

**SAP® S/4HANA for Waste and Recycling,
Environmental Services Add-On by PROLOGA
Feature Scope Description**



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1 **SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – Feature Scope Description**

With the SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA we are providing a new add-on which extends the SAP® S/4HANA for Utilities to support processes and requirements of waste disposal and recycling companies.

SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA includes the following tools:

Interaction Center for SAP® S/4HANA for Waste and Recycling

This solution can be used to manage customer relationships and carry out administrative processes for service order processing and generating customer loyalty.

Customer service employees can handle inbound and outbound service transactions using various communication channels. They can process business transactions with improved efficiency by using task-based searches. With the IC provides service functionalities pertinent to circular economy companies where service employees use the IC as a central entry point for searching for and managing business and technical master data such as business partners, contracts, or addresses. They can also carry out basic procedures in customer management such as container placements or creating service frequencies.

Long-Term Planning

The Long-Term Planning application allows dispatchers to adjust the service frequencies of many service objects at their respective service location. Regional restrictions like zip codes, cities, or urban districts as well as service types and frequencies, waste types, or the type of waste receptacle, or cleaning and winter maintenance-related parameters can be taken under consideration when creating a new route district.

In a well-maintained route district, instead of having to adjust service intervals and routes for each service object individually, all service objects within that route district can be managed simultaneously. Geo-coded addresses for service objects allows for them to be displayed as planning elements on a map.

Route districts may for example be created according to the streets where services need to be carried out and subdivided into smaller route districts that contain all services for a specific type of container.

Once those decisions have been made by the dispatcher, the service interval and route for every service object in the route district can be managed at route district level. Individual service objects (planning elements) can be reassigned to different route district using the drag and drop functionality. Once a route district is activated the changes made for its service objects are updated.

Operational planning builds on the previously planned service frequencies during the long-term planning process and supports the dispatcher's ability to make last minute changes on a specific day.

Operational Planning

The application Operational Planning provides you with functionalities for operational route planning as well as a graphical planning board.

The Operational Planning is designed to support daily planning of waste disposal orders. After selecting the related planner group, the planner gets an overview of their planning area. This includes all available resources such as vehicles and drivers. The related waste disposal orders and order items can be planned and assigned. Based on the planning, tour lists can be printed out and handed to drivers.

Operational Planning builds on the previously planned service frequencies during the long-term planning process and supports the dispatcher's ability to make last minute changes on a specific day.

The map is a visual help for the dispatcher. It displays vehicles, service locations, waste disposal orders and items and waste disposal facilities.

In combination with Mobile Waste Order Management, it is possible to send the planned orders to the on-board computer of the vehicle subsequently reducing the amount of paperwork and increasing the dispatcher's ability to react to customer requests by utilising the real-time data exchange.

The challenge to efficiently manage resources according to their capacities is something dispatchers face daily. It is ever their goal to ensure cost efficiency while also satisfying customer needs. The SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – Operational Planning supports dispatchers with the information most suited to get the job done.

Automated Route Planning

SAP Waste and Recycling, automated route planning option by PROLOGA is a cloud solution, which provides functions for automated planning of service orders in a commercial route collection scenario. SAP S/4HANA for waste and recycling can be used as a source system that provides the orders.

This document describes the settings to be made in the SAP system to be able to use the Automatic Route Planning application once it has been configured successfully. Find an overview of the specific transactions and the maintenance of the master data and settings required.

Mobile Waste Order Management

The application Mobile Waste Order Management enables waste and recycling companies to largely refrain from a paper-based mobile order management and avoid a redundant data acquisition.

The software may be applied whenever companies rely on the coordinated and optimized deployment of their vehicles to render services or whenever order relevant performance data must be captured. One of the advantages of the application Mobile Waste Order Management is a consistent tracking of vehicle usage and mobile resources.

The application Mobile Waste Order Management supports various mobile devices, which are the interface between vehicle/driver and your SAP® backend system.

When deploying the application Mobile Waste Order Management, you are enabled to send orders, documents or data to your drivers and always receive status information from your mobile devices. Data captured in the mobile devices are automatically sent to the SAP® backend system where they may be checked and approved. A subsequent manual data entry is not required.

The application Mobile Waste Order Management provides all functionalities as well required for the administration on the installed mobile devices.

When applying the application Mobile Waste Order Management, you will reduce your personnel costs otherwise resulting from the order provision or confirmation of performance data. Due to the always status information, you may react more efficiently and faster to changing constraints. Thereby you will not only optimize the deployment of your vehicle fleet, but internal processes associated with order processing as well.

Material Flow Management

The Material Flow Management application within SAP S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA provides a robust framework for aligning operational processes with environmental legislation. Designed to support multi-country configurations, it enables organizations to document, monitor, and manage waste stream disposal services in compliance with both local and international regulations.

