



**Witnesses**  
**David L. Mayer, Ph.D.**

***National Transportation Safety Board***  
Investigations Into Trans World Airlines Flight 800



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# Why study witnesses?

- Speculation that the streak of light was a missile
- Witness accounts were the first and only indication of a missile attack
- Public interest
- Consistent with physical evidence?
- What were they observing?



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **Witness group**

- Received FBI documents in April 1998
- NTSB staff sorted and organized documents
- Group representatives from ALPA, Boeing, the FAA, the IAM, and TWA
- Developed procedures and definitions to study the documents
- Documents contain 736 witnesses

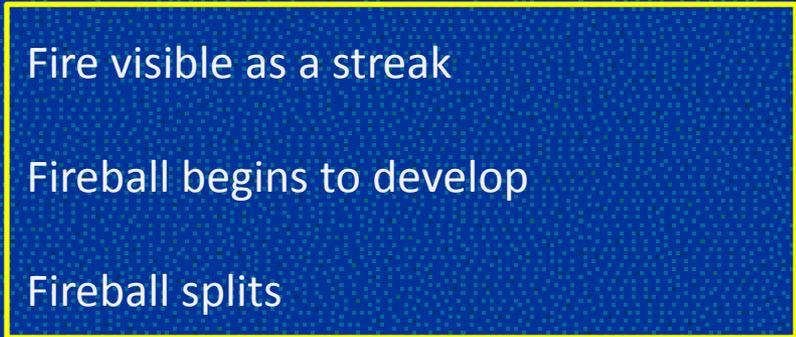


# National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

## What would a witness see?

- Intact airplane → Visible, not very noticeable
- CWT explosion → Unlikely visible
- Nose departure → Unlikely visible
- Crippled flight & fire → Fire visible as a streak
- Outboard wings fail → Fireball begins to develop
- Left wing separates → Fireball splits
- Water impact → Fireball goes below horizon





## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

### **A Witness...**

- He was inside his residence, walking towards a glass door. He noticed a red flare descending. It was on a slight downward arc from west to east. There was a thin white smoke trail following a red dot. He watched the red dot for three or four seconds. He then saw a fireball erupt.



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **A Witness...**

- She saw a red dot of light that appeared to be a roman candle moving east parallel to the horizon. One or two seconds later the dot became bigger and started to fall fast. The dot then blew up into a fireball. A second fireball developed and the two fireballs fell separately.



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **A Witness...**

- He saw a flare blossom into a larger flame in the sky. This larger flame came down into the ocean in two columns.



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **736 Witnesses**

- 258 streak of light witnesses
- 599 fireball witnesses
  - 200 fireball split



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **Group Conclusions**

- Streak may have been the accident airplane during crippled flight
- Generally consistent with calculated flight path
- Fireball was the accident airplane during structural breakup



# ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

## **The Streak**

...looked like fireworks...

...was like a boat flare...

...appeared to be a shooting star...

...a glowing dot...



# ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

## **NTSB Experience**

- Safety Board experience confirms witness reports often inconsistent with:
  - physical evidence
  - recorded data
  - other witness reports



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **Streak of Light**

- 258 streak of light witnesses
- 56 reported that the streak:
  - originated at the surface or horizon, and/or
  - traveled straight up or nearly so



# ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

## **Potential Explanations**

- Crippled flight
- Poor summaries
- Memory errors



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# Research shows...

- Memory is not like a videotape
- People do not retrieve a memory and replay the experience
- People combine knowledge from various sources with their own personal experience
- All memories are constructions



# **National Transportation Safety Board**

Investigation Into Trans World Airlines Flight 800

## **Memory errors**

- Repeated questioning
- Co-witness information
- Interviewer seems knowledgeable
- Leading questions
- Multiple sources
- Re-interviews
- Group interviews
- FBI Agents and experts
- Questions lists
- Many opportunities



