

Mission Services Planning

REACTIVE PROACTIVE PRESCRIPTIVE

End-State Integrated Plan

Front-End Infrastructure Interfaces	
Supplier	Input
<ul style="list-style-type: none"> WRPS CHPRC PNNL DOE RL DOE ORP BPA HMIS I&SS HMIS Engineering Site Integration WDOH WDOE 	<ul style="list-style-type: none"> DOE Funding (DOE RL) Forecasts System Health Reports HMIS inspections Integrated Priority List (DOE & OHCs) OHC priority adjustments Real-time field data Vulnerability/Threat Assessment Risk analysis Regulatory compliance data

People	Embedded Engineers and Analysts	NEPA and Other Regulatory Specialists	Strategic Planning Specialists Portfolio Management Specialists	
Tools	<ul style="list-style-type: none"> Health Monitoring System – System Health Report Benefit: Accurate aggregate system view, highlights areas for improvement Hivemapper – 3D visualization – Persistent change detection Benefit: Improve real time situational awareness 	<ul style="list-style-type: none"> ESRI ArcGIS – Facilitates records and design Benefit: Accurate facility footprint, coordination of operations NCI SHAI™ – Machine Learning/AI process Benefit: Work process optimization yields action from data 	<ul style="list-style-type: none"> Autonomous Mobile Sensors – UAVs, pipe crawler, sat image, cameras, thermovision, corona Benefit: near real-time updates; lower error rates Veolia Water & Sewer Analytics Suite – O&M analytics – Maintaining properly – Operational assessment – Operating correctly – Asset Management analytics – Component lifecycle analysis Benefit: Analytics driven efficiencies 	<ul style="list-style-type: none"> COGS – Define program operational range for financial optimization Benefit: Focus on optimizing cost of operation
Process	<p>MASTER PLANNING PROCESS</p> <p>Conduct Conditional Assessment → Conduct Detailed Study → Develop Alternative Plan Comparison → Prioritize Projects → Prepare Comprehensive Utility Master Plan</p> <p>Purpose: Identify Current Needs Identify future needs Facilitate preferred plan selection Prioritize spending Achieve Hanford Mission</p> <p>Benefit: Demonstrates infrastructure requirements to assure safe and reliable operations Demonstrates requirements to meet future reliability capability and service quality objectives Enables selection of a preferred plan that optimizes system efficiency and investment Ensures most important projects are funded soonest Assures smart, safe, reliable and robust infrastructure for 20 year planning horizon</p>			

Plan Output	End-User
<ul style="list-style-type: none"> Master Plan (Utility) ISAP Funding adjustments Reliability Projects Strategic permitting Aligned daily activity to Master Plan 	<ul style="list-style-type: none"> DOE RL DOE ORP TOC CPCC DFLAW/WTP HMIS I&SS Group Project Managers Portfolio Management

AS IS
<ul style="list-style-type: none"> Utility System State Estimation required due to lack of real-time sensors resulting in reduced planning accuracy Manual inspections with inherently human error required to perform system change detection. Results in modest site situational awareness which yields un-optimized planning Planning "what if" scenarios performed by humans, resulting in limited scenarios based on engineering resources. Decreasing load requirements driven by clean-up footprint reduction Discrete utility planning (electrical, water, sewer, road) data sets require collection, correlation and combination prior to creating site-wide utility plans.

Focus	Electrical Planning	Water Planning	Sewer Planning
DFLAW	<ul style="list-style-type: none"> 230 kV transmission reconditioning Distribution refurbishments Upgrade distribution/transmission access roads Single-credit DistPole replacement 	<ul style="list-style-type: none"> 200 area water treatment plant Replace 200W 1.1 M-Gallon PW Tank Replace 12" potable water line 12" potable water loop - WTP 	<ul style="list-style-type: none"> 200E sewer flow equalization facility 200E sewer consolidation
Broader Site	<ul style="list-style-type: none"> Update and modernize Footprint reduction 	<ul style="list-style-type: none"> Metering/SCADA/Sensor modernization Reliability 	<ul style="list-style-type: none"> Change detection System health IT/ICS/SCADA convergence Mobility Data & Analytics Fiber

TO BE
<ul style="list-style-type: none"> Real-time system sensors minimizes necessity of Utility State Estimation yielding more accurate planning Automated change detection performed in near real-time yielding more accurate system conditions, which improves planning results Planning "what if" scenarios generated using machine learning combined with engineering oversight. Provides faster, more accurate and greater number of scenarios to optimize planning. Increasing localized load requirements due to Central Plateau ramp-up in conjunction with continuing site clean-up Enterprise data integration streamlines planning process and reduce error introduced in manual data consolidation process

