



Precision Strike Association Excalibur Overview



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Distribution A: Approved For Public Release

Revolutionary Capability for Cannon Artillery



*Excalibur Can Now
Quickly
Engage Targets
Previously
Unreachable with
Cannon Artillery*

Your Target



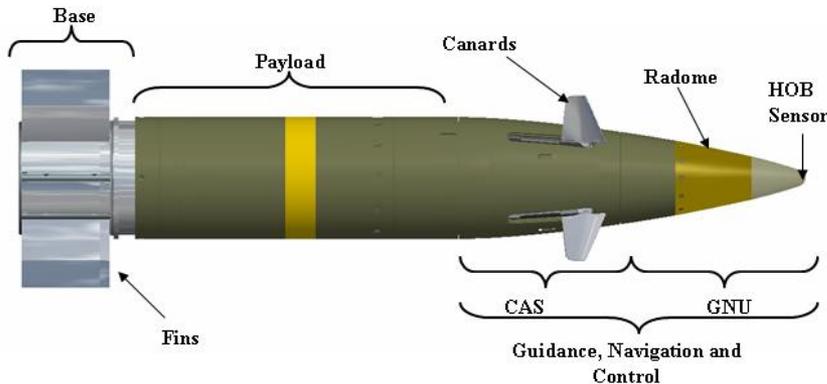
- **Makes Cannon Artillery Relevant in Today's Conflicts**
- **Precision Accuracy Provides Single Round Effects**
- **Low Collateral Damage**
- **Not just for urban environment**

Program Overview



Mission Statement:

Provides improved fire support through a Precision Guided Extended Range family of 155mm projectiles with greatly increased accuracy and reduced collateral damage.



Characteristics / Description:

- Precision Guided, Extended Range Carrier for a Family of 155mm Cannon Ammunition
- Optimal Terminal Trajectory for Urban/Complex Terrain (Near Vertical Angle of Fall)
- Fin Stabilized Glide Air Frame
- All Weather, Day/Night, Fire & Forget
- 4-Axis Canard Actuation System for Maneuverability
- One Meter Length / 106 pounds
- Objective Maximum Range: 40km (39cal), 50km (50cal)

Special Features:

- GPS - Inertial Navigation System (INS) Guidance
- Conducts In-Flight Guidance and Trajectory Correction for Precision Attack
- Tri-mode fuze capable of penetrating urban structures
- Automated - inductive fuze setting

Contractors

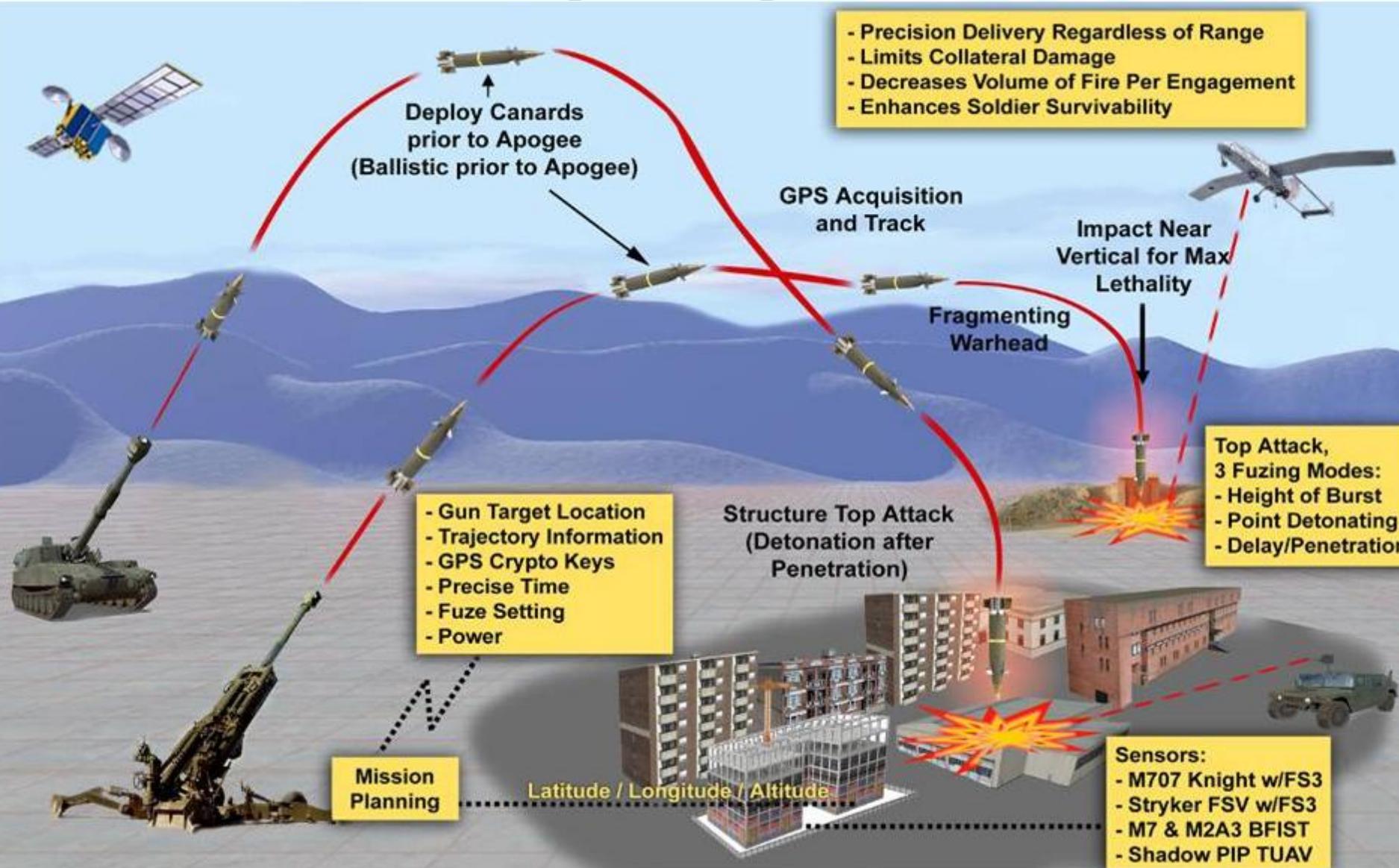
- Ia-1, Ia-2, Ib Prime-Raytheon Missile Systems