## ***National Transportation Safety Board***

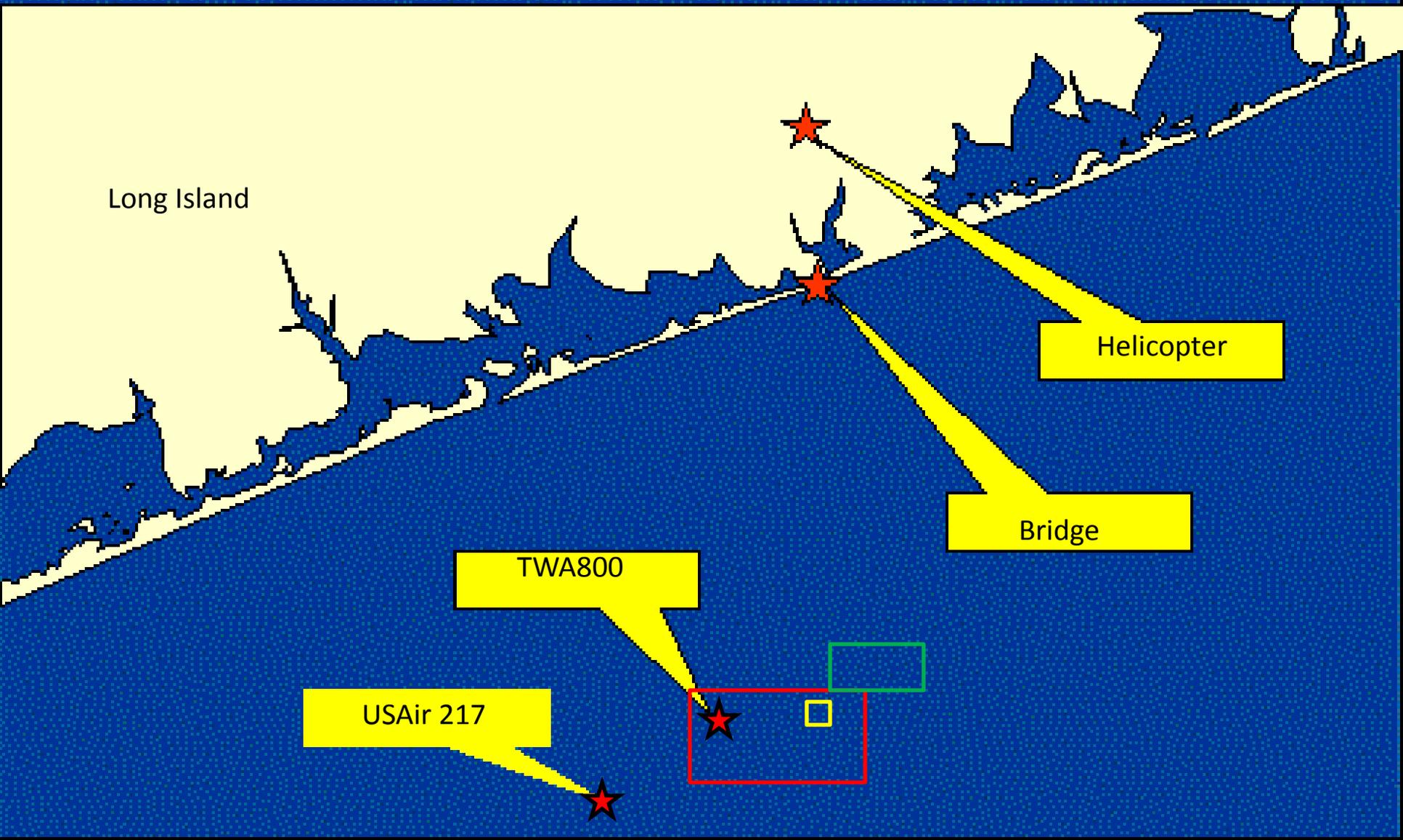
Investigation Into Trans World Airlines Flight 800

