

Virtual Search Planning

Dan Hourihan
Mountain Rescue Association (MRA)



Objectives:

- Introduce and define the concept of virtual search planning (VSP)
- Provide examples of VSP application in SAR
- Identify the software and equipment necessary for (VSP)
- Examine the process for (VSP)
- Apply VSP to given situations and describe the results



Introduction:

- Virtual Search Planning is the process of examining facts surrounding a missing person event, applying known and statistical behavior to virtual imaging and terrain analysis tools, and building a logical search plan.



- Facts before we begin...:
 - Initial SAR operations are based upon the limited planning/searching data available at the start of the search
 - Of the data available, a certain percentage of it will be wrong !
 - Planning effort is not a priority in most initial operations.
 - Chaos will be a component of initial operations.



Virtual Search Planning

Case Study: Shane McNeil, 16, Henderson, NV
September 25, 2010



- Background In the McNeil SAR
 - Shane was a 16 year old WM, no physical issues, no mental issues
 - Moved to Henderson NV Spring 2010, prior residence was in PA
 - Practiced “extreme hiking”, watched Man Vs Wild religiously, hiked 6-12 miles in summer conditions including 100+ degrees
 - Shane’s goal was to hike across the desert, “swim” the CO River, hike up AZ Side, and meet mother at Hoover Dam



- **Background In the McNeil SAR (cont.)**
 - Shane leaves house morning of 9-25-10
 - Next known contact via text to mother was at KFC in Boulder City filling water bottles, early afternoon, 9-25-10
 - LKP was somewhere near river based upon text message to mother: “I can see the river, tired, just have to descend this cliff, meet me at HD at 10(pm)
 - Mother waited at HD visitors center till 11 pm and then called 911.



● **Mission Timetable**

- 9-25-2010 @ 11:00 pm: 911 call
- 9-25, 9-26-2010, Midnight to 0300, Helo search of CO River.
- 9-26-2010, 0700-1800, Helo search of CO River and AZ side “Whites Canyon”, Cell forensics places text 3.7 miles from Tower at HD.
- 9-27-2010, 0700-1800, Helo /ground search of CO River and Whites Canyon (AZ)
- 9-28-2010, 0700-1800, Helo / ground search of Whites Canyon (AZ) boat search of CO River





Distances:

Res-KFC:
9.83 sld

KFC-Hoover
23.8 road

KFC-CO River
15.6-19.0



FOX5 Rewards.com
The website that pays Las Vegas back.
POWERED BY ROOMMATE.COM

Get Rewarded for Watching FOX5

[Click here to find out how](#)



100°

Las Vegas
Partly Cloudy

Weather Alerts

Articles Video Web Yellow Pages



HOME NEWS WEATHER VIDEO THE RANT ENTERTAINMENT LINKS TAKE 5 TO CARE FOX5 REWARDS FOX5 HOMEPROS INSIDE FOX5

Homepage / Las Vegas News

4:34pm | September 28, 2010 E-Mail Alerts | RSS

Rescuers, Helicopters Search For Missing Teen

Boy Last Heard From Saturday Night

POSTED: 7:36 am PDT September 27, 2010

UPDATED: 6:46 pm PDT September 27, 2010

facebook del.icio.us buzz digg reddit

Email Print

HENDERSON, Nev. -- Rescuers began searching early Monday morning for a Henderson teenager who disappeared while hiking near the Hoover Dam on Saturday.

Three helicopters, two from Las Vegas Metro police and one from the Arizona Department of Public Safety, also joined the search for 16-year-old Shane McNeil.

"Every day or every minute or every hour that goes by it's probably not a good thing, that's for sure," said volunteer Jeff Ord, who joined the search effort.

McNeil's mother said she last heard from her son when he sent her a [text message](#) just after 7 p.m. Saturday, saying he could see the Colorado River.

The teen, according to his family, is a fan of wilderness survival reality television shows. It's unknown whether his interests played a role in the decision to hike near the dam.

"It's a double-edged sword with these survival shows; that there's a lot of things that he could have learned with this," said National Park Service spokesman Andrew Munoz. "But also it could have increased his

E-Mail News Alerts
Get breaking news and daily headlines.

