

Treatment Plant Operations and Maintenance

City West Water

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Overview

- Operations & Maintenance
- Alternative Water Operations
- Key drivers O&M
- Altona Treatment Plant
- Altona Salt Reduction Plant
- Sunshine Golf Course
- Future of O&M at CWW's Treatment Plants



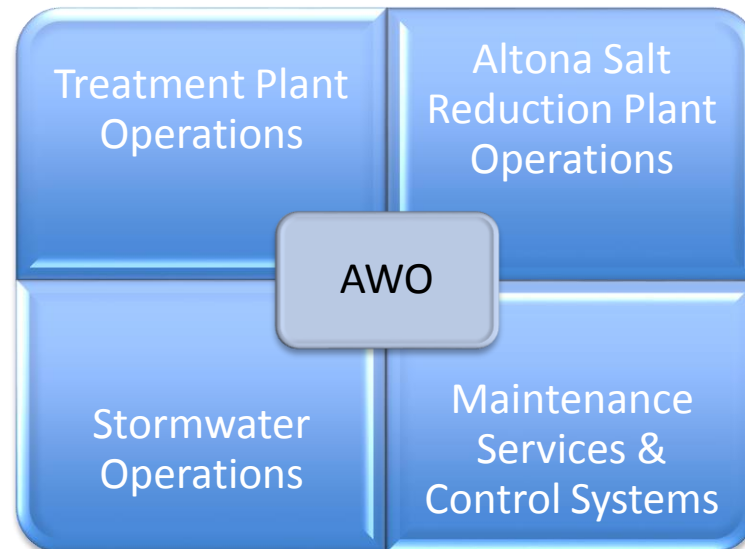
Operations & Maintenance



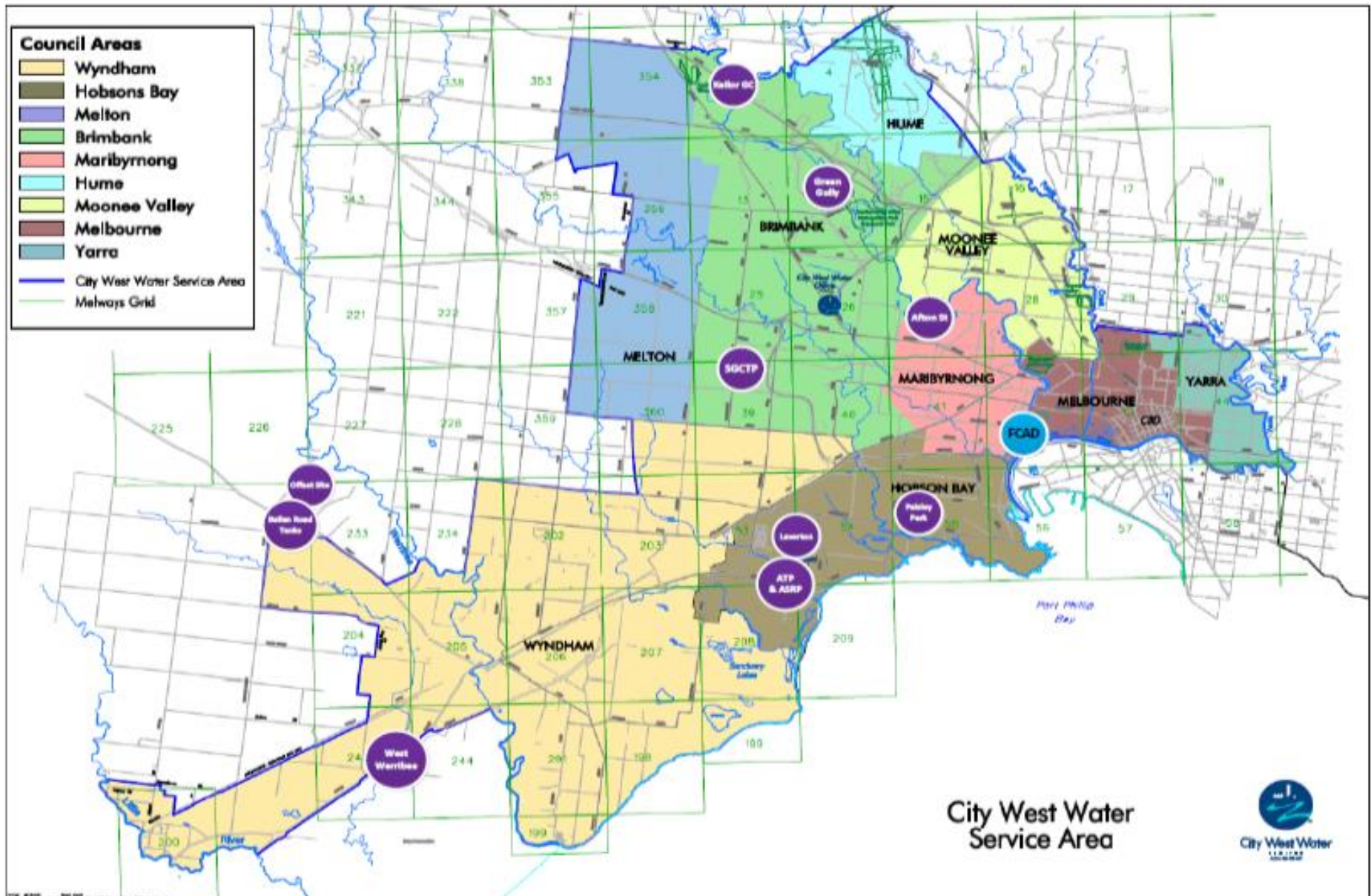
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Alternative Water Operations

