SEARCH DATA COLLECTION TRAINING

Introductions

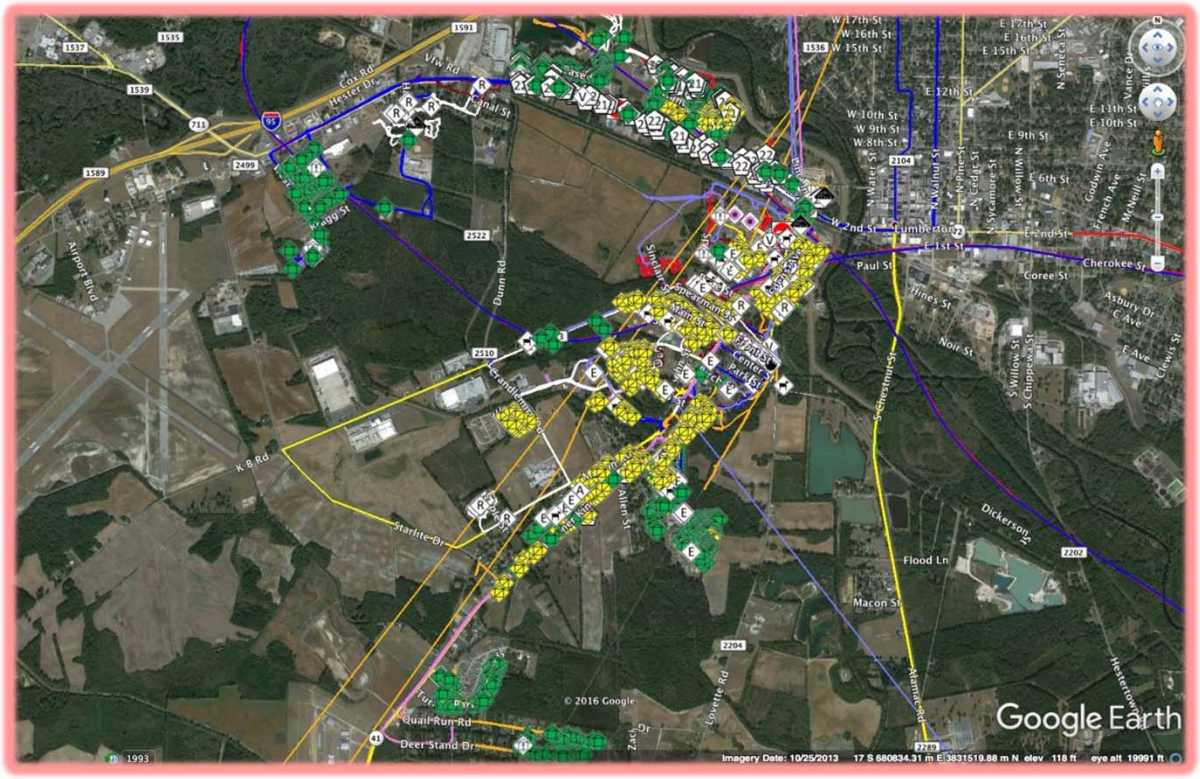
- Name
- Agency
- Position on RTF4

Class Overview

- **Basic Map Review**
- **Basic GPS Device Operation**
  - Tracks
  - Waypoints
- **Search Definitions**
- **Search Icons**
- **Computer Setup**
- **Search Data Collection Exercise**
  - Gather Data
  - Convert Data

Objective

Upon the successful completion of this module, participants will be able to demonstrate the use of the GPS device to collect and display search data.