Enter E-Mail Address

[Browse all e-mail newsletters](#)

Related To Story



[Enlarge](#)

Most Popular

STORIES

- 'Breakfast Club' Stars: Where Are They Now?
- Body Of Missing Henderson Teen Found
- Tracks Matching Missing Teen's Shoes Found

VIDEO

- Two Die After Car Left Running In Garage
- Iran Shows Off Flying Boat Fleet
- Transgender Teen Denied Homecoming Crown

SLIDESHOWS

- 'Breakfast Club' At 25: Where Are Stars Now?
- 10 Cities Having The Most Sex
- Cosmopolitan Of Las Vegas Lights Strip Marquee

[More Most Popular](#)

Job Searching Tips

monster

- **NV SAR Coordinator Involvement:**

- 9-25-2010, No Notification

- 9-26-2010, No Notification

- 9-27-2010, No Notification

- 9-28-2010, No Notification, saw news story of missing boy at SEOC, Carson City, 500 miles from search area @ 1425 hrs

- Contacted LVMPD SAR at 1430 hrs and requested information



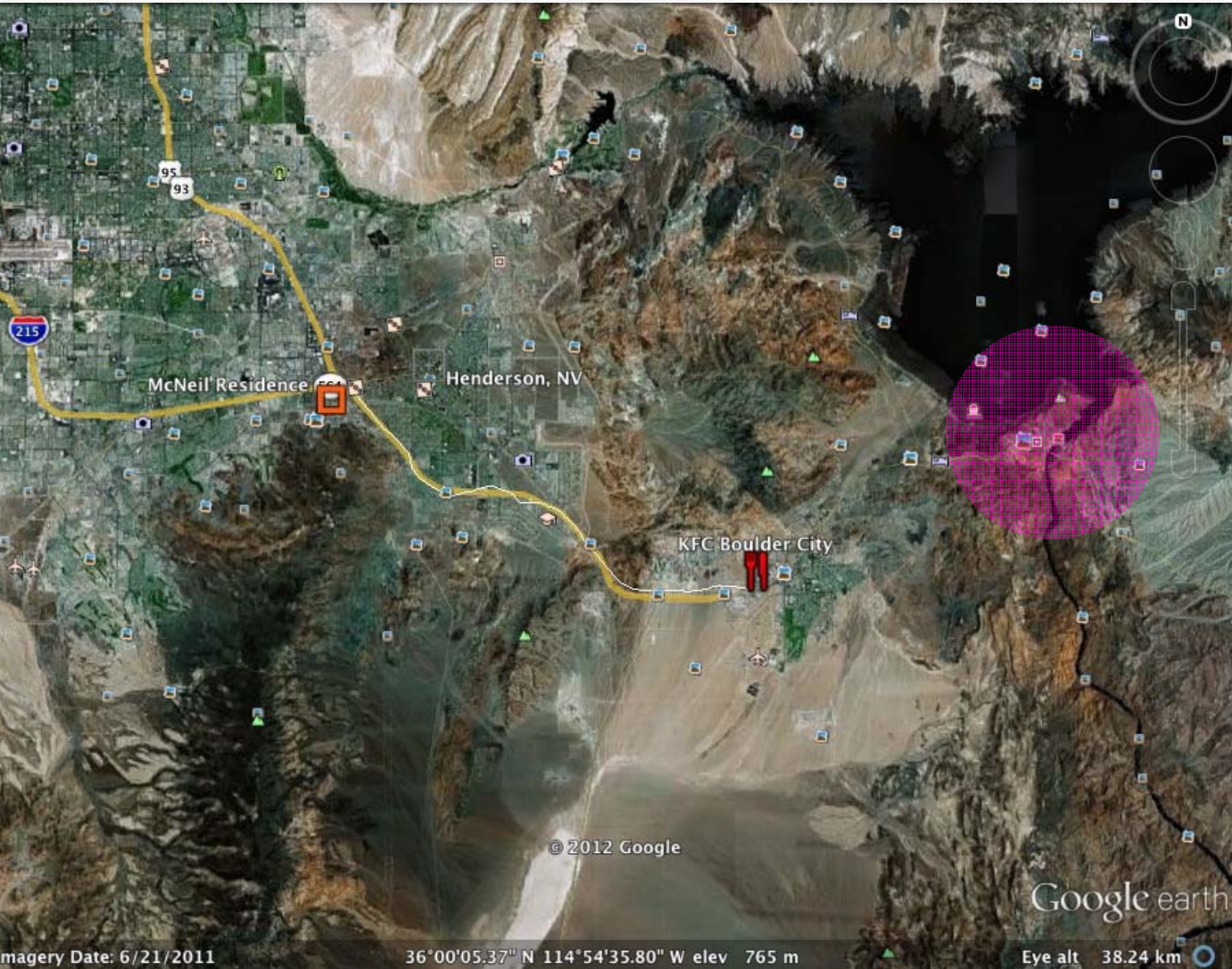
- **NV SAR Coordinator Involvement:**

- 9-28-2010 at 1430 hrs:

- conducted behavior profile with “known data”
- Plotted Cell phone radial within Google Earth
- reviewed messaging
- Conducted “flight” of optional routes to CO River



Plot of cell phone radius...