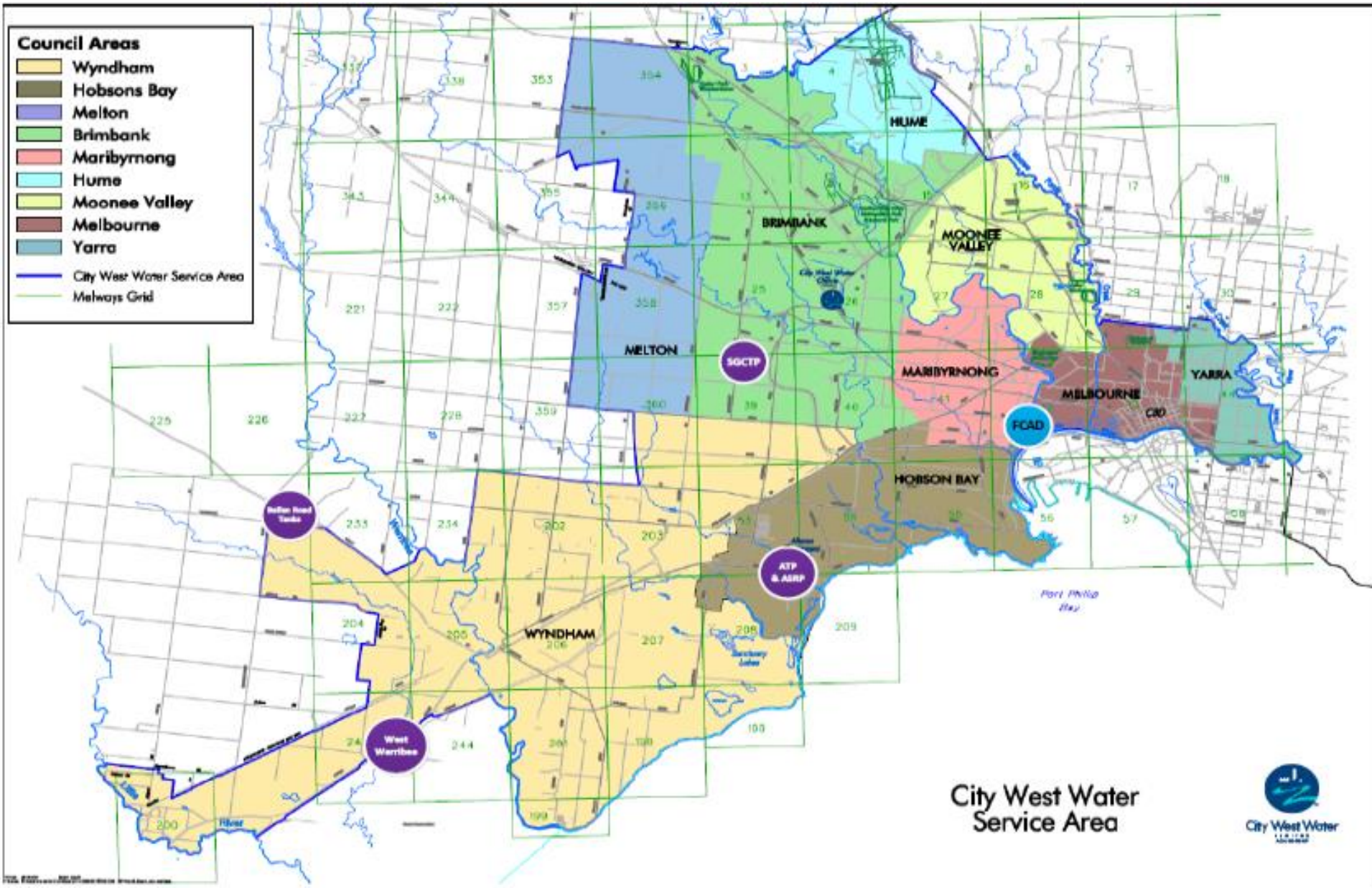
- Operate assets to treat and supply bulk alternative water
- Manage and maintain facilities and equipment
- Manage delivery of Alternative Water Operations Field Services (contracts, services agreements, projects)
- Integrated SCADA system (ClearSCADA) between plants



All AWO sites



AWO Treatment Plants



Key Drivers O&M

- ^ 100% compliance with EPA discharge licence
- ^ Absolute Safety
- ^ CWW's Principles towards Asset Management
- ^ Asset Operations and Maintenance Plan

State of Assets Report

- Treatment Plants
- Stormwater Sites

Opex Maintenance Program

- Asset Operations
- Preventative
- Responsive
- Condition Monitoring
- Asset Investigations

Capex Maintenance Program

- Compliance
- Renewals



Asset Management Principles

^ Customer Service

- Provide quality recycled water, alternative water at prescribed levels of service

^ Environment

- Manage Assets that promote environmental sustainability and minimise harm to the environment

^ Economic Efficiency

- Consider costs across the asset life cycle to ensure that planned economic asset life is achieved



Asset Management Principles

^ Compliance & Regulation

- Manage assets in a manner that complies with all statutory & regulatory requirements

^ Risk Management

- Manage assets in a manner that addresses the assets inherent risks and maintains all assets below a prescribed risk threshold

^ Occupational Health & Safety (OH&S)

- To apply the highest OH&S standards while managing CWW's assets and to ensure that CWW's assets support the achievement of these standards



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Regulatory Compliance

^ Safety

- OHS Act 2004
- OHS Regulations 2007

^ Environment

- EPA Act 1970
- Site EPA Licence



Treatment Plants O&M Categories

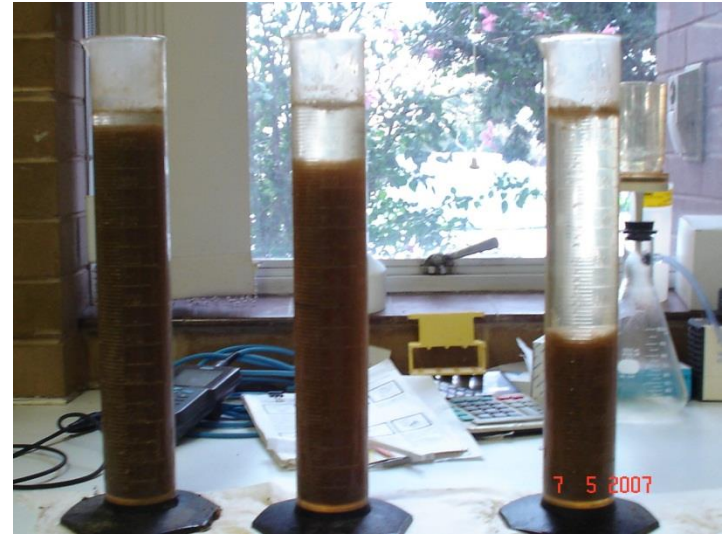
- ^ Operational
- ^ Maintenance



Operational Activities

^ Treatment Plant Process Monitoring

- Sampling & Analysis Programs
- SCADA
- Process trending & reviews
- Objects and Targets (OaTs) Documents



Maintenance Activities

- ^ Mechanical & Electrical Works
- ^ Condition Monitoring Program
- ^ Preventative Maintenance Program
- ^ Responsive Maintenance Program



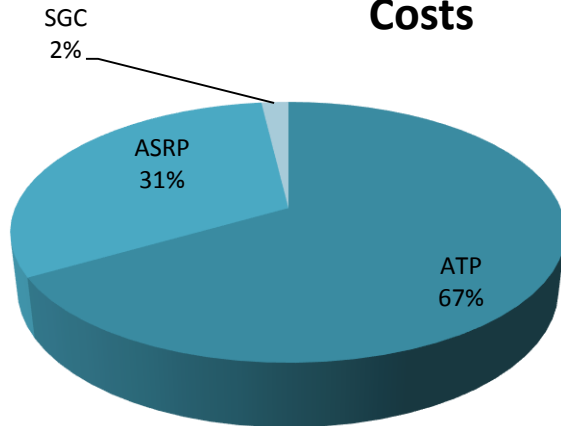
O&M Overview

- Compliance (EPA licence & Critical Control Points) drives our maintenance activities
- Mixture of Hansen service requests (Altona and Sunshine treatment plants)
- Maintenance Connections System for the Altona Salt Reduction Plant
- Excel registers
- Outlook calendars
- Specialist Contractors deliver maintenance with AWO staff

