
Assessment of the need for Vessel Traffic Services (VTS) or Port Information

Note to Port and VTS Authorities, VTS Operators, Masters and Deck Officers of Merchant Vessels and Skippers and Watchkeepers of Fishing and recreational Vessels.

This note should be read in conjunction with MGN 238 and MGN 239.

Summary

The purpose of this note is to assist Statutory Harbour Authorities in assessing the contribution that VTS or provision of Port Information can provide in mitigating risk following a Formal Risk Assessment and to aid the decision making process in judging the need for establishing a VTS or the review of an existing VTS, as part of traffic management.

Key points:

- This note is developed from existing international guidelines; IMO resolution A.857(20), MSC/Circular 952 & IALA VTS Manual (2002) and takes account of the UK's particular situation.
- It will be used by the Maritime and Coastguard Agency (MCA), as the Competent Authority, in assessing the need for a Coastal VTS.
- Other statutory authorities concerned with the need for the safety of navigation should use this note as a guide in determining whether there is a need to establish a VTS.
- It complements the Port Marine Safety Code and the Guide to Good Practice on the management of safety in ports.

Note

Although this MGN is aimed essentially at shore based establishments, there is merit in its distribution to a wider audience. To promote awareness of the important contribution that VTS and Port Information make to the maritime industry and to indicate the approach to VTS adopted in the UK, it is appropriate that all recipients of VTS receive this information.

The Port Marine Safety Code and the Guide to Good Practice were published by the Department for Transport (DfT) in March 2000 and March 2002 respectively.

1.0 INTRODUCTION

The term VTS is used in this document in the same specific sense as in the International Maritime Organisation (IMO) and International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) documentation referenced.¹ This describes three categories of service (Information Service, Navigational Assistance Service and Traffic Organisation Service) by reference to their functionality. It also specifies a standard for training leading to a certificate (V-103/1 and V-103/2). The term VTS is used to describe systems that both have the functionality specified and are operated by people trained to the V-103 standard. The training standards have been developed to encompass VTS operations ranging from provision of an Information Service to Traffic Organisation Service. The latter may be more than the requirements many ports derive from their risk assessment. However, this guidance is intended for those harbour authorities with – or proposing – all categories of VTS, which necessarily require operators to be trained to the V-103 standard.

These guidelines should be used in conjunction with IMO Resolution A.857(20) Guidelines for VTS, IALA Recommendation V-119, The Implementation of Vessel Traffic Services, IALA Guidelines on Risk Management, the IALA VTS Manual 2002, the Port Marine Safety Code and the Guide to Good Practice.

2.0 ESTABLISHING THE REQUIREMENT

Every harbour is different and the requirement to manage navigation varies from one to another.

These guidelines can only deal with principles of good practice. They recognise that vessel traffic management systems are essential in some cases but are inappropriate in many others. A formal assessment of navigational risk, as required by the Port Marine Safety Code will determine what management of navigation is required and whether, and to what degree, monitoring and traffic organisation needs to play a role in mitigating risk.

A Statutory Harbour Authority's primary duty is to ensure the safe and efficient use of the harbour by those who have the right to use its facilities and navigate its waters. This includes a duty to regulate navigation using available powers. Exercise of this function depends upon communication with users and is typically located where port communications from vessels are handled. The term Port Information and VTS are, thus, applied to this function in these guidelines.

3.0 VTS

VTS contributes to safety of life at sea, safety and efficiency of navigation and protection of the marine environment, adjacent shore areas, worksites and offshore installations from possible adverse effects of maritime traffic. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area.² VTS may contribute to port and general maritime security.

A clear distinction needs to be made between a Port VTS and a Coastal VTS. A Port VTS is mainly concerned with vessel traffic to and from a port or harbour or harbours, while a Coastal VTS is mainly concerned with vessel traffic passing through the area and usually only an Information

¹ IMO Resolution A.857(20) and the IALA VTS Manual 2002

² SOLAS Chapter V, Regulation 12 (1)

Service is rendered. Although an Information Service may be independent, a Navigational Assistance Service will include an Information Service, whilst a Traffic Organisation Service will normally include both Information and Navigational Assistance Services.

