Sustainability vs. Enhancement
What is the Future Priority of Land Rehabilitation and Maintenance (LRAM)?

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ITAM Operations Manager

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ITAM is one of two DA G3 “Enabler” programs (RTLP and ITAM) that supports the objectives of the Army Sustainable Range Program (SRP) with the goal of maximizing the capability, availability, and accessibility of ranges and training land. (AR 350-19)

Command: Execute USAREUR SRP Within Operations / Training Channels

Overall: Manage The Army’s Training Land “Platform” To Sustain Its Future Use For Training by:

1. Sustainable Range Awareness
2. Range and Training Land Assessment
3. Training Requirements Integration
4. Land Rehabilitation and Maintenance

ITAM emerged nearly 25 years ago. What began as a scientific evaluation of natural resource management on lands supporting military-mission activities, evolved into a world-class model for the management of military lands and strategic enabler supporting military readiness.
ITAM Land Repair Examples

Over $55M in land repair projects executed in FY04-09

JMRC Hohenfels

Pre-ITAM

Grafenwoehr

JMRC Hohenfels

Any Mission, Anywhere
LRAM Doctrine Examples:

AR 350-19
5–4. Land rehabilitation and maintenance
a. The land rehabilitation and maintenance (LRAM) component is a key enabler for sustaining realistic training conditions…

TC 25-1
“Adequate realistic and complex maneuver/training areas, the Army’s “outdoor classroom”, are one of the most critical training resources in the Live…”

Army Training Concept 2012-2020 White Paper
“…provide high-fidelity replications of the complex operational environment.”

Army Training Strategy (12 Nov 09)
“…support both institutional and operational training and to create training conditions that realistically portray the operational environment.”

Similar cites in Op Environment Master Plan (Sep 09), HST Master Plan (Sep 07) and Small Unit Ops in Afghanistan TTPs (Jun 09)
Problem Statement:

LRAM marginally enhances training realism

TE = Training Environment
OE = Operational Environment
Road craters: 12 x 12, 6 foot deep

Urban confined driving-buildings, walls, curves. Only 1 foot wider than vehicle.

Unimproved roads, sheer up and down on either sides. Switchbacks and tight turns. Must use ground guides.

MOUT TE is not Afghan. Buildings should be mud and stone, cheap metal doors, right on roads.

Need advanced recovery operations lane. Try to recover vehicles with no axles, upside down, blown up. Lane for recovery vehicle operators and mechanics.

Roads in training areas are way too well improved. Should be extremely narrow with blast holes, narrow choke points. Think like the enemy.

Dismounted IED lanes surrounded by enemy/friendly fighting positions. On command or wired IEDs. Soldiers should train dismount/mount techniques while convoy moves down road.

Mountainous terrain difficult for vehicles and dismounts. Replicate this as much as possible. It’s not the high altitude, but ruggedness and climbing. C2 of dismounts, commo between vehicles and dismounts.

Culverts everywhere, 85% made from corrugated iron, others cement. Need to train check and clear culverts.

In some locations road has cleared terrain 200-300 meters on each side, and has pressure plate mines in cleared areas.

While walking thru tall grass, Soldiers step/fall into holes and terrain drops.

Enemy may string IED wires between trees not on ground.

Road clearance mission was 60-70 km per day, 2/3 paved, 1/3 unimproved. Good training course would be 10-15 km long-maybe only 6km if a lot of IEDs.

Croplands around MOUT sites.
Dismounted operations in Wardak Province of Afghanistan.
Soldiers conducting dismounted command wire sweeps in mountains of Konar, Afghanistan.
Agricultural Landscapes and Farm Complexes

Operating Environment (OE)

Training Environment (TE)

Afghanistan Land Use / Land Cover

USAREUR Major Training Areas Land Use / Land Cover

- Forest
- Shrublands, Savannas, Grasslands
- Cropland
- Urban, built-up
- Sparse, barren, snow, ice
- Wetlands, water
- Roads
- Others

Any Mission, Anywhere
How can LRAM enable a realistic TE?
Describes:
• Cost
• Validity
• Appearance
• Construction plans
• Training requirement
Agricultural Landscape and Farm Complexes?

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Agricultural Landscape and Farm Complexes?

Any Mission, Anywhere

UNCLASSIFIED

As of 29 Apr 2011
Agricultural Landscape and Farm Complexes?
Agricultural Landscape and Farm Complexes?
Agricultural Landscape and Farm Complexes?

OVERVIEW—FARM COMPLEX

Berms
Top view
Made of earth materials—mud and rocks

Side view

Irrigation Ditch
Feeder (1 m wide and 1 m deep)
Hard-packed gravel, sides and bottom. Excavated by hand

Tertiary (0.5 m wide and 0.25 m deep)
Hand-dug, dirt sides and bottoms

PROJECT DESCRIPTION

There are 5 ha in Training Area 9 adjacent to MOUT Site 9a that will be reconfigured into a Replicated Agricultural Terrain complex. The existing MOUT site will replicate the farm village complex. If feasible, a mud and rock wall 1.5 to 2 m will enclose the MOUT site, with openings where each maneuver trail enters the MOUT site. A small farm consists of three buildings (e.g., Silo storage containers) and will be located approximately 0.5 km from the MOUT site and also connected to the MOUT site and the MOUT site. The farm will be enclosed by a mud and rock wall 2 m high, plus an opening.

