Design

Good design of a rail-linked terminal will not only assist the viability of the rail freight flow in question, but could also encourage further use of the facility by other flows or customers. The following list provides suggestions for good design practice.

Provide a flexible main line rail connection

Seek to make the rail facilities an integral part of the terminal

Avoid sharp curves or steep gradients on sidings

Avoid conflicts between rail vehicles and other modes

Minimise transhipment distance

Plan for the future

Be a good neighbour

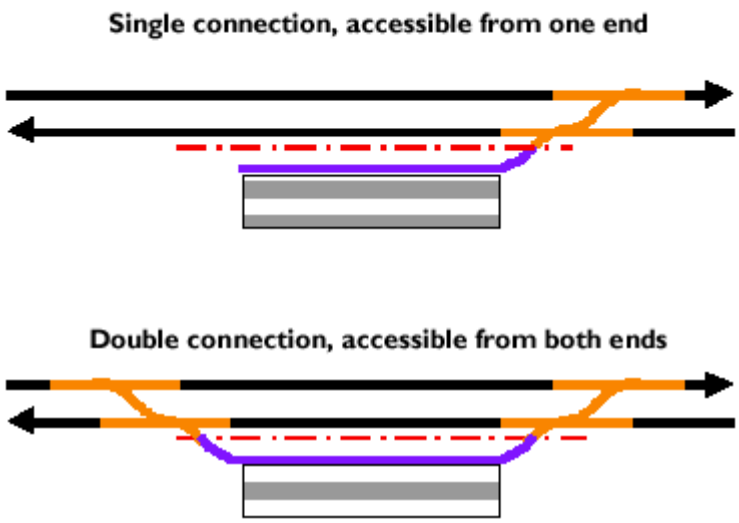
Publicise the facility

Provide a flexible main line rail connection

Even where a rail freight flow operates between two fixed points, there may be occasions when a rail freight service is diverted from its usual route. This may be due to essential maintenance on a section of track, or an incident requiring trains to be routed elsewhere on the network.

The link between the main line and a railhead (the arrival / departure line) should be designed where possible to allow trains to access the main line from both directions, without requiring reversal or significant lengths of 'wrong line' working. This is also important for terminals wishing to be served by 'feeder' rail freight services (e.g. EWS 'Enterprise' service), which may pick up or set down individual wagons, train portions or intermodal units en route along the main line.

For example, if a single east-facing connection to a main line is provided (see below), the need for eastbound trains to reverse across the main line into the terminal may cause lengthy delays, or may only be permitted at certain times of the day. Such additional movements or delays could mean the difference between a terminal being served or not.

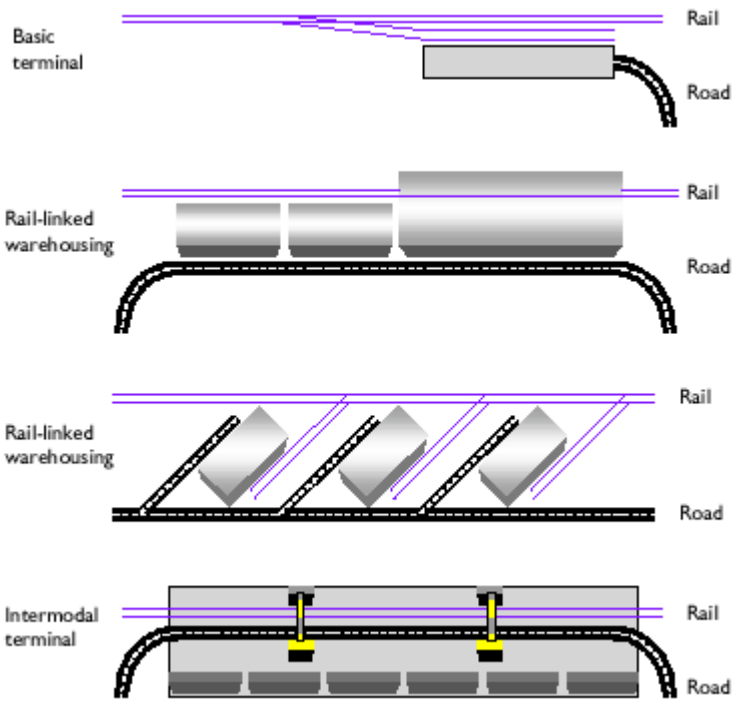


Seek to make the rail facilities an integral part of the terminal

The best means to ensure long-term use of a rail terminal is through integrated planning of the rail infrastructure. Major projects, such as distribution parks, should be designed around a rail facility rather than vice versa. In particular, location of warehouses and other terminal facilities should be arranged such that each facility can be accessed by a direct rail link if required in future, for example by reserving land corridors through a site.

