

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



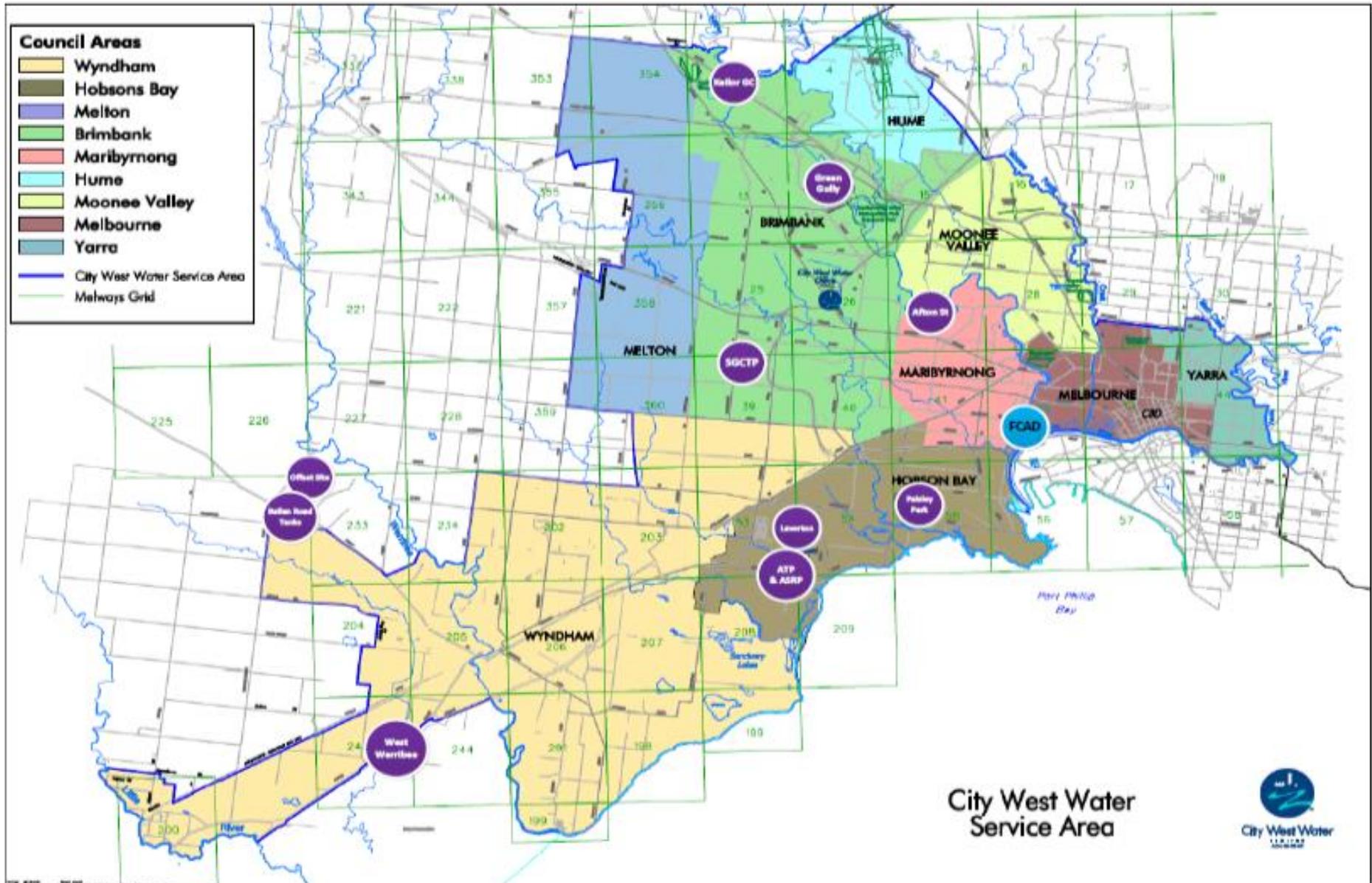
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Alternative Water Operations