- Breakup sequence is well understood
- Remarkable consistency among witnesses



# National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800



Long Island

Helicopter

Bridge

TWA800

USAir 217



## ***National Transportation Safety Board***

*Investigation Into Trans World Airlines Flight 800*

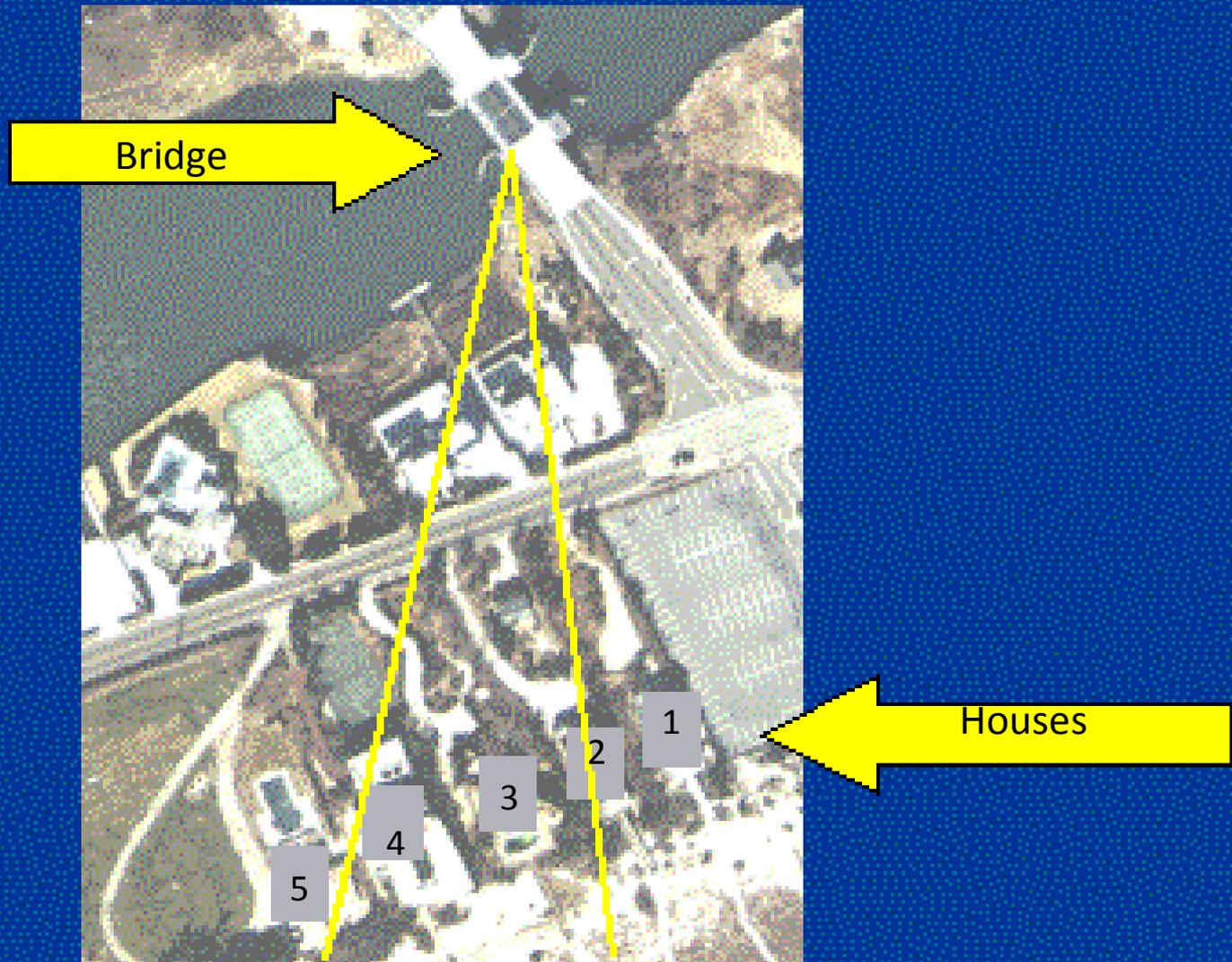
# **Beach Lane Bridge**

- Appeared to be cheap firework coming off the beach about 4 or 5 houses west of the bridge.
- The firework was like a white spark that went up and arched across the sky.
- A short time later, he observed an orange fireball in the sky to the south of the bridge.
- Fireball disappeared behind the second house to the west of the public parking area.



