

Lunar Transportation Requirements

- **> 50 tonnes on lunar transfer trajectory**
 - **Apollo: 40 tonnes @ TLI for 2 men, 3 days on lunar surface.**
 - **Unlikely to be reduced significantly; can miniaturize components but not crew.**
 - **Maybe less if lunar oxygen is used for return propellant.**
 - **Note: 50 tonnes @ TLI implies 100 tonnes in LEO for 450 sec I_{sp} LOX/LH₂ upper stage.**
 - **70 tonnes if 850 sec nuclear thermal upper stage, but not likely in foreseeable political environment.**
- **Land anywhere on the Moon.**
- **Go any time of the month.**
- **Abort to Earth at any time.**

Lunar Transportation System Architectures

- Lunar Orbit Rendezvous (LOR)
- Earth Orbit Rendezvous (EOR)
- Lunar Surface Rendezvous (LSR)
- Lagrange Point Rendezvous (LPR)