Vessel Traffic Services (VTS) and Local Port Services (LPS) in the United Kingdom

Note to Port and VTS Authorities, VTS Personnel, Masters and Deck Officers of Merchant Vessels and Skippers and Watchkeepers of Fishing and Recreational Craft.

This notice is developed from existing international guidelines and should be read with Statutory Instrument (SI) 2004 2110 The Merchant Shipping (Vessel Traffic Monitoring and Reporting Requirements) Regulations 2004*, International Maritime Organisation (IMO) Resolution A.857(20), the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) VTS Manual, IALA Recommendation V-119, The Implementation of Vessel Traffic Services and IMO MSC/Circular 952. This notice replaces MGN 238, MGN 239 and MGN 240*

Summary

The purpose of this guidance note is to amplify the international definitions of VTS in the UK national context and assist Statutory Harbour Authorities in the implementation of a new VTS or the review of an existing VTS. They will also be used by the Maritime and Coastguard Agency (MCA), as competent authority for VTS, when implementing a coastal VTS.

Key Points

- It defines the UK's interpretation of VTS
- Provides guidance for determining the need to establish a VTS
- Defines the responsibilities of those authorities concerned with VTS
- It complements the Port Marine Safety Code (PMSC) and the Guide To Good Practice (GTGP) on the port marine operations

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 LPS make to the maritime industry and to indicate the approach to VTS adopted in the UK, it is appropriate that all participants of VTS and LPS receive and understand this information.

1 INTRODUCTION

1.1 The term VTS is used in this document in the same specific sense as in the IMO and the IALA documentation referenced.and is used to describe systems that have the functionality specified and are operated by people trained to the V-103 standard.

1.2 This note provides guidance for those harbour authorities with – or proposing – all types of VTS, which necessarily require operators to be trained to the V-103 standard and the provision of, at least, an Information Service. It also identifies the need within the UK for a type of service where a VTS is assessed as excessive. It defines the concept of LPS for national use and gives guidance on when such a type of service may be considered appropriate.

1.3 Two categories of VTS are recognised; port/harbour and coastal. A port/harbour VTS is mainly concerned with vessel traffic to and from or within a port or harbour(s), while a coastal VTS is mainly concerned with vessel traffic passing through a VTS area and where usually only an Information Service is provided.

1.4 In implementing a VTS a Statutory Harbour Authority (SHA) needs to consider which of the three service types – Information Service (INS), Traffic Organisation Service (TOS) and Navigational Assistance Service (NAS) - it will provide, as this will dictate the manning and equipment requirements. Similar considerations should be taken into account when implementing provision of a Local Port Service (LPS) (see section 8 of the Note).

1.5 The EU Traffic Monitoring Directive 2002/59/EC addresses the establishing of a community monitoring and information system for maritime traffic. The MCA, as the Competent Authority, is responsible for ensuring UK compliance with the Directive and thus needs to ensure that future developments in VTS are consistent with UK policy. In this respect, it is recommended that SHAs should consult the MCA about their future plans.

2 OBJECTIVES

2.1 It is important to consider the objectives that the provision of a VTS or LPS is intended to achieve. These need to be clearly defined and be subject to regular review. They also need to be reflected in the type of service provided.

2.2 In setting objectives, it may be helpful to recall that the purpose of VTS is to enhance:

- safety of life at sea;
- safety of navigation;
- efficiency of vessel traffic movement;
- protection of the marine environment;
- protection of the adjacent communities and infrastructure, and;
- contribute to efficiency of related activities and supporting maritime security.

2.3 The precise objectives of any VTS will flow from a Formal Risk Assessment and will depend upon the particular circumstances in the VTS area and the volume and character of maritime traffic. They will also need to take into account the capability of expertise and technology available.

