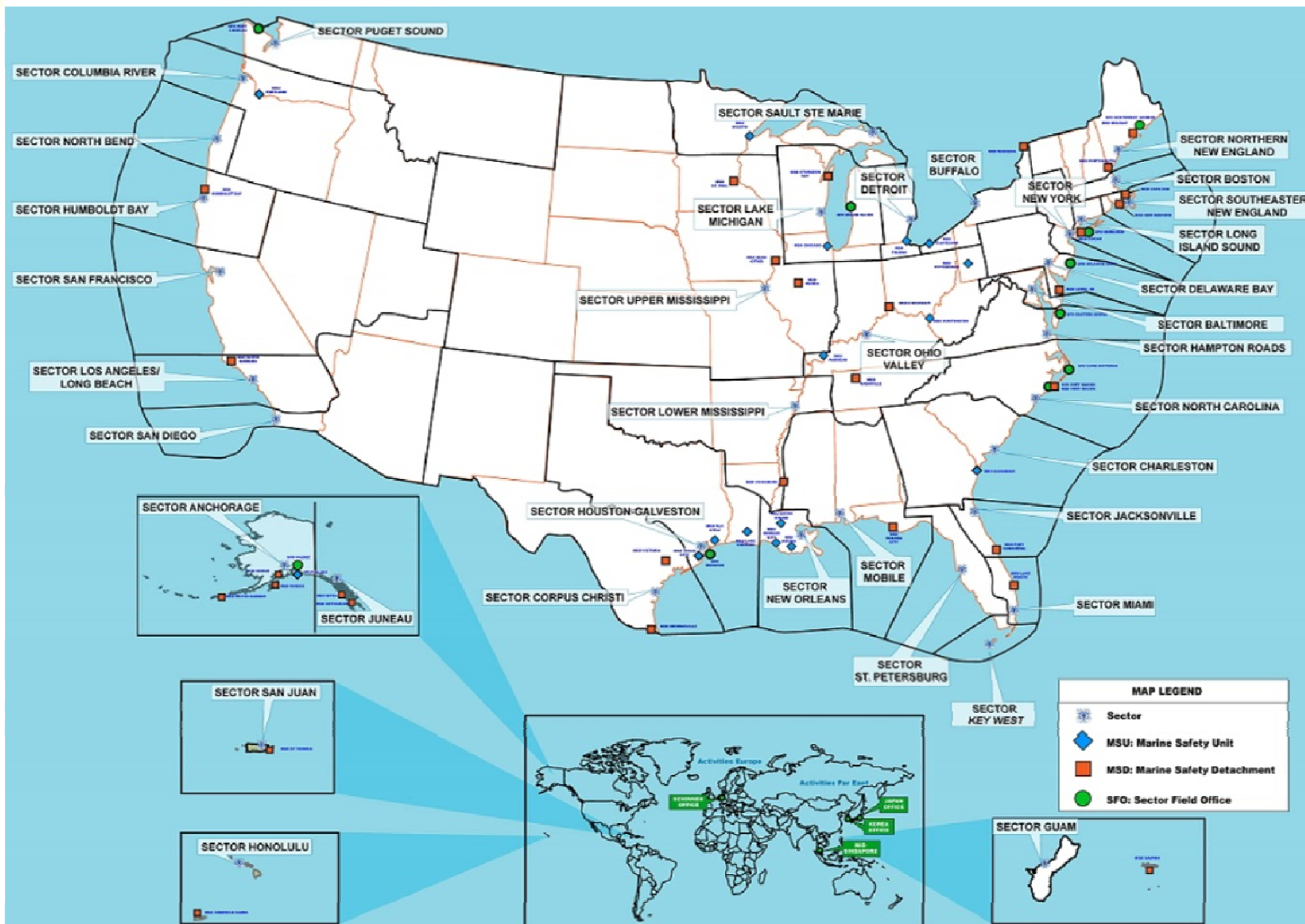
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USCG Sector Commands



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NAVCEN Mission Statement

The Navigation Center provides services to enhance the safety, security, and efficiency of U.S. waterways, and respond to the needs of civil Global Positioning System (GPS) users. These services include:

- Operating the Nationwide Differential GPS (DGPS) System
- Operating the Long Range Identification and Tracking (LRIT) business helpdesk
- Operating the Nationwide Automatic Identification System (NAIS)
- Publishing Notices to Mariners and the Light List
- Managing the US Aids to Navigation Information Management System (USAIMS)
- Managing electronic charting portfolios for U.S. Coast Guard units
- Serving as the primary U.S. government interface with GPS users (except aviation and DOD)
- Receiving and coordinating investigation of GPS outage reports
- Disseminating navigation information through 24/7 operations center and the NAVCEN website



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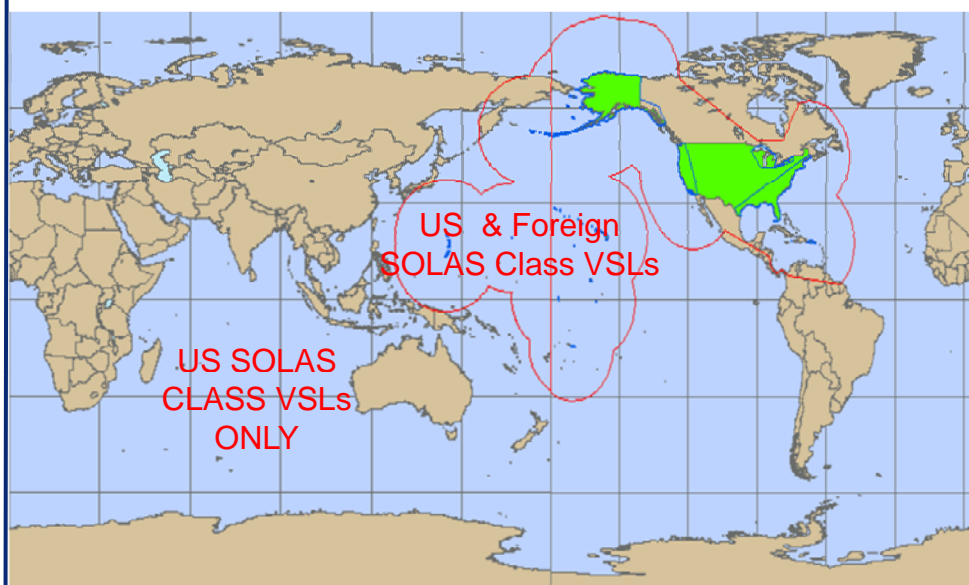




Long Range Identification & Tracking (LRIT)

System Description

- Assist U.S. flagged ships subject to SOLAS regulation
- Uses existing INMARSAT/Iridium equipment
- Tracking U.S. SOLAS ships worldwide
- Tracking inbound vessels on Int'l voyages, or traveling within 1,000 NM of the U.S. that are:
 - Passenger ships, 300+ GT cargo ships, or self-propelled offshore drill unit, not on site
 - Available for search and rescue surface picture



Operations

- Around the clock watch to provide assistance
- Conformance testing
- Verification of vessel reporting (4x/day)
- Currently track 700+ U.S. vessels worldwide
- Track over 7,000 vessels within the US border

Stakeholders

- Over 100 countries participate in LRIT
- Polestar (Private Contractor Data Management)
- Internally used within the Coast Guard to serve as:
 - Search and Rescue
 - Harbor Approach Early Notification