- 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



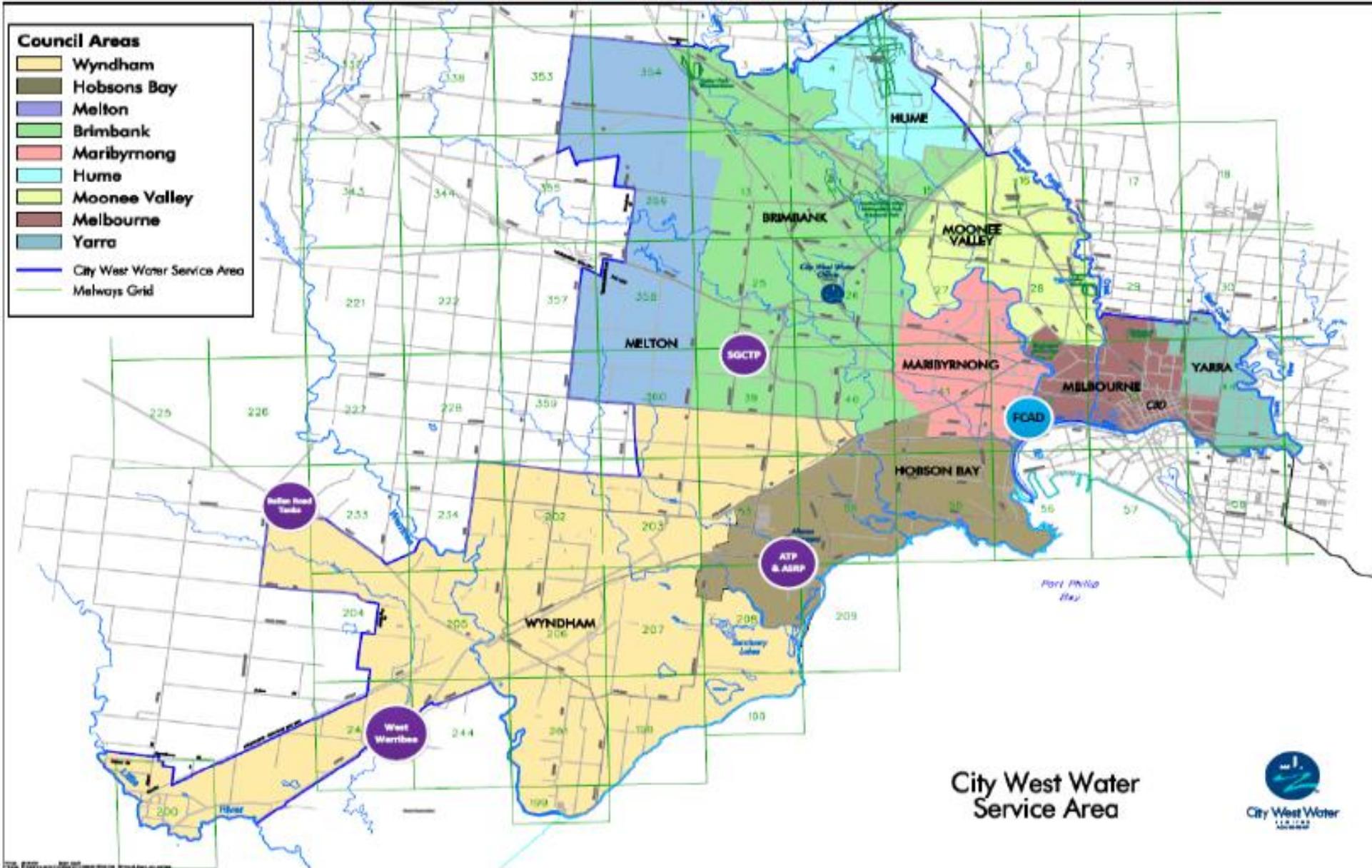
All AWO sites



City West Water
Service Area



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



Regulatory Compliance

^ Safety

- OHS Act 2004
- OHS Regulations 2007

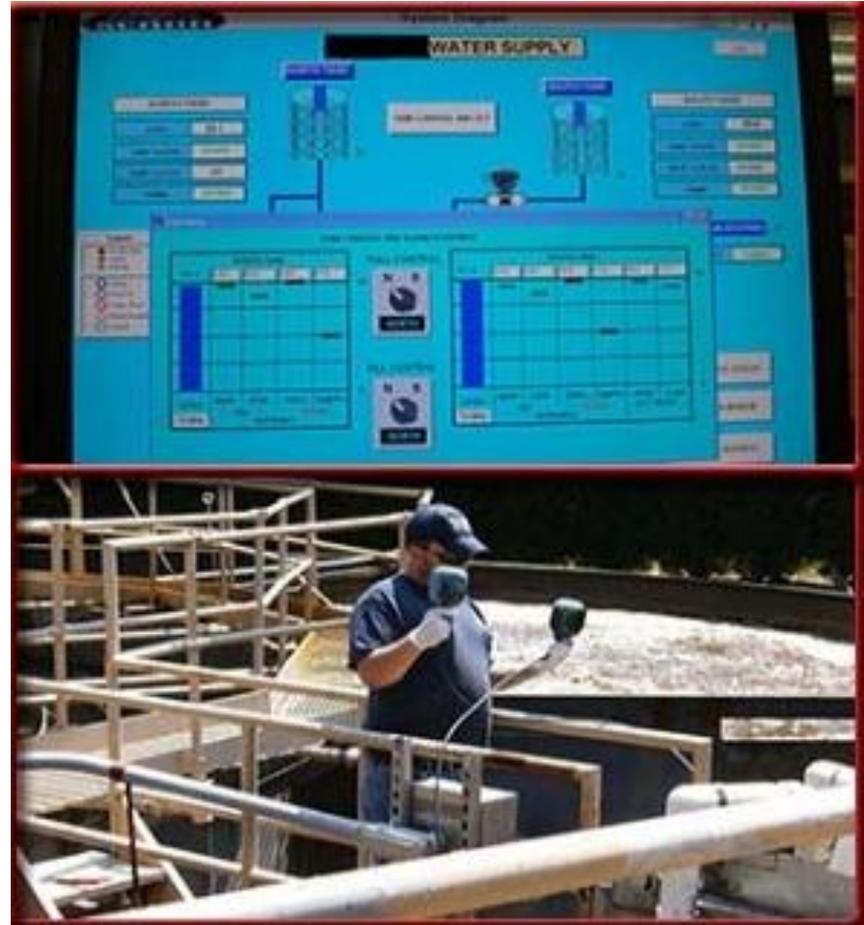
^ Environment

- EPA Act 1970
- Site EPA Licence



Treatment Plants O&M Categories

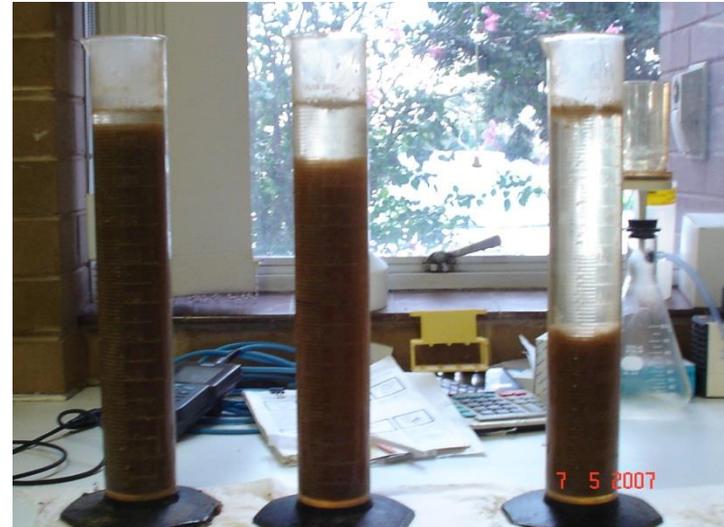
- ^ Operational
- ^ Maintenance



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



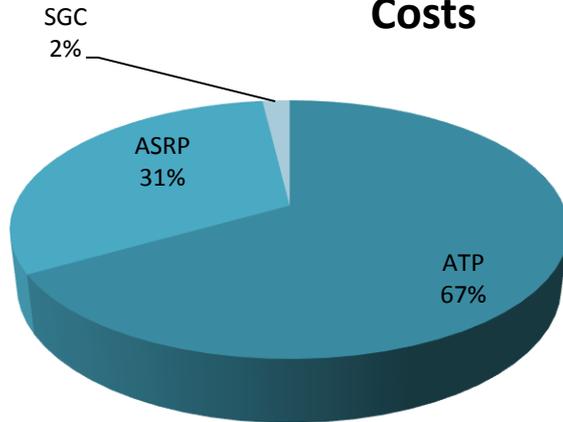
O&M Overview

- 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