At its core, MFM facilitates the maintenance and integration of essential master data, including standardized catalogues such as the European Waste Catalogue (EWC), UN Dangerous Goods Catalogue, and Combined Nomenclature (CN). These catalogues are embedded into movement records and legally required transport documents, ensuring that waste collection and disposal activities are traceable and compliant.

Fully integrated with the SAP Waste & Recycling business solution, MFM leverages existing data structures—such as waste generation sites, disposal facilities, materials, and quantities—to provide end-to-end visibility and control over material flows. This integration minimizes redundant data entry and enhances consistency across logistics, compliance, and reporting processes.

This documentation outlines the initial steps required to begin using the application in its standard configuration, following the successful installation of the add-on. It serves as a starting point for configuring country-specific templates, activating relevant components, and customizing workflows to meet operational and legal requirements.

Resource Planning Apps

Due to modern working models, which require new forms of flexibility in planning, it is increasingly necessary to be able to quickly and easily schedule resources. To improve complex and time-consuming resource planning in waste disposal companies, the new Fiori application for mobile dispatching of staff and vehicles was developed.

Using the application, the dispatcher can intervene in daily and weekly planning at short notice and from any mobile device in the event of an unanticipated vehicle breakdown or sick leave. There is no need for the dispatcher to be present at their workplace. The planning can easily be executed from any location, regardless of whether the dispatcher is at the depot or at home.

Enhancements for Subcontracting

Subcontracting supports business processes in which some parts of a waste service (such as transport or waste disposal) are performed by a third party. SAP® S/4HANA for Waste and Recycling supports subcontracting processes by automatically creating the associated documents (purchase orders and sales documents) as well as posting any goods receipts required. In the add-on, the standard subcontractor processing is extended to include various processes and functions for complete integration.

Municipal Billing based on SD Contracts

The functionality of municipal fee accounting via SD offers the possibility to settle municipal fee notices based on sales contracts (sales). The information from the Waste and Recycling data model, such as locations, accumulation points, containers, people, and service cycles, can be combined with the existing SD billing logic. By means of components from the S4Core and the present model, municipal statutes can thus be mapped. Integration into FI-AR as well as FI-CA is supported.

About this Document

This feature scope description lists all currently available features and the benefits they provide for their respective business background for the SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA. Additionally, it provides a list of all currently available documentations for this product.

Documentation

The following product documentations and guides are available for SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA:

Titel	Path on the SAP Help Portal
Feature Scope Description	Feature Scope Description
Installation and Upgrade	Installation Guide
Configuration	Best Practice and Configuration Guides
Operations	Operations Guide
Security	Security Guide
Application Help	User Manuals
Innovations by PROLOGA	SAP Road Map Explorer
Industry Solutions by PROLOGA	Planning and Dispatching by PROLOGA

Table 1: Available Documentation

What's New

This section gives you an overview of the new features available as of SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA.

The following table describes what is new, has been enhanced, changed, replaced, or deleted:

Status	Features
New	<p>Interaction Center <i>WUI_SSO</i></p> <ul style="list-style-type: none"> • Improved Integration of Cleaning and Winter Services in the Interaction Center • Use of the IC as a central entry point to search for and maintain data necessary to carry out cleaning and winter services • Transparent display of all relevant data such as cleaning objects and areas • Simplification of the processes used to create new services • Better overview of service dates, deadlines, and orders
New	<p>Mobile Waste Order Management <i>/WATP/MOW_NATIVE</i></p> <ul style="list-style-type: none"> • Processing of Cleaning and Winter Services via Onboard Computers • Enables tracking and maintenance of mobile data • Improved communication by means of mobile devices for cleaning and winter services • Optimized presentation of the workflow for cleaning and winter services
New	<p>Mobile Waste Order Management <i>/WATP/MOW</i></p> <ul style="list-style-type: none"> • FollowMe Integration • In commercial and municipal waste collection recurring services for containers are common. These emptying services are often assigned to the same route driven by the same driver. In cases a substitute needs to drive the route, they can now use prerecorded route data to guide them