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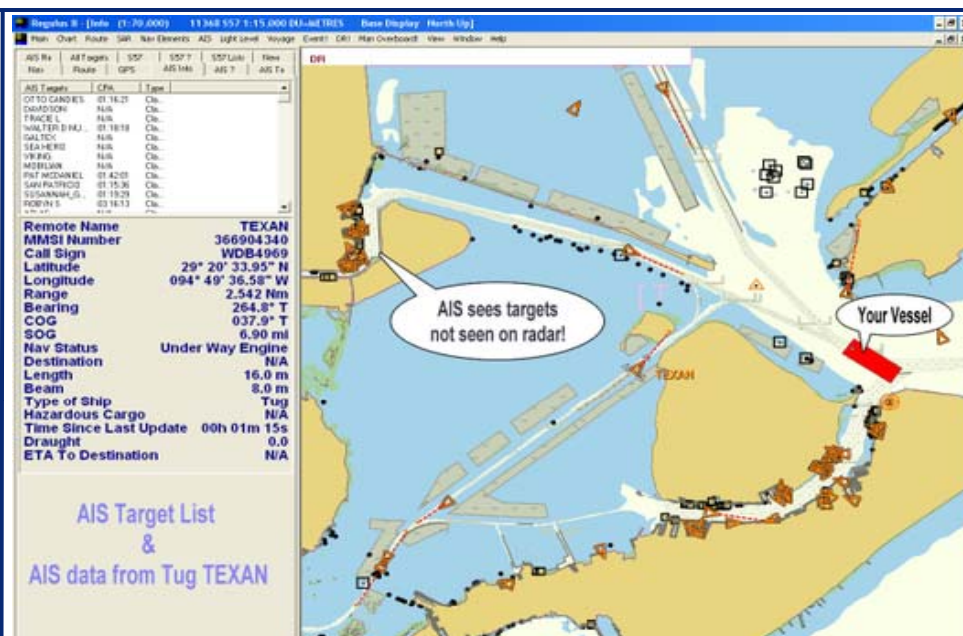




Nationwide Automatic Identification System (NAIS)

System Description

- Track vessels transiting throughout the NAIS areas
- Support coordinated information sharing with U.S. organizations and port partners
- 50 NM receive range, 24 NM transmit range
 - Interim Receive - Operate
 - Permanent Transceive System - Operate
 - Includes VTS AIS Transceiver - Only monitor
 - Marine Exchange Alaska - Only monitor



Operations

- Around the clock monitoring the performance of the NAIS sites
- Remote troubleshooting
- Monitor data connection to users

Stakeholders

- Bidirectional data sharing with Canada and the St. Lawrence Seaway
- Partnerships with U.S. Departments of Defense (DOD), Transportation (DOT), Homeland Security (DHS), and Commerce (DOC)
- U.S. Coast Guard operational units



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Local Notice to Mariners (LNM)

System Description

- A region based method by which the public is informed of changes to aids to navigation
- LMSs are a carriage requirement onboard all commercial vessels
- NAVCEN website is the single authoritative source for LNMs and the chart corrections contained therein, as well as Light Lists



Operations

- U.S. Coast Guard Districts create LNM
- LNM's distributed via NAVCEN Website (33 CFR 72.01-5)
- Users subscribe to a list server for notification that the NAVCEN website is updated

Stakeholders

- Service to all mariners who navigate the waters of the United States
- National Oceanic and Atmospheric Administration (NOAA)
- National Geospatial-Intelligence Agency (NGA)



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US Aids to Navigation Information Management System (USAIMS)

System Description

- USAIMS is the official electronic record of USCG and private Aids to Navigation (ATON)
- NAVCEN supports District Prevention Department Waterway Management staffs (dpw) and ATON Units with application support (e.g., special queries, tutorials, document system change requests)
- Automate production of weekly and annual Light List for NAVCEN website
- Produce print files for the annual version of the Light List

U.S. COAST GUARD Aids to Navigation Information System

Welcome
Disclaimer
Publications/Reports
Downloads
Application Sign-On
Coast Guard
NOAA
Reset Password
Support

Operations

- Produce annual Light List for NAVCEN website and printing
- Produce weekly Light List updates (PDF and XML) for NAVCEN website
- Manage updates and maintenance of the system. Perform system testing, and training

Stakeholders

- Service to all mariners who navigate the waters of the United States.
- CG ATON Units
- District Waterways



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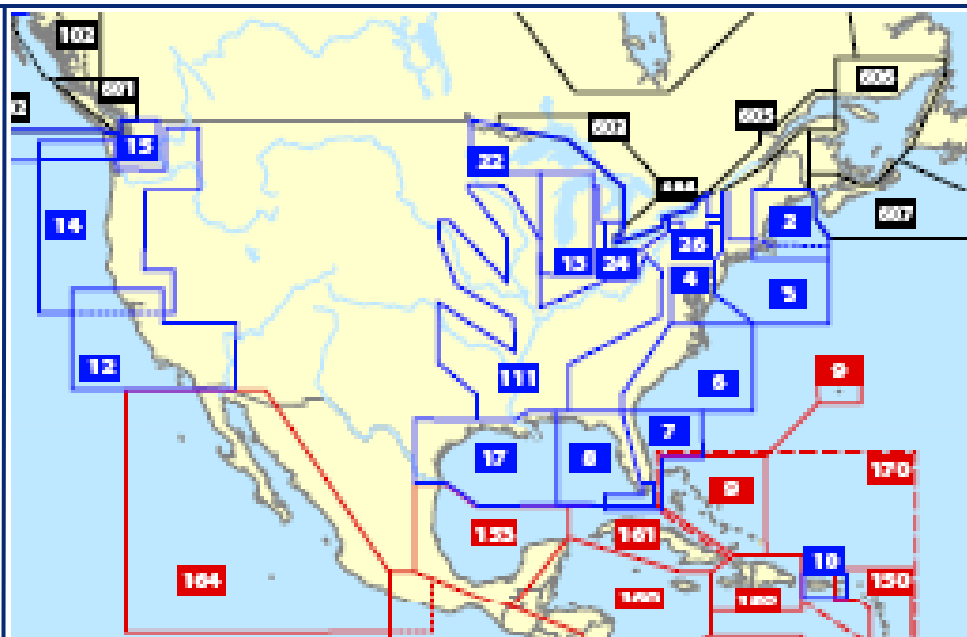




Electronic Chart Portfolio Management

System Description

- USCG Electronic Chart Portfolio Manager
- Provide electronic charts to the USCG cutter fleet and boat forces
321 cutters (49'+) & 1190 boats
- Provide help desk service, Electronic Chart Display and Information System (ECDIS) lab
- Electronic charts covering U.S., Caribbean, Mesoamerican waters, and other select areas



Operations

- Subject matter experts on policy and acquisitions for electronic charts
- Liaison with NOAA, NGA, and USACE for charting and maritime information

Stakeholders

- International and national agencies
- National Oceanic and Atmospheric Administration (NOAA)
- National Geospatial-Intelligence Agency
- U.S. Army Corps of Engineers



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Electronic Tracking (E-Tracking)

System Description

Data Management Processes:

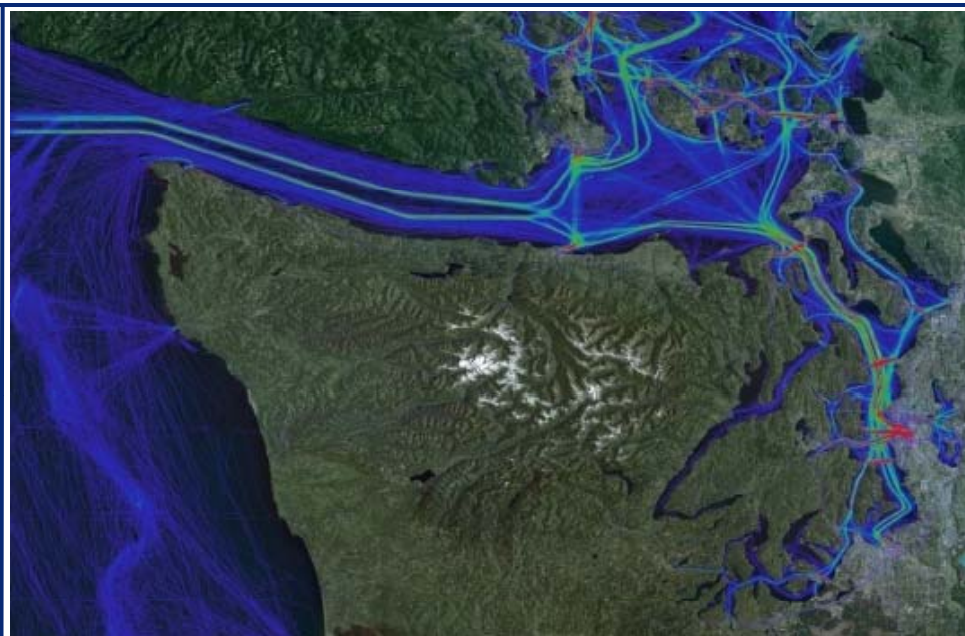
- Commercial AIS error notification
- CG and Port Partner AIS error notification
- NAIS historical and live data request processing

MIOC application support:

- LRIT Business Help Desk (BHD) application administration
- System Operation Center (SOC) tool administration

NAIS infrastructure analysis:

- Monitor and troubleshoot system performance criteria
- Technical liaison to system sponsor and Product Line



Key Outcomes

- NAIS meets functional and operational requirements
- International Maritime Organization (IMO) vessel assistance and notification of AIS infractions
- CG assets meet AIS requirements
- NAIS data product delivered to customers

Stakeholders

- USCG Program Offices
- Internal Revenue Service (IRS), Department of Justice (DOJ), Department of Defense (DOD), Customs and Border Patrol (CBP))
- Civilian Legal Offices, Port Partners, Educational Institutions
- Freedom of Information Act (FOIA)



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Navigation Information Service (NIS)

System Description

- Primary interface to disseminate information on GPS, DGPS, AIS, NAIS, LRIT Maritime Safety, Maritime Communications, Maritime Regulations & Local Notice to Mariners
- Over 275,000 hits monthly on the NAVCEN website
- 21,000+ List Server subscribers for GPS status, GPS advisories, and LNMs
- Coordinate civilian, non-aviation GPS Interference Detection and Mitigation (IDM) response



Operations

- Around the clock NAVCEN point of contact for maritime and civil non-aviation GPS users
- Main dissemination point of information for NAVCEN
- GPS testing coordination for USCG assets

Stakeholders

- General Public
- Maritime and public entities include:
 - Maritime users
 - Civil GPS users
 - Other non-Department of Defense (DOD) users



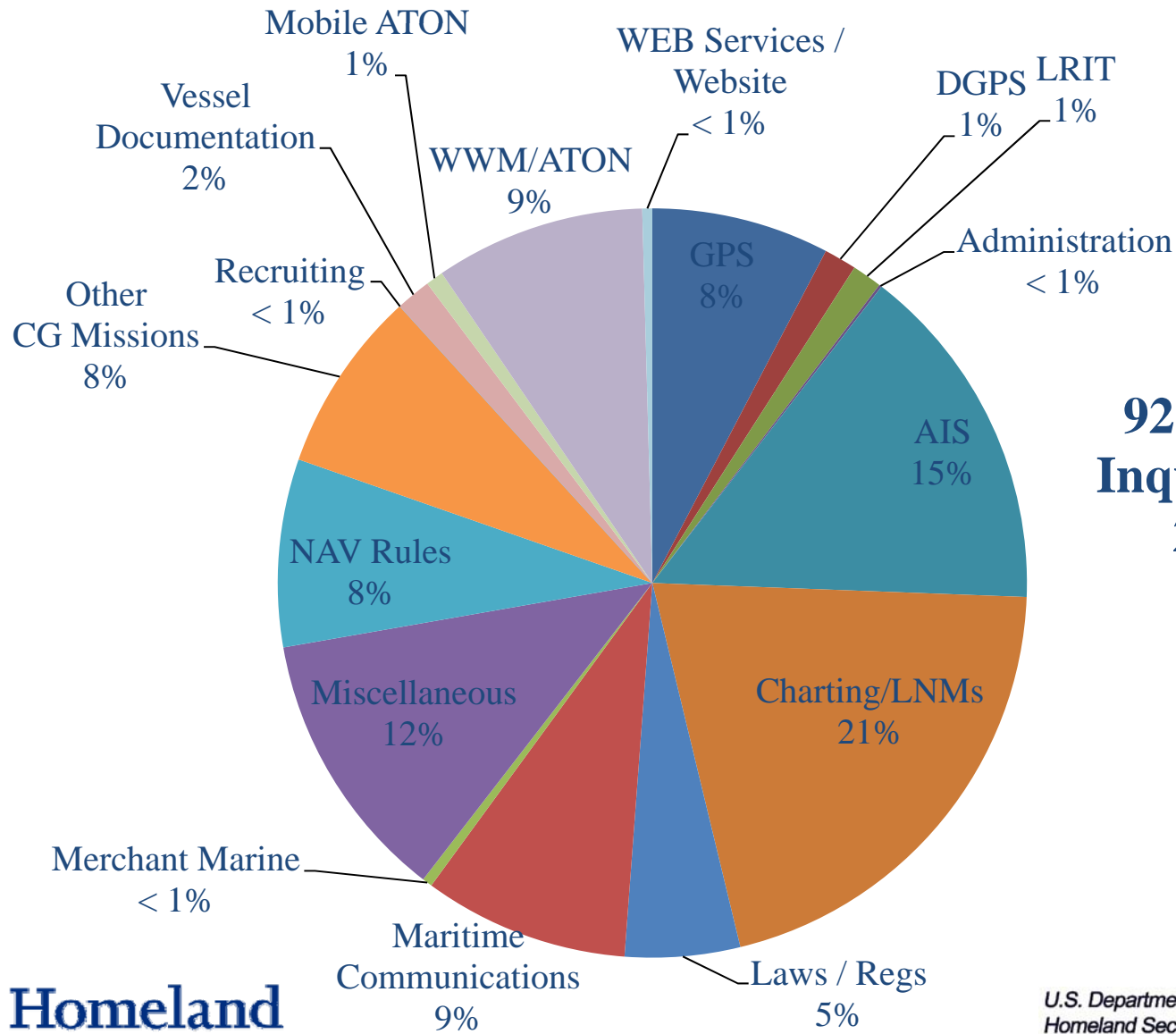
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Navigation Information Service (NIS)



**926 Total
Inquiries in
2016**



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Operational Civil Interface Duties