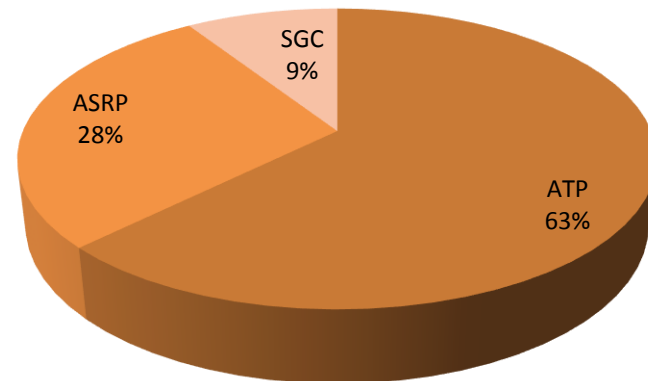


Budget

Treatment Plants Operational Costs



Treatment Plants Maintenance Costs



Altona Wastewater Treatment Plant O&M



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Altona Treatment Plant

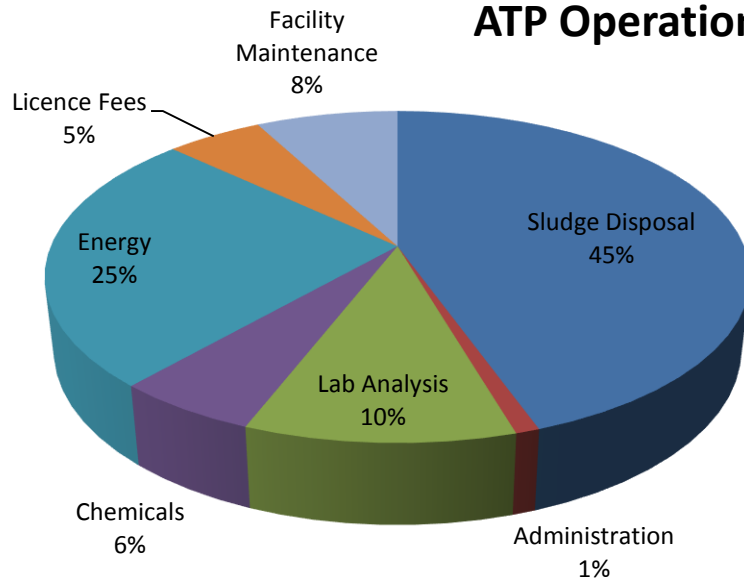
- ^ Built in 1968 and upgraded in 2007
- ^ 16ML/d ADWF
- ^ Treats sewage from 50,000 people
- ^ Utilises Biological IDEA – Intermittent, Decanted, Extended Aeration Process
- ^ Tertiary cloth filters and UV disinfection provide treatment to a Tertiary level
- ^ Treated effluent serves as feedwater for the SRP rest is discharged to a submerged ocean outfall
- ^ Produces annually 900+ dry tonnes of biosolids
- ^ 3 Full Time Operators (shared b/w sites)
- ^ 2 Contract Maintenance Personnel
- ^ 2 Process Engineers (shared b/w sites)