Capability / Improvements:

- Increased Accuracy, Less Than 4 meter CEP at all Ranges
- Precision Delivery Decreases Collateral Damage
- Expands the Missions and Capabilities of Cannon Artillery
 - Urban and other Complex Terrain
- Decreases Volume of Fire Per Engagement
- Evolutionary Acquisition / Block Development Enables
 - Technology Refresh, Improved Reliability
 - A "Precision Bus" for Future Payloads (Smart, Discriminating, Non-Lethal, etc.)

Excalibur

Concept of Operations



Product Overview



Increment Ia-1: Urgent, Early Fielding (XM982)

Fielded Now
Production Complete

- Precision Capability to Theater
- Met Urgent Need/Lessened Requirements

Increment Ia-2: Baseline Program (M982)

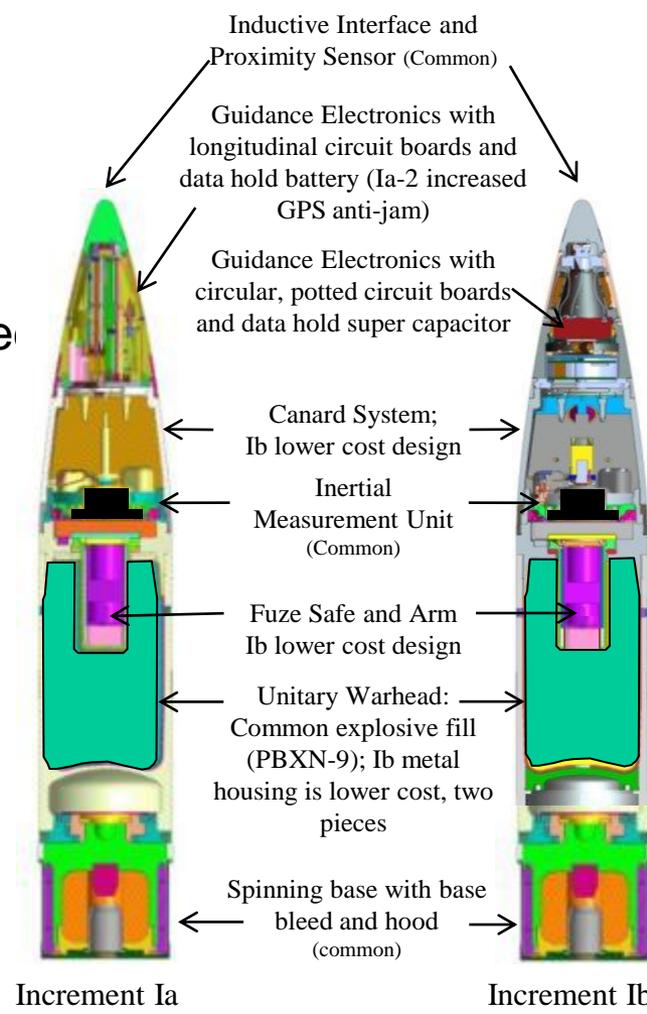
Fielding Now
Full Rate Production

- Extended Range (added base bleed)
 - Beyond 37.5 km (Ia-1 = 24km)
- Improved Reliability (>85%)
- Improved Countermeasures

