



Managing AtoN in Queensland

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Document History

2007 - 2009

Date	Action (approve/review)	Details of action
06/08/2007	Original version	Establishment of standard by Maritime Services Branch
01/11/2008	Review	Review of standard
21/09/2009	Amend	Removal of assessment criteria to a new & separate procedure Movement of removal of pile structure policy information added to this standard

2010

Date	Action (approve/review)	Details of action
12/05/2010	Amend	Combined several documents: - Policy: Marine Aids to Navigation - Permanent Withdrawal or Downgrading - Standard: Funding for Marine AtoN - Procedure: Establishment of AtoN - Procedure: Recording of Marine Aids to Navigation Details - Procedure: Damage/Destruction - Investigation for Possible Cost Recovery Purposes - Procedure: Destruction or Damage - Restoration of Service Potential - Procedure: Criteria for Determining Marine AtoN Requirements

19/04/2013	Review	Reflect Machinery of Government changes
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1.0 Introduction

- 1.1 The efficient navigation of ships through Queensland coastal waters is assisted by a system of marine aids to navigation (AtoN) which accurately and reliably indicates the safest navigable waters for mariners. Section 105 of the *Transport Operations (Marine Safety) Act 1994* provides for the General Manager of MSQ to establish AtoN where it is desirable to ensure the safety of people, ships or property.
- 1.2 MSQ is responsible for the provision and management of a system of AtoN in Queensland waters. Through the relevant RHM, MSQ may:
 - establish AtoN in any place considered necessary for the safety of vessel movements; and
 - enter into agreements with external entities (ie.local governments, port authorities and developers) to establish AtoN.
- 1.3 Maritime Safety Queensland (MSQ) will minimise the risk of marine incidents in Queensland coastal waters, through the development, implementation, management and maintenance of a consistent system of AtoN in accordance with best practice and conforming, where workable, with international recommendations, guidelines and Australian standards. This encompasses a system of accurate and reliable AtoN.

2.0 Purpose and scope of this standard

- 2.1 The purpose of this document is to outline the minimum requirements for all AtoN in Queensland to ensure the safety of vessel movements and the integrity of Queensland's system of AtoN are not compromised.
- 2.2 This standard supports MSQ's policy for Vessel Traffic Management (VTM) in Queensland and is in accordance with the objectives of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Naviguide.
- 2.3 This standard is aligned with the current MSQ Key Outcomes which enhances the safety of vessel movements, and consequently, the protection of the environment via the prevention of marine pollution.
- 2.4 This standard applies to all areas of MSQ associated with the management, delivery and maintenance of MSQ's marine AtoN system or services.

3.0 Definitions

Terms, abbreviations and acronyms	Meaning
AtoN	Any device or system, external to a vessel, which is provided to help a mariner determine position and course, to warn of dangers or of obstructions, or to give advice about the location of a best or preferred route. (Definition: IALA Naviguide 2010 edition)
Category 1 AtoN	An AtoN or a system of AtoN that is considered by MSQ to be of vital navigational significance, eg lighted AtoN and RACONS that are considered essential for marking landfalls, primary routes,

	waterways or dangers.
Category 2 AtoN	An AtoN or a system of AtoN that is considered by MSQ to be of important navigational significance, eg it may include any lighted AtoN and RACONS that mark secondary routes and those used to supplement the marking of primary routes.
Category 3 AtoN	An AtoN or a system of AtoN that is considered by MSQ to be of necessary navigational significance.
TMR	Department of Transport and Main Roads
IALA	International Association for Marine Aids to Navigation and Lighthouse Authorities.
Maritime Capital Works and Maintenance Program	The program from which funds are allocated to establish, repair and replace AtoN in waterways where commercial ships operate (ie. SOLAS, fishing and tourist).
MSQ	Maritime Safety Queensland
RACON	A type of radar transponder commonly used to mark maritime navigational hazards. The word is an acronym for RAdar beaCON.
RHM	Regional Harbour Master
SOLAS	The International Convention for the Safety of Life at Sea 1974 and its protocols of 1978 .

