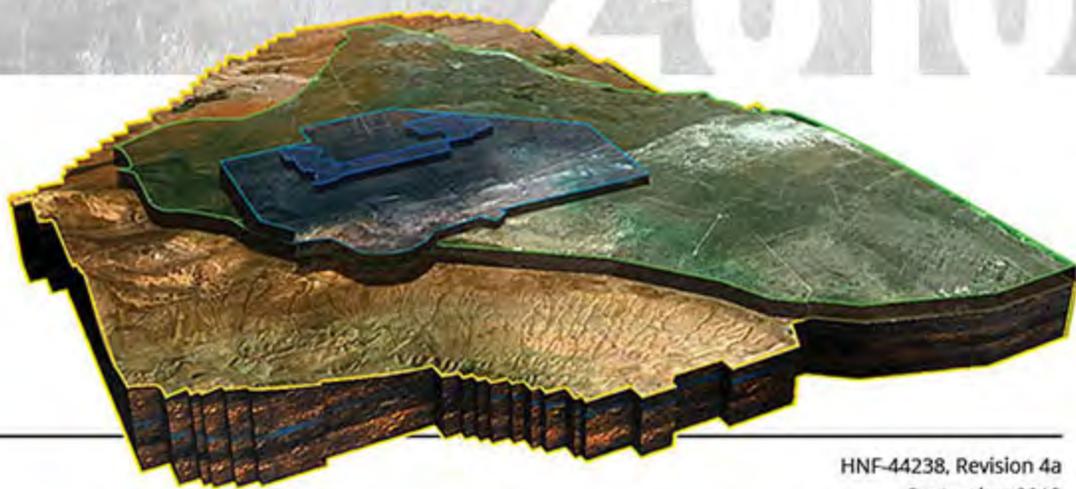




# Infrastructure & Services Alignment Plan

2013



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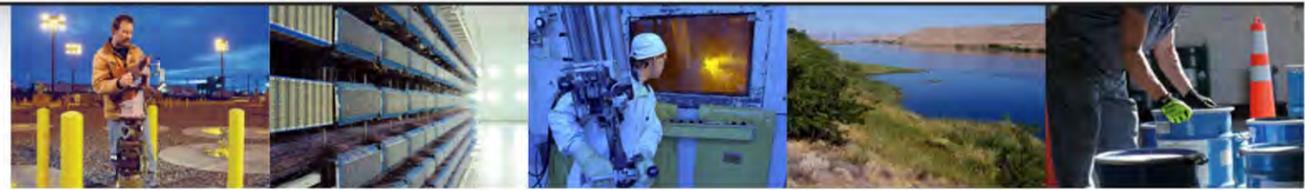
# Reliable Service and Needed Capacity for Reduced Cost at Hanford



Over the past four years significant progress has been made by Hanford contractors in realizing the 2015 Vision allowing the Hanford active cleanup landscape to focus on the Central Plateau and the River Protection Project, made up of the 200E and 200W Tank Farms and the Waste Treatment Plant (WTP).

The 2013 Infrastructure and Services Alignment Plan reflects this changing landscape by defining the future states of the infrastructure to support the mission requirements and identifying the scope and timing of the key activities needed to reach those future states.

It works in conjunction with baseline operations and maintenance of the infrastructure to assure that reliable, on time and cost effective services are provided at the required capacities for the Hanford stakeholders.



## SEWER: Protect

System modifications are predominately influenced by population changes on the Central Plateau coupled with degraded conditions of several drain fields needed for long term mission requirements. While short-term mitigation strategies are in place to pump the failing drain fields, as needed, long term projects have been defined to eliminate the workarounds:

- ▶ Install pumping systems to route septage from the failing W-1 and W-16 drain fields to the 200W sewer lagoon and abandon the drain fields
- ▶ Replace the failing E-12 drain field in 200E to support long-term tank farm needs

## ROADS: Right-size

Transformation of the Hanford road system is characterized by completion of the river corridor cleanup and the focus of resources on the arterial and core roads serving the Central Plateau. This strategy will eliminate maintenance costs associated with a significant portion of the 100 Area roads while establishing restricted access. Key activities include:

- ▶ Apply asphalt overlays of arterial access roads to the Central Plateau (Rte 3, Rte 4S, and Rte 11A west of 200 East)
- ▶ Widening and overlay of several Central Plateau core roads for safety improvements (Dayton Ave, Akron Ave, 12th Street, and 23rd Street)
- ▶ Chip seal repairs to Central Plateau core roads
- ▶ Establish restricted access program for non-maintained roads

## HAMMER: Serve

While HAMMER's future remains rooted in its mission to serve the training needs of Hanford personnel, it is also being driven by business development opportunities with other stakeholders and the need to improve and modernize the training environment to sustain high quality training. Key areas of focus over the next 5-10 years include:

- ▶ Establish long-term business partnerships with other federal agencies and support existing agency agreements with federal and non-federal customers
- ▶ Maintain core business of training the Hanford Site workers
- ▶ Invest in upgrades to curriculum, facilities and technology to improve quality of training
- ▶ Develop strategies for supporting future training needs of the WTP



## SAFEGUARDS & SECURITY/PATROL: Protect

The posture of the site security program will continue to be driven by the need to protect against theft of special nuclear material and unauthorized access to facilities and classified information. While those requirements will remain effectively unchanged over the planning period, land transfers and aging facilities at the Patrol Training Academy need to be addressed.

- ▶ Replace the weapons cleaning trailer
- ▶ Upgrade Buildings 662 and 662A (Patrol Training Academy classrooms)
- ▶ Relocate Range 10 to support land transfer to TRIDEC or Port District



## WATER: Modernize

### Raw/Export

Modifications and maintenance to the site export and raw water distribution systems are strongly influenced by the need for reliable raw water delivery to the Central Plateau for fire protection and process cooling water to the River Protection Project facilities (e.g., 242-A Evaporator; Low Activity Waste facility). Long-term projects are also defined for right-sizing the export water system while taking advantage of variable speed pumping technology for energy savings.

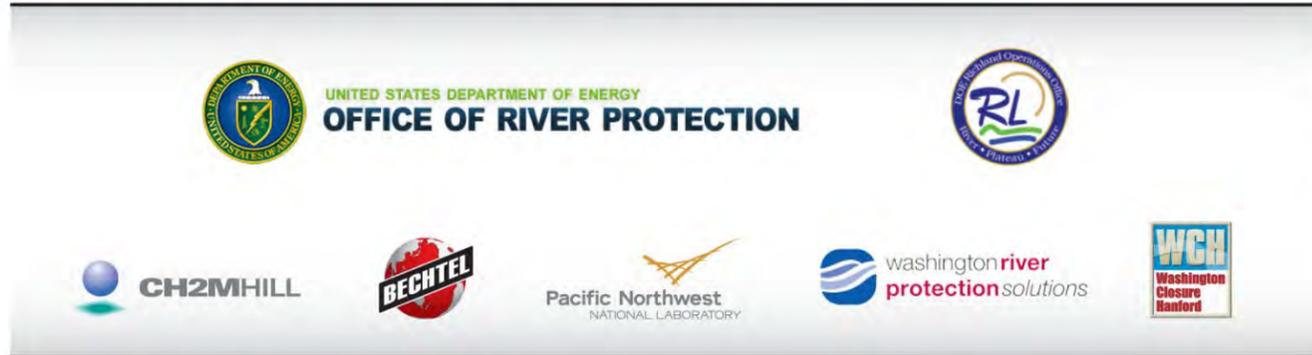
- ▶ Refurbish/replace aging export water supply lines to maintain high reliability of export water to the Central Plateau
- ▶ Refurbish/replace aging raw water supply lines at A Tank Farm, T-Plant, and Effluent Treatment Facility
- ▶ Eliminate the 100D and 100B export water reservoir facilities and upgrade the pumping system to the Central Plateau
- ▶ Implement improvements to the preventative and predictive maintenance program that focuses resources on critical system components needed for continuity of water delivery

### Potable

While capacity of the potable water system on the Central Plateau appears to be adequate to support the future mission needs of the WTP, the safety and reliability requirements of the drinking water supply are driving several key projects:

- ▶ Install a redundant filter backwash pump at the 200W Water Treatment Plant to eliminate a single point vulnerability, and prevent a shutdown
- ▶ Replace the existing chlorine gas injection system with a liquid sodium hypochlorite injection system to eliminate the risks and associated costs with storing and handling chlorine gas
- ▶ Install 200W Water Treatment Plant improvements to include system control valves, monitoring instrumentation, PLC software, and the alum mixing system
- ▶ Refurbish/replace aging potable water supply lines at 222-S Lab, B Plant, Waste Receiving and Processing (WRAP), 2101M warehouse, and the 200E/W cross-tie

# Reliable Service and Needed Capacity for Reduced Cost at Hanford



## WASTE SAMPLING AND CHARACTERIZATION FACILITY: Modernize

Modernization of the WSCF laboratory complex is needed by FY 2020 to continue to provide ready-to-serve analytical laboratory services including low-level radiological samples in support of the Hanford Mission, including increased levels expected.

- ▶ HVAC controls system upgrades required for basic facility reliability
- ▶ Electrical distribution and HVAC hardware system upgrades
- ▶ Transition to an existing Sitewide software platform commonly used for work order process tracking by other major systems
- ▶ Consolidation of Laboratory Information Management Systems

## FIRE/EMERGENCY SERVICES: Protect

The emergency services planning horizon is driven by changes in site demographics and aging facilities and systems.

- ▶ Replace the Radio Fire Alert and Reporting (RFAR) system to address aging and obsolescence issues
- ▶ Upgrade the Hanford emergency siren system
- ▶ Migrate to a Central Dispatching emergency response system
- ▶ Upgrade Station 92 (between 200E and 200W) and construct new vehicle storage building to consolidate personnel and equipment from the 100 Area and 300 Area stations
- ▶ Construct new fire station to support WTP operations and eliminate the 400 Area fire station

## FACILITIES: Modernize

The transformation of facilities across the site is being driven by multiple factors including demographic shifts, energy savings initiatives, facility aging, and consolidation. With facilities aging, routine building maintenance will be supplemented to address significant roof and HVAC replacements. Other key projects include:

- ▶ Relocation of Biological Controls and Fire Systems Maintenance into new or repurposed facilities
- ▶ Installation of electric vehicle charging stations in 200E to support electric vehicle fleet expansion
- ▶ Renovation and expansion of the 200E Vehicle Fleet Maintenance Shop
- ▶ Consolidation of warehousing activities

## INFORMATION TECHNOLOGY: Integrate

IT infrastructure continues to be fueled by technology advances and the need for more accessibility of electronic information across organizations supporting the Hanford missions. Cyber security threats and capacity are also driving changes in the IT arena over the next decade. Key activities include:

- ▶ Upgrades to network hardware to address cyber security requirements and new internet protocols
- ▶ Consolidation from 29 to 11 IT facilities to shrink the footprint, improve services delivery and reduce operating costs
- ▶ Leveraging Hanford Federal Cloud hosted applications for OHCs as well as across the EM Complex to maximize use of DOE investments
- ▶ Deploy Thin Client workstations to lower life cycle costs, reduce power consumption, advance solutions delivery and strengthen cyber security posture
- ▶ Continue expansion and commercialization of broadband wireless services to support mobilization of workforce leveraging tablet/iPad platforms

## ELECTRICAL: Transform

The Hanford electrical distribution system will continue to shrink in response to cleanup completion while customer requirements on the Central Plateau will drive system upgrades for capacity and reliability. Projects and programs to support these changes include:

- ▶ Upgrade the current capacity of the 200 Area substation to support forecasted infrastructure loads at the Tank Farms
- ▶ Increase capacity and balance loads on 200E 13.8kV distribution lines to support new loads within the Tank Farms
- ▶ Transfer all 300 area electrical services to City of Richland
- ▶ Eliminate one of the two southern area substations as loads continue to decrease from cleanup efforts
- ▶ Execute a prioritized program to replace the site's aging power poles to assure continued high availability of power to operating facilities
- ▶ Deactivate the A9 substation as 100K Area cleanup is completed

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## ACRONYMS AND ABBREVIATIONS

ADT	Annual Daily Traffic
AFS	<i>Annual Forecast of Services</i>
AIHA-LAP	American Industrial Hygiene Association – Laboratory Accreditation Program
BNI	Bechtel National Inc.
BPA	Bonneville Power Administration
BTU	British Thermal Unit
CBAG	Contract Baseline Alignment Guide
CD	Critical Decision
CERCLA	<i>Comprehensive Environmental Response, Compensation &amp; Liability Act of 1980</i>
CFR	Code of Federal Regulations
CGS	Columbia Generating Station
CHPRC	CH2M HILL Plateau Remediation Company
CLUP	<i>Hanford Comprehensive Land Use Plan Environmental Impact Statement</i>
CPIC	Capital Planning Investment Control
CRD	Contract Requirements Document
CRO	Community Reuse Organization
D&D	deactivation and decommissioning
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy, Headquarters
EA	Environmental Assessment
EIS	Environmental Impact Statement
EM	U.S. Department of Energy, Office of Environmental Management
EMS	Emergency Management System
ENW	Energy Northwest
EOC	Emergency Operations Center
EPAct 2005	<i>Energy Policy Act of 2005</i>
EPZ	Emergency Planning Zone
ESM	Energy Savings Measures
ESPC	Energy Savings Performance Contract
EVOC	Emergency Vehicle Obstacle Course
EZAC	Employee Zero Accident Council
FEC	Federal Electronics Challenge
FERC	Federal Energy Regulatory Commission
FFTF	Fast Flux Test Facility
FIMS	Facilities Information Management System
FMP	Facility Master Plan
FONSI	Finding Of No Significant Impact
FY	Fiscal Year
GIS	Geographic Information System
GHG	greenhouse gas
gross ft <sup>2</sup>	gross square feet
HAMMER	Volpentest Hazardous Materials Management and Emergency Response Education and Training Center
HASQARD	Hanford Analytical Services Quality Assurance Requirements
HFcloud	Hanford Federal Cloud
HFD	Hanford Fire Department
HPSB	<i>High Performance and Sustainable Buildings Plan</i>

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HSPD-12	<i>Homeland Security Presidential Directive 12</i>
HSSP	<i>Hanford Site Sustainability Plan</i>
HVAC	heating, ventilation, and air conditioning
ICD	Interface Control Document
IEEE	Institute of Electrical and Electronics Engineers
ILM	Integrated Land Management
IRPPL	Infrastructure Reliability Project Priority List
ISAP	Infrastructure and Services Alignment Plan
ISMS	Integrated Safety Management System
ISS	Interim Safe Storage
IT	Information Technology
IVDTS	Integrated Voice and Data Telecommunication System
IVM	integrated vegetation management
kV	Kilovolt
LAW	Low-Activity Waste
LEED	Leadership in Energy and Environmental Design
LIGO	Laser Interferometer Gravitational Wave Observation
LIMS	Laboratory Information Management System
LTS	Long-Term Stewardship
mi <sup>2</sup>	square miles
M&O	Maintenance & Operations
MASF	Maintenance and Storage Facility
MO	Mobile Office
MSA	Mission Support Alliance, LLC
MSC	Mission Support Contract
MW	Megawatt
N/A	Not Applicable
NEPA	<i>National Environmental Policy Act</i>
NERC	North American Electric Reliability Corporation
NFPA	National Fire Protection Association
NHPA	<i>National Historic Preservation Act</i>
NPS	National Parks Service
NRDA	Natural Resource Damage Assessment
NTC	National Training Center
OHC	Other Hanford Contractor
OMB	U.S. Governments Office of Management and Budget
ORP	U.S. Department of Energy, Office of River Protection
PCB	Polychlorinated Biphenyl
PfM	Portfolio Management
PIV1	Personal Identity Verification
PNNL	Pacific Northwest National Laboratory
PNSO	U.S. Department of Energy, Pacific Northwest Site Office
PPD	<i>Mission Support Planning Process Description</i>
PPI	Project Planning and Integration
PTA	Patrol Training Academy
PV	Photovoltaic
RFAR	Radio Fire Alert Reporting
RL	U.S. Department of Energy, Richland Operations Office
RW	Raw Water
SMR	Small Modular Reactor

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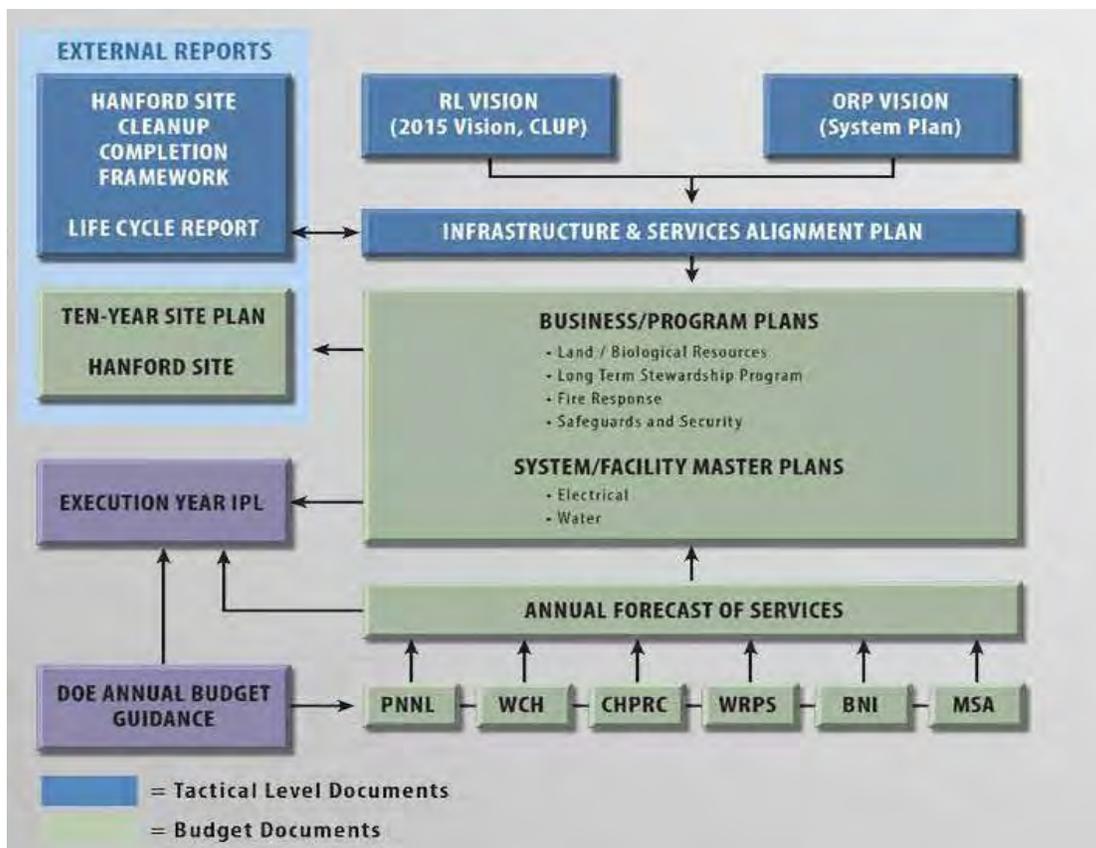
SOV	Single Occupancy Vehicle
SOW	statement of work
SSC	system, structure, and component
S&M	surveillance and maintenance
TOC	Tank Operations Contract
TRIDEC	Tri-City Development Council
TTP	Transition and Turnover Package
TYSP	<i>Hanford Ten-Year Site Plan</i>
UESC	Utility Energy Services Contract
UGB	Urban Growth Boundary
USFWS	U.S. Fish and Wildlife Service
VoIP	Voice over Internet Protocol
VPP	Voluntary Protection Program
WCH	Washington Closure Hanford
WDOH	Washington State Department of Health
WECC	Western Electricity Coordinating Council
WiMax	Worldwide Interoperability for Microwave Access
WRPS	Washington River Protection Solutions, LLC
WSCF	Waste Sampling and Characterization Facility
WTP	Waste Treatment and Immobilization Plant

## 1.0 INTRODUCTION TO THE INFRASTRUCTURE AND SERVICES ALIGNMENT PLAN (ISAP)

**Vision Statement:** *The Infrastructure and Services Alignment Plan (ISAP) is a collaborative, structured mission support planning process, resulting in a strategic blueprint that is capable of supporting decision making for achieving the defined Hanford Cleanup Mission end states for fiscal year (FY)2020.*

The ISAP, developed by Mission Support Alliance, LLC (MSA), is a strategic-level planning document, supported by planning information, reflecting programs and projects linked to mission needs for the U.S. Department of Energy (DOE), Richland Operations Office (RL), the DOE Office of River Protection (ORP), and Other Hanford Contractors (OHCs). The ISAP integrates RL and ORP planning parameters and several vision implementation documents, including area-wide plans, master plans, and project plans. ISAP’s central role in the infrastructure planning process for the Hanford cleanup mission is described in detail in the *Mission Support Planning Process Description (PPD)* (MSC-GD-54665) and illustrated in Figure 1-1. The documents that are most influential to the ISAP include the *Hanford Comprehensive Land Use Plan Environmental Impact Statement (CLUP)* (DOE/EIS-0222-F), *Hanford Site Cleanup Completion Framework* (DOE/RL-2009-10), *2013 Hanford Lifecycle Scope, Schedule and Cost Report* (DOE/RL-2012-13), and the *Annual Forecast of Services (AFS)*.

**Figure 1-1. Major Planning Documents**



Additionally, Pacific Northwest National Laboratory (PNNL) and the DOE-Pacific Northwest Site Office (DOE-PNSO) implement the DOE primary science mission at the Hanford Site in the 300 Area. PNNL provided three planning documents and site maps in FY2013, which may be included in the FY2014 ISAP annual update.

The ISAP is a collaborative structured planning document that includes current envisioned end states aligned with mission needs, planning information for achieving those end states, and summaries of current system attributes. Where gaps exist between infrastructure capabilities and cleanup mission needs, actions or strategies are defined to close or mitigate the gaps. These actions and strategies range from programmatic changes for like replacements to innovative solutions applying up-to-date technologies. When cleanup mission needs are not yet fully defined, ISAP identifies where decisions are needed to support future infrastructure planning.

### **1.1 ISAP PLANNING PROCESS**

ISAP consists of four development planning phases (Figure 1-2) that include inventory, synthesis, conceptual, and draft and final.

**Phase A, Inventory.** ISAP integrates RL and ORP vision statements and planning parameters, along with OHCs performance goals. Other requirements that influence the ISAP include Federal, State, Tribal regulations, and DOE directives. Appendix A identifies over 100 feeder documents that were included in the ISAP process.

**Phase B, Synthesis.** During synthesis, data collected during the inventory phase is evaluated. The outcome is the identification of gaps in the current state infrastructure, meeting the needs of the Hanford Site program, as defined in the end states for the respective.

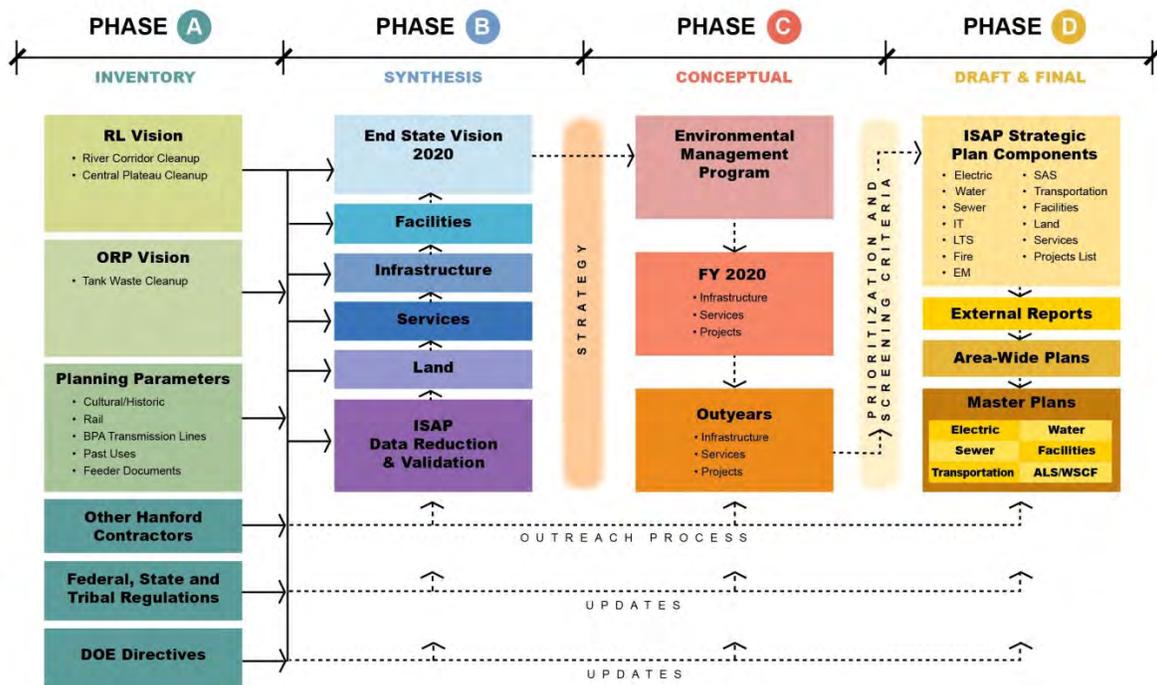
**Phase C, Conceptual.** The conceptual phase applies the strategies and validates applicability for meeting the gaps. In addition, the conceptual phase encompasses related factors (sustainability, environmental, funds, technology, cost savings) that could impact or shape the path forward.

**Phase D, Draft & Final.** This includes the document production, stakeholder comment resolution, and final submittal.

### **1.2 ISAP ANNUAL PROCESS**

Major events of the annual planning calendar are depicted in Figure 1-3. The planning calendar is broken up into three trimesters. The first trimester focuses on the collection of data through meetings with RL, ORP, OHCs, and other organizations. The second trimester emphasizes developing a system gap summary based on the analyses of the data collected. The attributes and end states are also updated in the second trimester using input from the system leads. The third trimester combines the information discovered in the previous two trimesters, resulting in the final ISAP for FY2013.

Figure 1-2. ISAP Development Phases



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Figure 1-3. Planning Chronology



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## 2.0 DRIVERS TO THE FY2020 END STATE

During the synthesis and conceptual phases of the ISAP, key drivers and assumptions were captured. These phases laid the foundation for defining the FY2020 infrastructure system and identified program end states and attributes required to support the Hanford Site missions. This resulted in the identification of critical gaps between the current state of the infrastructure and the FY2020 end state. These gaps represent the more significant risks associated with achieving cleanup mission goals.

### 2.1 DRIVERS THAT IMPACT ISAP

**Assumptions:** Planning for the future requires considering both change and continuity. Most of the ISAP effort focuses on the changes to Hanford Site infrastructure. Assumptions made in preparing the ISAP are as follows:

- The ISAP is based on current Mission Support Contract (MSC) requirements, including federal regulations, executive orders, DOE directives, etc. Impacts associated with new requirements will be determined as they are incorporated into the contract.
- OHC technical resources will be available to support evaluations and engineering analyses as new infrastructure and service requirements are identified.
- Emergency management planning is based on the assumption that no changes will be made to the Hanford Site boundary and no new increases of significant inventories or operations involving hazardous material will occur.
- Hanford's legacy ownership footprint is 586 square miles (mi<sup>2</sup>); however, the operational site footprint will be moving towards RL's reduced footprint goal of 10 mi<sup>2</sup> by FY2020.
- No new security interests will be identified at the Hanford Site or brought onsite; CH2M HILL Plateau Remediation Company (CHPRC) will declassify drums at the trench.
- OHC's infrastructure and service requirements will be documented and provided to MSA, allowing sufficient time for implementation in order to minimize interference with their cleanup activities.
- Low-Activity Waste Facility is categorized as a Cat 2 Nuclear Facility.
- Implementing Homeland Security Presidential Directive 12 (HSPD-12) to provide Personal Identity Verification (PIV1) badges for all employees will require significant resources (staff, equipment, etc.). In addition, PIV1 will mandate badge access for buildings, computers, and other secure devices and areas.

**Hanford Site Services and Interface Requirements Matrix:** Following the Interface Management Plan Process, MSA submitted the most recent Hanford Site Services and Interface Requirements Matrix, also known as the J-3, Table on December 20, 2012.

Working collaboratively with CHPRC and Washington River Protection Solutions, LLC (WRPS), MSA updated and reformatted the J-3 Matrix Table to clarify service descriptions and define the cost allocation methodology for each J-3 Service area. A high-level summary of revisions that were made to the J-3 Matrix Table and are presented in Table 2-1. For specific details refer to the Contract Requirements J-3 Matrix Table in Appendix C.

**Table 2-1. High-Level Summary of J-3 Matrix Table**

J3 #	Service Description	Additional Changes
9	Personnel Security - Badging	Added text: "Hanford Site contractors/users bear internal implementation costs."
18	Site Training Services and HAMMER	<ul style="list-style-type: none"> <li>Removed reference to MSC SOW Table C.2.1.2.1 and placed relevant items from table directly into J-3.</li> <li>Modified text to clarify Mandatory vs. Optional.</li> </ul>
20	Fire and Emergency Response Services (Fire Protection System Inspection, Testing, and Maintenance)	Changed column heading from "Other Site Users" to "Other Contracts" to be consistent with other J-3 services.
23	Site Safety Standards (Common Safety Processes)	Removed reference to MSC SOW Table C.2.1.2.1 and placed relevant items from table directly into J-3.
26	Seismic Monitoring Services	Modified description of Direct-Funded services.
27	Hanford Environmental Oversight	Modified description of Direct-Funded services.
28	Meteorological and Climatological Services	Modified description of Direct-Funded services.
35	Crane and Rigging	Inserted minimal text from MSC SOW to clarify scope.
37	Motor Carrier Services	Inserted minimal text from MSC SOW to clarify scope.
38	Fleet Services	Inserted minimal text from MSC SOW to clarify scope.
40	Roads and Grounds	<ul style="list-style-type: none"> <li>Inserted text from MSC SOW to clarify scope.</li> <li>Added reference to Snow Removal Plan.</li> </ul>
43	Sewer Systems	Removed information related to the 100-N Lagoon that is no longer relevant.
46	Long-term Stewardship	Indicated that MSA provides service in this area.
76	Industrial and Radioactive Liquid Effluents Treatment and Disposal and Industrial Liquid Effluents Retention and Transfer	<ul style="list-style-type: none"> <li>Moved "Administration of 300 Area Effluent Discharge Permit" to Service Description.</li> <li>Added text to clarify Direct-Funded services.</li> </ul>
88	WTP Support	<ul style="list-style-type: none"> <li>Spelled out ICD – Interface Control Documents.</li> <li>Inserted WTP ICDs under Service Description (they were listed under "Requirements", which have been removed).</li> </ul>
HAMMER = Volpentest Hazardous Materials Management and Emergency Response Education and Training Center		SOW = Statement of Work.
ICD = Interface Control Document.		WTP = Waste Treatment and Immobilization Plant.
		MSA = Mission Support Alliance, LLC.
		MSC = Mission Support Contract.

**Annual Forecast of Services (AFS):** The primary objective of the AFS is to establish the immediate / short-term (1 year out) demand of infrastructure and services. The AFS is called out as a separate deliverable and is submitted as a standalone document. The AFS is then used for developing rates that may impact the Contract Baseline Alignment Guide (CBAG) and other budget planning activities.

MSC Section C.1.3 cites, "The ISAP shall incorporate the *Annual Forecast of Services and Infrastructure's* needed utilities, services and infrastructure from other Site Contractors". The ISAP is a strategic plan requiring long-term service forecasts for mission support infrastructure planning decisions about real property, facilities, and equipment with variable 7, 10, 20, 30 to 50+ year life expectancy periods for delivery of services, whereas, the AFS provides forecast information of limited applicability beyond the next planning year. The AFS and ISAP support separate but complementary planning horizons. ISAP Revisions 1 through 4 demonstrate the MSA and DOE

collaborative progress improvements to integrate the AFS into the ISAP, as shown in the service assessment tables. These tables reflect the current state of services and out year forecasts. The Contractor Requirements per J-3 Matrix Table, attached as Appendix C, reflects the year ahead and planning horizons FY2015 and FY2020.

**Projected Population:** The existing and projected Hanford Site population impacts the demand for Hanford Site infrastructure and services, including the capacity required to meet that demand. The ISAP obtains the Hanford Site population forecast from the *Hanford Ten-Year Site Plan* (TYSP) (DOE/RL-2012-29), an annual report submitted by all DOE site offices, including RL and ORP. The TYSP is a rolling 10-year look-ahead based on Hanford Site population and facilities required to meet mission needs.

Major trends expected in Hanford Site workforce population for the period FY2014 through FY2023 include the following:

- Peak worker population at ~ 16,500 in FY2013, including Energy Northwest (ENW) outage, Laser Interferometer Gravitational Wave Observatory (LIGO), and US Ecology Inc., operations
- PNNL slow growth rate at 0.2% annually through FY2023
- Total office population will be down ~ 1,600 over 10 years
- Non-office population will be down ~ 1,400 over 10 years
- 200E Area office projections up 600 workers by FY2017, based on Waste Treatment and Immobilization Plant (WTP) projections
- WTP operations staff projected to be ~1,400 beginning in FY2019.

Major Hanford Site population trends are subject to the following factors:

- Bechtel National Inc. (BNI), the contractor constructing the WTP, is continuing a major re-baseline effort. Near-term projections are expected to be lower than portrayed when the re-baseline effort is complete.
- WRPS includes WTP operation beginning in FY2019.
- 200E Area projections include ramp up to ~1,800 people before settling at ~1,400 people for ongoing WTP operations.
- CHPRC includes personnel at the Environmental Restoration Disposal Facility beginning in FY2016.
- PNNL projections include personnel in privately owned and privately leased facilities located within the City of Richland.

The “City” portion of Bonneville Power Administration (BPA), LIGO and US Ecology Inc., are excluded from the report because respective infrastructure and service needs are populations obtained from non-Hanford sources, outside the scope of this plan. Table 2-1 provides the Hanford Site population for FY2013 and FY2020.

**Table 2-2. Hanford Site Population**

Page	Section	System	Populations		Comments
			FY2013	FY2020	
3-4	3.2	Safeguards & Security	10,763	7,921	Includes PNNL in the 300 Area.
3-7	3.3.1	Hanford Fire Department	8,800	6,693	Primary onsite - Includes PNNL.
3-11	3.3.2	Emergency Management Program	10,763	7,921	Includes PNNL in the 300 Area
3-15	3.4	HAMMER	11,000	11,000	Information provided by HAMMER. See Note 1.
3-19	3.5	Waste Sampling and Characterization Facility	N/A	N/A	The number of annual tests performed is more relevant than population.
3-24	3.6	Transportation	8,450	6,350	Entire Site - Does not include PNNL or City of Richland.
3-33	3.7	Electrical System	6,200	5,000	Entire Site - Except PNNL, City of Richland, 300 Area long-term occupants, ENW, HAMMER, and Patrol Training Academy.
3-41	3.8	Water System	5,130	4,650	Export water system serving the 100 Areas & the Central Plateau.
3-47	3.9	Sanitary Sewer System	5,130	4,650	Based on water system.
3-53	3.10	Information Technology	7,992	7,200	Varies by type of technology used. Also see Table 3-10.
3-61	3.11	Facilities	2,280	2,850	Includes government-owned offices occupied by CHPRC, MSA, WCH, and WRPS on DOE land, excluding Office of Science. See Note 2.
3-68	3.12	Land	8,450	6,350	Includes job locations on DOE owned land excluding national monument and Office of Science. Does not include the City of Richland or other offsite locations. See Note 2.
3-76	3.13	Long-Term Stewardship	N/A	N/A	
<b>Total FY2013 Hanford Site Population</b>			<b>16,460</b>		
<b>Project Total FY2020 Hanford Site Population</b>				<b>12,900</b>	
CHPRC		= CH2MHill Plateau Remediation Company.	MSA		= Mission Support Alliance, LLC.
DOE		= U.S. Department of Energy.	N/A		= not applicable.
ENW		= Energy Northwest.	PNNL		= Pacific Northwest National Laboratory.
HAMMER		= Volpentest Hazardous Materials Management and Emergency Response Education and Training Center.	WCH		= Washington Closure Hanford.
			WRPS		= Washington River Protection Solutions.

**General Notes:**

1. Power, sewer, and water serving HAMMER and Patrol Training Academy are provided by City of Richland utilities.
2. Power, sewer, and water for permanently occupied 300 Area facilities will be provided by City of Richland utilities by the end of FY2013.

**Planning Hierarchy and DOE Vision Documents:** RL and ORP visions lead the planning document hierarchy, guiding the three major cleanup programs: River Corridor, Central Plateau, and Tank Waste. By FY2012 year-end, RL determined 93% of the annual goals set for the 2015 Vision had been accomplished. MSA's annual planning cycle has been aligned to support the annual budget cycle activities as outlined in the PPD (MSC-GD-54665). Appendix A is a listing of the documents that feed into or inform the ISAP.

**OHC Contributions to ISAP:** OHC contributions to the ISAP annual report at three intervals each year: 1) Direct data provided by the OHCs during December to February; 2) review comments on the ISAP draft report during May and June; and 3) the projections in the AFS report. The OHC input enables RL and MSA to determine how to operate, right size, and plan for the infrastructure systems required for cleanup mission support.

**Integrated Gap Analysis Summary:** The ISAP gap analysis process identifies unmet services and infrastructure needs in each major system. During this process, the ISAP team facilitates workshops between MSA system and DOE subject matter experts. These workshops serve as a collaborative opportunity to discuss system and infrastructure needs in comparison to the overall system mission needs. Mission needs are captured for future projects or activities in order to resolve the identified gaps. Activities to resolve an identified gap can be any of the following:

- Preventive, predictive, corrective, and planned maintenance
- Business practices
- Company-level plans
- Policies, directives, and procedures, including administrative and technical procedures
- Requirements documents
- Guidance documents.

Appendix B, Infrastructure Reliability Project Priority List (IRPPL) provides a listing of system projects that have been vetted for mission need. Appendix D, the System Gap Summary, identifies potential needs that have not been fully vetted at the time of the ISAP publication. Items in Appendix D will be validated in FY2014 to determine how the reported gap is needed for the overall mission need.

**Overarching Attributes and End States:** During FY2013, system planning implemented specific planning terms and a programmatic approach. This approach places a larger emphasis on planning daily operational system needs, including revealing the full extent of maintenance requirements and transitions for system end states. Also, this method results in the emerging Maintenance Management Program, including organizing approximately 300 next action steps within electrical, water, sanitary sewer, and support facilities systems.

The "End State" is defined as the future set of operating conditions and environment of a system that provides the necessary capabilities and reliability to meet the Hanford Mission. The attribute is defined as a specific characteristic, action, or objective related to a cause that is implemented from a particular system in support of the End State.

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Attribute category standardization, developed for the 13 infrastructure systems and included in Chapter 3.0, is as follows:

- Operate Safe & Regulatory Compliant System:
  - The degree to which a System, Structure, and Component (SSC) can be operated safely
  - Cost effective and efficient manner
  - To operate system facilities and equipment in a safe and regulatory compliant manner
  - To provide necessary procedures and training to promote safe work practices and a Safety Conscience Work Environment
  - To obtain and adhere to applicable documented regulatory requirements.
- Availability, Right-Size, & Reduce Active Site Footprint:
  - The probability that the SSC, when used under given conditions, will perform satisfactorily when called upon
  - Adjust system facility and equipment capabilities for the Hanford Mission
  - To reduce Hanford Site footprint of active operations and facilities in accordance with the Hanford Mission.
- Sustainability & Minimize the Impacts to Environment:
  - Reduce environment hazards
  - Maintaining grounds, roads, and other surfaces using environmentally preferable practices
  - Conserve environmental resources
  - Investigate renewable resources and purchasing environmentally sustainable materials
  - Minimize lifecycle cost and liabilities
  - Reviewing construction specifications to recommend environmentally sustainable materials and practices
  - Reduce waste generated from facilities and operations
  - Investigate opportunities to reuse or recycle resources/waste
  - Increase recycling resources
  - Reduce resource consumption
  - Cost effective and efficient manner.
- Reliability:
  - The probability of the SSC performing without failure under given conditions and for a set period of time
  - To provide system redundancies where appropriate
  - Enhance reliability with the use of maintenance strategies
  - Enhance reliability with the use of spare parts strategies
  - Other reliability enhancements
  - New technology and upgrades
  - To sustain uninterrupted operations and services
  - To implement maintenance strategies and facility/equipment improvements to reduce long-term costs
  - Cost effective and efficient manner.

- Maintainability:
  - The ability of the SSC to be retained in or restored to a performance level when prescribed maintenance is performed.

**Risk Analysis:** The ISAP includes emerging risks not already tracked within the Risk Register process. Deferred maintenance identified in FY2013 is the financial risk associated with known infrastructure system short-falls in the system maintenance programs, as well as the deficits in capital investment in the infrastructure. The risk associated with deferred maintenance at the Hanford Site is growing at 12% annually. This is a concern in FY2013 because several aged systems have identified needs; however, there are no funded upgrade projects during FY2014 and FY2015, according to budget guidance for the next 5 years.

Passing of time increases the Hanford Site's cumulative probability of one or more system failures. Postponement of funding for recommended and identified reliability projects will result in further degradation of other aging infrastructure systems, facilities, and/or equipment. Unplanned outages and post failure event costs are projected to increase during FY2014 and FY2015, and then decline gradually after FY2016 as reliability projects are projected to resume for funding and implementation. The overall risk level ebbs and flows with the degree to which RL decides to buy down risk by funding reliability projects capable of preventing, avoiding or minimizing much larger unplanned expenditures.

Buying down known risks by funding projects in FY2014 and FY2015 will avoid post failure event and consequential damages/repair costs, but only if defined projects and procurements are funded and completed. Utility failures (caused by aged electrical lines or water supply lines failing) can cause after-the-fact recovery costs in the range of 8, 10 and possibly up to 20 times higher compared to the costs of funding preventative projects to meet defined gaps. Also, the water supply system has a long identified need for a backwash pump at the water treatment plant. A spare parts stocking policy to keep a new pump ready to connect quickly or fully redundant pump used in rotation would mitigate that risk.

**Risk: Required Maintenance vs. Planned Maintenance:** Hanford Site maintenance funding falls short of validated and well documented maintenance needs. This common annual scenario, resulting in planned maintenance projects being deferred for several years, was addressed during FY2013. For example, 12 infrastructure projects that appeared on the FY2007 budget submittal are still present on the proposed FY2014 budget. To provide a finer point on the risk cost based on the known list of vulnerabilities reported in the FY2010, FY2011 and FY2012 ISAP annual reports, along with IRPPL for each year, the validated needs for RL funding during the period of FY2014 and FY2015 will rise to a very large risk exposure, in the event of system failure avoidable by infrastructure project funding during the next 2 years.