Status	Features
Enhanced	<p data-bbox="355 293 927 327">Operational Planning /WATP/TP_SHORTTERM</p> <ul data-bbox="355 356 1347 741" style="list-style-type: none"> • Automatic Creation of an Optimized Service Processing Sequence for a Route • Checks which services and service frequencies have been assigned to a route and defines an optimized sequence for processing orders • Increased efficiency especially when handling large numbers of services for waste collection • Reduces the necessity of custom-code • Supports tour and route planning
Enhanced	<p data-bbox="355 786 946 819">Material Flow Management /WATP/ARB_NOTES</p> <ul data-bbox="355 853 1278 999" style="list-style-type: none"> • Waste Weight Quantity Booking Improvements for Disposal Documents • Waste Weight Splitting and Deductions are now transferred directly from the Weighbridge to the Document
Enhanced	<p data-bbox="355 1043 708 1077">Interaction Center WUI_SSO</p> <ul data-bbox="355 1111 1394 1290" style="list-style-type: none"> • During Order Creation the Selection of Waste Types is Limited to those specified in the Waste List of the Service Product of the Contract • Simplified creation of service orders by limiting the available waste types to those that have been specified in the contract
Enhanced	<p data-bbox="355 1346 898 1379">Long-Term Planning /WATP/TP_LONGTERM</p> <ul data-bbox="355 1413 1394 1995" style="list-style-type: none"> • Improved Data Visibility for Long Term Planning • Master Data List shows number of services per Planning Segment with house numbers sorted more intuitively (1, 1a, 2, 3, 3d, 10, 11a ...) • Planning element mask contains container Information • Minimize all tree nodes even if no sub nodes have been selected • Protocol during import process and when executing “Move Object” • Undo “Move Objects” • Show master data on the map (select, show more, only show) • “Moving Object” function possible without executing Drag and Drop Rules • Faster import of data

Status	Features
Enhanced	<p data-bbox="352 293 767 324">Long-Term Planning /WATP/TP06</p> <ul data-bbox="352 356 987 517" style="list-style-type: none"> <li data-bbox="352 356 847 387">• Improvements for Drag and Drop Rules <li data-bbox="352 421 860 452">• Drag and Drop Rules can be deactivated <li data-bbox="352 486 987 517">• Check Drag and Drop Rules for a Planning Scenario
Enhanced	<p data-bbox="352 566 978 598">General Improvements /WATP/BASE_OBJCONFIG</p> <ul data-bbox="352 629 1418 835" style="list-style-type: none"> <li data-bbox="352 629 735 660">• Print all Disposal Documents <li data-bbox="352 694 1418 770">• Printing the documents for multiple waste disposal orders or waste disposal order items has been made available <li data-bbox="352 804 1267 835">• Both Adobe Forms and Smart Forms have been integrated into this function

Table 2: What's New

2 Automated Route Planning

SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – Automated Route Planning (ARP) provides a cloud-based optimization engine for planning waste collection routes. It is designed to support commercial scenarios where service orders are dynamically assigned to vehicles and routes based on cost, capacity, and time constraints.

Key Feature	Benefit
Planner Group Configuration	Planner groups define the scope of planning: <ul style="list-style-type: none"> • Only SAP users assigned as planners can access scenarios and solutions in ARP Cloud • Depots (plants) are configured as vehicle departure points • Planner groups must be flagged for ARP to be transferred to the cloud
Waste Disposal Facilities	Disposal facilities must be configured with: <ul style="list-style-type: none"> • Opening hours to define availability • Service times to estimate average unloading duration • Material assignments to control which EWC codes are accepted
Material & Waste Fraction Management	Materials are grouped and linked to waste fractions: <ul style="list-style-type: none"> • Material groups (e.g. paper, cardboard) allow joint transport • Assignments between material groups and waste fractions are maintained in /WATP/ATPFRACTIONMAT • Disposal costs can be defined per material or material group
Vehicle & Container Configuration	Vehicles and containers are matched for compatibility: <ul style="list-style-type: none"> • Vehicles are created and configured with max load weight • Container categories are assigned to vehicle categories • Service duration and expected disposal quantity are maintained per container location

Key Feature	Benefit
Route Setup	Routes are configured with: Assigned vehicles and work centers Optional material group restrictions Geocoordinates for accurate mapping and optimization
Cost Calculation for Optimization	Cost centers are used to calculate route efficiency: <ul style="list-style-type: none"> • Vehicle costs: Fixed and time-based, maintained per vehicle or vehicle type • Personnel costs: Based on hourly rates and overtime, linked to personnel or work centers • Disposal costs: Based on material and facility, with fallback logic for default pricing • All costs are used by the optimizer to select the most cost-effective route
Geocoordinates	All logistical entities must have valid geocoordinates: <ul style="list-style-type: none"> • Container locations • Waste disposal facilities • Plants (depots) • These are essential for route calculation and map-based planning.
Integration with SAP Backend	The ARP solution integrates with SAP S/4HANA via: <ul style="list-style-type: none"> • RFC connections per client • Scheduled ATP tasks for publishing planner groups and scenarios • Retrieval of optimized plans from ARP Cloud back into SAP

Table 3: Key Features and Their Benefits of Automated Route Planning

3 Interaction Centre for SAP® S/4HANA for Waste and Recycling

This solution can be used to manage customer relationships and carry out administrative processes for service order processing and generating customer loyalty.

Customer service employees can handle inbound and outbound service transactions using various communication channels. They can process business transactions with improved efficiency by using task-based searches. With the IC provides service functionalities pertinent to circular economy companies where service employees use the IC as a central entry point for searching for and managing business and technical master data such as business partners, contracts, or addresses. They can also carry out basic procedures in customer management such as container placements or creating service frequencies.

