
SECTION 7: PROGRAM ACTIVITIES FOR ASSET MANAGEMENT

Per Paragraph 40 of the 2ACD, MSD was required to submit an Asset Management (AM) Plan to KEEC/EPA for review and joint approval by June 30, 2021. The Strategic Asset Management Plan was submitted on June 30, 2021 and is currently under review by KEEC/EPA. The unapproved document can be viewed on the MSD 2ACD website, msdprojectwin.org. Highlights of the AM program implementation are outlined below.

7.1. STRATEGIC ASSET MANAGEMENT PLAN

Per Paragraph 40, the AM program should provide a long-term maintenance and funding strategy for the rehabilitation and renewal of MSD's aging sewer system and WQTC infrastructure, including practices and procedures to ensure that planned maintenance can be conducted and capital assets can be repaired, replaced or upgraded on time with funding available to cover the costs. MSD developed a Strategic Asset Management Plan (SAMP) that, when approved, will be the primary document that guides MSD's efforts in the administration of asset management activities. It brings focus to the strategy for improved asset management, and provides the overarching framework for achieving the mission, strategic goals, and critical success factors of the AM Program, as described in the AM Program Charter. Rather than being an extensive manual of practice on AM, the SAMP is a concise framework that creates a consistent approach for all MSD divisions which operate and maintain the assets. The SAMP framework provides the "rule book" for how facility and system plans will be created and implemented to help meet the established service level expectations and other operational objectives at the lowest life cycle cost.

The SAMP serves several purposes:

- Provides a standardized approach for the overall AM framework and business rules across all facilities and systems.
- Provides information about the information systems where the asset inventory data are located.
- Provides criticality criteria to determine individual asset inspection, replacement, and rehabilitation rankings.
- Provides information on the established levels of service (LOS) and performance measures.
- Identifies condition assessment, operation and maintenance, and renewal and replacement strategies and techniques.
- Identifies currently known data requirements and program enhancements.
- Provides a framework for capital planning and decision making.

In addition to the SAMP, Tactical Asset Management Plans (TAMPs) will define activities at the facility level. An Implementation Plan, or AM Roadmap, defines the sequencing, scheduling, and prioritization of asset management program activities. The AM Roadmap includes prioritized SAMP improvement strategies recommended for the ultimate fulfillment of a successful AM program.

Per Paragraph 40.d., KEEC, EPA and MSD acknowledge that implementation of the SAMP will result in the plan becoming a dynamic document that will be updated over time with greater specificity regarding specific projects for rehabilitation. The SAMP will be reviewed annually, and any significant changes to the SAMP submitted on June 30, 2021 will be documented in subsequent 2ACD Annual Reports and the updated document will be posted on MSD's 2ACD website, msdprojectwin.org.

7.2. TACTICAL ASSET MANAGEMENT PLANS

In recognition of the fact that each facility and system owned and operated has specific assets, conditions, and requirements under which they are operated, the management of these facility and system assets are also governed by TAMPs. The TAMP structure is like that of the SAMP, but the TAMP describes the specifics for AM at a particular location or within a particular system and identifies actions that are being implemented to achieve the standards and goals listed in the SAMP.

As TAMPs are completed, sections will be added to subsequent 2ACD Annual Reports. The TAMPs will also be updated annually, and any significant changes to the TAMPs or progress updates will be documented in subsequent 2ACD Annual Reports.

7.2.1. MORRIS FORMAN WQTC TAMP

FY23 Reporting Period

- Completed refinement of physical asset inventory in IPS development environment.
- Continued development of buried asset registry.
- Began review of asset class plans and structured maintenance job plans.
- Developed first phase of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.

FY24 Reporting Period

- Finalize asset inventory refinement and move to IPS production.
- Continue development of buried asset registry.
- Continue review of asset class plans and structured maintenance job plans.
- Continue development of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.
- Begin review and refinement of asset rehabilitation and replacement recommendations based on condition assessment and available data.
- Begin review and digitization of asset document physical library (e.g., O&M manuals, shop drawings) to make readily available to staff and identify gaps.
- Begin design of problem / cause / remedy or failure coding strategy on asset work orders for improved rehabilitation & replacement workflow.
- Document interface development needs for improved workflows related to SCADA outputs, labor hours, and work scheduling.
- Implement condition assessment by equipment type in IPS.