Cell Tower coverage
at 3.7 Miles



- **NV SAR Coordinator Involvement:**

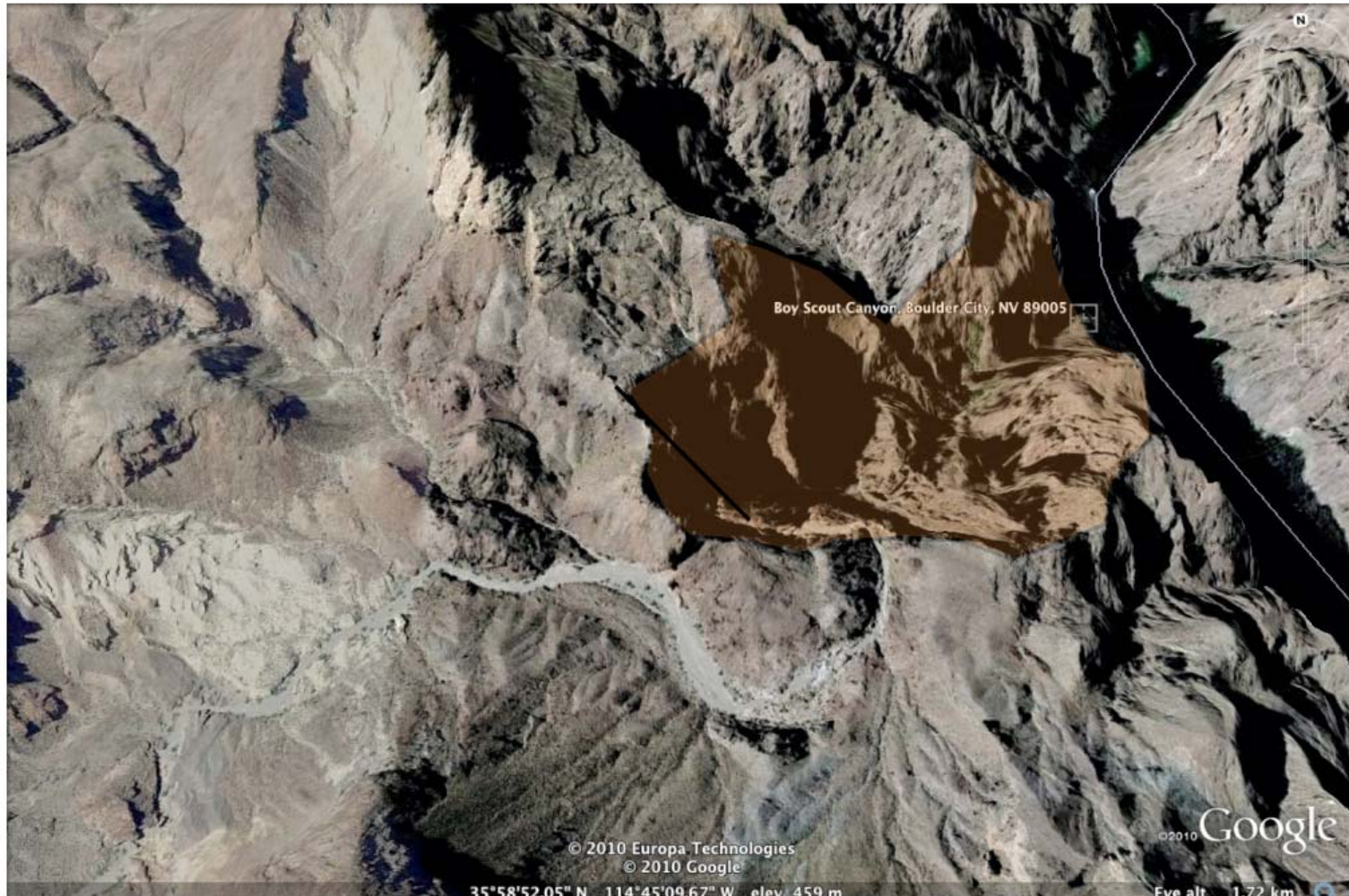
QuickTime™ and a
Video decompressor

are needed to see this picture.

- From radial plot and Searching data:

- “Flew” potential route east

● Virtual Search analysis





McNeil Located



McNeil LKP by Phone

© 2012 Google

Google earth

Imagery Date: 6/21/2011 1990

35°58'51.04" N 114°44'59.82" W elev 346 m

Eye alt 636 m

- **Condition of McNeil when located**

- Deceased, coroner indicated it was most likely 9-26-2010
- McNeil had NO fractures or head injury of note
- Cause of death: Undetermined
- Manner of Death: Undetermined
- At bottom of canyon wall in bushes, backpack was “opened” (not ripped), water bottles were opened and empty!