The benefits of implementing a VTS are that it allows identification and monitoring of vessels, longer term planning of vessel movements and provision of navigational information and assistance. It can also assist in prevention of pollution, the co-ordination of pollution response and the protection of the marine environment.

The efficiency of a VTS will depend on the reliability and continuity of communications and on the ability to provide good and unambiguous information. The scope of possible risk mitigation measures will depend on the system's capability of detecting a developing dangerous situation and on the ability to give timely warning of it.

The precise objectives of any VTS will depend upon the particular circumstances in the VTS Area and the volume and character of maritime traffic. However, it should be recognised that VTSs are seen as an important tool for mitigating risk for any authority charged with responsibility for the safety of navigation.

Guidelines for VTS are laid down by the International Maritime Organisation (IMO) in IMO Resolution A.857(20). As stated, VTS can be made up of one or more of three services, namely:

- (1) Information Service – a service to ensure that essential information becomes available in time for on-board navigational decision-making;³

- (2) Navigational Assistance Service – a service to assist on-board navigational decision-making and to monitor its effects;⁴

- (3) Traffic Organisation Service – a service to prevent the development of dangerous maritime traffic situations and to provide for the safe and efficient movement of vessel traffic within the VTS area.⁵

Further guidance on the UK definitions of the three categories of VTS can be found in MGN 238.

4.0 PORT INFORMATION

Some ports will identify from their risk assessment the need to provide a VTS as specified in the IMO and IALA documentation. To accommodate all ports the UK has chosen to introduce Port Information. This service is applicable to those ports where it has been assessed that a VTS, as described above, is excessive or inappropriate. They will not, therefore, require to train their operators to the V-103 standard. The term Port Information is used in this document to describe the services provided by such ports – it does not imply a lower standard, or a poorer service to customers. The main difference arising from provision of Port Information is that it does not provide VTS. As such, the training requirement for its operators is less comprehensive and the operators are unlikely to be certified to the V-103 standard.

Provision of Port Information is designed to improve port safety and co-ordination of port services within the port community by dissemination of port information with vessels and berth or terminal operators. It is mainly

³ IMO Resolution A.857(20) paragraph 1.1.9.1

⁴ IMO Resolution A.857(20) paragraph 1.1.9.2

⁵ IMO Resolution A.857(20) paragraph 1.1.9.3

concerned with the management of the port, by the supply of information on berth and port conditions. Provision of Port Information can also act as a medium for liaison between vessels and stevedores or allied services, as well as providing a basis for implementing Port Emergency Plans.

Identification of the threshold between Port Information and VTS may be difficult to determine. It is likely to be port specific and will only become clear following the risk assessment process, when all mitigating factors have been considered. Port Information is applicable where interaction is unnecessary to fulfil the statutory requirements of the harbour authority's duties with regards to navigational safety. It is not required to have the ability and/or the resources to respond to developing traffic situations. Neither is there a requirement for a vessel traffic image⁶ to be maintained.

Principal considerations will be:

- (1) The complexity of the information required to be exchanged;
- (2) The equipment deemed necessary;
- (3) The competence of the operators.

Examples of Port Information may include:

- (1) Details of shipping movements;
- (2) Visibility in the area;
- (3) Wind speed and direction;
- (4) Tidal height;
- (5) Berthing information;

- (6) Preferred anchorages.

It should be noted that whilst this list appears similar to that for an Information Service the key issue is whether the port interacts with the vessel traffic or not.

5.0 THE ASSESSMENT PROCESS

5.1 General Assessment

A Statutory Harbour Authority is required to conduct a Formal Risk Assessment of the area for which it has responsibility for the safety of navigation.⁷ The assessment process includes the following phases:

- (1) Risk Assessment Phase;
- (2) Inception Phase;
- (3) Feasibility and Design Phase;
- (4) Cost / Benefit Phase.

5.2 Risk Assessment Phase

The risk assessment should start with a review of the organisation, its culture, policies, procedures and priorities, and assess the existing safety management structure and identifying any relevant marine hazards and risks. This assessment may be based on the identification of casualty categories within the given area, such as collisions and groundings. However, one of the main difficulties faced in undertaking any form of risk assessment is that, in many cases, the full consequences of recorded casualties are not available. Instead they must be estimated by expert judgement. One must also take into consideration that the future is not a simple extension of history, so more refined methods must be applied to assess the estimated casualty costs and other consequences for the

⁶ IMO Resolution A.857(20), paragraph 1.1.8

⁷ Port Marine Safety Code, Part Two, section 2.2

next ten years or so by taking into account all foreseeable trends. Risk estimation and evaluation form vital inputs to any risk assessment.