Key Feature	Benefit
<p>Supporting Municipal and Non-Municipal Billing Models</p>	<p>SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA provides a flexible master data framework that supports both municipal waste collection and private/commercial services. The system is designed to accommodate different billing models depending on the type of customer and the contractual setup.</p> <p>Municipal billing can be handled in two ways:</p> <ul style="list-style-type: none"> • IS-U Contracts: These are linked to contract accounts and are typically used for regulated, public-sector scenarios. • SD Contracts: These are used for more flexible, product-based billing, often preferred in commercial or industrial contexts. <p>The Interaction Center (IC) serves as the central interface for managing customer-related master data and supports both models seamlessly. Whether the customer is a municipality, a private household, or a commercial entity, the IC provides tools for identification, data maintenance, and service management.</p>
<p>Account Identification</p>	<p>The IC allows customer service representatives to identify business partners even when the input data is incomplete or imprecise. The identification screen is split into two panels:</p> <ul style="list-style-type: none"> • On the left, users search using business master data such as name, account ID, or postal address. • On the right, searches are based on technical master data like object address, service address, or Waste Disposal Object (WDO). <p>This dual approach ensures accurate matching of customer records to service locations, regardless of whether the customer is municipal or private.</p>

Key Feature	Benefit
<p>Overview Screen</p>	<p>Once a business partner is confirmed, the IC displays all related business data in a hierarchical tree structure. This includes contract accounts, contracts, service objects, and waste disposal orders. Users can expand each node to view detailed information, making it easy to navigate complex setups — whether for a single household or an entire municipality.</p>
<p>Management of Customer Master Data</p>	<p>The IC supports the creation and maintenance of all relevant master data, including:</p> <ul style="list-style-type: none"> • Business partners and their roles (e.g. contract partner, payer) • Contract accounts for billing and payment control • Contracts and quotations, including creation and termination • Clarification cases for unresolved service or billing issues • Object and service addresses, such as container locations • Container placements and allocations • Service frequencies for waste collection or cleaning • Waste disposal orders linked to specific objects • Properties and cleaning objects for street cleaning and winter maintenance <p>This data is maintained centrally and can be updated manually or via automated processes. The same structure applies whether the customer is a private individual, a commercial entity, or a municipal authority.</p>
<p>Container Movements via the Container App</p>	<p>The container app allows customer service employees to manage container logistics directly from the business partner overview. Key functions include:</p> <ul style="list-style-type: none"> • Starting guided processes to deliver, remove, or replace containers • Launching the container app with one click for a confirmed business partner and selected contract • Executing container movements and updating the master data accordingly <p>This ensures accurate tracking of container inventory and service history across all customer types.</p>
<p>Bulk Waste Orders</p>	<p>Bulk waste refers to items that cannot be compacted into standard containers. These require special handling and dedicated waste disposal orders. Customer service staff can create and manage bulk waste orders for both private and municipal customers.</p>

Key Feature	Benefit
<p>Cleaning & Winter Maintenance</p>	<p>Cleaning services are linked to properties and cleaning objects, each with parameters that define:</p> <ul style="list-style-type: none"> • The size of the area to be cleaned • Required tools and equipment • Cleaning frequency <p>Winter maintenance is handled similarly, with service objects and schedules defined in master data. These services are billed based on area, frequency, and service type, and can be managed via IS-U Contracts or SD Contracts depending on the municipality’s setup.</p>

Table 4: Key Features and Their Benefits of the Interaction Center

4 Long-Term Planning

SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – Long-Term Planning (LTP) provides a robust framework for planning, optimizing, and managing waste collection services over extended periods. It supports both municipal and private-sector operations, enabling dispatchers and planners to manage service frequencies, container logistics, and cleaning operations efficiently.

Key Feature	Benefit
Planning Area Configuration	<p>The planning area defines the scope and parameters for route district planning:</p> <ul style="list-style-type: none"> • Filters by waste type, container category, service type, and regional structure • Tabs for assigning resources, maintenance plants, and cleaning methods • Restriction options for planners, vehicles, and service areas • Integration with postal and political regional structures for address validation
Route District Planning	<p>Route districts are the core planning units:</p> <ul style="list-style-type: none"> • Hierarchical structure from planning scenario to route district, segment, and element • Geo-coded service objects displayed on digital maps • Drag-and-drop functionality for reassigning planning elements • Support for subordinate route districts (e.g. daily vs. weekly services)
Planning Scenarios	<p>Scenarios allow planners to simulate and compare different service configurations:</p> <ul style="list-style-type: none"> • Creation from scratch or based on templates • Import of planning worklists filtered by planning area criteria • Activation transfers planned changes to real-time data • Scenario masks display metadata, activation status, and route assignments
Map Integration	<p>Digital maps enhance spatial planning:</p> <ul style="list-style-type: none"> • Selection tools (rectangle, polygon) for planning elements • Zoom, grayscale, and label toggling for clarity • Context menus for editing district borders and assigning colors • Print functionality for consistent map output