During FY2013, a maintenance management program was defined for five major systems including electrical, water, sanitary sewer utilities plus Waste Sampling and Characterization Facility (WSCF), providing analytical laboratory services. The maintenance management program scope included an in-depth assessment of vulnerabilities, conditions, capacities, and practices compared to expected future demands. Using a rational program approach, recommendations were described. Implementation of the maintenance program's cost savings opportunities can create changes in

preventative, corrective and scheduled maintenance tasks and policies, including spare parts and other day-to-day practices. The maintenance management program places a strategic focus on 91% of the annual budget allocated to maintenance and operations compared to the remaining 9% funding for reliability projects for the five infrastructure systems. The continued project deferrals by DOE funding priorities create impacts and risks. Internal MSA information suggests risk will increase during the next several years. The topic has been most evident and best documented in the electrical, water, sanitary sewer, roads and WSCF systems. As new maintenance practices are first deployed within five systems, the remaining infrastructure system managers can later apply lessons learned and undertake a similar program roll-out of applicable program features in future years. For trends in the Deferred vs. Actual Maintenance across all of DOE's 56 sites, the growth in Deferred Maintenance is a systemic problem. For example, \$511M of maintenance was deferred in FY2012 across the entire DOE system, a 12% increase in 1 year added to the base of \$84B in Deferred Maintenance needs for all of DOE.

MSA has implemented an infrastructure maintenance program strategy that includes a graded approach with a deliberate deferred maintenance with the acceptance of the measured risk of failure to allow application of funds for other maintenance or upgrades. The term deliberate deferred maintenance is described as intentionally accepting more risk of outage or system failure by not funding identified maintenance needs. Roads and water systems are two well documented systems with deliberate deferred maintenance in use by RL as a local strategy. Deliberate deferred maintenance is one element of a comprehensive operations and maintenance process. Only by determining field conditions then evaluating those conditions against anticipated operational needs will MSA be able to develop and implement a cost-effective program for upgrading and maintaining equipment to fulfill the mission. Risks include service interruptions, unsafe conditions for personnel working on the systems, safety system impacts, project delays, and significant capital outlay for failure recovery. For instance, if crack sealing and chip seal is not performed on the roads, the roads can degrade to a point where a much more costly rebuild is necessary. Also, if a long-term power failure occurs during WTP operations and the waste feed system and melter cool, the materials in process could solidify to the point of melter failure, requiring operations to be postponed until affected equipment can be replaced. DOE's ability to meet regulatory milestones could be impacted.

The core of an efficient maintenance strategy is the comprehensive analysis and complete condition assessments of the infrastructure systems with emphasis on the systems failure modes. Once the current system condition is determined it can be measured against the required system performance (e.g., reliability, capacity). Potential failures are evaluated, failure frequencies and impacts are estimated, and the budget necessary to recover from the failure is determined. Parts that are needed are ordered and availability is verified. Work is preplanned to minimize response time. Strategy is discussed with system users (cleanup projects) to ensure they are willing to accept the projected risk of failure. Cleanup projects must balance that risk against the benefit of having added cleanup funds that might otherwise have been used for maintenance and upgrades.

Maintenance program requirements for Hanford's non-nuclear facilities are met in accordance with DOE O 430.1B, *Real Property and Asset Management*. The DOE guidance also applies to nuclear facilities, yet Hanford Site for RL and MSA managed facilities are considered non-nuclear. Hanford Site facility maintenance is reported and managed at the project baseline summary level. Each

contractor is responsible for ensuring that the facilities under its control are operated in a safe and compliant manner. Each contractor uses its own work control software (e.g., Job Control System, MAXIMO<sup>1</sup>, and Computerized History and Maintenance Planning Software) to track and account for maintenance tasks. Directions for such tasks are typically generated by the given facility's manager then fed into the appropriate contractor's work control system. The time and materials costs are then estimated, priority levels are assessed, and work is scheduled and performed based on resource priority. Once the work has been completed, the work order is closed and appropriately modified to include actual time and materials costs. Regularly scheduled maintenance, such as filter replacement is tracked in a similar manner. This process generally applies to all facilities. Maintenance funding is budgeted by each cleanup project for its facilities and equipment. For services and infrastructure, the graded approach is more fully described in the TYSP and the maintenance program report prepared during FY2013, plus applicable DOE guidance documents, or other DOE sites as evidenced by the deferral of over \$511M of maintenance across all of DOE's sites during FY2012.

**Risk: Deferred Maintenance, Asset Condition Index, and Preventive Maintenance:** In accordance with DOE O 430.1B, each contractor must maintain real property assets in a manner that promotes operational safety, worker health, compliance with environmental regulations, property preservation, and cost-effectiveness, while meeting the program missions. This requires a balanced approach that not only sustains the assets, but provides for their recapitalization. This chapter discusses the maintenance management processes and practices in place to ensure the efficient and effective maintenance of the Hanford Site's facilities and infrastructure for the long term.

Numerous projects are in process and planned to improve the overall condition of DOE, Office of Environmental Management (EM) facilities at the Hanford Site. Along with improving facility condition, these efforts will reduce deferred maintenance because the 176 facilities slated for near-term disposition are not being maintained.

Preventive maintenance stems from life cycle cost analysis that identifies cost saving strategies requiring maintenance at specific intervals and levels to extend the life of infrastructure or facilities. For example, roads experience a 6:1 cost savings for chip seals to avoid overlays and a 13:1 cost savings for regular overlays compared to full-width reconstruction if roads are not maintained for periods of 20 years and road ratings fall below scores of 30 or less. Despite knowing the economic advantages, preventive maintenance rarely is included in annual federal budgeting decision making at the Hanford Site.

A recent example of the kind of analytical investment approach for energy and water savings includes upgrades at the Federal Building in Downtown Richland funded by the *American Recovery and Reinvestment Act of 2009* and implemented by General Services Administration Region 10. The analysis started by identifying and modeling 21 energy conservation measures in FY2009, then narrowing to 2 base bid plus 4 alternates then implementing the best 2 or 3 of the 6 finalists by FY2011. The same analytical approach is being used for existing general purpose facilities and

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<sup>1</sup>MAXIMO is a trademark of International Business Machines Corporation, Armonk, New York.

Hanford Site infrastructure going forward. Toward that end, 1 million gross square feet (gross ft<sup>2</sup>) of existing facilities are undergoing baseline energy audits as Type I inspections meeting Federal Energy Management guidance during FY2012 and FY2013. Approximately 35 of 59 facilities covering 365,000 gross ft<sup>2</sup> have completed energy audits by March, FY2013.

**Condition Assessments:** Mission support planning for infrastructure takes into consideration infrastructure capacity, reliability, and volumes for services demanded by OHCs. Information is collected during the ISAP annual report preparation process and from the AFS report. Condition assessments are also required (by DOE guidance) at specific intervals for real property and equipment reporting purposes. In general, condition assessment information is gathered through the staff observations and daily operations. Information is recorded for compliance reporting, planning, annual budget, projects and system management purposes. In addition, special studies and reports resulting from less frequent, more concentrated condition assessments are required for a wide variety of reasons (detect conditions not readily visible, the declining operation condition due to the passing of time, as well as mechanical or structural potential for failure). The condition assessments are used to help RL and MSA system managers assure mission support readiness of each system for the anticipated OHC service demands.

**Service Needs:** The Hanford Site is served on a customer-order basis for a wide array of site-wide services to RL, ORP, and OHCs. Services are provided by the RL-owned and MSA-maintained infrastructure systems from two broad categories of services. The service list is not all inclusive of all MSA services:

- **Directly Tied.** “Must have” services for mission success (e.g., analytical testing to meet regulatory requirements). Includes mission critical facilities in the Facilities Information Management System (FIMS) database.
- **Support.** Services that enable the mission to meet its goals and milestones, to minimize outages and interruptions, or avoid added expenses of using federal agency or offsite services, including indirect support facilities in the FIMS database.

### 3.0 ANNUAL UPDATE OF THE INFRASTRUCTURE AND SERVICES ALIGNMENT PLAN

The ISAP is a planning document focused on documenting strategic decisions for Hanford Site's infrastructure systems. While these decisions are informed by the various planning documents described in the PPD, forecasted mission needs are also solicited from the infrastructure system owners and OHCs as part of the annual update to ensure the most current information is captured. The PNNL Site is under a separate plan that is maintained by DOE-PNSO and PNNL. The strategy is presented in the form of action steps, specific projects, and scheduled milestones on the roadmap for each system (Figures 3-1 through 3-12, and 3-16 through 3-18) for the FY2020 planning horizon.

This ISAP includes the following infrastructure systems:

- Safeguards and Security and Hanford Patrol
- Fire and Emergency Response
- Emergency Management
- Volpentest Hazardous Materials Management and Emergency Response Training and Education Center (HAMMER)
- WSCF for analytical laboratory services
- Transportation, including roads and rails
- Electrical
- Water
- Sanitary sewer
- Information technology
- Facilities
- Land, including biological controls and aggregate extraction
- Long-Term Stewardship (LTS).

Each system is organized and presented chronologically from today looking toward the future.

Areas of emphasis include:

- FY2013 current system capacity and condition with attributes
  - System condition is described from Excellent to Poor as follows:
    - Excellent – Recently constructed and meets current code
    - Good or Fair – Several years old, minor deficiencies
    - Poor – Very old, major deficiencies and unplanned outages frequently occur
  - Each attribute is a specific characteristic, action, or objective related to a cause that is implemented for a particular system in support of the end state
- Major planning issues and gaps for the system to transition from existing condition to FY2020
- FY2020 end state, including the system roadmap and project table (Note: Project timeframes are defined by the IRPPL funding profile.)
- Cost-saving measures.

Detailed information is further defined in the appendices as follows:

- Appendix A lists the planning reference documents applicable to the ISAP topics
- Appendix B is the Infrastructure Reliability Project Priority List
- Appendix C contains the other Hanford contractor requirements per J-3 Matrix
- Appendix D is the gap summary table resulting from the FY2013 outreach process

- Appendix E is the decisions need summary
- Appendix F is the Cost Savings/Cost Avoidance Summary.

### 3.1 INVESTING IN THE HANFORD SITE'S INFRASTRUCTURE

The long-term vision of RL and ORP dictate the need to continue to invest in site infrastructure to meet the Hanford Site missions that will extend to FY2050 and beyond. Those visions, evaluated against current ability of the infrastructure to support the mission needs, result in a current investment deficit:

- **Roads:** The core roads serving Hanford's Central Plateau and its long-term cleanup projects continue to degrade with minimal capital improvements and maintenance funded over the past 8 years. Multiple road projects have been identified to extend the life of road surface by applying chip seal and defer the more costly overlay projects. Overlay projects are also planned for roads already in poor condition to extend the road's life and defer the more costly full-width rebuilding projects.
- **Electrical:** The Central Plateau electrical substations are in good condition with recently installed or refurbished equipment. However, overall system capacity at the 251W substation is insufficient for forecasted system loads for ORP missions. Planned electrical projects have been identified to provide capacity upgrades for startup of tank waste feed operations. Conductors are a high priority for replacement. Additionally, aging overhead power poles beyond their life expectancy threaten reliability of electrical service to critical operation facilities in 200E and 200W. A strategy for phased replacement of the overhead power poles has been developed with electrical distribution lines prioritized based on critical mission needs. The 300 Area electrical service will transfer to the City of Richland by the end of 2013.
- **Water:** In the 2000's a significant investment was made to reduce system leakage and minimize impact of groundwater recharge of the raw and potable water distribution systems with lining or replacing degraded sections. The 200E and 200W raw water reservoirs were recently lined to protect their structural integrity and eliminate leakage. However, projects to refurbish many other segments of buried piping remain unfunded with the number of buried pipe failures on the rise. There was a 200% increase in the number of buried pipe failures between 2011 and 2012. The long-term need for reliability and availability of these portions of the distribution system drives the need to invest in capital improvements in lieu of corrective maintenance.
- **Sanitary Sewer:** Completion of the 200W sewage lagoon and bio-solids handling facility successfully supports the high priority cleanup mission along the River Corridor and shrinking of the Hanford cleanup footprint to the Central Plateau. Follow-on investment is needed to maximize use of the new lagoon and eliminate/replace failing septic systems that are supporting long-term cleanup activities. Several septic systems in 200E and 200W already require regular pumping.
- **Facilities:** Consolidation remains as the central theme to facility management as cleanup efforts shrink to the Central Plateau. For general-purpose facilities that are slated to support long-term cleanup mission projects include roof and heating, ventilation, and air conditioning (HVAC) replacements to address age-related degradation. The Hanford Fire Department (HFD) will consolidate its response facilities to Station 92 (between 200E and 200W) and a new fire station located to serve the 200E Area, thus eliminating the fire stations in the 100, 300, and 400 Areas that have exceeded their design life. The 2711E fleet maintenance facility is a candidate for expansion, replacement, or relocation, perhaps using a satellite facility concept consistent with 400 Area closure planning.

### 3.2 SAFEGUARDS AND SECURITY AND HANFORD PATROL SYSTEM



vehicle access barricades.

The Safeguards and Security program ensures that Hanford Site facilities are protected at appropriate levels against unauthorized access, theft of special nuclear material, acts of sabotage, theft or loss of classified matter and government property, and other hostile acts that may unacceptably affect the national security or the health and safety of workers, the public, or the environment. The level of protection is based on a graded approach determined by the assets present. Safeguards and Security and Hanford Patrol attributes are provided in Table 3-1.

**Basic System Description:** Safeguards and Security is a key Hanford Site infrastructure system. The facilities that support the system include the Patrol Operations Center, Patrol Training Academy (PTA), Emergency Vehicle Obstacle Course (EVOC) and the

Table 3-1. Safeguards & Security and Hanford Patrol Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>Continued application of ISMS, EMS and VPP principles</li> <li>Strong safety culture: EZAC, safety log book, weekly safety starts</li> <li>Provide and lead industrial security program</li> <li>Continue to meet Security Incident Response Plan</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>Technical, infrastructure and administrative activities to ensure the Safeguards &amp; Security System is available in a ready-to-serve configuration that meets the requirements of the Hanford mission</li> <li>Continual evaluations of complex footprint reduction for non-mission critical facilities</li> <li>Reduced impact footprint</li> <li>Communications alarm system availability</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>Consistent with Hanford’s Vision to “Be a leader in sustainability and green energy”</li> <li>Perform sustainability evaluations for major repairs, replacements, or upgrades</li> <li>Continue reductions in lifecycle costs</li> <li>Continue reductions in resource consumption</li> <li>Continue to use design supporting reconfiguration and reuse</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>Ongoing process improvements and cost savings</li> <li>Forecasted capital upgrade projects to maintain facility operability</li> <li>Implement planned improvements</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>Maintain qualifications for maintenance and operations of critical security systems</li> <li>Implement strategies from the site-wide Maintenance Management Program</li> <li>Enhanced predictive, preventive and corrective maintenance.</li> </ul>
EMS = emergency management system.      ISMS= Integrated Safety Management System. EZAC = Employee Zero Accident Council.      VPP = Voluntary Protection Program.	

The remaining Hanford Site nuclear materials with high security interest have been consolidated into a protected area located near the Canister Storage Building. Hanford Site limited areas will continue to be required to support developing, processing, and storing classified matter. Cyber security and information security requirements are expected to continue increasing during the planning period as a result of technology advancements and world events.

As the Hanford Site transitioned from a nuclear material processing and storage operation to an industrial complex, the approach was documented in the *Hanford Site Industrial Security Plan* (HNF-49506). Emphasis is being placed on industrial security, to include: Hanford Site access

controls, emergency response, and physical security, as well as material control and accountability, information security, personnel security, and protective force.

**Current Condition FY2013:**

- Condition in FY2013: Very Good
- Capacity: 12 facilities including 3 barricades, Patrol Operations Center and PTA
- Reliability in FY2013: 100% usable when needed
- Population Served: 10,763
- Areas Served: Entire 586 mi<sup>2</sup>, except areas under U.S. Fish and Wildlife Service (USFWS) surveillance
- Gaps and Planned Projects – No gaps identified; refer Appendix B for planned projects.

Special nuclear materials will remain onsite during the current planning period necessitating a continued level of protection on the Central Plateau. As such, training programs for Hanford Patrol will remain strong to maintain a high level of response readiness. The PTA and EVOC provide the facilities for implementing the Hanford security training program while also supporting training of other local law enforcement agencies. The facilities at the PTA have several identified deficiencies that need to be addressed to ensure a safe training environment. The projects to address these deficiencies include the following:

- Improved access controls to the firing ranges
- Replace the aging weapons cleaning trailer
- Upgrades to the live-fire shoot house
- Habitability improvements in several training classrooms.

In addition to the facility upgrades, efforts have been identified as out year projects to relocate firing Range 10. This relocation is in support of repurposing land areas at the southern end of the Hanford Site as envisioned in DOE/EIS-0222-F.

**End State FY2020:**

- Condition: Very Good for facilities, excellent for staff and equipment
- Capacity: 12 facilities including 3 barricades, Patrol Operations Center and PTA
- Population Served: 7,921
- Areas Served: Entire Hanford Site except for areas under surveillance by USFWS
- Gaps and Planned Projects: No gaps identified; management is reviewing facility concerns at the PTA, including issues with the PTA general facility, lunchroom, and classrooms (662 and 662A, respectively), the live-fire shoot house, and the need to study relocating the Range 10 function at the PTA. The results of that study should be implemented by FY2020.

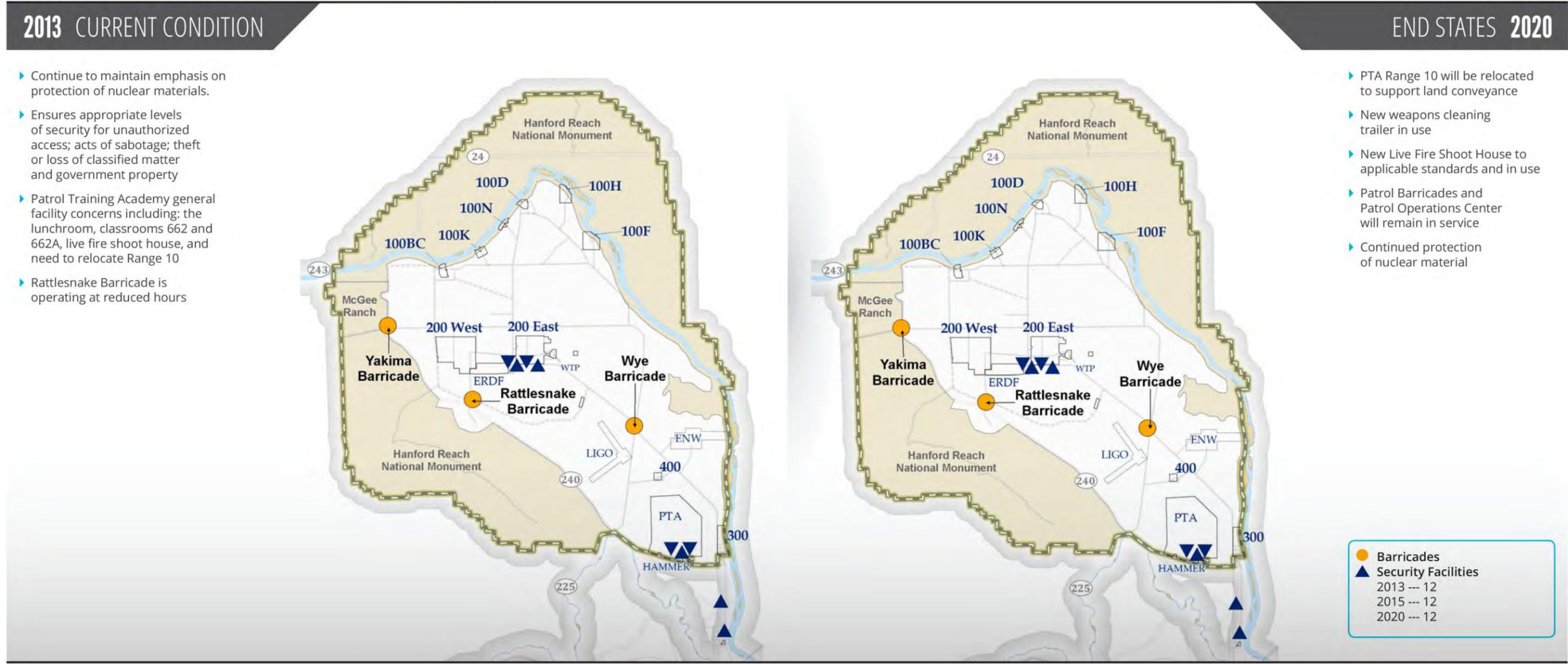
**Cost Savings Proposal:** Approximately \$150,000 per K-9/Guard upon retirement.

**Major Actions/Decisions Needed:** Refer to Appendix B for projects descriptions for FY2020. Some of the existing HAMMER facilities may be used as part of this agreement.

**Roadmap:** Refer to Figure 3-1.

Figure 3-1. Safeguards and Security Roadmap

# Safeguards and Security Roadmap



## 2013 CURRENT CONDITION

- ▶ Continue to maintain emphasis on protection of nuclear materials.
- ▶ Ensures appropriate levels of security for unauthorized access; acts of sabotage; theft or loss of classified matter and government property
- ▶ Patrol Training Academy general facility concerns including: the lunchroom, classrooms 662 and 662A, live fire shoot house, and need to relocate Range 10
- ▶ Rattlesnake Barricade is operating at reduced hours

## END STATES 2020

- ▶ PTA Range 10 will be relocated to support land conveyance
- ▶ New weapons cleaning trailer in use
- ▶ New Live Fire Shoot House to applicable standards and in use
- ▶ Patrol Barricades and Patrol Operations Center will remain in service
- ▶ Continued protection of nuclear material

Project Description	2013	2014	2015	2016	2017	2018	2019	2020
S-245, New Live Fire Shoot House							•••••	•••••
S-216, Provide Access Control Barriers to the Firing Range Complex							••••	
S-243, Relocate Range 10							••••	
S-244, PTA Replace weapons cleaning trailer (MO 222)							•••••	
S-242, PTA Range 9 ISA Target Mock-up							••••	
S-239, PTA Range 9 Elevated Platform							••••	
S-241, 662 and 662A Building Modifications							•••••	

Major Actions/Decisions	2013	2014	2015	2016	2017	2018	2019	2020
Implementation of the recommendations from the Site Access Optimization Study		•						

### 3.3 FIRE AND EMERGENCY RESPONSE SYSTEM

#### 3.3.1 HANFORD FIRE DEPARTMENT



testing, and maintenance; and respiratory protection maintenance for site powered air-purifying respirators. The physical system servicing the Hanford Site includes fire stations in the 100, 200, 300 and 400 Areas. The emergency response vehicle fleet includes a mobile incident command vehicle, 1 aerial platform truck, 3 ladder trucks, 2 fire engines, 1 tender truck, 6 brush trucks, 4 grass trucks, a hazardous materials (HAZMAT) response vehicle, and 6 ambulances. Attributes for Fire Systems are provided in Table 3-2.

**Current Condition FY2013:**

- Condition: Very good for equipment, staff, and facilities except as noted in this report.
- Capacity: Vehicle fleet at needed capacity
- Reliability: 100% usable when needed
- Population Served: 8,800; includes entire Hanford Site, PNNL campus and PNNL in 300 Area
- Areas Served: Entire Hanford Site plus secondary support to surrounding communities
- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects.

The Fire and Emergency Response System will go through facility and support reconfiguration as the services and projects consolidate to the Central Plateau over the next several years. This transition will result in the construction of a new fire station to serve the 200E Area and the closure of the stations in the 100, 300 and 400 Areas.

**Basic System Description:** Fire and Emergency Response includes fire department operations, administration, and training activities; fire marshal’s office services; fire protection systems inspection,

Table 3-2. Fire System Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>• Continued application of ISMS, EMS and VPP principles</li> <li>• Strong safety culture: EZAC, safety log book, weekly safety starts</li> <li>• Meet National Fire Protection Association standards and applicable <i>Code of Federal Regulations, Revised Code of Washington</i>, and <i>Washington Administrative Code</i> standards</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>• Technical, infrastructure and administrative activities to ensure the Hanford Fire Department System is available in a ready-to-serve configuration that meets the requirements of the Hanford mission</li> <li>• Continual evaluations (e.g., Baseline Needs Assessment) of complex service/facility footprint reduction for non-mission critical facilities</li> <li>• Continue to provide a viable/proficient training program</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>• Consistent with Hanford’s Vision to “Be a leader in sustainability and green energy”</li> <li>• Perform sustainability evaluations for major repairs, replacements, or upgrades</li> <li>• Reductions in resource consumption</li> <li>• Perform LEED assessment on new fire station</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Ongoing process improvements and cost savings</li> <li>• Forecasted capital upgrade projects to maintain facility operability</li> <li>• Implement planned improvements</li> <li>• Provide oversight and implement wildfire management and prescribed burn plans</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>• Maintain qualifications for maintenance and operations for the facility</li> <li>• Implement strategies from the site-wide Maintenance Management Program</li> <li>• Perform preventive and corrective maintenance to ensure properly functioning fire protection systems, equipment and apparatus.</li> </ul>
EMS = emergency management system.      LEED = Leadership in Energy and Environmental Design. EZAC = Employee Zero Accident Council. ISMS = Integrated Safety Management System.      VPP = Voluntary Protection Program.	

The 100 Area Fire Station will continue to be staffed until the worker populations (MSC for B Reactor, CHPRC for the K Areas, and Washington Closure Hanford (WCH) for all other 100 Areas) in the northernmost portion of the Hanford Site have been significantly reduced to minimize the risk from the increased emergency response times from the 200 Area Fire Station.

The 200 Area Fire Station will continue operation through FY2050. The station will undergo upgrades to support staff and equipment being relocated from the outer areas of the Hanford Site. HNF-51858, *Hanford Fire Department Fire Infrastructure and Deployment Evaluation Baseline and Options*, identifies the need for a new fire station adjacent to the WTP before starting WTP operation. This station, in conjunction with the existing 200E Fire Station, will be designed to serve the long-term fire and emergency response needs for the entire Hanford Site.

The 300 Area Fire Station, owned by RL and operated by MSA, requires supporting the time required for plume cleanup and continued use of the 324 Building. The 300 Area Fire Station is expected to be closed after the new Fire Station is built to serve the 200E Area and personnel and equipment are consolidated to the Central Plateau. Station habitability upgrades to address aging systems remain a priority in the interim.

The 400 Area Fire Station will be temporarily closed in FY2013 and placed in a minimum-safe surveillance and maintenance (S&M) mode until reactivated (if warranted) to support the final disposition of the residual sodium contained in the Fast Flux Test Facility (FFTF) system and storage facility. Personnel and equipment will be relocated to the existing fire stations in the 200 and 300 Areas and will be deployed as necessary to support fire and medical emergency response for those facilities that are served by the 400 Area Fire Station.

Obsolescence of equipment is driving the need to replace the radio fire alarm reporting system. This critical system provides fire alarm reporting from multiple facilities/buildings throughout the Hanford Site to the Hanford Fire dispatch center. Core system components are being replaced in FY2013 with peripheral components slated for upgrade over the next several years. While replacement intervals for the emergency response vehicle fleet have been increasing over the past several years, a refresh of the ambulance fleet was completed in FY2013. Equipment priorities to support mission needs over the next few years include replacing or refurbishing the mobile incident command vehicle, replacing two pumper trucks, two aerial telesquirts and replacing the HAZMAT response vehicle.

#### **End State FY2020:**

Two fire stations, including one new fire station located to serve the Central Plateau, will centralize fire and emergency support for the safety mission at the Central Plateau.

- Condition: Excellent for equipment, staff, and facilities as noted in this report
- Capacity: Vehicle fleet at needed capacity
- Population Served: 6,693; includes entire Hanford Site, PNNL campus and PNNL in 300 Area
- Area(s) Served: Entire Hanford Site
- Gaps and Planned Projects: No gaps identified; no major projects for facilities after FY2020. Equipment replacements will continue as required and as scheduled.

**Cost Savings Proposals:** Facility consolidation from four to three, then to two stations to meet RL's footprint reduction strategy, represents a major cost savings opportunity over the next 7 years and beyond for annual operating expense budgets.

**Major Actions/Decisions Needed:** Fund defined projects.

**Roadmap:** Refer to Figure 3-2.

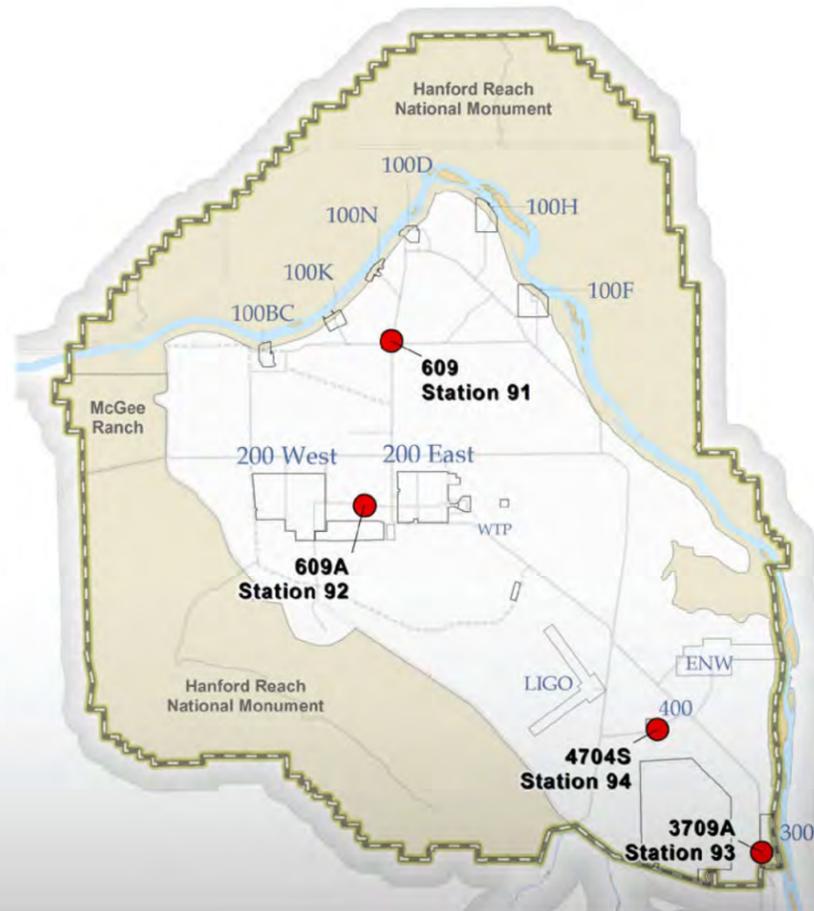
Figure 3-2. Fire Department Roadmap



# Fire Department Roadmap

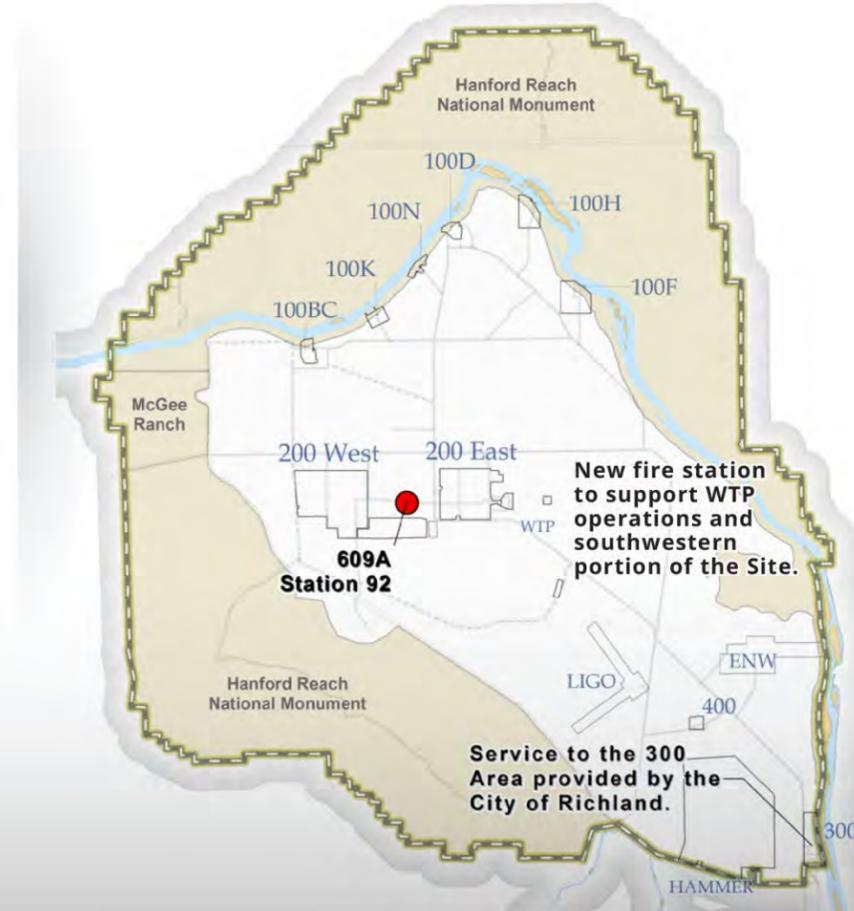
## 2013 CURRENT CONDITION

- ▶ Site population shift has moved from the outer areas to the Central Plateau
- ▶ HNF-51581, Fire Station Infrastructure and Deployment Evaluation Study recommendations completed, including these topics:
  - Temporary closure of 400 Area Fire Station
  - Design and construction of a new Central Plateau Fire Station
  - Closure of 100 Area Fire Station
  - Upgrade of 200 Area Fire Station
- ▶ Fire and Emergency Response equipment in good to excellent condition except Ambulances 91, 92, and 93 past NFPA lifespan standards
- ▶ Radio Fire Alert Reporting (RFAR) system obsolete, replacement parts are no longer manufactured



## END STATES 2020

- ▶ Construct and Implement Consolidated Operations Fire Station on the Central Plateau
- ▶ Upgrade Station 92 for additional staff and build new equipment storage building
- ▶ RFAR system replaced (transmitters)
- ▶ 400 Area Temporary Fire Station Closure
- ▶ 300 Area Fire Station Closure
- ▶ 100 Area Fire Station Closure



● Fire Stations  
 2013 --- 4  
 2015 --- 3  
 2020 --- 2

### Project Description

	2013	2014	2015	2016	2017	2018	2019	2020
L-783, Consolidated Operations - Central Plateau East Fire Station - Conceptual Design Report/Definitive Design/Construction				••••••••				
L-761, Replace RFAR (Phase II)				••••				
L-794, Upgrades to HFD Station 92 (Bldg 609A)					••••			
L-771, New Equipment Storage Building at HFD Station 92					••••			
EF32, Replace Hazmat 92, (Re-chassis only), HO 68D-3892 (1990) HO 68D-3892 (1990)					•••			
EF29, Replace Fire Engine Pumper Truck E-92 HO 68D-3894 (2001) (Back up)					•••••			
EF28, Replace Fire Engine Pumper Truck - E-94 (First Run) HO 68D-3890 (2000)					•••••			
EF30, Replace 65-ft Aerial Telesquirt With a 75-ft E-93, HO 68D-3865 (1998)					•••••••			

### Project Description (Continued)

	2013	2014	2015	2016	2017	2018	2019	2020
EF26, Replace 65-ft Aerial Telesquirt with a 75-ft E-932, HO 68D-3893 (1994) HO 68D-3893 (1994) (First Run)					•••••••			
EF33, Replace Mobile Incident Command Post - HO 68N-1989 (1998)					•••••			

### Major Actions/Decisions

	2013	2014	2015	2016	2017	2018	2019	2020
Close 400 Area Station 94 - Building 4704S		•						
Close 300 Area Station 93 - Building 3709A						•		
Close 100 Area Station 91 - Building 609							•	

**3.3.2 EMERGENCY MANAGEMENT PROGRAM**



notifications. Emergency Management includes managing the Hanford Site Emergency Management Program and the Emergency Operations Center (EOC), contractor emergency management support, assessments, site-wide occurrence reporting, and operating the 24/7 EOC Shift Office. Attributes for Emergency Management are provided in Table 3-3.

**Current Condition FY2013:**

- Condition in 2013: Very Good
- Capacity in 2013: No metric available
- Reliability in 2013: 100% usable when needed
- Population Served: 10,763
- Areas Served: Entire Hanford Site
- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects.

**Basic System Description:** The Emergency Management Program provides coordination, integration, and maintenance of a centralized emergency operations capability for coping with a spectrum of emergencies originating from or affecting the Hanford Site. This integrated program ensures Emergency Management can respond effectively and efficiently to emergencies so that appropriate measures are taken to protect workers, the public, the environment, and preserve the credibility to the DOE. Coordinating with OHCs ensures that emergencies are promptly recognized, categorized, and classified with the required reporting and

<b>Table 3-3. Emergency Management System Attributes</b>	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>• Continued application of ISMS, EMS and VPP principles</li> <li>• Strong safety culture: EZAC, safety log book, weekly safety starts</li> <li>• Hanford’s Emergency Management Program is compliant with DOE’s Comprehensive Emergency Management System</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>• Maintain and implement Emergency Management Plan per DOE/RL-94-02 for the Hanford Site</li> <li>• Technical, infrastructure and administrative activities to ensure the Emergency Management Program is available in a configuration that meets the requirements of the Hanford Site mission</li> <li>• Proficiency of the Emergency Response Organization is maintained through a robust drill and exercise program</li> <li>• Maintain appropriate communication with federal, state, and local emergency management agencies</li> <li>• Maintain depth of qualified emergency responders</li> <li>• Maintain 24/7 capability to notify and provide emergency direction to personnel on the Hanford Site</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>• Consistent with Hanford’s Vision to “Be a leader in sustainability and green energy”</li> <li>• Perform sustainability evaluations for major repairs, replacements, or upgrades</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Ongoing process improvements and cost savings</li> <li>• Implement planned improvements</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>• Maintain 24/7 operation of the Emergency Operations Center</li> <li>• Implement strategies from the site-wide Maintenance Management Program.</li> </ul>
<small>DOE = U.S. Department of Energy. ISMS = Integrated Safety Management System.                      EMS = emergency management system. EZAC = Employee Zero Accident Council. VPP = Voluntary Protection Program.</small>	

Changes in the Emergency Management system over the next 10 years will be driven primarily by changes in Hanford Site hazards as cleanup progresses. The elimination of hazards at the Plutonium Finishing Plant and K-Basin will reduce or eliminate their associated emergency planning zones (EPZs). The elimination of these hazards may allow for the reduction of siren

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footprint coverage in the 100 Area. In contrast, a new EPZ will need to be defined for WTP as it transitions from construction to operations. It is anticipated that the EPZ will be defined with the maximum 10-mile radius, as illustrated in Figure 3-3.

During FY2013, an analysis of the EOC is being performed to focus on enhancements and efficiencies. It is anticipated actions related to the assessment will be reflected in ISAP, Revision 5.

**End State FY2020:**

Continued work with Information Management on the Hanford Site Emergency Alerting System upgrades and footprint reduction.

- Condition in FY2020: Excellent
- Capacity: No metric available
- Reliability: 100% usable when needed
- Population Served: 7,921
- Areas Served: Entire Hanford Site
- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects.

**Cost Savings Proposals:** None identified; however, during FY2013 an analysis of the EOC is being performed to focus on enhancements and efficiencies. Results of this analysis will be delivered in late June 2013. It is anticipated the RL-approved activities will be reflected in ISAP, Revision 5.

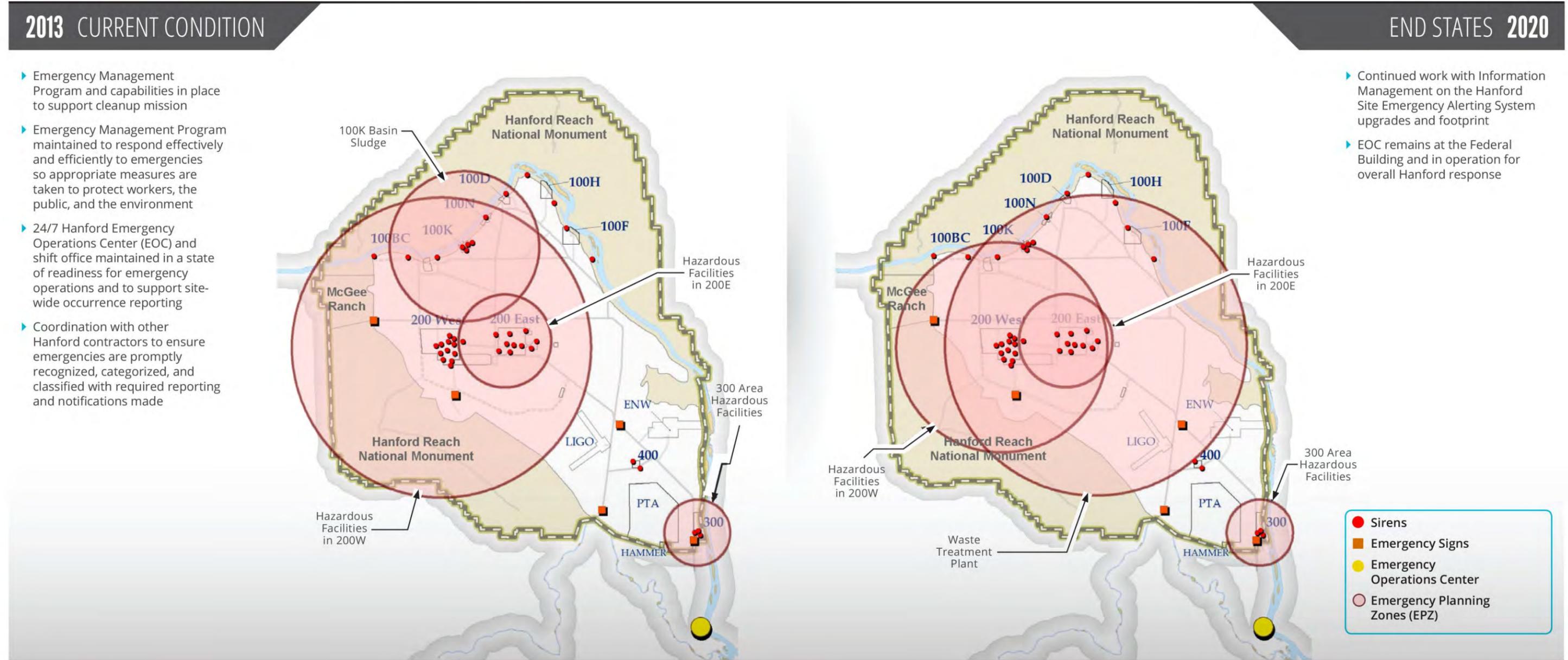
**Major Actions/Decisions Needed:** Fund defined projects.

**Roadmap:** Refer to Figure 3-3.

Figure 3-3. Emergency Management Roadmap



# Emergency Management Roadmap



**Project Description**

ET56, EP, HFD, & Patrol Zetron Console Upgrade

2013	2014	2015	2016	2017	2018	2019	2020
				◆◆◆◆			

**Major Actions/Decisions**

None Identified

2013	2014	2015	2016	2017	2018	2019	2020

### 3.4 VOLPENTEST HAMMER TRAINING FACILITY



the Hanford Site. HAMMER/Hanford Site training focuses on the Occupational Safety and Health, Radiological, Emergency Operations and Response, Environmental and Waste Management, Fire Operations, and Law Enforcement programs. HAMMER's attributes are provided in Table 3-4.