4.0 Standard

- 4.0.1 Only AtoN established or approved by MSQ through the relevant RHM are to be established in Queensland waters.
- 4.0.2 Unofficial AtoN may not be compliant with IALA recommendations and may present a risk to navigational safety. Where unofficial AtoN are identified, the relevant RHM will work with the owner of the unofficial AtoN to determine the need and where possible come to an arrangement for the owner to establish approved AtoN in accordance with MSQ's Aids to Navigation standards.
- If unofficial AtoN present a risk to navigational safety and need to be removed, the relevant RHM may issue a direction under s.91 of TOMSA requiring the person responsible for the unofficial AtoN to remove them. If the person fails to comply with the direction or there is no-one to whom the direction may be given, the RHM may carry out the direction under s.93 of TOMSA . Subsequently, s.94 of TOMSA provides that the RHM can recover the expenses associated with MSQ carrying out the direction. It is recommended that the relevant RHM liaises with the Manager (Compliance) before issuing a direction under TOMSA.
- 4.0.3 Sections 106 and 107 of TOMSA provide that a person must not unlawfully interfere with or climb an AtoN and a ship must not moor to an AtoN unless there is a reasonable excuse. Non-compliance action should be initiated by the relevant RHM with the assistance of the Manager (Compliance).
- 4.0.4 Where construction activities affect Queensland waters (ie construction of jetties, wharves or dredging), s.90 of TOMSA provides powers for the relevant RHM to instruct the person

carrying out this work to light or mark the area in a specified way to ensure marine safety is maintained. In these circumstances the relevant RHM is to disseminate advice about construction activities to the maritime community through the issue of a Notice to Mariners. Refer to MSQ Procedure: Notice to Mariners. With all developments the RHM should consider the impact of background lighting and ensure it does not interfere with the effectiveness of AtoN. If existing structures are found to interfere with the effectiveness of AtoN, the relevant RHM/RM may direct the relevant persons to remove or screen the source of interference under s.92 of TOMSA.

- 4.0.5 The construction of bridges over navigable waters require the developer and/or relevant government agency (the owner) to install navigation lead lights to the upstream and downstream sides of the bridge. MSQ's recommended specifications for bridge navigation lights is attached to this document. See attachment A.

The owner is responsible for the operation and maintenance of the bridge lead lights, associated hardware and components in accordance with the following requirements:

- All bridge leading lights are to be blue in colour and mounted within a white triangular or rectangular day mark with a retro-reflective border. Fluorescent, Neon or LED lights should be mounted to the bridge/structure in a vertical configuration to mark the safest navigable passage for vessels to safely transit the waterway;
- Where bridge pylon lights are required, mains powered floodlights, spotlights or equivalent LED lighting is to be installed with sufficient lumens to illuminate pylons/bridge span for the provision of a safe navigable passage; and
- In areas or locations prone to vandalism, a suitably robust enclosure should be installed to ensure the integrity of the leading light assembly at all times.

The relevant RHM will provide the owner with information on the safest navigable waters and technical advice on AtoN lighting requirements. Generally, this is through MSQ's concurrence role under IDAS. Refer to MSQ Standard: Tidal Works Application Requirements

- 4.0.6 The relevant RHM may require the temporary establishment of AtoN to mitigate any risks associated with aquatic events approved under s.218 of TOMSR. Temporary AtoN are to be established by MSQ or in accordance with the agreed navigational plan for the aquatic event. The establishment and withdrawal of AtoN for such events by MSQ will be at the expense of the aquatic event organiser.
- 4.0.7 All AtoN activities will appropriately consider and satisfy the requirements of any environmental impacts and native title. Advice on environmental impacts from DNRM/GBRMPA/DAFF and the rehabilitation of a site after construction or maintenance is highly recommended to minimise the negative impact of any AtoN related works. Refer to MSQ Guideline: Environmental and Cultural Considerations

4.1 Establishing and Upgrading an AtoN

- 4.1.1 MSQ will establish or approve the establishment of AtoN where the need has been proven as a consequence of an assessment of local conditions, vessel operating conditions and volume of vessel traffic to ensure the safety of vessel movements in Queensland waters.
- 4.1.2 All AtoN will be established to a consistent standard across the State, as approved by the relevant RHM . As new AtoN technology or concepts become available on the market, MSQ will trial the technology/concept in a suitable area for a period no less than 12 months in consultation with the Senior Advisor (Navigational Aids) in Maritime Services and the relevant RHM.
- 4.1.3 The establishment of major AtoN must be undertaken in conjunction with Bridge and Marine Engineering (B&ME), DTMR to provide expert engineering services to MSQ. All approaches to **B&ME** for major AtoN projects **must** be made through the Senior Business Manager

(Procurement and Contract Management), Maritime Services.

- 4.1.4 A flowchart for establishing AtoN is attached to this document. See attachment B.