3 DETERMINING THE NEED FOR VTS

3.1 It is strongly recommended that before considering the establishment of a new VTS, or the enhancement of an existing VTS, a Competent Authority should conduct a formal study to define clearly the need, the functional requirements and to identify the costs of implementation. This will determine whether a VTS is an appropriate mechanism to maintain or improve maritime safety and, if so, whether the Competent Authority has the requisite capability and resources to implement one.

3.2 The needs analysis process includes the following key steps:

- Preliminary Assessment (Inception);
- Feasibility and Design;
- Formal Risk Assessment
- Cost / Benefit Analysis;

3.2.1 Preliminary Assessment (Inception)

The purpose of the Preliminary Assessment phase is to decide the suitability of VTS as an appropriate traffic management option. Where this is confirmed, the information collected will provide the basis for undertaking the Feasibility and Design Study.

3.2.2. Feasibility and Design

The Feasibility and Design phase is intended to identify the functional requirements needed to achieve the desired level of safety and efficiency of the maritime traffic. The foundation for proceeding with this phase is the information compiled in the Preliminary Assessment (Inception) phase and the expected functions and benefits of a future VTS. This input may also give an indication of the desired type of service to be provided by the VTS.

3.2.3 .The Formal Risk Assessment phase is intended to confirm that the measures being designed and introduced will reduce the risk of collisions and groundings in the area to a level considered by the Competent Authority to be satisfactory.

The IALA Guideline 1018 Risk Management contains further details on risk assessment.

3.2.4 Cost Benefit Analysis

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.

Further details on these subjects are contained in the IALA VTS Manual Chapter 7: *Determining the need for VTS*.

4 AREAS OF RESPONSIBILITY

4.1 The MCA is the Competent Authority for VTS within UK territorial waters. This includes the assessment of the need and type of coastal VTS within those waters but excluding the areas of jurisdication of individual harbour authorities. The Competent Authority for VTS may also be a VTS authority in its own right for waters outside the limits of individual harbour authorities.

4.1.1 Responsibilities of the MCA, as the Competent Authority for VTS, are as follows:

1. Leading on national policy for UK VTS;

2. Providing advice to government on legislation with respect to the operation of a VTS within UK territorial waters;

3. Establishing and reviewing the national standards and definitions for the three service types of VTS;

4. Establishing and reviewing the national standards and definitions for provision of LPS;

5. Assessing the need for coastal VTS within territorial waters but outside the areas of jurisdiction of SHAs;

6. Establishing VTS Authorities for coastal VTSs, ensuring that necessary arrangements are in place and setting the objectives and types of service offered by them;

7. Establishing and reviewing training standards for all VTS personnel and those who provide LPS;

8. Providing accreditation of training colleges involved in VTS training and conducting a regular review of training and training standards;

9. Developing guidelines for VTS manning and equipment standards;

10. Ensuring that any reporting requirement for incidents involving VTS aligns with the national reporting requirements for navigational incidents;

11. Providing guidance to assist VTS authorities in evaluating the performance of their VTS;

12. Maintaining a database of declared UK VTS and their capabilities;

13. Audit and review the performance of coastal and port VTSs, recommending and facilitating improvements, where necessary.

4.2 A SHA is responsible for assessing the need and type of VTS, or the need for for LPS, within its own port limits in accordance with the PMSC. Where it is decided to that a VTS is required, the SHA becomes the VTS authority within its own port limits.

4.2.1. The powers of individual SHAs have been established by or under an Act of Parliament. They have powers and duties within defined geographical areas. In the context of VTS their responsibilities include the requirement to:

1. Establish the need for a VTS or provision of a LPS by means of a Formal Risk Assessment into the safety of navigation, as required by the PMSC and taking into account the standards established by the Competent Authority for VTS;

2. Establish the service type of VTS or whether a LPS is to be provided, based on the outcome of a Formal Risk Assessment;

3. Ensure that a legal basis for the operation of a VTS is provided for;

4. Ensure the VTS has been delegated the appropriate authority to fulfil its duties;

5. Where a VTS is established, act as a “VTS authority” as indicated below;

6. Publish details and the types of service that are to be provided in the appropriate nautical publications;

7. Provide information on all published services, including the details of radio watches, designated frequencies, hours of operation and the defined type(s) of service offered.

