

Section 2. CADD Data

2.1. CADD Data Exchange Policy

2.1.1. Approval Sheet

TITLE:	CADD Data Exchange Policy
VERSION NUMBER:	3
REVISION NUMBER:	1
APPROVED BY:	SIGNED: David Reid DATED: 30 th April 2004 MANAGER PROJECT DESIGN SERVICES

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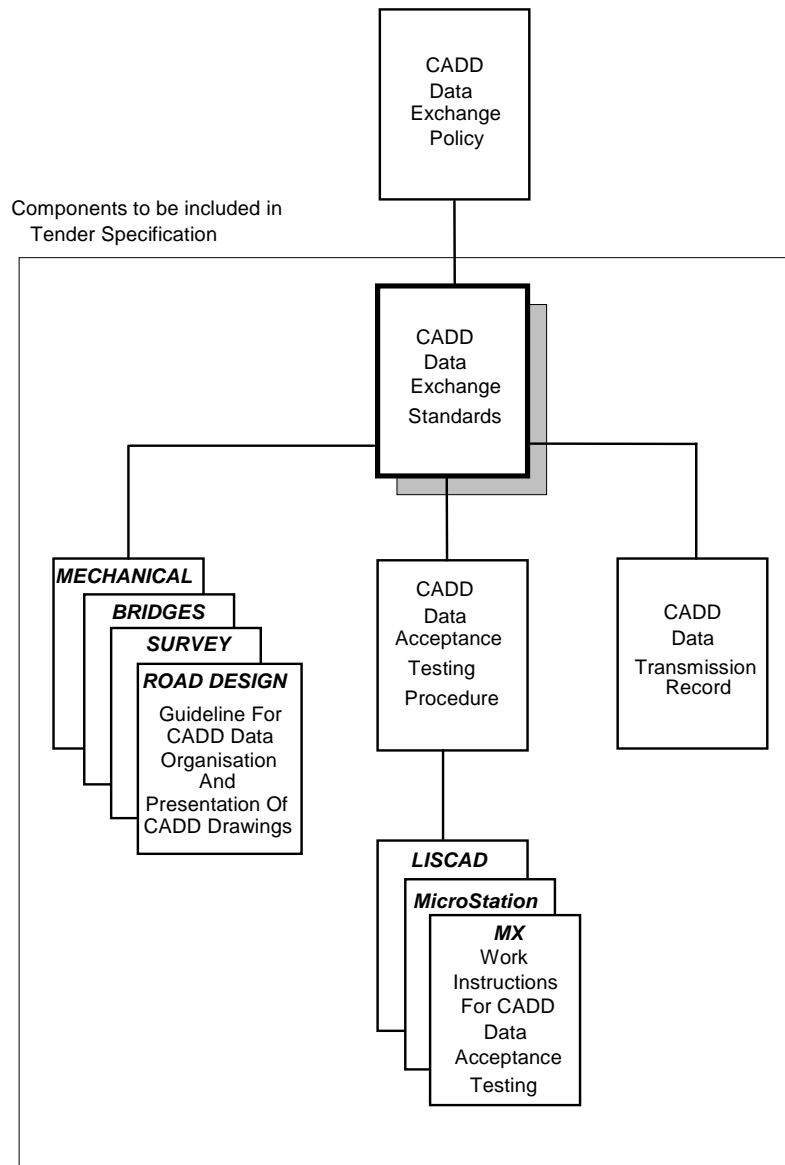
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2.1.3. Overview

2.1.3.1. Scope

Many documents used within the Roads and Traffic Authority (RTA) are prepared with Computer Aided Design and Drafting (CADD) software. The RTA generally requires all documents prepared on its behalf to be in electronic format. The CADD Data Exchange Standards should be used in conjunction with Section 3 of this Manual for a specific work type.



Overview of CADD Data Exchange Components.

This document details CADD data exchange standards acceptable to the RTA.

2.1.4. Media

The RTA's current CADD computing environment consists of Windows 2000 workstation systems.