The traditional approach to safety in the maritime industry has been to react to problems and issues as they occur. This approach is not based on a clear understanding of the hazards or risks involved, nor of the overall risk profile of the procedures or systems involved. The development of the process of Formal Risk Assessment formalised the review, analysis and assessment of procedures and systems in order to anticipate problems before they develop into accidents. The use of Formal Risk Assessment techniques is recommended. The IALA Guidelines on Risk Management contain further details on risk assessment.

5.3 Inception Phase

In the Inception Phase, all relevant problems in the maritime area concerned should be defined and analysed. Further, as a second step in the process, operational objectives should be established with the ultimate aim of alleviating the defined problems. The last step in this phase is to identify the most appropriate traffic management tools, in terms of effectiveness and costs, to alleviate the defined problems.

5.3.1 Applicability of VTS⁸

A VTS may be particularly appropriate in an area that includes any of the following :

- (1) High vessel traffic density;
- (2) Vessel Traffic carrying hazardous cargoes;
- (3) Conflicting and complex navigational patterns;

- (4) Difficult hydrographical, hydrological and meteorological elements;
- (5) Shifting shoals and other local navigational hazards;
- (6) Environmental sensitivities and constraints;
- (7) Interaction between vessel traffic with other marine-based activities;
- (8) Existing or planned VTS in adjacent waters and the need for co-operation between neighbouring states/ports if appropriate;
- (9) Narrow channels, port configuration, bridges, areas where vessels are manoeuvring or areas where the progress of vessels may be constrained;
- (10) Existing or foreseeable changes in the traffic pattern resulting from port or offshore terminal developments or offshore exploration and exploitation in the area.

5.3.2 Applicability of Port Information

Provision of Port Information may be appropriate in an area where a VTS would exceed the outcome of the Formal Risk Assessment.

5.4 Feasibility and Design Phase

The overall objective is to produce a system that meets the requirements of the Statutory Harbour Authority and against which the design can be validated, verified and tested before development. There are normally two levels or sub-phases in defining the requirements of a VTS or the provision of Port Information. They are:

- (1) The development of an overview of the

⁸ Guide to Good Practice 7.2.5 / 6

system and an intermediate level of detail about the level of the system's function, operation and environment, referred to as the feasibility sub-phase, and;

- (2) The development of the detailed technical specification of requirements, referred to as the design sub-phase.

The factors that need to be considered include:

- (1) Delineating the VTS Area / area over which Port Information is to be provided:
 - a) Local geography;
 - b) Local prevailing meteorological and hydrological conditions;
 - c) Numbers of vessels and categories;
 - d) Commercial factors;
 - e) Other maritime activities.
- (2) The location of the VTS Centre.
- (3) Environmental aspects
 - a) System users and user requirements
 - b) Maritime users;
 - c) Allied services;
 - d) Port operations;
 - e) Adjacent VTSS
 - f) Emergency services;
 - g) Other stakeholders.

For further detailed information see IALA VTS Manual 2002.

5.5 Cost/Benefit Phase

After completion of the Design and Risk Assessment phases, a Cost Benefit Analysis should be carried out to determine whether the expected reduction in risk is justified in terms of the level of investment required. Both the additional direct and

indirect benefits and prospects that a VTS or provision of Port Information might offer, including additional value added services for the traffic in the future, as well as the benefits to shore based port operations, should be taken into consideration.

Indirect benefits should include an estimation of costs that would otherwise have been incurred in the event of an incident, based on the projected difference the frequency of occurrence of such incidents before and after implementation of any changes.

For further detailed information see IALA VTS Manual 2002, chapter 2, paragraph 2.1.5, IALA VTS Manual 2002 Annex 2, IMO MSC/Circular 829 & MEPC/Circular 335 of 17 November 1997 on "Interim Guidelines for the application of Formal Safety Assessment (FSA) to the IMO rule making process".

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