System Description

- 1986 – GPS became a dual-use (Military/Civil) system, DOD formed a MOU with DOT for GPS Civil Interface
- Civil GPS Service Interface Committee (CGSIC) was formed as liaison between the world's civil GPS users and U.S. GPS Authorities
- DOT assigned operational interface responsibilities to U.S. Coast Guard for dissemination of GPS operational information, CG retained responsibility after shifting to DHS



Operations

- Interface with the civil GPS community
- Publish GPS operational files for public use
- Accept and respond to GPS inquiries and problem/interference reports

Stakeholders

- U.S. Air Force GPS Operations Center (GPSOC)
- FAA National Airspace System Security and Enterprise Operations (NASEO)
- Other agencies of the U.S. government for response to GPS inquiries
- Civil, non-aviation users



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Civil GPS Service Interface Committee (CGSIC)

System Description

- 1986 DOT takes lead for civil users
- 1991 – Civil GPS Service Interface Committee (CGSIC):
 - Chair, Director, Office of Positioning, Navigation and Timing & Spectrum Management, (DOT OST-R)
 - Deputy Chair, Commanding Officer NAVCEN
 - Executive Secretariat (NAVCEN Staff)



56th CGSIC in Portland, OR, 2016

Operations

- CGSIC Provides:
 - Liaison for world’s civil GPS users
 - Advocate for civil use of GPS
 - Technical information exchange with civil GPS users
 - Identify issues for resolution by U.S. GPS authorities

Committee

CGSIC Subcommittees

- Survey, Mapping & Geo-Sciences
- Timing
- U.S. States & Local Government
- International Information

CGSIC Advisors

- Land
- Aviation
- Marine
- GPS Industry Council



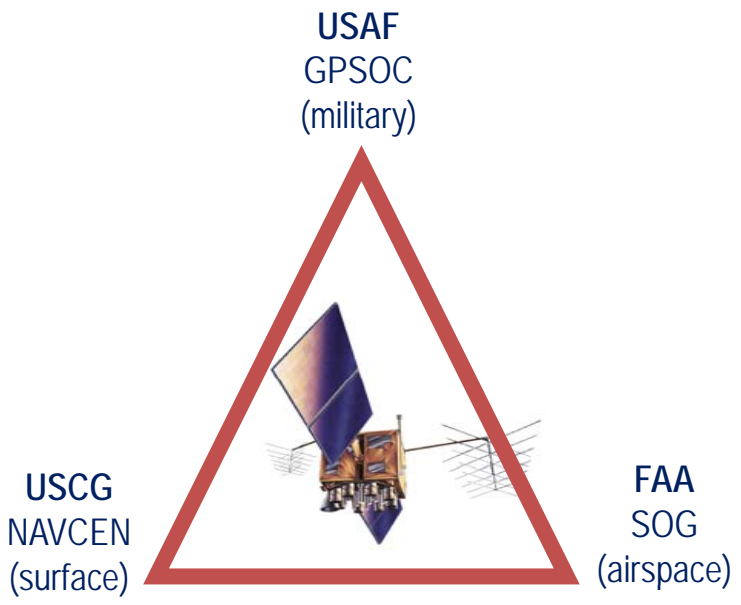
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GPS Interference Detection and Mitigation (IDM)

<p>System Description</p> <ul style="list-style-type: none">• 2014 Interagency GPS User Support Memorandum of Agreement (MOA)• Multi-agency user segment representation• Multi-agency IDM Coordination• Designated by USCG as GPS testing focal point for all GPS band testing and Other Government Agency (OGA) testing events	<p>USAF GPSOC (military)</p>  <p>USCG NAVCEN (surface)</p> <p>FAA SOG (airspace)</p>
<p>Operations</p> <ul style="list-style-type: none">• Support civil mission planning and user requirements• Provide Satellite Constellation Status• Provide User Advisories• Coordinate GPS Testing for USCG assets• Process GPS disruption reports• GPS related Committees and Working Groups	<p>Stakeholders</p> <ul style="list-style-type: none">• U.S. Air Force GPS Ops Center (GPSOC)• FAA National Airspace System Security and Enterprise Operations (NASEO) and FAA Air Traffic Control System Command Center (ATCSCC)• Federal Communications Commission Ops Center (FCCOC)• DHS National Coordinating Center for Communications (NCC)• U.S. Naval Observatory (USNO)



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www.navcen.uscg.gov

The primary means of information dissemination used by the NIS is the NAVCEN website. It is the focal point of NAVCEN data regarding GPS, DGPS, NAV Rules, NAIS, LRIT, and much more.



NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD



Home | DGPS Advisories | GPS Constellation Status | MSI Data Downloads | GPS Testing Notices | LNMs | Almanacs | Nav Rules | AIS | N. Amer. Ice Svc | Contact Us | Search

Mission Areas

- Global Positioning System
- Nationwide DGPS
- Nationwide AIS (NAIS)
- AIS (Overview, Messages, etc.)
- Long Range Identification and Tracking
- Local Notice to Mariners
- Light Lists Publications (2017)
- Light Lists (Weekly Updates)
- Civil GPS Service Interface Committee
- LORAN C (archive)

Subscribe / Report (free)

- Email Message Subscriptions (Free)
- Join CGSIC
- Report an ATON Discrepancy
- Report a GPS Problem
- Report an NDGPS Problem
- Report an LRIT Problem
- Report an NAIS Problem
- Contact Us

Maritime Information

- Electronic Charts Approval
- Maritime Safety Information Downloads
- Maritime Telecommunications
- CG Nat'l Distress System
- Global Maritime Distress and Safety System
- Marine Safety Information Broadcasts

U.S. COAST GUARD NAVIGATION CENTER

April 7, 2017

NAVIGATION CENTER POINTS OF INTEREST



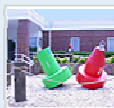
Current Operational / Safety Information

- Consolidated Nav Info
- DGPS Site Status
- GPS Ops Advisories & NANUs
- GPS Almanacs
- GPS CNAV Testing
- FCC GPS Jammer Enforcement
- Current Ice Chart
- Public Notices for Bridges
- Local Notice to Mariners
- Light List / Updates / Corrections
- Navigation Rules
- Navigation Regulations



Maritime Information

- Automatic ID System (AIS)
- Global Maritime Distress and Safety System (GMDSS)
- CG Nat'l Distress System
- Digital Selective Calling
- Vessel Traffic Services
- USCG "Homeport" Website
- Maritime Telecommunications
- Radionavigation Pubs
- Radio Watch Requirements
- Marine Safety Information Broadcasts
- Ports and Waterways Safety Assessment



About NAVCEN

- Mission Statement
- Contact Us
- Directions to NAVCEN
- Search Our Site
- Site Map
- Website Privacy Policy

News and Notices:

- RSS Feeds (LNMs, LL Corrections)
- The Navigation Center has a **new tool** to enable commercial vessel owners/operators to verify the accuracy of their Automatic Identification System (AIS) broadcast information. We encourage you to visit the [Vessel Information Verification Service \("VIVS"\)](#). Your feedback is welcome.
- Below Zero: International Ice Patrol (IIP) today: read the [series](#) about all things cold weather – IIP's missions, operations, and safety guidance.
- A printable version of the [amalgamated Navigation Rules](#), including Annexes, Implementing Rules, Penalties & Bridge to Bridge regulations, is available for download (only 12 pages if printed double-sided).
- The 2017 Light Lists have been published and are now [available for download](#) from our website.
- The [unclassified paper Best Practices for Improving the Operation and Development of GPS Equipment Used by Critical Infrastructure](#), co-authored by the National Cybersecurity & Communications Integration Center, and National Coordinating Center for Communication, is [available for download](#). The 21-page document recommends installation and operation