7.2.2. PUMP STATIONS, FORCE MAINS, AND GATES (PSFMG) TAMP

FY23 Reporting Period

- Completed physical asset inventory, labeling, and condition assessment, and imported inventory into IPS development environment for refinement.
- Began review of asset class plans and structured maintenance job plans.
- Developed first phase of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.

FY24 Reporting Period

- Finalize asset inventory refinement and move to IPS production.
- Continue review of asset class plans and structured maintenance job plans.
- Continue development of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.
- Begin review and refinement of asset rehabilitation and replacement recommendations based on condition assessment and available data.
- Begin design of problem / cause / remedy or failure coding strategy on asset work orders for improved rehabilitation & replacement workflow.
- Document interface development needs for improved workflows related to SCADA outputs, labor hours, and work scheduling.
- Implement condition assessment by equipment type in IPS.

7.2.3. CEDAR CREEK WQTC TAMP

FY23 Reporting Period

- Completed TAMP development February 6, 2023. TAMP includes system overview; definitions of levels of service and performance measures to be developed; documentation of asset classes and hierarchy; documentation of critical processes/subprocesses and risk register; documentation of condition assessment methods; and documentation of renewal/replacement justification.
- Completed physical asset inventory, labeling, and condition assessment, and imported inventory into IPS development environment for refinement.
- Developed first phase of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.

FY24 Reporting Period

- Finalize asset inventory refinement and move to IPS production.
- Begin review of asset class plans and structured maintenance job plans.
- Continue development of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.
- Begin review and refinement of asset rehabilitation and replacement recommendations based on condition assessment and available data.
- Begin design of problem / cause / remedy or failure coding strategy on asset work orders for improved rehabilitation & replacement workflow.
- Document interface development needs for improved workflows related to SCADA outputs, labor hours, and work scheduling.
- Implement condition assessment by equipment type in IPS.

7.2.4. GRAVITY LINEAR TAMP

FY23 Reporting Period

- Completed TAMP development June 1, 2023. TAMP includes system overview; definitions of levels of service and performance measures to be developed; documentation of asset classes and hierarchy; documentation of critical assets and risk register; documentation of condition assessment methods; and documentation of renewal/replacement justification.

- Developed first phase of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.

FY24 Reporting Period

- Implement asset hierarchy updates.
- Begin review of asset class plans and structured maintenance job plans.
- Begin development of dashboards in Power BI to monitor asset inventory compliance, work documentation compliance, and levels of service/performance measure attainment.
- Begin design of problem / cause / remedy or failure coding strategy on asset work orders for improved rehabilitation & replacement workflow.
- Document interface development needs for improved workflows related to labor hours and work scheduling.

7.3. ASSET MANAGEMENT PROGRAM COSTS

Per Paragraph 40.e. of the 2ACD, MSD is required to spend a total of \$375M on AM projects by June 30, 2035. Eligible costs include work and/or services associated with planning, inspection, field testing, design, permitting, bidding, construction, commissioning (asset start-up), rehabilitation, replacement, and renewal of MSD’s Sewer System and WQTC infrastructure. Costs that are not eligible costs to be counted include work and/or services associated with asset management software, programming, financing, grant or loan applications, or annual operating budget line items (power, chemicals, labor, or services associated with preventative or corrective maintenance). Appendix N provides a list of actual costs spent on projects that meet the definition provided above for the current reporting period. Note that project spending is based on the date of expenditure, and may include projects with no spending during the reporting period. Any negative spend is associated with accruals from prior fiscal years and will be reconciled.

Cumulative tracking of asset management spending after June 30, 2020 is shown in Table 7.1. Per Paragraph 49 of the 2ACD, MSD is required to demonstrate a minimum level of spending every 5 years beginning with \$112.5M through FY25.

Table 7.1. Asset Management Program Costs - Current and Historic Reporting Periods

FISCAL YEAR	ACTUAL EXPENDITURES
FY21	\$21,130,281
FY22	\$35,960,568
FY23	\$52,370,329
Program Expenditures to Date	\$109,461,177

When reviewing the look-ahead for future asset management needs, the Admiral Way solution will be critical for SSO reductions and system Asset Management commitments. This budgeted solution will help mitigate capacity issues in the Fishpool Interceptor and address existing overflows at manholes 93703 and 93705 to a 2-year level of control. This project has also been reported in Appendix I as the Asset Management Program solution for resolving SSOs at these locations. The project is currently in design with spending to be reflected in the next reporting period’s Asset Management costs.