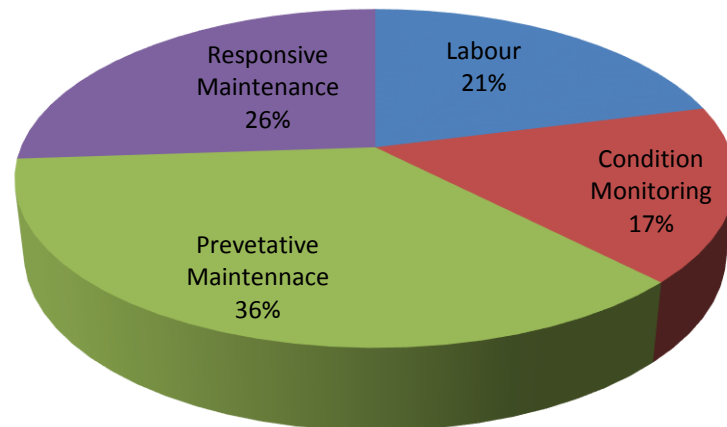


O&M Activities Cost Split

ATP Operational Costs



ATP Maintenance Costs



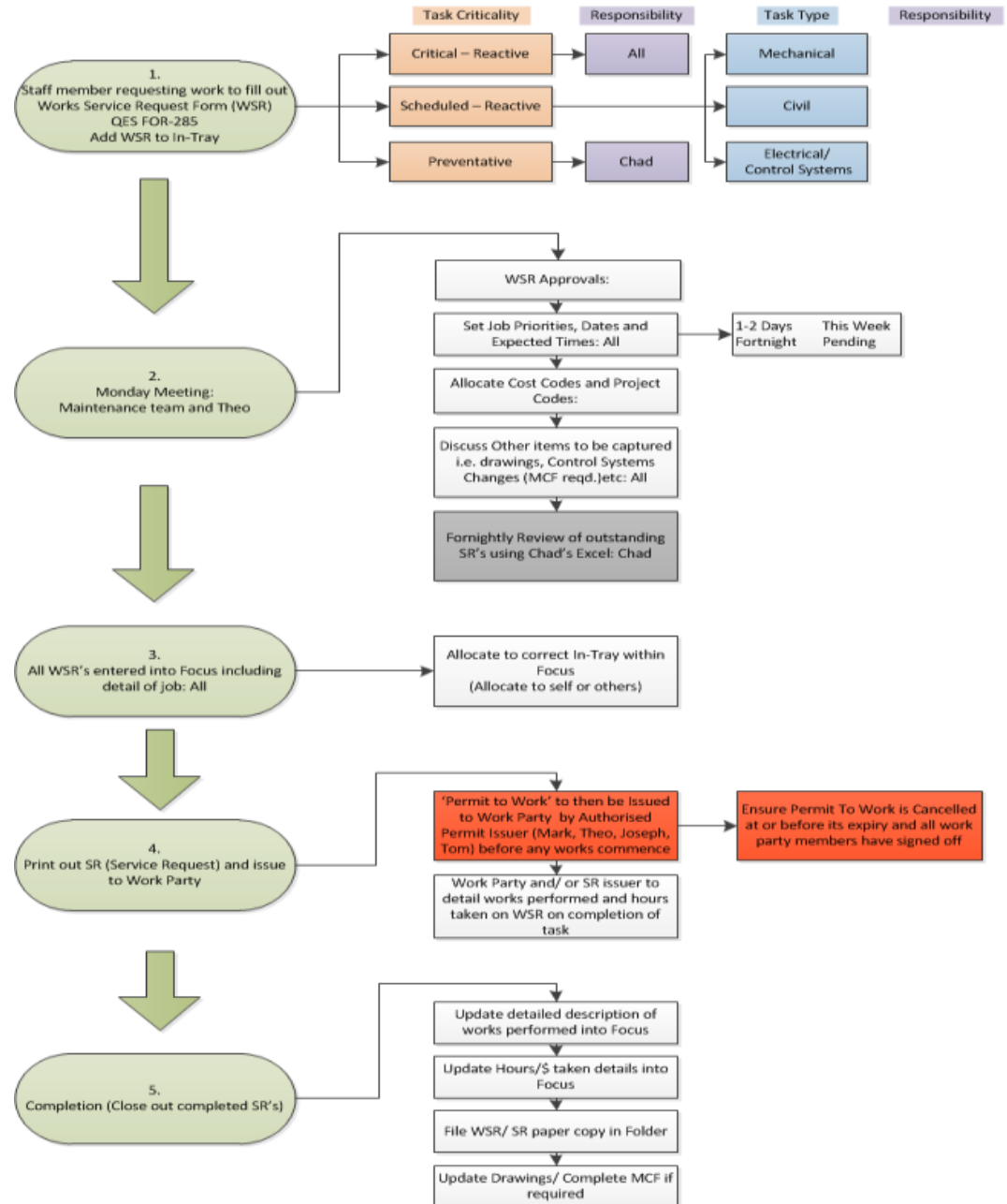
Work Requests Process

For Maintenance Activities at

- Altona Wastewater Plant
- Sunshine Golf Course treatment plant
- Stormwater Sites - very much Hansen based and works issued monthly

AWO Works request and assignment Work Flow

Ver 1.1
04.07.14











2012/09/19





2012/09/19

General O&M Activities



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General O&M Activities



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Altona Salt Reduction Plant O&M



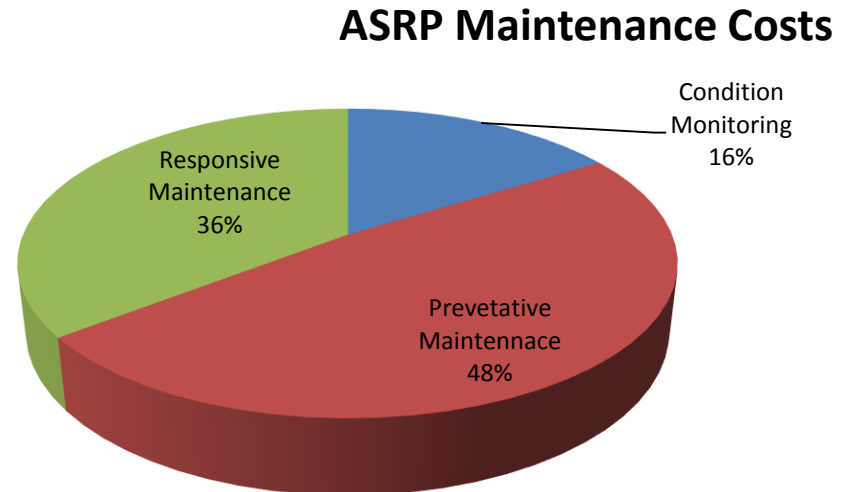
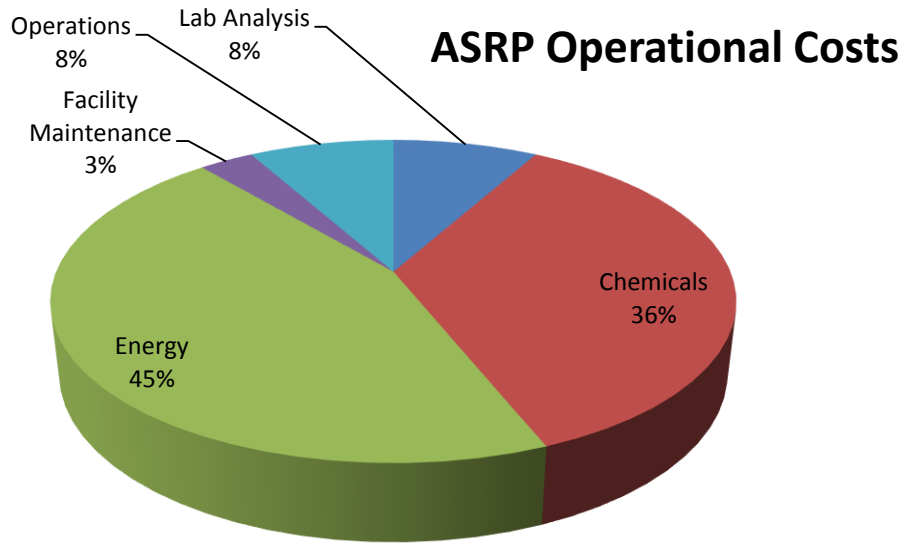
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Altona Salt Reduction Plant

