



WASTEMate Waste Collection & Tracking System (WCTS) by MANAGEMATE

The **WASTEMate WCTS** is unique in that it delivers the reliability of a tried and proven 'off-the-shelf' product with the flexibility associated with having your own R&D department for further specific data collection and/or report generation. It is capable of delivering this by recording and storing 'one-to-one' data for each bin, which can then be accessed and analysed with our 'core' reports, or by additional 'data-specific' reports designed for you.

The **WASTEMate WCTS**, through detailed knowledge of the data associated with the waste collection process, improves:

- Data Generation, Collection and Analysis;
- Commercial and Environmental Accountability;
- Waste Management;
- Personnel Management; and,
- Overall Resource Management.
- Asset Audit and Maintenance Management

It does this by:

- Providing valid and accurate data for each individual bin including weight, waste type, time of service, bin owner and bin location;
- Recording the time the bin was lifted and if it was within the allowed time-frame for this activity;
- Determining if waste collected is in the correct category and/or location for the allocated pick up;
- Identifying bin contamination with visual information assisting in any dispute resolution;
- Determining if a bin has been moved from its account location;
- Generating real, 'one-to-one' information (not implied or derived);
- Providing 'real-time' access to generated data;
- Monitoring driver performance including truck location, how many lifts and total time taken;
- Tracking vehicle activity; and,
- Providing 'real-time' reporting with 'on-line', web-based services.

The reliability and durability of the **WASTEMate WCTS** is based on our unique Data Generation system which provides for the collection of data across a number of individual 'one-to-one' processes (RFID, Weighing, GPS and Video Capture) all of which provide direct data as well as back-up data which gives double and sometimes triple redundancies for the critical data sources.



WASTEMate GPSMate solution, is the starting point for 'truck based' reporting and is used to track mobile assets such as waste bins, collection trucks etc.

This solution will also include a range of "input/output" sensors to record and report Rear Door/Side Lift arm activation. It provides:

- Rear Door/Side Lift arm activation provides location and Truck Tracking (for location & heading) via GPS;
- Emergency input or "panic button" is standard for OHS emergency situations and provides GPS location in real time.

GPSMate can provide '**Site Geofencing**' which enables the user to clearly identify key locations for better route and vehicle maintenance (i.e. Depot locations, Tip and Transfer Stations etc)

All data is transmitted to a 'web based" central management system (utilizing 3G communication) where it can be accessed and analyzed by personnel with the appropriate access levels.

Date / Time / GPS – The System shall operate at a ninety-nine percent (99%) service level for data generation while communication service provider services are available.

MAPMate – Collective Asset and Activity Mapping System

- Web-based access to the appropriate layers of the Council's GIS maps to generate, view and print relevant 'on-line' maps showing for a particular day and/or geographical regions: account details (bins, addresses, etc.); speed and location of individual trucks; and, (stored) bin-lift data;
- Ability to search maps according to: Account, Address, Bin, Truck, Easting and Northing, date and time;
- Resolution of location will be based upon the GIS maps supplied by Council and GPS system used;
- Supply based upon the GIS maps being supplied by Council

REPORTMate – Data Queries & Reporting (web-based functionality)

- The ability to download queries and reports in 'csv' / 'excel' files for additional investigation and/or linking to other, external IT systems
- The ability to establish FTP links for the transfer of relevant data for 'in-house' analysis and reporting.
- See page 6 "WASTMATE REPORTS AND FILTERS" for a list of reports, queries & filters.



RFIDMate:

An upgraded solution, which includes **WASTEMate GPSMate** with an additional module, **RFIDMate**.

This involves **GPSMate**, with the following additional functionality:

- Bin counts provided by RFID tags plus our specialized 'arm-count' – which provides for a 'valid arm-lift' and not just an 'arm-lift' – may also be provided by the standard mechanical (truck) count (where available) and/or linked to truck computer – 'triple-redundant' bin-count solution;
- Highest accuracy / reliability bin identification utilizing our specialized RFID system;
- Highest accuracy / reliability to identify waste type and/or bin type;

RFID – The System shall operate at a ninety-five percent (95%) or better accuracy and provided bin presentation is within 'normal angles' for the pickup (i.e. +/- 30 degrees to the gutter for correct bin presentation); and, truck is stationary for the lift cycle;

WEIGHMate:

An upgraded solution, which includes **WASTEMate GPSMate** with an additional module, **WEIGHMate**.

This involves **GPSMate**, with the following additional functionality:

- Ability to provide individual bin weights
- Provides static and dynamic weighing on all makes of waste collection trucks
- Automatic use and ease of operation – no driver intervention
- Has in built Bin counter
- Total weight of truck for road and travel safety
- For use with Front, Side & Rear Lift Trucks.