HAMMER began as a community-based and labor initiative to improve training for hazardous materials workers, emergency responders, and firefighters. HAMMER provides the primary Environmental Restoration and Waste Management training facility for the Hanford Site. HAMMER also serves DOE-

Headquarters (DOE-HQ) and other federal, local, state, regional, and national agencies' needs. As a federally-owned facility, HAMMER is uniquely situated to serve the federal government in expanding roles. Using government-to-government funding mechanisms, HAMMER has expanded its clientele and is currently fully equipped to support an additional federal scope in the areas of domestic preparedness and emergency response missions. HAMMER has the ability to perform this scope under the DOE Work for Others program in support of other federal agencies customers. As the Hanford Site cleanup mission is completed, HAMMER's missions are expected to shift toward supporting new Hanford Site missions and additional external agency scope, which will infuse

**Basic System Description:** The HAMMER training facility is an 88-acre complex that provides realistic, hands-on, standardized training to Hanford Site workers, national and international emergency responders and homeland security personnel to develop and maintain the knowledge and skills that will enable these workers to safely complete their assigned missions. The unique approach to training combines the use of peer worker trainers, standardized lesson plans, and props to realistically simulate working conditions that may be encountered in the field. HAMMER's mission reflects DOE's need to train workers and support personnel to safely and effectively perform the cleanup of

Table 3-4. HAMMER Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>Continued application of ISMS, EMS and VPP principles</li> <li>Operate an efficient facility that is compliant with regulatory requirements</li> <li>Provide a safe training environment and realistic equipment to simulate conditions</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>Ensure HAMMER facilities and its support functions are available in a ready-to-serve state</li> <li>Evaluate facilities and props to ensure right-sized resources</li> <li>Support DOE efforts to utilize land within and adjacent to HAMMER for other agencies' training programs</li> <li>Leverage facility capabilities for non-Hanford funded training and exercises</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>Consistent with Hanford's Vision to "Be a leader in sustainability and green energy"</li> <li>Perform sustainability evaluations for major repairs, replacements, or upgrades</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>Ongoing process improvements and cost savings where possible</li> <li>Forecasted capital upgrade projects to ensure Hanford Site training needs are properly addressed</li> <li>Implement planned improvements</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>Maintain and operate the facility in an efficient and compliant manner that ensures resources are available to support Hanford Site mission</li> <li>Implement strategies from the site-wide Maintenance Management Program</li> <li>Optimize predictive, preventive and corrective maintenance.</li> </ul>
DOE = U.S. Department of Energy.      ISMS = Integrated Safety Management System. EMS = emergency management system.      VPP = Voluntary Protection Program. EZAC = Employee Zero Accident Council.	

additional non-EM financial support. HAMMER anticipates increased facility use for WTP operations staffing needs during the period FY2017 to FY2022.

General equipment available to meet training needs includes cranes, forklifts, simulators, and compressors. All equipment is in fair to good condition and meets current use needs. The HAMMER/Hanford training facilities consist of 153,251 ft<sup>2</sup> in 21 buildings with classrooms supporting training courses featuring computer-based and web-based training, conference rooms, a cafeteria, the Hanford safety library, warehouse facilities, storage and office spaces.

**Current Condition FY2013:**

- Condition: Good - normal aging for 15-year old facilities and equipment
- Facility Utilization Capacity: Approximately 5,000 class sessions
- Reliability: 100% available when needed, except during times of wildfires, planned repair closure or extreme temperatures
- Population Served: 11,000
- Areas Served: Entire Hanford Site including multiple non-Hanford customers
- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects.

HAMMER staff developed a Facility Upgrade Plan that describes facility development necessary to support the implementation of HAMMER's mission and vision. This plan identifies facility modifications, infrastructure expansion, new facilities, and training props that are needed to support Hanford Site cleanup, future operations of the WTP, and growing new missions. DOE funded upgrades are provided in the IRPPL (Appendix B).

This plan also supports HAMMER's readiness to serve emerging Hanford Site health and safety issues such as Beryllium and Fall Protection programs. Initiatives in this plan will position HAMMER to continue to support Hanford Site contractors as well as expanding to support non-EM funded training such as National Guard Bureau Civil Support Teams, Federal Law Enforcement Training Center, U.S. Department of State training, and regional U.S. Department of Homeland Security training. This expansion will benefit the Hanford Site through exchange of best practices, costs sharing of new facilities, and the availability of a nationally recognized training industry in the Tri-Cities.

**End State FY2020:**

Reductions in the Hanford Site Central Plateau workforce will be offset by growth in the WTP from FY2017 to FY2022.

- Condition: Good - 22-year old facilities and equipment
- Projected Facility Utilization Capacity: Approximately 5,000 class sessions
- Reliability: 100% available when needed, except during times of wildfires, planned repair closure or extreme temperatures
- Population Served: 11,000
- Areas Served: Entire Hanford Site including multiple non-Hanford customers
- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects.

**Cost Savings Proposals:** None identified.

**Major Actions/Decisions Needed:** Fund defined projects.

**Roadmap:** Refer to Figure 3-4.

Figure 3-4. HAMMER Roadmap



# HAMMER Roadmap

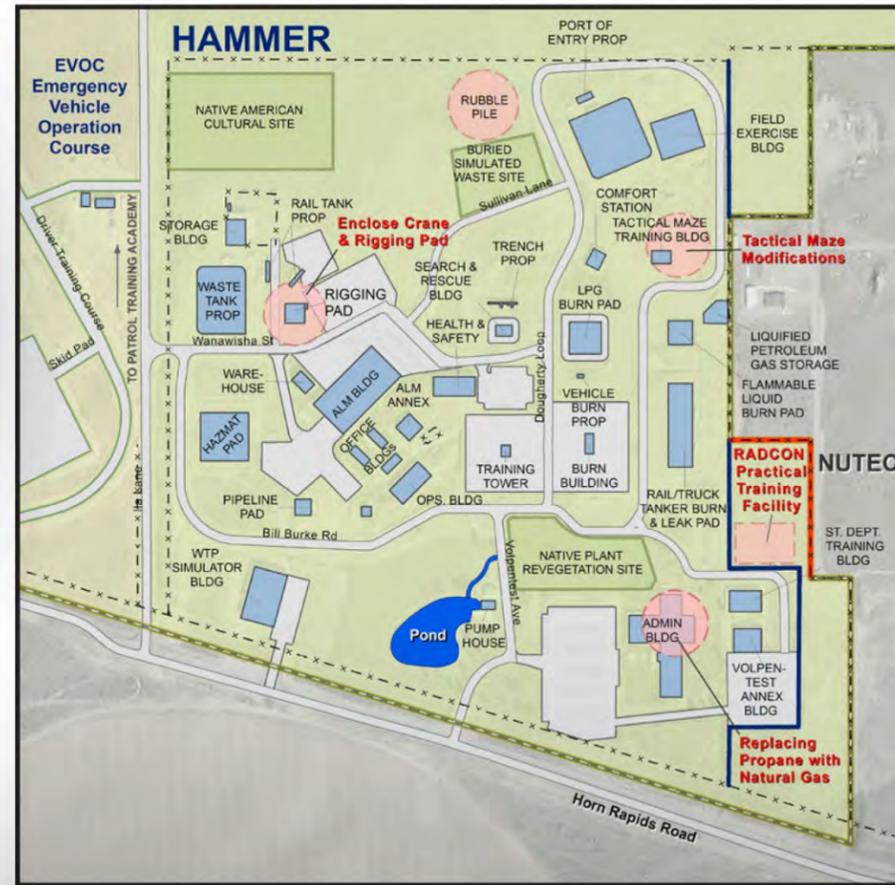
## 2013 CURRENT CONDITION

- ▶ Site size: 88 acres plus an additional 60 acres for future development
- ▶ Completed Volpentest Hazardous Materials Management and Emergency Response Education and Training Center (HAMMER) Facility Upgrade Plan, HNF-45826, Revision 3 and a Strategic Business Plan to guide facility upgrades and identify projects
- ▶ Completed Department of State funded International Border Security Field Exercise Building (16,000 ft<sup>2</sup>) last year. This building will support the international border security and law enforcement training conducted by Pacific Northwest National Laboratory (PNNL) for the Department of State, the National Nuclear Security Administration and the Department of Homeland Security as well as the Hanford Site training programs



## END STATES 2020

- ▶ Site Size: 88 acres plus an additional 60 acres for future development
- ▶ The Hanford student days will fluctuate between 2015 and 2020 with some Site project completing and anticipated start-up of Waste Treatment Plant (WTP)
- ▶ Further increases in non-Hanford training are anticipated in areas such as international and domestic border protection, National Guard, Homeland Security, Law Enforcement, Emergency Preparedness, Energy Assurance, and Fire Service Training
- ▶ Population served: 11,000
- ▶ Target shift from cleanup workers to WTP operations/maintenance craft
- ▶ Continued use of HAMMER staff by the National Training Center (NTC) to develop and improve DOE complex-wide training programs and facilitate reciprocity



Legend:

- Training Facilities (Blue square)
- Training Sites (Green square)
- Proposed Projects (Red square)
- Fence Projects (Pink square)
- Adding (Red line)
- Removing (Blue line)
- Existing Fence Line (X-X)
- Roads and Parking Areas (Grey square)
- Hanford Site Boundary (Dashed line)

### Project Description

Project Description	2013	2014	2015	2016	2017	2018	2019	2020
T-226, RadCon Practical Training Building						◆◆◆◆		
T-224, Enclose Hoisting and Rigging Props							◆◆◆◆	
T-225, Tactical Maze Building Modifications							◆◆	
T-234, HAMMER Admin Bldg 6091 Building Natural Gas Conversion								◆◆◆
T-236, Fence RadCon Property Adjacent to HAMMER								◆◆◆◆

### Major Actions/Decisions

Major Action/Decision	2013	2014	2015	2016	2017	2018	2019	2020
Support WTP startup training					◆◆◆◆◆◆◆◆			
Continued utilization of HAMMER by the National Training Center (NTC) to develop national training programs	◆◆◆◆							

### 3.5 WASTE SAMPLING AND CHARACTERIZATION FACILITY (WSCF) / ANALYTICAL LABORATORY TESTING SYSTEM

**Basic Description of System:** MSA provides ready-to-serve analytical laboratory services including low-level radiological samples at the WSCF in support of Hanford Site projects and OHCs.

Sample analyses are performed in accordance with the *Hanford Analytical Services Quality Assurance Requirements (HASQARD)* (DOE/RL-96-68) and American Industrial Hygiene Association – Laboratory Accreditation Program (AIHA-LAP). The attributes for WSCF are provided in Table 3-5. WSCF staff perform analytical determinations on a variety of samples and matrices including the following categories:

- Inorganic chemistry
- Organic chemistry
- Radiological chemistry
- Sample disposal.

**Current Condition FY2013:**

- Condition in 2013: Fair
- Capacity in 2013: Refer to WSCF Master Plan Report FY2013
- Reliability in 2013: 95% available when demanded, except during planned and unplanned facility outages (wildfires, HVAC service or unit failure)
- Population Served: 16,460
- Area(s) Served: Entire Hanford Site

Table 3-5. WSCF Attributes	
<b>Operate Safe &amp; Regulatory Compliant System</b>	<p><b>Operate Safe and Compliant System</b></p> <ul style="list-style-type: none"> <li>• Technical, infrastructure and administrative activities to ensure WSCF is available in a ready-to-serve configuration that meets the requirements of the Hanford mission</li> <li>• Implementation of ISMS, EMS and VPP principles</li> <li>• Strong safety culture: EZAC, safety log book, weekly safety starts</li> <li>• Strict protocols for the handling of laboratory waste</li> </ul> <p><b>Accreditation</b></p> <ul style="list-style-type: none"> <li>• Reliable and compliant analyses through formal laboratory accreditation program</li> <li>• Compliant with regulations, validated through audits</li> <li>• Proficiency testing, method detection level studies, initial and continual demonstration of capabilities</li> </ul> <p><b>Training</b></p> <ul style="list-style-type: none"> <li>• General employee training for ready-to-serve personnel</li> <li>• Maintain qualifications for maintenance and operations for the facility</li> <li>• Cross-trained staff, minimum 3 trained personnel per method</li> </ul>
<b>Availability Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>• Continual evaluations of complex footprint reduction for non-mission critical facilities</li> <li>• Strategic planning for facility utilization and decommissioning documented in Master Plan</li> </ul> <p><b>Quality Analytical Capabilities – Sample Analysis</b></p> <ul style="list-style-type: none"> <li>• Resources required to provide a full range of organic, inorganic, and radiochemical analytical capabilities</li> <li>• Analytical personnel staffing right-sized to meet demand</li> <li>• Meet forecasted mission requirements within cycle times by maintaining adequate staffing and equipment</li> <li>• Analytical equipment remains available for sample analysis</li> <li>• Maintain greater than 80% on-time delivery per contractual service level agreements</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>• Consistent with Hanford’s Vision to “Be a leader in sustainability and green energy”</li> <li>• Retrofitting facilities with energy efficient T8 lighting</li> <li>• Variable frequency drives to be installed on HVAC motors</li> <li>• Air-water heat exchanger to be integrated in line with laboratory chiller</li> </ul>
<b>Reliability</b>	<p><b>Expense Repairs &amp; Upgrades</b></p> <ul style="list-style-type: none"> <li>• Forecasted capital upgrade projects to maintain facility operability</li> <li>• Sustainability evaluations for major repairs, replacements, or upgrades</li> </ul> <p><b>Equipment</b></p> <ul style="list-style-type: none"> <li>• Annual evaluation of analytical equipment capacity</li> <li>• Maintain redundancy for critical laboratory equipment</li> <li>• Ongoing process improvements and cost savings</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>• Implement strategies from the site-wide Maintenance Management Program.</li> </ul>
<p>EMS = emergency management system.      ISMS = Integrated Safety Management System.                      EZAC = Employee Zero Accident Council.      VPP = Voluntary Protection Program.                      HVAC = heating, ventilation and air conditioning.      WSCF = Waste Sampling and Characterization Facility.</p>	

- Gaps and Planned Projects: Refer to Appendix D for gaps and Appendix B for planned projects.

In accordance with the *Analytical Services Master Plan* (HNF-44283) dated May 2013, the WSCF will continue to have an active mission to support Hanford cleanup activities well beyond the FY2020 planning horizon. While annual sample volumes are currently forecasted to slowly decrease between FY2014 and FY2020, the laboratory facilities and infrastructure will need to remain at a high level of reliability and availability to provide timely sample analysis results in support of cleanup project schedules.

Several of the critical support systems of the main laboratory are scheduled for capital improvements or replacement in order to continue to meet laboratory attributes and end states. The control system for the HVAC is being replaced to eliminate reliability and obsolescence issues associated with the original equipment and is expected to be completed in FY2014. Additional investments are planned to address vulnerabilities to laboratory operations from design deficiencies in the laboratory air intake and obsolescence in the laboratory electrical distribution system. Replacements also are planned for the aging deionized water skid and the sample refrigerators that support the analytical processes.

While the WSCF will be required to maintain a high level of readiness to support ongoing cleanup projects, the reduction in forecasted sample volumes will allow for overall footprint reduction. Four separate buildings within the WSCF are anticipated to be deactivated and decommissioned between FY2014 and FY2017. These include Building 6266A, Liquid Waste Retention Vault, and Mobile Offices MO-188, MO-280, and MO-185.

**End State FY2020:**

- Condition: Fair
- Capacity: Refer to WSCF Master Plan Report FY2013
- Reliability: 99% available when demanded, except during planned and unplanned facility outages (wildfires, HVAC service or unit failure)
- Population Served: 12,900
- Area(s) Served: Entire Hanford Site
- Gaps and Planned Projects: Refer to Appendix D for gaps and Appendix B for planned projects.

**Cost Savings Proposals:** None identified

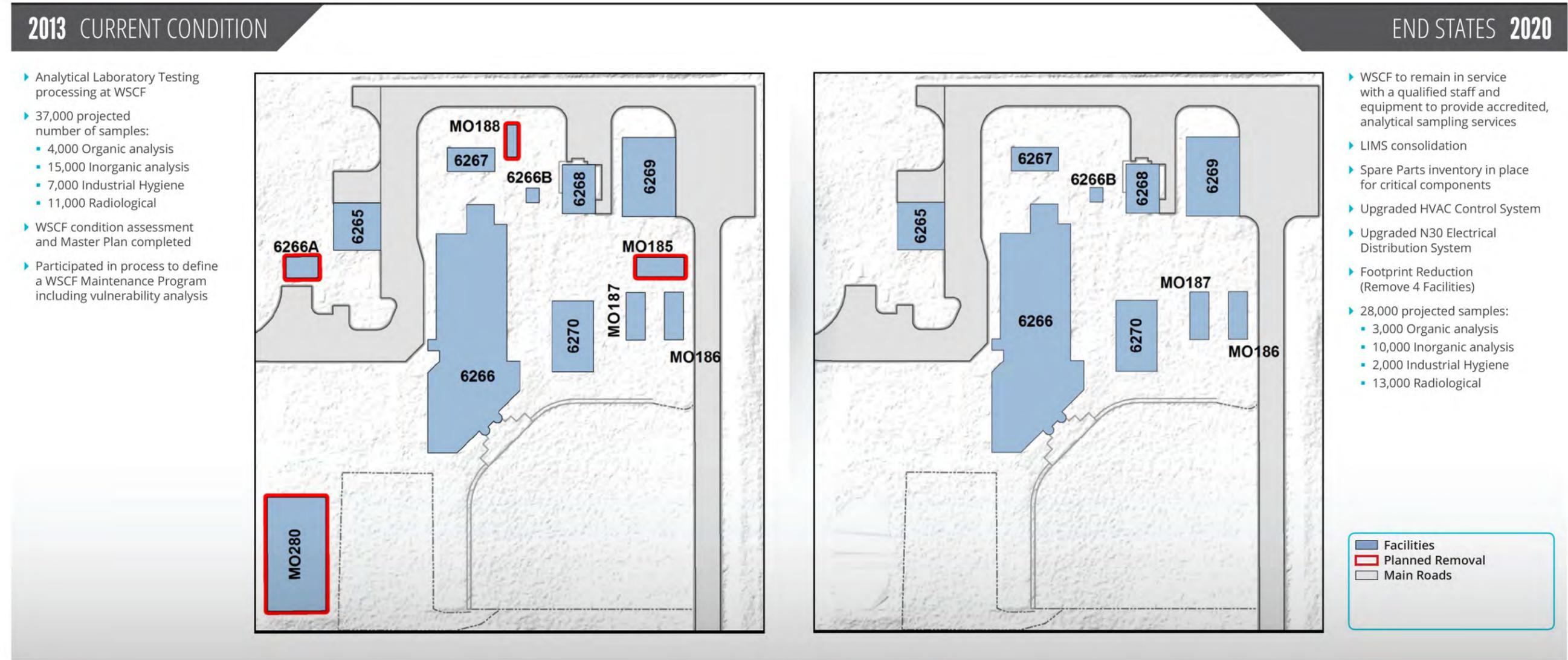
**Major Actions/Decisions Needed:** Fund defined projects.

**Roadmap:** Refer to Figure 3-5.

Figure 3-5. WSCF/Analytical Roadmap



# WSCF/Analytical Roadmap



Project Description	2013	2014	2015	2016	2017	2018	2019	2020
A-015, WSCF N30 Electrical Distribution System Upgrade					♦♦♦♦			
A-016, WSCF Replace Deionized Water System						♦♦♦♦		
A-010, WSCF Upgrade North Lab Air Intake						♦♦♦♦		
A-019, WSCF 6266 Variable Frequency Drive							♦♦♦♦	
A-017, WSCF Sample Refrigerators Replacement							♦♦♦♦	
A-018, WSCF Repair/Replace 6266 Roof								♦♦♦♦

Major Actions/Decisions	2013	2014	2015	2016	2017	2018	2019	2020
Transition from JCS to MAXIMO software platform			♦					
Implement maintenance plan for critical vulnerabilities and mitigation strategies			♦					
Consolidate LIMS systems into one system			♦					
Beryllium Classification program trained staff and equipment capacity for beryllium bulk and wipe samples		♦♦♦♦♦♦♦♦♦♦						
Recertification		♦	♦	♦	♦	♦	♦	♦
Footprint Reduction (Remove 4 Facilities)		♦♦♦♦♦♦♦♦♦♦						
Implement Spare Parts Strategy		♦						

### 3.6 TRANSPORTATION SYSTEM



**Basic System Description:** The transportation system consists of roads and rail systems and related topics including transit, ride sharing and commuter vans. Over the past 20 years, the traffic volume and system capacity to handle the Hanford Site traffic volume have remained relatively constant. Several factors affect traffic volume, primarily reflected in the rate of 87% of vehicles making Single Occupancy Vehicle (SOV) trips. Site-wide SOV use is up for several reasons, including eliminating the Hanford Site bus system formerly used by a large number of full-time federal employees in earlier years, and increase of contractor personnel and equipment to conduct cleanup activities widely dispersed

across the entire Hanford Site. In addition, B-Reactor site tours via bus added 8,000 visitors in FY2012. Bus tours continued in FY2013.

Roads on the Hanford Site are classified as:

- “open” - paved to meet long-term site needs
- “restricted” - minimal use, no major maintenance expected to be performed.

The specific roads that are of high priority include core roads designated in the 200 Areas, Routes 4S, 11A and 2S. Core roads have been selected to not conflict with any known and planned future road removals for Central Plateau cleanup including any existing facility expansions. Attributes for Transportation Systems are provided in Table 3-6.

**Current Condition FY2013:**

Lifecycle improvement is ensured through the process of identifying and analyzing alternative concepts based on user requirements and consistent with DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.

<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>• Washington State Department of Transportation</li> <li>• Manual on Uniform Traffic Control Devices</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>• Restrict access and post roads as the Hanford Site cleanup mission progresses</li> <li>• Minimize maintenance on non-core roads, but maintain roads to support cleanup goals</li> <li>• Prioritize road requirements based on mission needs</li> <li>• Restrict access to roads that are no longer required for Hanford Site cleanup activities</li> <li>• Reduce site access points as operational needs are reduced</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>• Use existing roads and minimize the installation of new roads or parking lots</li> <li>• Refurbish roads by using recycled materials (asphalt, rock, concrete, etc.) where possible</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• 99% useable when needed except during wildfires, maintenance, or weather events preventing safe use</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>• Maintain roads to maximize the flexibility to support the short-term and long-term Hanford Site mission goals</li> <li>• Refurbish and maintain site core roads based on the usage and duration of the need to support the site mission</li> <li>• Maintain roads using a graded approach based on lifecycle usage</li> <li>• Maintain a road system for personnel and movement of materials and waste.</li> <li>• Implement strategies from the site-wide Maintenance Management Program.</li> </ul>

- **Condition:** In FY2013, 396 lane miles of existing Hanford Site roads were maintained by MSA. 43 lane miles are in “restricted” status while an additional 75 lane miles are classified as “poor” condition based on national standards. Recent upgrades to selected 200 Area and 600 Area roads improved the condition of some of these core road routes. Additional pavement management projects are necessary to halt overall system deterioration. Conducting traffic counts, traffic projections, and condition surveys as an ongoing activity is important to ensure that prioritizing road projects yields funded projects that extend road lifecycle to the end state years needed for the overall Hanford mission.
- **Capacity in FY2013:** Route 4S between the WYE Barricade and the Central Plateau is the critical restriction point of the Hanford road network. Significant traffic congestion and traffic speed reductions occur when traffic volumes approach 1,200 vehicles/hour in one direction on this segment of roadway. This would result in a theoretical 24-hour capacity of approximately 28,000 vehicles in each direction. The average peak-hour traffic counts in June 2012 were 1,066 in the morning and 981 in the afternoon, Monday through Thursday. The average daily traffic in both directions for this period was 5,712 vehicles.
- **Reliability:** 99% usable when needed; except during wildfires, maintenance, or weather events preventing safe use.
- **Population Served:** 8,455
- **Gaps and Planned Projects:** No gaps identified; refer to Appendix B for planned projects.

The following summarizes the facilities, agreements, cleanup, and LTS trends affecting roads, arranged by major area:

**100 Area:** All 100 Area roads will become eligible for restricted status as the area transitions to LTS. The 100K Area is expected to remain in a cleanup status beyond FY2020. Access roads to 100K will remain in open paved status.

**200 Area:** It is envisioned that the 200 Area roads will be the main focus for maintenance and use. Major factors influencing road requirements on the Central Plateau include the number of WTP administrative support staff required to report to the WTP site daily, ORP office presence at the WTP vicinity, and rebaselining of the WTP schedule transition to operations. Figure 3-6 shows the 200 Area core roads that are long-term priority routes.

**300 Area:** Based on current use agreements allowing DOE-PNSO and PNNL use of several RL owned buildings continuing through FY2026 and beyond, roads are anticipated to remain classified as open paved. A condition assessment of the 300 Area roads to support long-term operations needs to be completed in FY2015 or FY2016. Refer to Figure 3-7 for the 300 Area roads and facility locations.

**400 Area:** Access to the 400 Area will continue for the foreseeable future. Although the Fleet Maintenance Shop and 400 Area Fire Station are closing, CHPRC will continue to operate several separate facilities, including the Maintenance and Storage Facility. Also, final disposition of FFTF will dictate future road requirements.

**600, 700, and 1100 Areas:** No impacts to roads. No actions for restricted status are needed. The entire 1100 Area is within the Richland Urban Growth Boundary (UGB). In the 600 Area north of Route 11A, roads will be placed in restricted status as shown in Figure 3-8.

**HAMMER Site:** Planning and maintenance for Hanford Site roads including HAMMER and the PTA are completed by the facility. The entire HAMMER area is within the Richland UGB, any roads serving HAMMER will become city streets on full annexation. MSA maintains all the roads within

the HAMMER facility, including the access road from the Cold Test Facility to PTA, and the EVOC. Maintenance includes, but is not limited to, asphalt patching, sweeping, and snow removal.

**End State FY2020:**

New traffic lanes will not be added to Route 4S between the WYE Barricade and the Central Plateau. Road condition would be considered “fair.” The traffic forecasts should be reduced from FY2015 levels due to a projected decrease in Hanford Site population and a further decrease in the percentage of SOVs. The peak hour traffic volumes will depend on what variations in shift start and end times exist at that time. Anticipated SOV levels will be 80% for all trips. Some form of transit service will continue, most likely via Benton Franklin Transit, primarily to meet air-quality, fuel-consumption, and greenhouse-gas-emission standards. Figure 3-8 shows the open paved roads and restrictions.

- Condition: Fair for most roads with approximately 15% in poor condition.
- Capacity: Route 4S between the WYE Barricade and the Central Plateau will remain as the critical capacity restriction point of the Hanford road network assuming that additional traffic lanes are not constructed. Significant traffic congestion and traffic speed reductions occur when traffic volumes approach 1,200 vehicles/hour in one direction on this segment of roadway. Based on the population forecast below and the anticipation of a lower percentage of SOVs, the average daily traffic on Route 4S between the WYE Barricade and the Central Plateau is expected to reduce to approximately 4,000. The peak hour traffic volumes will depend on what variations in shift start and end times exist at that time.
- Reliability: 99% usable when needed, except during wildfires, maintenance or weather events preventing safe use.
- Population Served: 6,343
- Areas Served: Primarily Central Plateau area with restricted roads in outlying areas
- Gaps and Planned Projects: Refer to Appendix D for gaps and Appendix B for planned projects.

**Cost Savings Proposals:** Two cost savings proposals validated during the ISAP process in FY2013 merit further study to meet the FY2015, FY2020, and FY2070 mission end states:

- Ensure the remote area road restriction list matches the LTS schedule for 100, 300 and 400 Area closures and conveyances. Converting remote roads to a stabilized surface might be part of any land conveyances for Department of Interior agencies, based on the merit of such conversion on a case-by-case basis. This is a future opportunity with minimal cost savings for roads that may be repurposed.
- Elimination of major maintenance on Routes 11A (east of the Central Plateau) and 2S following construction of the WTP. Deferring long-term maintenance on these roads is estimated to significantly reduce lifecycle costs for vehicle access to the Central Plateau.

Figure 3-6 shows the 200E Area and 200W Area alignment and locations of the core roads of the transportation system. Figure 3-8 shows the status of the transportation system. Appendix F provides more detail for transportation system cost savings introduced but not fully scoped, estimated, or validated during FY2013. Core roads are designated primary routes for long-range planning that are consistent with long-term cleanup plans and future uses, particularly in the 200 Areas where many changes will occur over long periods of years eliminating certain routes currently available.

**Major Actions/Decisions Needed:** Refer to the actions described earlier, and Appendix B for projects. Refer to Appendix F for cost savings measures.

**Roadmap:** Refer to Figure 3-8.

Figure 3-6. Transportation System in 200W and 200E Areas

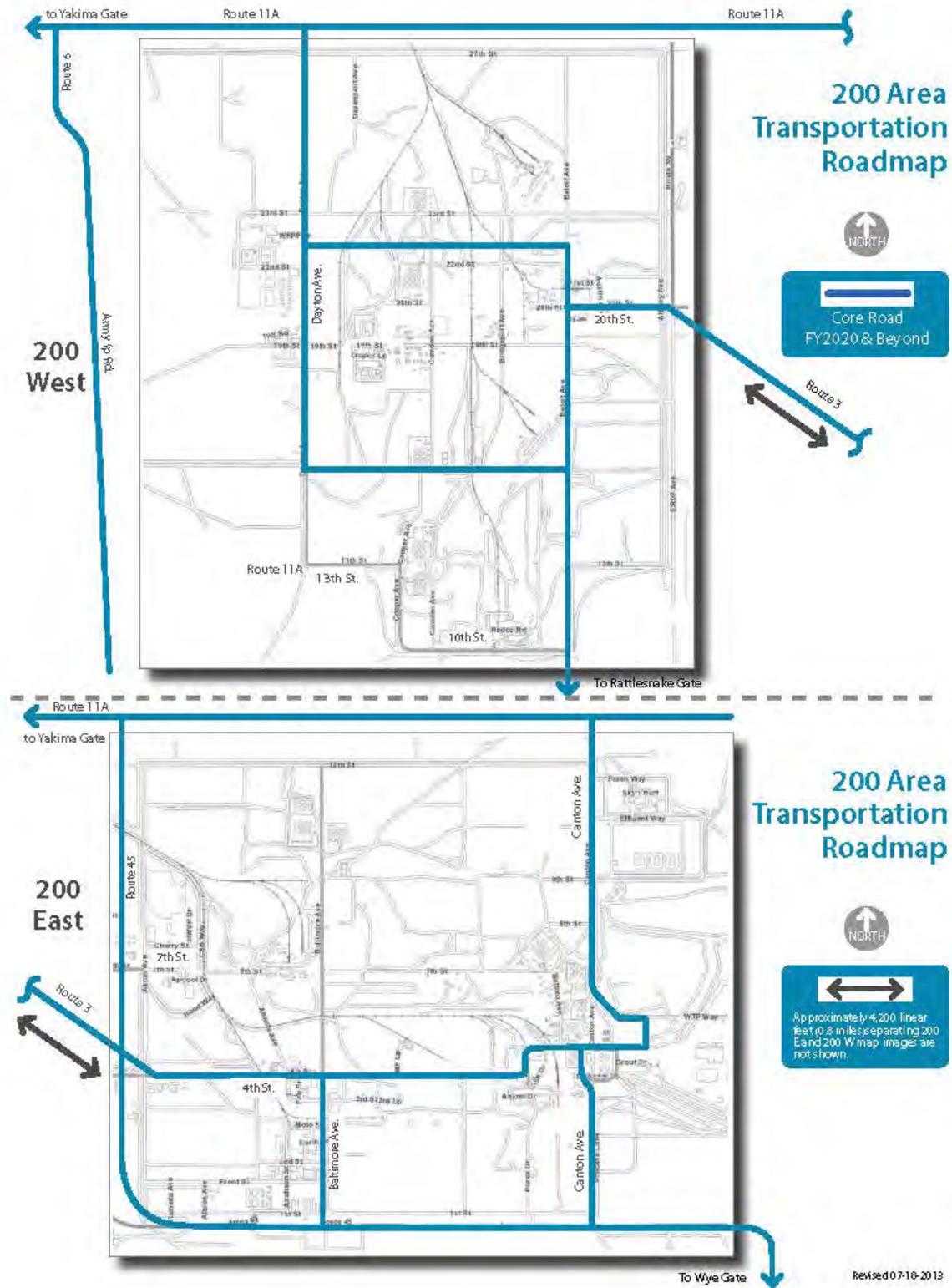
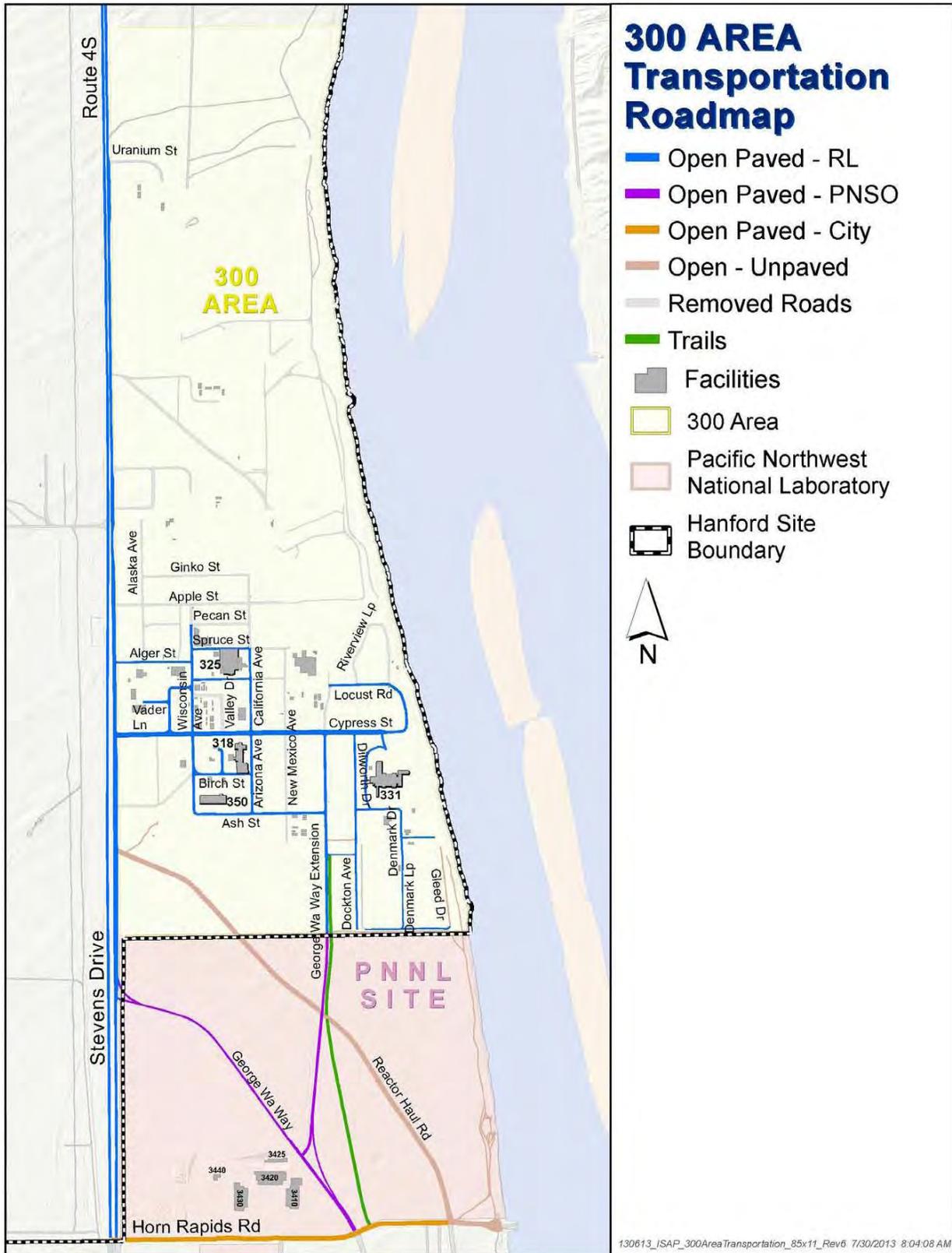


Figure 3-7. 300 Area Transportation System

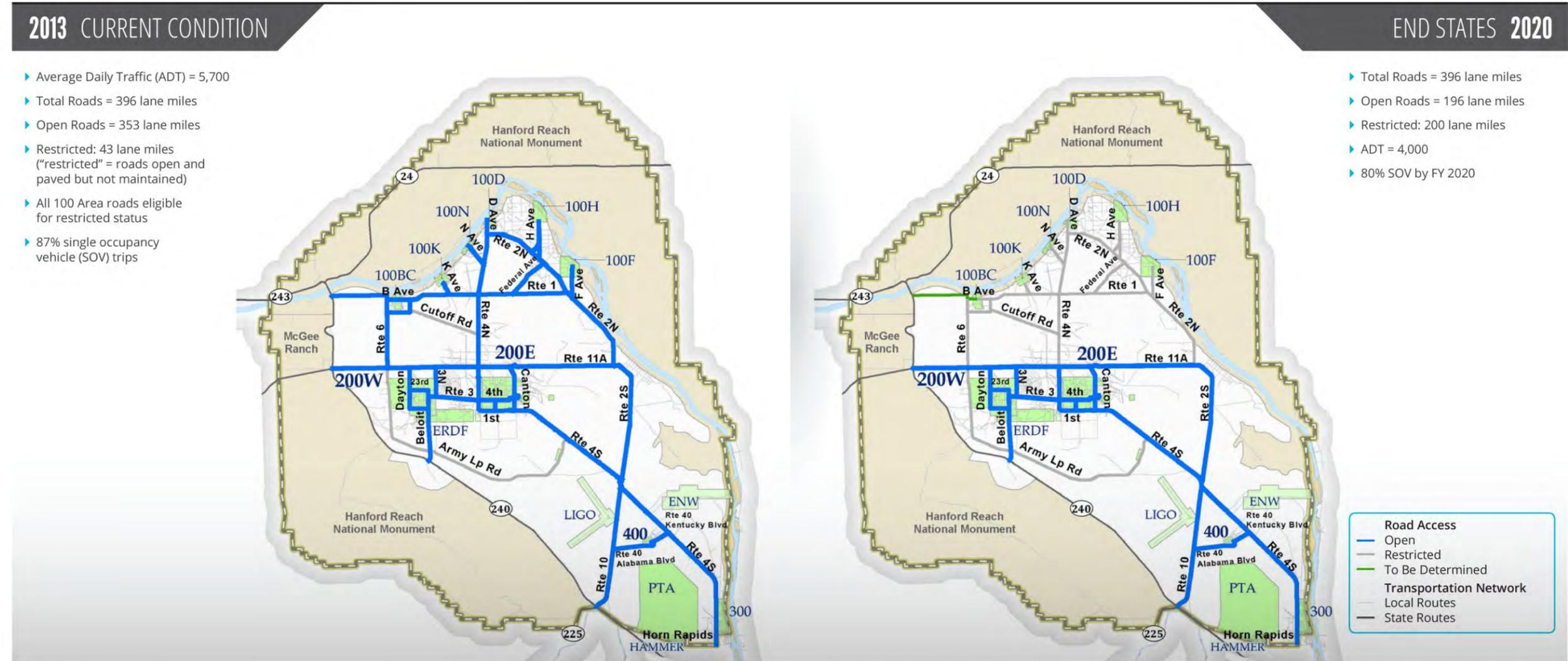


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Figure 3-8. Transportation Roadmap



# Transportation Roadmap



Project Description	2013	2014	2015	2016	2017	2018	2019	2020
L-777, Overlay Route 4S, 618-10 Waste Site to Horn Rapids Road				♦♦♦♦				
L-776, Overlay Route 4S, Wye Barricade to 618 Waste Site entrance				♦♦♦♦				
L-775 Overlay Route 4S, Canton Avenue to Wye Barricade				♦♦♦♦♦♦				
L-519, Overlay Interior 200 West Roads					♦♦♦♦			
L-603, Overlay Route 3N (Route 11A to Route 3)					♦♦♦♦			
L-690, Chip Seal Route 11A (Route 4N/4S to Route 3N)						♦♦♦♦		
L-517, Overlay Route 3 & 20th Street (Route 4S to Beloit Ave.)						♦♦♦♦		
L-534, Overlay Interior 200 East Roads						♦♦♦♦		
L-523, Chip Seal 200 West Interior Roads						♦♦♦♦		

Project Description (Continued)	2013	2014	2015	2016	2017	2018	2019	2020
L-533, Chip Seal Interior 200 East Roads							♦♦♦♦	
L-759, Akron Avenue (12th to 2704HV)							♦♦♦♦	
L-760, Dayton Avenue (16th St. to 19th St and Gate 609 to 19th St) and 23rd Street (Beloit to Dayton)							♦♦♦♦	
L-670, Enhancements to Repair Rutting at Wye Barricade							♦♦♦♦	

Major Actions/Decisions	2013	2014	2015	2016	2017	2018	2019	2020
Core Road Condition Assessment			♦					
300 Area Road Condition Assessment				♦				

### 3.7 ELECTRICAL TRANSMISSION AND DISTRIBUTION SYSTEM'S ELECTRICITY SUPPLY



**Basic Description of System:** The Hanford Site has 52 miles of 230 kilovolts (kV) transmission line, 160 miles of 13.8kV aerial lines, 15 miles of underground lines and 5 primary substations. The condition of the system in FY2013 and the needs for the FY2020 end state are discussed for each of the following major substations:

- Substation 251-W (A-8) currently serves the Central Plateau
- Substation 251-E (A-6) serves the WTP
- Substation 151-KE (A-9) serves the 100 Area
- Substation 351 (B3-S4) serves the 300 Area
- Substation 451-B (B5-S2) serves the 400 Area.

The overall electrical transmission and distribution systems have provided reliable power to the Hanford Site from the 1940's until

the present. Significant upgrades have been defined to meet future mission requirements for FY2020. The upgrades are necessary to support new loads needed by the waste feed delivery system in the 200 Areas to support the WTP.

Attributes for Electrical Systems are provided in Table 3-7.

In 2007, DOE became subject to the *Energy Policy Act of 2005* (EPAct 2005) mandatory compliance with electric reliability standards. The Hanford Site electric transmission system is part of the national and regional electric power grid. The EPAct 2005 requires integrity to prevent disruptions to the electric grid system. DOE is subject to monetary penalties and sanctions for failure to comply with these requirements.

Table 3-7. Electrical System Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>• Meets or exceeds applicable Energy Policy Act (EPAct 2005), WECC, NERC, and FERC requirements</li> <li>• Enhanced safety program tailored to electrical utility systems.</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>• Minimize cost and support out-year cleanup</li> <li>• Increased capacity for Central Plateau</li> <li>• Downsize 300 and 400 Areas</li> <li>• Long-Term Stewardship:                             <ul style="list-style-type: none"> <li>○ Master plan over 10-year horizon integrated with ISAP</li> <li>○ Enhanced succession planning to retain core competencies.</li> <li>○ Planning focus—Central Plateau: WTP and Tank Farms</li> </ul> </li> <li>• Implement Wood Pole Replacement Program</li> </ul>
<b>Sustainability &amp; Minimize Impact to Environment</b>	<ul style="list-style-type: none"> <li>• Lamp and ballast disposal</li> <li>• Scrap metal recycling</li> <li>• PCB and non-PCB oil and contaminated equipment disposal</li> <li>• Alternate power - fuel cells, solar, etc.</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Engineered solutions to aging systems: Meters and relays, breakers, transformers, pole and pole lines including conductors and hardware</li> <li>• Enhanced unplanned outage response.</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>• Enhanced predictive, preventive and corrective maintenance.</li> <li>• Implement strategies from the site-wide Maintenance Management Program.</li> </ul>
FERC = Federal Energy Regulatory Commission.      PCB = polychlorinated biphenyl. NERC = North American Electric Reliability Corporation.      WECC = Western Electricity Coordinating Council. WTP = Waste Treatment and Immobilization Plant.	