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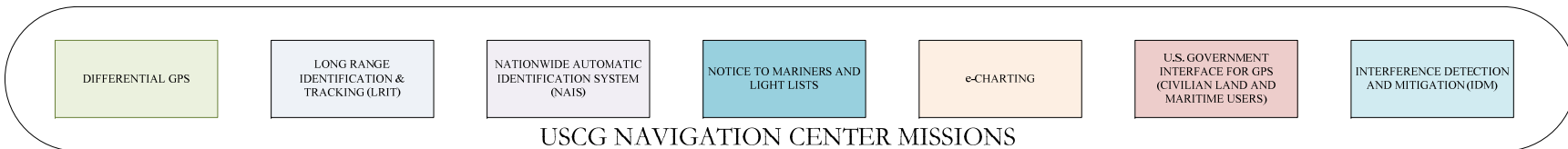
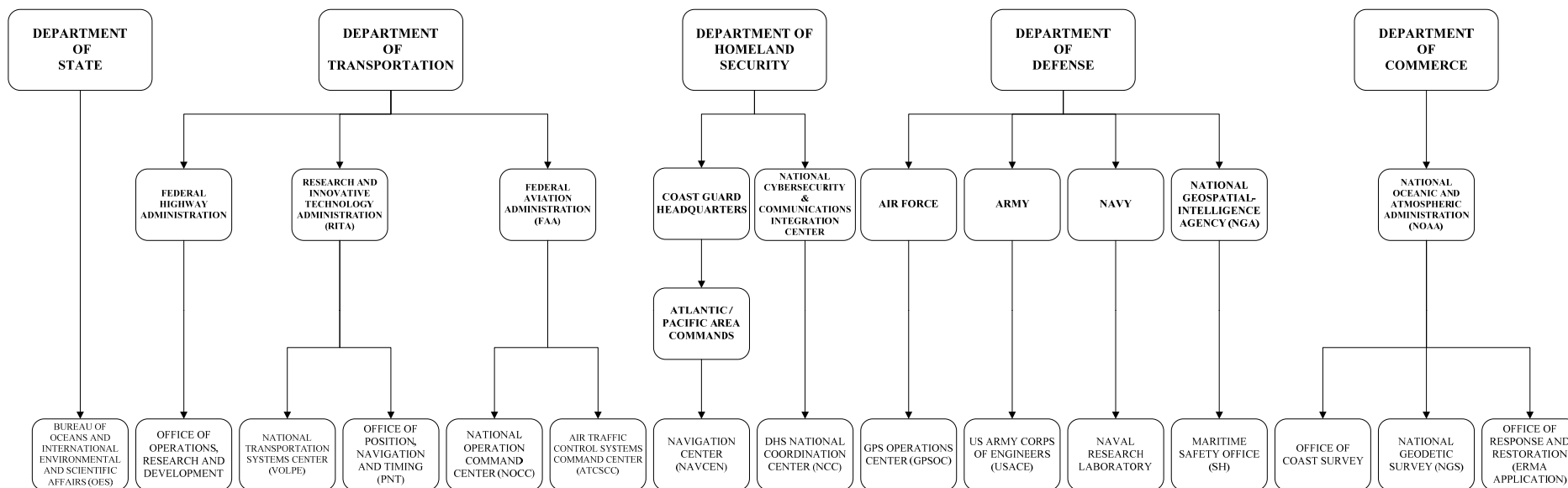
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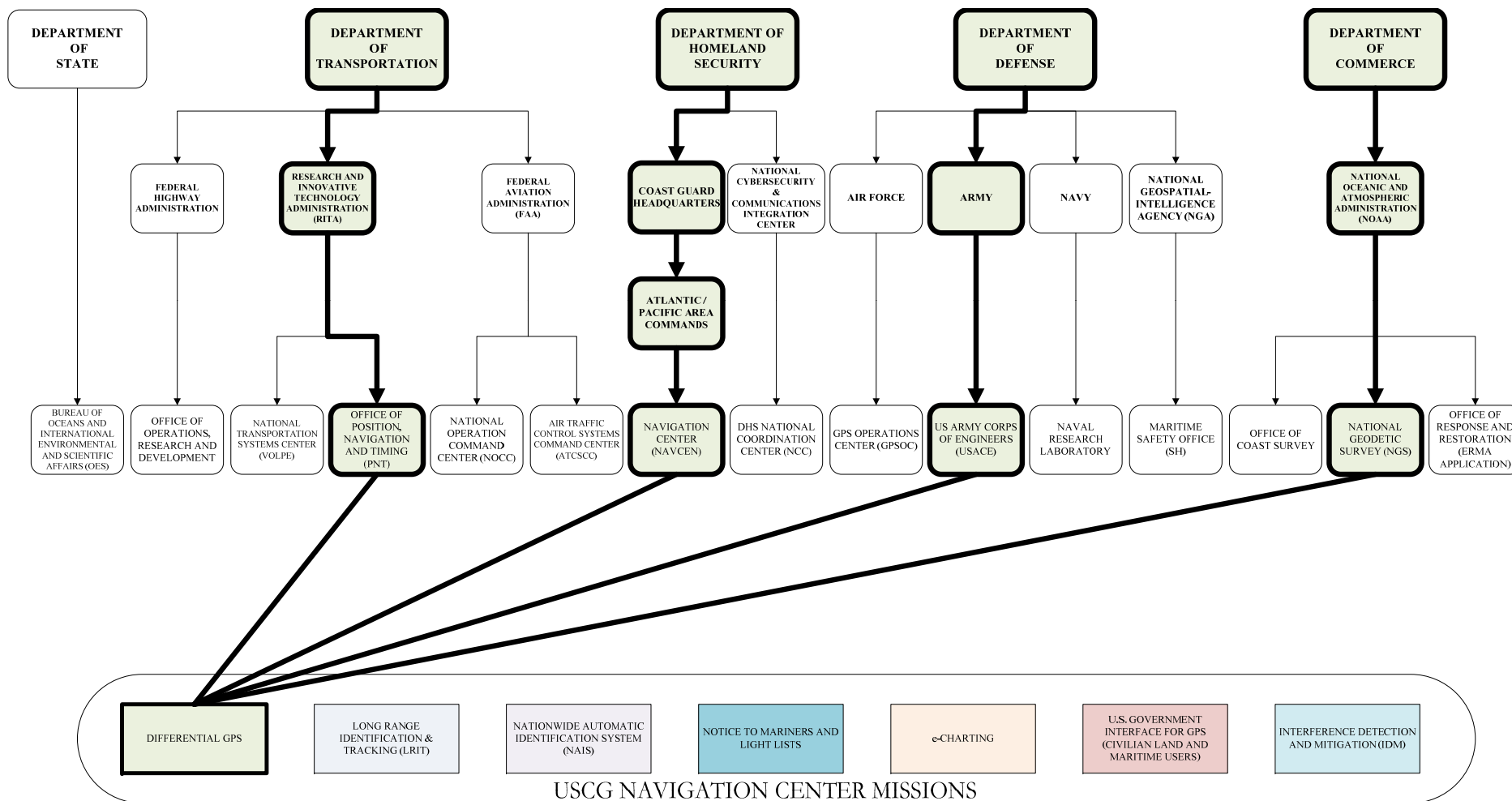


