

Very Light Rail National Innovation Centre (VLRNIC): Leading the way to future rail technologies

March 2, 2023



The Black Country Innovative Manufacturing Organisation (BCIMO) is a not-for-profit Research and Technology Organisation (RTO), founded to oversee the delivery, launch and operation of the Very Light Rail National Innovation Centre (VLRNIC). In this guest writer feature, Neil Fulton, CEO, discusses VLRNIC's role as a platform for innovation, and outlines the features that make it a world-first facility

Now, more than ever, rail has an opportunity to become the transport mode of the future, driving economic recovery, connecting communities, and supporting the government's net zero and levelling up agendas. Key to this will be the development of lower-cost, more environmentally friendly transport technologies. And, if the industry is to innovate successfully, it needs fit-for-purpose new facilities, geared towards research, development and testing.

Our recently launched Very Light Rail National Innovation Centre (VLRNIC) was designed to support this goal, providing facilities for the development and testing of new rail technologies. Built on the site of Dudley's former railway station, the £32 million pound centre of excellence comprises an engineering hall,

a 2.2km test track, and a range of other one-of-a-kind features – all of which can now be used by companies looking to develop new rail products.



A unique facility for rail innovation

Two of these features – a 15m radius loop and a rapid battery charger – are world firsts, setting the VLRNIC apart from other rail development centres. The facility has also been awarded a licence exemption by the Office of Road and Rail, which means that clients can develop and test their innovations onsite, free of the constraints associated with the main line operating environment. And, in addition to our state-of-the-art facilities, we can provide independent, multidisciplinary project teams and expertise to support customers through the product acceptance process and onto commercialisation. Indeed, with its integrated, ‘bigger-picture’ approach, the centre is already facilitating the development of new and emerging public transport industries – including Very Light Rail.

Developing rail technologies onsite

This integrated approach is supported by a wide range of onsite features, including a three-storey innovation centre, complete with engineering hall. A triple-height building with a 26m track and pit, lifting equipment, electric and compressed air supplies and high-speed WIFI, it’s the ideal space in which to maintain, repair, operate, and even assemble vehicles and infrastructure.

When it comes to conducting confidential R&D activity, stabling prototype and test vehicles, and carrying out further assembly, maintenance and repair work, companies can take advantage of a secure and well-equipped workshop. This space is currently being used by the ground-breaking Coventry Very Light Rail project.

From June 2023, customers will also be able to access serviced office facilities and an events suite, including a 100-seater auditorium and large exhibition hall, while the centre's 10 engineering labs will be populated with specialist research equipment over the next year or so. Indeed, our innovation centre will eventually support projects right from proof of concept through to commercialisation (TRL 5-9).



Features for vehicle testing

And, whether they're looking to trial vehicles and equipment or conduct training, our 2.2km test track is available for use. Comprising continuous welded rail track laid to Network Rail's 100mph standard, and with a walkway path running alongside its entire length, it enables innovators to ensure that their technologies will perform safely and efficiently on the main line. An 870m long '5 brick arch' Victorian tunnel is ideal for dark-to-light autonomous system trials, communication transmission trials, and the testing of infrastructure and equipment.

Thanks to its 200m-long radius loop, companies can also test novel track structures and novel vehicle chassis/bogie systems designed to operate on 'tight' radius curves.

And testing isn't confined to the track. We've provided a split-level platform (suitable for both heavy and light rail personnel access), which means that clients can conduct passenger access trials, carry out training, and test platform infrastructure, real-time train running information, and systems monitoring passenger numbers, behaviour and security, all without leaving the centre.

Additional features

A range of additional features facilitate and expedite innovation onsite, helping suppliers to overcome the challenges associated with product development. One such resource is our world-first battery charger for rail, which supports the high-speed charging of battery-powered vehicles, minimising downtime. A siding, complete with 45m buffer stop, can be used to stable vehicles and carry out staff training, while a CRAB1500E shunter and four safety-standard compliant lifting jacks are available to suppliers.

Ultimately, our goal is to serve as an unrivalled platform for rail innovation, bringing together the resources and equipment our clients need in a single location. And, with a range of new features (including a purpose-built mobility hub, mule vehicle and driver simulator) due to be unveiled in the coming months, VLRNIC is well on track to meeting this objective. To learn more about the VLRNIC and its facilities, visit [Facility Hire | BCIMO](#).