Electrical system capacities, by substation, are documented in the Electrical Master Plan. Hanford Site electrical demand is projected at 74 megawatts (MW) by FY2019. In FY2012, about 40MW of electrical power support is required for specific mission activities. Approximately 95% of the power is purchased directly from the BPA. About 5% is supplied directly from the City of Richland to facilities in North Richland (HAMMER, PTA, etc.). LIGO receives power from the Benton County

Public Utility District via a distribution line from the Hanford 451-B (B5-S2) Substation in the 400 Area.

**Current Condition FY2013:**

**100 Area Electrical:** The aging 151-KW (A-7) Substation was replaced with a skid-mounted substation built as part of the K Basin cleanup project to enable further remediation to occur. The new Substation, 151-KE (A-9), became operational in FY2011 and is designated for removal from service in FY2018 as the 100 Area needs are eliminated by cleanup and closures.

The forecasted demand for the 100 Area is 3MW in FY2013 and FY2016. The substation is planned for removal in FY2018. The major long-term load in the 100 Area is supporting water pumping to the 200 Area, and pump-and-treat activities for groundwater.

The 230kV transmission line sections from the 100 Area Fire Station to 100D Area is in need of repair. The armor rod that suspends the lines has exceeded its life and needs replacement to prevent the lines from falling.

100B and 100D Area were bypassed with new 230kV lines sections to support field remediation. Additionally, 100D and 100H Area 13.8kV lines were rerouted to support this effort.

**200 Area Electrical (Central Plateau Area: 251-E (A-6) and 251-W (A-8) Substations):** The 251-E (A-6) Substation was constructed to serve the WTP. Demand on the 251-E (A-6) Substation is forecasted to be 3MW in FY2014; growing to 10MW in FY2016; continuing to increase to 42MW in FY2019 once WTP starts operation; and then increases to 51MW in FY2020. Demand on the 251-W (A-8) Substation is anticipated to be 31MW in FY2013 but will diminish to 27MW by FY2017 and return to 30MW by FY2019. The 27MW demand in FY2016 includes picking up the remaining load from the 100 Area (2MW) once K Basin sludge removal is complete.

A significant upgrade to the 251-W (A-8) Substation and 200E electrical system will be required to support waste feed delivery from the tank farms to the WTP. This upgrade is a critical prerequisite for startup of waste feed to the WTP. In addition, it has been determined that Institute of Electrical and Electronics Engineers (IEEE) 765, *Standard for Preferred Power Supply for Nuclear Power Generating Stations*, is applicable to the Hanford electrical system feeding the WTP. This standard, which requires redundant and physically independent offsite electrical sources, will drive significant changes to the electrical supply to WTP. Decisions are needed on how to best implement this standard with other forecasted electrical needs of the WTP.

**300 Area Electrical:** The 351 (B3-S4) Substation will be removed from service in FY2015 after the service to permanent facilities in the 300 Area is transitioned to the City of Richland in FY2014. The temporary deactivation and decommissioning (D&D) facilities in the 300 Area (less than 1MW) will be served from the 451-B (B5-S2) Substation in FY2015.

Demand on the 351 (B3-S4) Substation is projected to be 4MW in FY2013, but will drop to less than 1MW in FY2014 when the City of Richland takes over, so the remaining temporary load may be served from the 400 Area or alternative means such as generators or solar panels.

**400 Area Electrical:** The 451-B (B5-S2) Substation was built in the early 1980s. The 400 Area demand is anticipated to be 2MW in FY2013 and increase to 4MW in FY2015 from LIGO (1MW increase) and picking up the remaining load from the 300 Area (less than 1MW), so that the 351 (B3-S4) Substation can be removed from service. The 451-B (B5-S2) Substation is predicted to be eventually transferred to another local utility. The 451-B (B5-S2) Substation will remain in service until further consideration is given to sustain ongoing operations at LIGO.

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The planned vs. actual closure dates for 400 Area require RL decisions predicated on funding all component facility moves and demolition required to reduce electrical demand to zero by FY2019.

**End State FY2020:**

To meet the FY2020 end state, the equipment will be operating at a peak demand of 81MW and maintained in fair condition.

- Condition: Fair overall, with a few major components in poor condition because of age
- Capacity: 110MW
- Reliability: Metric is unavailable, expected to be developed by 2013
- Population Served: 6,200. PNNL campus includes 4,000 employees and 100 employees in the 300 Area; electrical service to PNNL and the remaining buildings in the 300 Area are serviced by the City of Richland
- Areas Served: Entire Hanford Site excluding HAMMER and PTA
- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects.

**Cost Savings Proposals:** \$5M for defined energy savings proposals with 10 to 15 year payback. Refer to Appendix F.

**Major Actions/Decisions Needed:** Determine appropriate path to implement IEEE 765 requirements for the offsite power feeding the WTP. Refer to Appendix E.

**Roadmap:** Refer to Figure 3-10.

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**Figure 3-9. Reserved/Not Used**

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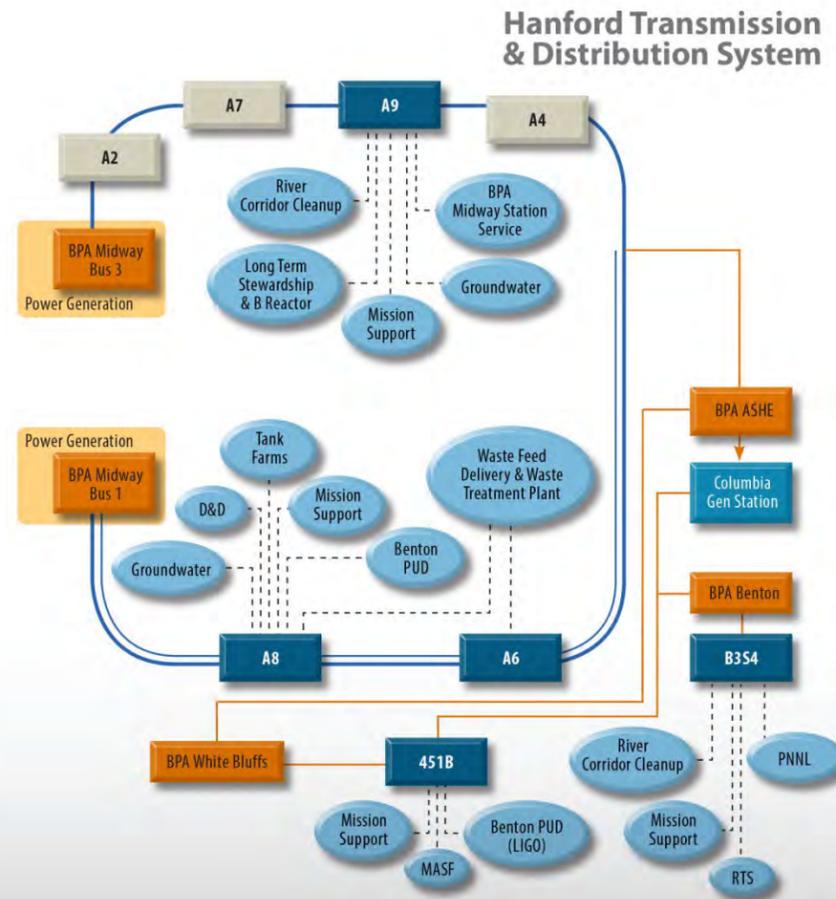
Figure 3-10. Electrical Roadmap



# Electrical Roadmap

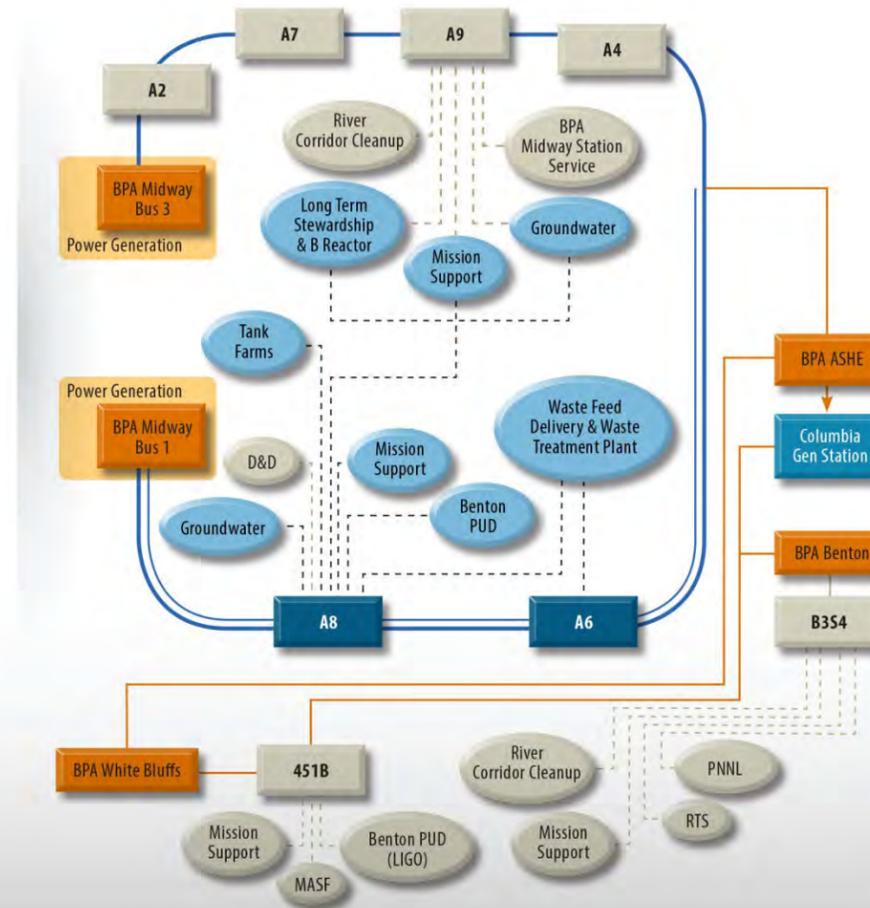
## 2013 CURRENT CONDITION

- ▶ Core System Demand: 39MW Peak
- ▶ Core System Capacity: 38MW/41MW Peak
- ▶ Extend 200E 13.8kV line ~ 8Mi
- ▶ Complete 200E electrical distribution system, install switched capacitor banks in 200E
- ▶ Complete 251W (Substation A8) designs and initiate construction to upgrade ratings of High Voltage Transformer and Load Tap Changer supporting FY 2014 Waste Feed Delivery (17MW average need)
- ▶ Electrical master plan update at 60% complete



## END STATES 2020

- ▶ 100 & 200 Areas served from 251E (A6) & 251W (A8) substations:
  - Peak Demand: 76MW
  - Capacity: 110MW
- ▶ 100 Area served from 151KE (A9) substation:
  - Downsize 100 Area or eliminate 151KE (A9) substation
- ▶ 300 Area served from 351 (B354) substation:
  - Downsize 300 Area 351 substation removal and transition to City of Richland
- ▶ 400 Area served from 451B Substation:
  - 400 Area loads will be removed, transferred to alternative off-grid power, or operation of substation transferred to an off-site utility
- ▶ Downsize other areas— isolate distribution as loads are no longer needed



■ RL Owned Substation  
■ BPA Owned Substation  
■ Powered or Served by Other/Demolished  
— RL Owned 1200A/230kV Line  
— RL Owned 800A/230kV Line  
- - - RL Owned Distribution  
— BPA Owned 115 or 230kV Line

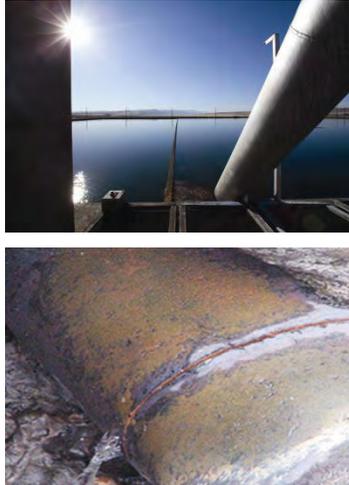
### Project Description

	2013	2014	2015	2016	2017	2018	2019	2020
L-612, 230kV Transmission System Reconditioning and Sustainability Upgrades				••••				
L-768, 251W A8 Substation Equipment Rating Optimization Upgrades		••••						
L-780, 200E Area 13.8kV Electrical Distribution System WFD Modifications and Upgrades (DESIGN)		••••						
L-780, 200E Area 13.8kV Electrical Distribution System WFD Modifications and Upgrades (CONSTRUCTION)			••••					
L-789, Prioritized T&D System Wood Power Poles Testing and Replacement (1)					••••••••			
L-789, Prioritized T&D System Wood Power Poles Testing and Replacement (2)					••••••••			
L-789, Prioritized T&D System Wood Power Poles Testing and Replacement (3)						••••••••		
L-788, 13.8kV Line C3L5 Long-Term Configuration Changes and 451B Substation Upgrades				••••				

### Major Actions/Decisions

	2013	2014	2015	2016	2017	2018	2019	2020
Complete Electrical Master Plan Update		•						
Transition 300 Area electrical to the City of Richland			•					
300 Area, Remove from service substation 351				•				
100 Area, Remove from service substation A9						•		
400 Area, Substation 451B disposition							•	
Determine appropriate path to implement IEEE 76 requirements for the power feeding the WTP		•						

### 3.8 WATER SYSTEM



**Basic System Description:** The Water System consists of one water treatment plant for potable water; over 104 miles of water lines serve more than 300 raw and potable water service connections; and two pump houses, one each at 181B and 181D, drawing water from the Columbia River and pumped to the respective 25-million-gallon reservoir in 182B or 182D area. (Note: The 182D reservoir is restricted to 5.25-million-gallon storage capacity due to deteriorated condition.) The water is then pumped from the reservoirs to the 200 Area and other end users in the 100B/C, 100D, 100F, 100H and 100K areas by the 182B and 182D export water pumps. The 200 Areas have over 50 miles of in-ground distribution lines. Each 200 Area has a 3-million-gallon raw water reservoir and a 1.1-million-gallon potable water storage tank required for fire

protection capacity.

The 200E Area and 200W Area raw and potable water fire protection systems are currently being modified to supply all 200 Area fire protection water from the 1.1-million-gallon potable water storage tanks and converting the raw water reservoirs to strictly process water storage and supply. The 283-W water treatment facility produces potable water from raw water for distribution throughout both 200 Areas. The City of Richland supplies water to the 300 Area, 700 Area, HAMMER, and other DOE facilities adjacent to Horn Rapids Road (e.g., PTA, ORP test facilities). The 400 Area is supplied by a well located in the 400 Area. The 300 Area and 400 Area water systems are operated and maintained by OHCs. Attributes for Water Systems are provided in Table 3-8.

Table 3-8. Water System Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>Meets or exceeds <i>Washington Administrative Code</i> Standards</li> <li>Domestic and fire protection needs of the Central Plateau</li> <li>Capable of fighting a 4-hour fire in any Central Plateau facility</li> <li>Treatment of water for potable water requirements.</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>Requirements for export, raw, potable, and fire protection systems</li> <li>Capabilities of export, raw, potable, and fire protection systems</li> <li>Storage capacities for export, raw, potable, fire protection systems</li> <li>Planned water systems projects</li> <li>System Availability - 100%</li> <li>Component Availability - 99.5%</li> <li>Cut and cap lines to reduced impact footprint</li> <li>Conditions Assessments</li> </ul>
<b>Sustainability &amp; Minimize Impact to Environment</b>	<ul style="list-style-type: none"> <li>Reductions in resource consumption</li> <li>Reductions in lifecycle costs</li> <li>Improved efficiency</li> <li>Reduced risks of impacts</li> <li>Reduction of water leaks</li> <li>Projects supporting reduced environmental impacts</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>Criticality analysis</li> <li>Redundancies to the Plateau</li> <li>Risks and mitigations</li> <li>Implement planned improvements</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>Implement strategies from the site-wide Maintenance Management Program.</li> </ul>

**Current Condition FY2013:**

- Condition: Fair to Good
- Capacity: Refer to earlier text description.
- Reliability: 99% usable when needed, except for pipe breaks and planned service shutdowns
- Population Served: 5,130
- Areas Served: 100 Areas, Central Plateau.
- Gaps and Planned Projects: Refer to Appendix D for gaps, Appendix B for planned projects and Appendix E for decisions needed. The significant projects include the Central Plateau water system upgrade in late stage construction in FY2013. Predesign planning for a planned river pump station upgrade project in the 100 Areas (convert to variable speed motors, disconnect two reservoirs) requires funding and authorization to begin. The Maintenance Management Program, based on a priority analysis, was defined during FY2013 to define the path forward for the aging water system.

Some of the Hanford Site in-ground pipelines used for water delivery have deteriorated to the point that replacing or relining the pipe is required to protect the environment and continue performing the Hanford Site cleanup mission. Numerous water line breaks occurred during FY2012 requiring unbudgeted, unplanned emergency repairs. Relining pipelines is a continual process that occurs as funding is available. Additionally, laterals that are no longer needed are being capped and isolated from the system as project work is completed.

The age of the existing water supply systems on the Central Plateau has generated concern about the overall system's reliability and its ability to meet WTP needs during commissioning, plus 40 years of operation. Emphasis is needed to address the current system age.

Recently, the large mechanical and automated equipment that make up the water system, including pumps, valves, computers, and instrumentation, have been closely monitored. Some components are 50+ years old, requiring extensive maintenance in recent years. The components are being refurbished or replaced to increase system reliability on a priority and failure basis. In addition, increased emphasis has been placed on shrinking the Hanford Site water system's footprint by upgrading only those portions that have a long-term mission plus running other components to the end of useful life. Because of the deteriorated condition of the 182D reservoir and marginal system performance, the 2011 Export Water System Options study recommends bypassing the 182D reservoir, pumping straight into the plateau reservoirs and reconfiguring the Central Plateau 3-million-gallon raw water reservoirs. The net impact of the proposed actions will be to improve overall system reliability, support decommissioning of the 182D facility, and allow future waste stream treatment needs to be met. Central Plateau improvements are scheduled to be completed in FY2013, while direct pump installation for the 100D Area is scheduled for FY2017.

Incorporating a closed-loop condenser water system on the 242-A Evaporator facility should be evaluated after funding is allocated for a design study. This facility is one of the Hanford Site's largest raw water consumers when in operation. The closed-loop system would help meet the Hanford Site's sustainability goal of a 20% decrease in raw water consumption by FY2020.

Potable water demand will increase from approximately 50,000 gal/day in FY2011 to over 60,000 gal/day in FY2020 and beyond. The increase is caused primarily by operation of the WTP facility at 1,200 gal/min, 2,500 gal/min for fire flows, and a potable water flow volume including

demands totaling 950 gal/min plus other demands. The potable water demand flows include the following:

- Balance of Facilities cooling tower
- Domestic water makeup
- Cooling water makeup.

#### **End State FY2020:**

Raw and export water system capacity will be excellent. The raw and export water system condition will be fair. The export water demand forecasts are for 15,600 gal/min onsite, primarily pumped to and treated on the Central Plateau. The raw water capacity is 16,500 gal/min. The potable water system capacity will be excellent and potable system condition will be fair. The potable water demand forecast is for 1,950 gal/min onsite, primarily on the Central Plateau, excluding storage tanks and clear wells. The planned FY2018 water system master plan update will describe the water system that will exist in FY2020, with reliability and capacity assured by the FY2013 Maintenance Management Program.

- Condition: Excellent
- Capacity: Fair
- Reliability: 99% usable when needed
- Population Served: 4,650
- Areas Served: 100 Areas, Central Plateau. WCH owns, operates, and maintains the 300 Area water system. Over the next several years, the water system will be transferred back to RL, and subsequently transferred to MSA to maintain. Alternatively, all affected parties, including DOE-PNSO and PNNL, may discuss with the City of Richland the possibility of taking responsibility of the 300 Area water system.
- Gaps and Planned Projects: Refer to Appendix D for gaps and Appendix B for planned projects.

**Cost Savings Proposals:** As summarized in Appendix F, the cost savings, innovations, and quality improvements for the water system are described as follows:

- **Single vs. Dual Water System.** A cost savings proposal may result from a study of converting from a dual water system to a single water system wherever possible. The concept is not yet budgeted or scoped to provide either a 100% potable or a 100% raw water system that uses small decentralized water treatment plants to deliver water from the Columbia River to the Central Plateau. The decentralized water treatment plants would use one of the best two of the four water treatment processes previously studied.
- **Water Treatment Method Change.** The largest areas of potential cost savings include reducing the number of miles of pipe being maintained, reducing energy costs for pumping water, and eliminating gas chlorination and the current chlorine gas alarm and safety requirements. Elimination of and implementation of an alternative disinfection method is identified and planned by Project L-679 for FY2019.
- **Remote Area Water Strategy –Consolidate Demand.** Isolated water connections at the end of a long run of pipe are good candidates for facility demolition. The primary cost savings would result from reducing costs to maintain water pipes for small loads to entire areas that can be fully closed for water demand at distances far from the main system serving the core of the Central Plateau Area.
- **Remote Small Building Water Strategy - Eliminate Sources of Demand.** In conjunction with the findings of the 2012 Facility Master Plan (FMP) report for general-purpose buildings, start a

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program to remove small buildings and disconnect and abandon water piping distribution systems where feasible.

- **New Buildings Strategy** – Reduce Reliance on Existing Water Utilities. The Leadership in Energy and Environmental Design<sup>2</sup> (LEED) new construction proposals are required to consider alternative water sources for each new building rather than assume the existing water system will provide 100% of the new water demand. Examples of high-performance water-saving measures at federal facilities in arid locations designed to LEED Gold certification include storm water capture, storage tanks, rainwater storage, gray-water processing, and treatment by filtration, and reduced-flow water fixtures to avoid 100% reliance on piped-water systems.

**Major Actions/Decisions Needed:** Refer to Appendix E.

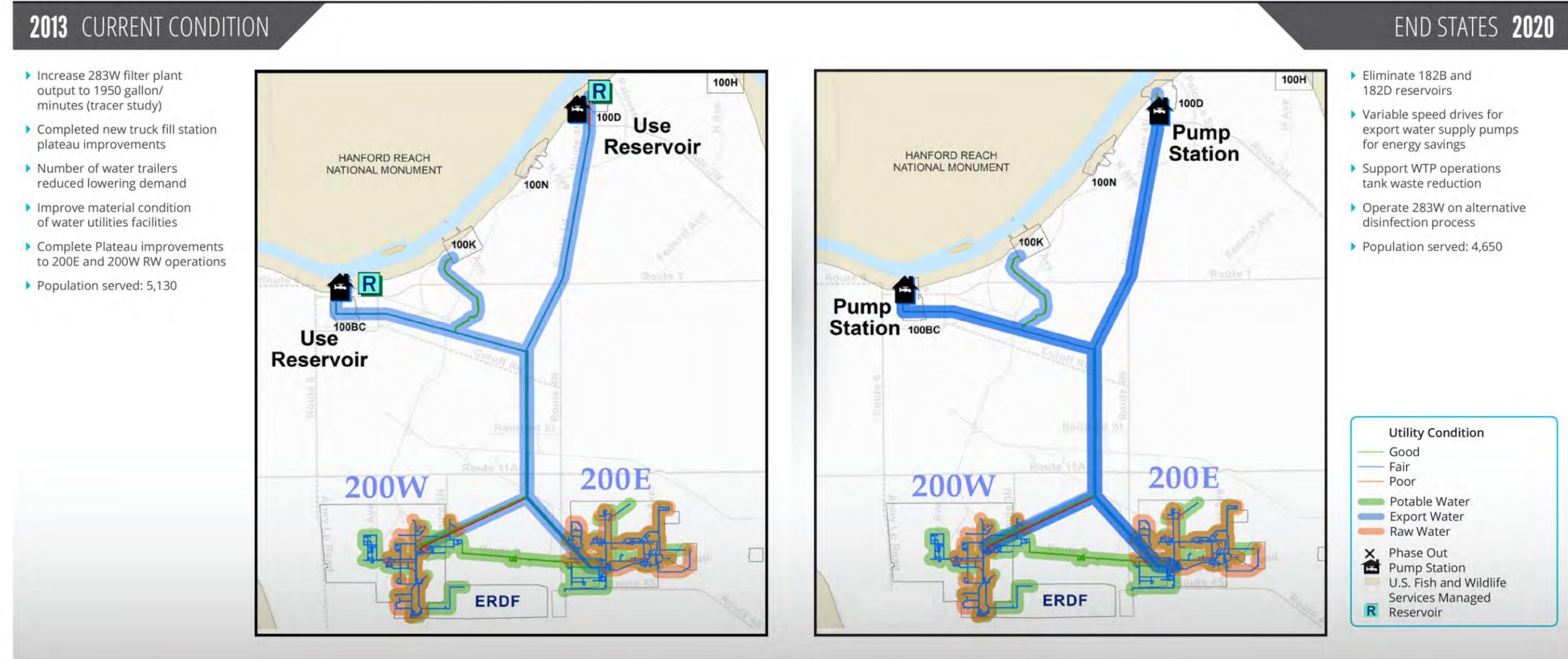
**Roadmap:** Refer to Figure 3-11.

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<sup>2</sup> A trademark of U.S Green Buildings Council, Washington, D.C.

Figure 3-11. Water Roadmap

# Water Roadmap: Export, Raw, and Potable



Project Description	2013	2014	2015	2016	2017	2018	2019	2020
L-782, Water Treatment Plant Control & Efficiency Upgrades					◆◆◆◆			
L-781, 181D Vertical Turbine Pumps, Header, Instrumentation, Commission (Design/Procurement) & (Construction)					◆◆◆◆			
L-525, 24" Line Renovation/Replacement from 2901Y to 200E (West Side) - 1944					◆◆◆◆			
L-419, 24" Line Renovation/Replacement from 2901Y to 200E (East Side) - 1967					◆◆◆◆			
L-840, 24" Line Renovation/Replacement from 2901Y to 200W Area					◆◆◆◆			
L-357, Replace 12" Potable Water Line to 222-S Lab					◆◆◆◆			
L-355, 14" Raw Water Supply Line to 242-S						◆◆◆◆		
L-352, Refurbish 20" Raw Water Line Near A Tank Farm						◆◆◆◆		
L-342, Mortar Line 24" 1310 meters (Old PUREX Feed Raw - 1952)							◆◆◆◆	
L-420, Mortar Line 8/10" Potable Water WRAP Loop - Cap - 1960							◆◆◆◆	
L-679, 200 West Area Water Treatment Chlorine Disinfection Improvements							◆◆◆◆	

Project Description (Continued)	2013	2014	2015	2016	2017	2018	2019	2020
L-826, 181 B Vertical Turbine Pumps, Header, Instrumentation, Commission (Design/Procurement) & (Construction)							◆◆◆◆◆	
L-430, 8-in. Water Line (2101M) Loop							◆◆◆	
L-336, 200 East & West Areas Potable Water Clear Well Modifications							◆◆◆◆	
L-398, 10" B Plant Potable Water Lines								◆◆◆
L-423, Mortar Line 8-in. Raw Water Line on SE Side of T-Plant for Fire Protection - 1958								◆◆◆
L-431, Mortar Line 8-in. Potable Water Line Along 20th Street to Water Plant Main - 1950								◆◆◆
L-825, Modify T-Plant Fire Water Supply								◆◆◆◆

Major Actions/Decisions	2013	2014	2015	2016	2017	2018	2019	2020
Water System Master Plan Update		◆			◆		◆	◆

### 3.9 SANITARY SEWER SYSTEM



**Basic System Description:** 60 active subsurface soil absorption systems (drain fields) serve the Hanford Site. 24 of these are permitted through the Washington State Department of Health (WDOH). 36 systems are not permitted that were constructed before July 1, 1984. Although drain field use is allowed onsite, the WDOH agency will not allow new connections or

modifications to these existing systems unless each drain field is updated to current permit standards.

In addition to the permitted and non-permitted sewer systems throughout the Hanford Site, 10 WDOH-permitted temporary holding tanks and 1 non-permitted holding tank are being used. The permitted holding tanks are underground tanks placed throughout the Hanford Site as required to meet the need for sanitary sewer systems where project life or other circumstances do not justify a full subsurface soil absorption system.

The 200W Area Lagoon Treatment System, a new aerated evaporative lagoon on the north side of the 200W Area, was commissioned in August 2012. This new Lagoon Treatment System eliminated the need for the 100N Area sewage lagoon, which was demolished by the River Corridor Contractor. The 200W Lagoon Treatment System is a long-term treatment solution adaptable to changing conditions as facilities are decommissioned. Attributes for Sanitary Sewer Systems are provided in Table 3-9.

Table 3-9. Sanitary Sewer System Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>Meets or exceeds <i>Washington Administrative Code</i> Standards</li> <li>Sampling and Compliance Reports</li> <li>Subsurface Soil Absorption System Annual Active Septic Systems Report (Permitted and Non-Permitted)</li> <li>Quarterly Discharge Monitoring Program</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>Reduced impact footprint</li> <li>Requirements for lagoon, septic system, drain field, holding tank systems</li> <li>Capabilities of lagoon, septic system, drain field, holding tank systems</li> <li>Population shifts and reductions</li> <li>Planned sewer and building projects</li> <li>Reduction in required operating systems</li> <li>System availability</li> <li>Conditions assessments</li> </ul>
<b>Sustainability &amp; Minimize Impact to Environment</b>	<ul style="list-style-type: none"> <li>Reductions in resource consumption</li> <li>Reductions in lifecycle costs</li> <li>Improved efficiency</li> <li>Reduced risks of impacts</li> <li>Projects supporting reduced environmental impacts</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>Criticality analysis</li> <li>Risks and mitigations</li> <li>Implement planned improvements</li> <li>New systems</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>Implement strategies from the site-wide Maintenance Management Program.</li> </ul>

**Current Condition FY2013:**

- Condition: Excellent for 200W Lagoon, poor for part of the piped system (24-inch line failing) and fair for part of the piped system (40-inch line), fair for pump stations. For the 400 Area, drain fields and tanks site wide, refer to earlier text.
- Capacity: 120,000 gal/day disposed through 60 drain fields, 206 facilities pumped and trucked to the 200W Area Lagoon Treatment System.
- Reliability: 99% usable when needed
- Population Served: 5,130
- Areas Served: Entire Hanford Site, except HAMMER, PTA, 300 Area, PNNL, ENW, LIGO, US Ecology, BPA, and City of Richland

- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects.

The demand driver for sanitary liquid waste systems is the onsite workforce population, which is expected to transition from 5,130 in FY2013 to 4,650 in FY2020. As cleanup progresses and the workforce population decreases over the next 7 years, the amount of sanitary liquid waste will decrease.

No large onsite septic system can be abandoned until all buildings connected to that system have been closed and disconnected from the water and sewer services. Likewise, holding tanks must be serviced regularly until the facilities they support are closed and disconnected from the tanks. Consequently, although the footprint shrinks, the existing drain fields are among the last support utilities to be shut down or removed.

The 200E and 200W Areas are served by 38 onsite septic tank soil absorption systems with many systems having operated for nearly 40 years. Several systems are not functioning properly and some have failed. The majority of the 200 Area facilities have been tied into regional, permitted septic systems.

The 300 Area is served by one process water treatment facility, the Treated Effluent Disposal Facility, owned by RL that does not treat sanitary sewer waste.

The 400 Area exit and closure strategy relies on the transition away from using ENW's Columbia Generating Site's system for the 400 Area.

The 600 Area is served by 11 septic tank systems, 4 holding tanks, and 2 lift stations. 10 of the 17 systems have been in service for a long time yet are not permitted, and each system is considered functional, but nonconforming. Current state regulations do not allow the 10 existing nonconforming systems to be repaired or modified. Upon the eventual successive failures of each of the 10 systems, each system will require remediation and/or full replacement; however, the 10 nonconforming systems are expected to remain in service for the foreseeable future.

#### **End State FY2020:**

Sewer system capacity will be considered excellent and sewer system condition will be considered fair. The projected site-wide peak demand of 75,840 gal/day will be met by the permitted 200W Lagoon Treatment System capacity of 55,000 gal/day and the 38 onsite septic tanks. The 200E sewage systems will be connected to the 200W Lagoon Treatment System by one of the options described in HNF-6612, *Hanford Site Sanitary Sewer Master Plan*. Reliability of the overall system will approach 100% with new and recently built facilities in 200E and 200W Areas serving most of the facilities generating sanitary sewer loads. Trucking from remote sites may be one truck/day or less depending on system loading.

- Condition: Excellent for 200W Lagoon, fair for the piped system, fair for pump stations. For drain fields and tanks see earlier text description
- Capacity: 75,840 gal/day met by ground and central system
- Reliability: 99% usable when needed
- Population Served: 4,650
- Areas Served: Entire Hanford Site, except HAMMER, PTA, 300 Area, PNNL, ENW, LIGO, US Ecology, BPA, and City of Richland
- Gaps and Planned Projects: No gaps identified; refer to Appendix B for planned projects and Appendix E for decisions needed.

**Cost Savings Proposals:** As summarized in Appendix F, the cost savings, innovations, and quality improvements for the sanitary sewer system are described as follows:

- **Remote Area Sewer Strategy – Reduce Trucking and pump outs, Consolidate Demand.** Isolated sanitary sewer loads at the end of a long run of pipe are good candidates for demolition, consolidating General Purpose Facilities and eliminating low-level occupancy facilities. The first type of long-term cost savings would result from reducing costs to maintain sanitary sewer pipes for small loads at remote distances from the main system trunk sewer line that eventually will serve the core area of the Central Plateau. The second type of immediate cost savings proposal for sanitary sewer for existing buildings with tanks or failing drain fields is to reduce and consolidate the number of pump-outs to a daily volume that can be serviced by one truck with a two-member crew instead of the five staff members currently required. MSA will accomplish both by a combination of conversions at facilities from existing pumped tanks to piped conveyance to the 200W lagoon and eliminating existing buildings as part of the planned demolition process. The overall goal is reduced sanitary sewer footprint to help create the net long-term cost benefit, not by transferring the work scope (pumping out existing tanks) to another contractor.
- **Remote Small Building Sewer Strategy - Eliminate Sources of Demand.** In conjunction with the sustainability strategy for metering and analyzing general-purpose buildings energy and water performance and making selective upgrades, start a program to identify and remove small buildings where long runs of sanitary sewer pipes can be removed (pipes from an existing building to a drain field or a tank now being pumped).
- **New Buildings Strategy – Reduce Reliance on Existing Sewer Utilities.** Also part of the overall sustainability strategy, LEED new construction proposals are required to consider alternative water sources for each major new building (over \$5M in value), rather than assume the existing sanitary sewer system will provide 100% of the new sanitary sewer load for all new buildings. Examples of high-performance wastewater-saving measures at federal facilities in arid locations designed to LEED Gold or Platinum levels include storm water capture, storage tanks, gray-water processing and treatment by filtration and use of reduced-flow water fixtures by design to avoid up to 100% reliance on sanitary sewer utilities systems.

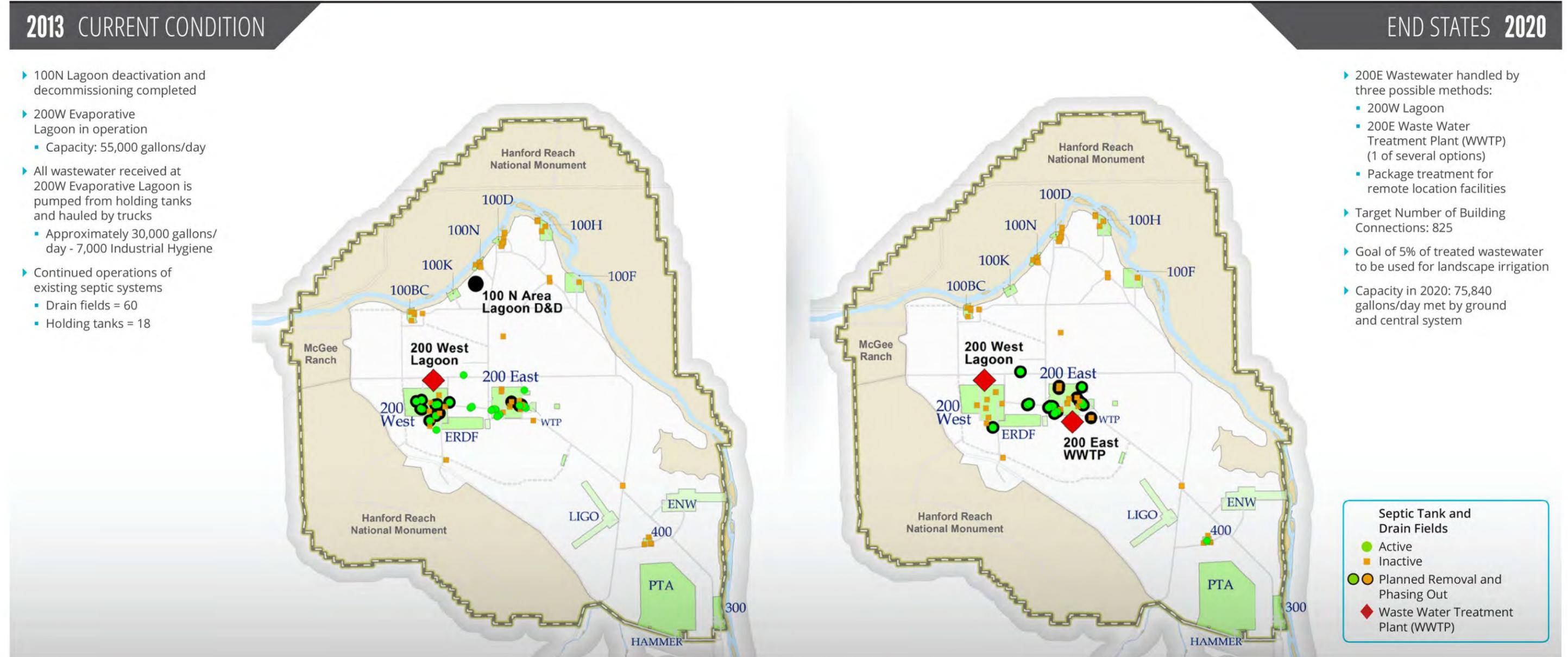
**Major Actions/Decisions Needed:** Refer to Appendix E.

**Roadmap:** Refer to Figure 3-12.

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Figure 3-12. Sanitary Sewer

# Sanitary Sewer Roadmap



## 2013 CURRENT CONDITION

- ▶ 100N Lagoon deactivation and decommissioning completed
- ▶ 200W Evaporative Lagoon in operation
  - Capacity: 55,000 gallons/day
- ▶ All wastewater received at 200W Evaporative Lagoon is pumped from holding tanks and hauled by trucks
  - Approximately 30,000 gallons/day - 7,000 Industrial Hygiene
- ▶ Continued operations of existing septic systems
  - Drain fields = 60
  - Holding tanks = 18

## END STATES 2020

- ▶ 200E Wastewater handled by three possible methods:
  - 200W Lagoon
  - 200E Waste Water Treatment Plant (WWTP) (1 of several options)
  - Package treatment for remote location facilities
- ▶ Target Number of Building Connections: 825
- ▶ Goal of 5% of treated wastewater to be used for landscape irrigation
- ▶ Capacity in 2020: 75,840 gallons/day met by ground and central system

**Septic Tank and Drain Fields**

- Active
- Inactive
- Planned Removal and Phasing Out
- ◆ Waste Water Treatment Plant (WWTP)

### Project Description

	2013	2014	2015	2016	2017	2018	2019	2020
L-488, Replace 2607-E12 - Drain Field That Supports 242-A Evaporator Complex - 1990					◆◆◆◆◆◆◆◆			
L-698, Sewer Lagoon Collection System - PFP W1 & W16							◆◆◆◆◆	

### Major Actions/Decisions

	2013	2014	2015	2016	2017	2018	2019	2020
L-698, Consider & Select 1 of 4 options for 200 East Area Sewer Lagoon Collection System			◆◆◆◆◆					
L-698, Conceptual Design & Permitting for 200 East Area Sewer Lagoon Collection System				◆◆◆◆◆◆◆◆◆◆				
Sanitary Sewer Master Plan Update		◆			◆		◆	◆



will require periodic maintenance, upgrades, modernization, and enhancement over the next 10 years to adequately support the cleanup mission. Attributes for IT systems are provided in Table 3-10.

**Current Condition FY2013:**

The Hanford Site IT infrastructure supports approximately 8,000 users across the IT domain. The IT system has a virtual infrastructure that will allow seamless redundancy and a configuration that is adaptable to Hanford Site change. There are 29 IT infrastructure facilities.

- Condition: Good
- Capacity: Refer to text below and to the table in Figure 3-15.
- Reliability: Percent usable when needed: Refer to Figure 3-15
- Population Served: 5,900 customers
- Areas Served: Entire Hanford Site except WTP, PNNL, and tenants (BPA, ENW, LIGO, & US Ecology)
- Gaps and Planned Projects: Refer to Appendix D for gaps. Refer to Appendix B for planned projects.

**Information Management**

**Subscriber Base.** Information Management subscriber base is spread across the 586 mi<sup>2</sup> Hanford Site. There are 19 contractors executing work on the Hanford Site; however, MSA only provides Information Services to 7 of the 19 contractors. The workforce for the 7 contractors supported by MSA is approximately 5,900 and projected to grow to 6,100 by FY2015 and 7,200 by FY2020 (Figure 3-13). The ratio of office workers to non-office workers is 68% and 32%, which remains constant through FY2020.

**Figure 3-13. IT Population Forecast by Organization**



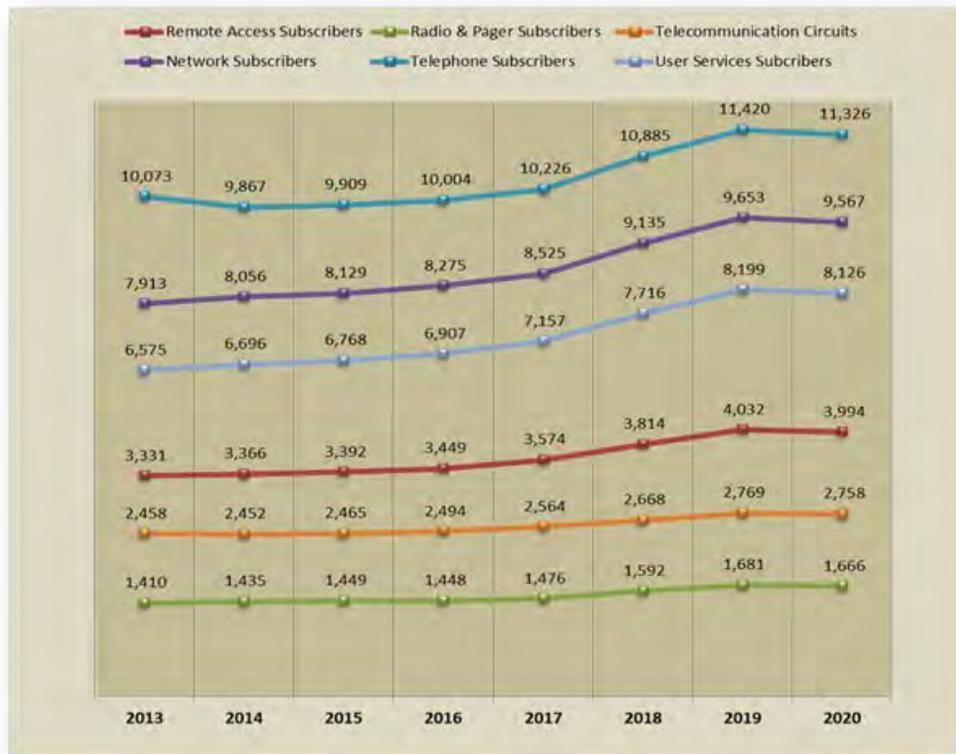
The employee subscriber base will continue to converge to the Central Plateau and the City of Richland as cleanup progresses toward FY2020. The 100 Area will decrease from 219 to 118, the 200E and 200W Areas will increase from 3,096 to 4,089 as WTP transitions into production, the 300 Area will remain at 36 and the 400 Area at 28 employees. The 600 Area will increase from 401 to 816 in support of WRPS WTP operations, and the City of Richland population will have a slight decrease from 2,133 to 2,084 particularly in radio, wireless and telephones in remote locations.