# National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800



Bridge

Houses

5

4

3

2

1



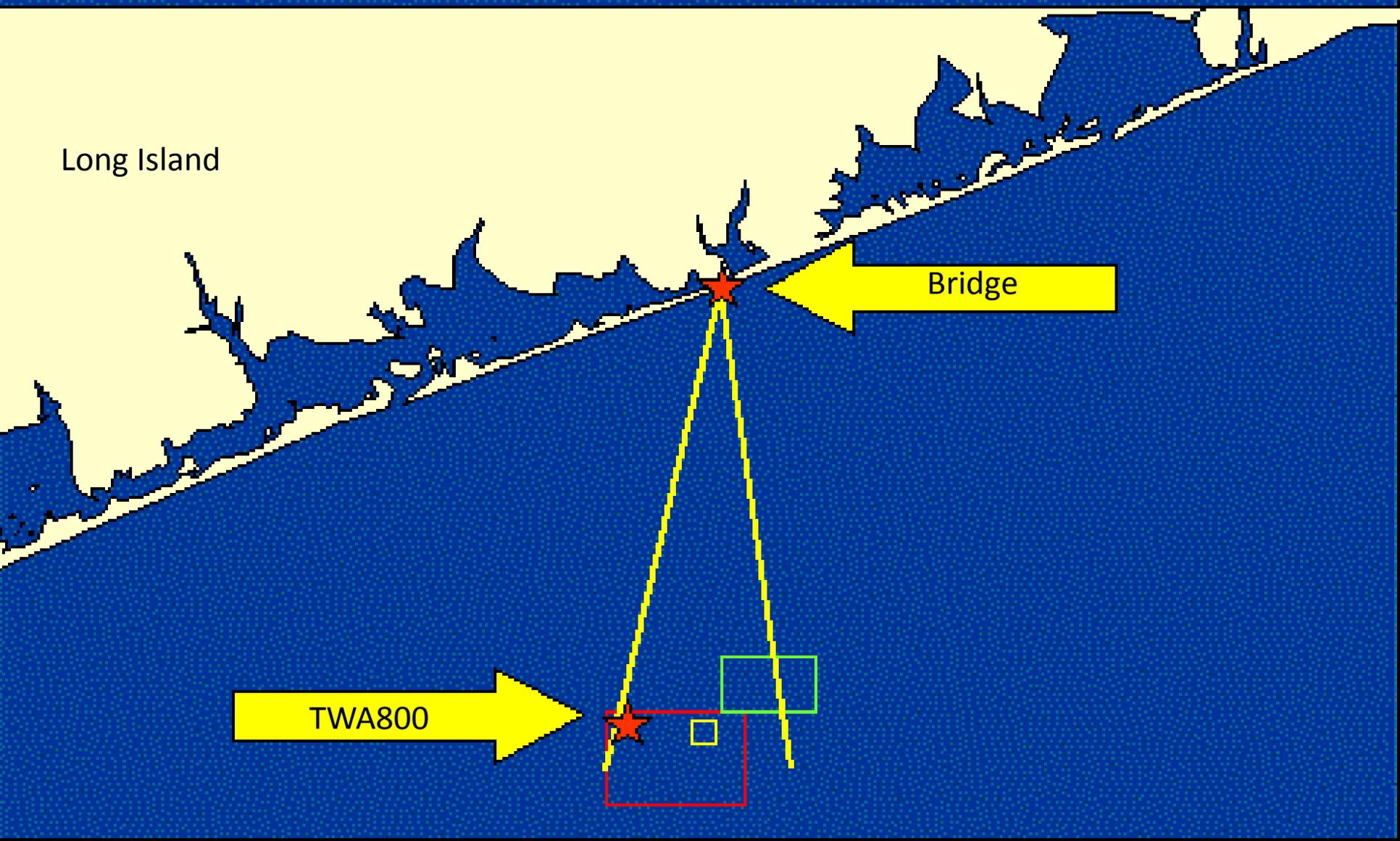
# National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Long Island

Bridge

TWA800





## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **Beach Lane Bridge**

- Witness reported first seeing the streak of light near where the CWT explosion occurred.
- Witness reported seeing the fireball disappear near where the airplane impacted the water.



