# NASA PRIZE CONCEPT (2009)

**Title of Challenge:**

Pad Durability Challenge

**What is the objective of the prize challenge?**

Develop and demonstrate a stable, reliable rocket landing pad material (cement, concrete or other) that can withstand the heat and blast from repeated VTVL rocket flights.

**What milestone or performance measurement would determine the winner?**

The material must be capable of surviving 10 launches and landings of VTVL rocket vehicles (such as flown for NGLLC or Controlled Flight Challenge) with little or no deterioration (melting, marbling, erosion, etc). Hover flights from 3 meters for 60 seconds each would be required for each qualifying launch/landing pair (10 required).

**What is a suitable cash prize amount or non-monetary reward for the winner?**

To promote the widest range of participants and options, this Challenge should be structured to provide either 3 equal awards of $1 million, or awards of $1.25 M, $1 M and $750k for 1st, 2nd, and 3rd qualifiers.

**What is the format for the challenge?**

Teams who develop materials would be given opportunities at one or more VTVL rocket test areas to build a pad for vehicles to fly off of and on to. Co-ordination and arrangements with flight vehicle teams would be the responsibility of the competing team. Judges would require verification of flights (likely be on site for each one).

**What is the timeframe for this challenge?**

I expect that teams would form and join within a year or so. This may be a multi-year Challenge if not all awards are made in the first year teams qualify.

**What type of competitors do you expect?**

This Challenge would likely draw small companies, Universities and small groups organized as non-profits.

**What area of NASA's work does this challenge address?**

This addresses the spacecraft flight operations and safety areas, particularly in support of spacecraft flight infrastructure. It may also turn out the material developed improves aviation runway operations, safety and maintenance.

**Which, if any, national or global needs does this challenge address?**

This would most like address Transportation needs both for aviation and spacecraft.

**Would this challenge possibly enhance commercial opportunities and in what areas?**

If the material is durable and affordable, it may be quite possible to commercialize it for aviation and military needs as well as the NewSpace community.

**Are there any other agencies or external organizations with a potential interest?**

FAA and DOD interest is expected.

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