The subscriber forecast is based on the Hanford Site projected populations for the customer subscribing to IT services: CHPRC, ORP, RL, HPM Corporation, Lockheed Martin Services, Inc., MSA and WRPS. It also assumes WTP operation requirements will transition to WRPS in FY2017 and continue through FY2019. The subscriber population base shows a 22% growth between FY2013 and FY2020. The trend is anticipated for IT demand will increase as projects continue to leverage

technology to improve business process performance, particularly in wireless technology services used by field-workforces.

Based on the population forecast, IT services will be moderate in subscriber changes between FY2013 and FY2016. Starting in FY2017, the IT subscriber base will grow as the WTP is transitioned into production and then level off in FY2019. Figure 3-14, IT Subscriber Forecast, takes all the current IT monthly recurring usage-base services and consolidates them into five subscriber categories. The demand for back end systems, storage and software applications will grow as the subscriber base grows and more business processes leverage IT technology to increase worker productivity.

**Figure 3-14. IT Subscriber Forecast**



**IT Infrastructure Facilities.** The goal is to right size IT infrastructure facilities by reducing from 29 to 11 facilities for the FY2020 end state as the Hanford Site consolidates most active operations to the Central Plateau.

The Integrated Voice and Data Telecommunication System (IVDTS) has been replaced with a Voice over Internet Protocol (VoIP) system, which consolidates the standalone voice and data networks. In FY2011, all voice services were removed from the IVDTS. In FY2012, all special circuits on the IVDTS were migrated to alternative solutions. From FY2012 through FY2015, starting with the 3220 Building in the 300 Area, the IVDTS equipment will be removed and the buildings repurposed or decommissioned. The remaining 11 facilities are in good condition; no major repairs are anticipated for the next 10 years.

The primary data centers in the 339A Building recently replaced the HVAC systems to support the Hanford Federal cloud (HFcloud) well into the future. To maintain reliability and sustainability goals, the 339A Data Center uninterrupted power supply system is planned to be replaced in FY2014.

In the next five years, the secondary data center in the Federal Building will be moved because of space limitations and the increasing demand for HFcloud computing and data storage. The plan is to move the secondary data center into one of the vacated IVDTs facilities.

Safety concerns require the emergency notification siren tower underground equipment silos to be moved above ground. This activity is being planned and scheduled for the FY2013-FY2014 time frame. The sirens and other towers are adequate and only require routine maintenance and safety inspections. However, a study on the feasibility of removing the towers from Gable Mountain is being planned. If feasible, the action could result in two towers being removed from Gable Mountain and potentially three to four additional mini towers being installed to ensure wireless coverage is maintained throughout the Hanford Site.

**Outside Plant.** The existing copper plant is adequate and maintenance will be limited to sections currently being used, with the unused copper cables being abandoned in place.

Outside plant fiber cables will continue to be used for transporting voice, data, and imaging information between facilities and the data centers. The WTP facilities will have fiber cables installed to each facility as part of the construction requirements. The WTP fiber installation will be a distributed configuration tied to a central point so it can be easily tied into the Hanford Site's fiber backbone infrastructure. Colocation of fiber optic cable in a common trench with the planned natural gas pipeline or within the same general corridor is being planned. Using the same trench provides significant savings in time and money compared to installing the cable at a separate time in a separate corridor.

**Wireless Transport Systems.** The wireless transport infrastructure systems use towers and building antennas to provide emergency radio, pager, fire alarms, cellular, and wireless data transport services (Wi-Fi, Worldwide Interoperability for Microwave Access [WiMax], 3G, 4G, etc.). Support facilities housing wireless transport equipment are located throughout the Hanford Site, including Rattlesnake Mountain and Gable Mountain. These wireless systems are a mix of government-owned and commercially provided systems.

IT solutions are being deployed or developed that allow workforces to receive job tickets or work packages in the field and clear those packages in real time when complete without going back to the office.

Mobile computing devices necessitate a robust wireless infrastructure. Between FY2014 and FY2015 the increased demand for mobile devices onsite will require the wireless infrastructure capacity to be expanded, refreshed, modernized, and enhanced to stay current with project, cyber security, and industry compatibility requirements.

The wireless infrastructure supports the following:

- Emergency Services/Safeguards and Security Radios (Hanford Patrol, Hanford Fire, Emergency Preparedness, and direct emergency support groups)
- General-purpose users' radios (construction, maintenance, transportation, operations, and engineering organizations)
- Cellular and pager services (general-purpose communications including voice, instant messaging, and e-mail)
- Emergency Control and Status Systems (outdoor warning sirens and electronic message reader boards)
- Per agreement with DOE, the radio fire alarm reporting system has started and will be complete by the end of FY2016
- Remote-controlled cranes
- Weather, seismic, and well monitoring systems.

Safeguards and Security will continue to rely on radio and wireless communications for emergency notifications. The radio systems are current and will require one refresh by FY2020. The current emergency notification infrastructure (fire alarms, sirens and AM radio systems) are at end of life. These systems will have to be replaced over the next 5 years because the main products are manufacturer discontinued.

***Network and Telecommunications Systems.*** As a vital infrastructure system, IT components must be maintained for physical maintenance, replacements, or software upgrades. Unlike electrical, roads, water with 30 to 50 year normal service lifespans, IT infrastructure components have a much shorter normal lifecycle, usually 3 to 6 years. Not being able to maintain a funded technology refresh program on this critical infrastructure puts essential services that projects depend on at risk.

The VoIP deployment in FY2010 and FY2011, along with the HFcloud initiative in FY2012, were two steps to modernize the data center equipment infrastructure. Data center equipment elements are not anticipated to be refreshed, nor is it anticipated that any major requirements will materializing until FY2015 – FY2016. The near-term focus for FY2014 will be on the emergency notification systems, which are beyond their design life, with the primary focus on mitigating the siren silo equipment safety issue.

#### **End State FY2020:**

The Hanford IT customer base is projected to be 7,200 by FY2020. While operations will continue to move out of the 300, 400, and 100 Areas and also decrease in the 600 and 200W Areas, the customer base will concentrate in the 200E Area to support tank farms and WTP. A secondary facility to replace the G4 facility located onsite while the remaining IT facilities shrink in number and size supporting new technology infrastructure. The goal for IT infrastructure facilities is reducing from 29 to 11 facilities for the end state by FY2020.

Document and records management storage solutions will become the focus to support remaining projects and growing LTS records needs. The site-wide business management software platform will be replaced by FY2020.

- 
- Condition: Good for overall system
  - Capacity: Refer to Figure 3-15 and description for specific service
  - Reliability: Metric is unavailable, expected to be developed by FY2014
  - Population Served: 7,200 customers
  - Areas Served: Entire Hanford Site except WTP, PNNL, and tenants
  - Gaps and Planned Projects: Refer to Appendix D for gaps; records storage space is required prior to the transition to WTP operation. Replacement of the business management software platform is the largest item. Refer to Appendix B for planned projects.

**Cost Savings Proposals:** Refer to Appendix F for the cost savings, innovations, and quality improvements for the IT system are as follows:

- List business practices (use spare licenses first, transfer licenses where possible)
- Use the HFcloud to share licenses
- Expand the MSA service catalogue
- Develop a video conferencing strategy to possibly reduce the size of proposed offices needed at the 200E Area for the WTP.

**Major Actions/Decisions Needed:** Refer to text above.

**Roadmap:** Refer to Figure 3-15.

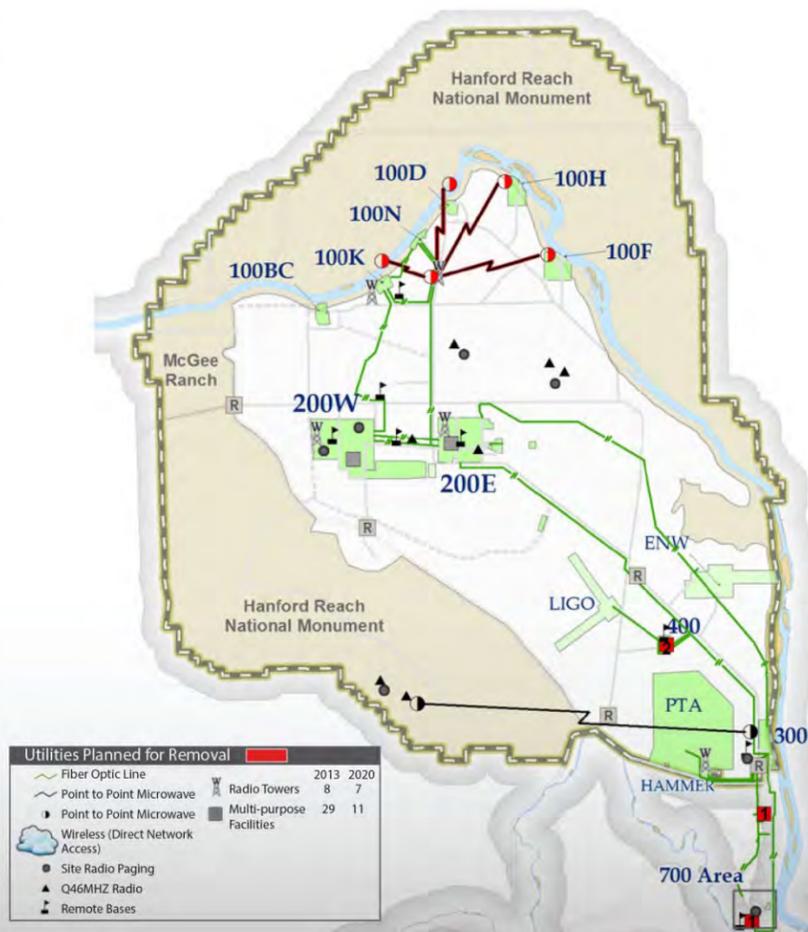
Figure 3-15. Information Technology Roadmap



# Information Technology Roadmap

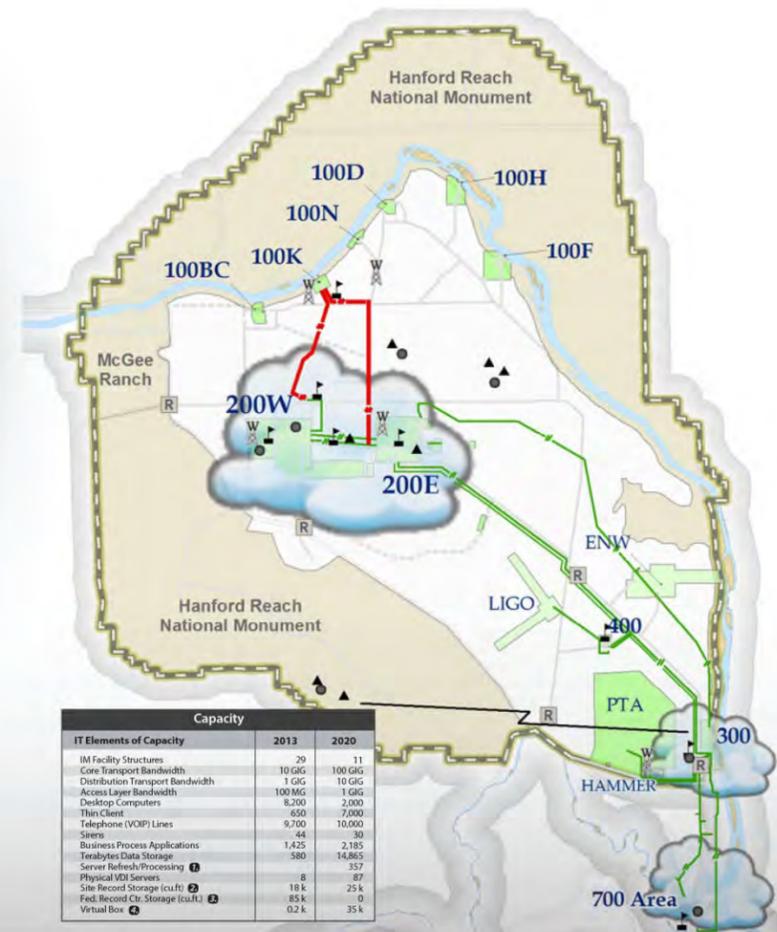
## 2013 CURRENT CONDITION

- ▶ Telecommunication Buildings underutilized because legacy telephone system is not removed
- ▶ Not all site contractors are leveraging the Hanford Federal Cloud government asset
- ▶ End user organization reluctant to move to hosted desktop services
- ▶ Emergency notification sirens need to be modernized and scaled to current requirements
- ▶ The demand for wireless technology in the field is growing faster than the cyber solutions and the infrastructure can be deployed
- ▶ End user demands for data storage, collaboration, and video service will soon exceed the fiber bandwidth capacity between the Central Plateau and City of Richland
- ▶ Efforts are underway to modify the Hanford IT infrastructure to be compliant with OMB IPv6 and HSPD-12 mandates



## END STATES 2020

- ▶ Site infrastructure is an IPv6 transport, and end user access meets HSPD-12 requirements
- ▶ Hanford "Record Material" is automated within business processes & stored electronically
- ▶ Plateau & Richland represents 95% of IT's Physical Active Infrastructure
- ▶ Hanford end user can move anywhere, anytime & to anyplace without moving IT equipment
- ▶ Field forces access applications to receive, process, and document completed work assignments at the job site
- ▶ Field forces have outdoor access to wireless service from anywhere on the plateau
- ▶ IT Services are acquired through service catalog across contractors at published rates
- ▶ Hanford Site maintains FEC Platinum Certification
- ▶ Printed material is limited to marketing brochures & posters
- ▶ IT governance and investments are managed across contractors as a single enterprise
- ▶ Minimal impact to business processes when major network transport or data center applications fail



### Project Description

	2013	2014	2015	2016	2017	2018	2019	2020
ET50, (Distribution Layer Completion), HLAN Network Upgrade Phase I (Refresh)				◆◆◆◆				
ET51, (Access Layer), HLAN Network Upgrade Phase II (Refresh FY 2015)				◆◆◆◆				
L-817, HSEAS Upgrades						◆◆◆◆		
L-764, New Data Center Upgrade from G4 to 7220						◆◆◆◆		
L-819, High Capacity Fiber Optic (300 Area - Central Plateau)						◆◆◆◆		
ET66, Next Generation Wireless (Including Wireless/Mobile Coverage Study)							◆◆◆◆	
ET57A, (Deferred Scope) HLAN Network Upgrade - IPv6 OMB Compliance PH I - External (OMB Mandate)							◆◆◆◆◆◆	
ET57B, HLAN Network Upgrade - IPv6 OMB Compliance Phii - Internal (OMB Mandate)							◆◆◆◆	
L-818, Records Facilities Reconfiguration								◆◆◆◆

### Major Actions/Decisions

	2013	2014	2015	2016	2017	2018	2019	2020
Hanford Contracts need to adopt a Hanford Federal Cloud first policy (need to establish Site rates in FY14)		◆◆◆◆◆◆◆◆						
Hanford Contracts need to adopt a hosted desktop first policy (need to establish Site rates in FY14)		◆◆◆◆◆◆◆◆						
Fund or waiver IPv6 and HSPD-12 mandates			◆					
Modernize wireless infrastructure to support mobile workforce (predecessor to ET66, Next Generation Wireless)			◆					

### 3.11 FACILITIES SYSTEM



**Basic System Description:** There are 1,044 active facilities on the Hanford Site that are made up of general purpose office space, shops, warehouses, and mission specific facilities. The facilities are tracked in the FIMS. The FMP was completed in FY2012 addressing general purpose facilities over 500 ft<sup>2</sup> in size. Table 3-11 breaks down these facilities by ownership and square footage. Attributes for Facility Systems are provided in Table 3-12.

<b>Table 3-11. DOE-Owned and -Leased Hanford Site General Purpose Office, Shop, and Warehouse Buildings<sup>1</sup></b>								
<b>RL: Number of Buildings and Gross Square Footage</b>								
	<b>Owned by DOE</b>		<b>Leased by DOE</b>		<b>Leased by DOE Contractors</b>		<b>Total</b>	
	Facility	Gross ft <sup>2</sup>	Facility	Gross ft <sup>2</sup>	Facility	Gross ft <sup>2</sup>	Facility	Gross ft <sup>2</sup>
Buildings	64	640,050	1	5,096	23	565,430	88	1,210,576
Trailers	150	454,818	0	N/A	40	84,126	190	538,944
<b>RL Total</b>	<b>214</b>	<b>1,094,868</b>	<b>1</b>	<b>5,096</b>	<b>63</b>	<b>649,556</b>	<b>278</b>	<b>1,749,520</b>
<b>ORP: Number of Buildings and Gross Square Footage</b>								
Buildings	26	390,780	0	N/A	4	90,574	30	481,354
Trailers	52	106,620	0	N/A	5	6,684	57	113,304
<b>ORP Total</b>	<b>78</b>	<b>497,400</b>	<b>0</b>	<b>N/A</b>	<b>9</b>	<b>97,258</b>	<b>87</b>	<b>594,658</b>
<b>Hanford Site Total</b>	<b>292</b>	<b>1,592,268</b>	<b>1</b>	<b>5,096</b>	<b>72</b>	<b>746,814</b>	<b>365</b>	<b>2,344,178</b>
<sup>1</sup> Data from 2012 Facility Master Plan dataset.								
DOE = U.S. Department of Energy.				FIMS = Facilities Information Management System				
EM = Office of Environmental Management								

#### General Purpose Offices:

##### Current Condition FY2013:

- Condition: Mostly Fair to Good for 1,264,400 gross ft<sup>2</sup> of active owned and leased general-purpose office facilities. Mostly poor for 140,900 gross ft<sup>2</sup> which is past the end of design life and is not included in capacity
- Density: 555 gross ft<sup>2</sup>/staff member(1,264,400 gross ft<sup>2</sup>/2,280 staff members)
- Reliability: Percent usable when needed. Reliability is high because few events would make office space unusable; however, roof and HVAC replacements are required to sustain continued operations of office facilities
- Population Served: 2,280 contractor office population
- Areas Served: Primarily the Central Plateau and HAMMER, the PTA, 300 Area, and the City of Richland for the general purpose office facilities.

Site-wide facility office supply trends remain fairly constant at approximately 1,405,324 ft<sup>2</sup> for FY2013 and FY2015. There are no funded projects to construct new office facilities within the MSA IRPPL (Appendix B). Approximately 10% of government-owned facilities will reach end-of-life thereby removing these facilities from current office availability; however, office demands are forecasted to be slightly lower as well, consequently offsetting the office availability reductions. In

the FY2020 period, it is possible significant WRPS office demands could become apparent as WRPS prepares to support the WTP operational ramp up.

This forecast does not account for WTP office space planning because information is not available at this time. WTP operational staffing model (number of shifts, 24/7 day operations, production volumes, additional Low-Activity Waste [LAW] modules, offsite and onsite support staff, levels of sustainability) is currently under evaluation. WRPS's One System Group anticipates early results from the updated model to be available at the end of FY2013.

**End State FY2020:**

- Condition: Due to deferred maintenance, only Fair for the government owned portion of 1,218,300 gross ft<sup>2</sup> of available general-purpose office category space

Table 3-12. Facilities System Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>• Continued application of ISMS, EMS and VPP principles</li> <li>• Strong safety culture: EZAC, safety log book, weekly safety starts</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>• Maintain facility assignments in the Site Structures List</li> <li>• Continual evaluations of complex footprint reduction for non-mission critical facilities</li> <li>• Reduced impact footprint</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>• Consistent with Hanford's Vision to "Be a leader in sustainability and green energy"</li> <li>• Perform sustainability evaluations for major repairs, replacements, or upgrades</li> <li>• Reductions in lifecycle costs</li> <li>• Reductions in resource consumption</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Condition assessment surveys performed at least once every 5 years</li> <li>• Ongoing process improvements and cost savings</li> <li>• Forecasted capital upgrade projects to maintain facility operability</li> <li>• Implement planned improvements</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>• Maintain qualifications for maintenance and operations for the facility</li> <li>• Implement strategies from the site-wide Maintenance Management Program</li> <li>• Enhanced predictive, preventive and corrective maintenance.</li> </ul>
EMS = emergency management system.      ISMS = Integrated Safety Management System. EZAC = Employee Zero Accident Council.      VPP = Voluntary Protection Program.	

- Density: Approximately 428 gross ft<sup>2</sup>/staff member (1,218,300 ft<sup>2</sup>/2,850 staff members)
- Reliability: Percent usable when needed. Reliability is high because few events would make office space unusable
- Population Served: 2,850
- Areas Served: Primarily the Central Plateau and HAMMER, the PTA, 300 and Area, and the City of Richland
- Gaps and Planned Projects: No gaps identified; refer to Figure 3-16 and Appendix B for planned projects.

**Shops:** The Hanford Site's total shop space equates to 43 facilities supplying approximately 244,646 ft<sup>2</sup>. With the exception of a few recently constructed shop facilities, approximately 60% of the existing shops are very old and in poor physical condition. Based on forecasted funding and mission requirements, the demand for shop space is forecasted to be constant through FY2020. This forecast does not account for WTP shop requirements because information is not available at this time. WTP is in the process of developing the WTP Infrastructure Model to address shop space needs to operate the WTP and waste feed operations. WRPS's One System Group anticipates early results from the updated model to be available at the end of FY2013.

**Warehouses:** There are 38 warehouse facilities supplying approximately 454,719 ft<sup>2</sup> of warehouse space. The *Business Case Analysis for Warehouse Consolidation Pilot Project* (HNF-51927) was performed second quarter of FY2012. From the data analyzed, WCH leased warehouse space demand will conclude with the end of their contract. CHPRC and MSA warehouse space requirements will remain constant through FY2020. All three contractors could leverage from project's recommended consolidation initiatives, utilize shared central storage at 2101M and release leased space as a result of the extensive consolidation efforts. This resulted in a reduction of approximately 45,000 ft<sup>2</sup> of ENW leased space that was used by CHPRC and WRPS.

WTP is acquiring 184,000 ft<sup>2</sup> of commercial warehouse space to accommodate storage of construction materials. This forecast does not account for WTP onsite warehouse requirements because information is not available at this time. WTP is developing the WTP Infrastructure Model to address warehouse space needs to operate the WTP and waste feed operations. WRPS's One System Group anticipates early results from the updated model to be available at the end of FY2013.

**Footprint Reduction:** The FIMS indicates that the most dramatic footprint reduction at the Hanford Site is closing and removing 95 of the 270 existing inactive facilities by FY2020. As these facilities are closed and demolished, the utilities serving them can be decommissioned, removed, or abandoned in place. The 95 facilities are currently in various lifecycle phases ranging from "D&D" to "Shutdown Pending D&D or Disposal," to "Deactivated." Depending on their past use, lifecycle phase, and condition, the 95 facilities have different S&M requirements until disposition.

By the end state of FY2020, the D&D of the 95 facilities will be accomplished, additional facilities will be deactivated, and the number of active facilities will be approximately 846 buildings, down from the 1,044 buildings existing in 2013.

**Cost Savings Proposals:** Refer to Appendix F.

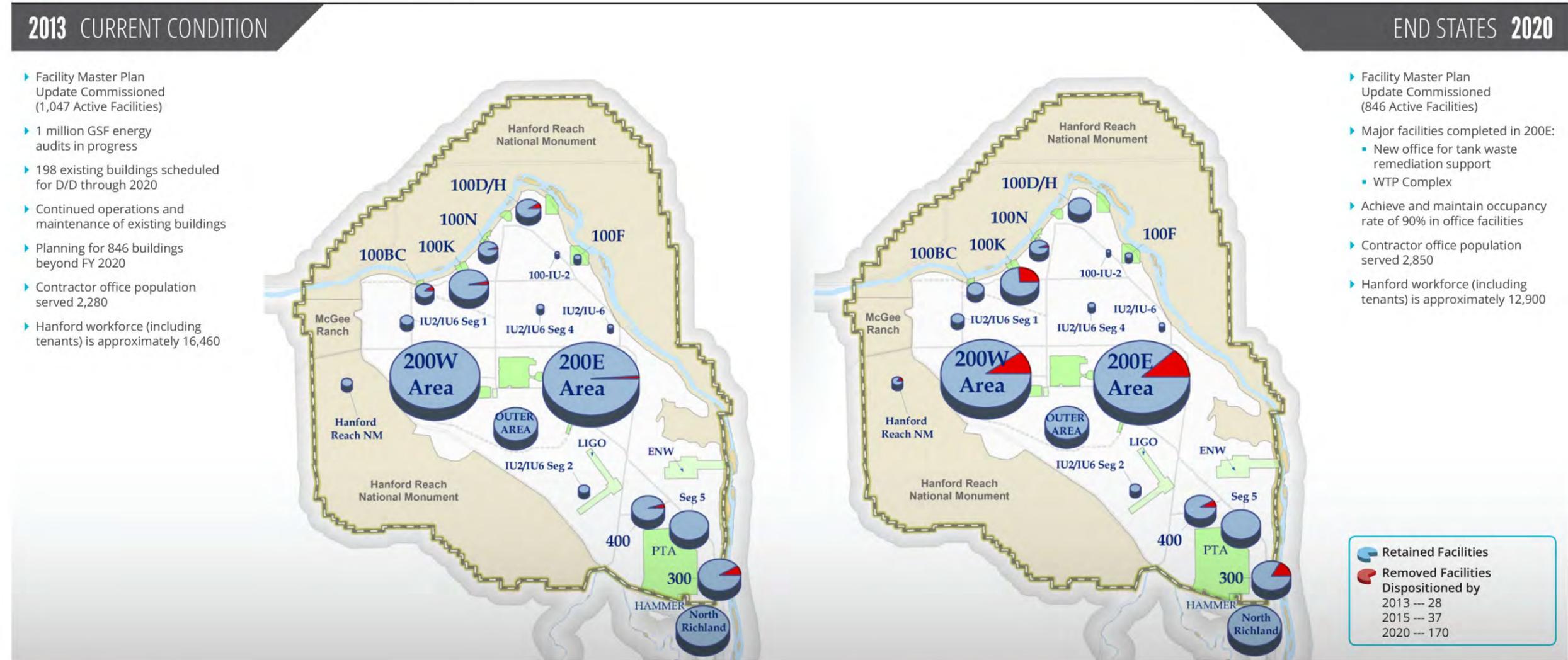
**Major Actions/Decisions Needed:** Refer to Appendix B, Appendix E, and Appendix F. Based on forecasted Hanford Site mission needs, coupled with a backlog of facility maintenance/upgrades, a funding initiative is required to address facility replacement needs including energy and water savings upgrades as one long-term program with a realistic annual average goal.

**Roadmap:** Refer to Figure 3-16.

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Figure 3-16. Facilities Footprint Roadmap

# Facilities Footprint Roadmap



## 2013 CURRENT CONDITION

- ▶ Facility Master Plan Update Commissioned (1,047 Active Facilities)
- ▶ 1 million GSF energy audits in progress
- ▶ 198 existing buildings scheduled for D/D through 2020
- ▶ Continued operations and maintenance of existing buildings
- ▶ Planning for 846 buildings beyond FY 2020
- ▶ Contractor office population served 2,280
- ▶ Hanford workforce (including tenants) is approximately 16,460

## END STATES 2020

- ▶ Facility Master Plan Update Commissioned (846 Active Facilities)
- ▶ Major facilities completed in 200E:
  - New office for tank waste remediation support
  - WTP Complex
- ▶ Achieve and maintain occupancy rate of 90% in office facilities
- ▶ Contractor office population served 2,850
- ▶ Hanford workforce (including tenants) is approximately 12,900

**Retained Facilities**  
**Removed Facilities Dispositioned by**  
 2013 --- 28  
 2015 --- 37  
 2020 --- 170

### Project Description

	2013	2014	2015	2016	2017	2018	2019	2020
L-797 Key Facilities HVAC Replacements					♦♦♦♦			
L-796, Key Facilities Roof Replacements					♦♦♦♦			
L-798, 2101M HVAC Replacement					♦♦♦♦			
L-746, 2711E Fleet Maintenance Building Extension (includes utilities)					♦♦♦♦			
L-747, 2711E Fleet Maintenance Building Renovations					♦♦♦♦			
L-572, Fire Systems Maintenance Consolidation					♦♦♦♦			
L-785, Install Permanent Power to Fleet Maintenance Tents 211ED and 212ED							♦♦♦♦	
L-810, Install Paint Booth in New Facility (Was - Autobody Paint Booth Replacement)							♦♦♦♦	
L-644, Construct Biological Control Facility Conceptual Design Report/Definitive Design & Construction							♦♦♦♦♦	
L-696, 2101M Facility Renovations							♦♦♦♦♦	
L-756, Upgrade Barricade Standby Generators (Emergency Generators (Yakima-604A, WYE-6701, WYE-K9-6701E, Rattlesnake-6701C)								♦♦♦♦
L-649, MO414 Equipment Parking and Staging Area								♦♦♦♦

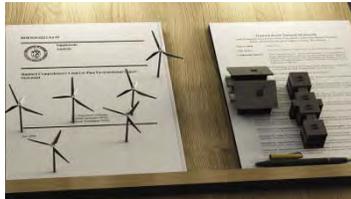
### Project Description (Continued)

	2013	2014	2015	2016	2017	2018	2019	2020
L-772, Electrical Vehicle Charging Station for 2266E Facility								♦♦♦♦
L-812, 2711EF Water Maze								♦♦♦♦
L-811, 2711EA & 273E Fire Barrier Welding Areas								♦♦♦♦
L-813, Concrete Pads - 211ED and 212ED Tents								♦♦♦♦
L-841, 2711EF Rain Gutters								♦♦♦♦
L-773, Electrical Vehicle Charging Station for 2750E Facility								♦♦♦♦

### Major Actions/Decisions

	2013	2014	2015	2016	2017	2018	2019	2020
Facility energy metering and energy audits		♦						
Facility Master Plan update							♦	
200 East Area Office Facility(s)							♦♦♦♦♦♦♦♦	

### 3.12 LAND SYSTEM



- Pits and quarries for aggregates
- Transitions (cleanup to the LTS program)
- Biological controls and integrated vegetative management
- Archeological monitoring
- Meteorological monitoring
- Land management related activities (e.g., site selection, excavation permitting, 600 Area landlord activities; implement the CLUP, TYSP, and geographic information system [GIS] mapping).

Attributes for Land Systems are provided in Table 3-13.

Each aspect of the land system is compared to mission requirements for the end-state planning horizons in FY2020. The overall goal and related strategy for the land system is a long-term reduction in footprint managed by RL and MSA under RL budget line

**Basic System Description:** The land system attributes, based on capacity and current system condition, is translated into six discrete areas of land management:

Table 3-13. Land System Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>• Continued application of ISMS, EMS and VPP principles</li> <li>• Ensure land disturbance activities receive required reviews and adhere to safety requirements</li> <li>• Strong safety culture: EZAC, safety log book, weekly safety starts</li> <li>• Biological controls operation scenario enables permitted capacity to treat up to 34,000 acres/year for integrated vegetation management requirements</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>• Manage Hanford Site land according to the Federal Property Management Regulations, 41 CFR 101-47.4909 to establish the "highest and best use"</li> <li>• Continual evaluations of complex footprint reduction for non-mission critical facilities</li> <li>• Reduced impact footprint</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>• Consistent with Hanford's Vision to "Be a leader in sustainability and green energy"</li> <li>• Perform sustainability evaluations for major repairs, replacements, or upgrades</li> <li>• Avoid impacts to resources by guiding new development to previously disturbed land and those areas served by utilities</li> <li>• Reductions in lifecycle costs</li> <li>• Reductions in resource consumption</li> <li>• Incorporate planned programs such as the Borrow Area Environmental Assessment and Cover Materials <i>National Environmental Policy Act</i> review into land management activities</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Ongoing process improvements and cost savings</li> <li>• Forecasted capital upgrade projects to maintain facility operability</li> <li>• Coordinate the integrations of land management and planning activities with capital project planning</li> <li>• Apply programmatic efficiencies to consolidate the number of "Plan" documents</li> <li>• Implement planned improvements</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>• Maintain a current and accurate Geographic Information Database to aid in land planning activities</li> <li>• Maintain qualifications for maintenance and operations for the facility</li> <li>• Implement strategies from the site-wide Maintenance Management Program</li> <li>• Enhanced predictive, preventive and corrective maintenance.</li> </ul>
EMS = emergency management system.      ISMS = Integrated Safety Management System. EZAC = Employee Zero Accident Council.      VPP = Voluntary Protection Program.	

items. One major outcome expected is reduction in capital and maintenance expense categories for land management.

Toward the overall goal via the strategy, several activities will remain active over long periods of time – annexation of lands by the City of Richland, conveyances to entities.

***Integrated Land Management (ILM) program:*** The ILM is responsible for evaluating future use of Hanford Site lands. The program intends to incorporate the best of local government practices into the land management activities on the Hanford Site in accordance with the CLUP (DOE/EIS-0222-F). It further refines implementation of DOE’s land use plan decision-making process in accordance with Federal Property Management Regulations, the CLUP and the MSA contract.

The ILM program provides a streamlined planning process that engages the project managers and project sponsors who are considering future uses of land early in the decision process along with the tools such as a zoning map and development standards to assist in land development.

**Current Condition FY2013:**

- Condition: Fair
- Capacity : 586 mi<sup>2</sup>
- Reliability: 99% usable when needed (except during wildfire closures)
- Population Served: 8,450
- Areas Served: Entire Hanford Site
- Gaps and Planned Projects: No gaps identified; No planned projects.

***Land Management:*** In December 2010, as part of the *National Defense Authorization Act for Fiscal Year 2011*, Congress directed DOE to study feasibility of establishing “energy parks” at sites including Hanford where large tracts of land could be suitable for use in producing energy from alternative sources. Congress’s direction is based on efforts to reduce the footprint of active cleanup operations and on community interest in producing clean and/or renewable energy products and services. Since early 2011, DOE employed a department-wide asset revitalization task force to look at the variety of “assets” potentially available to communities at the completion of cleanup at the EM sites. RL is currently partnering with the community on three primary areas:

- **Creation of a Heritage Tourism Industry.** In 2011, the U.S. Secretary of Interior recommended to Congress that Hanford’s B Reactor National Historic Landmark, along with properties in Oak Ridge, Tennessee, and Los Alamos, New Mexico, be named to a new unit of the National Park Service commemorating the Manhattan Project. The B Reactor is already drawing large crowds via DOE’s public access program – more than 8,000 visitors from around the world in 2011 – and the Tri-City Visitor and Convention Bureau, area historians, elected officials and others are interested in expanding visitor opportunities onsite to create a Heritage-Trail-type experience that would include the pre-Manhattan Project structures from the towns of Hanford and White Bluffs, the Bruggeman Warehouse, and other historic structures.
- **Use of River Shore Lands for Recreation.** No public access has been allowed to the Hanford Site side of the Columbia River shore since the U.S. government took over the area in 1943. However, with cleanup of most of the 220-mi<sup>2</sup> Columbia River Corridor on track to be complete by FY2015, most of the lands soon will be safe for public access. Because the first quarter-mile of the shoreline from the river inland is included in the Hanford Reach National Monument, the

degree of access will be guided in part by the USFWS's *Comprehensive Conservation Plan and Environmental Impact Statement*. Several areas along the river are designated for recreation (high intensity and low intensity) and a new boat launch and camp sites are envisioned.

- **Development of the Lands Set Aside for Industrial Use.** As major cleanup projects near completion, community focus has been heightened on transitioning the local economy away from its dependence on the Hanford Site cleanup funding. A key asset is seen to be the availability of the large tracts of industrial land at the Hanford Site, much of which was never used for the production mission and is close to city infrastructure. The high-acre tract size makes the industrial zone unique in Washington State. Community leaders also are looking to leverage the knowledge and skills of workers no longer needed at the Hanford Site to service compatible industries that could provide high-wage jobs. RL is evaluating larger tracts of industrial-designated land at the Hanford Site to determine whether they are suitable for potential conveyance to entities for clean energy technology and other energy-related development with resulting sustainable, long-term economic benefits to the local region. DOE also is in the early stages of preparing an environmental assessment (EA) under the *National Environmental Policy Act* (NEPA) to evaluate the environmental impacts associated with the proposed conveyance of approximately 1,641 acres of industrial-designated lands located in the southeast corner of the Hanford Site. The Tri-City Development Council (TRIDEC), a designated Community Reuse Organization (CRO) under the *Atomic Energy Act of 1954*, proposes to use these lands to attract clean, energy-related businesses and investment and ensure future growth and stability for the local community.

RL will continue to explore developing potential partnerships and proposals with other DOE offices, other federal agencies, local governments, the private sector, tribal nations, CROs, and public utilities to use Hanford's land and assets to create local economies that will thrive after the Hanford Site cleanup has ended.

***Pits and Quarries for Aggregate:*** This area received high-priority planning attention during the FY2012 and FY2013 ISAP process for several reasons. First, only seven MSA-managed pits are currently active (6, 9, 23, 30, 34, H, and N) to provide aggregate and soil used for mission cleanup among 36 pits, including closed or historically used areas. All seven MSA active pits face the end of permitted lifespan per the *Environmental Assessment for Use of Existing Borrow Areas, Hanford Site, Richland, Washington* (DOE/EA-1403) and *Environmental Assessment for Reactivation and Use of Three Former Borrow Sites in the 100-F, 100-H, and 100-N Areas* (DOE/EA-1454), requiring a new *Environmental Assessment for Expansion of Borrow Areas on the Hanford Site* (DOE/EA-1934) to allow for continued expansion for some of these pits as well as several others including one new borrow pit. DOE/EA-1934 is scheduled to be completed in fall of 2013 and it will allow for the continued supply of aggregate and soil for the Hanford Site through FY2015. Subsequent NEPA reviews for additional pit expansion and/or new pits will be required beyond FY2015 because there will be a continued need for more borrow material, particularly for the Central Plateau. Many of the pits lie in the west central portions of the Hanford Site, creating the need to consider road restrictions for FY2020 and making exceptions for aggregate hauling to continue after 100 Area roads and Beloit Avenue become restricted by FY2020. The largest single unresolved issue is created by the inability to use Areas A, B, or C to provide cover and cap material to complete remediation of disturbed areas with Area C being the primary focus area for this source material. This mission-critical need requires the *Final Tank Closure and Waste Management Environmental*

*Impact Statement* (DOE/EIS-0391) NEPA decision or the use of offsite supply sources to meet needs. This gap is a cost and schedule impact to the cleanup mission deserving high attention by Hanford Site management because there may be a need for this material as early as FY2014.

The locations of pits and quarries are shown in Figure 3-17 in the FY2020 presentation map.

***Biological Controls, Wildfires and Land Re-vegetation:*** The dramatic changes in the overall Hanford Site footprint as remediation activities wrap up and land is transitioned into LTS status will be reflected in the above described biological control activities, in response to and as a preventative measure for periodic wildfires. The wildfire susceptibility areas, major aggregate source locations and future land use designations are shown on Figure 3-17.

MSA conducts vegetation management at various Hanford Site contractor locations that require different management strategies. These locations include radioactive and chemical waste management areas (i.e., single-shell and double-shell tank farms; solid waste burial grounds and landfills; and liquid waste ponds, ditches, cribs, and unplanned release sites), infrastructure areas (i.e., roadways, fence lines, utility right-of-ways, railroads, etc.), rangelands, and landscaped areas around buildings. Vegetation management in landscaped areas is not within the scope of the EA and continues to be excluded under the NEPA Implementing Procedures (10 CFR 1021), Appendix B, Subpart D, categorical exclusion B1.3, routine maintenance.

Tank farms are kept void of all vegetation. Solid waste burial grounds and landfills, liquid waste ponds, ditches, cribs, and unplanned release sites are re-vegetated with shallow rooted grasses and treated to preclude deep rooted plant invasion (some solid waste burial grounds are kept void of all vegetation). Infrastructure areas are kept void of all vegetation. Rangelands are treated to control invasive plants and noxious weeds. Tumbleweed accumulations are removed from all locations; potentially contaminated tumbleweeds are compacted and buried as low-level waste while uncontaminated tumbleweeds are piled and burned.

Prior to FY2011, vegetation management at Hanford did not require a separate EA or environmental impact statement (EIS). The topic was treated as a Categorical Exclusion and included in the CLUP to some extent. In FY2011 and FY2012, the scope of vegetation management activities was analyzed for potential direct, indirect, and cumulative environmental impacts from vegetation management activities conducted at Hanford and was documented in the EA and finding of no significant impact (FONSI).

The approved EA and FONSI issued in FY2012 allows MSA vegetation management activities using physical, chemical, and biological methods to resume within the bounds of available funding; including the treatment of large rangeland areas (up to 10,000 acres annually) to control invasive plants and noxious weeds. An added benefit of the EA is an allowance for prescribed burning followed by re-vegetation as a method for controlling invasive plants and noxious weeds. The combination of physical, chemical, biological, prescribed burning, and vegetation methods are referred to as “integrated vegetation management (IVM).”

The IVM concept provides a holistic approach to vegetation management that transitions efforts from weed eradication to a comprehensive landscape approach aimed at restoring native shrubs, grasses, forbs, and other desirable plants for the overall health of the ecosystem. For example,

prescribed burning followed by re-vegetation in rangelands will allow better control of cheat grass (a primary wildfire fuel) in favor of more wildfire tolerant native shrubs, grasses, forbs, and other desirable plants that help to restore plant community connectivity and foster improved wildlife habitat. IVM includes re-vegetation efforts following plant eradication treatments to supplement natural plant succession.

The EA document presents an “adaptive management” philosophy to managing Hanford Site lands. Adaptive management incorporates evaluating treatments to assess successes and failures. Future treatments are adjusted based on the learning to optimize treatment effectiveness and minimize potential environmental impacts consistent with Integrated Safety Management System (ISMS) principles of feedback and continuous improvement. Efforts to conduct adaptive management are at a suboptimal funding level. Investments in adaptive management will ultimately reduce the overall costs for vegetation management by reducing the number of treatments (including retreatment of site areas), while reducing potential impacts on the human environment; including natural, cultural, and ecological resources.

Future activities for vegetation management involve remediation and closure of waste sites currently managed by WRPS, WCH, and CHPRC. Following remediation and closure of waste sites, the sites will be turned over to MSA for management through the LTS program. In some cases, surface barriers will be employed to achieve final closure; especially when contaminants remain and unrestricted access cannot be granted. Surface barriers will be re-vegetated with shallow rooted plants to stabilize soils from erosion and prevent deep-rooted plant invasion and subsequent biological transport of contaminants. Vegetation management will be required to control invasive plants and noxious weeds on waste sites where surface barriers are an integral part of site closure.

