

## ART 4.5.2.1 Construct Roads And Highways

Determine road network requirements (such as classify roads in the area of operations (AO) per location, trafficability, and degree of permanence, traffic-bearing capabilities, and improvements needed). Maintain and repair existing roads (such as inspect and supervise, stockpile materials, keep road surfaces in usable and safe condition, prompt repair, correct basic cause of surface failure, and perform maintenance inspections) and construct new roads (such as route reconnaissance, site selection, surveys, drainage, construction, paving, and soil stabilization). (FM 3-34.400) (USAES)

| NO. | Scale  | Measure   |
|-----|--------|---|
| 01  | Yes/No | An inability to construct or maintain highways and roads in the AO within the time the construction directive specifies did not degrade or delay unit operations.   |
| 02  | Yes/No | Unit developed detailed plans for project.  |
| 03  | Yes/No | Unit inspected project for quality control and ensured that the road or highway construction project was completed on time.   |
| 04  | Yes/No | Environmental considerations planning and procedures were present and being followed.   |
| 05  | Time   | To reconnoiter to determine how the local environment will affect roads and highway construction and determine if existing facilities or natural resources are available near the construction or maintenance site. This includes determining terrain features and their effect on the project; environmental considerations; problems involved in traveling to and from work site; what will be needed to keep the job site drained before, during, and after construction; and soil type and effort required to allow vehicle traffic and construction. |
| 06  | Time   | To review available information in construction directive, intelligence reports, and site investigation to develop an operation plan or order.  |
| 07  | Time   | To plan the road or highway project. This includes construction estimate, construction directive, and quality control.  |

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| 08 | Time    | To prepare a road or highway construction estimate. This includes preparing a project activity list and a construction sequencing network; determining material, equipment, or personnel estimates; determining work rates for activities; and preparing critical path.  |
| 09 | Time    | To prepare road or highway construction directive and issue it to construction unit. Directive states the exact assignment, project location, and start and completion times; specifies additional personnel, equipment, and materials available; prioritizes the entire project; and specifies type and frequency of construction reports, time needed for special procurement, and coordination instructions with user agency. |
| 10 | Time    | To coordinate additional personnel, equipment, and critical items.   |
| 11 | Time    | To monitor construction and perform quality assurance inspections.   |
| 12 | Time    | To perform final inspection of finished road or highway and turn it over to the user.  |
| 13 | Time    | For building and maintaining roads and highways.   |
| 14 | Time    | That scheduled arrivals in AO are delayed on the average due to interruptions in roads and highways by combat actions or natural disasters.  |
| 15 | Percent | Of difference between planned and actual requirements for road and highway construction and maintenance requirements.  |
| 16 | Percent | Of force becoming casualties due to enemy action or accidents during road and highway construction or repair.  |
| 17 | Percent | Increase in the carrying capability of a road or highway due to construction or maintenance.   |
| 18 | Percent | Of planned road or highway construction or maintenance capability realized in AO.  |
| 19 | Percent | Of personnel in AO required for building and maintaining roads and highways.   |
| 20 | Percent | Of road and highway construction and repair capability   |

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|    |         | provided by host nation.  |
| 21 | Percent | Of existing roads and highways in AO improved.  |
| 22 | Percent | Of roads and highways in AO that can be used in their current condition by unit combat and tactical vehicles.                           |
| 23 | Percent | Of unit operations degraded, delayed, or modified in AO due to road or highway impassability.   |
| 24 | Percent | Of roads and highways in the AO damaged by enemy fire or natural disaster.  |
| 25 | Percent | Of roads upgraded from gravel to asphalt.   |
| 26 | Number  | And types of quarries required to support this task.  |
| 27 | Number  | Of roads and highways in the AO requiring construction or maintenance.  |
| 28 | Number  | Of roads and highways constructed or improved in the AO.  |
| 29 | Number  | Of kilometers of roads and highways constructed or improved in the AO within a given time.  |
| 30 | Number  | Of instances of delays in scheduled arrivals due to interruption of roads and highways in the AO by combat actions or natural disaster. |
| 31 | Number  | Of instances in which troop movement or sustaining operations were prevented due to road or highway impassability.                      |
| 32 | Number  | Of road or highway maintenance inspections performed per month in the AO.   |

### Supporting Collective Tasks:

| Task No.  | Title                                 | Proponent                   | Echelon |
|-----------|---------------------------------------|-----------------------------|---------|
| 05-3-5102 | Construct Roads                       | 05 - Engineers (Collective) | Platoon |
| 05-3-5112 | Conduct Soil Stabilization Operations | 05 - Engineers (Collective) | Platoon |
| 05-3-5118 | Maintain Existing Roads               | 05 - Engineers              | Platoon |

|           |                               |                             |         |
|-----------|-------------------------------|-----------------------------|---------|
|           |                               | (Collective)                |         |
| 05-3-5142 | Perform Roadway Crater Repair | 05 - Engineers (Collective) | Platoon |
| 05-3-5201 | Construct a Bridge Abutment   | 05 - Engineers (Collective) | Platoon |
| 05-3-5221 | Construct a Headwall          | 05 - Engineers (Collective) | Platoon |