**NIPWG3-24.1**

## Paper for Consideration by NIPWG

**Preliminary Mapping and Geometries**

**for the Traffic Management Test Data Set (S-127)**

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| ***Submitted by:*** | United States (NGA) |
| ***Executive Summary:*** | This paper describes the preliminary mapping for the Traffic Management Test Data Set (S-127) and proposed geometries for the data |
| ***Related Documents:*** | NIPWG WIKI worksite on the NIPWG section of the IHO home page  SNPWG 17-11.4  ISO 19107 and ISO 19136 |
| ***Related Projects:*** | Preliminary mapping of Marine Protected Areas (S-122), Radio Services (S-123), Navigational Services (S-125), and Physical Environment (S-126) |

## Introduction/Background

In 2013, SNPWG distributed a questionnaire to experienced mariners and training facilities specializing in ECDIS to assist SNPWG in developing a prioritized listing of sailing directions topics. The overwhelming choices were Traffic Management, Navigational marks, Hydrography, and Radio Signals. Member States developed test data sets for Traffic Management, Physical Environment (hydrography, topography, and environment), and Navigational Services and a revision of the previously-developed Radio Services.

The timeline for developing the Traffic Management Test Data Set was, as follows:

1. SNPWG 16—Develop the NP1 data sample for Traffic Management and present the first draft at SNPWG 17 (Action Item 16/11).
2. SNPWG 17—Presented first draft of the Traffic Management Test Data Set. The WG to review the data set and provide comments (Action Items 17/6). Prepare second draft of test data set and present at SNPWG 18 (Action Item 17/6).
3. SNPWG 18—Presented second draft of the Traffic Management Test Data Set. Continue review of the test data set. Prepare third draft of the test data set and present at NIPWG 1 (Action Item 18/4).
4. NIPWG 1—Presented third draft of the Traffic Management Test Data. The WG determined the test data set was stable and further mapping work could be undertaken.
5. NIPWG 2—Develop the preliminary mapping and the assigning of geometries for the Traffic Management Test Data Set (Action Item 2/12).
6. NIPWG 3— Presentation of the preliminary mapping and the assignment of geometries for the Traffic Management Test Data Set.

## Analysis/Discussion

The preliminary mapping was started by dividing up the text of the Test Data Set into smaller blocks of for ease of work. The individual blocks were assigned the appropriate Features and Attributes from the NIPWG WIKI worksite on the NIPWG section of the IHO home page. There are a total of 236 Features and Attributes in the WIKI Worksite, as follows;

1. Information Features—10 items.
2. Geographic Feature—32 items.
3. Simple Attributes—166 items.
4. Complex Attributes—28 items.

Below is an extract from the Preliminary Mapping of the Traffic Management Test Data Set. The Features (boldface text) were researched an added first. The Attributes (plain text) were then researched and added.

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| **2.2.2 Areas to be Avoided** | |
| An IMO-adopted Area to be Avoided is bounded by lines joining the following positions:   1. 30°50.0´S, 060°55.9´E. 2. 30°50.0´S, 061°02.0´E. 3. 30°55.0´S, 061°05.0´E. 4. 30°58.0´S, 061°03.0´E. 5. 30°58.0´S, 060°57.4´E.   This area is located within the boundaries of the Jussland Right Whale Ship Reporting System. This area protects the nursing grounds of the Jussland Right Whale. In order to protect these animals from being interfered with during their nursing activities, vessels are prohibited from entering in or transiting through this area. For further information, see the Jussland Right Whale Reporting System. | **WATARE (Waterway area)**  TEXCON (Text content)  **NATINF (Nautical information)**  TEXCON (Text content)  **RESDES (Restrictions)**  CATAUT (Category of Authority)  TEXCON (Text content) |

The Traffic Management Test Data Set consists of the following:

1. Ship Reporting Systems—Two voluntary systems, two mandatory systems, and two seasonal systems.
2. Traffic Control Services—Interactive traffic control (two items), passive traffic control (four items), and traffic control signals (two items).
3. Regulatory Reporting Requirements—Six items.

Each system and items above was assigned a particular geometry after a visual inspection of each system or item:

1. Worldwide coverage with no defined geometry.
2. Point.
3. Line.
4. Arc.
5. Circle.
6. Polygon.

Annex A—Preliminary mapping of the Traffic Management Test Data Set

Annex B—Preliminary assigned geometries for the Traffic Management Test Data Set

## Conclusions

It was very difficult to find the right combinations of Features and Attributes to accurately populate the preliminary mapping environment. It will be very interesting to see how well this preliminary mapping lends itself to modelling. Due to the fact that publications-type information is very text-oriented as opposed to symbol driven, there will be a lot of holes in the model if better Features and Attributes are not developed.

Work needs to be done to create the process to successfully model tables and images (photographs/graphics) and the textual information contained within them.

## Recommendations

At a minimum, the following Features and Attributes should be added to the NIPWG Wiki Feature Catalog for more accurate mapping, not only for the Traffic Management: Test Data Set, but for other data sets as well:

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| **Feature** | **Attributes** | |
| **Overhead Obstructions** | Bascule bridge | Swing bridge |
| Fixed bridge | Vertical lift bridge (closed) |
| Pipeline | Vertical lift bridge (open) |
| Pontoon bridge | Vertical clearance |
| Power line | Horizontal clearance |
| **Dredged Channels** | Length | Dredged depth |
| Depth | Maintained depth |
| Project depth |  |
| **Vessel Type** | Barge | General cargo |
| Break bulk | Hydrofoil |
| Bulk liquid | Livestock carrier |
| Bulk solid | LNG |
| Chain ferry | LPG |
| Chemical | Project cargo |
| Container | Ro-ro |
| Cruise ship | Tug |
| Ferry |  |

The modelling concerns should also be presented to the S-100 Working Group and the Nautical Cartography Working Group for their expertise and input.

## Action Required of NIPWG

The NIPWG is invited to:

a. note this paper

b. provide input to improve the mapping of the Test Data Set