In the future, all contractors will incorporate early restoration into the remediation process. In the near future, a revision to all onsite contractor’s contracts will require that they adhere to the requirements in the Hanford Site Re-vegetation Plan, which incorporates restoration re-vegetation methodologies. Re-vegetation also is addressed in the scope of the Natural Resource Damage Assessment (NRDA) program administered by the Natural Resource Trustee Council to provide final actions to meet *Comprehensive Environmental Response, Compensation & Liability Act of 1980* (CERCLA) compliance for site restoration. The NRDA program is currently in the early phases of baseline studies and scientific reports within a 10-year program to define NRDA projects for eventual DOE funding. The MSA biological controls program along with monitoring activities implements IVM. MSA’s activities implement parts of the NRDA program in various supporting roles.

As the Hanford Site footprint, funded by the RL program budget, continues to shrink from land conveyances made by DOE to other entities, there is an expectation that vegetation management services performed by MSA (i.e., manpower and equipment resources; knowledge of vegetation management practices and associated regulatory requirements; holder of the commercial pesticide applicator license for Hanford Site, etc.) should continue for efficiency and assuring compliance continuity. One similar example includes MSA current services for ENW at the Columbia Generating Station site.

**End State FY2020:**

- Condition: Fair
- Capacity: 586 mi<sup>2</sup> less land conveyances
- Reliability: 99% usable when needed (except during wildfire closures)
- Population Served: 6,350
- Areas Served: Entire Hanford Site
- Gaps and Planned Projects: No gaps identified and no planned projects.

**Cost Savings Proposals:** Refer to Appendix F for compost operation concept.

**Major Actions/Decisions Needed:** Refer to Appendix E for decisions needed.

**Roadmap:** Refer to Figure 3-17.

Figure 3-17. Land/Biological Controls/Aggregates System Roadmap



# Land/Biocontrols/Aggregates System Roadmap



## Project Description

None Identified

2013	2014	2015	2016	2017	2018	2019	2020

## Major Actions/Decisions

- Complete NEPA Review for Aggregate Extraction Areas
- Borrow Pit Management Program for Active Pit Areas
- Initiate NEPA Review for Evaporative Transpiration Barriers
- 300 Area Transition from WCH to MSA
- 400 Area Transition from MSA to D&D Contractor

2013	2014	2015	2016	2017	2018	2019	2020
		♦					
♦	♦	♦	♦	♦	♦	♦	♦
		♦					
			♦				
							♦

### 3.13 LAND SYSTEM – LONG-TERM STEWARDSHIP PROGRAM



**Basic System Description:** DOE established the Hanford LTS program to ensure continued protectiveness of cleanup remedies and to ensure protection of natural resources, the environment, and human health. LTS activities include providing long-term post cleanup S&M and monitoring, and maintaining institutional and physical controls for those geographic areas that have been

transitioned into the LTS program. The Hanford LTS program manages the geographic areas for which interim or final cleanup has been completed. This management is performed in accordance with the post cleanup requirements specified in the associated cleanup decision documents. Most LTS activities occur on an annual basis with reactor entries occurring every 5 years. Infrastructure needed to support this level of activity is minimal. The attributes for LTS are provided in Table 3-14.

In the FY2020 planning horizon, the geographic areas of the River Corridor will be transitioned to the LTS

program with the exception of 100K. The geographic areas of the Central Plateau are not planned for transition within that time frame.

Prior to geographic areas being transitioned into the LTS program, a Transition and Turnover Package (TTP) is prepared to compile the pertinent information. Existing infrastructure required to support the post-cleanup mission along with infrastructure requirements for site-wide support are identified in the TTP. This infrastructure includes Hanford Site roads, facilities, and utilities. It also includes services required to ensure protection of government property (e.g., emergency response, waste management, power, water).

The LTS program needs electrical power and physical access (roads) to perform required activities. Electrical power is typically transmitted along power lines owned by DOE and managed by MSA. If the existing electrical power lines are not available at some point in the future, an option for meeting the electrical requirements would be the use of low-voltage solar panels to provide power

Table 3-14. Long-Term Stewardship Attributes	
<b>Operate, Safe &amp; Regulatory Compliant System</b>	<ul style="list-style-type: none"> <li>Continued application of ISMS, EMS and VPP principles</li> <li>Strong safety culture: EZAC, safety log book, weekly safety starts</li> <li>Meet applicable CERCLA and 10 CFR 835 requirements</li> </ul>
<b>Availability, Right-Size &amp; Reduce Active Site Footprint</b>	<ul style="list-style-type: none"> <li>Technical, infrastructure and administrative activities to ensure the Long-Term Stewardship is available in a ready-to-serve configuration that meets the requirements of the Hanford mission</li> <li>Continual surveillance and maintenance for non-mission critical facilities</li> <li>Support WCH closure mission</li> </ul>
<b>Sustainability &amp; Minimize Impacts to Environment</b>	<ul style="list-style-type: none"> <li>Protect human health and environment</li> <li>Reductions in lifecycle costs</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>Ongoing process improvements and cost savings</li> </ul>
<b>Maintainability</b>	<ul style="list-style-type: none"> <li>Maintain qualifications for surveillance and maintenance personnel</li> <li>Implement surveillance and maintenance strategies</li> <li>Implement strategies from the site-wide Maintenance Management Program.</li> </ul>
EMS = emergency management system. VPP = Voluntary Protection Program. EZAC = Employee Zero Accident Council. WCH = Washington Closure Hanford. ISMS = Integrated Safety Management System. CERCLA = <i>Comprehensive Environmental Response, Compensation &amp; Liability Act of 1980.</i>	

for the cocooned reactors monitoring instrumentation and a mobile generator to support the required 5-year reactor entries.

The paved and unpaved roads in the majority of the 100 Area (River Corridor) are used to provide support services, such as biological controls, access to the utilities, access to the infrastructure supporting ongoing groundwater monitoring activities, and for emergency response situations. After FY2015, it is anticipated secondary roads in the 100 and 600 Areas will be categorized as “restricted access” based on minimal use for LTS, groundwater, environmental, and security/fire response functions. Maintenance of these roads is expected to be minimal after the River Corridor cleanup is complete (currently scheduled for completion by FY2015). The minimal road maintenance will be sufficient to meet the LTS S&M requirements. No new infrastructure needs are anticipated for LTS. The 100K Area roads will be needed beyond FY2020.

**Current Condition FY2013:**

- Condition: Fair
- Capacity: 564 Acres
- Reliability: 99% useable when needed (wildfire closures)
- Population Served: N/A
- Areas Served: Segment 1, Segment 2, Segment 3, 100-F Area, Segment 5
- Gaps and Projects in Progress: No gaps or projects identified

**End State FY2020:**

- Condition: Fair
- Capacity: 2,000 Acres
- Reliability: 99% useable when needed (wildfire closures)
- Population Served: N/A
- Areas Served: All with the exception of the inner and outer areas of the Central Plateau and 100K Area
- Gaps and Projects in Progress (if any): No gaps or projects identified.

**Cost Savings Proposals:** Summarized in Appendix F and detailed below:

Resequencing the 5-year entries into cocooned reactors placed into interim safe storage (ISS) status in 1 year allows a more efficient and safe execution with savings generated in planning, work packages, scope execution (sequential visits with the same team) and reporting efficiency (one inspection report for DOE review vs. six reports to review and process) as well as fewer long-term records.

The initial estimate by mobilized Hanford Site contractors for scope execution of the proposal is approximately \$100,000 per monitoring cycle. However, additional savings will be generated in planning, work packages and reporting. The total exact savings is not estimated at this time. The inspections requiring reactor structure entry also will be executed more safely as teams move sequentially from one reactor to the next implementing cumulative lessons learned.

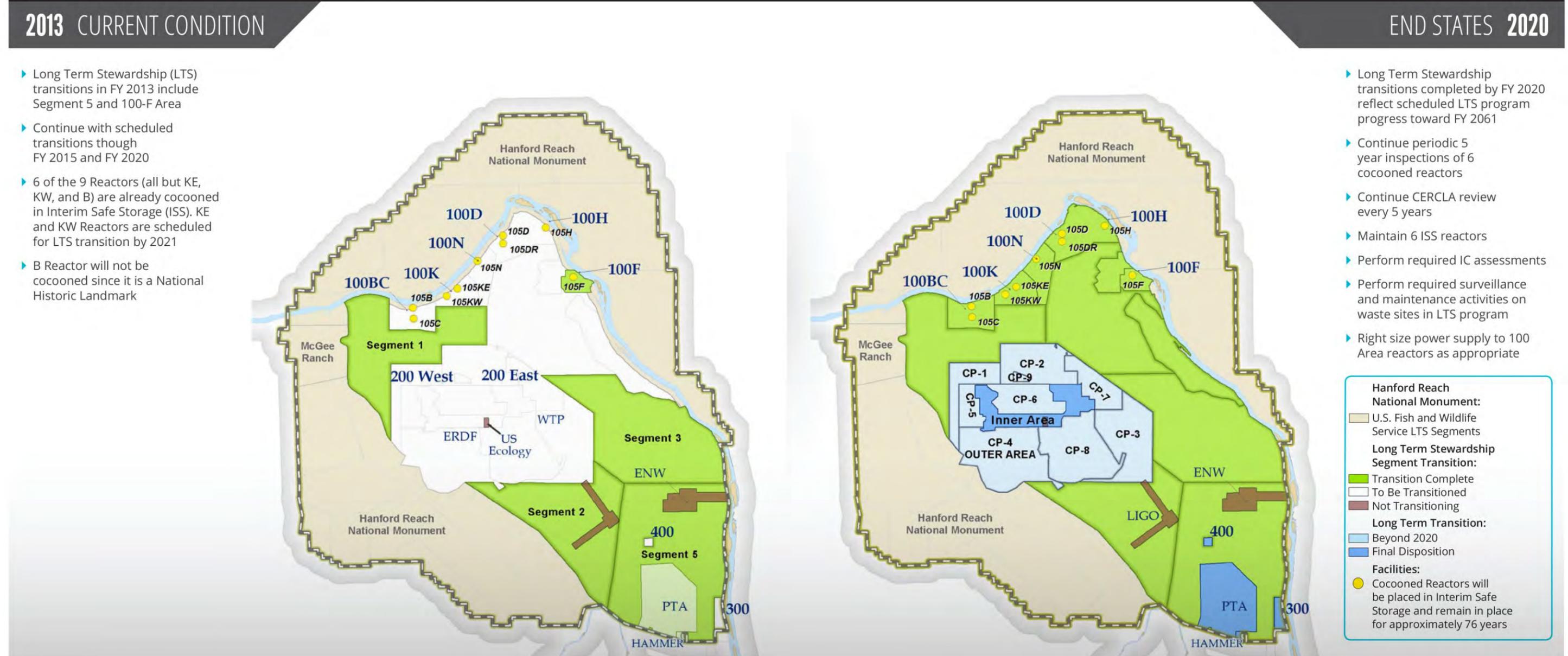
**Major Actions/Decisions Needed:** Refer to Appendix E.

**Roadmap:** Refer to Figure 3-18.

Figure 3-18. Long-Term Stewardship Roadmap



# Long-Term Stewardship Roadmap



## 2013 CURRENT CONDITION

- ▶ Long Term Stewardship (LTS) transitions in FY 2013 include Segment 5 and 100-F Area
- ▶ Continue with scheduled transitions through FY 2015 and FY 2020
- ▶ 6 of the 9 Reactors (all but KE, KW, and B) are already cocooned in Interim Safe Storage (ISS). KE and KW Reactors are scheduled for LTS transition by 2021
- ▶ B Reactor will not be cocooned since it is a National Historic Landmark

## END STATES 2020

- ▶ Long Term Stewardship transitions completed by FY 2020 reflect scheduled LTS program progress toward FY 2061
- ▶ Continue periodic 5 year inspections of 6 cocooned reactors
- ▶ Continue CERCLA review every 5 years
- ▶ Maintain 6 ISS reactors
- ▶ Perform required IC assessments
- ▶ Perform required surveillance and maintenance activities on waste sites in LTS program
- ▶ Right size power supply to 100 Area reactors as appropriate

**Hanford Reach National Monument:**

- U.S. Fish and Wildlife Service LTS Segments

**Long Term Stewardship Segment Transition:**

- Transition Complete
- To Be Transitioned
- Not Transitioning

**Long Term Transition:**

- Beyond 2020
- Final Disposition

**Facilities:**

- Cocooned Reactors will be placed in Interim Safe Storage and remain in place for approximately 76 years

### Project Description

	2013	2014	2015	2016	2017	2018	2019	2020
None Identified								

### Major Actions/Decisions

	2013	2014	2015	2016	2017	2018	2019	2020
Transition Segments 4, 100D, 100H, 100N, & 300 Area				♦				
Periodic CERCLA Inspections of Reactors (Resequencing Plan)								♦

## 4.0 NEXT STEPS – PATH FORWARD

This chapter includes additional detail about new business practices and technologies, emerging trends, cost savings and process streamlining previously introduced in Chapters 1.0 through 3.0.

### 4.1 BUSINESS PRACTICES AND POLICIES

Business practices and policies are maintained and updated administratively for orderly execution of mission support activities throughout the Hanford Site. In general, the ISAP annual report focuses on business practices and policies and includes recommendations for possible process improvements in infrastructure and services for mission support for the 13 ISAP systems.

An example of how practices and policies are shaping mission support planning is reflected by using premanufactured structures for short-term needs and reducing the footprint for permanent facilities. Existing facilities as defined in the MSC, including temporary and permanent, all require infrastructure support. Several business practices and policies shape decision making:

- Lease vs. own
- Cost to mobilize and demobilize
- Cost efficiency of maintenance long term
- Energy efficiency
- Mission support time horizons driving facility lifespan
- Quality of work life for employees.

In FY2009 to FY2011, approximately 3,500 additional staff required many temporary facilities. Following a short-term facility ramp-up, the site-wide policy was to reduce the large number of leased pre-manufactured facilities. Progress on the ramp-down effort was reported in a study of approximately 390 general purpose facilities within the ISAP annual report in FY2012. Quickly adding then removing short-term structures over 4 years required numerous physical changes to roads, parking and utility infrastructure systems.

The FY2012 analysis revealed a few temporary structures remain in use long past the normal life span. Also, a projected large near-term unfunded cost bubble for permanent facility upgrades was noted.

Implementing deliberate deferred maintenance as a long-term business practice and policy strategy is currently increasing long-term costs for general purpose facilities, roads and utilities infrastructure, as well as adding to the DOE system-wide deferred maintenance backlog list. To address this trend of increasing long-term cost, two approaches are being applied.

- *Existing facilities and infrastructure*, the largest asset base with opportunities implemented via planned replacements and upgrades listed in Appendix B IRRPL.
- *New facilities and infrastructure*, a smaller asset base with several opportunities largely located in or near the WTP complex, discussed in the following sections.

#### 4.1.1 BUSINESS PRACTICES ALREADY INTRODUCED

Business practices in proposed facilities dictate both the size and degree of support infrastructure impacts. Several business practices will remain under consideration for incremental

implementation during the next 5 to 7 years to help shape approximately 35 proposed new facilities, including the following:

- Developing a Site-wide videoconferencing policy for travel efficiency for live meetings
- Instituting a Cloud First Site-wide policy for optimizing onsite data center facilities
- Staggering the program work hours for 2 or 3 shifts within a 24-hour day at WTP
- Facility consolidation for existing warehouse space needs
- Restricting placement of “non-essential” personnel, including administrative office workers, in the Central Plateau area supporting WTP complex
- Requiring a commuter trip reduction goal for ride share, shuttle vans and/or transit participation for workers commuting to WTP facilities in the 200E Area through FY2045+
- Centralized vs. decentralized electrical power, water, and sanitary sewer systems
- Redundancy requirements for utilities.

#### 4.1.2 FY2013 BUSINESS PRACTICES

Business practices and policies with impacts to mission support infrastructure systems identified in FY2013 include:

- **Cost estimation standards and policy changes** for Hanford program are expected in early FY2014 resulting from an anticipated General Accounting Office report about technically complex projects. The anticipated impacts will be primarily to the WTP program, although mission support planning may also be impacted. Any changes in cost estimation practices will be reflected for infrastructure projects and procurements listed in Appendix B.
- **Information technology business policy changes** in cyber security, national security surveillance of electronic records and hardening of data transmission and data storage systems. All of these were very dynamic topics during FY2013 and included in Section 3.10.

#### 4.2 NEW TECHNOLOGIES/EMERGING ISSUES

This section provides examples of how the ISAP annual process identifies emerging issues for beneficial outcomes. Emerging issues for infrastructure come from a wide variety of sources:

- External
  - Federal and state regulations
  - U.S. and global trends
  - Changes in technology
  - Economics/Funding.
- Internal
  - System Manager
  - Lateral transfer of information from other federal sites.

In FY2011, incorporating a closed-loop cooling system on the 242-A Evaporator Facility was introduced as an example of an internal emerging issue and possible water, energy savings proposal as well as a possible long-term cost savings proposal. This facility is one of the Site’s largest raw water and energy consumers. If implemented, a closed-loop system at the 242-A Evaporator will allow the Site to fully meet its sustainability goal of a 20% decrease in raw water consumption by FY2020.

Currently, external and internal emerging trends in existing water utilities are driven by sustainability. New LEED construction proposals are required to take into consideration alternative water sources for each new building, rather than assume the existing water system will provide 100% of the water to meet the demands for all new proposals. New facilities could include storm water capture and storage tanks, rainwater capture and storage tanks, gray-water processing and filtration, and reduced-flow water fixtures to avoid 100% reliance on piped water utility systems. Generally, per the *High Performance and Sustainable Buildings Plan* (HPSB) (HNF-52346), requirements apply to new construction based on the value threshold and building size, unless the HPSB standards are waived because of budget constraints or other project-specific decision making.

Implementation of new energy sources is an example of an emerging issue. Electric vehicle performance per mile is now at the equivalent of \$1.14 per gallon when compared to vehicle fuel prices. The Site's conversion to electric vehicles was implemented in FY2012 and is expected to expand. Infrastructure to support this expansion is needed.

The Hanford community, ENW, and local government are working with the Federal Government to entertain the possibility of utilizing the Columbia Generating Station site to add a small modular reactor to validate the option as a viable energy resource. The Site is receptive to evaluate proposals such as these for energy resources from the community from a value standpoint even if the generated power is provided to offsite users.

#### **4.3 SITE SUSTAINABILITY AND ENERGY SAVINGS PERFORMANCE CONTRACTS**

Sustainability is a cross-cutting regulatory measure represented in 20 goals listed in the *2013 Hanford Site Sustainability Plan* (HNF-54800) and TYSP. Twelve goals are directly influenced and/or implemented via infrastructure and facilities in the Site's physical plant systems.

***Executive Order 13514, Federal Leadership in Environmental, Energy and Economic Performance***, set sustainability goals for federal agencies for improving environmental, energy, and economic performance. The executive order requires federal agencies to set a FY2020 greenhouse gas emissions reduction target, increase energy efficiency, reduce fleet petroleum consumption, conserve water, reduce waste, support sustainable communities, and leverage federal purchasing power to promote environmentally responsible products and technologies.

Late in FY2013, MSA began the process of evaluating projects for the application of a Utility Energy Services Contract (UESC). The UESC would provide RL funding for energy savings projects through a contract with BPA. Approximately \$5M in energy savings project scope has been identified for evaluation. Upon screening and approval, projects to meet UESC energy savings requirements would begin in FY2014.

***Executive Order 13423, Strengthening Federal Environmental, Energy and Transportation Management***, directs federal agencies to reduce energy intensity and greenhouse gas emissions, substantially increase use and efficiency of renewable energy technologies, adopt sustainable design practices, and reduce petroleum use in federal fleets.

RL, ORP, and their contractors are proactively implementing activities to support the achievement of the 20 sustainability goals established by Executive Orders 13514 and 13423. Plans and ongoing activities to achieve all 20 major goals at the Hanford Site are presented in the Hanford Site

Sustainability Plan. The Hanford Site is making significant progress toward achieving these goals by attaining or exceeding most requirements in FY2013.

In addition to UESC, another option for achieving sustainability goals is an energy savings performance contract (ESPC). The Hanford Site is using a Super ESPC contractor to evaluate potential new projects to support achieving the target goals of Executive Order 13423. However, no new projects for existing facilities are being pursued using an ESPC, due to several different factors:

- Low return on investment
- Long pay back periods
- Lack of available funding
- Lack of defined programs
- Lack of Site history for doing similar upgrades
- Lack of completed retro-commissioning reports with energy savings measures (ESM) defined
- Baseline energy use data not yet complete for 1M gross ft<sup>2</sup> of facilities being studied in FY2013.

An ESPC needs a large single facility challenge or a large scale of several projects bundled into a single program to optimize the contracting vehicle type. There is sufficient scale in general purpose facilities (378 of 796 existing buildings to remain past FY2020) for considering an ESPC program. However, the two most limiting factors are a high number of existing facilities with simple or no HVAC systems (HVAC upgrades with forced air fan motors and chillers generate the largest saving yield) and low energy costs (payback and return on investment lie outside of normal investment parameters for funding decisions). Industrial process heat and facility space heat might be the most promising areas targeting winter peak energy demand. The ESPC and other related contract vehicle options were studied by MSA during FY2013. Another limitation to implementing a new ESPC is incomplete electrical metering on existing buildings.

#### **4.4 COST SAVINGS / COST AVOIDANCE**

This section provides information about costs savings and cost avoidance proposals that create efficiencies, and meet a dual purpose of mission support and costs savings for DOE. Cost savings is defined as buying at a lower cost, while cost avoidance is buying less quantity or not buying at all. For example, when saving on printing paper, the site program could either opt for a less expensive brand (cost savings) or encourage paper reuse in order to use less paper (cost avoidance).

MSA implemented a cost avoidance and savings process at the start of the MSC as outlined in Section J.4.D, Sub-section 4, Performance Incentive Fee Calculation Methodology” containing strategic goals to achieve efficiencies. Efficiencies can be realized in cost avoidance or savings. In subsection 4, in item 2.0 “Efficient Site Cleanup and Future Waste Treatment Plant Operations” two main goals are listed:

- 2.1: Realize efficiencies through integration, consolidation, and standardization of site-wide service and business functions.
- 2.2: Realize efficiencies through integration, consolidation, and standardization of site-wide safety, security, and stewardship programs.

MSA employs several strategies to achieve and continue building on increasing efficiencies. MSA has implemented Operating Excellence initiatives, Lean Six Sigma initiatives, technical innovations and improvements in work processes, consolidations of services and delivery mechanisms, continuous analysis of staffing strategies and labor skill mixes, and other business analyses. During FY2010 through FY2012, MSA achieved cost avoidances and savings totaling over \$111M. These efforts will continue through the remainder of the MSC. Strategically, RL and ORP can utilize and

manage resources at the site-wide programmatic level, from continuously improved service with excellence at the best price.

Costs savings and cost avoidance are subject to several DOE directives and guidance for real property, facilities and infrastructure considered during the ISAP process.

Many Cost Savings proposals for ISAP systems relate to the largest 6 of 13 infrastructure systems that are under the management of RL Site Infrastructure, Services, and Information Management Division. The infrastructure cost savings help meet the Vision 2015 goal to right size infrastructure and site services.

Sequestration requirements were required and implemented during the second half of FY2013. The response plan created reductions labor and non-labor cost categories. The sequestration response cost savings proposals were separately tracked by MSA and RL. The temporary efforts, measures and responses for costs savings were applicable only during FY2013, so all of the sequestration response proposals are not included within the ISAP Appendix F.

Cost avoidance proposals include:

- Estimated costs not spent from cancellation of infrastructure projects or changed needs that eliminate a planned expenditure
- Planned and budgeted component costs that were not spent such as lower market prices for a different fuel supply, or a favorable bidding climate for materials and labor.

Cost savings and cost avoidance proposals typically emerge during Phase B Synthesis and Phase C Conceptual tasks of the ISAP planning process include meetings and discussions various stakeholders. After gaps are identified very often the wide variety of crosscutting requirements and exploration of options and alternatives leads to identifying several methods or strategies to meet mission support needs. Also, value engineering suggestions during implementation phases can result in cost savings. Finally, cost savings can come from a wide external sources - LEAN Six Sigma efforts, market factors, new technology, pre-construction walk-down, etc.

The current cost savings and cost avoidance proposals are in Appendix F, Table F-1 as a quick reference list of proposals and also mentioned in Chapter 3. A database is maintained by MSA Portfolio Management (PfM) for tracking proposals using nine status phases, as follows:

1. Concept review, currently the largest number of proposals are in this category at approximately 128 proposals.
2. Initial review.
3. Selection.
4. Technical review.
5. Input review, for comments.
6. Review decision.
7. Implementation decision, the second largest number of proposals are in this category currently at approximately 103 proposals.
8. Implement.
9. Archive.

The process of adding new cost savings / avoidance proposals can be directly entered to the PfM database or captured during the ISAP data gathering workshops. After cross check and validation and discussion during the ISAP review process, the proposals are added to Table F-1 as a subset of the proposals maintained and updated in the PfM database. All validated proposal line items are

entered on the PfM database after full documentation of each proposal is developed following the protocol and submittal form already established. Selected cost savings requiring a major decision (due to size of the scope, site wide impact or amount of funding needed) in Appendix E Decisions Needed Summary are updated during the ISAP annual planning cycle.

The Hanford Site long-term vision defined a Site-wide energy management system encompassing all aspects of energy generation and transmission, including human and industrial energy use, energy waste, and alternative forms of energy. The transformation from thinking about energy as separate utilities to envisioning a single energy management utility began in FY2012. A gradual transition will continue over the next 7 years of physical plant planning. Initially, this means treating electrical service and the natural gas pipeline as one energy business concentration.

The mandates for a multi-source energy system come from global and U.S. trends in energy supply and demand affecting the preference of fuel types. Energy density is becoming a more prominent topic as the nuclear industry approaches an epic next cycle of investment to replace 104 existing aging plants. Toward the future needs in nuclear power generation platforms, DOE-HQ announced the initial funding of a Small Modular Reactor (SMR) program contract based primarily at the Oak Ridge Site. As the entire U.S. economy moves from having 60% to 66% of gross domestic product related to energy, the Hanford Site will also look to utilize other energy sources to satisfy Hanford's energy needs. RL has committed to purchase all of its electrical power from BPA through FY2028 and will continue to work to augment the site generated energy supply for peak needs as well as for Site needs beyond FY2028.

For the Hanford Site, diverse energy options under consideration are a natural gas pipeline, a solar photovoltaic farm, a possible commercial biofuel plant for jet aviation, an SMR, wind turbines, and smart grid research and development. Projections are expecting the dominance of energy management at the Site beyond FY2020 as most of the cleanup mission is completed and alternative uses of the designated industrial or research and development portions of the Hanford Site become a near-term consideration. To help meet the mission end states beyond FY2020, particularly for WTP, which are projected through FY2045, planning by FY2020 will merge existing energy systems with considerations for larger efforts in energy conservation, energy savings including Site-based energy performance measures and energy management, including capture and reuse (e.g., cogeneration plants or process enhancements) to become part of the single energy management system.

#### **4.5 WATER MANAGEMENT SYSTEM BY FY2035**

The Hanford Site long-term vision turns toward one Site-wide water management system that encompasses all aspects of the hydrologic water cycle, including human and industrial use of water, waste water, groundwater, and surface water. The transformation from thinking about water as two separate utilities toward envisioning a single water management utility began in FY2012. The gradual transition will continue over the next 21 years of physical plant planning.

In July 2012, 61% of the land area in the entire U.S. was in a formal drought designation ranking third worst in a century. The long-term trends in fresh water create a planning mandate for a single comprehensive water system at Hanford. A single system can be planned as the eventual Site response to state, regional, and local, as well as global and U.S. trends in water supply. Lessons learned during the past decades pointed to lack of groundwater recharge led to water supply crisis

responses. Projections indicate extraordinary measures for water management will arrive and also be needed by FY2040. To help meet the mission end states beyond FY2020, particularly for the WTP ending in FY2045, planning for the Site by FY2020 will merge the raw, export, and potable water systems with the sanitary sewer system, adding considerations for treated waste water (gray water) for reuse, water conservation, and water savings. Plans will include site-based water performance measures and storm water management including capture and reuse (e.g., irrigation for landscape). However, groundwater will continue to be part of the regulatory cleanup domain until the groundwater cleanup program ends in FY2035, then groundwater becomes part of the single water management system managed primarily by RL assisted by the mission support contractor.

In FY2013, the overall condition of the Site's water and sanitary sewer utilities are not acceptable to meet future mission requirements. Parts of the piped, pumped, stored, and treated water systems exceed 50 years of age and are not expected to meet operational capacity and reliability requirements for the WTP and its attendant tank waste feed systems without upgrades. Utility requirements for the WTP's 40-year mission cannot be met without significant capital outlay for capacity and reliability upgrades and replacements. Several upgrades and replacements are identified on the IRPPL.

The two major water system projects under way during FY2013 are L-778 for the Central Plateau water system upgrades and the river corridor water system upgrades. Both projects make critical capacity and reliability modifications needed for the FY2020 end state. The long-term cost saving concept features a deep well to serve 200 Area water needs to eliminate the 151-KE (A-9) Substation including 1.5MW long-term load after cleanup electrical needs are ended. Savings include eliminating annual maintenance and replacing electrical lines, one substation, numerous transformers, removing one or both river supply pipelines and one or more pump stations. The concept relies on discontinuation of groundwater pumping at river (when cleanup objectives have been reached for plume control) and a restoration of normalized infiltration patterns via natural process for site aquifer recharge.

The sanitary sewer system will continue the transition process of reducing reliance on pumped tanks and septic drain fields. The emerging central system to meet long-term demands includes one large existing centralized treatment lagoon in 200W and a 200E solution to be determined (for waste water conveyance to 200W lagoon or treatment facilities) to serve the majority of Central Plateau needs.

Three WTP-related topics require tracking. Sanitary sewer loading associated with a proposed WTP office building might be decided by FY2015 when the sewer solution for the project can be confirmed. The outcome expected for the proposed WTP office building is that sanitary sewer disposal via centralized collection eventually will be needed. This expectation is based on the calculation of 2,500 employees at 21 gal/day/employee = 52,500 gal/day. Water demand for the overall WTP complex is not yet tied to the operational scenario that considers flow modeling for shifts, production levels, and staffing levels. This has more implications for operations (e.g., a 24-hour dispatch call center) yet the water demand capacity is likely to fall within the general capacity of the existing system. The future water flow demand compared to the water system capacity could change as fire reviewers potentially change the current fire flow requirement of 2,500 gal/min for parts of the WTP complex. The water flow demand change could occur

incrementally when engaging in a full review of all prior design and construction decisions made to date, as the WTP operations-phase fire response team replaces the WTP construction-phase fire protection team on a building-by-building transition basis.

**APPENDIX A**  
**PLANNING DOCUMENT REFERENCE LIST**

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Table A-1. Planning Reference List for ISAP

Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
1	DOE/RL-2012-29, 2012, <i>Hanford Ten-Year Site Plan, Fiscal Period 2013 – 2022</i> , Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/142845686/DOE-RL-2012-29_-_Rev_00.PDF?nodeid=169461193&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/142845686/DOE-RL-2012-29_-_Rev_00.PDF?nodeid=169461193&amp;vernum=1</a>	DOE-HQ compliance report for 1 of 30 DOE sites. 248 pages
2	DOE/RL-2010-35, 2012, <i>Hanford Long-Term Stewardship Program Plan</i> , Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www.hanford.gov/files.cfm/DOE_RL-2010-35_Rev1_LTS_Program_Plan_Apr_2012.pdf">http://www.hanford.gov/files.cfm/DOE_RL-2010-35_Rev1_LTS_Program_Plan_Apr_2012.pdf</a>	The LTS is an Implementing document detailing how DOE will maintain the cleanup remedies in accordance with regulatory requirements. 71 pages
3	DOE/RL-2009-10, 2013, <i>Hanford Site Cleanup Completion Framework</i> , Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www.hanford.gov/files.cfm/Comp_Framework_Jan_%201-23-13-lfm.pdf">http://www.hanford.gov/files.cfm/Comp_Framework_Jan_%201-23-13-lfm.pdf</a>	Meets the requirements of DOE Policy 455.1, 2003 Use of Risk-Based End States, U.S. Department of Energy, Washington, D.C. 118 pages
4	Roadmap - EM Journey to Excellence, 2010, Predecisional Draft, U.S. Department of Energy, Office of Environmental Management, Washington, D.C.	<a href="http://www5.rl.gov/rw_doe/doorl/index.cfm?pagenum=76">http://www5.rl.gov/rw_doe/doorl/index.cfm?pagenum=76</a>	22 pages
5	2012, The 2015 Vision, U.S. Department of Energy, Richland Operations Office, Richland, Washington (Available on the Internet )	<a href="http://www.hanford.gov/page.cfm/2015VISION">http://www.hanford.gov/page.cfm/2015VISION</a>	1 page
6	DOE/RL-2009-81, 2009, <i>Central Plateau Cleanup Completion Strategy</i> , Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/DOE_RL-2009-81_-_Rev_0_-_%5B0910050098%5D.pdf?nodeid=166898855&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/DOE_RL-2009-81_-_Rev_0_-_%5B0910050098%5D.pdf?nodeid=166898855&amp;vernum=1</a>	81 pages
7	ORP-11242, 2010, <i>River Protection Project System Plan</i> , Rev. 6, U.S. Department of Energy, Office of River Protection, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/57033376/165974083/010093_-_%5B0093553%5D.pdf?nodeid=166041582&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/57033376/165974083/010093_-_%5B0093553%5D.pdf?nodeid=166041582&amp;vernum=1</a>	430 pages

Table A-1. Planning Reference List for ISAP

Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
8	HNF-44238, 2012, <i>Infrastructure &amp; Services Alignment Plan</i> , Rev. 3, Mission Support Alliance, LLC, Richland, Washington.		MSC, J-3 & J-4 matrix, 160 pages
9	HNF-44238, 2011, <i>Infrastructure &amp; Services Alignment Plan</i> , Rev. 2, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/HNF-44238_REV_2.pdf?nodeid=166900329&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/HNF-44238_REV_2.pdf?nodeid=166900329&amp;vernum=1</a>	MSC, J-3 & J-4 matrix 119 pages
10	MSC-GD-54665, 2013, <i>Mission Support Planning Process Description</i> , Rev. 0, Mission Support Alliance, LLC, Richland, Washington.		Planning process guidance document
11	DOE/RL-2012-13, <i>2013 Hanford Lifecycle Scope, Schedule and Cost Report</i> , Rev. 0, U.S. Department of Energy, Richland Operations Office, LLC, Richland, Washington.	<a href="http://www.hanford.gov/files.cfm/DOE-RL-2012-13_FINAL_REV.0_.pdf">http://www.hanford.gov/files.cfm/DOE-RL-2012-13_FINAL_REV.0_.pdf</a>	Annual report series File name 0101009[0093403] 335 pages
12	MSA-IMP-00001, 2010, <i>Hanford Site Interface Management Plan</i> , Rev. 1, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe">http://idmsweb.rl.gov/idms/livelink.exe</a>	Attachment G found File name Attachment GG-MSA-1000458 Attachment
13	24590-WTP-PL-MG-OI-001, 2012, <i>Interface Management Plan</i> , Rev. 6, Bechtel National, Inc., Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/60849/29048860/29065675/140641789/166290593/12-WTP-0226_WRPS.pdf?nodeid=171399849&amp;vernum=2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/60849/29048860/29065675/140641789/166290593/12-WTP-0226_WRPS.pdf?nodeid=171399849&amp;vernum=2</a>	40 pages (Original request was for Rev. 3 2007. Located Rev. 6 as an attachment to 12-WTP-0226 signed July 12, 2012.)
14	DE-AC27-01RV14136, 2000, "Design, Construction, and Commissioning of the Hanford Tank Waste Treatment and Immobilization Plant Contract, U.S. Department of Energy, Office of River Protection, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/154886372/155490805/WTP_CONTRACT__DE-AC27-01RV14136_-_%5B1011080021%5D.pdf?nodeid=155544591&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/154886372/155490805/WTP_CONTRACT__DE-AC27-01RV14136_-_%5B1011080021%5D.pdf?nodeid=155544591&amp;vernum=1</a>	Web link is for WTP Contract Section C only. File name WTP Contract 11 pages
15	DE-AC27-08RV14800, 2001, "Washington River Protection Solutions, LLC, Contract," U.S. Department of Energy, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/163388720/143079457/DOE%2C_ORP_Assessment_Report_Tank_Operations_Contractor_Maintenance_Program_Assessment.pdf?nodeid=143737271&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/163388720/143079457/DOE%2C_ORP_Assessment_Report_Tank_Operations_Contractor_Maintenance_Program_Assessment.pdf?nodeid=143737271&amp;vernum=1</a>	61 pages ORP Assessment 2009

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Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
16	DE-AC06-05RL14655, 2005, "River Corridor Closure Contract," U.S. Department of Energy, Richland Operations Office, Richland Washington.	<a href="http://www.hanford.gov/index.cfm?page=1066&amp;">http://www.hanford.gov/index.cfm?page=1066&amp;</a>	Original Contract
17	24590-WTP-ICD-MG-OI-009, 2012, ICD 9 - <i>Interface Control Document for Land for Siting</i> , Rev. 5, U.S. Department of Energy, Office of River Protection, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe">http://idmsweb.rl.gov/idms/livelink.exe</a>	pages
18	24590-WTP-ICD-MG-OI-011, 2012, ICD 11, <i>Interface Control Document - Electricity</i> , Rev. 4, U.S. Department of Energy, Office of River Protection, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe">http://idmsweb.rl.gov/idms/livelink.exe</a>	pages
19	"Right Sizing" the 200 West Area Groundwater Treatment Facility Site Infrastructure During Cleanup, presentation dated October 27, 2010, CH2M HILL Plateau Remediation Company, Richland, Washington.	N/A	CHPRC internal file document.
20	PNL-7264, 1990, <i>Archaeological Survey of the 200 East and 200 West Areas, Hanford Site, Washington</i> , Pacific Northwest Laboratory, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/57033376/59350720/D197182656.pdf?nodeid=58668358&amp;vernum=2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/57033376/59350720/D197182656.pdf?nodeid=58668358&amp;vernum=2</a>	28 pages File name D197182656
21	HNF-49707, 2011, <i>Central Plateau Area Management Plan</i> , Rev. 0, Mission Support Alliance, LLC, Richland, Washington.	N/A	Available from MSA Land and Facilities Office
22	DOE/RL-2010-54, 2010, <i>Engineering Evaluation/Cost Analysis for 200 East Tier 2 Buildings/Structures</i> , Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/60626/145203477/145207109/145562868/160332385/DOE-RL-2010-54_-_Rev_01.pdf?nodeid=156112996&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/60626/145203477/145207109/145562868/160332385/DOE-RL-2010-54_-_Rev_01.pdf?nodeid=156112996&amp;vernum=1</a>	72 pages
23	WSRC-IM-2002-00002, 2001, <i>Guidebook to Decision-Making Methods</i> , U.S. Department of Energy, Washington, D.C.	<a href="http://www.everyspec.com/DOE/DOE-PUBS/WSRC-IM-2002-00002_36284/">http://www.everyspec.com/DOE/DOE-PUBS/WSRC-IM-2002-00002_36284/</a>	44 pages
24	MSA-1100562, 2011, <i>MSA Transition Plan Transfer of the 300 Area Utilities from Washington Closure Hanford to MSA</i> , Rev. 3, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe">http://idmsweb.rl.gov/idms/livelink.exe</a>	HNF-50869 Rev. 0 28 pages for Attachment 1
25	HNF-6610, 2007, <i>Hanford Site General Purpose Facilities Master Plan</i> , Rev. 1, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/13248486/59897753/105964758/HNF-6610_-_Rev_1_-_5BDA06208695%5D.pdf?nodeid=82730347&amp;vernum=2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/13248486/59897753/105964758/HNF-6610_-_Rev_1_-_5BDA06208695%5D.pdf?nodeid=82730347&amp;vernum=2</a>	2012 Draft update in Progress. 122 pages

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Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
26	HNF-51468, 2012, <i>Electrical Utility Condition Assessment</i> , Mission Support Alliance, LLC, Richland, Washington HNF-51469, 2012, <i>Sanitary Sewer Condition Assessment</i> , Mission Support Alliance, LLC, Richland Washington. HNF-51470, 2012, <i>Water Utility Condition Assessment</i> , Mission Support Alliance, LLC, Richland, Washington. HNF-50594, 2012, <i>251W (Substation A8) Loading Capacity Study</i> , Mission Support Alliance, LLC, Richland Washington. HNF-50591, 2011, <i>200 Area 13.8kV Feeder Assessment</i> , Mission Support Alliance, LLC, Richland Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe">http://idmsweb.rl.gov/idms/livelink.exe</a>	HNF-51468 – 73 pages HNF-51469 – 13 pages HNF-51470 – 156 pages HNF-50594 - 51 pages HNF-50591 – 255 pages
27	HNF-6608, 2013, <i>Hanford Site Electrical Utilities Master Plan</i> , Rev. 2, Mission Support Alliance, LLC, Richland Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/13248486/59897753/105964758/HNF-6608_-_Rev_1_-_%5BDA05904487%5D.pdf?nodeid=72878178&amp;vernum=3">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/13248486/59897753/105964758/HNF-6608_-_Rev_1_-_%5BDA05904487%5D.pdf?nodeid=72878178&amp;vernum=3</a>	Placeholder for FY 2013 report
28	Analytical Laboratory Services Master Plan Update		Placeholder for FY 2013 report
29	Information Technology Vision 2015, Mission Support Alliance		Brochure Executive Summary
30	HNF-5828, 2012, <i>Hanford Site Water System Master Plan</i> , Rev. 3, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/168502753/HNF-5828_-_Rev_02.pdf?nodeid=154820408&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/168502753/HNF-5828_-_Rev_02.pdf?nodeid=154820408&amp;vernum=1</a>	2012 Update in progress. 124 pages
31	HNF-6612, 2012, <i>Hanford Site Sanitary Sewer Master Plan</i> , Rev. 3, Mission Support Alliance, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/168502753/HNF-6612_-_Rev_02.pdf?nodeid=154820522&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/168502753/HNF-6612_-_Rev_02.pdf?nodeid=154820522&amp;vernum=1</a>	2012 update in progress. 85 pages
32	MSA-1003609A R2, 2010, <i>Integrating Site Sustainability into the Environmental Management Program</i> , Former Contract Deliverable CD0179 and CD0086, Rev. 2, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/open/156071247">http://idmsweb.rl.gov/idms/livelink.exe/open/156071247</a>	Letter, 5 attachments, distribution list. Attachment 1 – 65 pages Attachment 2 – 15 pages Attachment 3 – 46 pages Attachment 4 – 119 pages Attachment 5 – 2 pages