Increment Ib: Affordability (M982E1/A1)

In EMD
MS C – FY13

- Reduced Cost of Proc Rd by 50%
- Increased Reliability (>90%)
- Begins production 2QFY13



Current CEP 3.8 Meters



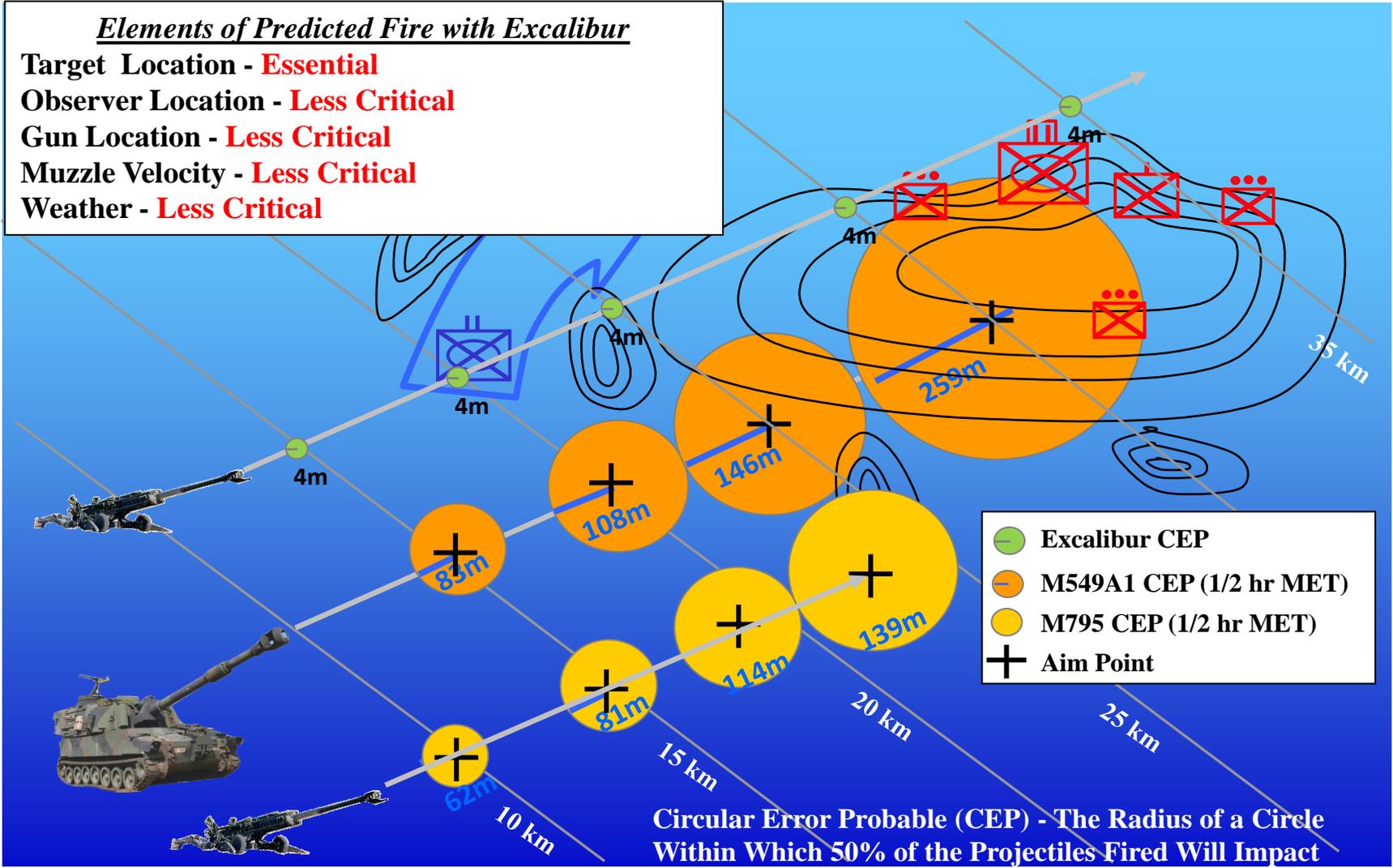
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Accuracy at Any Range/Any Condition