## **National Transportation Safety Board**

Investigation Into Trans World Airlines Flight 800

# **USAir Flight 217**

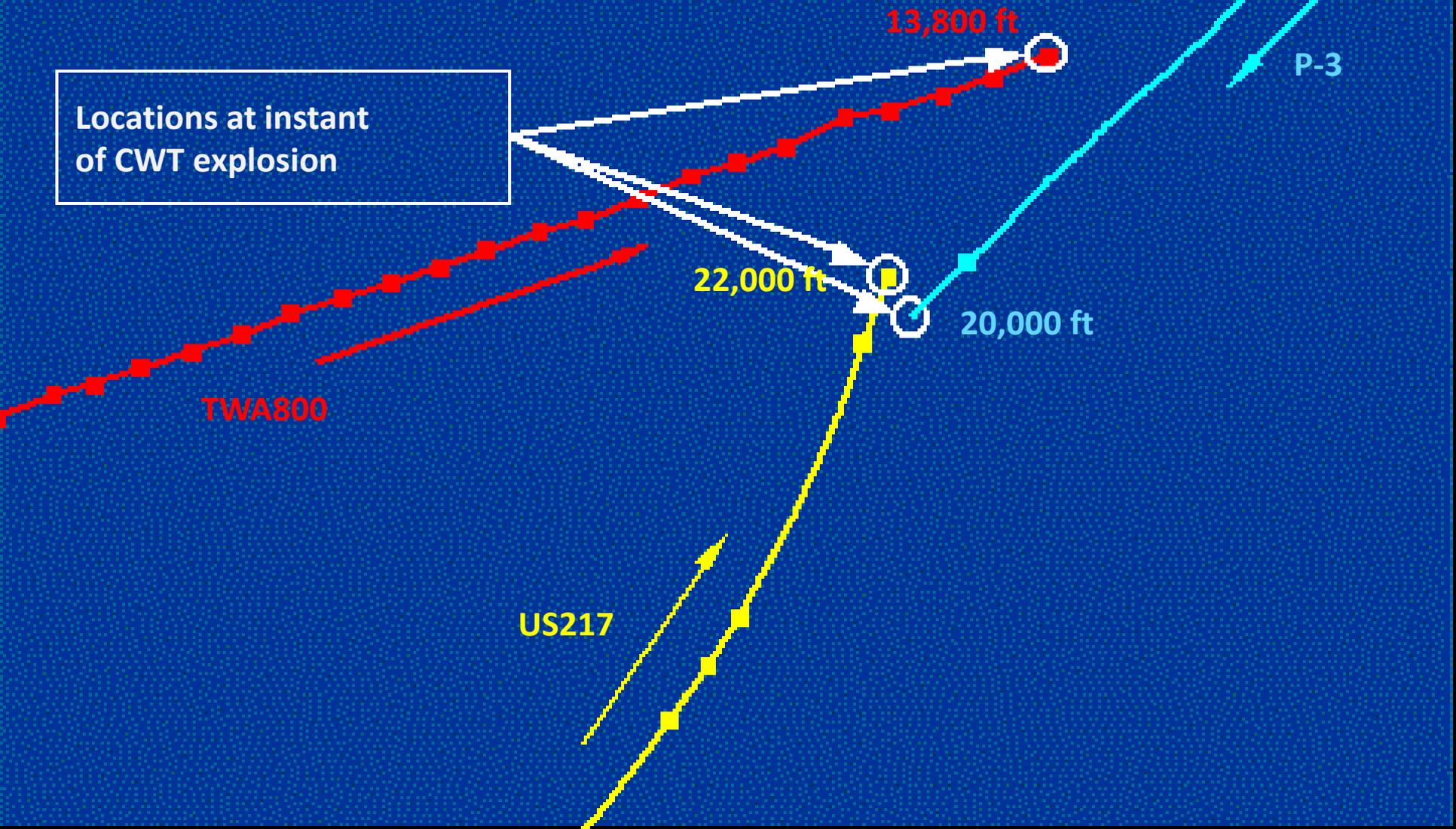
- Observed blinking lights of an airplane flying underneath USAir flight 217.
- About 15-20 seconds later, observed a light that appeared to be a “flare.”
- Observed an initial small explosion in the same area that he last observed the flare.
- Within a second later, the small explosion turned into a large explosion.