7.4. AM ACTIVITY SCHEDULE

A Gantt chart including progress of AM projects during the reporting period can be found in Figure 7.1.



Figure 7.1. Asset Management Schedule

Budget ID	Task Name	% Complete	Start	Finish	Qtr 3, 2022 Jul Aug Sep	Qtr 4, 2022 Oct Nov Dec	Qtr 1, 2023 Jan Feb Mar	Qtr 2, 2023 Apr May Jun
MSD Asset Management Annual Commitments Schedule 64%								
A14129	Gorham Way Pump Station Elimination	100%	Sun 3/29/09	Wed 10/2/30	[Gantt bar: Jul-Aug-Sep]			
A14129	CLOSEOUT	100%	Mon 8/3/09	Tue 11/15/22	[Gantt bar: Oct-Nov-Dec]			
A21241	26th Street Sewer Repair Emergency	100%	Thu 7/1/21	Tue 11/15/22	[Gantt bar: Jan-Feb-Mar]			
A21241	CLOSEOUT	100%	Thu 4/1/21	Sat 12/10/22	[Gantt bar: Apr-May-Jun]			
A22183	15th St Emergency Sewer Repair	85%	Tue 11/30/21	Sat 12/10/22	[Gantt bar: Jul-Aug-Sep]			
A22183	CONSTRUCTION	91%	Thu 3/3/22	Fri 10/13/23	[Gantt bar: Oct-Nov-Dec]			
A22195	PS Action Plan Evaluation	100%	Tue 3/8/22	Sat 9/30/23	[Gantt bar: Jan-Feb-Mar]			
A22195	SERVICE PERIOD	100%	Fri 4/8/22	Mon 10/31/22	[Gantt bar: Apr-May-Jun]			
A22195	CLOSEOUT	100%	Fri 5/6/22	Sat 10/1/22	[Gantt bar: Jul-Aug-Sep]			
A23070	I&I Rehabilitation and PSC Program Support	100%	Sat 10/1/22	Mon 10/31/22	[Gantt bar: Oct-Nov-Dec]			
A23070	INITIATION & PROCUREMENT	100%	Fri 7/1/22	Mon 10/31/22	[Gantt bar: Jan-Feb-Mar]			
A23070	SERVICE PERIOD	100%	Fri 7/1/22	Mon 10/31/22	[Gantt bar: Apr-May-Jun]			
A23070	CLOSEOUT	100%	Mon 10/31/22	Fri 6/30/23	[Gantt bar: Jul-Aug-Sep]			
A23211	Concrete Repairs at DRG Dewatering Bldg	6%	Fri 6/30/23	Fri 9/1/23	[Gantt bar: Oct-Nov-Dec]			
A23211	INITIATION & PROCUREMENT	100%	Thu 6/1/23	Sun 10/20/24	[Gantt bar: Jan-Feb-Mar]			
A23219	Cedar Forest PS Elimination Excess Cost	100%	Thu 6/1/23	Mon 7/3/23	[Gantt bar: Apr-May-Jun]			
A23219	INITIATION & PROCUREMENT	100%	Mon 5/1/23	Thu 5/25/23	[Gantt bar: Jul-Aug-Sep]			
A23219	DESIGN	100%	Mon 5/1/23	Mon 5/15/23	[Gantt bar: Oct-Nov-Dec]			
A23219	CLOSEOUT	100%	Mon 5/15/23	Thu 5/25/23	[Gantt bar: Jan-Feb-Mar]			
C22028	Lower Floyds Fork Facilities Plan	86%	Thu 5/25/23	Thu 5/25/23	[Gantt bar: Apr-May-Jun]			
C22028	SERVICE PERIOD	89%	Thu 7/1/21	Sun 12/31/23	[Gantt bar: Jul-Aug-Sep]			
D15024	MFWQTC Chiller Replacement	100%	Wed 9/1/21	Fri 12/1/23	[Gantt bar: Oct-Nov-Dec]			
D15024	CLOSEOUT	100%	Fri 4/27/18	Thu 11/24/22	[Gantt bar: Jan-Feb-Mar]			
D18090	CCWQTC Solids Dewatering Facility	18%	Sat 8/21/21	Thu 11/24/22	[Gantt bar: Apr-May-Jun]			
D18090	INITIATION & PROCUREMENT	100%	Thu 12/1/22	Fri 4/7/28	[Gantt bar: Jul-Aug-Sep]			
D18090	DESIGN	19%	Thu 12/1/22	Tue 5/9/23	[Gantt bar: Oct-Nov-Dec]			
D18132	DRGWQTC WWWS & WWSB Rehabilitation	26%	Tue 5/9/23	Tue 3/18/25	[Gantt bar: Jan-Feb-Mar]			
D18132	DESIGN	100%	Wed 9/1/21	Tue 9/14/27	[Gantt bar: Apr-May-Jun]			
D18132	CONSTRUCTION	7%	Tue 12/21/21	Fri 6/16/23	[Gantt bar: Jul-Aug-Sep]			
D18132	CONSTRUCTION	7%	Sat 6/17/23	Wed 7/15/26	[Gantt bar: Oct-Nov-Dec]			