Weighing – The System shall operate at a ninety percent (90%) or better accuracy for data generation provided ManageMates recommended dump cycle procedures are followed.

For superb accuracy and 'Charge by Weight' ability, ManageMate also have a Certified Front Lift Weighing System. *(Contact ManageMate for more information on Certified Weighing Systems)*

Under-body Weighing System is also available.



VIDEOMate:

An upgraded solution, which includes **WASTEMate GPSMate** with an additional module, **VIDEOMate**.

This involves **GPSMate**, with the following additional functionality:

- Capability to capture video images from truck monitor or cameras at an average rate of two (2) frames per second during the complete waste collection shift (at 35KB per image)
- Digital Video recorder that can store up to two (2) weeks video data which can be accessed for review of specific flagged events or special requests

Video – The System shall operate at a ninety-five percent (95%) for data generation provided: truck monitor and cameras are operational; and, truck monitor and cameras are configured correctly for the required monitoring activities.

GPSMate Ultra:

A further upgraded solution, which includes an Onboard Computer and Touch screen.

This involves **GPSMate**, with the following additional functionality:

- 8 User Defined Flagged Events that can be linked to actual GPS location;
 - ie: 'Obstructed', 'Overloaded', 'Not Presented' ect.
- Generation, storage and wireless upload of data for 'in field' generated 'Flagged Events for reports.
- Driver "Log On & Log Off" Capabilities



BINMate:

The Bin / Asset Management and Auditing system by ManageMate

Includes the supply of 'hand-held' unit/s, a label printer, 'Data Input Devices', incorporating the relevant software license, for the generation of the Bin-ID Database, its integration with the provided 'Council Database' and subsequent ongoing bin auditing and maintenance as well as our assistance in your management of:

- the 'Bin-ID Tagging' at bin manufacture and/or by way of 'retro-fitting' current bins in the field;
- the 'paper-less' and 'automated' data input for the generation of the 'Bin-ID Database'; and
- where relevant, any initial, physical 'Bin-Rollout'.

In summary, WASTEMate WCTS with its **modular approach to 'truck based' reporting** allows you to combine GPSMate with any individual or all listed modules to provide clients with market leading solutions.

Subject to the system being serviced and maintained regularly and in accordance with 'best-result' operational parameters, the System's overall service level for individual bin lift data is estimated at ninety-five percent (95%).

For more information on the full suite of options available with WASTEMate, please contact ManageMate on (02) 9756 2622 or view our website at www.managemate.com.au.



WASTEMATE REPORTS AND FILTERS

- Dynamic, 'on-line queries' and report generation of stored data include:
 - *Bins Scanned,*
 - *Bins Lifted,*
 - *Bins Not Scanned,*
 - *Bins Out of Position,*
 - *Flagged Events (in-field)*
 - *Summary by Commercial Account,*
 - *Summary by Truck,*
 - *Summary Graph by Truck,*
 - *Truck Tracking,*
 - *View Trucks in geographical area*
 - *View a Truck Run / Route*
 - *Find: Truck, Address, Account & Bin Find: Easting & Northing, date & time*
 - *Accounts: Add, Remove, View & Comment*
 - *Bins: Add, Remove, View & Comment*
 - *Bins to be Delivered: Printing of Run-sheets & Address Labels,*
 - *Bins Delivered*
 - *Bins to be Removed: Printing of Run-sheets*
 - *Bin Types: Add, Remove & View*
 - *Collection Schedules*
 - *Trucks*
 - *Trucks Events / Diagnostics*
 - *Users: Add, Remove & View*
 - *Options (System Variable inputs)*
 - *Audit (View / Track System Changes)*

- *Filtering of 'On-line queries' and reports include (where applicable):*
 - *Date Range*
 - *Start / End Time*
 - *Collection Zone*
 - *Collection Date*
 - *Truck Registration*
 - *Truck Event Type (over 20 diagnostic variables)*
 - *Truck Speed (Min. and/or Max, average speed (based on given start & end point))*
 - *Bin Type*
 - *Bin Retired: Retired & Not Retired*
 - *(Flagged) Event Type: Bin - Contaminated, Damaged, Overloaded, Overweight, Not presented, Not Presented Correctly, Obstructed & Other Lift Values: RFID / Weight – combined or single*
 - *Maximum Distance (specifically for "out of position" report)*
 - *Account Name*
 - *Account Type: Domestic, Commercial, Council & Domestic Non-ratable*
 - *Account Active: Active & Not Active*
 - *Bin RFID Number*
 - *Bin Serial Number*
 - *Bin Address Label Barcode*
 - *Bin Address Label Printed (Yes/No)*
 - *Assessment (Account) Number*
 - *Billing (Commercial Account) Number*
 - *House Number: Start, End & Parity (Odd/Even)*
 - *Address: House - Number, Street, Suburb & Postcode*
 - *Users*