A 'common user' intermodal terminal attached to a major distribution park may attract little custom from those locating on the park, but may instead draw in HGV traffic to and from nearby industrial and urban areas, potentially removing any local 'planning gain' from developing the terminal. A rail-linked warehouse on the same site is more likely to attract users who wish to use rail. This suggests a possible role for suitable

planning conditions, particularly for major new green-field sites.



Avoid sharp curves or steep gradients on sidings

Railway wagons can typically operate on sidings with curve radii of 75m or more, but the smaller the curve, the more likely the generation of wheel noise (squeal) and flange / track wear. Sidings and internal track layouts should therefore aim to use straight or long-radius curves. Gradients should also be as close to zero as possible, to minimise the effort (and noise) required to move trains around the site, and reduce the chances of wagons 'running away' on site. As a general rule, any gradients on site should fall towards buffer stops and away from main line connections for safety reasons.

Avoid conflicts between rail vehicles and other modes

In seeking to obtain maximum flexibility within a terminal for access to rail and other modes, it is important to avoid creating numerous points of conflict (e.g. level crossings) between modes, as these will impact on vehicle flows around the site. For major distribution parks located between main road and rail routes, there may be scope to separate the internal road and rail networks to avoid conflicts, as shown on the previous page.

Minimise transhipment distance

For terminals which serve primarily as interchange points between rail and other modes, rail links should be arranged to bring the trains directly alongside the other

modes to reduce the time, distance and cost required to tranship cargo or intermodal units. Examples include rail links into ports, where in some cases the rails run along the quayside, enabling goods to be transferred from ships direct to waiting rail wagons. Embedding tracks into concrete hard standing can provide flexibility in operating lorries and trains alongside each other to allow for cross docking.

Plan for the future

Some existing rail terminal sites provide a sub-optimal solution for logistics, usually through lack of space or poor road and rail access. Sites which may have been green fields 30 years or more ago have now been surrounded by residential development, which may sometimes serve as a serious constraint on permitted operating hours.

The economics of operating rail freight terminals may require 24-hour operations from the outset or at a later date. Learning from these lessons, developers of new terminals should be encouraged to build-in extra capacity and facilities where possible, for example by setting aside extra land within the development which could then be landscaped until needed. Design standards should al so take note of both current and likely future aspirations, for example building over line structures to allow for continental loading gauges as well as overhead electrification.

Be a good neighbour

Modern rail freight terminals can be designed to be no more visually or aurally intrusive than road-based facilities. However, there can sometimes be a local perception amongst prospective residential neighbours that a railhead will be unacceptable, either due to noise, visual intrusion, light pollution, fumes or the generation of additional HGV movements on local roads ('rail heading').

In locations in proximity to residential development, the terminal may need to be laid out to shield residents from the rail activities, particularly where night-time shunting or crane movements may be involved. Noise and visual mitigation may be achieved through 'active' measures, such as noise of barriers and bundling.

Other design features might include locating warehouses to act as noise shields between rail operations and residential areas, or use of landscaping to reduce visual and noise impacts. More stringent requirements might include limits on road or rail movements in absolute terms or at certain periods.

Publicise the facility

If the new terminal is to be a 'common user' facility, for example a new regional distribution park or intermodal terminal, it is important that the new facility is publicised to the logistics industry during its development phase and after completion. In addition, the Department for Transport (DfT) recommends improved

signing of rail freight facilit ies on the trunk road network, as part of its best practice 'toolkit' for integrated transport solutions. The Highways Agency is also looking into development of a common sign for rail freight terminals.