UK Tram

Low Impact Light Rail Update

- Forward plan:
- All contracts to be signed up by end of August 2014.
- All feasibility to be completed by end of 2014/14 financial year.
- Down selection to those projects to be taken through to demonstration to take place to allow progression from commencement of 2015/16 FY.

Applications being progressed:

Categories are:

–Overhead

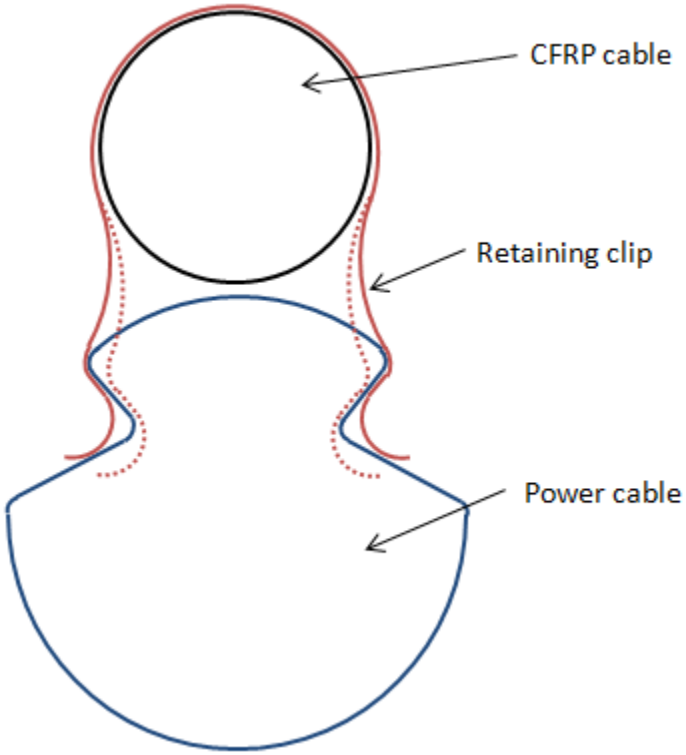
–Trackform

–Energy

Stage 1 Successful Applications

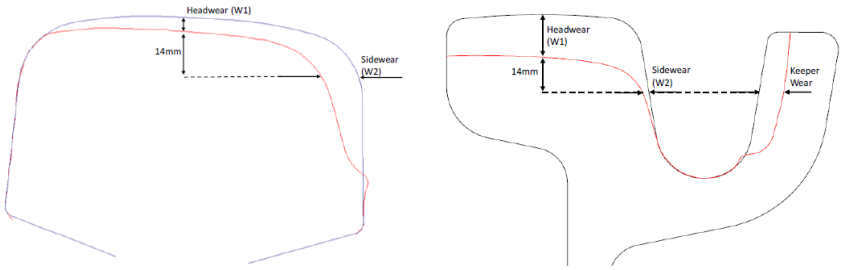
Overhead Digitising the Innovation Ecosystem - OHLE

- Utilises software system to map the process for design and implementation of the overhead line and identifies key areas for cost reduction and refinement of design
- Will be applied to real system application during feasibility stage to determine benefits
- Other overhead line projects to be used to test effectiveness



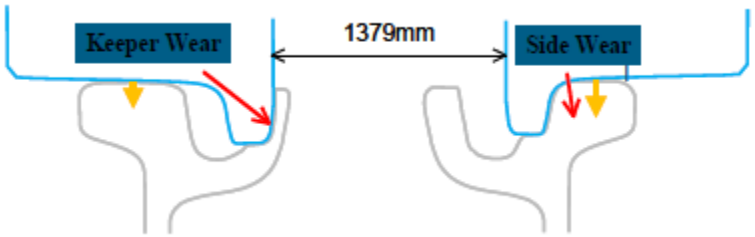
Overhead Composite Overhead Line Structures

- Utilises lightweight composite structures to replace steel supporting masts for overhead line
- Uses novel lightweight clip mechanism to reduce the number of parts and to reduce the weight of equipment
- Clip together system reduces costs and time to construct



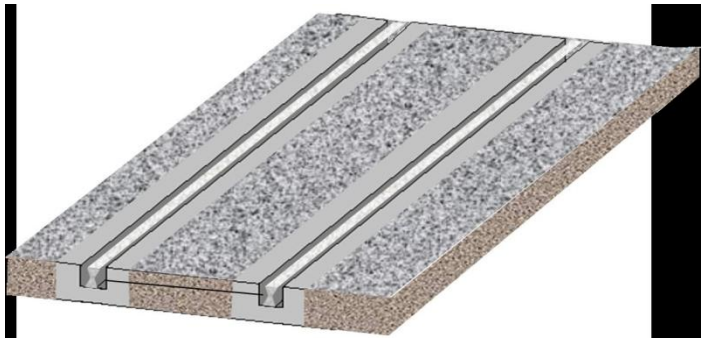
Trackform Optimum Rail Wear Limits

- Development of a methodology and toolkit that will allow operators and maintainers to make decision on the condition of rails and thus allow longer use of rails maximising the time between rail replacements
- Could be used in conjunction with the Rail Restore application