Data Date: 8/2/23 CD - \$25M AM Project Progress Project Line Project Line

Percent complete is calculated based on phase duration.



Figure 7.1. Asset Management Schedule

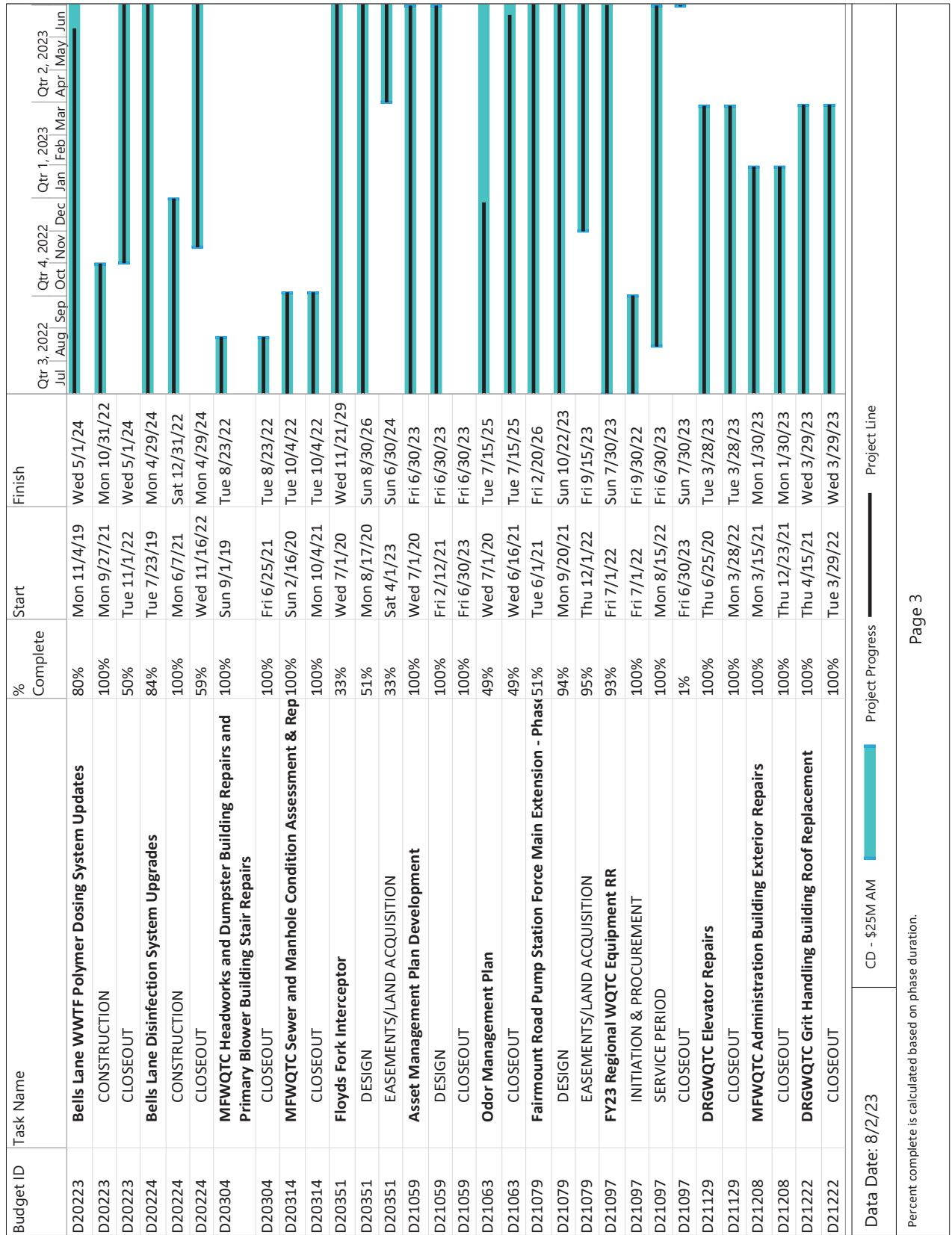




Figure 7.1. Asset Management Schedule

Budget ID	Task Name	% Complete	Start	Finish	Qtr 3, 2022 Jul	Qtr 3, 2022 Aug	Qtr 3, 2022 Sep	Qtr 4, 2022 Oct	Qtr 4, 2022 Nov	Qtr 4, 2022 Dec	Qtr 1, 2023 Jan	Qtr 1, 2023 Feb	Qtr 1, 2023 Mar	Qtr 2, 2023 Apr	Qtr 2, 2023 May	Qtr 2, 2023 Jun	
D23194	MFWQTC Emergency Elevator Project	27%	Mon 5/1/23	Tue 7/30/24													
D23194	INITIATION & PROCUREMENT	100%	Mon 5/1/23	Mon 5/1/23													
D23194	DESIGN	100%	Mon 5/1/23	Mon 5/1/23													
D23194	CONSTRUCTION	29%	Mon 5/1/23	Sun 6/30/24													
E15035	Lake Forest Pump Station Eliminations	59%	Mon 7/5/21	Thu 2/19/26													
E15035	DESIGN	95%	Thu 12/2/21	Tue 11/21/23													
E15035	EASEMENTS/LAND ACQUISITION	94%	Thu 12/2/21	Fri 10/13/23													
E18094	FY23 CMOM Infrastructure Rehabilitation Program	100%	Fri 7/1/22	Wed 8/30/23													
E18094	INITIATION & PROCUREMENT	100%	Fri 7/1/22	Wed 7/6/22													
E18094	SERVICE PERIOD	100%	Mon 8/8/22	Fri 6/30/23													
E18094	CLOSEOUT	100%	Fri 6/30/23	Wed 8/30/23													
E18470	FY23 CMOM Collection System Pump Rehab & Replacements	100%	Fri 7/1/22	Fri 6/30/23													
E18470	INITIATION & PROCUREMENT	100%	Fri 7/1/22	Tue 9/20/22													
