Evolution of Unmanned Targets: Eglin Test and Training Center

Maurice Bobbitt
96 RANSS/RNRT
850-882-1901
maurice.bobbitt@eglin.af.mil

U.S. AIR FORCE

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Overview

- Historical Synopsis

- Overall Capability

- Current Unmanned Target Capabilities

- Test and Training Requirements

- Challenges

- Planning for the Future

A Little History

- Timeline
  - Fixed Targets: 1968
  - Mobile/Static Targets: 1987
  - Unmanned Targets
    - Tele-operated
      - Ground: 1987
      - Marine: 1987
    - Semi-Autonomous
      - Ground: 2009
      - Marine: 2012

- Unmanned Target Activities
  - Then
    - 1992: 15 Unmanned Targets
    - 1993: 19 Unmanned
  - Now
    - 2011: 31 Unmanned Targets
    - 2012: 43 Unmanned Targets

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Mobile Targets Scope

- Mission Support - Operations and Maintenance
- Target Vehicle Fleet
  - Blue/Red
  - Unmanned
    - Remote Control
    - Semi-autonomous
  - Time, Space, Position Information
  - Surrogates and Simulators
  - Denial and Deception Materials
    - Decoys, nets, paints etc.
  - Maritime
  - Target Facility Infrastructure Support

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Cradle to Grave Support

- Mission Planning

- Cost Estimates

- Engineering and Design

- Acquisition

- Site Preparation

- Placement

- Realistic Scenarios

- Operation and Mission Data (TSPI)

- Deployments

- Storage

- Environmental Cleanup, Demilitarization and Disposal

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Unmanned Control Systems
Ground and Surface

- ## Tele-operated simplex ground control system
  - Flexibility for all types of wheeled/tracked vehicles
  - Limited capability in speed and consistency

Semi-Autonomous ground control system
  - High speed, high repeatability
  - Minimal flexibility to alter path

- ## Semi-Autonomous surface control system

  - Robust control of surface targets
  - Unique control system for O&M support

I n t e g r i t y - S e r v i c e - E x c e l l e n c e

Operational Flexibility

- Simultaneous land and maritime operations
- Mix/Match systems per requirements
- Target speeds of 10-70 mph
- Towing scenarios
- Variety of vehicles
- Real time video, IR
- Large Footprint support
- Centimeter level positioning
- Testing vs. Training requirements
- Prepare for what's next…

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Requirements: Testing

Current

- Multiple vehicle configurations
- Varied terrain
- Foreign and Domestic Targets
- Scripted timing runs
- Small convoys (2-3 vehicles)

Future

- UAV integration
- Dismounted unmanned targets
- Larger/diverse convoys
- Swarm configurations
- GPS-denied Environments
- Large Footprint weapons