4.2 Downgrading and Withdrawal of AtoN

- 4.2.1 The continued need for an AtoN requires proper evaluation and review of the original reason for establishing the AtoN to ascertain if there is a need for the AtoN to be continued or whether it can be withdrawn or downgraded without being detrimental to navigational safety. **Note:** Safety of life and property must not be compromised.
- 4.2.2 Where MSQ determines that the need for an AtoN is unnecessary or can be downgraded, the relevant RHM will undertake appropriate community and/or industry consultation. The Executive Director (Maritime Services) must be briefed on any proposed withdrawal of an AtoN including the results of consultation and endorse any such proposal. As determined by the Executive Director (Maritime Services), subsequent briefings to the General Manager, MSQ and/or Minister for Transport and Main Roads may be required depending on the particular circumstance.
- 4.2.3 Once the downgrading or withdrawal of an AtoN has been appropriately endorsed, the relevant RHM will change or remove the AtoN and disseminate advice to the maritime community through the issue of a Notice to Mariners. Refer MSQ Procedure: Notice to Mariners.
- 4.2.4 The permanent removal of a fixed structure, whenever possible, will result in the complete extraction of all material and associated anchoring devices from the site. Complete removal of the structure is to be carried out unless there are unforeseen circumstances which prevent this. If the fixed structure is unable to be completely removed the relevant RHM will make a recommendation to the Executive Director (Maritime Services) on the best method to reduce marine safety risks (eg. damage to dredging equipment during future channel maintenance, damage to ships that may be accidentally grounded where the AtoN formerly existed, possibility of litigation against the crown) to an acceptable level.

4.3 Unavailability, Destruction or Damage of AtoN

- 4.3.1 AtoN that are reported to be unavailable (ie. light or structure failure) are generally responded to in accordance with MSQ's standard to restore service potential. Refer MSQ Standard: Maintaining Service Potential of AtoN
- 4.3.2 When a major AtoN has been damaged or destroyed the relevant RHM and the Executive Director (Maritime Services) will determine whether the AtoN is to be repaired, replaced or removed. Where all other AtoN have been damaged or destroyed, the relevant RHM will assess the ongoing requirement for the AtoN before making arrangements for its repair.
- 4.3.3 Under s.107A of TOMSA, the master and owner of a ship that damages or destroys an AtoN is liable for the expense of repairing or reinstating the AtoN. These matters are to be referred to Senior Advisor (Navigational Aids) and Manager (Compliance) for case by case advice about how to proceed. As there are a number of possible scenarios in relation to the conduct of an investigation into the damage or destruction of an AtoN, a flowchart is provided to assist officers in determining the steps that need to be followed in each instance. See attachment C.

4.4 Funding for AtoN

- 4.4.1 The establishment of an AtoN with a total cost less than \$20,000 and that is to be funded by MSQ, is at the discretion of the relevant RHM and is to be funded from the relevant MSQ Regional budget allocation.
- 4.4.2 The establishment of 'major' AtoN in excess of \$20,000 in value requires a submission to the Executive Director (Maritime Services) detailing the proposal, the result of the assessment to

the need and seeking funding for the establishment.

Where the total cost to establish an AtoN is greater than \$20,000 and is to be funded by MSQ, the Senior Advisor (Navigational Aids) in Maritime Services must be contacted to determine whether it should be considered for inclusion in the MSQ Infrastructure Program. The MSQ Infrastructure Program provides MSQ with the funding to perform the following tasks:

- Establishment and major maintenance of significant AtoN (eg. commercial shipping channels & transit leads) to support general port traffic (ie. SOLAS);
- Capital improvements to major AtoN outside of major commercial shipping channels for use by other commercial shipping (ie. fishing and tourist); and
- Major maintenance of privately funded AtoN that have been transferred to MSQ on completion of marine developments (ie. ports and harbours).

Note: All other AtoN activities are to be funded from the relevant MSQ Regional Office budget allocations.

4.4.3 External entities are responsible for the establishment of AtoN, as deemed necessary by the relevant RHM, for major port developments. Such projects include dedicated port developments (eg LNG terminals), harbours and specific berths where ships using these facilities pay conservancy fees under the *Transport Operations (Marine Safety) Act 1994* . The provision of AtoN for port developments will

- be funded by the proponent;
- be constructed to MSQ standards for AtoN and in accordance with IALA recommendations;
- be provided guidance from MSQ on AtoN requirements for safe navigation through the relevant RHM;
- be managed by engineers from Bridge and Marine Engineering (B&ME)) of the Department of Transport and Main Roads for their initial construction including sign-off upon their completion; and
- have their ownership of the AtoN transferred, at no cost, to the State of Queensland, through Maritime Safety Queensland prior to commissioning. MSQ will then be responsible for providing the ongoing maintenance of the AtoN.