4.3 The VTS authority is responsible for the operation of the service type(s) prescribed within the area designated for each individual VTS. A VTS authority may initiate the exchange of information with vesssels approaching its service area, in order to ensure the smooth integration of traffic into the VTS area.

4.3.1. 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. In pursuance of these objectives, VTS authorities should:

1. Operate the VTS within national and international guidelines and legislation;
2. Ensure that operators are trained to the appropriate national standards and that their qualifications are kept current and valid;
3. Establish operating procedures for VTS and for the implementation of emergency contingency plans;
4. Carry out regular training and exercises for VTS staff in operating and emergency response procedures;
5. Regularly review VTS operations to ensure that the service is harmonised with ship reporting, routeing instructions, aids to navigation, pilotage and port operations as appropriate;
6. Report any apparent infringement of byelaws and directions to the appropriate authority;
7. Maintain appropriate standards of communications on channels assigned for VTS purposes;
8. Ensure that appropriate manning is available to provide the type of service declared taking into account the guidance issued by the Competent Authority for VTS;
9. Ensure that equipment appropriate to the type of service declared is available, taking into account the guidance issued by the Competent Authority for VTS;
10. Ensure that VTS personnel are vested with the appropriate authority and / or delegations required to fulfil their duties;
11. Audit and review the performance of port VTSs in accordance with the PMSC, recommending and facilitating improvements where necessary.

5 LEGAL FRAMEWORK

5.1 The International Convention for the Safety of Life at Sea (SOLAS) Regulation 12 Chapter V (Safety of Navigation) requires contracting governments to arrange for the establishment of VTS where, in their opinion, the volume of traffic or the degree of risk justifies such services. The regulation also requires that:

- contracting governments planning and implementing VTS wherever possible follow the guidelines developed by the IMO. In relation to the UK, the MCA is the competent authority for VTS for the purposes of those guidelines.

- the use of VTS may only be made mandatory within the territorial waters of a coastal state.

5.2 The European Union Directive on Community Vessel Traffic Monitoring and Information Systems has been implemented in the UK through Statutory Instrument (SI) Vessel Traffic Monitoring and Reporting Regulations 2004 2110 (as amended) and forms the legal framework for VTS.

5.3 Under local Acts of Parliament, harbour authorities usually have duties to protect their harbours and regulate the approaches to them. It will be for each harbour authority to consider what is required as regards the provision of VTS or LPS under its statutory duties.

6.0 LIABILITY

6.1 Liability arising from an incident following compliance with VTS guidance can only be decided on a case-by-case basis in accordance with national law. Consequently, a Statutory Harbour Authority / Competent Authority for VTS should take into account the legal implications in the event of a shipping incident where VTS Operators may have failed to carry out their duty competently. Similar considerations should be taken into account in the provision of LPS.

7.0 TYPES AND FUNCTIONS OF OF VESSEL TRAFFIC SERVICES

7.1 A clear understanding of the distinction between the different service types is fundamental in the choice of service to be provided, its implementation, maintenance and periodic review.

7.2 The purpose of this section, therefore, is to document the different service types, as adopted by the United Kingdom. Furthermore it amplifies the relationship between each service type and explains the level of interaction, between VTS and vessel, appropriate in each case.

7.3 The following is an explanation of each service type as recognised by the UK Competent Authority for VTS;

7.4 The prerequisites for VTS and LPS are;

VTS

- interacts with traffic;
- responds to traffic situations;
- authorised by the Competent Authority;
- staffed by V-103/1 certificated personnel;
- equipped as appropriate to provide INS/TOS/NAS.

LPS

- equipped appropriate to task;
- staffed and trained appropriate to task;

- does not require to be authorised by the Competent Authority.