Google Earth
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Imagery Date: 10/25/2013
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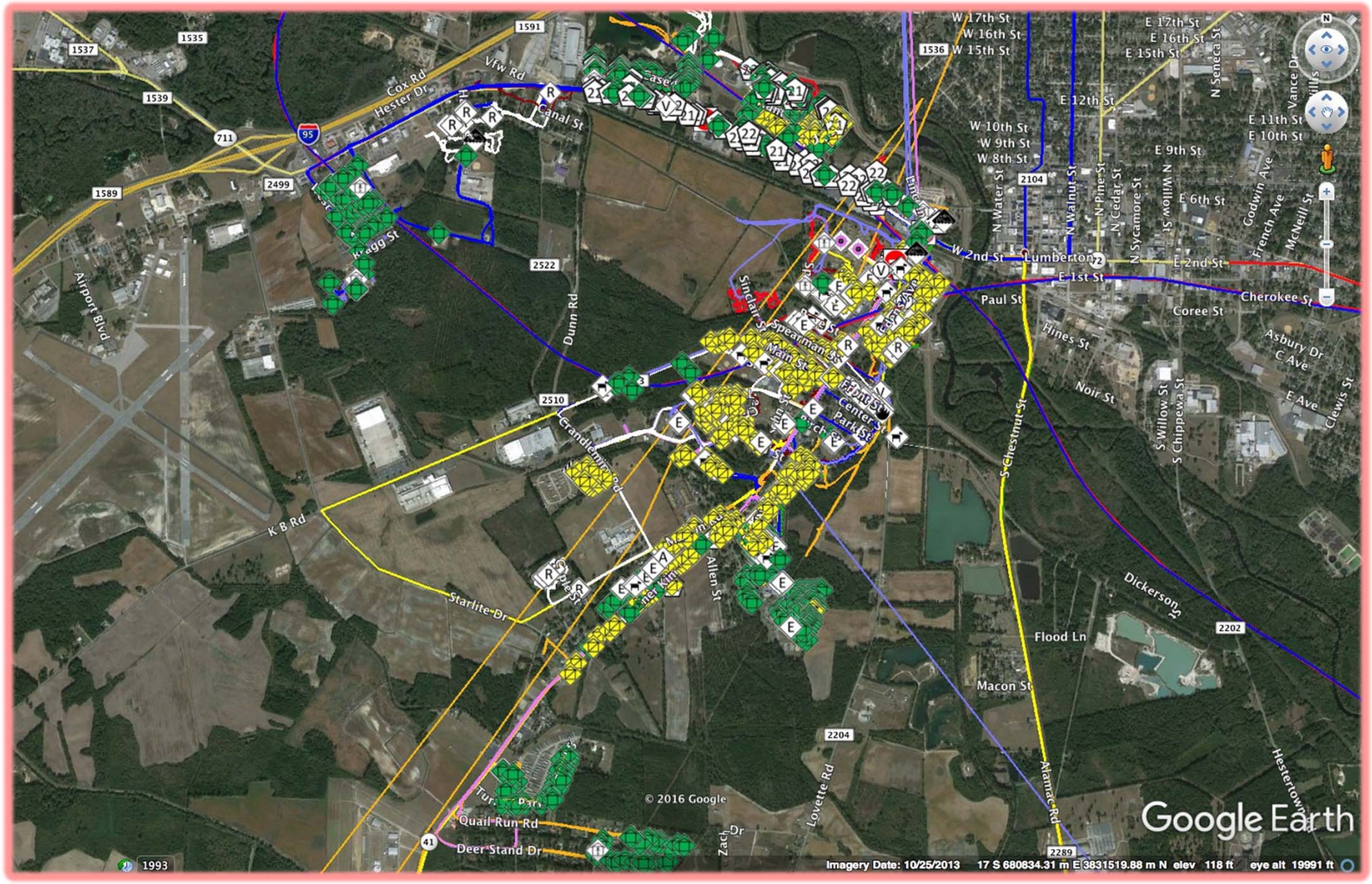
MAP REVIEW



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Maps Review

- **Types of US&R maps:**
  - Unit maps
  - Action plan maps (IAP/OAP map)
  - Briefing maps
  - Display maps
  - Transportation maps
  - BoO maps

Maps Review

- **STAND(D)-L:**
  - Scale
  - Title
  - Author
  - North indicated
  - Date & time
  - Datum
  - Legend