# National Transportation Safety Board

## Investigation Into Trans World Airlines Flight 800

Locations at instant of CWT explosion

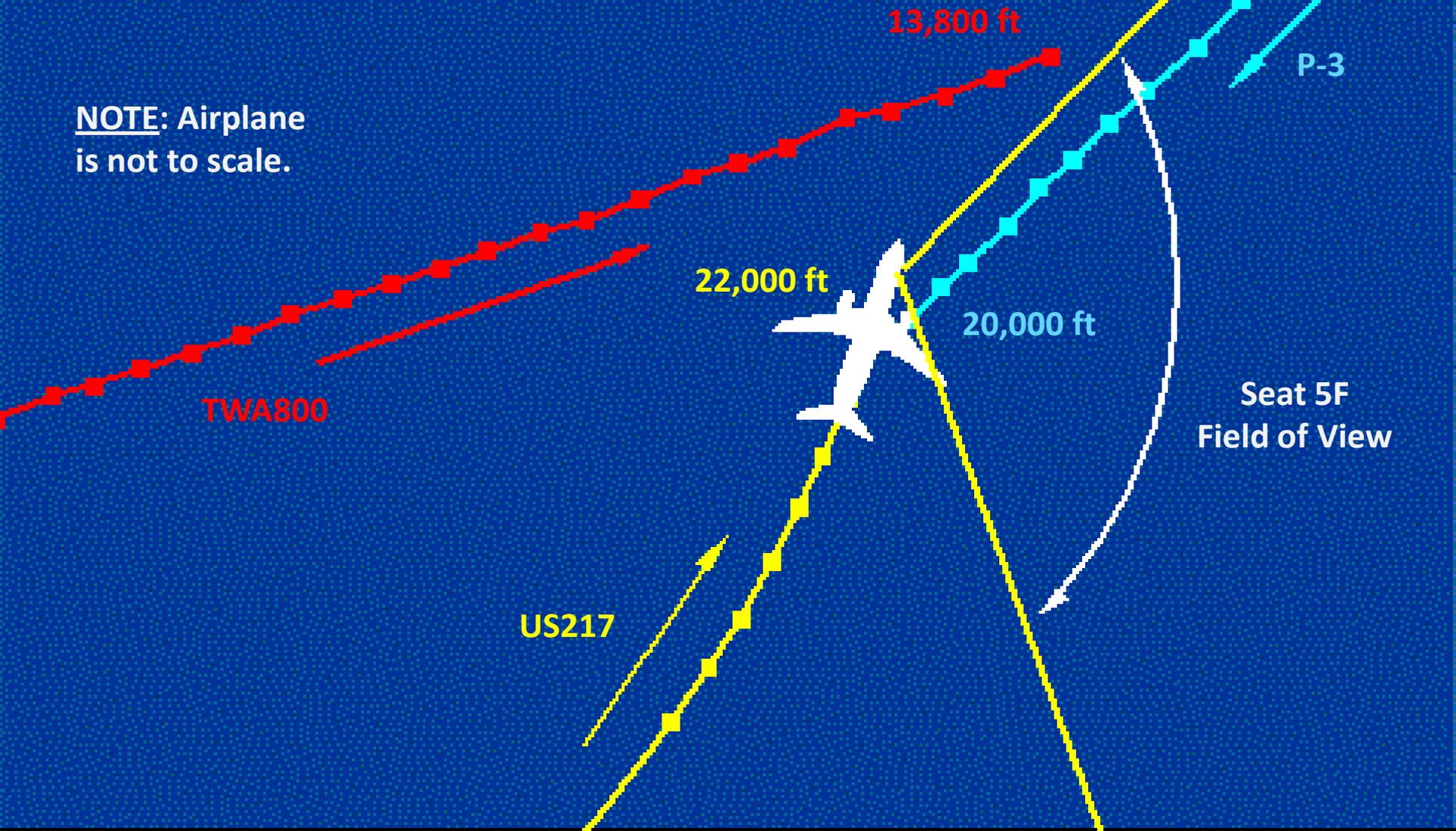




# National Transportation Safety Board

## Investigation Into Trans World Airlines Flight 800

**NOTE:** Airplane is not to scale.





## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **USAir Flight 217**

- Radar data demonstrate that the CWT explosion not visible to this witness.
- The flare he saw was not a missile that hit flight 800.



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **Helicopter Pilot**

- Saw a streak of red light moving very fast from his right to his left. It moved almost horizontal in a gently descending curve.
- Observed the streak for 1 or 2 seconds, saw explosion, second explosion
- Fireball developed, and took 8 to 10 seconds to fall to the ocean



