

# Regulatory Approval



## UK Procedures

Ultra has ensured that its pod system is safe for public use by consulting with the Office of Rail Regulation on its development and by forming a safety verification team (SVT) under the Railway and Other Guided Transport Systems (ROGS) guidelines.

The Ultra pod system concept received a 'letter of no objection' from the HMRI in 2000, as did a safety case for passenger trials in 2003.

Ultra has also produced an application-specific concept safety paper which considered the safety of the pod system in providing a transport link between T5 Heathrow Airport and the T5 Business Car Park. The SVT reviewed the paper and on the evidence and analysis presented stated:

- The approach adopted was appropriate
- There are no features of the Ultra pod system design and operating concept that would indicate that its level of safety, once designed in detail for the T5 Heathrow Airport application, would be unacceptable

In 2008, a series of safety targets were established by Ultra, BAA and the SVT for the operation of the T5 Heathrow Airport pods system and a safety case was developed

## US Procedures

Ultra is compatible with US federal and state PRT safety standards as well as the national fire escape code. There will be approximately 361 different "safety cases" for any PRT implementation, covering events including earthquake, truck crashes into column, falling debris, fire, extreme weather, vehicle fails on guideway, slipping on stairs.

Ultra's process for gaining safety approvals for its pods system in the UK is broadly similar to those required in the US.

The relevant legislation in the US is the Code of Federal Regulations (CFR) 659, which provides a series of minimum requirements that are enforced by each state's regulatory agency. CFR 659 envisions mature transit systems and is therefore less rigorous about "designing safety in" when compared to the UK rail safety regime.

The CFR 659 process follows the same generic steps for any state, with a few customisations within each state implementation:

- A rail transit agency (RTA) is formed to operate an Ultra pods system.

- The RTA informs the state fixed guideway safety regulator of intent to operate a fixed guideway system.
- A competent, independent safety team is formed to certify the system; this team is then approved by the state regulator.
- A safety certification plan is written and reviewed at least 12 months before approval to operate is given.
- The system safety program plan and system security plan are written and follow the American Society of Civil Engineers (ASCE) standards for automated people movers, parts I-IV.
- Once documentation is in order and commissioning is completed, a public hearing is held to grant safety certification and enable the pod system to begin operation.
- Once a system begins operation, the RTA is expected to conduct internal safety audits.

Many of the 361 T5 Heathrow Airport “hazard cases” can be applied directly to meet the requirements of CFR 659. The current T5 Heathrow Airport pods system documentation is closely-matched to the ASCE APM standards; an ASCE compliance matrix was developed for BAA at Heathrow.

BAA and Ultra have had representation on the ASCE APM committee for a number of years and are active in evolving the APM standard to better comprehend PRT systems.

### **NFPA130 Evacuation**

Ultra’s non-electrified passive guideway meets U.S. National Fire Protection Association (NFPA) 130: Standard for Fixed Guideway Transit and Passenger Rail Systems.

Safety rails are attached to the guideway, primarily for safety of maintenance personnel, but the rails also serve to ensure safety of evacuating passengers.