E18470	SERVICE PERIOD	100%	Tue 9/20/22	Wed 5/31/23													
E18470	CLOSEOUT	100%	Wed 5/31/23	Fri 6/30/23													
E19213	FY22 Operations Renewal and Replacement	100%	Thu 7/1/21	Tue 1/24/23													
E19213	CLOSEOUT	100%	Sun 8/1/21	Tue 1/24/23													
E21062	Modesto Pump Station Elimination	56%	Thu 6/3/21	Thu 8/29/24													
E21062	DESIGN	100%	Sun 8/1/21	Thu 12/22/22													
E21062	CONSTRUCTION	100%	Tue 2/14/23	Tue 5/30/23													
E21062	CLOSEOUT	18%	Wed 5/31/23	Thu 8/29/24													
E21066	Pirogue Court Pump Station Elimination	31%	Thu 6/3/21	Mon 11/15/27													
E21066	DESIGN	45%	Fri 10/1/21	Tue 9/30/25													
E21070	Rosa Terrace PS Elimination	68%	Wed 7/1/20	Fri 9/20/24													
E21070	CONSTRUCTION	99%	Wed 3/16/22	Sun 7/23/23													
E21071	Wathen Lane PS Rehabilitation	54%	Wed 7/1/20	Wed 2/25/26													
E21071	CONSTRUCTION	87%	Mon 5/2/22	Wed 11/15/23													
E21090	Sonne Avenue PS Elimination	77%	Wed 7/1/20	Wed 6/19/24													
E21090	CONSTRUCTION	100%	Mon 3/7/22	Fri 4/21/23													
E21090	CLOSEOUT	37%	Sat 4/22/23	Wed 6/19/24													
E21091	Sanders Lane PS Rehabilitation	70%	Wed 7/1/20	Wed 11/27/24													
E21091	CONSTRUCTION	94%	Mon 5/16/22	Sat 9/30/23													
Data Date: 8/2/23					Project Progress												Project Line
					CD - \$25M AM												

Percent complete is calculated based on phase duration.



Figure 7.1. Asset Management Schedule