## ***National Transportation Safety Board***

*Investigation Into Trans World Airlines Flight 800*

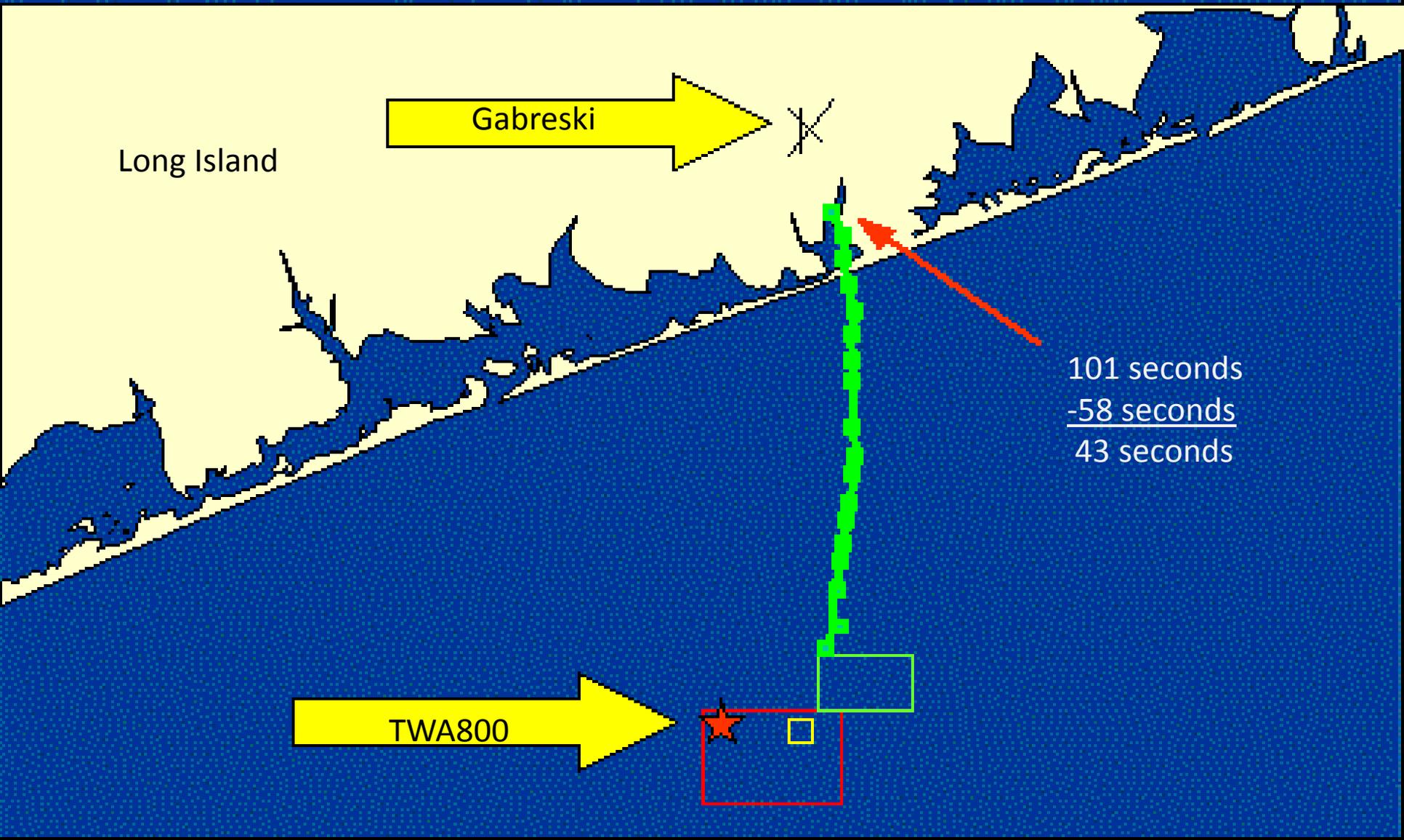
# **Helicopter Co-Pilot**

- Was flying the helicopter
- Told the tower over the radio that two aircraft had just had a mid-air off the coast, and that I was proceeding there immediately. And did.
- Maximum power



# National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800





## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# **Helicopter Pilot**

- Flew directly to green zone
- Began flight to green zone about 43 seconds after CWT explosion
- Saw a fireball late in breakup sequence



## **National Transportation Safety Board**

Investigation Into Trans World Airlines Flight 800

# Missile Visibility Test

- Not conducted to determine if a missile struck flight 800
- What would a missile look like?
- No data available
- Conducted a test



## ***National Transportation Safety Board***

*Investigation Into Trans World Airlines Flight 800*

# **Missile Visibility Test**

- April 2000
- Eglin AFB, Florida
- Same or better visibility conditions
- Observers up to 14 miles from launch
- All observers saw the launch
- Appeared like a rapidly rising light



## **National Transportation Safety Board**

Investigation Into Trans World Airlines Flight 800

# Hypothetical missile attack

- The missile:
  - Light would ascend rapidly
- The crippled airplane:
  - Second streak of light moving slower
- Fireball



## ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

# Hypothetical missile attack

- Did the witnesses describe something like this?
- No.



# ***National Transportation Safety Board***

Investigation Into Trans World Airlines Flight 800

## **Summary**

- Carefully considered all the witness accounts.
- Witness reports consistent with crippled flight—not a missile.