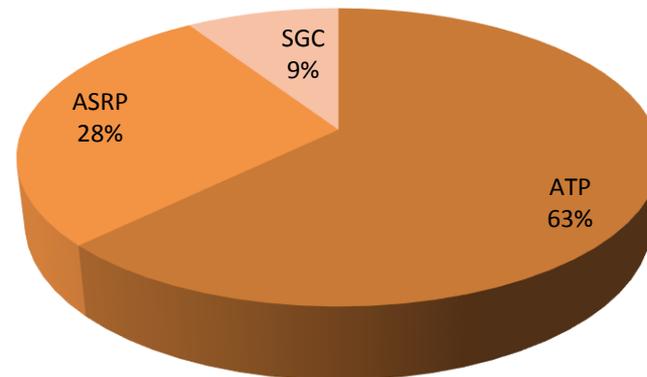


Budget

Treatment Plants Operational Costs



Treatment Plants Maintenance Costs



Altona Wastewater Treatment Plant O&M



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Altona Treatment Plant

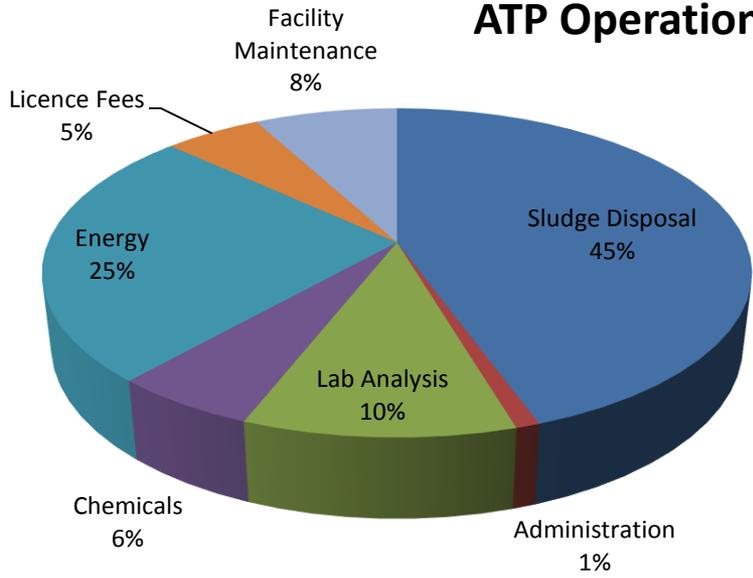
- ^ Built in 1968 and upgraded in 2007
- ^ 16ML/d ADWF
- ^ Treats sewage from 50,000 people
- ^ Utilises Biological IDEA – Intermittent, Decanted, Extended Aeration Process
- ^ Tertiary cloth filters and UV disinfection provide treatment to a Tertiary level
- ^ Treated effluent serves as feedwater for 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)