2.1.4.1. Type

CADD data is to be supplied on a media type agreed to by the issuing office. The media type must be detailed on an accompanying CADD Data Transmission Record. Hardware compression on devices must not be used under any circumstances. Accepted media types are:

- 90mm MS-DOS formatted floppy diskettes.
- CD/DVD compliant with ISO 9660 Level 1 conformance.
- Electronic Mail (e-mail). Attachments are to be encoded using MIME. E-mail size is restricted to 5.0Mb. This includes the mail message and any accompanying attachments.

It is the Contractor's responsibility to supply data on a media type appropriate to the RTA's system.

2.1.4.2. Format

CADD data is to be supplied in media format agreed to by the issuing office. This must be detailed on an accompanying CADD Data Transmission Record. Accepted media formats are:

- MS-DOS Version 3.0 or greater file format.
- MS-DOS Backup format.
- Only media formatted using the MS-DOS format command is acceptable. Media, which is formatted by other commands such as drvspace and dblspace, are unacceptable.

It is the Contractor's responsibility to supply data in a media format appropriate to the RTA's system.

2.1.4.3. Compression

CADD data may be supplied in compressed format agreed to by the issuing office. This must be detailed on an accompanying CADD Data Transmission Record. Hardware compression on devices must not be used under any circumstances. Accepted compression methods are

- Compressed files produced by Winzip (*.zip) are acceptable. Winzip Version 9.0 is the RTA's current version at this issue date.

It is the Contractor's responsibility to supply data using a compression format appropriate to the RTA's system.

2.1.5. Data

2.1.5.1. CADD Packages

The RTA uses a range of CADD packages. The data is to be supplied in a format suitable to the receiving CADD package. Currently supported CADD packages are:

- LISCAD Version 6.1. A three-dimensional modelling package used only for the generation of Deposited Plans to Lands Tittle Office specifications.
- MicroStation 2004 Edition (08.05.02.27). A three dimensional computer aided design package. Used mainly for plan annotation.
- MX 2004 Edition SP2 (08.05.02.02). A three-dimensional modelling package used for surveying, road and civil engineering design.

2.1.5.2. Format

CADD data is to be supplied in data format agreed to by the issuing office and compatible with currently used versions of the supported CADD packages listed above. The data format used must be detailed on an accompanying CADD Data Transmission Record. Acceptable formats are:

<u>DATA FORMAT</u>	<u>DESCRIPTION</u>
AutoCAD drawing.	AutoCAD's binary drawing file format (.dwg). Releases 10 to 2006.
AutoCAD Drawing eXchange Format. (DXF)	An ASCII file format creates AutoDesk's proprietary exchange format. The implementation of this format may vary across packages possibly causing some incompatibilities. If this format is to be used it is the Contractor's responsibility to supply data compatible with the RTA's CADD packages.
IGES	Initial Graphics Exchange Specification. A public domain, ANSI standard, interchange file format.
LISCAD drawing	LISCAD's binary drawing file format. (for DOS PC's only).
MicroStation design	MicroStation's binary drawing file format (.dgn).
MX model	MX database file (model.fil). PC version only.
MX INPUT.	Files which may be input to MX using MX Major Option INPUT other than GENIO files.
MX GENIO.	Files which may be input to MX using MX Major Option GENIO.

Not all RTA offices are able to accept all of the data formats listed above. It is the Contractor's responsibility to supply data in a format agreed to by the issuing office.

2.1.5.3. Target Formats

Table Showing Data Format To Receiving CADD Package Combinations

DATA FORMATS	RECEIVING CADD PACKAGE		
	LISCAD	MicroStation	MX
AutoCAD drawing (Release 10 - 2006)	x	✓	✓
AutoCAD Drawing eXchange Format	✓	✓	✓
IGES	x	✓	x
MicroStation design	x	✓	✓
LISCAD Drawing	✓	x	x
MX Model	x	✓	✓
MX INPUT	x	✓	✓
MX GENIO	✓	✓	✓

2.1.6. Data Delivery

2.1.6.1. Data Testing Procedure

CADD data testing will be carried out in accordance with the CADD Data Acceptance Testing Procedure appropriate to the RTA's supported CADD package to be used.

2.1.6.2. Data Presentation and Delivery

CADD data will be presented and delivered in accordance with Section 3 of this Manual for the specific type of work being performed.

