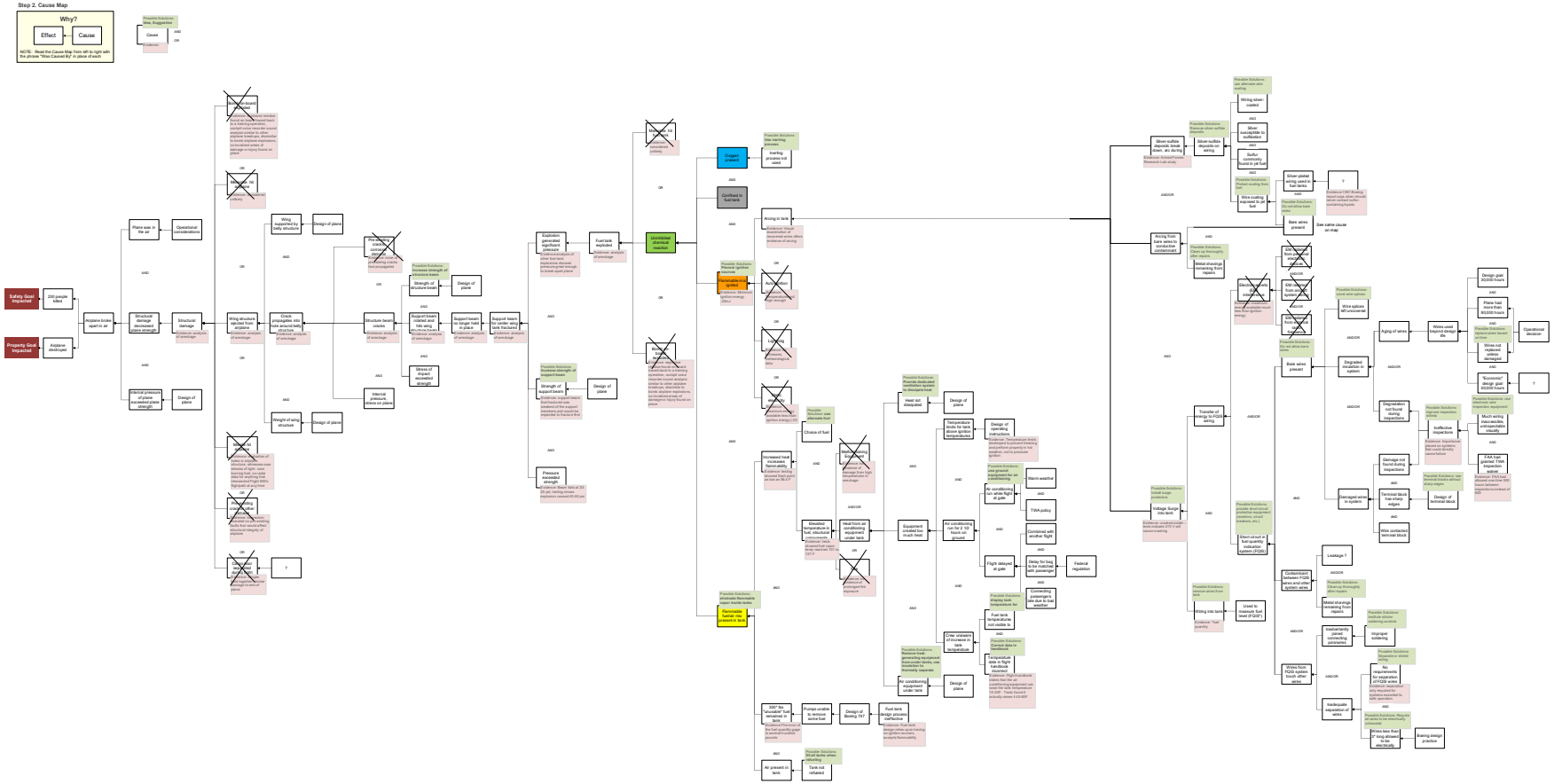
Step 2. Cause Map


Why?
Effect
Cause
NOTE: Read the Cause Map from left to right with the phrase "Was Caused By" in place of each.
Possible Solutions: Are, Suggestion
Cause
Evidence
AND
OR
Safety Goal Impacted
200 people killed
Property Goal Impacted
Airplane destroyed
Airplane broke apart in air
Plane was in the air
Operational considerations
Structural damage decreased plane strength
Structural damage
Internal pressure of plane exceeded plane strength
Design of plane
Wing structure ripped from airplane
Evidence: analysis of wreckage
Wing supported by belly structure
Design of plane
Crack propagates into hole around belly structure
Evidence: analysis of wreckage
Pre-existing crack in structure, design, or manufacturing made fast propagation
Structure beam cracks
Evidence: analysis of wreckage
Strength of structure-beam
Design of plane
Support beam rotated and ribs wing
Evidence: analysis of wreckage
Support beam no longer held in place
Evidence: analysis of wreckage
Support beam for center wing tank fractured
Evidence: analysis of wreckage
Mirror of impact exceeded strength
Internal pressure, stress on plane
Weight of wing structure
Design of plane
Explosion generated shock wave spectrum
Evidence: analysis of other fuel tank explosions showed shock wave was strong to break apart plane
Fuel tank exploded
Evidence: analysis of wreckage
Possible Solutions: Increase strength of support beam
Evidence: Signs of beam that fractured was consistent with overstress of the material, not what was expected to fracture first
Strength of support beam
Design of plane
Pressure exceeded strength
Evidence: Beam fails at 25 psi, but analysis of explosion caused 60-80 psi
Wreckage found in Atlantic Ocean
Evidence: Wreckage found in ocean, witnesses saw plane explode, no warning that, no case data for anything that International Flight 800's flight path at all times
Wreckage showed signs of explosion
Evidence: Analysis of wreckage showed signs of explosion
Wreckage showed signs of fire
Evidence: Analysis of wreckage showed signs of fire
?
Wreckage found in ocean
Evidence: Wreckage found in ocean
Wreckage not found
Evidence: Wreckage not found