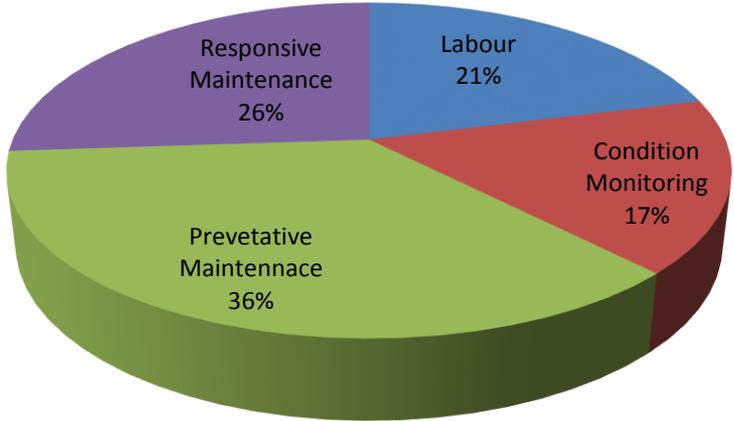


O&M Activities Cost Split

ATP Operational Costs



ATP Maintenance Costs

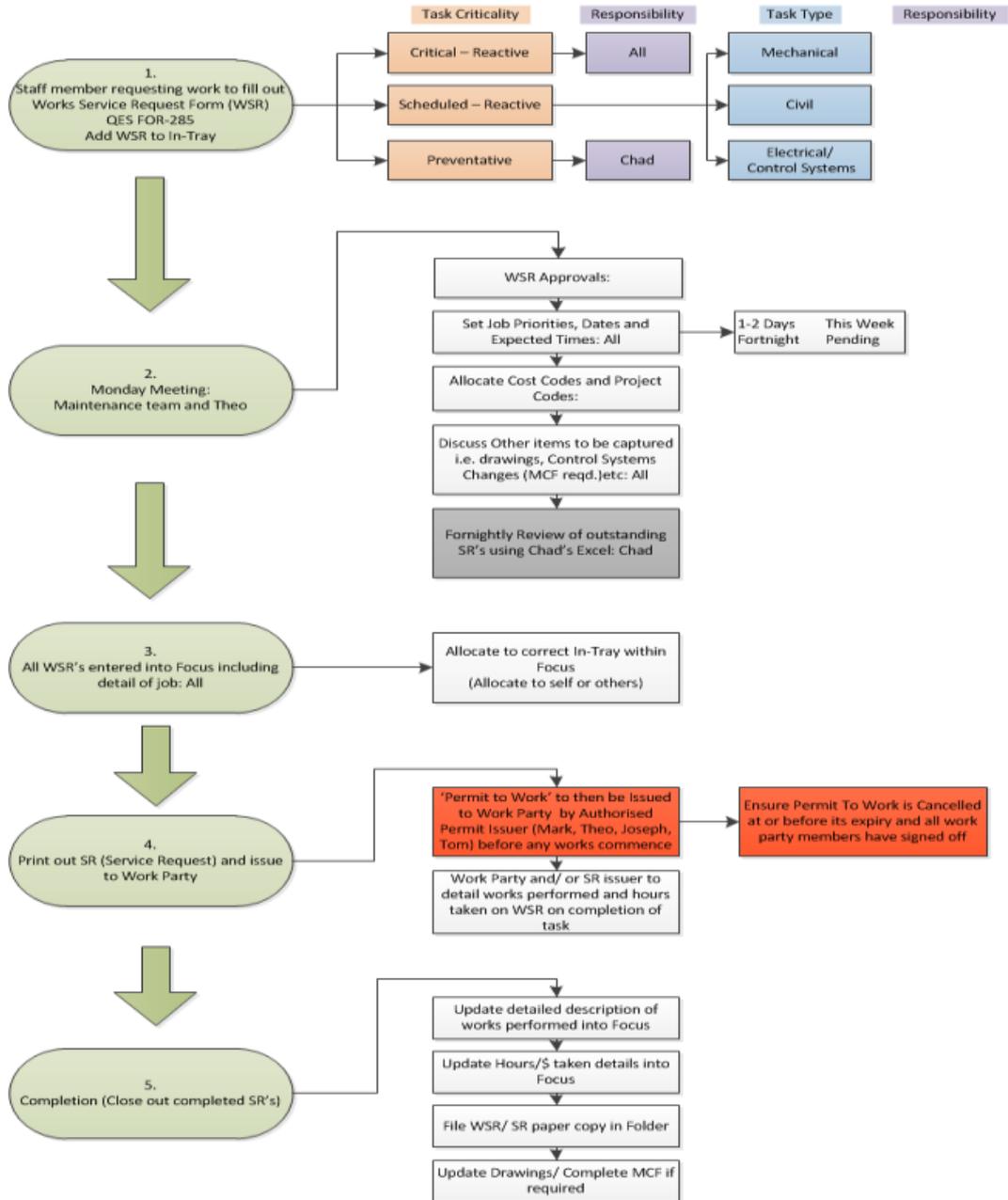


AWO Works request and assignment Work Flow

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











2012/09/19





2012/09/19

General O&M Activities



General O&M Activities



23/10/2013



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Altona Salt Reduction Plant O&M