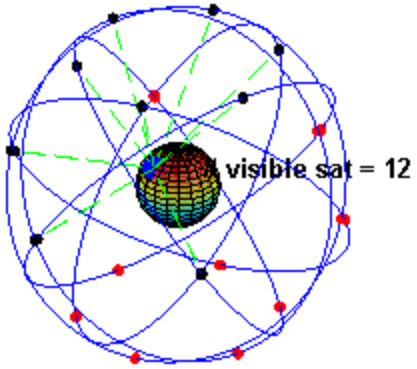
GPS REVIEW

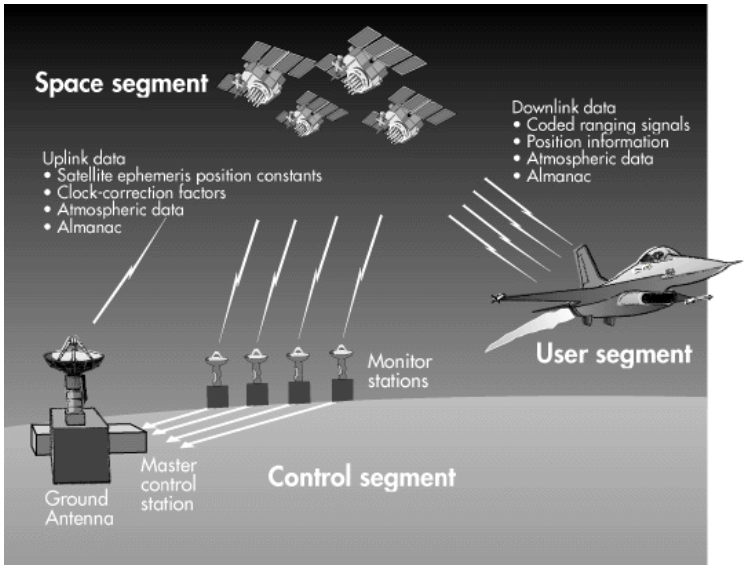
Primary Global Positioning Functions

- **Position And Waypoint Coordinates:**
- **The Distance And Direction Between A Receiver's Position And A Stored Waypoint, Or Between Two Remote Waypoints.**
- **Velocity Reports:**
- **Accurate Time Measurement:**

Three Segments of the GPS

- **Space Segment**
  - 24 Satellites
    - 12 hour orbit
- **Control Segment**
  - 5 Stations
    - 1 Manned
- **User Segment**



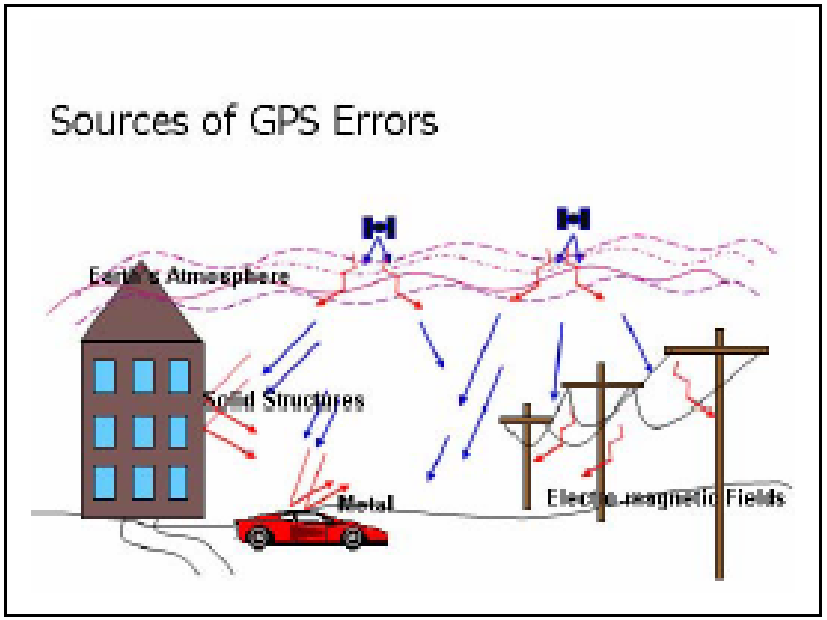


GPS Accuracy

- **2D Mode Is Horizontal Coordinates Only**
- **3D Mode Provides Horizontal Coordinates Plus Elevation**
- **Selective Availability (SA) Program:**
  - 100 Meters.
- **Typical GPS Accuracy Without Sa:**
  - 15 Meters.
- **DGPS Accuracy:**
  - 1 To 5 Meters.
- **WAAS Accuracy:**
  - < 3 Meters.

Sources of GPS Error

- Receiver Clock Errors:
- Orbital Errors:
- Ionosphere/Troposphere Delays:
- Signal Multi-path:
- Selective Availability:
- Number Of Satellites Visible:
- Control Segment Blunders
- User Mistakes
- Errors In GPS Are Cumulative