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Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
33	HNF-44429, 2011, <i>Infrastructure Scalability Solution &amp; Implementation Plan</i> , Rev. 3, Mission Support Alliance, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/52944035/58552837/HNF-44429_-_282011-08-10-ISSIP-FINAL%29%5B1108241313%5D.pdf?nodeid=164288440&amp;vernum=2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/52944035/58552837/HNF-44429_-_282011-08-10-ISSIP-FINAL%29%5B1108241313%5D.pdf?nodeid=164288440&amp;vernum=2</a>	17 pages Does not indicate Rev. 3
34	<i>Hanford Site wide Industrial Security Plan</i> , 2010, Mission Support Alliance, LLC, Richland, Washington.	N/A	Official Use Only – Available from MSA Safeguards and Security
35	HNF-34610, 2007, <i>Hanford Site Master Plan: Network and Telecommunications System</i> , Rev. 0, Fluor Hanford, Inc., Richland Washington.	N/A	Update deferred to FY 2013. Contact Central Files at 376-5421 or 376-5440 for hard copy
36	MSC-RD-10859, 2010, <i>Maintenance Management</i> , Rev. 0, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://msc.rl.gov/rapidweb/MSCDOL/dol/displayDoc.cfm?docno=MSC-RD-10859">http://msc.rl.gov/rapidweb/MSCDOL/dol/displayDoc.cfm?docno=MSC-RD-10859</a>	5 pages
37	MSC-CTR-00006, 2010, <i>Site Infrastructure &amp; Utilities ISMS Charter</i> , Rev. 2, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://msc.rl.gov/rapidweb/MSCDOL/dol/displayDoc.cfm?docno=MSC-CTR-00006">http://msc.rl.gov/rapidweb/MSCDOL/dol/displayDoc.cfm?docno=MSC-CTR-00006</a>	MSA file document 25 pages
38	<i>MSA Rail Operations Strategy White Paper</i> , 2010, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe?func=ll&amp;objId=161849449&amp;objAction=Open&amp;vernum=1&amp;nextrurl=%2Fidms%2Flivelink%2Eexe%3Ffunc%3Dsrch%2ESearchCache%26cacheId%3D411717925">http://idmsweb.rl.gov/idms/livelink.exe?func=ll&amp;objId=161849449&amp;objAction=Open&amp;vernum=1&amp;nextrurl=%2Fidms%2Flivelink%2Eexe%3Ffunc%3Dsrch%2ESearchCache%26cacheId%3D411717925</a>	7 pages
39	HNF-46741, 2012, <i>Facilities Consolidation Feasibility Study (LMIT)</i> , Rev. 0 Draft, Mission Support Alliance, LLC, Richland, Washington.	N/A	MSA information management internal presentation. Budgeted for FY2013, expected complete by FY2014.
40	DOE/RL-2011-117, 2011, <i>Mid-Columbia Clean Energy Feasibility Assessment and Mid-Columbia Region Clean Energy Opportunities Presentation</i> , U.S. Department of Energy, Richland Operations Office, Richland, Washington	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/60628/60730/121075/165431210/167976485/DOE-RL-2011-117_with_covers.pdf?nodeid=167976588&amp;vernum=2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/60628/60730/121075/165431210/167976485/DOE-RL-2011-117_with_covers.pdf?nodeid=167976588&amp;vernum=2</a>	Meets goals described in Executive Order 13514 135 pages
41-A	HNF-51858, 2012, <i>Hanford Fire Department (HFD) Fire Station Infrastructure and Deployment Evaluation Baseline and Options</i> , Rev. 0, published and delivered to RL in February 2012.	Document is OUO	

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Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
41-B	HNF-51581, <i>Hanford Fire Department – Fire Station Infrastructure and Deployment Evaluation</i> , Rev. 0, was published and delivered to RL in January 2012.	Document is OUO	
42	Hanford Radio Fire Alarm Reporting System Evaluation, October 3, 2011. Prepared by Thore and Associates for MSA	Document is OUO	Planning Document for Information Management System Planning.
43	DOE/RL-2003-39, 2003, <i>Hanford Long-Term Stewardship Program and Transition: Preparing for Environmental Management Cleanup Completion</i> , U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/56579814/62100631/DOE_RL-2003-39_%5BD2477765%5D.pdf?nodeid=62106457&amp;vernum=3">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/56579814/62100631/DOE_RL-2003-39_%5BD2477765%5D.pdf?nodeid=62106457&amp;vernum=3</a>	74 pages
44	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)</i> , 42 USC 9601 9675 et seq.	<a href="http://epw.senate.gov/cercla.pdf">http://epw.senate.gov/cercla.pdf</a>	CERCLA Regulations
45	DOE/RL-2001-41, 2009, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions</i> , Rev. 4, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/DOE_RL-2001-41_REV_4.pdf?nodeid=168245018&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/DOE_RL-2001-41_REV_4.pdf?nodeid=168245018&amp;vernum=1</a>	96 pages
46	64 FR 61615, “Amended Record of Decision for the Hanford Comprehensive Land-Use Plan Environmental Impact Statement, Federal Register, Vol. 73, No. 188, pp 55824-55826, September 26, 2008.	<a href="http://www.gpo.gov/fdsys/pkg/FR-2008-09-26/pdf/E8-22676.pdf">http://www.gpo.gov/fdsys/pkg/FR-2008-09-26/pdf/E8-22676.pdf</a>	NEPA and SEPA Regulations
47	DOE/EIS-0222-F, 1999, <i>Final Hanford Comprehensive Land-Use Plan Environmental Impact Statements</i> , U.S. Department of Energy, Washington, D.C.	<a href="http://www.hanford.gov/files.cfm/Final_Hanford_Comprehensive_Land-Use_Plan_EIS_September_1999_.pdf">http://www.hanford.gov/files.cfm/Final_Hanford_Comprehensive_Land-Use_Plan_EIS_September_1999_.pdf</a>	NEPA and SEPA Regulations 523 pages Unofficial record – see DOE local and Headquarters public reading room and Tri-Party Agreement Public Information Repositories
48	64 FR 61615, 1994, “Record of Decision: Hanford Comprehensive Land Use Plan Environmental Impact Statement (HCP EIS)”.	<a href="http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/EIS-0222-ROD-1999.pdf">http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/EIS-0222-ROD-1999.pdf</a>	NEPA and SEPA Regulations 11pages 1999

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<b>Ref Number - ISAP 2013</b>	<b>Hanford Planning Document</b>	<b>Web Link</b>	<b>Driver of Plan/Comments on Status</b>
49	DOE/RL-96-88, 2003, <i>Hanford Site Biological Resources Mitigation Strategy</i> , Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/DOE_RL-96-88_Rev_0.pdf?nodeid=165667858&amp;vernum=1">http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/18814/1081672/140138990/140873892/166220192/166220193/166226885/166220436/DOE_RL-96-88_Rev_0.pdf?nodeid=165667858&amp;vernum=1</a>	Rev. 0 in IDMS dated January 2003 56 pages
50	DOE-RL 2015 – <i>Hanford Site Cleanup Vision</i> , U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www.hanford.gov/files.cfm/2015_Vision.pdf">http://www.hanford.gov/files.cfm/2015_Vision.pdf</a>	1 page
51	Tri-Party Agreement, 1989, <i>Hanford Federal Facility Agreement and Consent Plan</i> , Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington, as amended.	<a href="http://www.hanford.gov/?page=81">http://www.hanford.gov/?page=81</a>	
52	HNF-22401, 2004, <i>Plutonium Finishing Plant (PFP) Complex End Point Criteria</i> , Rev. 0, Numatec Hanford Company, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/18814/13256931/13248486/60016445/64637061/HNF-22401_-_Rev_0_-_%5BD5754003%5D.pdf?nodeid=64634023&amp;vernum=4">http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/18814/13256931/13248486/60016445/64637061/HNF-22401_-_Rev_0_-_%5BD5754003%5D.pdf?nodeid=64634023&amp;vernum=4</a>	31 pages
53	MSC-PRO-15333, 2011, <i>Environmental Protection Processes</i> , Rev. 4, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://msc.rl.gov/rapidweb/MSCDOL/dol/displayDoc.cfm?docno=MSC-PRO-15333">http://msc.rl.gov/rapidweb/MSCDOL/dol/displayDoc.cfm?docno=MSC-PRO-15333</a>	231 pages
54	NEPA - <i>National Environmental Policy Act of 1969</i> . Public Law 91-190, as amended, 42 USC 4321 et seq.	<a href="http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm">http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm</a>	
55	RPP-RPT-48549, Rev. 1 – <i>Preliminary Supplemental Treatment and Immobilization System Site Evaluation Report</i> , Washington River Protection Solutions, Richland, Washington	<a href="http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/18814/1081672/60849/145206200/145206201/145206209/162974181/RPP-RPT-48549_-_Rev_01.PDF?nodeid=164807711&amp;vernum=1">http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/18814/1081672/60849/145206200/145206201/145206209/162974181/RPP-RPT-48549_-_Rev_01.PDF?nodeid=164807711&amp;vernum=1</a>	68 pages
56	SEPA - <i>State Environmental Policy Act of 1971</i> , as amended, RCW 43.21C & WAC 197-11	<a href="http://apps.leg.wa.gov/rcw/default.aspx?cite=43.21C&amp;full=true">http://apps.leg.wa.gov/rcw/default.aspx?cite=43.21C&amp;full=true</a>	State regulation updated periodically by state legislature
57	Washington State Department of Ecology Web Site - Nuclear Waste	<a href="http://www.ecy.wa.gov/programs/nwp/index.html">http://www.ecy.wa.gov/programs/nwp/index.html</a>	State regulation updated periodically by state legislature

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58	EPA/625/R-00/008, 1980, <i>Onsite Wastewater Treatment and Disposal Systems</i> , U.S. Environmental Protection Agency, Washington, D.C.	<a href="http://nlquery.epa.gov/epasearch/epasearch?querytext=625%2Fr-00%2F008&amp;fld=&amp;areaname=&amp;typeofsearch=epa&amp;areacontacts=http%3A%2F%2Fwww.epa.gov%2Fepahome%2Fcomments.htm&amp;areasearchurl=&amp;result_template=epafiles_default.xml&amp;filter=sample4file.t.htm">http://nlquery.epa.gov/epasearch/epasearch?querytext=625%2Fr-00%2F008&amp;fld=&amp;areaname=&amp;typeofsearch=epa&amp;areacontacts=http%3A%2F%2Fwww.epa.gov%2Fepahome%2Fcomments.htm&amp;areasearchurl=&amp;result_template=epafiles_default.xml&amp;filter=sample4file.t.htm</a>	52 pages
59	DOE/RL-2001-41, 2012, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions</i> , Rev. 5, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www.hanford.gov/files.cfm/DOE_RL-2001-41_Rev5_Final_Version.pdf">http://www.hanford.gov/files.cfm/DOE_RL-2001-41_Rev5_Final_Version.pdf</a>	155 pages
60	DOE/RL-2002-59, 2004, <i>Hanford Site Groundwater Strategy: Protection, Monitoring and Remediation</i> , U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/57033376/156699370/0093885-_5B0084084%5D.pdf?nodeid=156815392&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/57033376/156699370/0093885-_5B0084084%5D.pdf?nodeid=156815392&amp;vernum=1</a>	47 pages
61	WAC 173-303-040, "Dangerous Waste Regulations," <i>Washington Administrative Code</i> , as amended.	<a href="http://apps.leg.wa.gov/wac/default.aspx?cite=173-303">http://apps.leg.wa.gov/wac/default.aspx?cite=173-303</a>	WAC 173-303-040 is "Definitions"
62	24590-WTP-ICD-MG-01-028, Rev. 3, ICD for Pit 30 Aggregate Supply for Construction – Start January 16, 2012, Finish April 12, 2012.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-028_Rev_3_%28linked_to_IFM_website%29.pdf?nodeid=144361787&amp;vernum=-2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-028_Rev_3_%28linked_to_IFM_website%29.pdf?nodeid=144361787&amp;vernum=-2</a>	WTP contract requirement 24 pages
63	24590-WTP-ICD-MG-01-011, Rev. 5, ICD for Electricity – Start December 16, 2011, Finish April 12, 2012.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/56579814/61913695/24590-WTP-ICD-MG-01-011.pdf?nodeid=138700177&amp;vernum=1">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/13256931/56579814/61913695/24590-WTP-ICD-MG-01-011.pdf?nodeid=138700177&amp;vernum=1</a>	WTP contract requirement 23 pages
64	24590-WTP-ICD-MG-01-001, Rev. 3, ICD for Raw Water – Start December 16, 2011, Finish June 26, 2012.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-001_Rev_3_(linked_to_IFM_website).pdf?nodeid=144361556&amp;vernum=-2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-001_Rev_3_(linked_to_IFM_website).pdf?nodeid=144361556&amp;vernum=-2</a>	WTP contract requirement 22 pages

Table A-1. Planning Reference List for ISAP

Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
65	24590-WTP-ICD-MG-01-002, Rev. 3, ICD for Potable Water – Start March 15, 2012, Finish June 15, 2012.	<a href="http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-002_Rev_3_(linked_to_IFM_website).pdf?nodeid=173056497&amp;vernum=-2">http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-002_Rev_3_(linked_to_IFM_website).pdf?nodeid=173056497&amp;vernum=-2</a>	WTP contract requirement 20 pages
66	24590-WTP-ICD-MG-01-009, Rev. 5, ICD for Land for Siting – Start October 16, 2012, Finish January 2, 2013.	<a href="http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-009_Rev_5_(linked_to_IFM_website).pdf?nodeid=144355400&amp;vernum=-2">http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-009_Rev_5_(linked_to_IFM_website).pdf?nodeid=144355400&amp;vernum=-2</a>	WTP contract requirement 21 pages
67	24590-WTP-ICD-MG-01-012, Rev. 5, ICD for Roads – Start December 16, 2011, Finish March 15, 2012.	<a href="http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-012_Rev_5_(linked_to_IFM_website).pdf?nodeid=144360707&amp;vernum=-2">http://idmsweb.rl.gov/idms/livelihood.exe/fetch/2000/60628/60730/143415559/153988818/153988820/173668195/24590-WTP-ICD-MG-01-012_Rev_5_(linked_to_IFM_website).pdf?nodeid=144360707&amp;vernum=-2</a>	WTP contract requirement 14 pages
68	DOE Acquisition Regulation (DEAR) Clause 952.217-70, 1984, “Acquisition of Real Property,” U.S. Department of Energy, Washington, D.C.	<a href="http://law.justia.com/cfr/title48/48-50.3.26.39.30.1.20.html">http://law.justia.com/cfr/title48/48-50.3.26.39.30.1.20.html</a>	
69	DOE Acquisition Regulation (DEAR) Clause 970.5223-2, “Acquisition and Use of Environmentally Preferable Products and Services,	<a href="http://www.govenergy.com/2010/Files/Presentations/Sustainability/3%20Kate%20Lewis%20for%20Sandra%20Cannon.pdf">http://www.govenergy.com/2010/Files/Presentations/Sustainability/3%20Kate%20Lewis%20for%20Sandra%20Cannon.pdf</a>	Document downloaded displays 23 pages of HSS Sustainable Acquisition Practices
70	DOE O 430.1B, 2008, <i>Real Property Asset Management</i> , Change Notice 1, U.S. Department of Energy, Washington, D.C. (Change Notice 2 dated 4-25-2011)	<a href="https://www.directives.doe.gov/directives/0430.1-BOrder-bc2/view">https://www.directives.doe.gov/directives/0430.1-BOrder-bc2/view</a>	Change Notice 2 52 pages
71	DOE O 430.2B, 2008, <i>Departmental Energy, Renewable Energy and Transportation Management</i> , U.S. Department of Energy, Washington, D.C.	<a href="https://www.directives.doe.gov/directives/0436.1-BOrder/view">https://www.directives.doe.gov/directives/0436.1-BOrder/view</a>	Replaced by DOE O 436.1

Table A-1. Planning Reference List for ISAP

Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
72	DOE O 436.1, 2011, <i>Departmental Sustainability</i> , U.S. Department of Energy, Washington, D.C.	<a href="https://www.directives.doe.gov/directives/0436.1-BOrder/view">https://www.directives.doe.gov/directives/0436.1-BOrder/view</a>	Requires Hanford Site Sustainability Plan annual report by DOE plus compliance by MSA and OHCs. Implements EO 13423 and EO 13514, requires ISO14001:2004 compliance Site wide. 15 pages
73	<i>Energy Policy Act of 2005</i> (EPAAct), 42 USC 15801 et seq.	<a href="http://www.gpo.gov/fdsys/pkg/PLAW-109publ58/pdf/PLAW-109publ58.pdf">http://www.gpo.gov/fdsys/pkg/PLAW-109publ58/pdf/PLAW-109publ58.pdf</a>	551 pages
74	Executive Order 13101, 1998, <i>Greening the Government Through Waste Prevention, Recycling and Federal Acquisitions</i> , William J. Clinton.	<a href="http://msc.rl.gov/rapidweb/envpro/docs/179/docs/executive%20order%2013423.pdf">http://msc.rl.gov/rapidweb/envpro/docs/179/docs/executive%20order%2013423.pdf</a>	Revoked by Executive Order 13423
75	Executive Order 13123, 1999, <i>Greening the Government through Efficient Energy Management</i> , William J. Clinton.	<a href="http://msc.rl.gov/rapidweb/envpro/docs/179/docs/executive%20order%2013423.pdf">http://msc.rl.gov/rapidweb/envpro/docs/179/docs/executive%20order%2013423.pdf</a>	Revoked by Executive Order 13423
76	Executive Order 13423, 2007, <i>Strengthening Federal Environmental, Energy and Transportation Management</i> , George W. Bush.	<a href="http://msc.rl.gov/rapidweb/envpro/docs/179/docs/executive%20order%2013423.pdf">http://msc.rl.gov/rapidweb/envpro/docs/179/docs/executive%20order%2013423.pdf</a>	7 pages
77	Executive Order 13514, 2009, <i>Federal Leadership in Environmental, Energy and Economic Performance</i> , Barrack H. Obama.	<a href="http://www.gpo.gov/fdsys/pkg/FR-2009-10-08/pdf/E9-24518.pdf">http://www.gpo.gov/fdsys/pkg/FR-2009-10-08/pdf/E9-24518.pdf</a>	11 pages
78	<i>Hanford Reach National Monument (Monument) Comprehensive Conservation Plan and Environmental Impact Statement</i> , Adams, Benton, Grant and Franklin Counties, Washington, 2008, U.S. Fish and Wildlife Service, Washington, D.C.	<a href="http://digitalmedia.fws.gov/utills/getfile/collectio n/document/id/427/filename/428.pdf">http://digitalmedia.fws.gov/utills/getfile/collectio n/document/id/427/filename/428.pdf</a>	1026 pages
79	<i>Freedom of Information Act</i> , 5 USC 552, et seq.	<a href="http://www.foia.cia.gov/foia.asp">http://www.foia.cia.gov/foia.asp</a>	9 pages
80	<i>Energy Independence and Security Act of 2007</i> , 42 USC 17001, et seq.	<a href="http://msc.rl.gov/rapidweb/envpro/docs/189/docs/eisa%20of%202007.pdf">http://msc.rl.gov/rapidweb/envpro/docs/189/docs/eisa%20of%202007.pdf</a>	310 pages
81	<i>American Recovery and Reinvestment Act of 2009</i> , Public Law 115-5.	<a href="http://www5.rl.gov/rw_DOE/CONGRESS/docs/76/docs/ARRA_HR1.pdf">http://www5.rl.gov/rw_DOE/CONGRESS/docs/76/docs/ARRA_HR1.pdf</a>	407 pages
82	<i>National Energy Conservation Policy Act</i> , 42 USC 91 et seq.	<a href="http://uscode.house.gov/download/pls/42C91.txt">http://uscode.house.gov/download/pls/42C91.txt</a>	
83	<i>National Environmental Policy Act of 1969</i> (NEPA), 42 USC 4321 et seq.	<a href="http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm">http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm</a>	

Table A-1. Planning Reference List for ISAP

Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
84	<i>National Historic Preservation Act of 1966</i> , 16 USC 470, et seq.	<a href="http://www.gsa.gov/portal/content/100884">http://www.gsa.gov/portal/content/100884</a>	Related 65 pages
85	Presidential Proclamation 7319 (65 FR 37253), "Establishment of the Hanford Reach National Monument," William J. Clinton, Federal Register, Vol. 64, No. 114, pp 37252-37257, June 9, 2000.	<a href="http://www.gpo.gov/fdsys/pkg/FR-2000-06-13/pdf/00-15111.pdf">http://www.gpo.gov/fdsys/pkg/FR-2000-06-13/pdf/00-15111.pdf</a>	Pending related Federal legislation in June 2012 on the same subject. 5 pages
86	Public Law 108-340, <i>Manhattan Project National Historical Park Study Act</i> , October 18, 2004, 118 STAT 1362.	<a href="http://www.gpo.gov/fdsys/pkg/PLAW-108publ340/pdf/PLAW-108publ340.pdf">http://www.gpo.gov/fdsys/pkg/PLAW-108publ340/pdf/PLAW-108publ340.pdf</a>	Pending related Federal legislation in June 2012 on the same subject. 2 pages
87	Department of Energy Strategic Plan Update	<a href="http://energy.gov/sites/prod/files/DOE%20Strategic%20Plan_2012%20GPRA%20Addendum.PDF">http://energy.gov/sites/prod/files/DOE%20Strategic%20Plan_2012%20GPRA%20Addendum.PDF</a>	Secretary of Energy 5 pages
88	ORP, 2009, <i>Human Capital Management Plan FY-2010 - FY 2014</i> , U.S. Department of Energy, Office of River Protection, Richland, Washington.	N/A	ORP file document, available at MSA office.
89	MSC-MP-41920, 2010, <i>Nuclear Safety Protocol for Work Performed by the Mission Support Contractor in Nuclear Facilities Managed by Other Hanford Site Prime Contractors</i> , Rev. 2, Mission Support Alliance, LLC, Richland, Washington.	<a href="http://www.hanford.gov/pmm/files.cfm/MS-CMP-41930.pdf">http://www.hanford.gov/pmm/files.cfm/MS-CMP-41930.pdf</a>	22 pages
90	HNF-52346, 2012, <i>The Hanford Site High Performance and Sustainable Building Plan</i> , Rev. 0, Mission Support Alliance, LLC, Richland, Washington.		
91	RPP-RPT-50014, <i>Qualitative Analysis of the Analytical Laboratory Capabilities Required to Support Hanford Tank Farm Closure</i> , Rev. 0, Washington River Protection Solutions, LLC, Richland, Washington.		
92	DOE/RL-96-68, 1998, <i>Hanford Analytical Services Quality Assurance Requirements Documents</i> , U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www.hanford.gov/files.cfm/AS_rl-96-68_vol-1.pdf">http://www.hanford.gov/files.cfm/AS_rl-96-68_vol-1.pdf</a> <a href="http://www.hanford.gov/files.cfm/HASQARD%20Vol%202.pdf">http://www.hanford.gov/files.cfm/HASQARD%20Vol%202.pdf</a> <a href="http://www.hanford.gov/files.cfm/AS_rl-96-68_vol-3.pdf">http://www.hanford.gov/files.cfm/AS_rl-96-68_vol-3.pdf</a> <a href="http://www.hanford.gov/files.cfm/HASQARD%20Vol%204.pdf">http://www.hanford.gov/files.cfm/HASQARD%20Vol%204.pdf</a>	4 Volumes: Volume 1, Rev. 2 Volume 2, Rev. 3 Volume 3, Rev. 3 Volume 4, Rev. 3 313 pages

Table A-1. Planning Reference List for ISAP

Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
93	DOE/EIS-0391, 2012, <i>Final Tank Closure and Waste Management Environmental Impact Statement</i> , U.S. Department of Energy, Washington, D.C.	<a href="http://www.hanford.gov/page.cfm/FinalTCWMEIS">http://www.hanford.gov/page.cfm/FinalTCWMEIS</a>	
94	DOE/RL-94-02, 2010, Hanford Emergency Management Plan, Rev. 4, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www.ecy.wa.gov/programs/nwp/permitting/HDWP/PDF/Attachments/ATT_4_Emergency_Management.pdf">http://www.ecy.wa.gov/programs/nwp/permitting/HDWP/PDF/Attachments/ATT_4_Emergency_Management.pdf</a>	210 pages
95	DOE/EA-1934, 2012, Environmental Assessment for Expansion of Borrow Areas on the Hanford Site, Draft, Richland, Washington, U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www.hanford.gov/files.cfm/DOE-EA-1934_Draft_12-04-2012.pdf">http://www.hanford.gov/files.cfm/DOE-EA-1934_Draft_12-04-2012.pdf</a>	92 pages
96	DOE/EA-1403, 2001, <i>Environmental Assessment for Use of Existing Borrow Areas, Hanford Site</i> , Richland Washington, U.S. Department of Energy, Richland Operations Office, Richland, Washington..	<a href="http://www2.hanford.gov/arpir/?content=findpage&amp;AKey=DA06641443">http://www2.hanford.gov/arpir/?content=findpage&amp;AKey=DA06641443</a>	36 pages
97	DOE/EA-1454, 2003, <i>Environmental Assessment for Reactivation and Use of Three Former Borrow sites in the 100-F, 100-H, and 100-N Areas</i> , U.S. Department of Energy, Richland Operations Office, Richland, Washington.	<a href="http://www2.hanford.gov/arpir/?content=simpleSearch">http://www2.hanford.gov/arpir/?content=simpleSearch</a>	
98	<i>Atomic Energy Act of 1954</i>	<a href="http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0980/rev1/vol-1-sec-1.pdf">http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0980/rev1/vol-1-sec-1.pdf</a>	236 pages
99	DOE/EE-0312, 2006, Guidance for Electric Metering in Federal Buildings, U.S. Department of Energy, Energy Efficiency and Renewable Energy, Washington, D.C.	<a href="http://www1.eere.energy.gov/femp/pdfs/adv_metering.pdf">http://www1.eere.energy.gov/femp/pdfs/adv_metering.pdf</a>	29 pages
100	DOE O 313.3B, <i>Program and Project Management for the Acquisition of Capital Assets</i> , U.S. Department of Energy, Washington, D.C.	<a href="https://www.directives.doe.gov/directives/0413.3-BOrder-b/view">https://www.directives.doe.gov/directives/0413.3-BOrder-b/view</a>	102 pages
101	HNF-54800, <i>2013 Hanford Site Sustainability Plan</i> , Mission Support Alliance, LLC, Richland, Washington.	<a href="http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/168502753/HNF-54800_-_Rev_00.PDF?nodeid=176814933&amp;vernum=-2">http://idmsweb.rl.gov/idms/livelink.exe/fetch/2000/18814/1081672/140138990/145203472/145109197/145109198/168502753/HNF-54800_-_Rev_00.PDF?nodeid=176814933&amp;vernum=-2</a>	85 pages
101	2012 Facility Master Plan		
102	HNF-51927, <i>Business Case Analysis for Warehouse Consolidation Pilot Project</i>		

**Table A-1. Planning Reference List for ISAP**

Ref Number - ISAP 2013	Hanford Planning Document	Web Link	Driver of Plan/Comments on Status
103	40 CFR 101-47.4909, "Federal Property Management Regulations," <i>Code of Federal Regulations</i> .	<a href="http://www.gpo.gov/fdsys/pkg/CFR-2002-title41-vol2/pdf/CFR-2002-title41-vol2-subtitleC-chap109-subchapA.pdf">http://www.gpo.gov/fdsys/pkg/CFR-2002-title41-vol2/pdf/CFR-2002-title41-vol2-subtitleC-chap109-subchapA.pdf</a>	
104	<i>National Defense Authorization Act for FY2011</i> , Public Law 111-383, H.R. 6523, 111 <sup>th</sup> Congress	<a href="http://thomas.loc.gov/cgi-bin/bdquery/z?d111:H.R.6523">http://thomas.loc.gov/cgi-bin/bdquery/z?d111:H.R.6523:</a>	
105	<i>Hanford Reach National Monument Comprehensive Conservation Plan and Environmental Impact Statement</i> , U.S. Fish and Wildlife Service, Washington, D.C.	<a href="http://digitalmedia.fws.gov/utils/getfile/collection/document/id/427/filename/428.pdf">http://digitalmedia.fws.gov/utils/getfile/collection/document/id/427/filename/428.pdf</a>	1026 pages
106	10 CFR 1021, "Department of Energy: National Environmental Policy Act Implementing Procedures," <i>Code of Federal Regulations</i> .	<a href="http://energy.gov/nepa/downloads/10-cfr-1021-department-energy-national-environmental-policy-act-implementing">http://energy.gov/nepa/downloads/10-cfr-1021-department-energy-national-environmental-policy-act-implementing</a>	34 pages

**APPENDIX B  
FISCAL YEAR 2014 TO FISCAL YEAR 2020  
DEFINED PROJECTS**

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## APPENDIX B

### Infrastructure Reliability Project Priority List (IRPPL)

The Infrastructure Reliability Project Priority List (IRPPL) for fiscal year (FY) 2014 through FY2020 is provided in Table B-1.

Each year, the Mission Support Alliance, LLC (MSA), Project Planning and Integration (PPI) group defines reliability projects (funded primarily by RL-0040 funding source, unless otherwise noted), including baseline planning activities for out-year projects in the IRPPL.

During FY2013, the IRPPL *Scope Development Process* guidance document (MSC-GD-54627) was updated. In addition, alignment of the IRPPL process in relation to the annual budget preparation process was provided in MSC-GD-54665, *Mission Support Planning Process Description* guidance document prepared in FY2013. Changes reflect more discipline validation and scoring steps imposed on projects during FY2013, compared to prior year IRPPL documents.

Baseline project planning took place at discipline specific system meetings. These meetings reviewed and revised the IRPPL according to current risks and mission need. Data for projects currently on the IRPPL were completed and then validated by system-specific Subject Matter Experts and system managers.

For new projects added to the IRPPL, the following data was required:

1. Mission Need Statement (capability or reliability deficiency/gap tied to a mission requirement).
2. Project Scope Document [Form A-6006-383] in accordance with MSC-GD-54627.
3. Cost Estimate.
4. Capital Determination on the Project [Form A-6006-388].
5. Priority Rating Criteria Worksheet [Form A6005-900].
6. Schedule.
7. Risk Analysis.

Gap Summary (Appendix D) in Table D-1 reflects any gaps that have been identified but are still being vetted for mission need prior to incorporation onto the IRPPL.

For any reported needs that did not accomplish all 7 of the above steps by July 1, 2013, gap activities are shown on the Gap Summary (Appendix D) in Table D-1. Each gap listed will result in a following next action:

- Track as a Decisions Needed (Appendix E), until fully resolved (defined and funded project, or an activity to address the need)
- Track as a gap met by a defined Project on the IRPPL (Appendix B).

The content in two IRPPL columns titled “Risks If Not Performed” and “Mission Need” is removed from Appendix B IRRPL within ISAP annual report, because the selected information is OOU. The content for these two columns is available in the OOU version FY2013 IRPPL dated 7/31/13.

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-783, Central Plateau East Fire Station Conceptual Design Report/Definitive Design /Construction	“The new “Central Plateau East” (CPE) Fire Station will be constructed at the northeast corner of Route 4 South and Baltimore Avenue in the 200 East Area. This proposed fire station is strategically located to respond in a timely manner to the Central Plateau Area and specifically to the Waste Treatment Plant during operation. This fire station also will have the capacity and equipment necessary to respond to a sodium fire in the 400 Area and to provide support to the 100 Area. The current configuration of this new fire station includes a main fire station building, an equipment storage building, and a five-bay vehicle storage building.	HFD Facilities	1	FY16
ET50, (distribution layer completion) HLAN Network Upgrade Phase I (Refresh)	<p>The ET-50 project includes the design, procurement, and upgrade of the Hanford Local Area Network (HLAN) backbone network infrastructure. The network will require both software and hardware upgrades that will improve capacity and functionality of the HLAN Backbone. As the HLAN has become more complex to allow for virtualized network and servers, the core infrastructure has not been upgraded to match. This project will create a design that will upgrade the hardware to better match the new HLAN. The equipment and technology also will be Internet Protocol version 6 (IPv6) capable, which will support a required federal mandate for IPv6 compliance.</p> <p>The network devices to be upgraded are various models of network switches from Cisco Systems, Inc. The devices provide network, application, and data access for users, servers, and network services transported via the HLAN such as Internet, Intranet, Email, IDMS, TIS, PopFon, AJHA, HEIS, Docs Online, VoIP, Emergency Notification, etc. for the Hanford Site including the Tank Operations Contract (TOC), Plateau Remediation Contract (PRC) and Mission Support Contract (MSC) scope. Replacement of the existing equipment will provide higher levels of security, functionality, and performance. The actual facilities targeted for each phase will be determined during the design phase to ensure a proper balance of risk and business impacts associated with the implementation.</p>	IT / IM	2	FY16
L-612, 230kV Transmission System Reconditioning and Sustainability Upgrades	Project L-612 includes aerial line conductor repair work and insulator string assembly replacement for designated portions of 230kv electrical transmission lines A2, A7, and A9, including replacement of armor rod at 75 locations.	Electrical System	3	FY16
L-777, Overlay Route 4S, 618-10 Waste Site to Horn Rapids Road	Project L-777 will rehabilitate Route 4S from the 618-10 Waste Site intersection to Horn Rapids Road by placing a 2" thick asphalt overlay over the existing asphalt. The roadway length is approximately 5.3 miles and the width is 68' feet with additional width for acceleration and deceleration lanes at all major intersections. The shoulders will be built up to finish grade of the new asphalt with gravel, and paint striping will be applied for lane lines and fog lines.	Road System	4	FY16
L-761, Replace RFAR (Phase II)	<p>An independent assessment of the Hanford Site Radio Fire Alert Reporting (RFAR) system was conducted in the summer of 2011 that identified several inconsistencies and deficiencies in the current notification system. To correct those issues will involve replacing the majority of the hardware and software to gain compliance with federal code.</p> <p>Phase II of the project will replace the RFAR communications equipment at each facility that communicates with the facility's fire alarm control panel.</p>	Hanford Fire Protection	5	FY16
L-776, Overlay Route 4S, Wye Barricade to 618 Waste Site entrance	Project L-776 will rehabilitate Route 4S from the Wye Barricade to the 618-10 Waste Site intersection (MP 17.6) by placing a 2" thick asphalt overlay over the existing asphalt. The roadway length is approximately 5. miles and the width is 68' feet with additional width for acceleration and deceleration lanes at all major intersections. The shoulders will be built up to finish grade of the new asphalt with gravel, and paint striping will be applied for lane lines and fog lines.	Road System	6	FY16
ET51, (Access Layer) HLAN Network Upgrade Phase II (Refresh FY 2015)	The project includes the design, procurement, and upgrade of the existing obsolete Hanford Local Area Network (HLAN) network devices with equipment and technology that is IPv6 capable. This project, combined with the first phase (ET50), consists of upgrading and consolidating approximately 600 network devices with approximately 400 new network devices. The devices being replaced are no longer under warrantee or supported by the vendor. The unsupported infrastructure creates a risk of cyber threat with no future patches or upgrades provided by the vendor. The equipment is also not IPv6 capable, which is required per OMB memo M-05-22. Advanced network services being considered for the site cannot be implemented with the existing technology. The network devices are various models of network switches from Cisco Systems, Inc. The devices provide network, application, and data access for users, servers, and network services transported via the HLAN such as Internet, Intranet, email, IDMS, TIS, PopFon, AJHA, HEIS, Docs Online, etc., for the Hanford Site including the Tank Operations Contract (TOC), Plateau Remediation Contract (PRC) and Mission Support Contract (MSC) scope. Replacement of the existing equipment will provide higher levels of security, functionality, and performance. The project would be broken up into two phases, each phase taking one year and upgrading roughly half of the existing network. Phase I would primarily upgrade facilities such as the Federal Building, Steven Center Offices, 2750, etc. Phase II would upgrade the remaining facilities such as the mobile offices and on site office buildings (MO281, MO404, 242A, 222S, etc.). The actual facilities targeted for each phase will be determined during the design phase to ensure a proper balance of risk and business impacts associated with the implementation.	IT / IM	7	FY16

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-768, 251W A8 Substation Equipment Rating Optimization Upgrades	<p>Upgrade A8 251W substation Load Tap Changers and cables from power transformers into 13.8kV switchgear. Complete designs and initiate construction to increase ratings of High Voltage Power Distribution Transformer Load Tap Changers (LTC) and the replacement secondary Load Side Cables.</p> <p>This project to be funded by ORP.</p>	Electrical System	8	FY14
L-775, Overlay Route 4S, Canton Avenue to the Wye Barricade	<p>Project L-775 will rehabilitate Route 4S from Canton Avenue to Wye Barricade by placing a 2" thick asphalt overlay over the existing asphalt. The roadway length is approximately 7.53 miles, and the width is 27 feet. The shoulders will be built up to finish grade of the new asphalt with gravel, and paint striping will be applied for centerline and fog lines.</p>	Road System	9	FY16
L-780, 200E Area 13.8kV Electrical Distribution System WFD Modifications and Upgrades  (DESIGN)	<p>Waste Feed Delivery – Upgrade and replace feeder cables from 13.8kV feeder breakers at A8 251W to the distribution riser poles and the aerial distribution lines to the in 200E to tank farms and cross ties.</p> <p>Develop the detailed design and initiate construction activities to increase the size of the 200E electrical distribution system 13.8 KV line - approximately 8.5 miles. Develop the detailed design and initiate construction activities to extend the current 200E electrical distribution system 13.8 KV line Study in designated areas and install switched capacitor banks to accommodate new forecasted WRPS loads.</p> <p>Construct 200E Electrical Distribution System 13.8KV Line Replacement. Replace existing 13.8kV circuits with larger size conductor - approximately 8.5 miles.</p> <p>Construct new 200E Electrical Distribution System 13.8KV Line to extend the current 200E electrical distribution system 13.8 KV Line Study in designated areas and install switched capacitor banks to accommodate new forecasted WRPS loads.</p> <p>This project to be funded by ORP with some portions funded in FY15.</p>	Electrical System	10	FY14
L-780, 200E Area 13.8kV Electrical Distribution System WFD Modifications and Upgrades  (CONSTRUCTION)	<p>Waste Feed Delivery – Upgrade and replace feeder cables from 13.8kV feeder breakers at A8 251W to the distribution riser poles and the aerial distribution lines to the in 200E to tank farms and cross ties.</p> <p>Develop the detailed design and initiate construction activities to increase the size of the 200E electrical distribution system 13.8 KV line - approximately 8.5 miles. Develop the detailed design and initiate construction activities to extend the current 200E electrical distribution system 13.8 KV line Study in designated areas and install switched capacitor banks to accommodate new forecasted WRPS loads.</p> <p>Construct 200E Electrical Distribution System 13.8KV Line Replacement. Replace existing 13.8kV circuits with larger size conductor - approximately 8.5 miles.</p> <p>Construct new 200E Electrical Distribution System 13.8KV Line to extend the current 200E electrical distribution system 13.8 KV Line Study in designated areas and install switched capacitor banks to accommodate new forecasted WRPS loads.</p> <p>This project to be funded by ORP with some portions funded in FY15.</p>	Electrical System	11	FY15
L-782, Water Treatment Plant Control & Efficiency Upgrades	<p>Upgrade Alum Feed System to reduce solids (currently powdered change to liquid or polymer). W Filter Plant Tracer Study. Turbidimeter replacement/installation. 283W Filter Control System (primary water filters before chlorination) and valves. Upgrade Water operational facilities, e.g., 182B, D - 181B, D - Filter Plants, 282E, W. Includes relevant upgrades such as painting, HVAC, lighting, epoxy flooring, roofing, remove degraded wooden structures, etc. Failure of electronics at 283W to meet ongoing mission needs (outdated equipment, limited system manipulation). Lose Filter Plant operability due to failed filter control valves. Upgrade Chlorine concentration monitors (CL17s), and other water instrumentation (flow, temperature, pH, etc.). Upgrade flocculator drives, paddles &amp; baffle boards. Provide variable speeds for individual paddles. Improvements to the alum flash mixer (poor mixing now). Standby power for 283W Filter Plant. Replace VFDs at 283E &amp; W with Magnadrive ASDs. Determine need for, and install soft starts and/or capacitance starts for electric motors (10HP &amp; above). 200E &amp; W (4 Stations) PLC Hardware/Software replacements/upgrades and Wonderware HMI/software upgrades. 200W Water Treatment Process Improvements.</p>	Water System	12	FY17

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-781, 181D Vertical Turbine Pumps, Header, Instrumentation, Commission (Design/Procurement) & (Construction)	Engineering and early procurement for reconfiguring 181-D River Intake Pump House with two new 7,000 gal/min vertical turbine pumps capable of pumping directly to the plateau reservoirs. This will include bypassing the 182D reservoir and pumping system, installing a new pump header, and tying in to the existing 42" Export water line, as well as construction for reconfiguring 181-D River Intake Pump House. Install two new 7,000 gal/min vertical turbine pumps capable of pumping directly to the plateau reservoirs. This provides the capability to bypass the 182D reservoir and pumping system, thus allowing the decommissioning of the 182D reservoir. Construction will also include installing a new pump header and tying in to the existing 42" Export water line.	Water System	13	FY17
L-794, Upgrades to HFD Station 92 (Bldg. 609A)	The 200 Area Fire Station will be renovated and upgraded to accommodate reassigned personnel from closed fire stations and to provide additional space for relocated materials and equipment. The primary renovations and upgrades to the 200 Area Fire Station will be to the men's and women's restrooms, locker rooms and shower facilities, and the dormitory rooms. Modifications to classroom area will be made to expand restroom/locker room and dormitory areas.	HFD Facilities	14	FY17
L-771, New Equipment Storage Building at HFD Station 92	A new 3,500-ft2, five-bay equipment storage building with mezzanine storage will be constructed adjacent to the existing equipment storage building located behind the fire station. The building will have roll up doors, a fire protection system and a compressed air system.	HFD Facilities	15	FY17
L-789, Prioritized T&D System Wood Power Poles Testing and Replacement(1)	This project is scoped to replace up to 2500 overhead power poles in the Hanford distribution system. The project will be sequenced relative to the need and location of the various lines at risk to failure due to aging wood poles. Initial scoping will define the sequence of replacements.	Electrical System	16	FY17
L-789, Prioritized T&D System Wood Power Poles Testing and Replacement (2)	This project is scoped to replace up to 2500 overhead power poles in the Hanford distribution system. The project will be sequenced relative to the need and location of the various lines at risk to failure due to aging wood poles. Initial scoping will define the sequence of replacements.	Electrical System	17	FY18
L-789, Prioritized T&D System Wood Power Poles Testing and Replacement (3)	This project is scoped to replace up to 2500 overhead power poles in the Hanford distribution system. The project will be sequenced relative to the need and location of the various lines at risk to failure due to aging wood poles. Initial scoping will define the sequence of replacements.	Electrical System	18	FY19
L-525, 24" Line Renovation/Replacement from 2901Y to 200E (west Side) - 1944	Replace or renovate main export service lines feeding 200E and 200W Areas.	Water System	19	FY17
L-419, 24" Line Renovation/Replacement form 2901Y to 200E (East Side) - 1967	Replace or renovate main export service lines feeding 200E and 200W Areas.	Water System	20	FY17
A-015, WSCF N30 Electrical Distribution System Upgrade	WSCF upgrade of the electrical distribution system consists of installing new breaker panels, conduit and wire runs to replace antiquated BUS system.	Facilities-WSCF	21	FY17
L-840, 24" line Renovation/Replacement from 2901Y to 200W Area	Replace or renovate main export service lines feeding 200E and 200W Areas.	Water System	22	FY17
EF32, Replace Hazmat 92, (Re-chassis only), HO 68D-3892 (1990) HO 68D-3892 (1990)	This procurement replaces a Hazmat Unit designed for intervention during hazardous materials incidents. They contain a command center within the cab or body, in addition to an array of storage options for specialized equipment including computers, radios, video, and weather monitoring equipment. They also store specialized equipment including suits, over-pack drums and decontamination equipment. The current unit was manufactured and placed into service in 1990.	Hanford Fire Dept. - CE	23	FY17