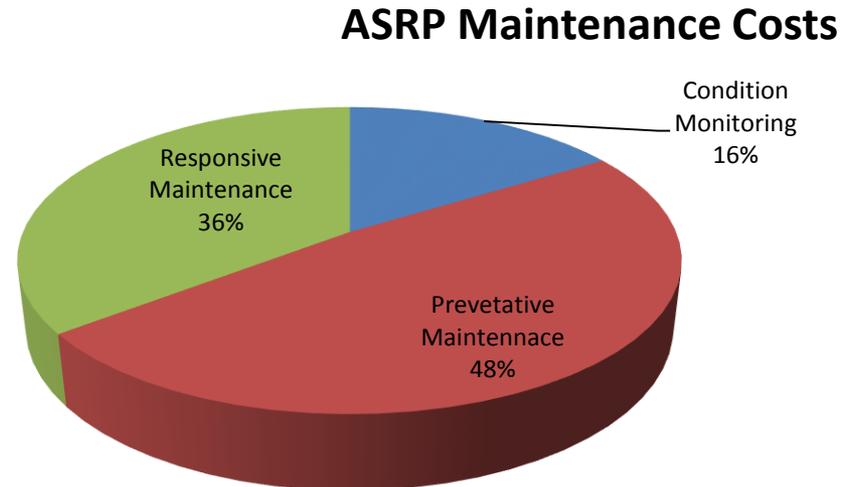
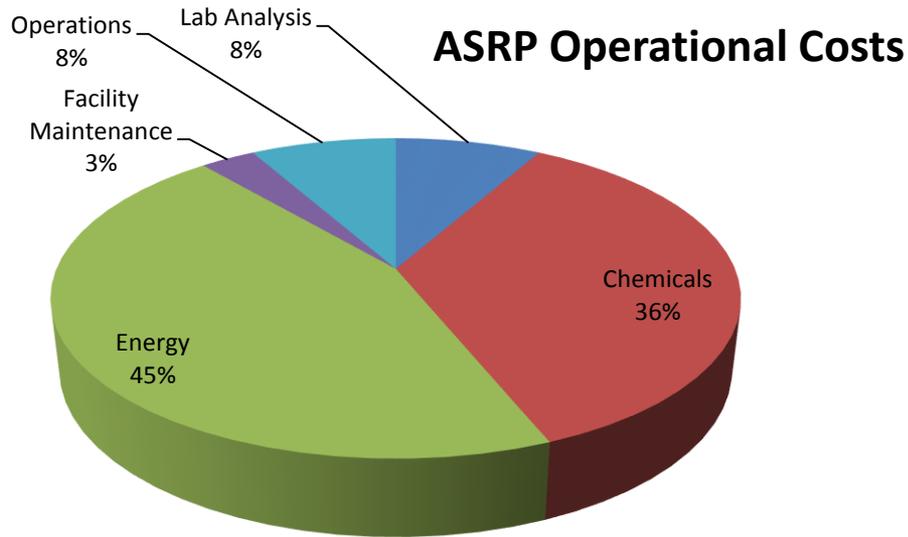
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Altona Salt Reduction Plant

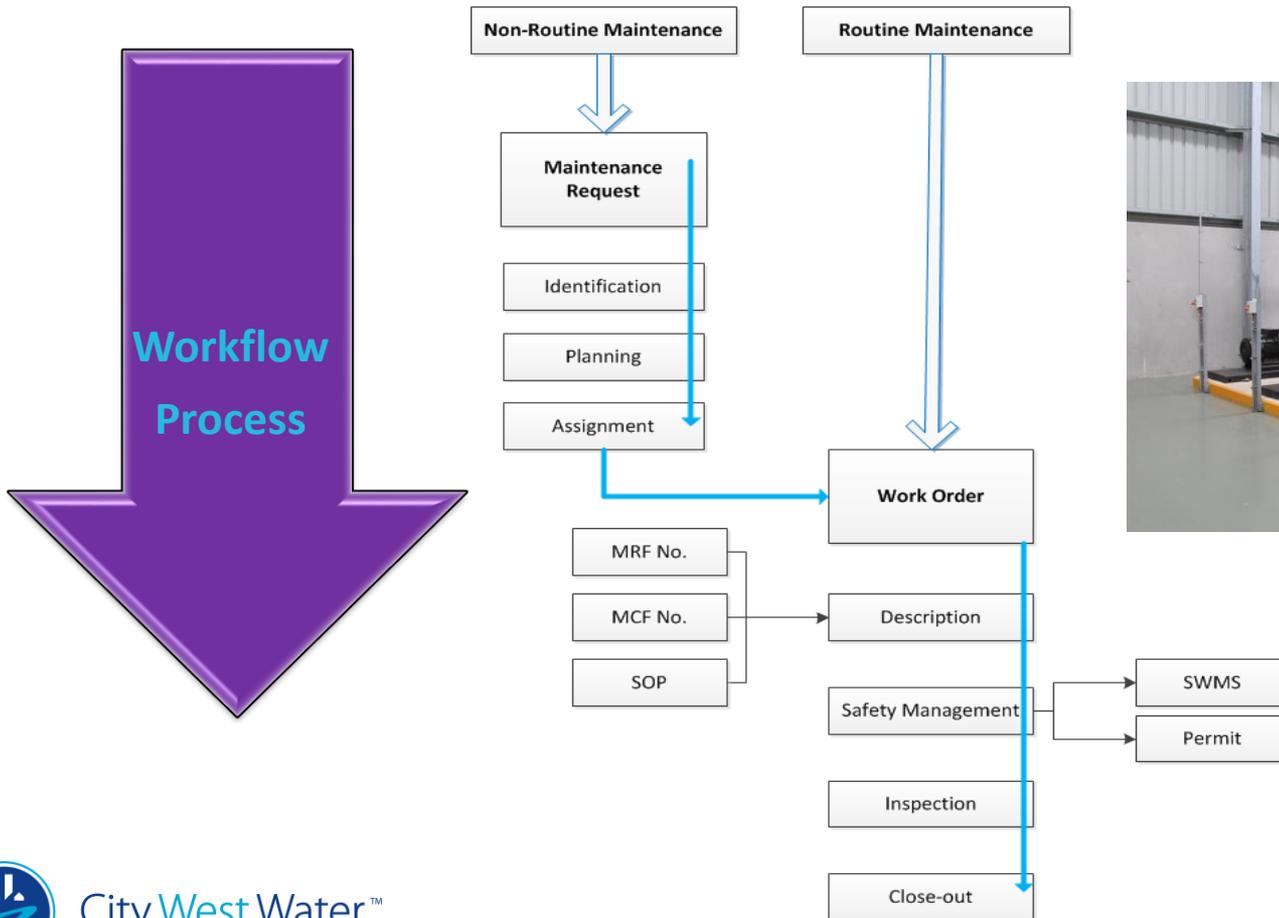
- ^ Built in 2011
- ^ Produces 9ML/d treated water split between Industrial and Irrigation recycled water customers
- ^ Ultrafiltration & Reverse Osmosis membranes



