Installation of Tidal Flow System

Transport Roads & Maritime Services

Technical Guide | **ILC-ITS-TP0-002-G02**

Introduction

This guideline is intended to complement procedure ILC-ITS-TP0-002 which is a generic description of processes for installation of Intelligent Transport System devices and systems. When working on an installation of a Tidal Flow System project it is advised to refer to both documents to provide the basic information required.

Description of Device

Tidal Flow Systems are a site specific system developed so the directional flow in one or more lanes can be safely reversed according to traffic flow needs.

To decrease congestion a "Tidal Flow System" is a cost effective solution utilising existing traffic lanes by alternating the traffic direction to provide additional capacity during the peak traffic periods (i.e. morning, afternoon or both periods). A Tidal Flow System can use a variety of ITS devices (including IPL, movable medians, LUS, CMS, VMS, Traffic Flow monitoring, Barrier Transfer Machines, Manual systems) co-ordinated to achieve the most effective and safest lane use changes.

(material derived from "Tidal Flow Overview" RTA presentation and "Tidal Flow Schemes and Technologies" RMS presentation 2012)

Operating and Maintenance Manual

Each Tidal Flow System is designed using traffic engineering principles and is likely to use different technology types and devices. Therefore, each Tidal Flow System will have Operating & Maintenance Manuals written specifically for that system.

As an example, refer to the Spit Road Tidal Flow System;

1. Operation & Maintenance Manual, Rev C, dated 22 Dec 2011.
2. Radio Control Unit Operational Procedures, Rev d 5 Sept 2011
3. TFS Remote Control System Maintenance Manual, Draft 26 July 2011
4. TFS Remote Control Operators Manual, Draft 18 July 2011

Manufacturers Additional Information

Tidal Flow Systems consist of various devices and systems from a number of manufacturers. Refer to the Spit Road Tidal Flow Scheme Operation & Maintenance Manual, Rev C, dated 22 Dec 2011 as an example.

