AI Helicopter Testing Plan

1. Unit Testing Individual AI Components

1.1 AI State Transitions

- **Test**: Create a mock game state and verify the AI correctly transitions between states
- **Expected Results**: AIs should change states based on environment, nearby entities, and personality traits
- **Metrics**: Track state transition frequency and durations to ensure AIs aren't rapidly flickering between states

1.2 Steering Behaviors

- **Test**: Place test obstacles and targets, observe AI movement around them
- **Expected Results**: AIs should navigate smoothly around obstacles, not get stuck on corners, and take efficient paths to targets
- **Metrics**: Measure path efficiency (actual travel distance / direct distance)

1.3 Perception System

- **Test**: Place entities at different distances and verify AI detection
- **Expected Results**: AIs should only "see" entities within their perception radius, with more intelligent AIs having better perception
- **Metrics**: Track detection rates at different distances

1.4 Personality Traits

- **Test**: Create AIs with different personality types and expose to identical situations
- **Expected Results**: Aggressive A