GPS Key Layout

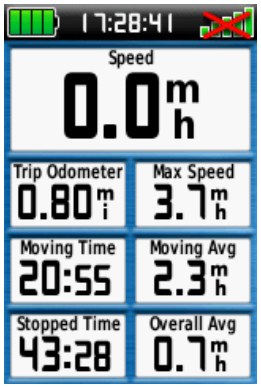
Basic GPS Device Operation

- **Turning on the GPS:**
  - Press & hold **Power** button

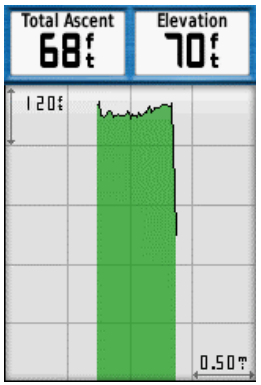
Main Menu

Basic GPS Device Operation

- Cycle through **Menu, Map, Compass, Trip Computer,** and **Elevation Plot** pages using Page or Quit
- Access **Satellite** page from Main Menu (scroll "up" from the default [Setup] to reach Satellite quickly)

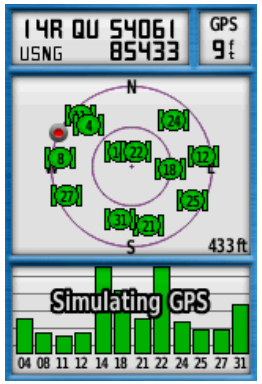


Trip



Altimeter

Main Menu



Basic GPS Device Operation

- Press **Menu** button twice for Main menu

Basic GPS Device Operation

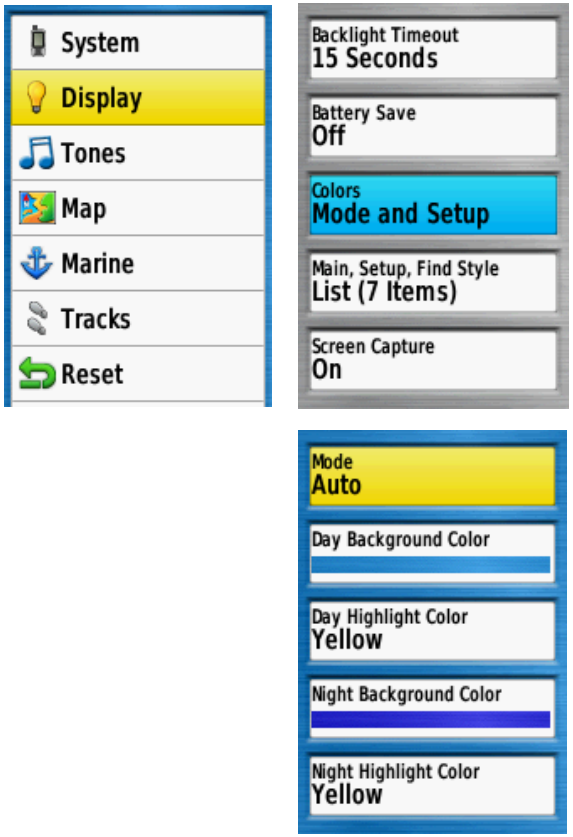
- **Device setup:**
  - Press **Menu** twice for Main menu
  - Select **Setup**
  - Press **Enter**

Basic GPS Device Operation

- **Setup menu:**
  - System
    - *GPS*:
      - **Normal** (everyday use)
      - **Demo** (indoor training)
    - *WAAS*: **Enabled**
    - *Battery Type*:
      - **Alkaline**
      - **NiMH**
    - *Proximity Alarms*: **On**

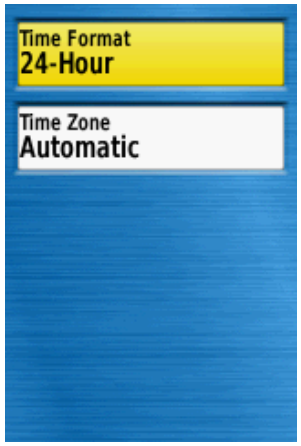
Basic GPS Device Operation

- **Setup menu:**
  - Display:
    - *Backlight Timeout/Battery Save: Impact battery life*
    - *Color Mode and Setup*: **Auto**
      - Switch between **Day** & **Night** modes at sunrise & sunset
    - *Backlight Timeout*:
      - On continuous or timed:
        - » Setting ignored if external power used



Basic GPS Device Operation

- **Setup menu:**
  - *Time*:
    - *Time Format*:
      - Set to **24 Hour**
    - *Time Zone*:
      - For area of operation