7.5 VTS Information Service (INS)

7.5.1 Defined by IMO as ‘a service to ensure that essential information becomes available in time for on-board navigational decision-making’.

7.5.2 The information service comprises broadcasts of information at fixed times or when deemed necessary by the VTS authority or at the request of a vessel, and may include for example :

- waterway conditions;
- weather;
- navigational hazards;
- any other factors that may influence the vessel’s transit;
- reports on the position, identity and intentions of other traffic.

7.6 Traffic Organisation Service (TOS)

7.6.1. Defined by IMO as ‘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.’

7.6.2 The provision of a TOS includes a comprehensive and dedicated service, throughout the declared service period, without which the long term planning of traffic movement and developing situation would not be possible. This service is, by its nature, more comprehensive than an Information Service, the capability of which it necessarily includes.

7.6.3 Where the risks identified through the formal risk assessment are such that the only appropriate mitigating measure is the provision of service that monitors vessel traffic movement and enforces adherence to governing rule and regulation, a TOS should be considered appropriate.

7.6.4 A TOS is concerned with, for example :

- VTS sailing plans;
- routes to be followed;
- traffic clearance systems;
- the movement of special transports;
- congestion and dangerous situations;
- forward planning of vessel movements;
- adherence to governing rules and regulations.

7.6.5 Instructions given as part of a TOS shall be result orientated, leaving the details of the execution to the vessel.

7.7 Navigational Assistance Service (NAS)

7.7.1 Defined by IMO as ‘a service to assist on-board navigational decision-making and to monitor its effects, especially in difficult navigational or meteorological circumstance or in case of defect or deficiencies.’ This service is normally rendered at the specific request of a vessel or when deemed necessary by the VTS.

7.7.2 The beginning and end of navigational assistance should be clearly stated by the VTS or the vessel and acknowledged by the other party.

7.7.3 NAS may include information on:

- proximity to navigational hazards;
- course and speed made good by a vessel;
- positions relative to fairway axis, navigational features and/or waypoints;
- positions, identities, intentions and any restrictions of surrounding traffic.

7.7.4 Any advice or instruction from the VTS must be result orientated only and must not include specific instructions on courses to steer or speed through the water.

Dependent on the complexity of the situation and the level of risk mitigation required, consideration should be given to the following:

- use of a discrete frequency;
- increased traffic restrictions;
- the requirements of the Pilotage Act 1987;
- the need to reflect this service type in the on the job training of VTS Operators;
- use of the IMO Standard Marine Communication Phrases (SMCP) where practicable;
- authorisations of operators providing the service and recording of such authorisations;
- operator work load during NAS, including other responsibilities and activities, and the number of vessels being monitored or advised.

8 LOCAL PORT SERVICES

8.1 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 other ports, the UK has chosen to introduce LPS. This service is applicable to those ports where it has been assessed that a VTS, as described above, is excessive or inappropriate and does not imply a lower standard, or a poorer service to customers.. They will not, therefore, require to train their operators to the V-103 standard.

8.2 Identification of the threshold between LPS and VTS may be difficult to determine. It is likely to be port specific and will only become clear following the Formal Risk Assessment process, when all mitigating factors have been considered.

8.3 The main difference arising from the provision of LPS is that it does not interact with traffic, nor is it required to have the ability and / or the resources to respond to developing traffic situations and there is no requirement for a vessel traffic image to be maintained. As such, the training requirement for its operators is less comprehensive and the operators are unlikely to be certified to the V-103 standard.

8.4 Provision of LPS is designed to improve port safety and co-ordination of port services within the port community by dissemination of port information to vessels and berth or terminal operators. It is mainly concerned with the management of the port, by the supply of information on berth and port conditions. Provision of LPS 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.

8.5 Key considerations will be:

- the equipment deemed necessary;
- the level of operator competence required;
- the complexity of the advice and information required to be exchanged.