Elements of Predicted Fire with Excalibur

- Target Location - **Essential**
- Observer Location - **Less Critical**
- Gun Location - **Less Critical**
- Muzzle Velocity - **Less Critical**
- Weather - **Less Critical**

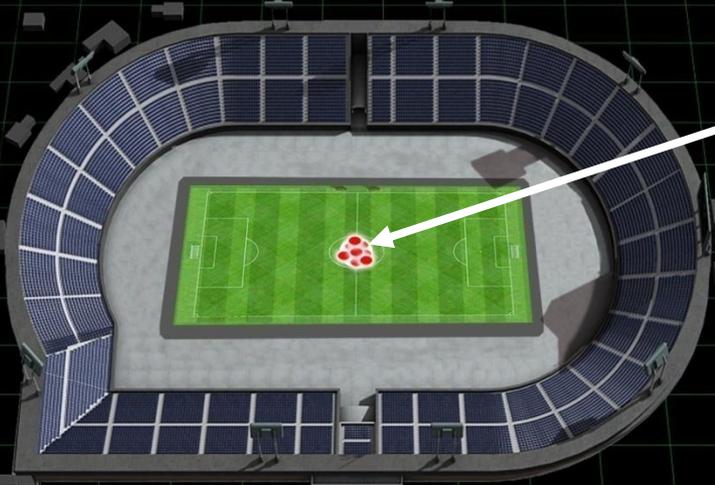


Circular Error Probable (CEP) - The Radius of a Circle Within Which 50% of the Projectiles Fired Will Impact

Excalibur Compensates for Four of the Five Critical Elements



Miss Distances and CDE

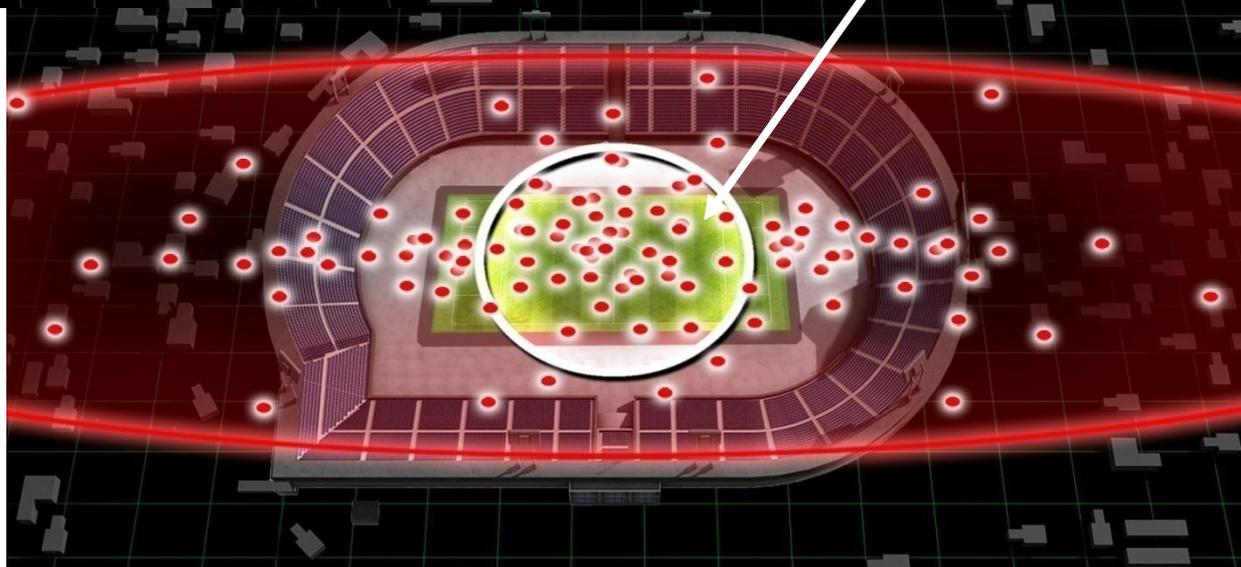


10M Excalibur Radial Miss Distance (CEP90)