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Requirements: Training

- Current
  - Strafing Support
  - Dynamic vehicle operations
  - Lot testing
  - Interactions with simulated cities
- Future
  - Dismounted targets
  - More diverse foreign targets
  - Testing Requirements minus scripting
  - Unplanned events
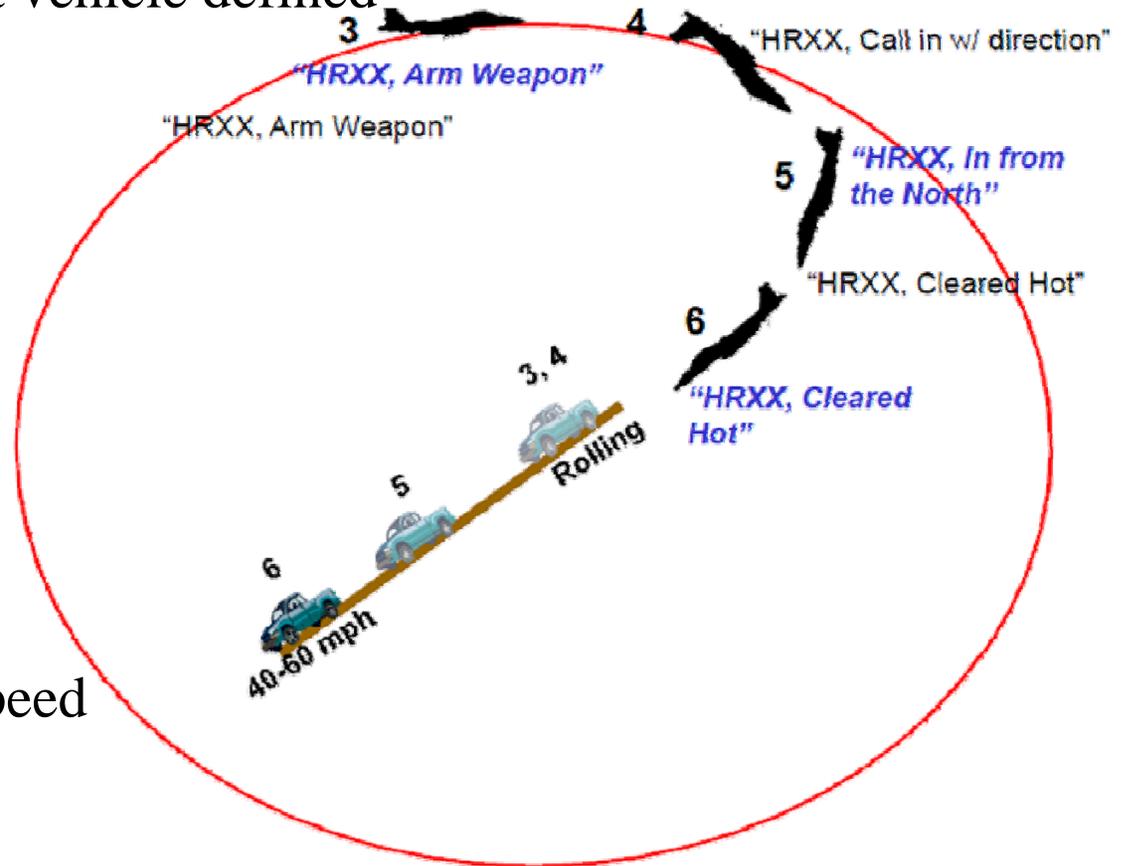

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- Vehicle track created
  - Start/stop/speed of target vehicle defined
- Start vehicle
  - Aircraft Arms weapon
  - Aircraft begins targeting
- Vehicle at speed
  - Cleared for launch
- Weapon release
- Weapon Impact
- Testing: Timing/location/speed
- Training: Speed important

3   4   "HRXX, Call in w/ direction"

"HRXX, Arm Weapon"

"HRXX, Arm Weapon"

5   "HRXX, In from the North"

"HRXX, Cleared Hot"

6

"HRXX, Cleared Hot"

3, 4

Rolling

5

6

40-60 mph

Challenges

- **Funding**
  - Problem:
    - Shrinking budget has a double impact on target acquisition
      - Reduced funding for weapon development
      - Reduced funding for bases/installations
  - Mitigation:
    - Efficient management of resources
    - Leveraging off other Ranges and commercial developments
    - Start target planning early

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Challenges

- **Requirements**
  - Problems:
    - Shortened Lead time
    - Creating realistic threats/Cost vs. Capability
    - Information assurance
  - Mitigation:
    - Keep existing support capabilities modular
    - Readily available acquisition contracts
    - Incremental improvements
    - Coordination to ensure procurement/implementation standards

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Challenges

- **Spectrum**
  - Problem:
    - Reduction of spectrum and increased spectrum use
  - Mitigation:
    - Bandwidth management
    - Utilization of wired infrastructure options
    - Leveraging off Industry
- **Future**
  - Utilization of moving targets here to stay
  - Leverage ever-increasing robotics development
  - Increased coordination with Test Ranges/Services

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