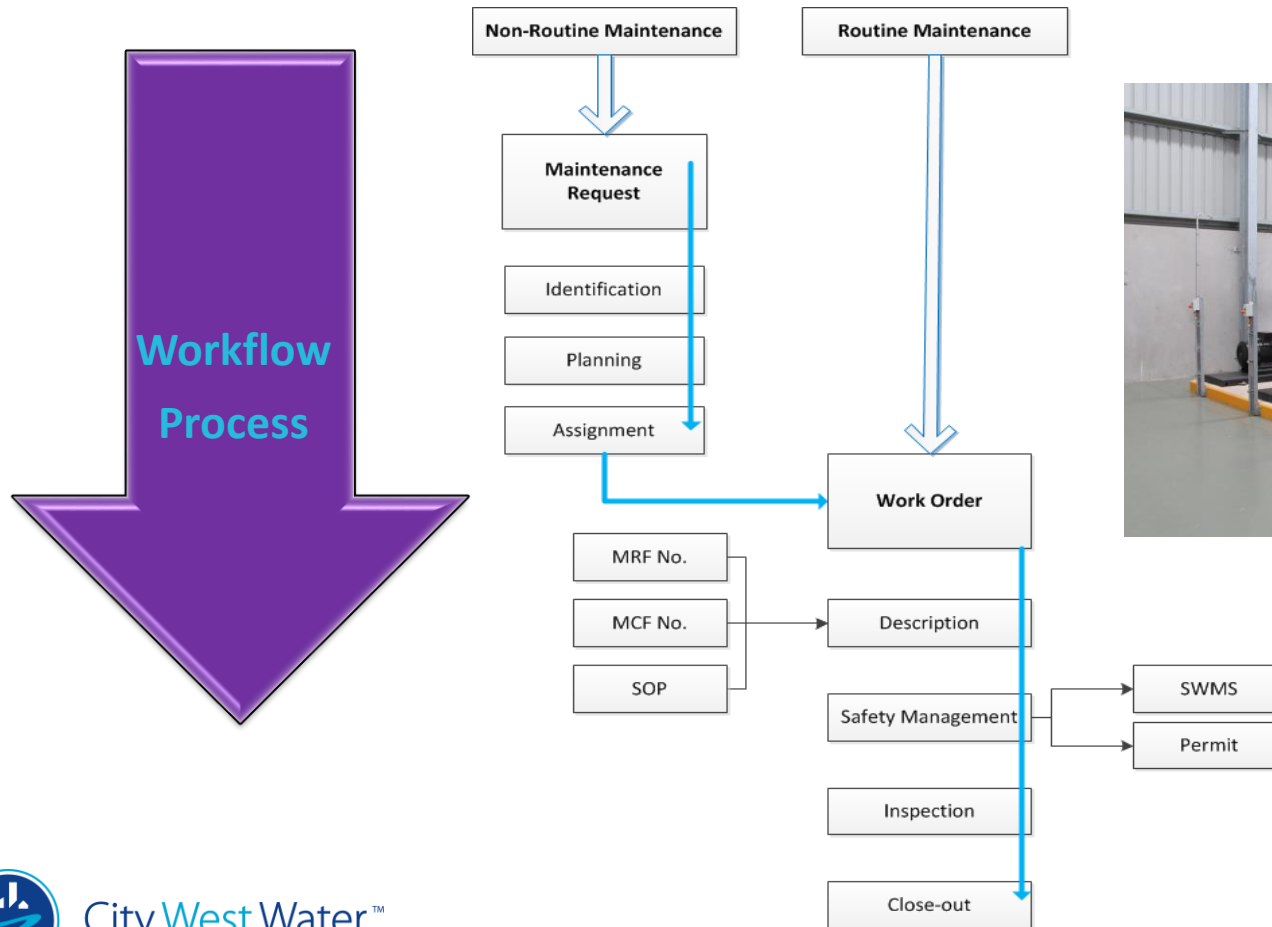
- ^ Built in 2011
- ^ Produces 9ML/d treated water split between Industrial and Irrigation recycled water customers
- ^ Ultrafiltration & Reverse Osmosis membranes



O&M Activities Cost Split



Altona Salt Reduction Plant (ASRP)



Maintenance Connection



- ^ Maintenance Connection is an Enterprise Asset Management (EAM) System which has been implemented as a Software as a Service (SaaS) solution at the ASRP.
- ^ The Maintenance Connection solution encompasses the entire maintenance spectrum helping maintenance and facility managers across the globe increase asset life, predict and prevent asset failures, improve labor productivity, reduce costly downtimes, minimize investments in inventory, and lower the total cost of maintenance.