Virtual Search Planning

Processing a Virtual Search

● **Question: How relevant is the search planning process during the initial operational period of a search ?**

● **relevance: low**

high



- What is required For VSP
 - Search Management Experience
 - Search Planning Experience
 - Intelligence sources that are reliable
 - Lost Person Behavior Data sets
 - Planning Data and Searching data
 - Access to LPQ, clue logs, historical data on searches within the same area



- What is required For VSP:
 - Understanding of the process used for VSP
 - Space for planning... away from the “ICP”
 - Access to a computer with Google Earth /Google Earth Pro, Microsoft Office/PPT, whatever YOU need for analysis.
 - Google Earth Pro: Flight Video capability for terrain analysis, multi-angle view of search area



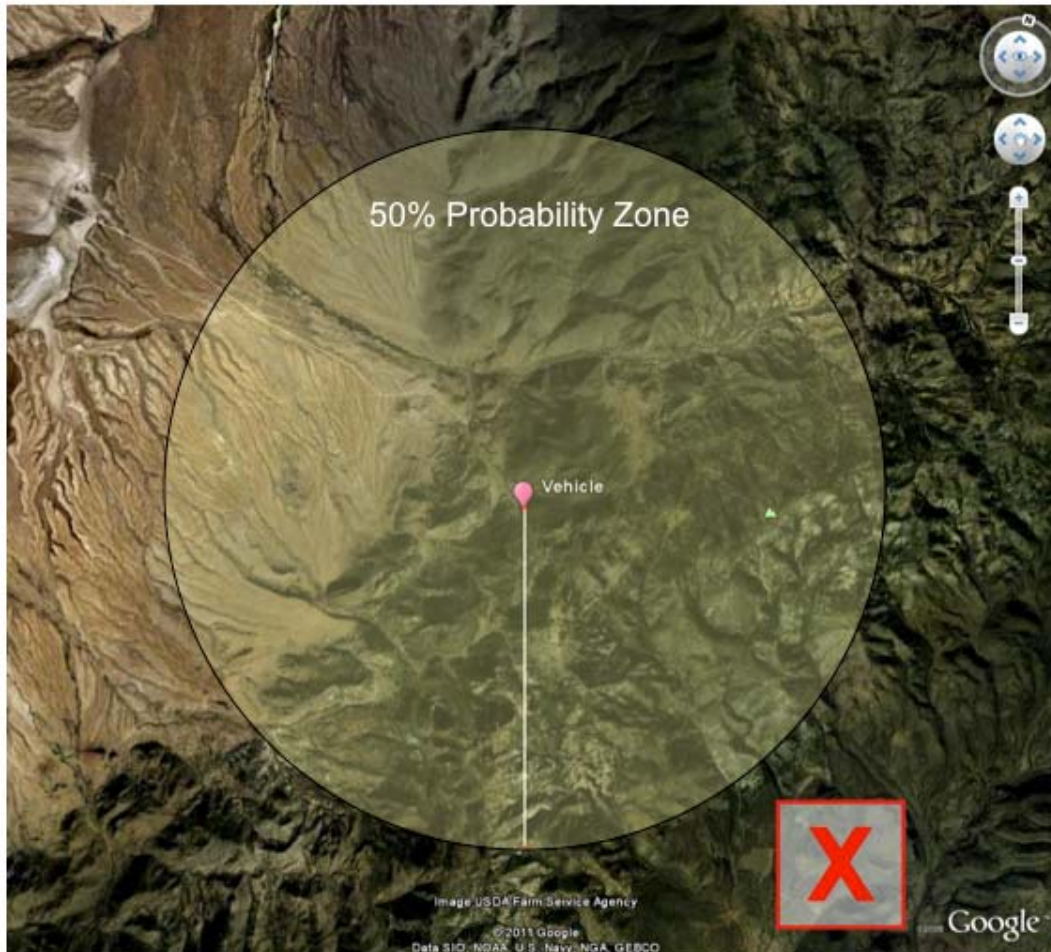
- Producing a VSP:
 - Understand your subject's behavior
 - Evaluate EVERY Clue available
 - Plot all clue information
 - Pings, Spots, cell calls are critical
 - Establish Probability Zones: T-S-S-R and plot
 - Determine probable locations for the subject
 - Mark these on the map, Describe all notations



- Additional Product Information for client
 - Provide the Lost Person Behavior Data you have used in the analysis
 - If your solution is based upon special circumstances, include these in your analysis
 - Reference all materials to analysis: PDR, Technical / Medical references
 - Prepare the document in PDF format for use across all platforms for electronic delivery.