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



The screenshot displays the Maintenance Connection software interface within a Microsoft Internet Explorer browser window. The main content area shows the details for an "HVAC Unit (HVAC-2)".

Asset Explorer (Left Panel): A tree view showing the organizational structure. The selected path is: Year Company Here > San Francisco > Building - Main > Electrical Room > HVAC Unit (HVAC-2).

Asset Details (Main Panel):

- Asset Info:** Parent: SF-M (Building - Main); Class: HVAC Unit; Asset ID: HVAC-2; Name: HVAC Unit.
- Status:** In-Service; Sub-Status: [Dropdown]; Available for Service Requests.
- Photo:** A photograph of the HVAC unit is displayed with "Attach" and "Remove" buttons.
- Details:** Type: A; Model: [Empty]; Serial #: 499019-13213; Account: SF-M (San Francisco Manufacturing); Department: [Empty]; Tenant: [Empty]; Vicinity: [Empty].
- Maintained By:** Repair Center: SF-PP (San Francisco - Physical Plant); Shop: SF-HVAC (HVAC); Priority: 2 (Normal).
- Warranty Info:** Vendor: 197707190 (ALSAFA 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

Work Orders Search

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: [Dropdown]
Requester ID: [Dropdown]
Name: [Text]
Phone: [Text]
Email: [Text]
Client WO #: [Text]

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: [Dropdown]
Account: [Dropdown]
Priority: 2
Normal
Project: [Dropdown]
Repair Center: CST
Shop: [Dropdown]
Shift: [Dropdown]

Status

Requested 3/10/2014 12:02 AM
Closed
Sub-Status: [Dropdown]

Approval

(Not Required)

Assignments

Mike Idzior
3/11/2014 1 hr
New Assignment

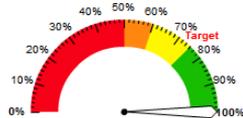
Indicators

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

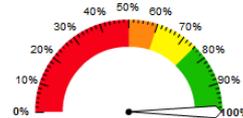
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ReIssue Delete Survey History Print

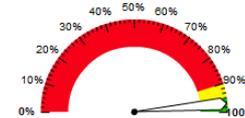
Reporting



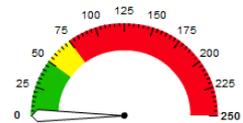
% Labor Utilization - Current Month (Report Only)
 Current Value: 328.90 %
 Target: 75% Variance: -253.90 [Edit](#) | [Stop Sharing](#)



% 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](#)



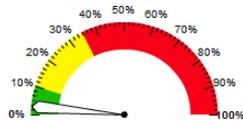
Passed Due Safety CM WOs
 Current Value: 0 Safety CM Work Orders
 Target: 25 Variance: -25 [Edit](#) | [Share](#)



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



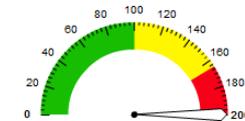
Total Maintenance Backlog Hours
 Current Value: 1,502 Hours
 Target: 50 Variance: 1,452 [Edit](#) | [Share](#)