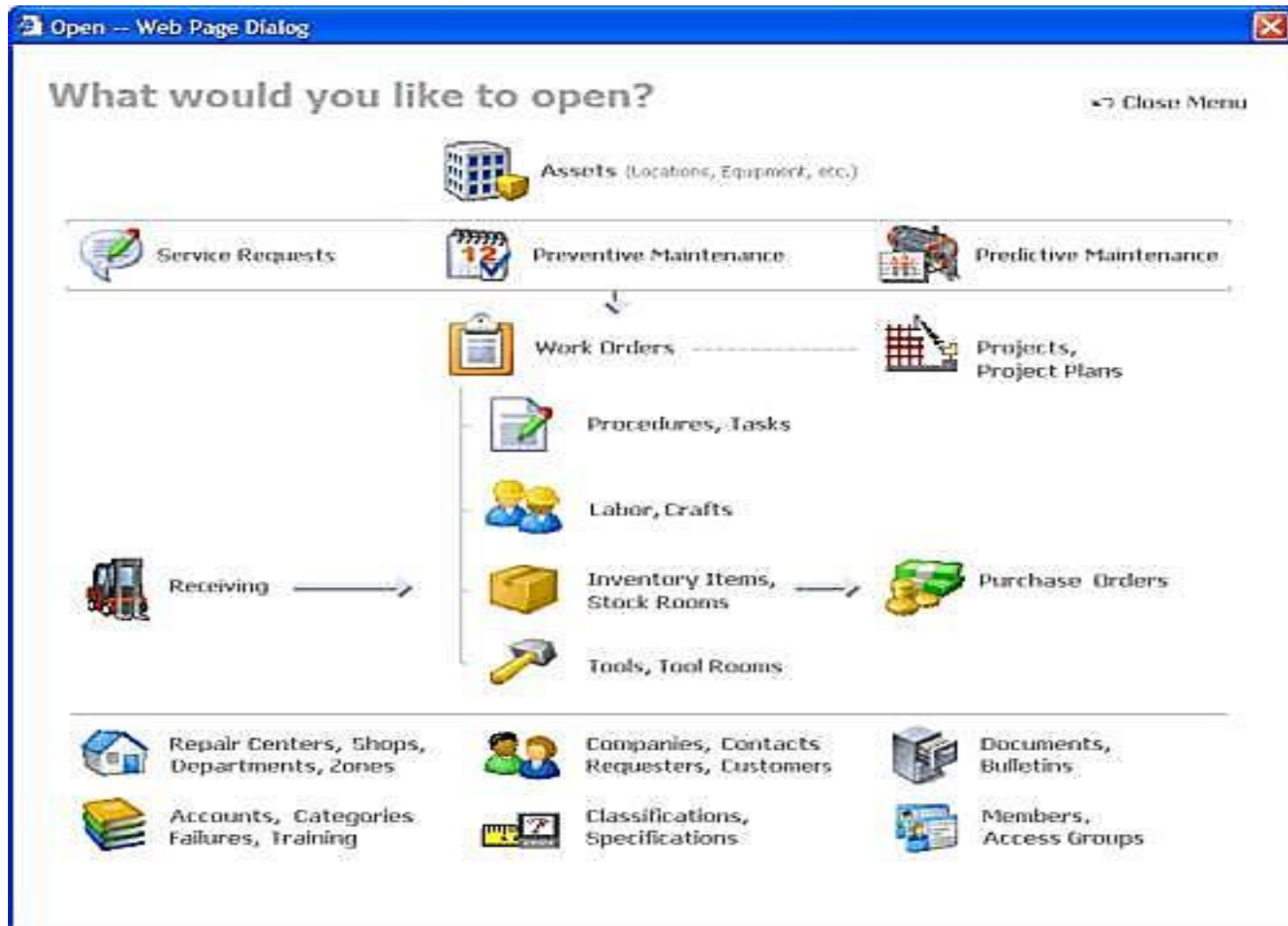


Maintenance Management System



- ❖ Multi-Site Asset Tracking
- ❖ Multi-Site Work Orders
- ❖ Work Order Scheduling / Work Manager
- ❖ Preventive Maintenance
- ❖ Procedure Library (300+ Procedures)
- ❖ Multiple Stockroom Inventory Tracking
- ❖ Generate Purchase Orders
- ❖ Project Management
- ❖ Hierarchical Classifications
- ❖ Contract Management
- ❖ Accounts / Budgeting
- ❖ Document Library / HTML
- ❖ Document Editor
- ❖ Access Groups / Security
- ❖ Integrated Report Writer
- ❖ Print, Email, or Fax Reports

Components



Asset Information



Maintenance Connection - Microsoft Internet Explorer

File View Actions Tools Help Administrator Debug Logout

New Open Explore Reports Options Home Back

Asset: WorldCenter Help

Asset Explorer

Assets Search

Repair Center: All

Your Company Here

- New York
- San Francisco
 - Building - Main
 - Basement
 - Doors - Main Entrance (DOOR-MAIN)
 - Electrical Room
 - Circuit Breaker - Low Voltage (C)
 - Fire Control Panel (FIRE-CONT)
 - Elevator 1 (ELEVATOR-1)
 - Elevator 2 (ELEVATOR-2)
 - Emergency Generator (GENERATOR)
 - Exterior Lights (LIGHTS-EXTERIOR)
 - HVAC Unit (HVAC-2)**
 - HVAC Unit (HVAC-1)
 - Room A-1
 - Room A-2
 - Room A-3
 - Room A-4
 - Room A-5
 - Room A-6
 - Room A-7
 - Room A-8
 - Building - Maintenance
 - Grounds
 - Parking Garage
 - Sewer Mainline
 - Vehicles
 - Seattle

HVAC Unit (HVAC-2)

Details Meter Specs / Associations PMs / Tasks Attachments History

Asset Info

Parent: SF-M Building - Main

Class: HVAC HVAC Unit

Asset ID: HVAC-2

Name: HVAC Unit

Change Icon

Status

☒ In Service Sub-Status:

☒ Available for Service Requests

Photo Attach Remove

Details

Type: A Asset

Model:

Serial #: 499019-13213

Account: SF-M San Francisco Manufacturing

Department:

Tenant:

Locality:

Maintained By

Repair Center: SF-PP San Francisco - Physical Plant

Shop: SF-HVAC HVAC

Priority: 2 Normal

Warranty Info

Vendor: 197707193 ALFAVA INC

Manufacturer: 11246618 AMERICAN HEAT PUMP MANUFACTURER

Warranty Ends: 12/31/2009

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Work Orders



File View Actions Tools Applications Help

OMI - Municipal East Carol Stream Log off

New Open Explore Reports Dashboard Message Center (0) Home Back

Work Center Help

Work Order Explorer

Search By: Reason Search Value: %annual clarifier

☒ Use current criteria settings

WO #	Reason
CST-524094	Annual Clarifier Inspe...
CST-524095	Annual Clarifier Inspe...
CST-524096	Annual Clarifier Inspe...
CST-524097	Annual Clarifier Inspe...

Work Order #CST-524094 (Closed)

Details Tasks Costs Attach History Assign Group Report

Request Info

Annual Clarifier Inspection

Problem: Requester ID: Name: Phone: Email: Client WO #:

Asset / Location

Eastern Municipal Projects
Carol Stream (CST)

West Side Clarification
Clarifier #1 (CST-73001)

Details

PM: West Clarifier Maintenance- Monthly, Semiannual, Annual

Procedure: WMB-CLAR-A Annual Clarifier Inspection

Target Date: 3/15/2014

Target Hours: 1

Type: PM Preventive Maintenance

Category: Account: Priority: 2 Normal

Project: Repair Center: CST Shop: Shift:

Status

Requested 3/10/2014 12:02 AM

Closed

Sub-Status:

Approval

(Not Required)

Assignments

Mike Idzior 3/11/2014 1 hr

New Assignment

Indicators

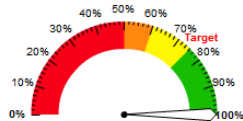
☐ Warranty ☐ Shutdown Required
☐ MSDS ☐ Lockout/Tagout
☐ SOP/JSA Completed? ☐ Pre-Job Briefing Completed?
☐ Empty Box ☐ Confined Space Rqd?

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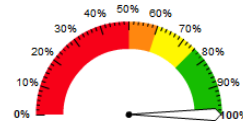
ReIssue Delete Survey History Print



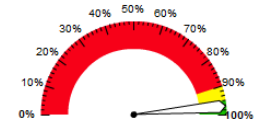
Reporting



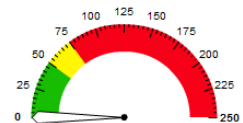
% Labor Utilization - Current Month (Report Only)
Current Value: 328.90 %
Target: 75% Variance: -253.90 [Edit](#) | [Stop Sharing](#)



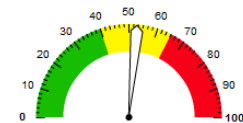
% Labor Utilization - Current Year (Report Only)
Current Value: 1,181.63 %
Target: 80% Variance: -1,101.63 [Edit](#) | [Stop Sharing](#)



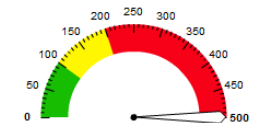
% Major Assets In Service
Current Value: 97 %
Target: 95% Variance: -2 [Edit](#) | [Share](#)



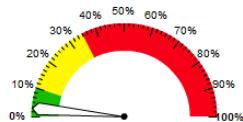
Passed Due Safety CM WOs
Current Value: 0 Safety CM Work Orders
Target: 25 Variance: -25 [Edit](#) | [Share](#)



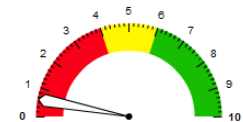
All Passed Due Safety WOs
Current Value: 53 Safety Work Orders
Target: 25 Variance: 28 [Edit](#) | [Share](#)



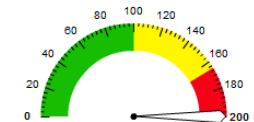
Total Maintenance Backlog Hours
Current Value: 1,502 Hours
Target: 50 Variance: 1,452 [Edit](#) | [Share](#)