● Case Study:



Mission:
DEM 02172010-176
Subject: Adam
Jacob Blanchard
Age: 27
Ht: 69"
Wt: 250+
Hr: Bro
Ey: Unk

PLS/IPP:
38 36.565' N
116 40.952' W

@ IPP:
Vehicle, Dark Green
Toyota 4Runner, TX
TO2GMH

Radius: 3.0 Miles

Statistical data:
50% probability Zone
for hiker in Hilly
terrain: **0-3.0 Miles**

Max distance 3.2
Miles



Planning data:

Based upon the searching data of the subject (left), the following search techniques and areas are suggested for this search.

Fact: Map purchased in Ely was not present in vehicle

Opinion: Subject left the vehicle with this in his possession

Fact: Vehicle disabled

Opinion: given the work done to aid the vehicle, victim was heavily reliant on the vehicle and walking was last option

Facts: Subject stopped working on vehicle

Opinion: likelihood is that he was fatigued or daylight became an issue in this activity. He stopped due to this.

Fact: Several guns and ammunition located in vehicle. All have matches except the small caliber handgun ammo, which has no gun associated with it.

Opinion: Subject had this gun in his possession when he left the vehicle.

Fact: Subject unfamiliar with area and terrain, hence the map

Opinion: Subject not likely to move cross country in unfamiliar terrain

Fact: Subject had been in Ely, then in Tonopah, Nv. Feb 5, 2011, then vehicle located 61 road miles NE of Tonopah

Opinion: Subject was attempting to return to Ely or was attracted to this area from coming through prior Feb 5th, 2011

Subject most likely had to endure the night, was not prepared, and became hypothermic, resulting in unconsciousness, absent suicide.

Initial search efforts should concentrate on the roadway leading west from the IPP to a distance of 3.0 miles. This includes all general dirt roads and 50 meters either side of the roadway for the entire distance. Look at all culverts, outbuildings, ditches, and possible man-made structures, and other places that would provide shelter for someone the size of the subject. **Look where the subject would fit, not necessarily where they (or you, the searcher) would go.**

Snowfall has destroyed the possibility of tracking unless it melts and the area around the vehicle remains undisturbed. **If this happens, use a tracker to look at the IPP and determine a direction of travel.** Attempt to track if this situation presents itself.

Look for Predatory birds (ravens, buzzards, etc) when possible and use HRD K-9 in these high probability areas.

Keep tracking financials associated with this subject. Track / Ping cell phone, although the phone is most likely out of power.

Subject is prob. Immobile/unresponsive so high POD values must be achieved. Clues to seek: Map book, footprints, gun, CASINGS FROM WEAPON, clothing associated with Subject

Based on known information that subject was trying to "get away" from family, and with the vehicle being stuck, subject may be distraught. This coupled with only a possible handgun missing may lead to a possibility the subject was suicidal. This is highly subjective though given the limited information on the subject and his history.

Mission:

DEM 02172010-176

Subject: Adam Jacob Blanchard

Age: 27

Ht: 69"

Wt: 250+

Hr: Bro

Ey: Unk

PLS/IPP:

38 36.565' N

116 40.952' W

@ IPP:

Vehicle, 98 Dark Green Toyota 4Runner, TX TO2GMH

Radius: 3.0 Miles

Statistical data:

50% probability Zone for hiker in Hilly terrain: **0-3.0 Miles**

Max distance 3.2 Miles

Advantages of VSP

- Can be performed by any competent search planner with minimal tools, can be performed off a topographic map as well
- Product can be delivered as PDF, or saved as PP show, Word or photo document.
- Provides search planners with access to SME/ Technical Specialists in this process without travel or support at the ICP



Advantages of VSP

- Reduces support requirements for command staff at the ICP...
Planners can work where they are comfortable.
- VSP reduces the emotional influence imposed upon planners while working at the ICP
- Solution sets can be established and then evaluated as clues are located, often faster than in the field.
- Planners have all their tools at their disposal



Disadvantages of VSP

- Requires solid communications / data link between ICP and Planning location
- Does not eliminate the need for a Planning Section Chief due to other planning functions at the ICP
- Search Planners should practice this process and not experiment on real events... speed is essential
- The deliverables must be simple to understand and provide foundation for decision points. Vague or non committal analysis helps no one.



Virtual Search Planning

Questions?

Dan Hourihan
Douglas County Search and Rescue, Nevada
MRA
dfhourihan@yahoo.com