8.6 Examples of LPS may include :

- berthing information;

- availability of port services;
- details of shipping movements;
- meteorological and hydrological data;

8.7 Training for the provision of LPS shall be based on the selection of appropriate modules, or elements thereof, from the V-103 syllabus, depending on the equipment and capabilities used. The table at Annex 1 contains details of equipment and capabilities considered to be the minimum requirement for each service type.

9 SERVICE STRUCTURE

9.1 The structure consists of three elements, namely: Operational; Technical and Administrative. Whilst the following text relates specifically to the development of a VTS some of the aspects addressed may also be applicable when considering the provision of LPS.

9.2 Operational Structure

A determination needs to be made as to whether the VTS should be provided from one or more centres. Technical, financial and environmental aspects will need to be taken into account, although the final decision may be dependent on other factors, such as jurisdictional boundaries.

9.3 Technical Structure

The major technical factor is likely to be an assessment of the coverage of the VTS area, which is likely to be obtained by radar and / or AIS. This may indicate that two or more radars or base-stations are necessary to provide complete coverage of the VTS area. The information detected by several base-stations or radars can be transmitted to one VTS centre if required. Other technical aspects of the infrastructure relate mainly to the full integration of sensors with the means provided for analysing the resulting data and the consequent transmission of any resulting analysis.

9.4 Administrative Structure

9.4.1 The administrative aspects of the infrastructure provide the means by which the continued operation of a VTS or provision of LPS is enabled. These include but are not limited to :

1. The preparation of procedures for operation of the service and their periodic review.

2. The recruitment and training of personnel, including operational, maintenance and support staff, the preparation of personnel structures including leave and duty rosters.

3. The maintenance, repair and cleanliness of the VTS centre and outstations / location from where LPS is provided.

4. The provision of facilities necessary to support the operation of the VTS centre / location from where LPS originates.

5. Financial matters, including the funding of the VTS / provision of LPS, staff payment, contractual arrangements and other budgetary matters.

10 AUDITING AND REVIEWING PERFORMANCE

10.1 The evaluation of a VTS or provision of LPS should determine if the purpose it was implemented for is still relevant and its objectives are being achieved. This requires auditing and reviewing of performance in accordance with the SHA's Safety Management System. The evaluation is intended to ascertain the effectiveness of the VTS in meeting its objectives, with respect to mitigating the risks of collisions or groundings in the VTS area.

10.2 The VTS or LPS provided will depend on the result of the formal risk assessment, which in turn will identify the standard and the performance indicators against which the VTS or LPS will be evaluated. In order to be effective the objectives of the VTS or provision of LPS need to be kept under continuous review, bearing in mind changes in operations, operational methods, personnel and the availability of technology, to ensure that the objectives set for the VTS or provision of LPS remain applicable and are being achieved.

10.3 At the request of a SHA, the Competent Authority for VTS (MCA), may assist with the evaluation process, with a view to ensuring compliance with UK best practice and international recommendations.

10.4 The overall evaluation of the VTS or provision of LPS should be preceded by an assessment of the effectiveness of the equipment, manning and procedures involved.

EXPLANATION OF EQUIPMENT AND CAPABILITIES IN ANNEX 1

Very High Frequency (**VHF) – Marine band**

VHF radio, capable of working in the marine band on the channels identified and in sufficient numbers to provide the service and channels declared for the area.

VHF Direction Finding (VHF DF)

VHF radio direction finding equipment in sufficient numbers and at appropriates locations to assist in the confirmation of the source of VHF transmissions.

Telephone – Landline

Shore-side telecommunications network with the capability to deal with all operational and emergency demands, including Allied Services.

Facsimile

Indicates availability of this service, which is connected to the shore-side telecommunications network.

Marine radar

Indicates stand alone marine radar without automatic tracking.