Note: Private funding of the construction of AtoN does not exempt the project proponent/operator from the requirement to pay conservancy dues.

4.4.4 External entities are responsible for the establishment of AtoN, as deemed necessary by the relevant RHM, for all other marine developments. Such developments include private marine projects such as canal estates, marinas, waterside residential or commercial developments approved through a development application under the *Sustainable Planning Act 2009* and are facilities where ships generally do not pay conservancy under the *Transport Operations (Marine Safety) Act 1994* . The provision of AtoN for marine development:

- will determine the minimum AtoN requirement to be established;
- will monitor the AtoN in the area to ensure they comply with AtoN standards, which may result in new AtoN requirements which are to be established and maintained by the relevant local government/port authority; and
- may contract MSQ services to maintain AtoN in these areas on a full cost recovery basis and under a strategic agreement between the relevant RHM and local government/port authority. Refer MSQ Procedure: Establishment of Deeds of Agreement for AtoN Services

4.4.5 The MSQ Infrastructure Program provides MSQ with the funding to perform the following tasks:

- Establishment and major maintenance of significant AtoN (eg. commercial shipping channels and transit leads) to support general port traffic (ie. SOLAS);
- Capital improvements to major AtoN outside of major commercial shipping channels for use by other commercial shipping (ie. fishing and tourist); and
- Major maintenance of privately funded AtoN that have been transferred to MSQ on completion of a marine development (ie.ports, harbours, and specific berths).

Note: All other activities are to be funded from the relevant MSQ Regional Office budget allocations.

4.5 Recording AtoN Information

4.5.1 All AtoN information including structure, light and marine sign details, position, land tenure etc must be promptly and accurately recorded by the relevant region in the Aids to Navigation Asset and Maintenance System (ANAMS) database and kept on file.

4.5.2 The information obtained can be used to:

- Demonstrate the efficiency and effectiveness of the AtoN;
- Compare the performance of AtoN in different locations;
- Amend system design, procurement decisions, equipment choices and, maintenance procedures and practices;
- Increase or reduce maintenance effort; and
- Extend maintenance intervals

4.5.3 The maritime community must be notified of the establishment, upgrade, downgrade or withdrawal of AtoN. The information is disseminated through a Notice to Mariners, issued by Maritime Services. Refer to MSQ Procedure: Notices to Mariners. Maritime Services will then update cartography information.

5.0 Relevant documents and/or references

International Maritime Organisation resolutions <http://www.imo.org/>

International Association for Marine Aids to Navigation and Lighthouse Authorities Navguide - Aids to Navigation Manual <http://www.iala-aism.org/>

Transport Operations (Marine Safety) Act 1994
<http://legislation.govnet.qld.gov.au/LEGISLTN/CURRENT/T/TranstOpMSA94.pdf>

Transport Operations (Marine Safety) Regulation 2004
<http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/T/TranstOpMSyR04.pdf>

The current Maritime Safety Queensland Key Outcomes

Maritime Safety Queensland Document:

- Policy: Vessel Traffic Management

6.0 Stakeholders

Stakeholder Area	Stakeholder Representative	Responsibility
MSQ	General Manager	Delivery of MSQ Services

Maritime Services	Executive Director (Maritime Services)	Develop and maintain policies, standards, guidelines and procedures in relation to MSQ's AtoN system. Competent authority for determining the establishment of major AtoN.
MSQ Regions	Regional Harbour Masters	Delivery of accurate and reliable system of AtoN in accordance with MSQ's Policy, standards and procedures. This includes managing the funding and servicing for AtoN, assessing requests from external entities to provide AtoN services and record all AtoN details in ANAMS.
Bridge and Marine Engineering (DTMR)	Engineers	Provision of professional advice and project management for the design and establishment off aids to navigation.
Local governments, port authorities, port operators and private developers	CEO's Owners, Directors and Secretaries	Adhering to the terms and conditions provided by MSQ in relation to AtoN in Queensland.



Attachments -> A. Bridge Lights Specifications TMR April 2013.doc B.



AtoN Establishment Flowchart April 2013.doc

C.



Marine Aids to Navigation - Damage or Destruction (Cost Recovery and Reinstatement Process Flowchart - April 2013).doc