NAVCEN's Federal Partners





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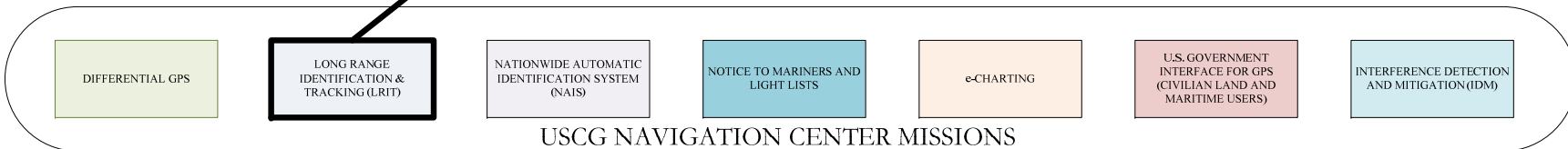
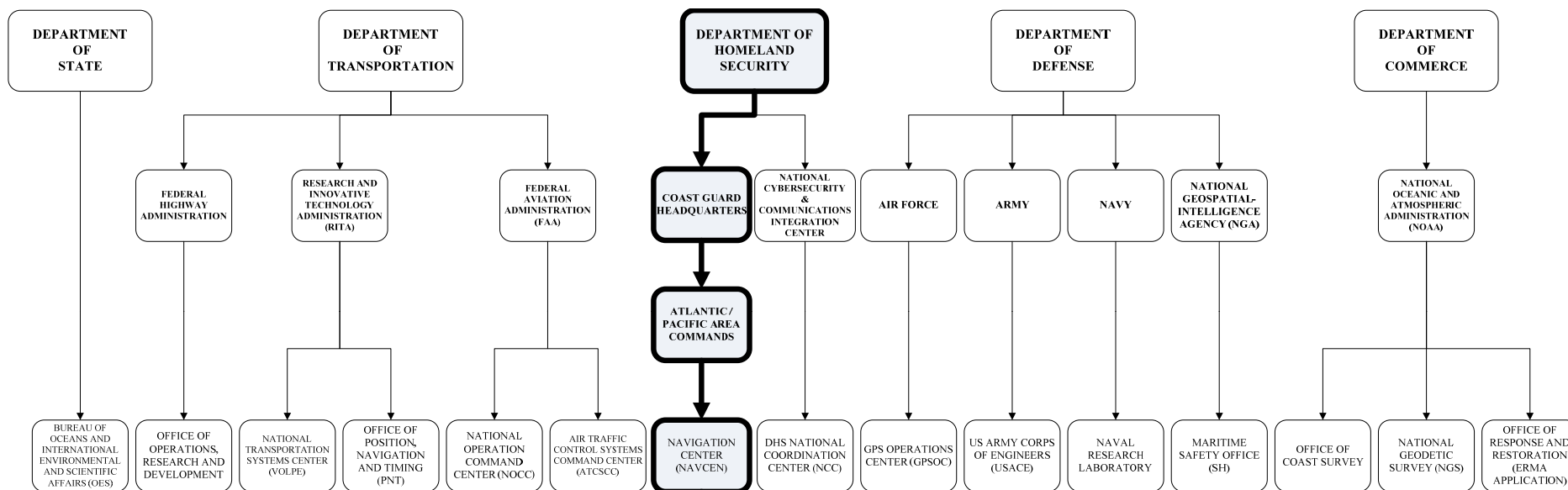
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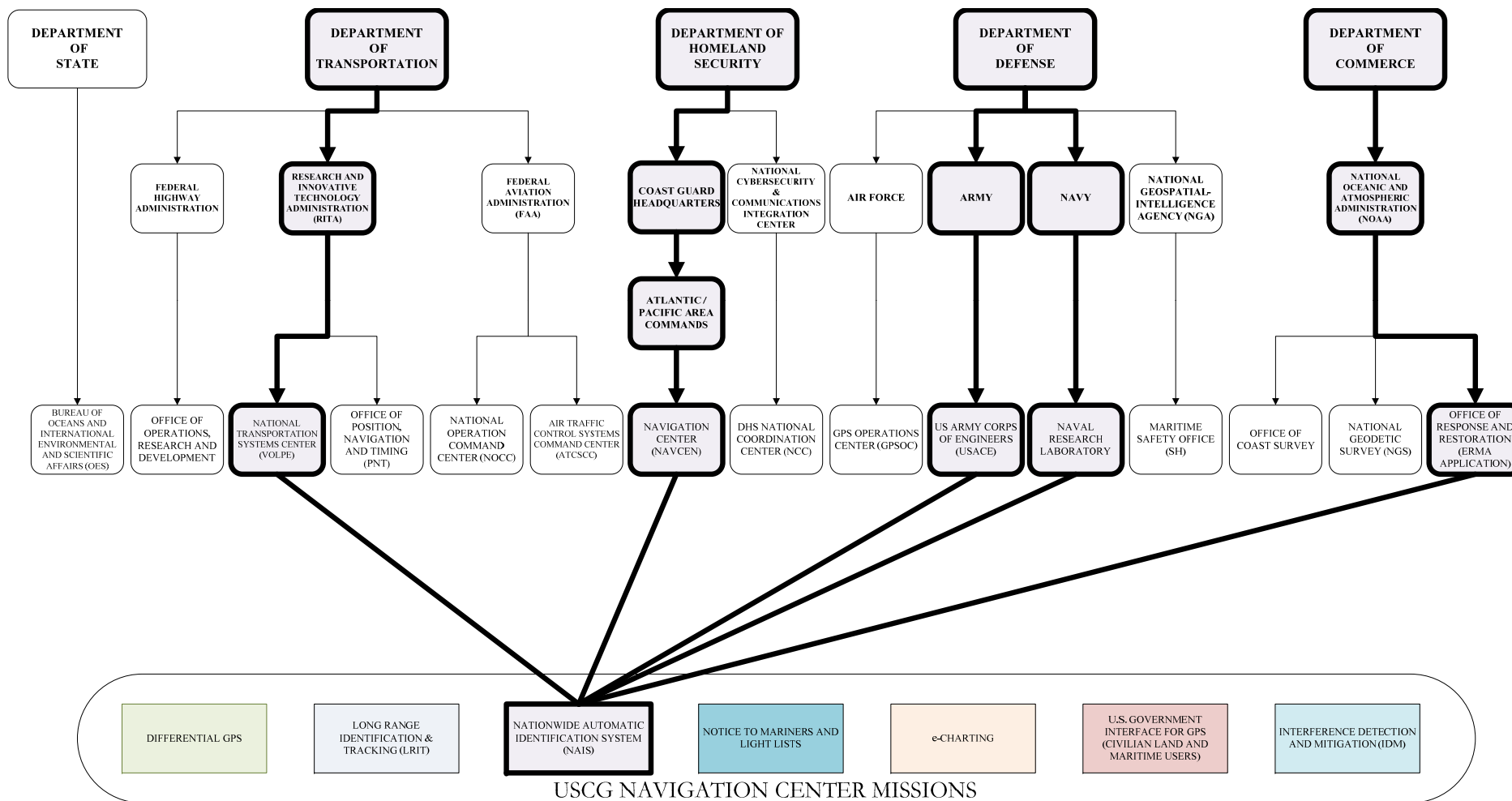