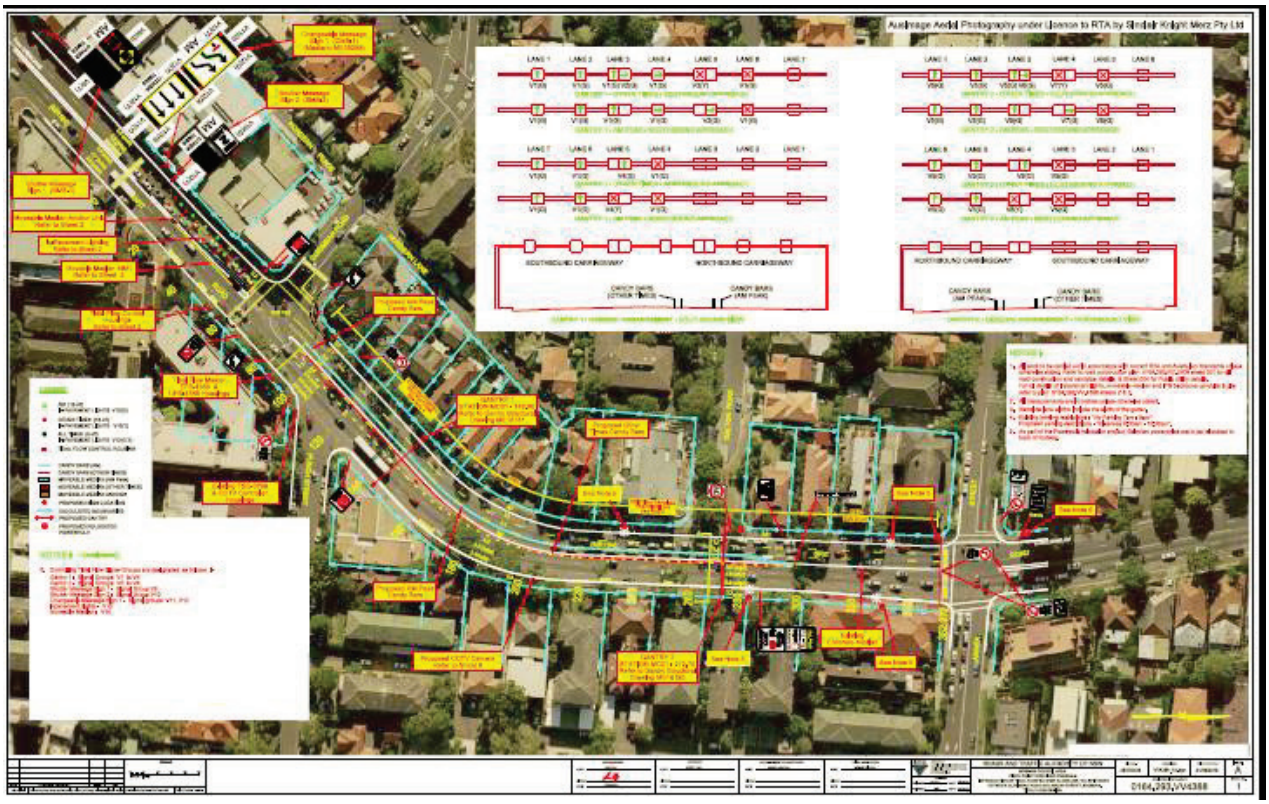
References to Relevant Documents

Policies	Nil
Standards and Specifications	TSI-SP-002 “General Requirements for Lane Control Systems” (Draft only)
Procedure	ILC-ITS-TP0-002 ITS Project Life Cycle
Technical Directions	TDT 2011/07 Attachment of Equipment to Traffic Facilities Assets TDT2012/10 Energy Management for New Traffic Assets
Guidelines	Guide to Traffic Management Part 4: Network Management; Austroads Publication No.AGTM04/09 Guide to Traffic Management Part 5: Road Management. Sec 4.3.3 “Tidal Flow Overview” RMS TechInfo Roads and Maritime Services Delineation Manual
Maintenance Specifications	For Tidal Flow Systems the Maintenance Specifications are site or system specific. For devices and sub-systems that are components to Tidal Flow Systems, refer to either the Maintenance Specifications written for the devices/sub-systems or to the Manufacturers documentation as applicable. Refer to TSI-SP-002 “General Requirements for Lane Control Systems” (Draft only)” section 9.3 for maintenance training requirements. If required, Development Specifications are site specific and produced during project delivery
Factory Acceptance Testing	Refer to TSI-SP-002 “General Requirements for Lane Control Systems” (Draft only).
Site Acceptance Testing	Refer to TSI-SP-002 “General Requirements for Lane Control Systems” (Draft only).

Acronyms, Abbreviations and Definitions

Term	Definition
CMS	Changeable Message Sign (Prism)
IPL	In Pavement Lights
ITS	Intelligent Transport System
LED	Light Emitting Diode
LUS	Lane Usage Sign
SMS	Shutter Message Sign
TFS	Tidal Flow Controller
VMS	Variable Message Sign