% 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



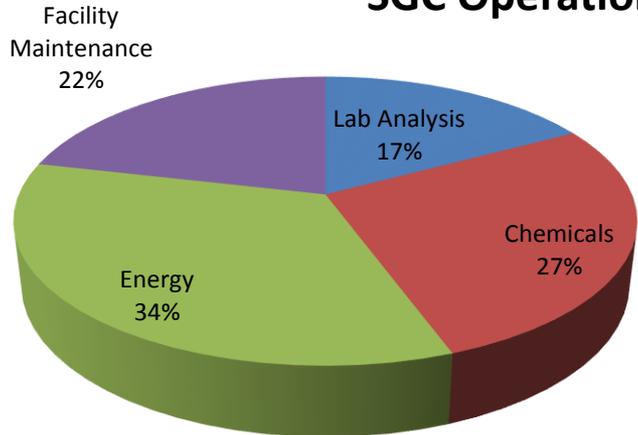
Sunshine Golf Course Sewer Mining Plant

- ^ 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

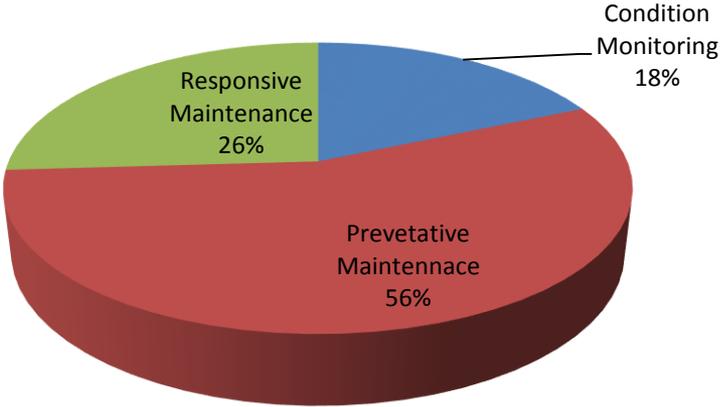


O&M Activities Cost Split

SGC Operational Costs



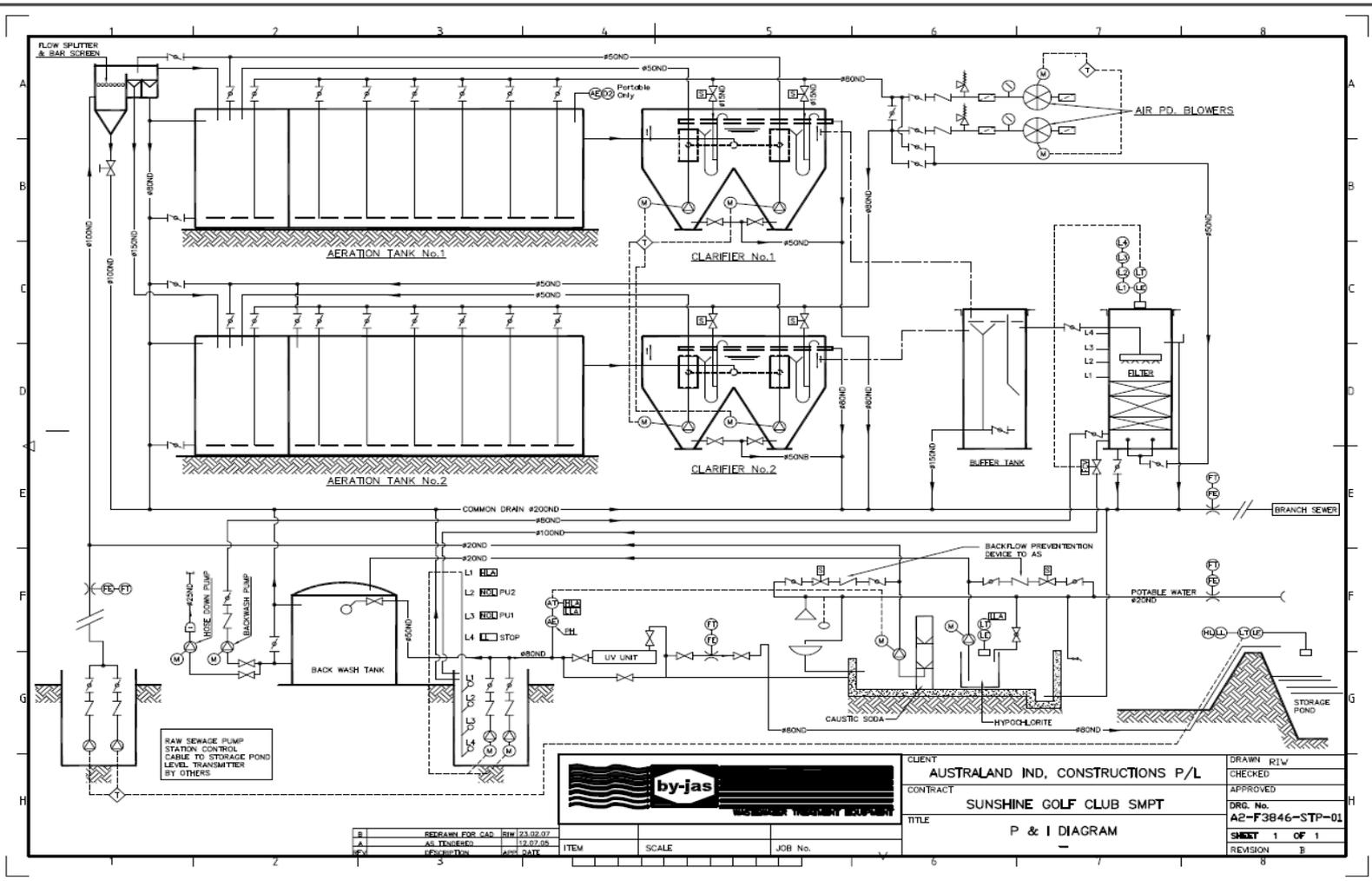
SGC Maintenance Costs



Sunshine Golf Course Treatment Plant