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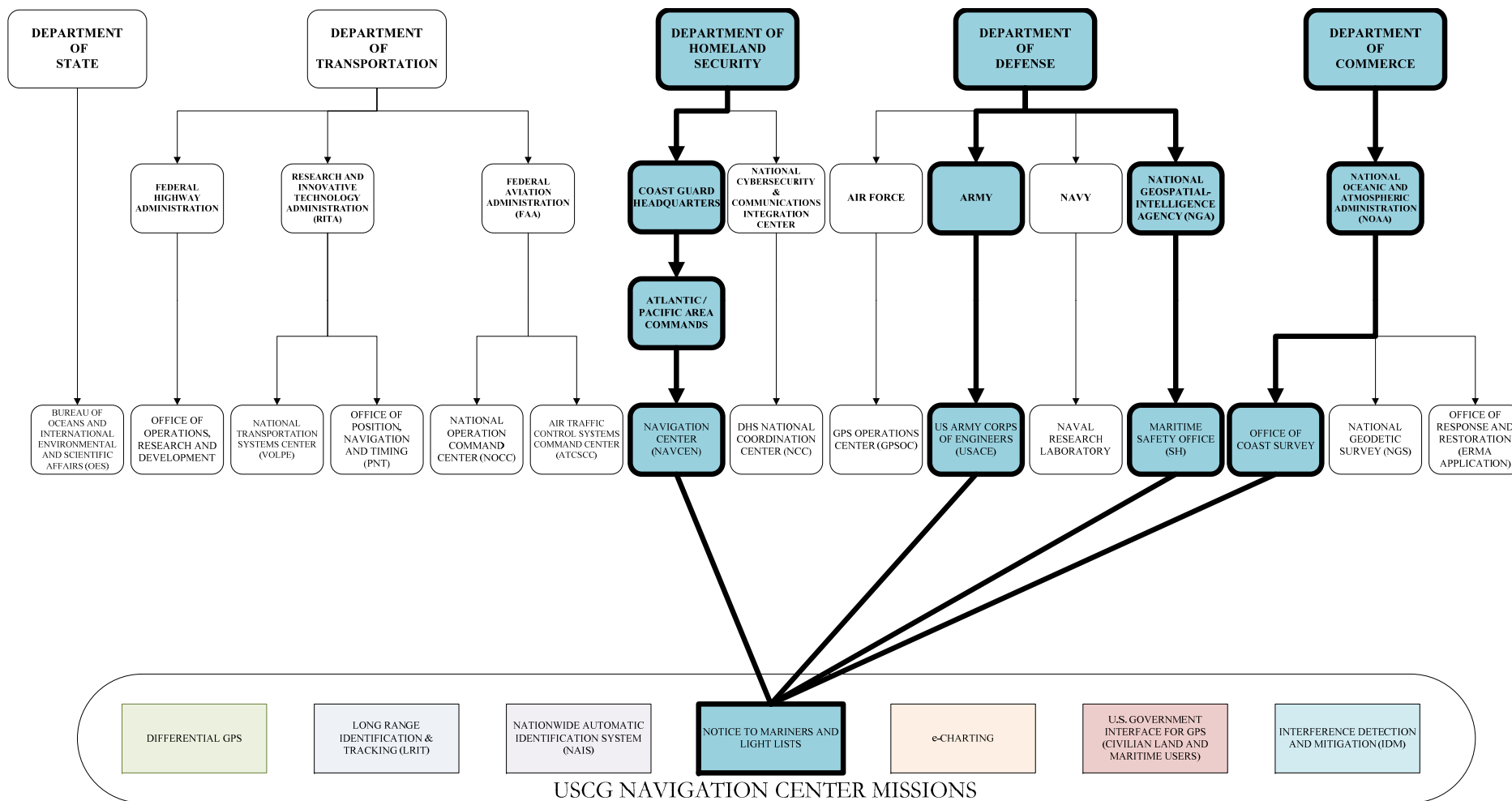
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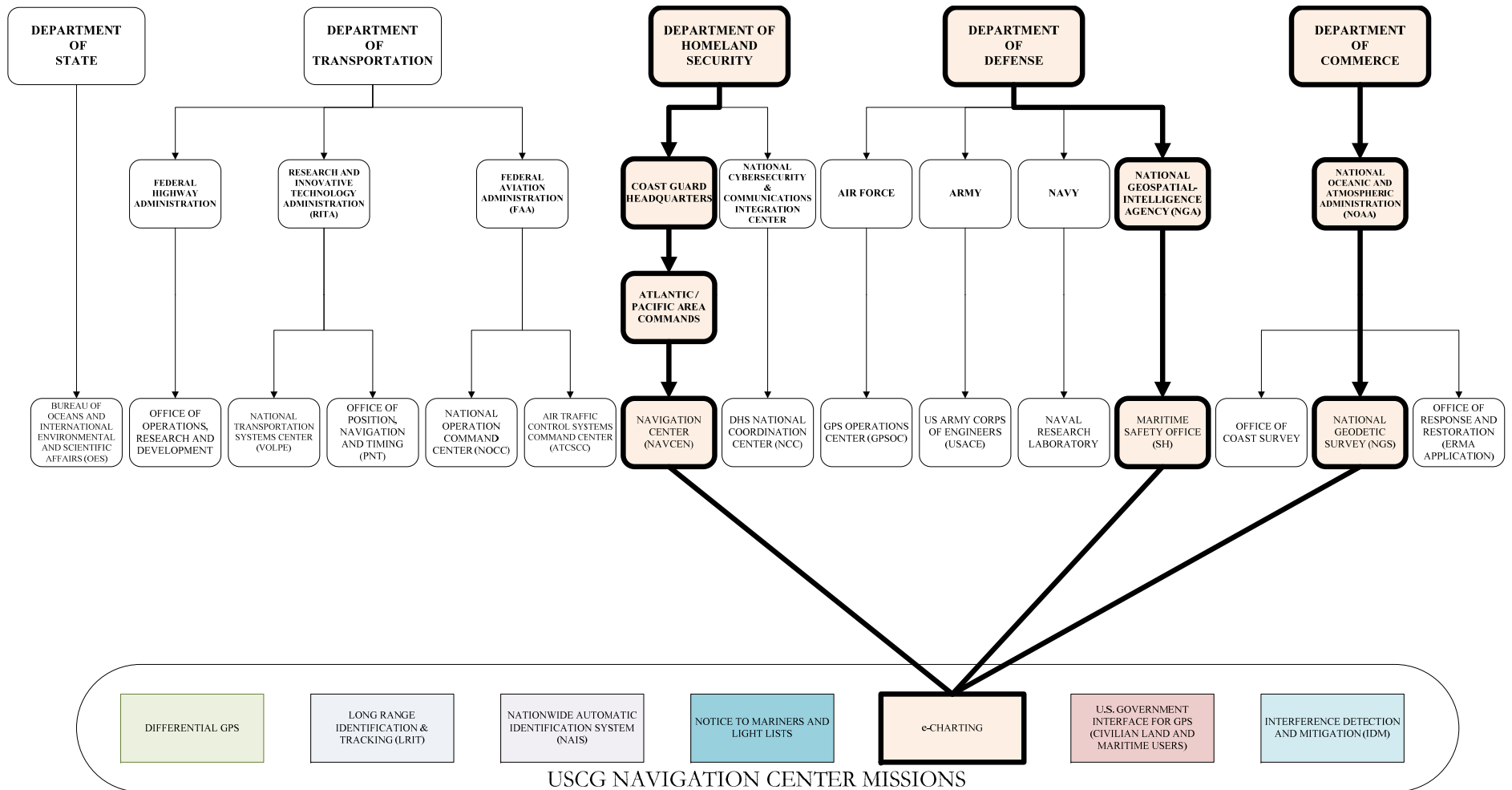
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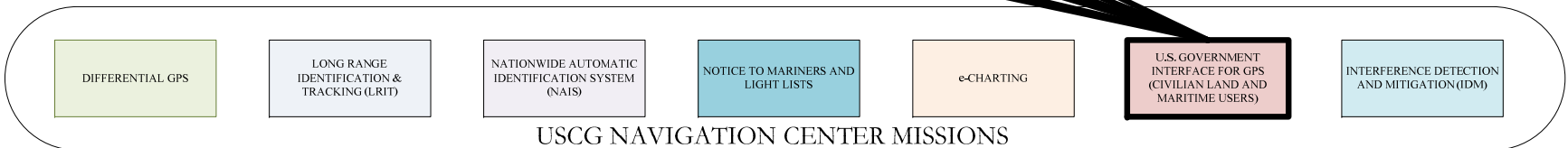
