



Engineering Standard

Signalling

CRN SD 002

SIGNALLING DESIGN PRINCIPLES - HEADWAY

Version 1.1

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Document control

Revision	Date of Approval	Summary of change
4.0	March 2005	RIC Standard SC 00 13 01 02 SP – Signal Design Principles – Headway Version 4.0 March 2005
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1.1	April 2016	Review

Summary of changes from previous version

Section	Summary of change
	No changes from V1.0

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2 Headway

2.1 Headway Concepts and Definitions: Principal 2.1

2.1.1 Introduction

This Principle addresses the concept of headway and provides further definitions and concepts for the various factors affecting headway.

2.1.2 Headway - Concept

The headway on any section of railway line is a measure of the capacity to pass trains through the section, with a minimum journey time.

If a complete line is to have uniform headway throughout, then all sections of the line must be considered and the factors affecting headway adjusted to ensure that uniform headway can be achieved.

Headway is often expressed as a time increment in minutes and perhaps seconds rather than the number of trains passing over a line during each hourly interval.

Headway may be stated for trains of a specific type or performance.

2.1.2.1 Headway - Definition

The headway is the time interval between successive trains running at the line speed on clear signal aspects. The train length and signal sighting distances need to be specified. Refer to the headway diagrams in Figure 1

2.1.3 Signal Spacing - Concept

As headway considerations become critical to the performance of train services then it is necessary to provide a system of evenly time-spaced signals having regard to the effect of line speed, braking and gradient.

2.1.3.1 Signal Spacing - Definition

The distance between a series of successive signals provided to achieve a particular headway for a line.

2.1.4 Sighting Point - Concept

An adequate signal sighting point is essential if the drivers of trains are to be allowed to take the maximum advantage of the signal aspects ahead of them. Poor sighting can have a detrimental effect on headways in practice, as can excessively long sighting.

2.1.4.1 Sighting Point - Definition

The sighting point is the point in rear of a signal at which the driver of a train is first able to view the signal.

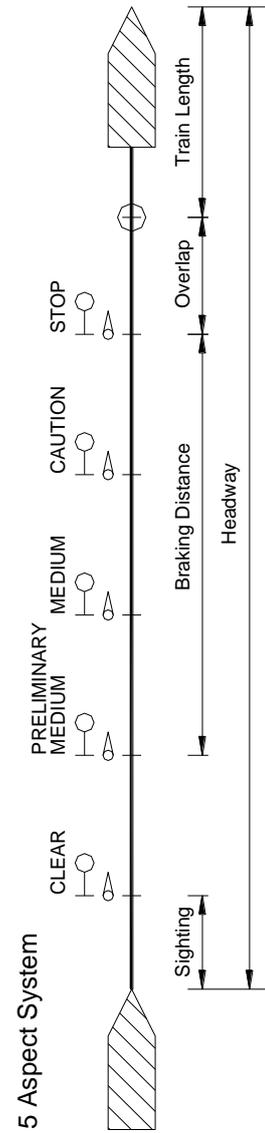
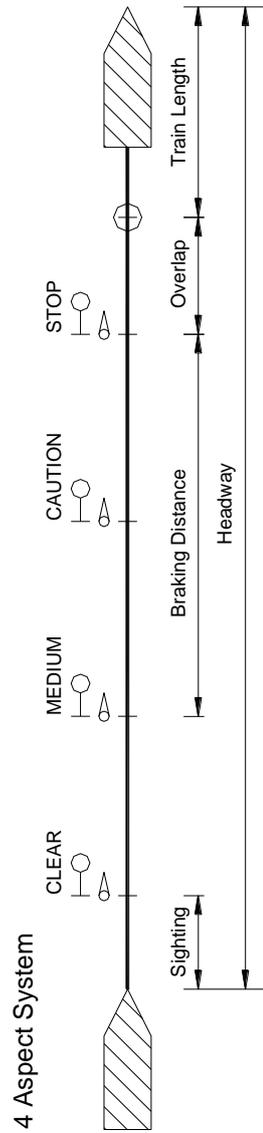
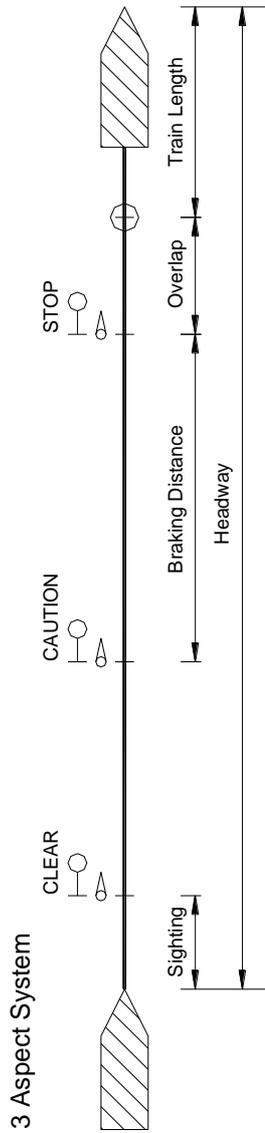
2.1.5 Sighting Distance - Concept

This is directly related to signal sighting and provides for a predetermined minimum distance at which a driver can always observe a signal before reaching it.

2.1.5.1 Sighting Distance - Definition

The sighting distance is the distance between the sighting point and the signal to which it applies.

Headway (principle 2.1)



2.2 Section Intentionally Left Blank; Principal 2.2

2.3 Distance between Running Signals: Principal 2.3

2.3.1 Introduction

This Principle addresses the requirements for determining the distance between running signals. It also addresses the spacing between a series of signals.

2.3.2 Minimum Distance between Running Signal Aspects

The minimum distance between a signal showing a first warning aspect and the stop signal to which it applies shall not be less than the "longest braking distance".

This distance shall be determined in accordance with Principle 3.2.

The minimum distance between a signal showing the first warning aspect and a points turnout to which it applies shall not be less than the "longest braking distance" to reduce to the restricted speed required for the points turnout.

The minimum distance between a signal showing the first warning aspect and a subsidiary signal showing a proceed aspect shall be the "longest braking distance" to reduce to the restricted speed required by the subsidiary signal proceed aspect where such restricted speed is applicable.

2.3.3 Maximum Distance between Three Aspect Running Signals

The distance between three aspect running signals shall generally be limited to 4,000m and exceptionally to an absolute limit of 4,500m.

If the distance between two successive running signals is greater than 1.5 Km and more than 1.5 times the service braking distance then the sighting distance of the second signal shall be greater than the minimum sighting distance specified in Principle 1.12, and the overlap distance for the first signal beyond the second signal should be greater than the normal minimum overlap distance specified in Principle 4.2, such that the sighting distance and the overlap distance together are greater than their combined minimum distances to an extent commensurate with the greater distance between the signals.