Sunshine Golf Course Treatment Plant



Tank & Diffuser inspections

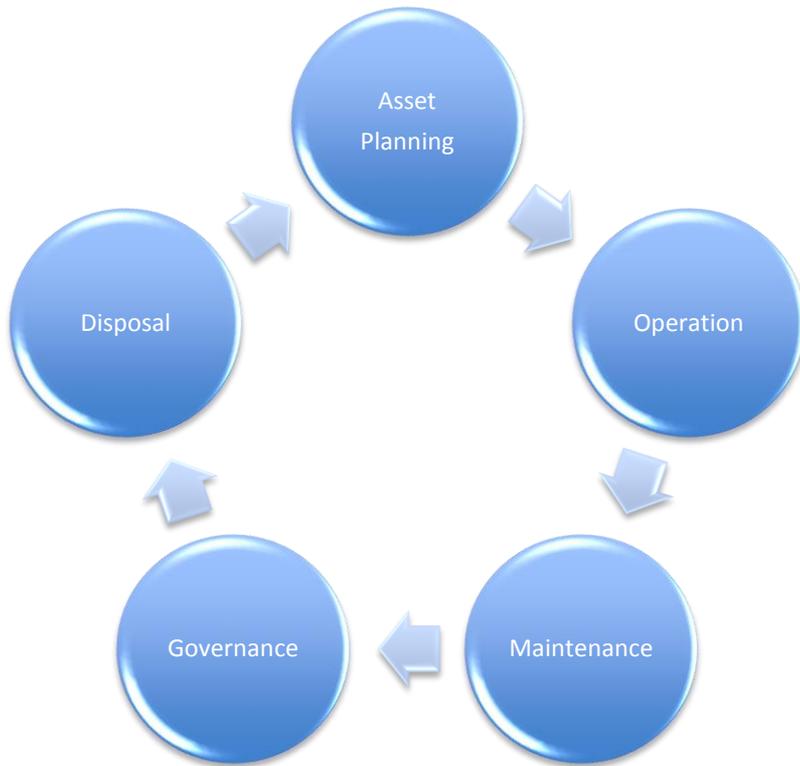




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Blower Maintenance



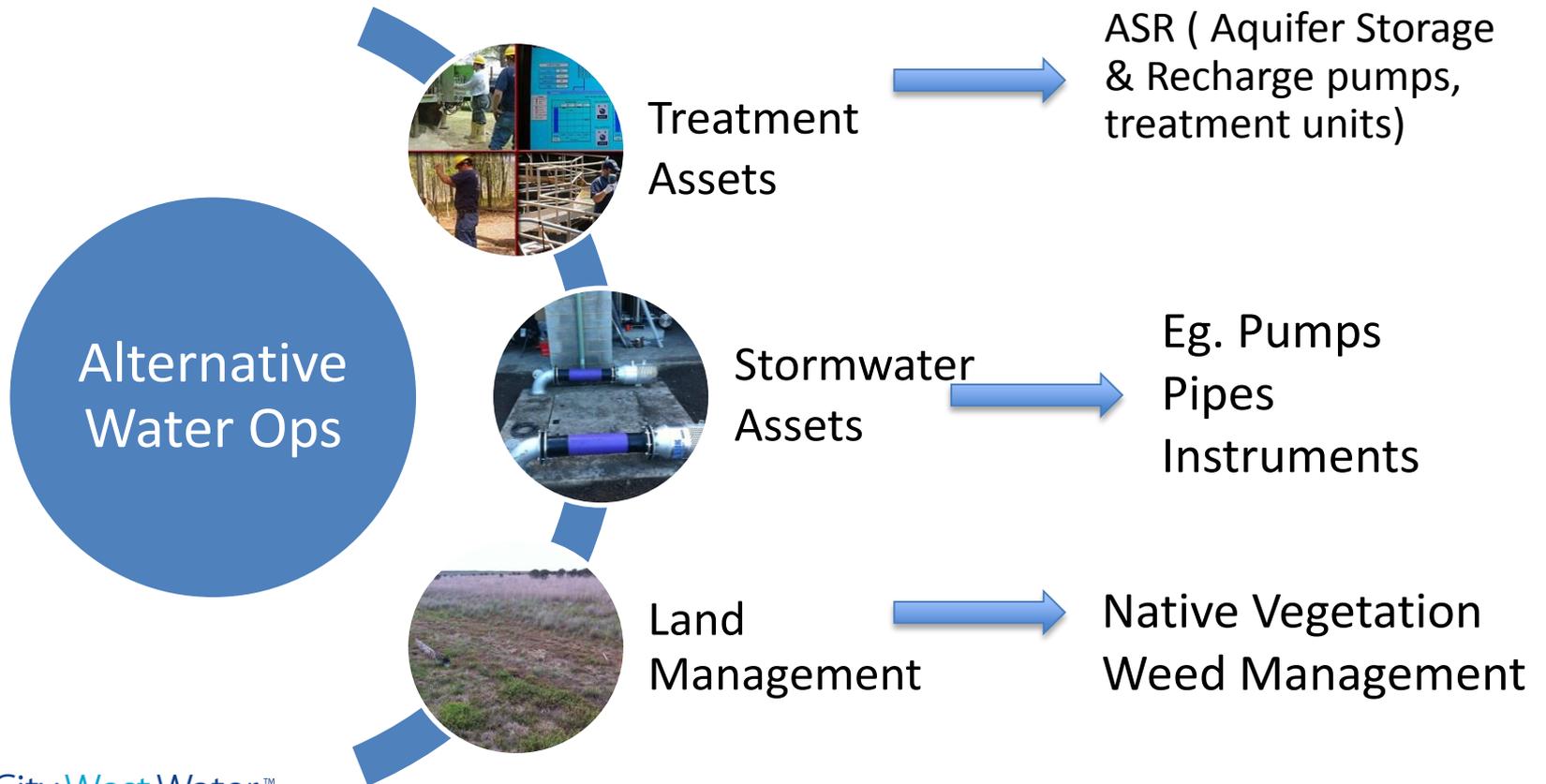
CCTV



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



Stormwater O&M Activities



Thank You



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