Key Feature	Benefit
Demand Analysis	Demand analysis helps estimate service needs : <ul style="list-style-type: none"> • Calculates required tours, staff, and working time • Considers waste density, container volume, and unloading time • Compares weight-based and time-based tour requirements • Outputs include activity points, number of collections, and cleaning meters
Target Figures & Key Data	These tools support performance evaluation : <ul style="list-style-type: none"> • Target figures include characteristic-based metrics (e.g. waste density, travel time) • Key data provides aggregated insights into route district efficiency • ALV grids allow custom layouts, filters, and subtotals • Historical data can be used for retrospective analysis
Characteristics & Classification	Classes and characteristics enhance planning precision : <ul style="list-style-type: none"> • Maintained via transactions CL01 and CT04 • Assigned to planning elements, segments, or districts • Used in calculations for weight, volume, and activity points • Priority given to the most granular level (e.g. container location over district)
Planning Rules (Drag & Drop)	Rule sets automate service adjustments : <ul style="list-style-type: none"> • Link related services (e.g. Monday and Thursday collections) • Automatically shift associated services when one is moved • Configured per planning area and assigned at scenario level • Enhances consistency and reduces manual errors

Table 5: Key Features and Their Benefits of the Long-Term Planning

5 Material Flow Management

SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – Material Flow Management (MFM) provides a comprehensive framework for tracking, documenting, and managing waste logistics and compliance across municipal and commercial operations. The solution is designed to support both regulated public-sector waste handling and flexible private-sector services.

Key Feature	Benefit
Material Operations	The system enables centralized tracking of waste and recycling materials from generation sites to disposal or treatment facilities. It supports: <ul style="list-style-type: none"> • Real-time quantity updates via weighbridge integration • Automated data transfer between service orders and disposal documents • Full traceability of material movements for compliance and reporting
Compliance & Documentation	MFM ensures legal compliance through automated document generation and monitoring: <ul style="list-style-type: none"> • Waste certificates for hazardous and mixed waste • Consignment and transfer notes for transport documentation • Country-specific templates for Germany, Austria, Belgium, Netherlands, Norway, and Australia • Integration with national systems like eANV (Germany) and EBA (Netherlands)
Waste Approval Management	Waste approvals are managed in a structured tree format, allowing: <ul style="list-style-type: none"> • Creation and lifecycle tracking of waste certificates • Status control (e.g., CREATED, APPROVED, EXPIRED) • Linkage to disposal documents and declaration analyses • Quantity monitoring against approved limits
Disposal Document Management	Disposal documents are operational tools linked to waste orders: <ul style="list-style-type: none"> • Templates for recurring services • Manual and batch printing options • Status management (e.g., CREATED, COMPLETED, FINISHED) • Automatic quantity updates from weighing records or order confirmations

Key Feature	Benefit
Service Frequencies and Order Items	Service frequencies act as templates for recurring waste services: <ul style="list-style-type: none"> • Define waste types, disposal procedures, and planned quantities • Link to waste approvals or disposal document templates • Generate waste disposal order items automatically
Material Inspection	Material inspections ensure quality and compliance: <ul style="list-style-type: none"> • Inspection records created during collection, transport, or disposal • Status flow includes VALIDATE, VERIFIED, DEVIATION • Integration with waste orders and weighbridge entries • Support for strategic and dynamic risk calculation
Outbound Material Transport	Outbound flows are managed via: <ul style="list-style-type: none"> • Destination control based on material and facility priorities • Route planning with transport and disposal cost tracking • Automatic selection of destination based on predefined rules
Declaration Analyses	Chemical analyses of waste materials are supported: <ul style="list-style-type: none"> • Determine composition and hazardous properties • Required for landfill acceptance, remediation, and regulatory compliance • Integration with external lab reports and waste certificates
Statistics & Reporting	MFM provides robust analytics: <ul style="list-style-type: none"> • Real-time data on waste quantities and operations • Exportable reports for business and regulatory use • Customizable views and variants for recurring evaluations

Table 6: Key Features and Their Benefits of the Material Flow Management

6 Municipal Billing – Based on IS-U Contracts

SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – IS-U Based Municipal Billing (MNB) provides a robust framework for billing municipal waste services using SAP IS-U contract billing logic. It supports container-based, person-based, and hybrid billing models, integrating technical master data with financial processes for accurate and auditable invoicing.