% Project Overtime vs. Regular Hours
Current Value: 3 %
Target: 5% Variance: -2 [Edit](#) | [Share](#)



PM/CM Ratio (Last Month)
Current Value: 0.60 Ratio
Target: 7 Variance: 6.40 [Edit](#) | [Share](#)



0-30 Day Passed Due All WOs
Current Value: 2,504 All WOs
Target: 20 Variance: 2,484 [Edit](#) | [Share](#)



Sunshine Golf Course Sewer Mining Plant O&M



Aerial View of Plant



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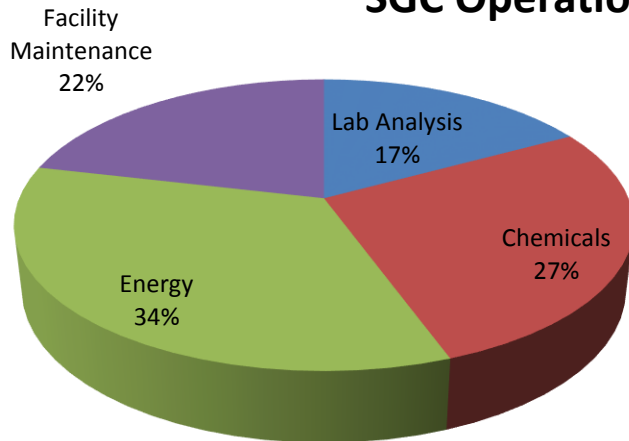
Sunshine Golf Course Sewer Mining Plant

- ^ 80 ML/ annum (0.25 ML/per day)
- ^ Irrigate local golf course
- ^ Built 2009 – refurbishment works 2011
- ^ Unmanned site – daily visits and planned maintenance activities
- ^ SCADA controlled
- ^ After hours alarms on call operator