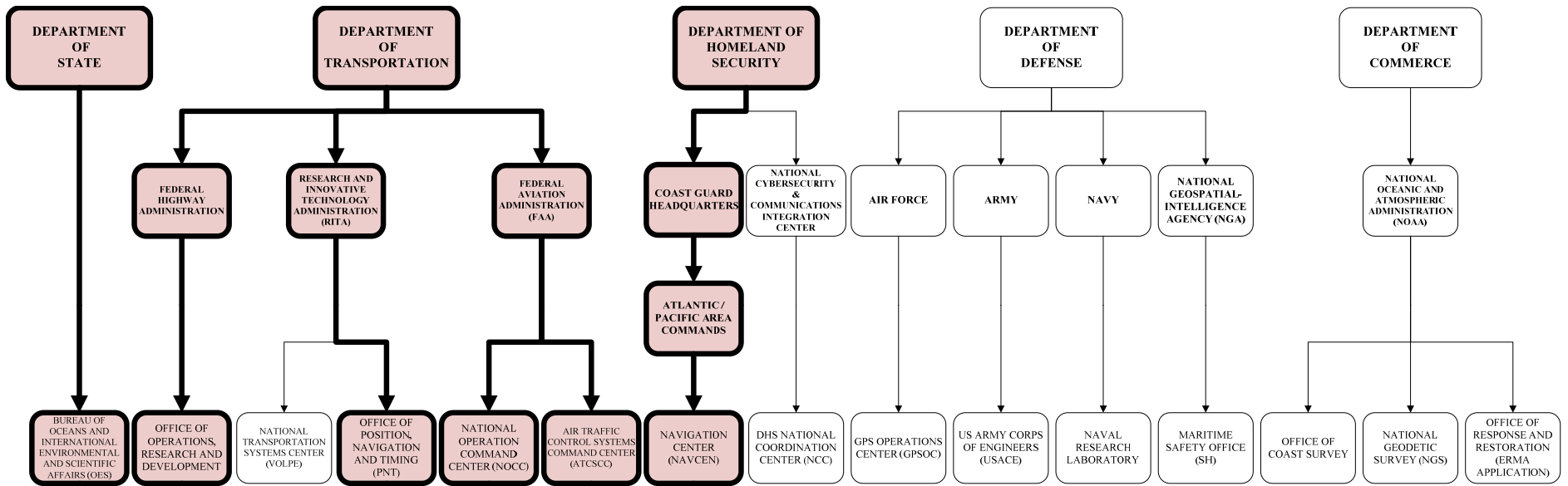
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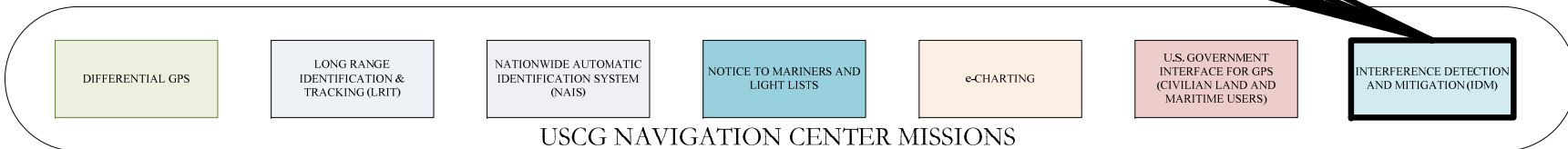
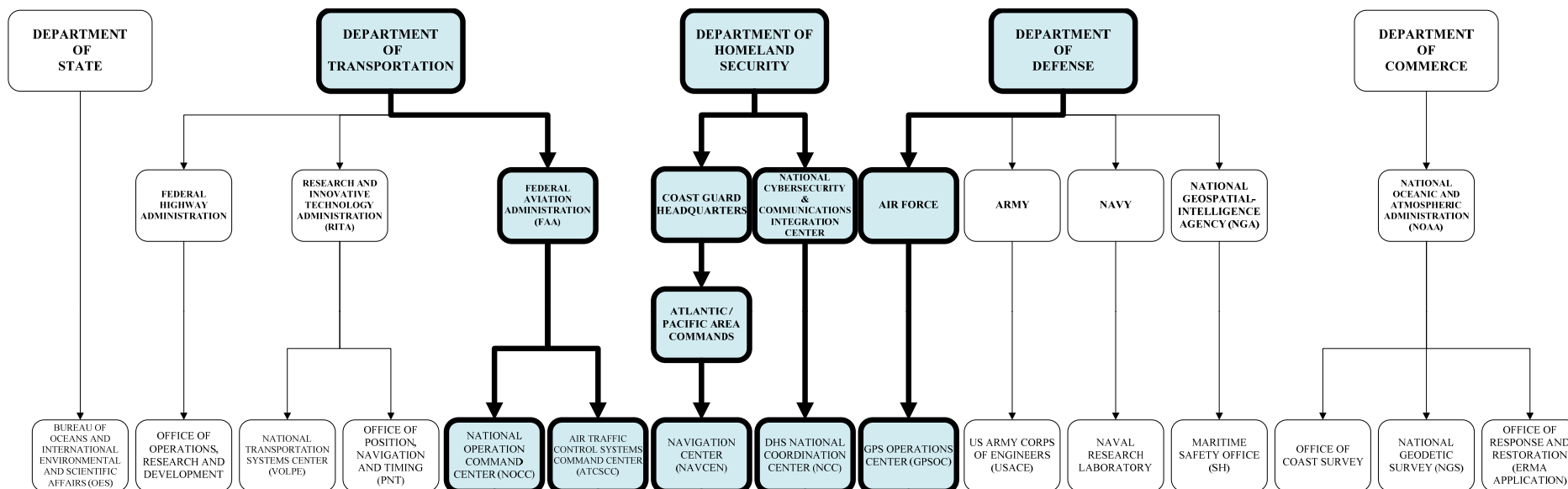


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