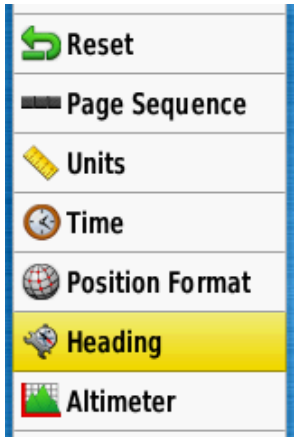


Basic GPS Device Operation

- **Setup menu::**
  - *Position Format*:
    - **USNG** (DHS Standard)
    - **MGRS**
    - **hddd°mm.mmm′**
  - *Map Datum*:
    - **WGS 84**
    - **NAD27 CONUS –USGS Maps**

Basic GPS Device Operation

- **Setup menu:**
  - *Heading*:
    - *North Reference*:
      - Specifies type or north reference used to calculate your heading
        - » **True**



Basic GPS Device Operation

- **Clearing out old GPSr data:**
  - Before each & every use, especially during deployment / exercise, clear all previously recorded trip data, waypoints, & track logs from each GPSr unit
  - Once reset, it can be used to record all activities related to new operational period
  - Only current tracks can be cleared, not saved tracks

Basic GPS Device Operation

- **Clearing out old GPSr data:**
  - Select **SETUP > Reset**
  - Select an item to reset

Basic GPS Device Operation

- **Basic setup for US&R GPSr:**
  - Used to set up Garmin GPSMAP for general use in US&R environment
  - Includes setting for datum, position format, & time zones where user currently assigned

Tracks

- **Track:**
  - Recording of your path
- **Track log:**
  - Contains information about points along traveled path including:
    - Time
    - Location
    - Elevation for each point
  - Before using track log feature, verify feature settings for use in US&R environment

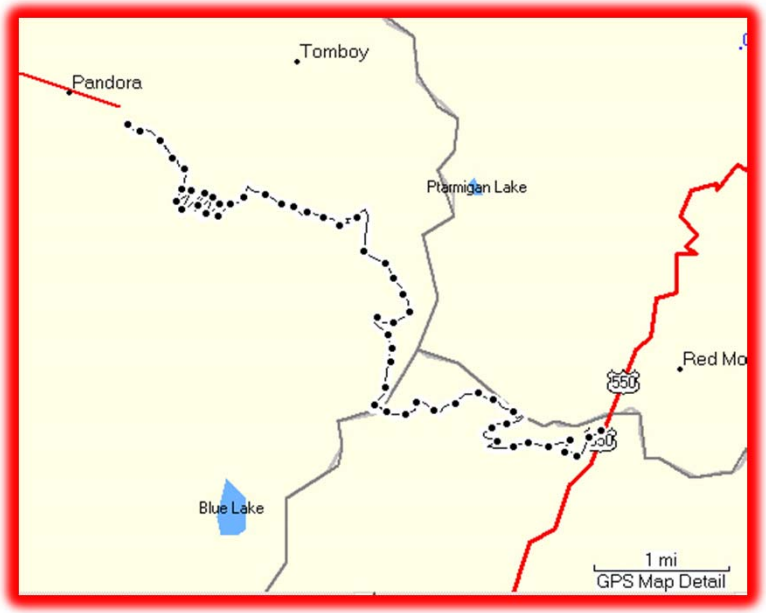
Tracks

- **Track log settings:**

Model 60	Model 62 and 64
1. Select **SETUP > Tracks** 2. *Track Log* turn **ON** or **OFF** 3. *Record Method*: **Auto** 4. *Record Interval*: **Normal**	1. Select **SETUP > Tracks** 2. *Track Log* turn **ON** or **OFF** 3. *Record Method*: **Auto** 4. *Record Interval:* **Normal** 5. *Auto Archive*: **On**

Tracks

- **Track log management:**
  - Track logs are sets of recorded data detailing travel path for given time period
  - Useful in wide area search
  - Use Colors in Search Definitions



Tracks

- **Track log management:**
  - Merging collection of track logs from all deployed resources in disaster area, visual representation of search area easily displayed on map
  - Resulting map analyzed for:
    - Search progression
    - Areas missed
    - Other planning purposes

Tracks

- **Track log management:**
  - Viewing current track:
    - Select **Track Manager > Current Track**
    - Select **View Map**
  - Saving current track:
    - Select **Track Manager > Current Track**
    - Select **Save Track**

Tracks

- **Track log management:**
  - Deleting a track:
    - Select **Track Manager**
    - Select a track
    - Select **Delete**