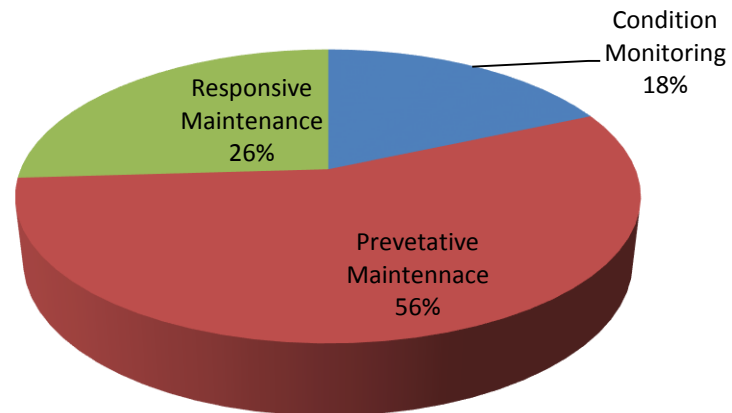


O&M Activities Cost Split

SGC Operational Costs



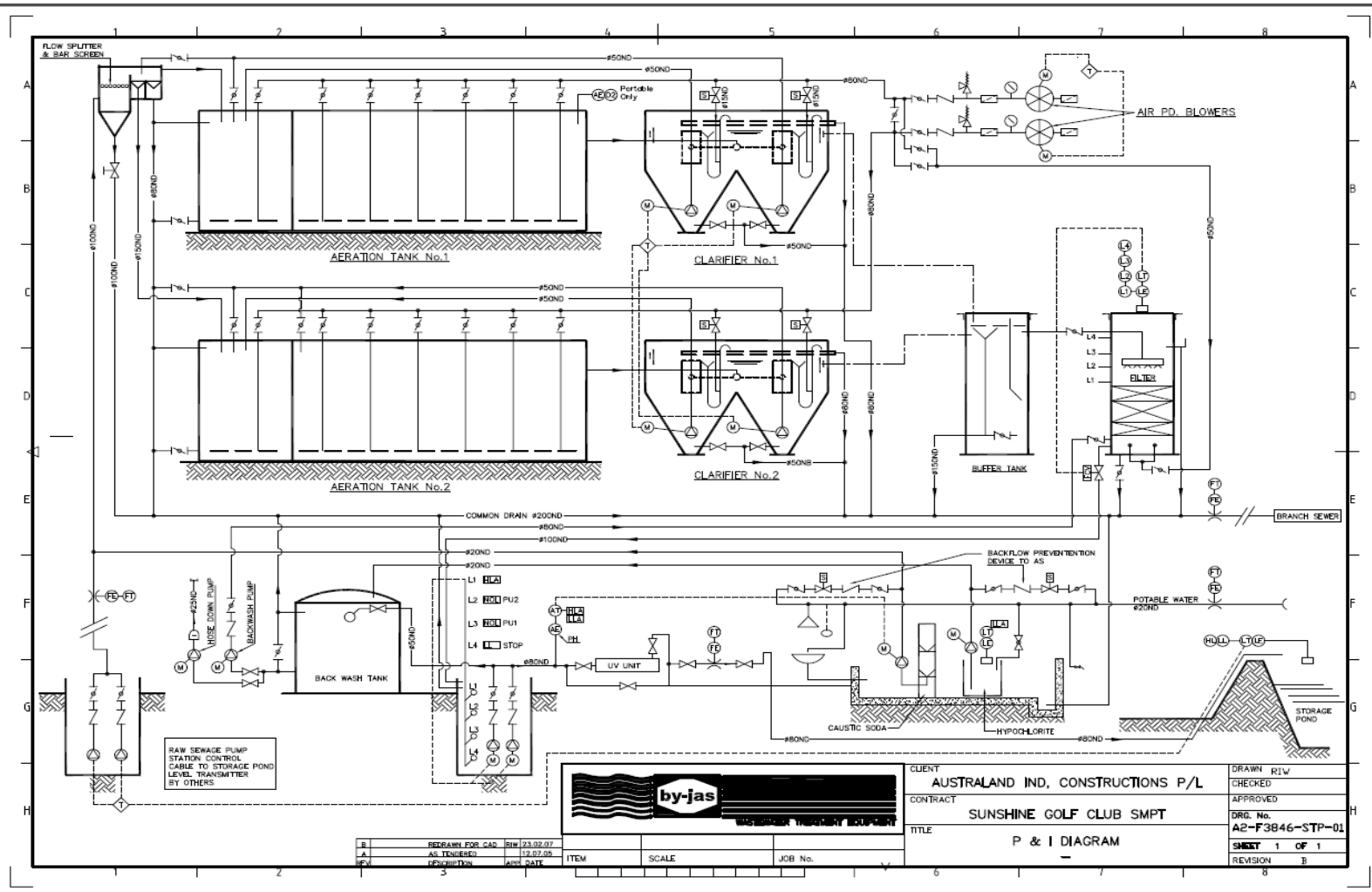
SGC Maintenance Costs



Sunshine Golf Course Treatment Plant



Sunshine Golf Course Treatment Plant



Tank & Diffuser inspections



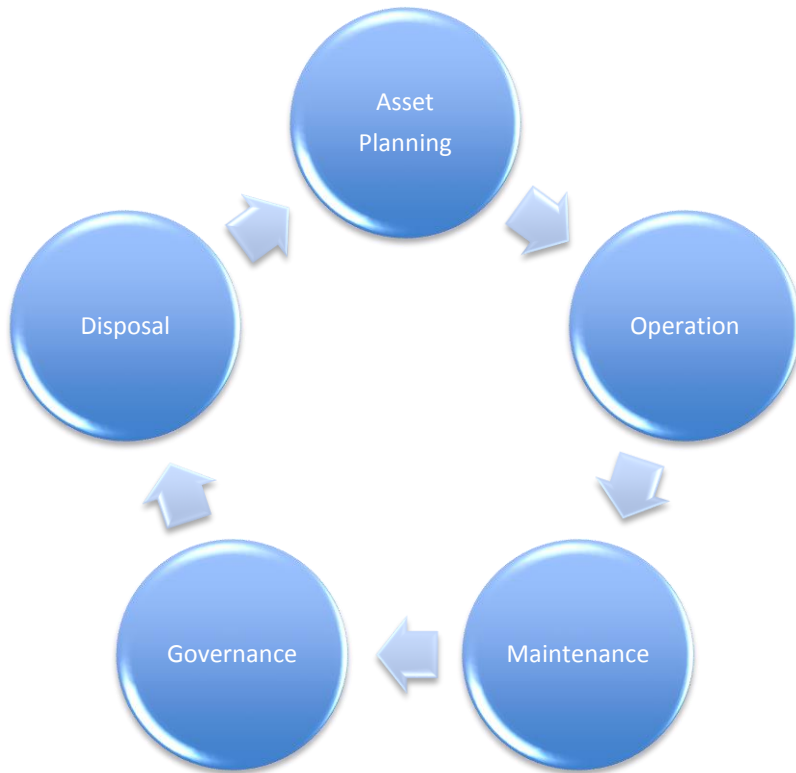
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Blower Maintenance



CCTV

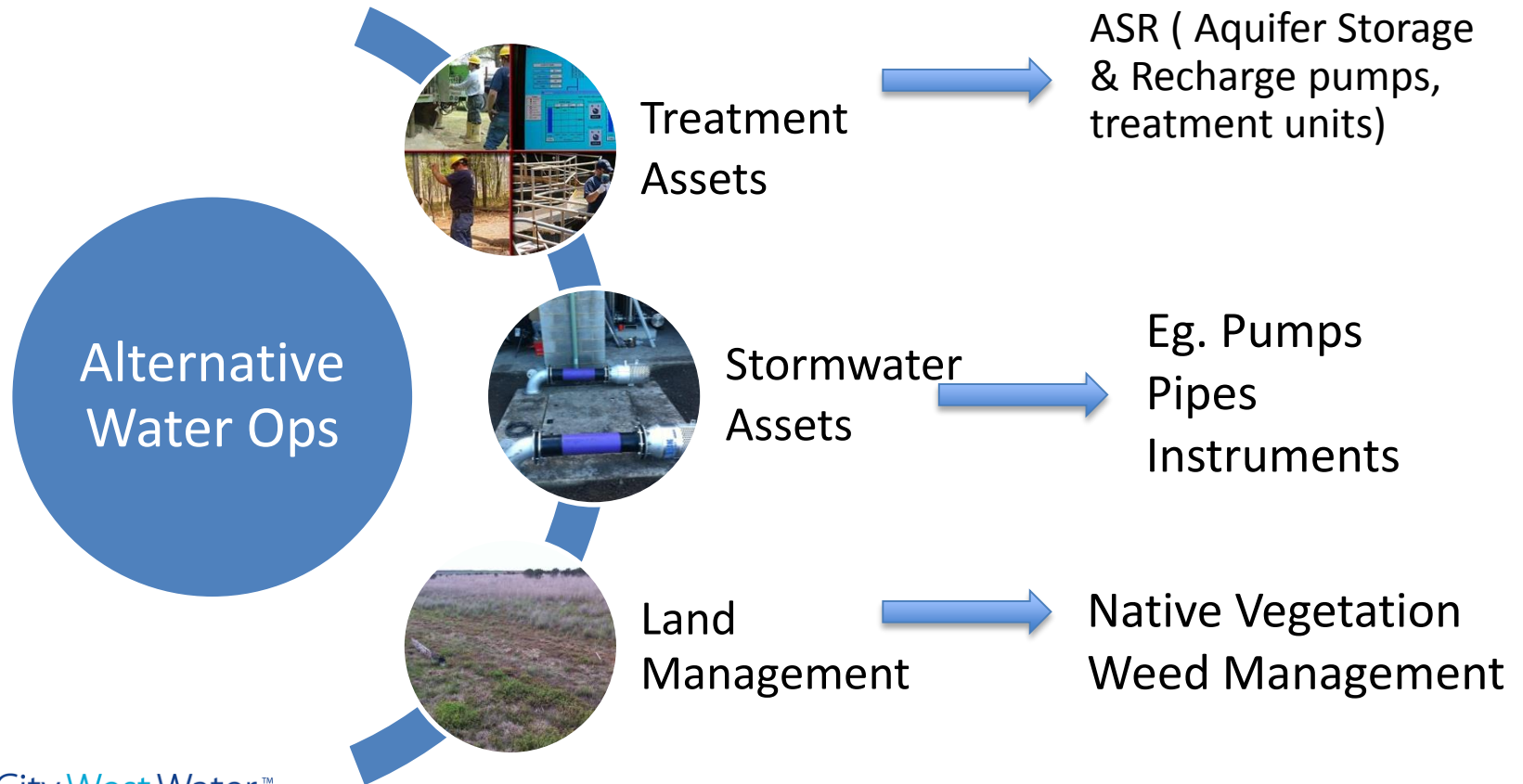


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Future sites for Alternative Water Operations – next 12 months



Alternative Water Operations



West Werribee Scheme

West Werribee SRP

- Class A storage Tank
- Blended Recycled Water Tank
- Pump Station
- Building
- Grounds Maintenance



Ballan Road Tank Site

- Blended Recycled Water Tanks (the potable water tanks are Network Operations)
- Pumps
- Chemical Dosing Equipment
- Native Grassland offset site
- Grounds Maintenance



Aquifer Storage & Recharge O&M Activities

Example of
typical ASR
equipment
from Perth



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Stormwater O&M Activities



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Thank You



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