Trackform Weld Restore

- Allows repair of the rail insitu in order to extend life and prevent the need to breakout and replace road surfacing and rail



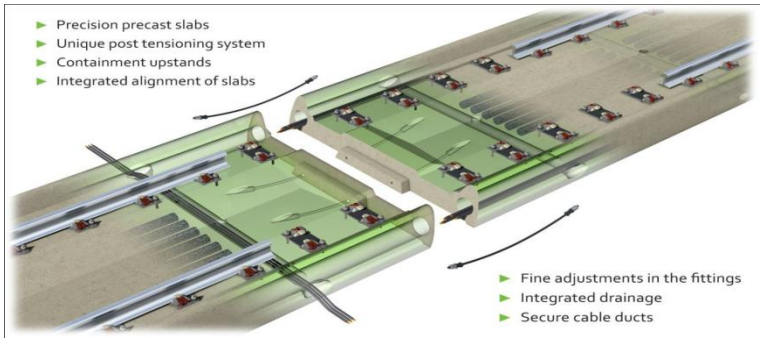
Trackform Integrated Modular Light Rail Construction System

- Trough based modular construction system
- Standardised parts to deal with common radii etc
- Can be installed through excavating double slots in the highway
- Tie bars to maintain gauge
- Utilises existing precast technologies in new ways
- Provides maximum access for utility works/minimises diversions

UK Tram

Trackform Ultralite Track

- Modular trackform
- Allows guided bus operation without need for separate track
- Suitable for use off-street and in central reservation.



Trackform PCAT (Pre-cast Advanced Track)

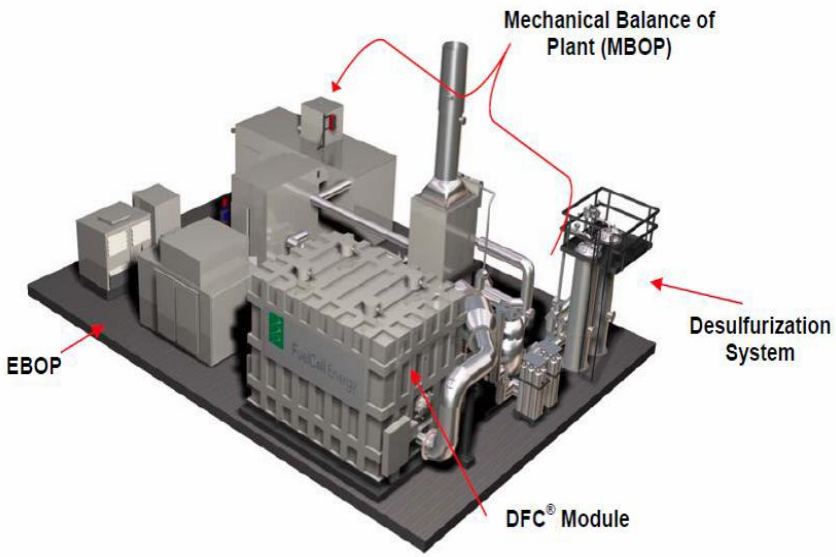
- Preformed track-slab
- Includes built in ducts
- Uses unique curved tensioning ducts and connectors to provide tension
- Allows track units to be removed for access to utilities
- Has potential crossover potential into heavy rail – tunnels etc requiring low profile slab
- Suitable for street running applications, tunnels and subject to cost instead of ballasted track

Trackform Rapid Reliable Weld Inspect

- Ultrasonic weld inspection package designed specifically for light rail applications
- Allows faster and immediate inspection of welds hence removing lag from the programme and removing significant overall time to construct
- Will also allow greater number of welds to be inspected giving a greater confidence and improved quality of welds reducing future maintenance

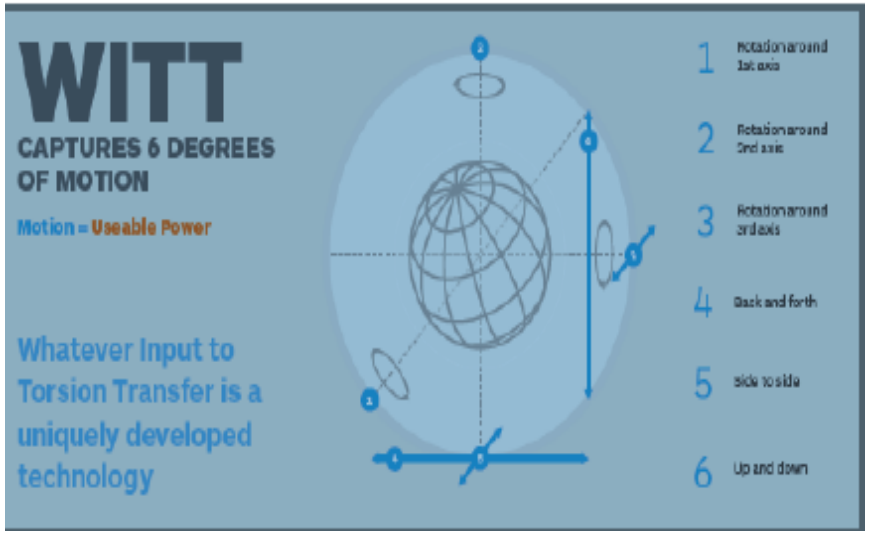
Overhead Low Impact Power Supply

- Lightweight OHL design utilising proprietary equipment and removing heavy rail over design elements