In the area adjacent to the MOUT site, there will be two sets of simulated crop fields. One set will be subdivided into three small plots, divided by mud and rock berms 0.5 m high, and planted with native grasses. Another set will be subdivided into three terraced fields, with an elevation change between each of 0.5 m and also separated by mud and rock berms. These fields will also be planted with native grasses. The fields should be roughly tiled. If feasible, a dry irrigation ditch will be hand-excavated along side both sets of fields.

One orchard will be created out of a small wooded lot approximately 60 m by 40 m on the north side of the MOUT site (about 0.5 km from the MOUT site). A new orchard will be planted with fruit or nut trees, depending on availability and cost, on a recently cleared 50 m by 50 m area adjacent to the east side of the village. After the orchard adjacent to the MOUT site has been established (one season), a 1 m mud and stone wall will be constructed around the orchard, with portals on the east and west sides.

To the south of the MOUT site a small 30 m by 30 m simulated "old" vineyard will be established and surrounded on three sides by a 0.3 m high berm. The vines will be planted in small mounds approximately 3 m apart and will grow along the tops of the connected mounds. A dry hand-excavated irrigation ditch will run along the north side of the vineyard.

OTHER RELEVANT RECONFIGURATION BMPS

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<th>#</th>
<th>Title</th>
<th>Relevancy</th>
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<td>Vineyards</td>
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<td>Ragged land Navigation Course</td>
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<td>Caves and Tunnels</td>
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<td>Unimproved Water Crossings</td>
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<td>Outlets in Operational Environments</td>
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<td>Low</td>
<td>Vehicle Recovery Site</td>
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### Agricultural Landscape and Farm Complexes?

#### SCHEDULE OF QUANTITIES—COST ESTIMATE

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<th>Work Item</th>
<th>Quantity</th>
<th>Unit</th>
<th>Metric Unit</th>
<th>Unit Cost</th>
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<td>Crushed rock</td>
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<td>8</td>
<td>Dump truck</td>
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<td>3 weeks</td>
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<td>9</td>
<td>Technician</td>
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<td>Laborer</td>
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<td>Ancillary costs</td>
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<td><strong>$36,110</strong></td>
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</tbody>
</table>

#### ENVIRONMENTAL REQUIREMENTS

- Preliminary Review: Y N
- Environmental Review: N N
- Environmental Assessment/Environmental Impact Statement/Finding of No Significant Impact:
  - Landscape Management Plan: Y N
- Mitigation:
  - Required: Y □ □ □
  - Account: Eco □ Forestry □ Other:
  - Mitigation Plan: Y □ □ □
- Comments:

#### PROJECT SCHEDULE

**Milestone**

- Develop Project Description, Estimate, and Site Alternatives: 14
- Complete Environmental Assessment and Select Final Site: 21
- Complete Site Survey and Develop Reconfiguration Plans: 35
- Develop Project Schedule, Order Materials, and Reserve Equipment: 45
- Complete Land Reconfiguration: 105
- Plant Grasses and Other Vegetation: 115
- Conduct Site Inspection: 135
- Available for Training: 150

**Construction/Engineering Notes:**

#### PROJECT SUSTAINMENT REQUIREMENTS

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<tr>
<th>Task</th>
<th>Description</th>
<th>Frequency</th>
<th>Estimated Cost</th>
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<td>Monthly</td>
<td>$1,000/annually</td>
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<tr>
<td>Repair berms around fields</td>
<td>Ensure that berms can support dismounted troops</td>
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**Total:** $36,110

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<th>Task</th>
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<tbody>
<tr>
<td>Develop Project Description, Estimate, and Site Alternatives</td>
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<td>Construction/Engineering Notes</td>
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<td>Landscape Management Plan</td>
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### Dismounted Movement/Rugged Terrain

**Map 2: GTA Rugged Terrain Trail - Trail Stretches A-J**

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<td>D-F</td>
<td>B-D</td>
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<td>2</td>
<td>14</td>
<td>30</td>
<td>Max Slope (%)</td>
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Way Ahead
Way Ahead

- 13 LRAM Reconfiguration BMPs will be available on USAREUR and DA SRP websites

- Requirements
  - Talk to your units.
  - Initially focus on enhancing MOUT buffer regions and associated ingress/egress maneuver trails
  - Is increasing training realism an objective?

- Ensure your Training Area Working Groups are active and ready
  - Much easier to install a check dam than a wheat field
  - Much easier to fix a road than to leave it / worsen it

- The OE will change over time, but so should the TE
USAREUR Sustainable Range Program (SRP)

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Attn: AETT-STS-TS (Bldg 3007)
Unit 28130; Camp Normandy
APO AE 09114-8130

Army Range Mapper:
https://srp.usareur.army.mil