Waypoints

- **Locations recorded & stored in GPSr unit**
- **Locations that need to be documented for operational purposes or need to be returned to**
- **Include:**
  - BoO
  - Fuel supply
  - Work sites
  - Hazmat locations
  - Myriad of operational locations

Waypoints

- **Before deployment:**
  - All TF GPS units must have custom US&R Symbology loaded on them:
    - Allows unique US&R specific icon to be attached to each waypoint configured in field

Waypoints

- **Marking waypoints:**
  - Waypoints marked by pressing **MARK** on GPS
  - Mark Waypoint page will open with:
    - Coordinates marked in USNG format
    - Time & date waypoint marked
    - OK menu item highlighted

Waypoints

- **Marking waypoints:**
  - Changing waypoint symbol:
    - Symbol located in upper left corner on display
    - Highlight symbol using the **ROCKER**
    - Press **ENTER**
    - Select different symbol from menu
  - To record waypoint:
    - Highlight **OK**
    - Press **ENTER**

Operational Considerations for GPS Units

- **Before GPS unit leaves BoO, Planning Team ensures:**
  - GPS unit has fresh batteries
  - Unit has 4 additional fresh batteries to go with it
  - Track logs have been cleared
  - Waypoints have been cleared

Operational Considerations for GPS Units

- **Before GPS unit leaves BoO, Planning Team ensures:**
  - Units set to USNG
  - Datum set to WGS84
  - Squad leader GPSr operator marked on unit / waypoint card
  - Track logs set to **ON** when mission begins

Operational Considerations for GPS Units

- **When GPS units return to BoO, planning team sets *Track Logs* to** OFF **when mission concluded**
- **When data has been collected & stored, Planning Team should:**
  - Clear all track logs
  - Clear all waypoints
  - Verify units are set to USNG
  - Verify datum is set to WGS84

SEARCH DEFINITIONS
SEARCH ICONS

Search Definitions

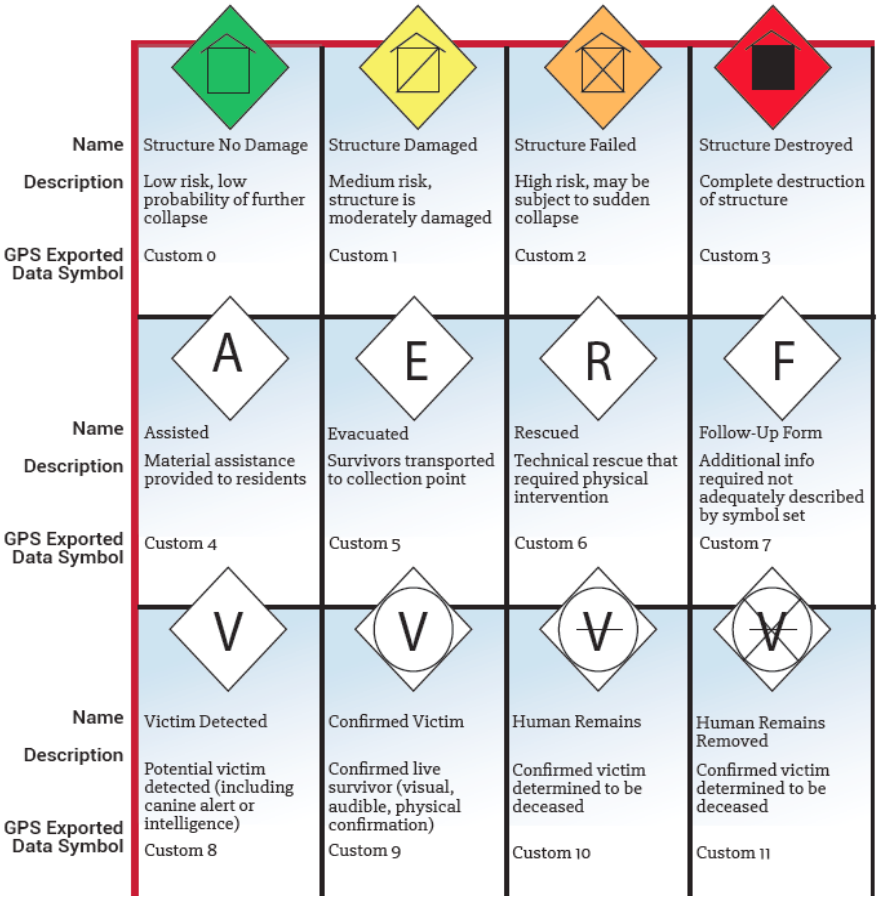
- *RECON* - Preliminary survey of the area.
- *RAPID SEARCH* (Hasty Search) - Fast paced and methodical search of the area. (FEMA)
- *PRIMARY SEARCH* - Quick search of the structures likely to contain victims.
- *SECONDARY SEARCH* - Systematic search of every room of every structure in the assigned area of operation.
  - LOW COVERAGE Secondary Search:
    - Systematic search of every room and void space.
  - HIGH COVERAGE Secondary Search:
    - Exhaustive search of every room and void space.
- TARGETED SEARCHES - Searches of specific locations.
  - Shelter locations
  - High Occupancy locations
  - Critical Infrastructure Facilities
  - Areas of last refuge
  - Locations of Special Needs Individuals or At Risk Persons