DIAGRAMS and PHOTOS



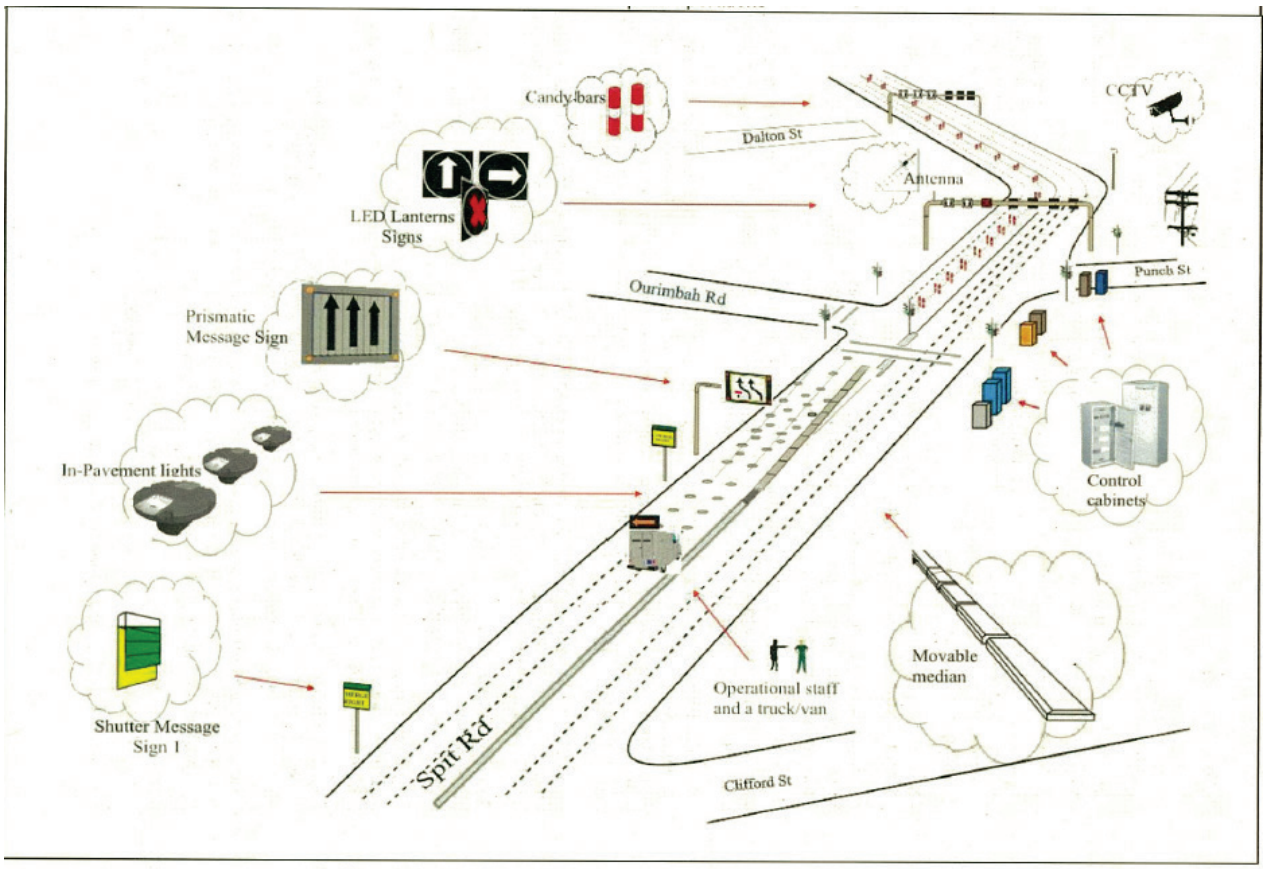
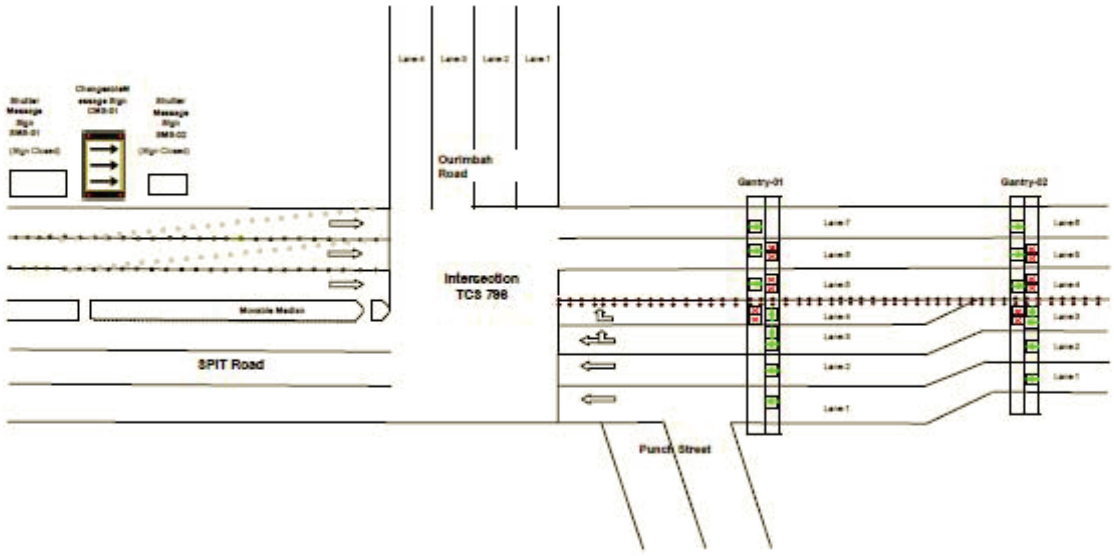
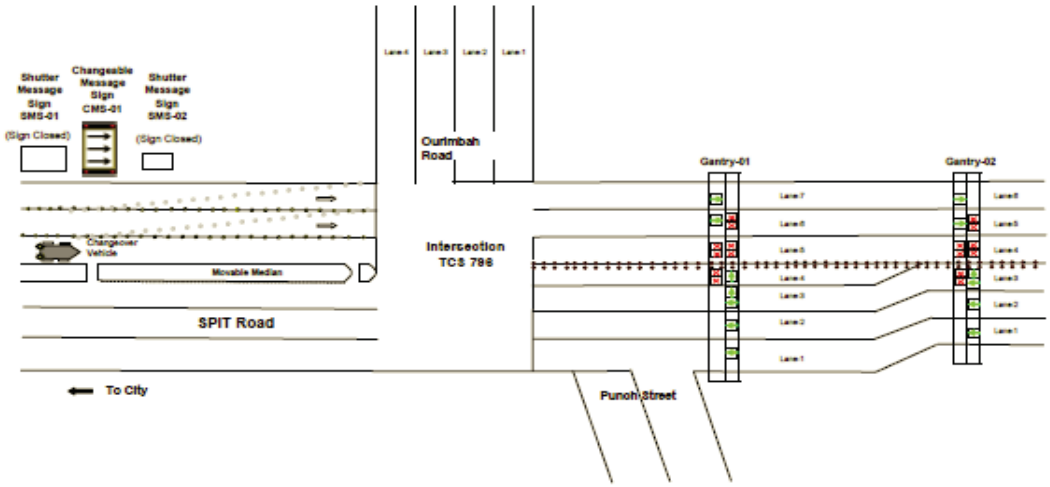
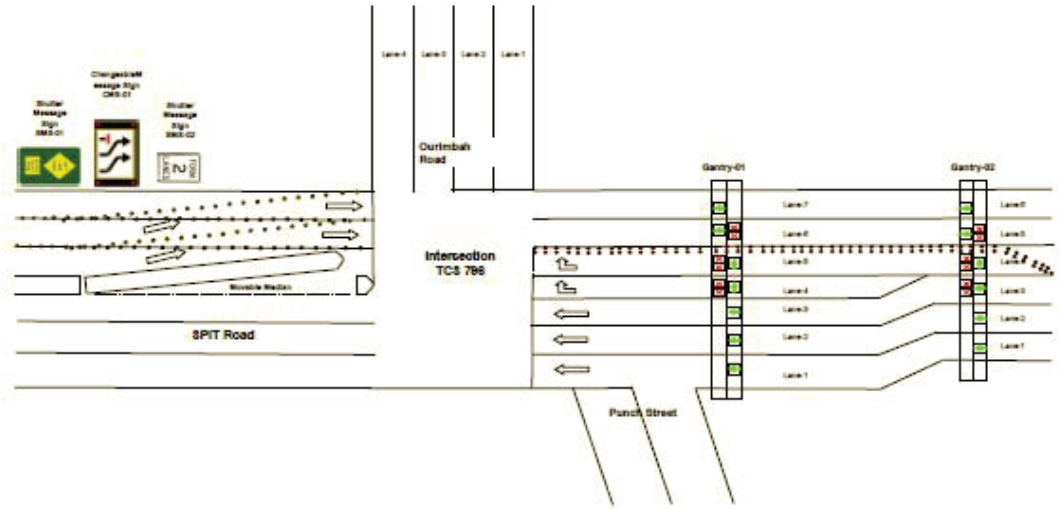