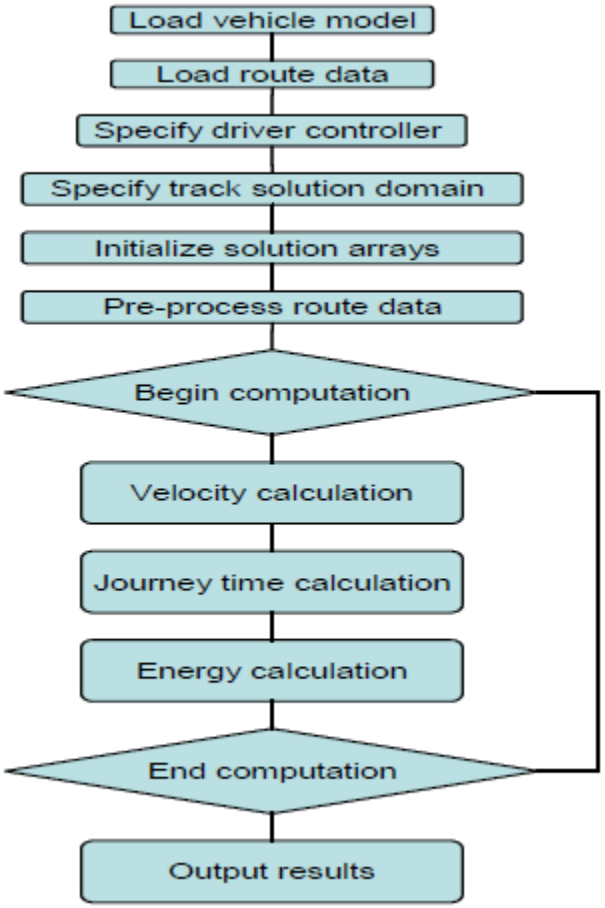
Energy Fuel Cells to Power Light Rail

- Proposes a lineside mounted fuel cell to power overhead
- Utilises gas connection to generate power removing the need for sub-stations which are often difficult to provide in city centre locations



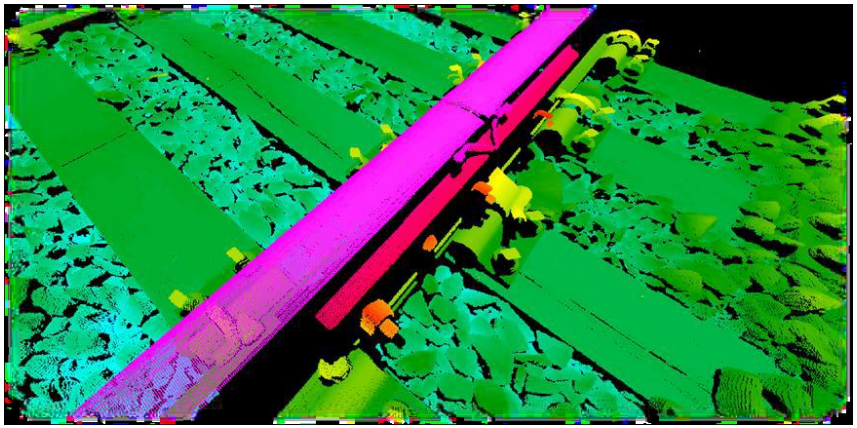
Energy WITT Energy Supply

- Utilises vibration either on vehicle or lineside to provide energy to power on vehicle energy supply to essential systems or power to lineside equipment where other supplies are expensive or impractical
- More reliable than solar or wind power because of the reliability of the energy input



Energy More Energy Efficient Trams

- Software system to improve tram energy usage
- Utilises journey specific information to provide specific driving information to optimise usage
- Can be applied to any system and has potential global market
- Could be extended to heavy rail usage with adaptation of the system



Trackform MARVIN / MEMS

- Provides a specialist track inspection system for light rail systems including embedded trackforms
- The solution will provide a much more cost effective means of inspection than either visual inspection (subject to poor quality) or current heavy rail systems
- Utilises visual recording to provide additional detail of problem areas – could be used in tandem with Wear Measurement and Management

Trackform / Overhead Wear Measurement and Management (Rail and Overhead)

- Measurement system to monitor condition of overhead line and track
- Designed specifically for light rail systems
- Utilises cheaper technology than systems currently utilised on heavy rail to make it affordable to use on smaller systems
- Transmits data to the cloud to reduce operational burden and allows direct access for maintenance providers

Questions?

Thank You!