The RTA in accordance with the issuing office's quality system as delivered to the RTA will store a copy of all data files.

2.1.6.3. Data Ownership

On completion of a successful transfer of data, media and relevant plotted output become the property of the RTA. This includes all data transferred for the duration of the Contract.

2.1.7. CADD Data Transmission Information

A CADD Data Transmission Record is to accompany all transmissions of data. The following information is to be included:

- Direction of transfer (From: To:)
- Name and address details of data supplier
- Contact person for data supply
- Date
- Job name and location
- Media type
- Media format
- Compression method
- Authoring software and version number
- Data format
- CADD filename(s) and description(s)
- Adequacy of data and plotted output
- Person responsible for data acceptance

See Section 2.2 for an example of a CADD Data Transmission Record, which contains fields for the information, listed above.

2.1.8. General Drawing Standards

2.1.8.1. Line Attributes

The RTA has adopted six line thicknesses to be used in the presentation of drawings. All drawing details are to be represented by using these line thicknesses. On electronic plans, single vector lines of specified colour are used to represent these line thicknesses. The correlation between line colour, weight and thickness is as shown in Table 2.1.1. When transferred to the RTA, no other line colour/weight/thickness combination is to be supplied unless by agreement with the liaison officer.

LINE THICKNESS		LINE WEIGHT		LINE COLOUR	
A3	A1	A3	A1	A3	A1
0.15 mm	0.20 mm	0 #	0 #	blue	blue
0.20 mm	0.25 mm	1 #	1 #	white/black	white/black
0.25 mm	0.35 mm	2 #	2 #	red	red
0.30 mm	0.5 mm	3 #	3 #	green	green
0.35 mm	0.7 mm	4 #	4 #	cyan	cyan
0.40 mm	1.0 mm	5 #	5 #	yellow	yellow
0.15 mm	0.15 mm	0 #	0 #	orange	orange

TABLE 2.1.1

- Refer to discipline specific guidelines as they may differ slightly.

2.1.8.2. Text Attributes

The RTA has adopted six text heights to be used in the presentation of drawings. All text on the drawings is to be represented by using these text heights. The correlation between text colour, weight and height is as shown in Table 2.1.2. When transferred to the RTA, no other text colour/weight/height combination is to be supplied unless by agreement with the liaison officer.

TEXT HEIGHT		TEXT WEIGHT		TEXT COLOUR	
A3	A1	A3	A1	A3	A1
1.5mm	2.0mm	0 #	0 #	blue	blue
2.0mm	2.5mm	1 #	1 #	white/black	white/black
2.5mm	3.5mm	2 #	2 #	red	red
3.0mm	5.0mm	3 #	3 #	green	green
3.5mm	7.0mm	4 #	4 #	cyan	cyan
4.0mm	10.0mm	5 #	5 #	yellow	yellow

TABLE 2.1.2

- Refer to discipline specific guidelines as they may differ slightly.

2.1.8.3. Font

The general requirements for the text font that is to be used in drawings are laid down in AS 1100. The RTA requires True Type Font Arial be used when presenting concept and detail design drawings for Section 3.5 of this Manual – Road Design. For other presentations, the following criteria should be met:

- The font is vector based.
- General form of characters to be as per ISO 3098/1 type B upright.
- Cell size / aspect ratio to be 0.9.
- Characters to be monospaced.

To comply with these requirements it is suggested to use the fonts shown in Table 2.1.3 with the nominated applications.

APPLICATION	FONT
MX	Default
MicroStation	Arial #
AutoCAD	Monotxt

Table 2.1.3

- Refer to discipline specific guidelines as they may differ slightly.

2.1.8.4 Reference Files

Reference files are design or raster files that can be attached and displayed, plotted, and (in the case of reference design files) used for construction purposes, but they cannot be modified in any way.

They improve the efficiency of the CADD process by displaying data from different design files in the active file. When one of the referenced drawings is changed that change is reflected in every design file that the file has been referenced into.

When drawing data is supplied to the RTA that has attached reference files the following rules apply:

- All reference files required must be supplied.
- Files should not be saved with the full file path, otherwise the link to them will not be resolved by the CADD application.
- If it is not possible to supply the reference files then all the reference files should be combined into one drawing.