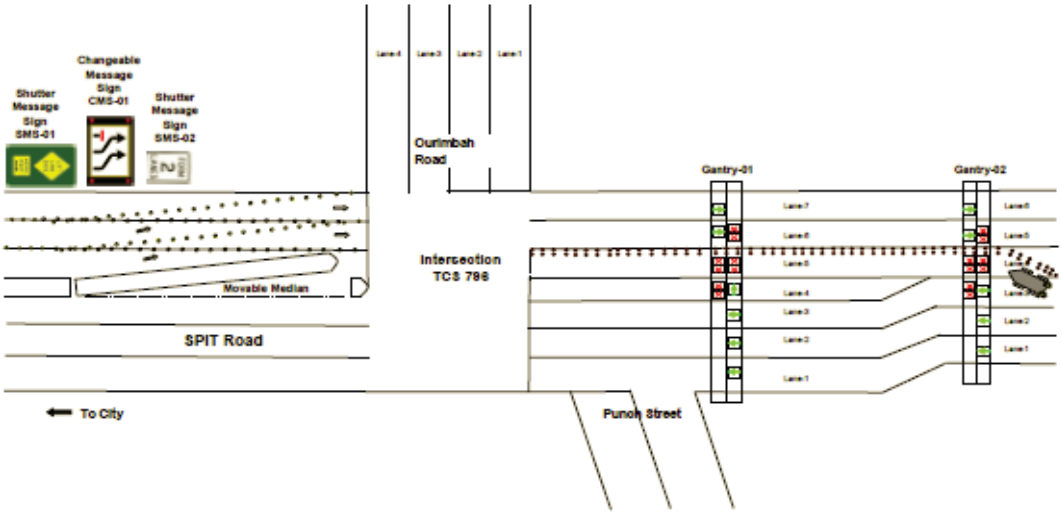
Figure 4 Spit Road TFS Resources and Location (Illustrative only)