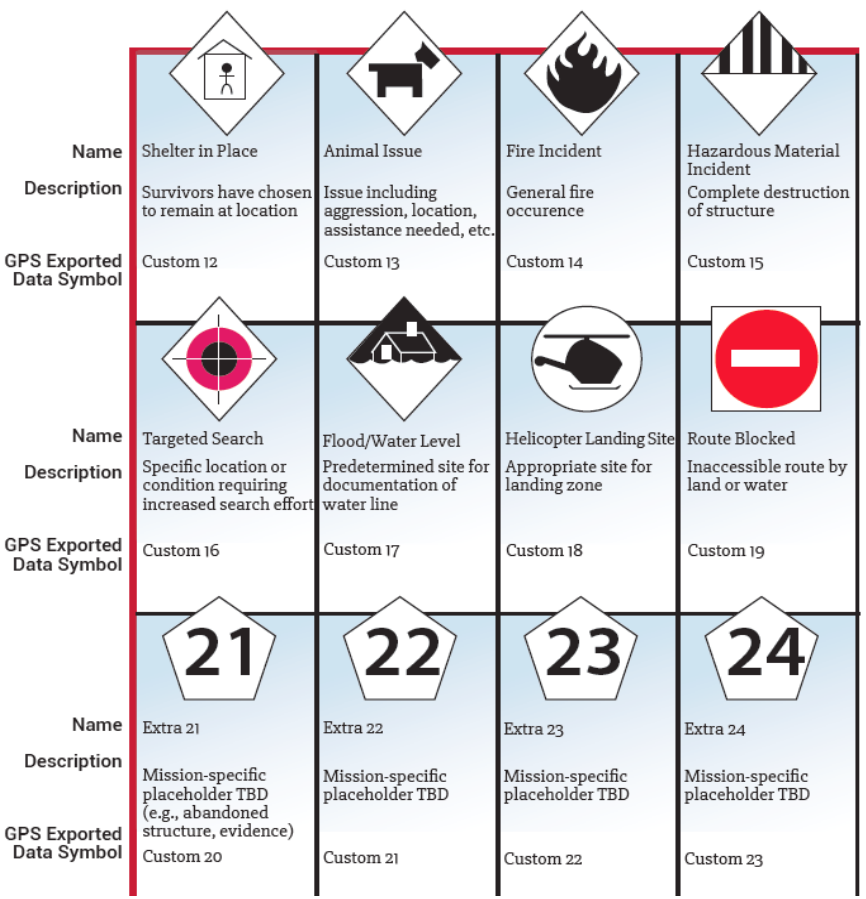
Search Icons

- **24 Icons**
- **20 Assigned**
- **4 Extra for special items**

1 - Structure No Damage	2 - Structure Damaged	3 - Structure Failed	4 – Structure Destroyed
5 – Assisted	6 - Evacuated	7 – Rescued	8 - Follow-Up Form
9 - Victim Detected	10 - Confirmed Victim	11 - Human Remains	12 - Human Remains Removed
13 - Shelter in Place	14 – Animal Issue	15 – Fire Incident	16 - Hazardous Material Incident
17 – Targeted Search	18 - Flood/Water Level	19 - Helicopter Landing Site	20 – Route Blocked
21 - Extra 23	22 - Extra 24	23 - Extra 23	24 - Extra 24

Search Icons





CONVERTOR SETUP AND USE

Summary

This training discussed basic GPS use, search definitions, an processing search data collected on GPS units used by RTF members during an operational period & how to support this task using Garmin BaseCamp per the FEMA US&R PD 2014-013.