Key Feature	Benefit
Master Data Integration in CRM UI	The CRM UI serves as the central interface for managing billing-relevant data: <ul style="list-style-type: none"> • Business Partner (BP): Represents the customer and includes roles like contract partner and payer • Contract Account: Manages receivables, payments, and dunning • Contract: Links the BP to the installation and defines service agreements • Installation: Represents the service location and contains devices and operand data
Waste Billing Configuration	Billing logic is defined through a combination of: <ul style="list-style-type: none"> • Service Types: Define services like container emptying or street cleaning • Waste Billing Categories (WBC): Control valuation logic and operand relevance • Rate Categories & Rate Types: Determine how usage is measured and billed • Rates: Contain billing steps, operands, and variant programs • Operands & Operand Values: Variables like bin size, number of persons, or service frequency • Variant Programs: ABAP routines that execute billing logic • Billing Schemas: Define the sequence and combination of rates applied
Billing Execution in CRM UI	Billing processes are managed directly in the CRM UI: <ul style="list-style-type: none"> • Billing Orders: Created per installation and period • Billing Documents: Generated from billing execution • Invoicing: Combines billing documents into invoices with output options • Simulation: Allows previewing charges before execution • Move-In/Move-Out: Triggers contract allocation and billing start/stop

Key Feature	Benefit
Rate Structure & Operand Logic	Billing rates are configured with: <ul style="list-style-type: none"> • Rate Steps: Each step performs a calculation using operands • Operands: Include CONTAINER, PRICE, FACTOR, PERSON, PERS_PRICE, WASAMOUNT • Operand Value Sources: Installation facts, rate category facts, and rate facts • Fact Groups: Organize operand values by context (e.g., RW_120_2W for 120L bin, biweekly)
Account Assignment & Automatic Posting	IS-U integrates billing with Financial Accounting (FI): <ul style="list-style-type: none"> • Main Transactions: Define the business transaction type (e.g., 0200 for waste) • Sub-Transactions: Split amounts into components (e.g., net, tax, surcharge) • Account Determination: Maps transactions to G/L accounts • Automatic Processing: Posts billing results to FI with full audit trail
Portioning & Scheduling	Billing cycles are managed via: <ul style="list-style-type: none"> • Portions: Group installations for coordinated billing • Meter Reading Units (MRUs): Define reading and billing intervals • Parameter Records: Control budget billing cycles and print/debit entry dates • Schedule Records: Generate billing and payment dates

Table 7: Key Features and Their Benefits of Municipal Billing Using IS-U Contracts

7 Municipal Billing – Based on SD-Contracts

SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – Municipal Billing with SD Contracts (MNB-SD) enables municipalities and service providers to manage waste billing using SAP SD contract logic. It integrates waste-specific master data with SD pricing and invoicing mechanisms to support complex municipal billing scenarios.

Key Feature	Benefit
<p>Contract-Based Billing Logic</p>	<p>Billing is driven by SD contracts linked to:</p> <ul style="list-style-type: none"> • Business Partners (e.g. landlords, housing associations) • Service Products representing municipal fee structures • Containers and Service Locations • Waste Generation Points (Premises) with person count and usage data <p>Contracts are automatically created during move-in processes and updated during move-outs or container changes.</p>
<p>Service Product Configuration</p>	<p>Service products represent municipal fee statutes and include:</p> <ul style="list-style-type: none"> • Annual Basic Fee per usage unit (e.g. per household) • Annual Service Fee per container type, often scaled by person count • Additional Emptying Fees for services exceeding included quantities <p>These are configured using:</p> <ul style="list-style-type: none"> • Material Master Data • Variant Configuration (CU41, CT04, CL01) • Bill of Materials (CS01) • Pricing Conditions (VK11) including tiered pricing
<p>Guided Processes in Interaction Center</p>	<p>UI5-based assistants’ support:</p> <ul style="list-style-type: none"> • Move-In: automatic contract creation and configuration • Move-Out: contract termination and data cleanup • Relocation: contract transfer or re-creation • Container Movement: placing, removing, or switching containers <p>These processes ensure accurate contract linkage and billing data updates.</p>

Key Feature	Benefit
Billing Execution & Simulation	<p>Billing runs are executed via <i>/WATP/MNB_EXECUTE</i> with three types:</p> <ul style="list-style-type: none"> • Advance Billing (Annual Start Notice) • Final Billing (Settlement Notice) • Adjustment Reversal (Change Notice) <p>Simulation is available via <i>/WATP/MNB_SIM_RESULT</i> for previewing charges without posting.</p>
Automatic Adjustments	<p>Changes to contracts, containers, or waste generation points trigger:</p> <ul style="list-style-type: none"> • Adjustment Reversals • New billing documents • Credit notes or direct debit requests depending on the scenario <p>Configuration is managed in <i>/WATP/MNB_CONFIG</i>.</p>
Backend Integration	<ul style="list-style-type: none"> • SD Pricing with custom condition types • FI Posting via SD invoice documents • Storno Functionality via <i>/WATP/MNB_STORNO</i> • Container Service Feedback via <i>EWAWDOC</i>
Customization Highlights	<ul style="list-style-type: none"> • Custom SD Document Types • Pricing Schemas and Formulas for partial-year billing • Payment Terms and Instalment Plans • Service Object Definitions for automatic contract creation • Statute Versioning via time-dependent service product configuration