Various configurations of Spit Road (this page and following)




Shutter Message Sign SMS-01
(Sign Closed)
Changeable Message Sign CMS-01
Shutter Message Sign SMS-02
(Sign Closed)
Changeover Vehicle
Movable Median
SPIT Road
To City
Ourimbah Road
Intersection TCS 786
Gantry-01
Gantry-02
Punch Street


Ourimbah Road
Intersection TCS 786
Gantry-01
Gantry-02
SPIT Road
Punch Street


Changeable Message Sign CMS-01
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Gantry-02
Punch Street

About this release

Guideline Number:	ILC-ITS-TP0-002-G02
Guideline Title:	Installation of Tidal Flow System
Author:	David N Wilson Gary Hadfield
Technical Authorities	Network Operations

Issue	Date	Revision description
Issue 1	July 2013	Initial Release
Issue 2	September 2013	Updated author and technical authority
Issue 3	November 2013	Updated title, changed 'Scheme' to 'System'
Issue 4	February 2015	Updated References to Relevant Documents

Note: The issue date is normally considered to be the date on which a document is authorised or signed off. Under the ILC Management System, authorisation is indicated by the signature of the authorising manager on the document register. For simplicity then, the date of writing or revising a document is used as the issue date.

This document is published under the Infrastructure Life Cycle Management System and is subject to review and continual improvement. The current version of this procedure is that published on the RMS intranet.

Note: The Infrastructure Lifecycle Management System complies with the requirements of the ISO9001 standard. This standard is revised every four years (2008, 2012, 2016). While system procedures within the ILC Management System are revised as necessary, to meet any changed requirements of the standard, references within the procedures refer only to ISO9001.

It should be confidently assumed by users that the term ISO9001 within a procedure refers to the most current version of the standard.

HAVE YOUR SAY!

TechInfo welcomes your feedback, ideas, suggestions and constructive comments. If you have any concerns about specifications or other RMS technical documents, using our Improvement Requests system will allow your suggestions to be referred to the person responsible even quicker.
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