Marine radar and tracking system

Indicates stand alone marine radar with automatic tracking capability i.e. ARPA

VTS radar and tracking system

Indicates a dedicated fully functional VTS radar and display system.

Automatic Identification System (AIS) base-station

Indicates availability of a base-station compatible with the IMO approved AIS. This will also need to be compatible with the requirements of the EU Directive on Vessel Traffic Monitoring.

Manual plotting facility

Any means for manually maintaining a traffic image i.e. magnetic board or paper chart.

Electronic Navigation Chart (ENC) or Geographic Information System (GIS)

Indicates the use of an electronic chart display showing the physical and navigational characteristics of the area.

Dynamic Traffic Image

Indicates the use of a real-time display of the traffic image.

Meteorological sensors

Indicates the availability of the necessary sensors to provide real-time meteorological information to stakeholders.

Hydrological sensors

Indicates the availability of the necessary hydrological sensors to provide real-time hydrological information to stakeholders.

Close Circuit Television (CCTV)

Indicates the use of CCTV in the provision of service type declared

Equipment performance monitoring

Indicates the ability to monitor the performance of all equipment used in provision of the service type declared, including a planned maintenance system.

Redundancy

Indicates the presence of sufficient equipment to ensure continuity of the service type declared under realistic fault conditions.

Data recording

Indicates the ability to record all operational data concerned with the compilation of the traffic image. This will typically include radar / AIS data and all communications, and will permit the replay of data in support of incident analysis.

Data management system

Indicates the use of a fully integrated system that effectively manages all of the information necessary to provide the declared service type.

Data export

Indicates the capability to meet the requirements of the EU Directive on Vessel Traffic Monitoring. In this respect, it is recommended that the MCA should be consulted about future developments.

Log and record keeping – automatic or manual

Indicates a means of recording all activities within the area, which may be either electronic or manual. In more sophisticated systems this is likely to be incorporated in the data recording / data management system.

PROMULGATION OF DETAILS AND TYPES OF SERVICE

1 Details

As a minimum, the following information should be promulgated where a VTS / LPS is provided:

(1) category of service (LPS / VTS);

(2) service type of VTS (Information Service / Traffic Organisation Service / Navigational Assistance Service);

(3) contact details and VTS / LPS callsign;

(4) details of service to be provided;

(5) area(s) of coverage;

(6) hours of service;

(7) categories of vessel required, expected or encouraged to participate;

(8) VHF radio frequencies;

(9) reporting points;

(10) format and content of reports required.

2 Publications

Statutory Harbour Authorities should provide the details above to the MCA on an annual basis for compilation of the UK VTS database and to UKHO for promulgation of appropriate details in the Admiralty List of Radio Signals Volume 6 and on Admiralty chart(s).

Ports with VTS services are encouraged to provide details to IALA for promulgation on the World VTS Guide website.

NATIONAL AND INTERNATIONAL GUIDELINES & LEGISLATION

The following documents provide the framework for VTS Operations:

International Convention for the Safety of Life at Sea (SOLAS V, 2002) – Regulation 12	Vessel Traffic Services.
IMO Resolution A.857(20)	Guidelines for Vessel Traffic Services.
IALA VTS Manual	
IALA Recommendation V-103	Standards for Training and Certification of VTS Personnel.
IALA Recommendation V-119	Implementation of Vessel Traffic Services.
IALA Guidelines on Risk Management	
Harbours Act 1964	
Harbours Act (Northern Ireland) 1970	
Port Marine Safety Code	
Guide to Good Practice	Supplementary information concerning the Port Marine Safety Code.
Acts, Orders and Byelaws pertaining to individual Ports	
Resolution A.918 (20)	Standard Marine Communication Phrases.
Resolution A.851 (20)	General principles for ship reporting systems and ship reporting requirements, including guidelines for reporting incidents involving dangerous goods, harmful substances and / or marine pollutants.
MSC/Circular 952	IALA Standards for training and certification of Vessel Traffic Services (VTS) personnel.