Table 8: Key Features and Their Benefits of Municipal Billing Using SD Contracts

8 Mobile Waste Order Management

SAP® S/4HANA for Waste and Recycling, Environmental Services Add-On by PROLOGA – Mobile Waste Order Management (MOW) enables waste management companies to digitize mobile order handling, reduce manual data entry, and optimize vehicle deployment.

Key Feature	Benefit
Mobile Integration & Real-Time Communication	<p>MOW connects mobile devices (driver tablets, onboard units) with the SAP backend to:</p> <ul style="list-style-type: none"> • Send orders and messages to drivers • Receive real-time status updates and performance data • Capture GPS positions, photos, and weighing notes • Eliminate paper-based workflows and redundant data entry
Core Functional Components	<ol style="list-style-type: none"> 1. Order Management <i>/WATP/TP_SHORTTERM & /WATP/TP_SCHEDULER</i> <ul style="list-style-type: none"> • Assign and transmit orders to vehicles • Visualize order status (new, started, completed) • Display vehicle and order positions on digital maps • Send messages to drivers 2. Performance Data Confirmation <i>/WATP/MOW_OVERVIEW</i> <ul style="list-style-type: none"> • Automatically receive completion data from mobile devices • Manually correct or complete orders • Resolve conflicts and errors • Export and analyse performance metrics 3. Event Log Archive <i>/WATP/MOW_ARCHIVE</i> <ul style="list-style-type: none"> • Track vehicle movements and order progress • Visualize events on maps • Display route history and timestamps

Key Feature	Benefit
<p>Configuration Highlights</p>	<ul style="list-style-type: none"> • Comfortable Component Activation in a separate transaction <i>/WATP/BASE_OBJCONFIG</i> • Frontend Parameters (image quality, sync intervals, max input values) • Master Data Supply (multi-language, vehicle activation) • bgRFC Setup for asynchronous data exchange • Gateway & oData Services for mobile communication • Picture DMS Integration for storing images and documents • User Management <i>/WATP/MOW_USERMAN</i> for driver and co-driver access • Vehicle Master Data <i>/WATP/MOW_MASTERDATA</i> for MOW enablement
<p>Supported Use Cases</p>	<ul style="list-style-type: none"> • Commercial Waste Pickup • Facility Services • Weighing Station Integration • Driver Messaging & Feedback

Table 9: Key Features and Their Benefits of the Mobile Waste Order Management

9 Operational Planning

Operational Planning is designed to support **daily and long-term planning** of waste disposal services. It helps dispatchers manage resources, optimize routes, and respond to real-time changes. It integrates with **Mobile Waste Order Management (MOW)** and provides a **graphical planning board, map-based visualization, and KPI tracking**.

Key Feature	Benefit
Planner Groups & Resource Management	<ul style="list-style-type: none"> • Define planner groups for different service types (e.g. bulk waste, container services, winter maintenance). • Assign vehicles, drivers, and work centres to specific planning areas. • Restrict planning by: <ul style="list-style-type: none"> ◦ Vehicle type ◦ Position ◦ Maintenance plant ◦ Region (city, district, postal code) <p>This allows dispatchers to focus only on relevant resources and services.</p>
Map Integration & Geospatial Planning	<ul style="list-style-type: none"> • Use digital maps to visualize: <ul style="list-style-type: none"> ◦ Cities, districts, streets ◦ Container locations ◦ Cleaning objects ◦ Waste disposal facilities ◦ Select planning elements via rectangle or polygon tools. • Define and edit route district borders directly on the map. • Assign colors to districts for better visual distinction. • Print consistent map segments with fixed coordinates and pixel dimensions.

Key Feature	Benefit
Integration with Long-Term Planning	<ul style="list-style-type: none"> ● Create planning scenarios with: <ul style="list-style-type: none"> ○ Route districts ○ Planning segments ○ Planning elements (e.g. containers, cleaning objects) ● Assign services based on daily, weekly, or monthly frequencies. ● Use drag-and-drop rules to maintain service consistency (e.g. if Monday service moves to Tuesday, Thursday service moves to Friday). ● Activate scenarios to update real-time data and regenerate waste disposal orders.
Operational Planning	<ul style="list-style-type: none"> ● Adjust plans daily based on real-time feedback. ● Assign orders to vehicles and personnel. ● Visualize unassigned orders, resources, and status symbols. ● Use transactions like <i>/WATP/TP_SHORTTERM</i> and <i>/WATP/TP_SCHEDULER</i>.
Integration with MOW	<ul style="list-style-type: none"> ● Send planned orders to onboard devices. ● Receive live status updates, GPS positions, and performance confirmations. ● Reduce paperwork and improve dispatcher responsiveness.