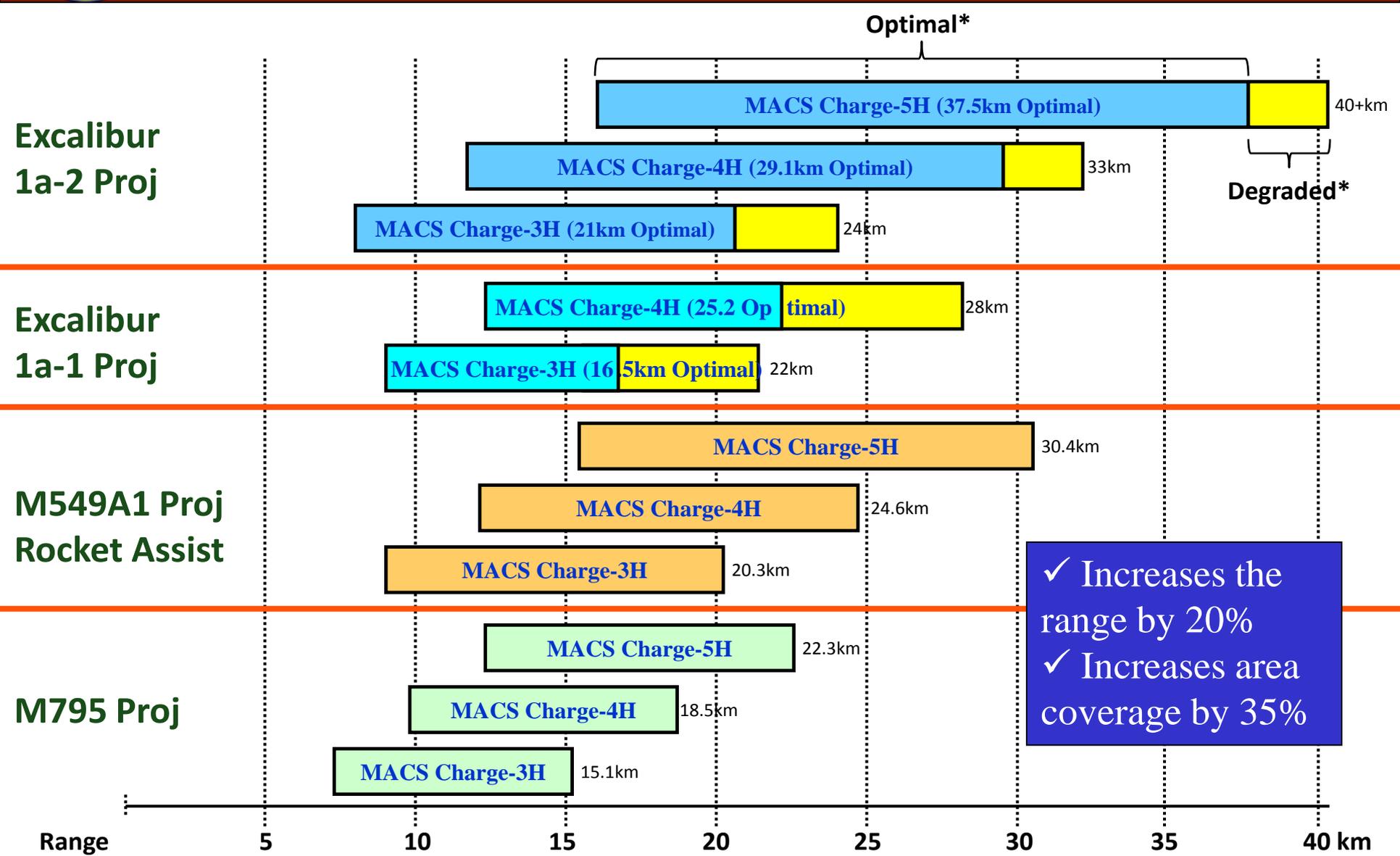
Collateral Damage of a 50M CEP

Collateral Damage Reduced

- Highly Accurate
- Top Down Attack
- Optimized Height of Burst
- 22kg (50 lb) warhead



39 Caliber 155mm Artillery



✓ Increases the range by 20%
 ✓ Increases area coverage by 35%

Logistics and Effectiveness



Infantry Platoon

M107: 43 Rounds
M549: 25 Rounds
Excalibur: 3 Rounds



Command Post

M107: 78 Rounds
M549: 54 Rounds
Excalibur: 6 Rounds



Radar

M107: 11 Rounds
M549: 10 Rounds
Excalibur: 1 Round



Structures

M107: 147 Rounds
M549: 110 Rounds
Excalibur: 3 Rounds

Effects Comparison:
M107 at 15Km
M549 at 20Km
Excalibur at any Range

Reduced Demand for Shells, Fuzes, Charges by ~90%