Table 10: Key Features and Their Benefits of the Operational Planning

10 Resource Planning Apps

The Resource Planning Apps are SAP Fiori-based tools designed to support **mobile dispatching and scheduling** of **staff and vehicles** for waste disposal operations. They enable **operational and long-term planning**, accessible from any device, allowing dispatchers to respond flexibly to real-time changes such as sick leave or vehicle breakdowns.

Key Feature	Benefit
Functional Highlights	<ol style="list-style-type: none"> <li data-bbox="392 584 1442 824"> 1. Mobile Dispatching & Flexibility <ul style="list-style-type: none"> <li data-bbox="432 651 1442 685">• Accessible via SAP Fiori Launchpad from desktop or mobile devices. <li data-bbox="432 712 1442 745">• Enables dispatchers to plan from any location — depot, office, or home. <li data-bbox="432 772 1442 806">• No need for SAP GUI; fully integrated into the Fiori environment. <li data-bbox="392 840 1442 1323"> 2. Staff & Vehicle Planning <p data-bbox="432 902 1442 936">Both staff and vehicle planning are available in:</p> <p data-bbox="432 965 1442 999">Operational (Day View)</p> <ul style="list-style-type: none"> <li data-bbox="432 1028 1442 1061">• Visual calendar with hourly slots (default: 8 AM–7 PM). <li data-bbox="432 1088 1442 1122">• Allocate, deallocate, or replan resources for specific waste disposal orders. <p data-bbox="432 1151 1442 1184">Long-Term (Week View)</p> <ul style="list-style-type: none"> <li data-bbox="432 1214 1442 1247">• Calendar view by week (1–4 weeks). <li data-bbox="432 1274 1442 1308">• Allocate resources across multiple days or orders. <li data-bbox="392 1346 1442 1637"> 3. Calendar-Based UI <ul style="list-style-type: none"> <li data-bbox="432 1413 1442 1447">• Planner Group Selection: Filters orders by group. <li data-bbox="432 1473 1442 1507">• Route & Order Details: Clickable headers show detailed info. <li data-bbox="432 1534 1442 1568">• Drag-and-Drop Allocation: Assign resources directly from the calendar. <li data-bbox="432 1594 1442 1628">• Search & Filter: Narrow down staff/vehicle lists by name, ID, or license plate. <li data-bbox="392 1664 1442 1955"> 4. Integrated App Structure <ul style="list-style-type: none"> <li data-bbox="432 1731 1442 1888">• Separate apps for: <ul style="list-style-type: none"> <li data-bbox="472 1798 1442 1832">• Staff Resource Planning <li data-bbox="472 1859 1442 1892">• Vehicle Resource Planning <li data-bbox="432 1915 1442 1948">• Authorization managed via SAP roles

Key Feature	Benefit
<p>Supported Actions</p>	<p>Staff</p> <ul style="list-style-type: none"> • Allocate staff to orders or routes • Change deployment time • Deallocate or replan staff <p>Vehicles</p> <ul style="list-style-type: none"> • Allocate vehicles to orders or routes • Change deployment time • Deallocate or replan vehicles

Table 11: Key Features and Their Benefits of the Resource Planning Apps

11 Enhancements for Subcontracting

Subcontracting supports business processes in which some parts of a waste service (such as transport or waste disposal) are performed by a third party. SAP® S/4HANA for Waste and Recycling supports subcontracting processes by automatically creating the associated documents (purchase orders and sales documents) as well as posting any goods receipts required. In the add-on, the standard subcontractor processing is extended to include various processes and functions for complete integration.

Key Feature	Benefit
Purchase & SD Contract for External Disposal in the Waste List	The waste list for the service product has been expanded to include the information from the purchase and sales contract for external disposal and its items. This functionality makes it possible to select the valid purchase contract and its items for the waste materials in the end customer's sales contract at the start of the process. This is then transferred to the disposal order and referenced in the confirmation cockpit when the purchase order is created.
Search Help & Result List in the Waste List	<p>To find and select a valid purchase or sales contracts and their items in the waste list, a search help has been implemented for the new fields “Purchase Contract” and “Sales Contract”.</p> <p>A check is provided to determine whether the external waste disposal facility has assigned a valid purchase or sales contract for the selected material in the system. The search help is prefilled with the waste material, the date, the supplier or customer and the external waste disposal facility.</p> <p>The result list for the search help displays the valid purchase or sales contract items from which the user can select the correct one.</p>

Table 12: Key Features and Their Benefits of the Enhancements for Subcontracting