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
EF29, Replace Fire Engine Pumper Truck E-92 HO 68D-3894 (2001) (Back up)	This procurement replaces a Fire Engine Pumper Truck, one of four Fire Engine Pumper Trucks on the Hanford Site. The existing fire engine was manufactured and placed in service in 2001 and is a pumper type fire engine (not a ladder). The replacement unit will meet or exceed all enhanced safety requirements for automotive fire apparatus required by NFPA 1901.	Hanford Fire Dept. - CE	24	FY17
L-357, Replace 12-in. Potable Water Line to 222-S Lab	The sanitary water line addressed by this project is located in the 200 West Area. This section of line was constructed in 1960 and currently furnishes water from the refurbished feed lines from the treatment plant to the S-Plant facilities. This section is a 12-inch nominal diameter underground pipeline approximately 780 feet in length.	Water System	25	FY17
L-797, Key Facilities HVAC replacements	<p>There are a number of MSA facilities where heating and ventilation systems are beyond the system’s designed life. These systems are highly prone to failure and require significant maintenance attention to keep operational. Moreover, there is very limited availability of critical spare parts from the manufacturer. In many cases, spare parts are not available at all from either the manufacturer or third party vendors. Consequently, cost to repair these HVAC units are extremely expensive, and in some cases far exceed the unit’s value. The effort to keep these systems alive costs the company significant time and resources. (This project is multiple expense projects rolled up into one line item)</p> <p><b>This line item consists of multiple HVAC replacements on various facilities. It can be broken up and spread over multiple years.</b></p>	Facilities	26	FY17
ET56, EP, HFD, & Patrol Zetron Console Upgrade	This project is replacement of communications consoles with cost effective and business beneficial technology upgrades in the Mission Critical Emergency Response and Dispatch Centers. The project includes the design, procurement and implementation of new communication and dispatch consoles on the Hanford Site. Included are the Patrol Operations Center (POC), the backup POC, the Patrol Secondary Alarm Station (SAS), the On Site Notification Center (ONC), the Emergency Operations Center (EOC) and the Hanford Fire Department (HFD). The final project scope and design will consider requirements and possible enhancements necessary to ensure cost effective and mission critical communications are maintained for routine and emergency related communications.	Emergency Services	27	FY17
EF28, Replace Fire Engine Pumper Truck - E-94 (First Run) HO 68D-3890 (2000)	This procurement replaces a Fire Engine Pumper Truck, one of four Fire Engine Pumper Trucks on the Hanford Site. The existing fire engine was manufactured and placed in service in 2000 and is a pumper type fire engine (not a ladder). The replacement unit will meet or exceed all enhanced safety requirements for automotive fire apparatus required by NFPA 1901.	Hanford Fire Dept. - CE	28	FY17
L-796, Key Facilities Roof Replacements	<p>The roofs on a number of MSA facilities are beyond their designed life. These roofs are highly prone to failure and require significant maintenance attention to patch leaks. As the roof’s age exceeds 90% of their expected life, the roof deck degrades to a point where repairs become much more difficult if not impossible without total surface replacement. Eventually, the increasing maintenance costs can exceed the cost of a new roof.</p> <p><b>This line item consists of multiple roof replacements on various facilities. It can be broken up and spread over multiple years.</b></p>	Facilities	29	FY17
EF30, Replace 65-ft Aerial Telesquirt With a 75-ft E-93, HO 68D-3865 (1998)	This procurement replaces a 65-foot Aerial Tele-squirt and is one of three 65-foot Aerials in the Hanford Fire Department’s fleet on the Hanford Site. This fire engine was manufactured and placed in service in 1998. The replacement unit will meet or exceed all enhanced safety requirements for automotive fire apparatus required by NFPA 1901.	Hanford Fire Dept. - CE	30	FY17
L-788, 13.8kV Line C3L5 Long-Term Configuration Changes and 451B Substation Upgrades	This project will implement the recommendation of the ongoing 300/400 Area Long Term Electrical Evaluation. It will provide some renovations to the existing substation and allow for closure of the other. This project will also address renovation to the 13.8kV line C3L5 which runs between 300 Area B354 Substation and 400 Area 451B Substation.	Electrical System	31	FY17
L-519, Overlay Interior 200 West Roads	Project L-519, "Overlay Interior 200 West Roads," will rehabilitate Beloit Avenue from 10th Street to 23rd Street, Camden Avenue from 16th Street to 23rd Street, 10th Street from Beloit Avenue to Cooper Avenue, and Cooper Avenue from 10th Street to 16th Street within the 200 West Area. 200 West Area roadways provide surface transportation routes to projects and facilities. The roads will be refurbished by repairing and sealing cracks, applying 2-inch Hot Mixed Asphalt (HMA) with geotextile underlayment, and painting lane, shoulder and stopping areas. Traffic diversion will be required during refurbishment. The work is to be completed in compliance with the Road Work Guide Specifications and the project specific Statement of Work.	Road System	32	FY17

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
EF26, Replace 65-ft Aerial Telesquirt with a 75-ft E-932, HO 68D-3893 (1994) HO 68D-3893 (1994) (First Run)	This procurement replaces a 65-foot Aerial Tele-squirt and is one of three 65-foot Aerials in the Hanford Fire Department's fleet on the Hanford Site. This fire engine was manufactured and placed in service in 1994. The replacement unit will meet or exceed all enhanced safety requirements for automotive fire apparatus required by NFPA 1901.	Hanford Fire Dept. - CE	33	FY17
L-798, 2101M HVAC Replacement	This project provides turnkey HVAC replacements in the 2101M Facility. Scope efforts including: removal, design, procurement, construction/installation, quality control acceptance system tie-in and activation, and project close out.	Facilities	34	FY17
EF33, Replace Mobile Incident Command Post - HO 68N-1989 (1998)	This procurement is for the replacement of the HFD Mobile Incident Command Unit. Typically this piece of equipment is deployed to an event scene and positioned to act as the command and control center for the event operations. It allows multi-agencies (HFD, HPD, Rad-Con, Environment) to co-locate and integrate for maximum effectiveness and allows connections for telephone, computer, radio integration and video at the event scene wherever that may be, in remote locations or an urban area. This piece of equipment ensures that all critical items for event scene management are always on hand and can be relied upon independent of event scene resources or outside factors such as telephone interruption, loss of power, water, or sanitation facilities. The current unit was manufactured and placed in service in 1998.	Hanford Fire Dept. - CE	35	FY17
L-488, Replace 2607-E12 - Drain Field That Supports 242-A Evaporator Complex (1990)	Replaces the failing E12 septic system drain field. The drain field is located in the 200E area and serves the facilities in and around the tank farms. The project consist of construction of a new drain field for the E12 septic tank and lift station, underground piping connecting the lift station and the drain field, demolition of abandoned over ground steam lines, replacement of lift station pumps and controls, and permitting the drain field with the State of Washington.	Sewer System	36	FY17
L-603, Overlay Route 3N (Route 11A to Route 3)	Project L-603, "Overlay Route 3N (Route 11A to Route 3)," will place an asphalt overlay on Route 3N from Route 11A to Route 3. The scope of work for Route 3N will generally consist of placement of an asphalt overlay over asphalt fabric (Petromat or equal) over the entire roadway surface for a distance of 8570 feet, and rebuilding the intersection of Route 3/Route 3N for a distance of 300 feet to match concrete pavement (12' x 300') shown on Drawing H-6-15825 Sheet 1. The new roadway overlay shall be 28' wide and shall be 3" compacted depth at road centerline and 2" compacted depth at each edge of pavement.	Road System	37	FY17
L-746, 2711E Fleet Maintenance Building Extension (includes utilities)	Project L-746, "2711E Fleet Maintenance Building Extension," consists of constructing an approximately 17,600 (80'x 220') square foot pre-engineered building attached to the north end of the 2711EA facility. The expansion will be comprised of offices, library, locker area, conference room, storage area, compressor room, miscellaneous utility rooms and six drive through bays.	Facilities	38	FY18
L-817, HSEAS Upgrades	Purchase 1 mobile siren compatible with current system, and add frequency for simultaneous activation of sirens and TARs.	IT / IM	39	FY18
L-764, New Data Center Upgrade from G4 to 7220	Project L-764, "Upgrade New Data Center from G4 to 7220," consists of relocating the existing back-up data center equipment from G4 at the federal building to the 7220 node. The project will include the following aspects: Heating, Ventilation, and Air Conditioning (HVAC) Unit. Removing existing 5 ton unit at 7220 and installing a 20 ton unit, including electrical installation. Install raised floor in 7220 building to provide both a place for the power and communications cable runs, and an area to convey cool air to the cabinets. Uninterruptible Power Supply (UPS) System- Install a 150KVA UPS unit for power distribution. 5ESS Equipment Removal - The removal of 5ESS telephone equipment, no longer in use due to the Voice over Internet Protocol (VoIP) phone upgrade project, to allow room for server racks and other equipment to support the data center. Electrical Services - Electrical panels and other installation to support data center equipment. Generator - New 30KW generator for backup power including equipment, pad, switching gear and labor for installation. Network - Labor to relocate existing server equipment from G4, engineering design for floor layout/rack locations, and miscellaneous new rack equipment to support the move. Infrastructure - Labor and materials to route fiber and cabling to 7220 to support network equipment.	IT / IM	40	FY18
EC05, Replace Regulated 33-Ton Crane With an 80-Ton Crane - HO-17T-5687 (1984)	This procurement replaces the 33-ton crane (HO-17T-5687) with an 80-ton crane. The smaller capacity older cranes are being replaced with the newer larger 80-ton capacity rough terrain cranes because of the ergonomically designed tilt cab design, the patented ride glide system intended to produce a smoother controllable highway ride, and the newly designed MEGAFORM™ boom which eliminates weight and increases capacity compared to conventional boom shapes. The current crane was procured and placed into service in 1984.	Crane & Rigging - CE	41	FY18

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-784, 300 Area Fire Station Habitability Improvements	This project will provide various upgrades to the fire station, including installing new sheet vinyl flooring and carpet squares, removing deteriorated kitchen cabinets and appliances and installing new cabinets and appliances, installing window blinds, painting stripes on equipment bay concrete floor and aprons, exterior stucco siding, painting exterior doors and trim, painting interior walls and ceilings, installing a new shower in the women's change room, showers, replacing the chiller and hydronic heaters/coolers, installing new 30 amp electrical services for ambulances and replacing electrical panels.	HFD Facilities	42	FY18
L-747, 2711E Fleet Maintenance Building Renovations	Project L-747, "2711E Fleet Maintenance Building Renovation," consists of renovations to the existing 2711E, 2711EB and 2711EA facilities to extend their useful life and add needed parts receiving and storage.	Facilities	43	FY18
L-690, Chip Seal Route 11A (Route 4N/4S to Route 3N)	Project L-690 "Chip Seal Route 11A (Route 4N/4S to Route 3N)" will apply a chip-seal to Route 11A from the intersection with Route 4N/4S west to the intersection with Route 3N, a distance of 2.37 miles. This is a four lane road. The average width of the existing roadway is 23 feet east bound and 23 feet west bound.	Road System	44	FY18
L-355, 14" Raw Water Supply Line to 242 S	The system is not closed loop, but a dead end lateral, with an isolation valve separating from the main water line only. Thus, special precautions may be necessary to assure fire protection in this area. (Fire watch).  Refurbishes the old 14" cast iron leaded joint line. Refurbishing could be with mortar lining; however, running a smaller HDPE pipe inside may be a better solution in this case to reduce line size and minimize the effects of any leak. The line provides raw water to 242S from the 20" RW distribution line to the east via valve 32R.	Water System	45	FY18
EC04, Replace 110 Ton Truck Mount Crane with a 130 Ton GMK Crane - HO 17T 5691 (1989)	Replacement for a regulated 110 ton crane with a 130 Ton RT crane. This unit was last replaced in FY 1989.	Crane & Rigging - CE	46	FY18
L-517, Overlay Route 3 & 20th Street (Route 4S to Beloit Ave.)	Project L-517, "Overlay Route 3 & 20th Street (Route 4S to Beloit Avenue)," will apply an asphalt overlay on Route 3 & 20th Street from Route 4S near 200 East to Beloit Avenue in the 200 West Area and will rebuild the intersection of Route 3 and Route 4S. The work is to be completed in compliance with the Road Work Guide Specifications and the project specific Statement of Work. The scope of work is described as follows: Rebuild the intersection of Route 3 and Route 4S. This work scope will consist of removing the existing asphalt, grading and compacting the sub-grade, and installing a new 4" thick asphalt surface in 2 lifts. The asphalt mix shall be PG 70-28. The area of construction is approximately 5,000 square feet. Overlay Route 3 and 20th Street from Route 4S to Beloit Ave. Pavement overlay depth at centerline is 2-1/2" and 2" at each shoulder. Assume the intersection of Route 3/Route 3N/ERDF Ave. has been rebuilt under Project L-603. Blend new overlay to match pavement grade at this intersection.	Road System	47	FY18
EC03, Replace Regulated 33-Ton Crane with an 80-Ton Crane - HO 17T-5684 (1984)	This procurement replaces the 33-ton crane (HO-17T-5684) with a 80-ton crane. The smaller capacity older cranes are being replaced with the newer larger 80-ton capacity rough terrain cranes because of the ergonomically designed tilt cab design, the patented ride glide system intended to produce a smoother controllable highway ride, and the newly designed MEGAFORM™ boom which eliminates weight and increases capacity compared to conventional boom shapes. The current crane was procured and placed into service in 1984.	Crane & Rigging - CE	48	FY18
L-819, High Capacity Fiber Optic ((300 Area - Central Plateau)	This project includes the design of high capacity fiber optic cabling from the 300 area to the central plateau. The design will consider all the proper permitting and ecological considerations required.  A natural gas pipeline is being considered for WTP, and the option to add High Capacity Fiber while they are trenching for the pipeline would provide a cost benefit to the DOE.	IT / IM	49	FY18
EC02, Replace Regulated 30-Ton Crane with an 80-Ton Crane - HO 17T-19986 (1993)	This procurement replaces the 30-ton crane (HO-17T-19986) with a 80-ton crane. The smaller capacity older cranes are being replaced with the newer larger 80-ton capacity rough terrain cranes because of the ergonomically designed tilt cab design, the patented ride glide system intended to produce a smoother controllable highway ride, and the newly designed MEGAFORM™ boom which eliminates weight and increases capacity compared to conventional boom shapes. The current crane was procured and placed into service in 1993.	Crane & Rigging - CE	50	FY18

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Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
A-016, WSCF Replace Deionized Water System	Replace equipment in deionized water system.	Facilities-WSCF	51	FY18
EC14, Replace Regulated 30-Ton Crane with an 80-Ton Crane - HO 17T-19987 (1993)	This procurement replaces the 33-ton crane (HO-17T-19987) with a 80-ton crane. The smaller capacity older cranes are being replaced with the newer larger 80-ton capacity rough terrain cranes because of the ergonomically designed tilt cab design, the patented ride glide system intended to produce a smoother controllable highway ride, and the newly designed MEGAFORM™ boom which eliminates weight and increases capacity compared to conventional boom shapes. The current crane was procured and placed into service in 1993.	Crane & Rigging - CE	52	FY18
A-010, WSCF Upgrade North Lab Air Intake	WSCF Upgrade Air Intake Plenum consists of constructing an approximately 1800 (30 x 6) square foot enclosed structure attached to the north end of building 6266. The structure will contain infrared heaters and be provided with louvered opening to allow 60,000 CFM of air flow.	Facilities-WSCF	53	FY18
L-534, Overlay Interior 200 East Roads	Project L-534, "Overlay 200 East Interior Roads," will rehabilitate this key road within the 200 East Area. 200 East Area roadways provide surface transportation routes to projects and facilities. The road will be refurbished by repairing and sealing cracks, applying 2 inch Hot Mixed Asphalt (HMA) with geotextile underlayment, and painting lane, shoulder and stopping areas. Traffic diversion will be required during refurbishment. The work is to be completed in compliance with the Road Work Guide Specifications and the project specific Statement of Work.	Road System	54	FY18
L-572, Fire Systems Maintenance Consolidation	The Hanford Fire Department has identified a need to relocate Fire Service Maintenance to the 200 Area fire department complex located on Route 3 between 200 East and 200 West, and to construct a facility that is custom design to the needs of Fire Service Maintenance. In general the scope will consist of the construction of a 13,050 square foot pre-engineered building and related appurtenances as specified.	Facilities	55	FY18
T-226, Rad Con Practical Training Building	Construct a 30x70 ft. steel building that will be used for radiation training and storage of material. The building will be divided into three rooms. One room would be a Tank Farms change room supporting outside environment radiological work and provide more realistic training situations. The center section of the building will be a small storage room for consumable materials used for radiation training, and the third room will be an open area to be used for advanced radiation worker training, task-specific training for the Vitrification Plant and other Hanford activities, RCT proficiency training, and containment training.	HAMMER	56	FY18
L-523, Chip Seal 200 West Interior Roads	Project L-523, "Chip Seal Interior 200 West Roads," will apply a chip-seal to Dayton Avenue from Route 11A to 27th Street, Dayton Avenue from 16th Street to 13th Street, Albany Avenue from 13th Street to 27th Street, 13th Street from Cooper Avenue to Dayton Avenue, 16th Street from Camden Avenue to Albany Avenue, and 27th Street from Dayton Avenue to Albany Avenue, all within the 200 West Area. The roadway system in the 200W area provides necessary transportation corridors for ongoing clean-up projects, laboratories and utility operations. In order to maintain the roadways to safely handle personnel and material movements, a program of periodic rehabilitation is established. This rehabilitation, in conjunction with maintenance, assures the roadways are available and avoids costlier asphalt overlays or rebuilds.	Road System	57	FY18
L-352, Refurbish 20 Inch Raw Water Line Near A Tank Farm	The raw water line addressed by this project is located in the 200 East Area. The water line was constructed in 1953 and currently furnishes raw water from the export grid to the subject facility. These sections are made up of 20 inch nominal diameter and 14 inch nominal diameter underground pipeline totaling approximately 800 feet. In addition, the project addresses extension of the 20 inch raw water pipe through the use of a reducer and 14 inch nominal diameter pipe to provide for a re-routed closed loop system, as well as installation of 6 inch nominal diameter pipe, permitting abandonment of a potable water pipe in potentially contaminated areas.	Water System	58	FY18
EC12, Replace 80-Ton Hydraulic Truck Mount Crane with an 80-Ton Hydraulic Truck Mount Crane - HO 17T-5692 (1990)	Replacement for a non-regulated 80-ton hydraulic truck mount crane with an 80-ton crane. The current unit was procured and placed into service in 1990.	Crane & Rigging - CE	59	FY19
T-224, Enclose Hoisting and Rigging Props	Enclose the hoisting and rigging pad with a pre-engineered structure with large doors at each end for load-securing training. Upgrade electrical service for additional lighting loads/new props. Allows training during inclement weather, eliminated health concerns/ cleanup costs with bird nests/droppings on equipment, and reduce maintenance/extend equipment life by sheltering it.	HAMMER	60	FY19

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-533, Chip Seal Interior 200 East Roads	Project L-533, "Chip Seal 200 East Interior Roads," will apply a chip-seal to Baltimore Avenue from Route 4S to 12th Street, Front Street to MO285, 1st Street from Baltimore Avenue to Albion Avenue, Ames Street, Anaheim from Ames to 2nd Street, Albion Avenue, 2nd Street from Baltimore Avenue to Anaheim, and 7th Street from Baltimore to 8th Street, all within the 200 East Area. The roadway system in the 200E area provides necessary transportation corridors for ongoing clean-up projects and utility operations. In order to maintain the roadways to safely handle personnel and material movements, a program of periodic rehabilitation is established. This rehabilitation, in conjunction with maintenance, assures the roadways are available and avoids costlier asphalt overlays or rebuilds.	Road System	61	FY19
L-759, Akron Avenue (12th to 2704HV)	Project L-759, "Rebuild Akron Avenue (12th Street to 2704HV)," will rebuild Akron Avenue from 12th Street to the Building 2704HV parking lot to widen and improve the roadway condition to bring the roadway into compliance with standards. In addition, "overlay 12th Street from Akron Avenue to Canton Avenue" is added scope. The work is to be completed in compliance with Road Work Guide Specifications and the project specific Statement of Work.	Road System	62	FY19
A-019, WSCF 6266 Variable Frequency Drive	Replacement of the intake control dampers with variable frequency drives on the air handling unit motors in the North Lab.	Facilities- WSCF	63	FY19
EC01, Replace 55-Ton Crane With an 80-Ton - Rad Use - HO 17T-5918 (1994)	This procurement replaces the 55-ton crane (HO-17T-5918) with a 80-ton crane. The smaller capacity older cranes are being replaced with the newer larger 80-ton capacity rough terrain cranes because of the ergonomically designed tilt cab design, the patented ride glide system intended to produce a smoother controllable highway ride- and the newly designed MEGAFORM™ boom which eliminates weight and increases capacity compared to conventional boom shapes. The current crane was procured and placed into service in 1994.	Crane & Rigging - CE	64	FY19
ET66, Next Generation Wireless (Including Wireless/Mobile Coverage Study)	The project includes the design, procurement and expansion of the wireless transport system. Build-out primary (main back haul infrastructure) and secondary (macro-cells) distributive architecture to support a large mobile coverage area north of the Wye barricade and low user base. In addition, the project will provide "true" mobility to the site for users such as Patrol and Fire.	IT / IM	65	FY19
L-342, Mortar Line 24-in 1310 meters (Old PUREX Feed Raw (1952))	The raw water line addressed by this project is located in the 200 East Area. This section of line was constructed in 1944 and currently furnishes water from the 200 East reservoir east to the PUREX Plant area which then forms a loop to Semi Works, the 200 East Tank Farm facilities, ETF and other facilities. This section is a 24 inch nominal diameter underground pipeline approximately 4,300 feet in length. Replace valves, prepare Project Report for WSDOH, Update hydraulic mode, refurbish pipe with mortar mix.	Water System	66	FY19
T-225, Tactical Maze Building Modifications	Modify the Tactical Maze Building including insulating walls/roof, install HVAC, and upgrade electrical service. Allows expanded/extended use of props for training scenarios, as well as operation in summer/winter weather conditions.	HAMMER	67	FY19
L-760, Dayton Avenue (16th St. to 19th St and Gate 609 to 19th St) and 23rd Street (Beloit to Dayton)	Project L-760, "Dayton Avenue (16th to 27th) & 23rd Street (Beloit to Dayton)," will complete the following to rehabilitate Dayton Avenue and 23rd Street. Widen the paved surface of Dayton Avenue from 16th Street to 27th Street from 21' to 24' for a distance of 1.6. Pre-level asphalt surfaces near railroad tracks and utility crossings on 23rd Street. Overlay Dayton Avenue (1.6 miles) and 23rd Street (1.0 miles) with 2" of PG-70 asphalt. Adjust grade of drainage interceptor drain across 23rd Street near Camden Avenue intersection. Taper asphalt at driveways and intersections. Place 3" thick crushed gravel surfacing on 4' wide shoulders. Paint striping for centerlines and fog lines.	Road System	68	FY19
L-785, Install Permanent Power to Fleet Maintenance Tents 211ED and 212ED	Provide permanent electrical power to maintenance tents at fleet maintenance	Facilities	69	FY19
ER16, Replace Caterpillar D-8 Dozer HO 63-05580 (1985)	Replaces a Caterpillar D-8 Dozer used to maintain Hanford Site grounds, support various project activities and OHC's, as well as crucial support to HFD during wild-land fire season.	Fleet Procurements	70	FY19

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-420, Mortar Line 8 / 10-in. Potable Water WRAP Loop - Cap (1960)	Replace approximately 1175 meters of 10" potable water line in the 200 West Area. Depth of the pipe will provide a minimum 4' of soil cover. Design will include replacement of the isolation valves as required at the tie-in and connection points. Include appropriate sectionalizing and drain valves, vent valves and branch connections. Update the hydraulic model, as required, to reflect the pipe changes and insure the water demand can be satisfied with new pipelines. Include gravel stabilization for the areas disturbed by the construction activities and repair and replacement of asphalt disturbed by construction. Include the above ground warning signs at the 400ft intervals along the new buried water line.	Water System	71	FY19
S-245, New Live Fire Shoot House	The current live fire shoot house has exceeded its recommended life span and imposes high-maintenance to alleviate safety problems. The live fire shoot house would consist of several, various-sized rooms connected by hallways and doors similar in layout to an office building or site facility. The interior and exterior walls would be constructed with armored steel plate and ensure containment of the rounds fired within the shoot house. An elevated observation control platform is positioned for observing and controlling activities. The building must have appropriate cover to shelter the building and platform from external elements.	Safeguards & Security Facilities	72	FY19
L-679, 200 West Area Water Treatment Chlorine Disinfection Improvements	This project will replace the existing chlorine gas injection system at the 283W Water Treatment Plant with a different disinfection process to eliminate the hazards associated with chlorine gas.	Water System	73	FY19
ER26, Replace Caterpillar D-6 Dozer HO 63-05578 (1985)	Replaces a Caterpillar D-6 Dozer used to maintain Hanford Site grounds, support various project activities and OHC's, as well as crucial support to HFD during wild-land fire season.	Fleet Procurements	74	FY19
L-810, Install Paint Booth in New Facility ( Was - Autobody Paint Booth Replacement)	Replace the Fleet Maintenance Autobody Paint Booth in its entirety.	Facilities	75	FY19
L-698, Sewer Lagoon Collection System - PFP W1 & W16	Project L-698, "200W Wastewater Collection System," is proposed to construct a main sewer tie-line in the 200W Area to divert wastewater from failing subsurface waste disposal systems in the 200 West Area to the new 200W Area Sewage Lagoon (L-691). Once Project L-698 is completed, on-site systems 2607-W1 and -W16 could be abandoned. Project L-698 consists of building lift stations and force mains which will transfer effluent from existing drain field systems (infiltration) to the new Lagoon System (evaporation). Project L-698 will construct a wastewater collection system with piping, two lift stations, controls and telemetry. Total length of the force man is approximately 8,000 feet. The force main and lift stations will be sized adequately to service the current flow rates and also projected future flows from the rest of 200 W Area.	Sewer System	76	FY19
L-826, 181 B Vertical Turbine Pumps, Header, Instrumentation, Commission	Engineering and early procurement for reconfiguring 181-B River Intake Pump House with two new high capacity (7,000 gal/min?), high lift vertical turbine pumps capable of pumping directly to the plateau reservoirs. This will include bypassing the 182B reservoir and pumping system, installing a new pump header, upgrading electrical capacity, and tying into the existing 42" Export water line.  Construction for reconfiguring 181-B River Intake Pump House with two new high capacity, high lift vertical turbine pumps capable of pumping directly to the plateau reservoirs. This will include bypassing the 182B reservoir and pumping system, installing a new pump header, upgrading electrical capacity, and tying into the existing 42" Export water line.	Water System	77	FY19
S-216, Provide Access Control Barriers to the Firing Range Complex	Currently the Hanford Patrol Training Academy is an open access facility. Personnel are directed by signs that they must check in at administration which is not always effective. This project would include an electronic access control barrier that ensures non-staff members are directed to the park in a controlled area. These personnel would need to check in at the Admin building prior to receiving access to the firing range complex.	Safeguards & Security Facilities	78	FY19
ET57a, (Deferred Scope) HLAN Network Upgrade - IPv6 OMB Compliance PH I - External (OMB Mandate)	The project includes the design, procurement and implementation for upgrading the Hanford Local Area Network (HLAN) external facing servers and services to be fully Internet Protocol version 6 (IPv6) compliant per Office of Management and Budget (OMB) requirements. This will require both software and hardware upgrades that will transition the HLAN Network Demilitarized Zone (DMZ) to meet the IPv6 compliance standard. The OMB mandate was issued as a required network security architecture. The OMB mandate M-05-22 requires all external facing services and network interfaces to support IPv6 by the end of FY12.	IT / IM	79	FY19

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
S-243, Relocate Range 10	This project consists of completing environmental evaluation, constructing a new gravel access road, grading approximately 3 miles of dirt vehicle access roads, and relocating existing training props from the south east corner of the Patrol Training Academy to the south west corner.	Safeguards & Security Protection	80	FY19
A-017, WSCF Sample Refrigerators Replacement	WSCF's refrigeration units replacement would include five commercial grade units to be upgraded to units more appropriate for sustaining temperature requirements for an analytical laboratory.	Facilities-WSCF	81	FY19
ET57B, HLAN Network Upgrade - IPv6OMB Compliance Ph. II - Internal (OMB Mandate)	This project includes design, procurement and implementation of internal IPv6 capability to ensure the Hanford Federal Cloud (HFC) is IPv6 operational and able to process IPv6 traffic from public/external locations by upgrading HFC to meet OMB IPv6 requirements.	IT / IM	82	FY19
L-670, Enhancements to Repair Rutting at Wye Barricade	Project L-670, "Enhancements to Repair Rutting at Wye Barricade," Project L-670, will repair the road surface to eliminate rutting in the northbound inside approach lane to the Wye Barricade security portal. The roadway has become rutted due to the stopping and starting of heavily loaded trucks. When the pavement is wet or slippery, the ruts become a particular safety hazard for motorcycles. Project L-670 will eliminate the safety concern.	Road System	83	FY19
S-244, PTA Replace weapons cleaning trailer (MO 222)	Remove existing trailer used at the Patrol Training academy and replace it with a pre-constructed module that is specifically designed for this function. These modules are used by military and other entities that require safe and compliant cleaning of weapons by their users. This project would include removal of the existing trailer, some minimal site work for electrical hookup and sidewalk, and the delivery of the module.	Safeguards & Security Facilities	84	FY19
L-430, 8-in. Water Line (2101M) Loop	Replace approximately 1035 meters of 8" potable water line in the 200E Area. Depth of the pipe will provide a minimum 4' of soil cover. Design will include replacement of the isolation valves as required at the tie-in and connection points. Include appropriate sectionalizing and drain valves, vent valves and branch connections. Update the hydraulic model, as required, to reflect the pipe changes and insure the water demand can be satisfied with new pipelines. Include gravel stabilization for the areas disturbed by the construction activities and repair and replacement of asphalt disturbed by construction. Include the above ground warning signs at the 400ft intervals along the new buried water line.	Water System	85	FY19
L-336, 200 East & West Areas Potable Water Clear well Modifications	Install structural and water quality improvements to the 200 East Area and 200 West Area Sanitary Clearwells, 2 clearwells each in East and West. These modifications will improve the existing chlorination process by reducing the amount of chemical treatment necessary to achieve total disinfection. In addition, sealing of the interior surfaces of the clearwells will aid in water conservation as well as minimizing the spread of unnecessary water through the vadose zone.	Water System	86	FY19
L-644, Construct Biological Control Facility Conceptual Design Report / Definitive Design & Construction	This project consists of the Biological Controls Facilities Modifications and the 2713WC Parking Lot Improvements previously planned as a separate project, L-653. The scope of Project L-644, Biological Controls Facilities Modifications, now includes two new buildings (for vehicle storage and admin/change room with a covered truck area), the enlargement and paving of the fenced storage area surrounding the facility, and provision of paving and drainage of the equipment parking area at the 2713WC Building.	Facilities	87	FY19
S-242, PTA Range 9 ISA Target Mock-up	This project will provide props and mock-ups to resemble the ISA area in 200 East.	Safeguards & Security Protection	88	FY19
S-239, PTA Range 9 Elevated Platform	This project will provide an engineered platform on Range 9 to be used by instructors to view the training being performed on training firearms. The platform is to be approximately 20' x 20' and 30' high and will be on a concrete pad.	Safeguards & Security Protection	89	FY19
S-241, 662 and 662A Building Modifications	These building were constructed in 1980 and are in need of refurbishment and reconstruction to meet current building standards, prevent deterioration, and provide longevity in use. The electrical, HVAC and plumbing should be evaluated and updated as necessary to meet current building codes and ensure continued safe operation of the buildings.	Safeguards & Security Facilities	90	FY19

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-696, 2101M Facility Renovations	<p>The scope of this project provides the definitive design, engineering during construction, bid package preparation, project and construction management, construction and closeout for Project L-389 which includes safety improvements to the 2101M south wing lighting, and the addition of air conditioning to the 2101M Building MCC room.</p> <p>The existing lighting fixtures in the south laboratory and office wing of 2101 M have outlived their useful life and contain PCB ballasts, some of which have leaked resulting in expensive cleanup. Replacement is necessary to meet current standards and significantly improve lighting quality. The addition of air conditioning to the MCC room in 2101M is essential to make it possible to work in this room safely during the summer months.</p>	Facilities	91	FY19
L-398, 10" B Plant Potable Water Lines	<p>The system is not closed loop, but a dead end lateral, with isolation valve separation from the main water line only, thus, special precautions may be necessary to maintain existing potable water in this area. (Two potable 500 gallon minimum pressurized potable water trailers capable of providing approximately 30GPM are available for this purpose. Excavate valve locations. The design will include replacement of the 10-inch non-supervised isolation valve with post indicator operator. This section of line may include tees of various sizes with valves and laterals that were abandoned from earlier endeavors. Tees may require cut and capping at the main (dependent upon previous actions). A determination will be made at time of construction when video camera inspection of the water lines is performed. Refurbishment of pipe line is accomplished by cleaning segments then applying a mortar mix to the inside surface of the pipeline, with pre and post video inspections of affected water lines. Update the hydraulic model, as required, to reflect the pipe changes and insure the water demand can be satisfied with the refurbished pipelines. Prepare a Project Report for submission to the Washington State Department of Health. Include gravel stabilization for the areas disturbed by the construction activities, and repair and replacement of asphalt disturbed by construction. Include aboveground warning signs at 400' intervals along pipeline routes. The major benefits associated with refurbishment include elimination of iron deposits currently above the allowable limits for disposal through the TEDF Facility, elimination of leaks at joints, elimination of potable water contact with leaded joints, a decrease in suspended particulates, increased flow rates, and reduced pumping costs.</p>	Water System	92	FY20
L-756, Upgrade Barricade Standby Generators (Emergency Generators (Yakima-604A, WYE-6701, WYE-K9-6701E, Rattlesnake-6701C)	<p>Install three generators at Wye Barricade, Yakima Barricade, and Rattlesnake Barricade.</p>	Facilities	93	FY20
A-018, WSCF Repair/Replace 6266 Roof	<p>Replace/repair standing seam metal roof for Building 6266.</p>	Facilities-WSCF	94	FY20
L-423, Mortar Line 8-in. Raw Water Line on SE Side of T-Plant for Fire Protection (1958)	<p>Replace approximately 640 meters of 8" raw water line in the 200 West Area. Depth of the pipe will provide a minimum 4' of soil cover. Design will include replacement of the isolation valves as required at the tie-in and connection points. Include appropriate sectionalizing and drain valves, vent valves and branch connections. Update the hydraulic model, as required, to reflect the pipe changes and ensure the water demand can be satisfied with new pipelines. Include gravel stabilization for the areas disturbed by the construction activities, and repair and replacement of asphalt disturbed by construction. Include the aboveground warning signs at the 400ft intervals along the new buried water line.</p>	Water System	95	FY20
T-234, HAMMER Admin Building 6091 Natural Gas Conversion	<p>This project would replace the current use of propane gas with natural gas for facility heating at the HAMMER Administration Building. A natural gas pipeline owned by Cascade Natural Gas currently exists at the southeast boundary of the HAMMER site. A natural gas pipeline will be trenched from the existing natural gas line to the Administration Building and will require mitigation of the construction work, metering, and conversion of the existing burners. This project is only to replace the use of propane gas for facility heating purposes; propane gas will continue to be used for fire training props since natural gas does not provide a visible flame for training purposes. Although propane is also used for heating purposes in the Al Alm building, this project does not include pipeline routing and conversion at this time due to the difficulties and added expense of routing the natural gas pipeline through (or around) the HAMMER training props. However, this project would provide an opportunity for future conversion and cost savings to both the Al Alm building, as well as to a current project funded by the U.S. State Department to construct a new training facility.</p>	HAMMER	96	FY20
T-236, Fence RadCon Property Adjacent to HAMMER	<p>7.69 acres were added to HAMMER's campus boundary in October 2010. The existing fence line needs to be expanded to include this area. Install new chain link fence on new property line. Remove fencing from old property line.</p>	HAMMER	97	FY20

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-431, Mortar Line 8-in. Potable Water Line Along 20th Street to Water Plant Main (1950)	<p>The sanitary water line addressed by this project is located in the 200 West Area. The line was constructed in the early 1950's and currently furnishes potable water to the entire 200 West Area and 200 East Area via the Area tie line. This is a 12 inch nominal diameter underground pipeline approximately 1,700 feet in length and an 8 inch nominal diameter WSCF tie line of approximately 3,300 feet in length.</p> <ul style="list-style-type: none"> <li>• Special precautions will need to be made to keep the existing potable water customers in this area supplied with water during the construction activities. (Two portable 500 gallon minimum pressurized potable water trailers capable for providing approximately 30 GPM.)</li> <li>• Excavate at valve locations.</li> <li>• The design will include replacement of 4 – 12” isolation valves as required at the tie-in and connection points. Replace 12 – 8” valves, 4 – 6” valves and 10 – 2” valves that supply the existing sectionalizing and drain valves, vent valves and branch connections. This section of line includes 4 – 12x8 tees, 10 – 2 inch hot taps, one air vent station and 14 thrust blocks.</li> <li>• Update the hydraulic model, as required, to reflect the pipe changes and insure the water demand can be satisfied with the new pipelines.</li> <li>• Prepare a Project Report for submission to the Washington State Department of Health.</li> <li>• Include gravel stabilization for the areas disturbed by the construction activities and repair and replacement of asphalt disturbed by construction. (Approx. 6,200 sq. ft. of asphalt and 12,900 sq. ft. of gravel stabilization).</li> <li>• Include aboveground warning signs at 400-ft. intervals along the refurbished section of line. Refurbishment of this length of pipe is accomplished by a proven method of cleaning then applying a mortar mix to the inside surface.</li> </ul>	Water System	98	FY20
L-649, MO414 Equipment Parking and Staging Area	<p>The L-649 Parking Lot Improvements Project will provide for the construction of a paved parking area to the north of the MO414 office building. The scope includes, clearing, grubbing and grading approximately 2.2 acres of land north of MO414, installing electrical system for lighting and hot starts, laying base course, top course and asphalt surfaces, installing a catch basin and constructing an evaporation/absorption pond.</p>	Facilities	99	FY20
L-818, Records Facilities Reconfiguration	<p>The Voice over Internet Protocol (VoIP) transition moved telephone/voice services from the Lucent 5ESS telephone switch to the Cisco Communications Manager to utilize the Hanford Local Area Network (HLAN) data transport. The VoIP transition project converged infrastructure and reduced the energy/carbon footprint required to deliver voice services; however, the legacy telephone switch equipment is still housed in the 3220 building that is planned for reuse as a records facility, as part of the IM facility Consolidation Plan. LMSI will move any ancillary equipment into remaining rack space. MSA will complete the physical removal of any racks and associated power systems. MSA will perform the cleanup of the space so it will be usable for the Records scope. This phase includes the purchase and installation of shelving to bring the 3212 Building up to storage capacity. The Kwik-file mobile shelving unit will be relocated from the 3212 Building to the refurbished area in the 3220 Building. The active records currently housed in the Kwik-file unit will be unpacked, moved, and refilled after the unit has been moved.</p>	IT / IM	100	FY20
L-772, Electrical Vehicle Charging Station for 2266E Facility	<p>In FY11, six electric vehicle charging stations were procured and only two were installed at 2490 Garlick, with the others stored in the warehouse. Vista Engineering provided multi-station designs for vehicle charging stations onsite at 2266E and 2750E, and a Plant Forces Work Review was conducted.</p>	Facilities	101	FY20
L-812, 2711EF Water Maze	<p>Remove existing water maze and install new water maze at the 2711EF Building</p>	Facilities	102	FY20
L-811, 2711EA & 273E Fire Barrier Welding Areas	<p>Install sheet metal in both the 2711EB and 273E Buildings. The sheet metal will provide protection from fire in these areas from welding, grinding and other hot work activities</p>	Facilities	103	FY20
L-813, Concrete Pads - 211ED and 212ED Tents	<p>Fleet Maintenance has two tents located in the 2711E Parking Lot. The tents provide additional space to perform equipment repair and maintenance. Tents, 211ED and 212ED are 60 foot long and 30 feet wide. Currently the floor under the tent is half concrete and half gravel. The existing concrete pad is below grade allowing rain water to pool inside tents. The two new concrete pads will be 40 foot wide, 80 feet long, and 8 inches thick. The tents will need to be disassembled from their existing location and moved to the new concrete pads.</p>	Facilities	104	FY20
L-841, 2711EF Rain Gutters	<p>Install full length rain gutter on the north side of the structure covering steam pad adjacent to 211E and 211ED. The rain water and snow melt run off the structure into these two tent facilities creating safety hazards with pooling water. The project will include engineered brackets to retain the gutters.</p>	Facilities	105	FY20
L-773, Electrical Vehicle Charging Station for 2750E Facility		Facilities	106	FY20

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**Table B-1. Infrastructure Reliability Project Priority List**

Project Description	Scope Description	System	Overall Priority	Funding Fiscal Year*
L-825, Modify T-Plant Fire Water Supply	This project will install a second potable water line around the east and north sides of T-Plant to tie into the existing 10" potable water line that supplies Building 2706-T. The new line will include four fire hydrants. This will allow for a looped type arrangement with two way flow and sectional valving to meet DOE fire protection standards.	Water System	107	FY20
Studies, Estimates & Planning (FY16)	Same as prior year studies	Studies	108	FY16
Studies, Estimates & Planning (FY17)	Same as prior year studies	Studies	109	FY17
Studies, Estimates & Planning (FY18)	Same as prior year studies	Studies	110	FY18
Studies, Estimates & Planning (FY19)	Same as prior year studies	Studies	111	FY19
Studies, Estimates & Planning (FY20)	Same as prior year studies	Studies	112	FY20

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**APPENDIX C**  
**CONTRACTOR REQUIREMENTS PER J-3 MATRIX**

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Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
<b>Service Area</b>				
<b>Safety Security and Environment - Safeguards and Security</b>				
CHPRC	Overall	2014 anticipates service to remain level with 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Steady state service condition in 2016 based on 2013 and 2014 service levels. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition Plutonium Finishing Plant (PFP) and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady State. WCH will self-perform Program Management, Security Operations, and Material Control and Accountability (with the exception of Physical Security Systems (PSS); Nuclear Material; Special Nuclear Material record keeping (the original records are given to MSC). WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady State through 2016		
	Waste Feed Delivery (200E)	Steady state. The projects for the Supplemental Treatment Plant, Waste Feed Delivery and Waste Disposition Projects previously have been coordinated with SAS organizations, and efforts are underway to support early engineering input to minimize any impacts to the projects. These projects will all fall under the term "Industrial Security" and will not require support above our current baseline.	Steady state	Steady state
	WTP & supporting facilities (200E)	Not applicable for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Steady state based on FY2013 activity. PNNL self performs Information Security, Physical Security, Security Clearance checks; Personnel Security Services, Nuclear Materials Control and Accountability; SAS Management. Safeguards and security services as outlined in the MOA Between PNNL and MSA For Protective Force and Security Operations, January 2013 (MSA-1300180)		
<b>Service Area</b>				
<b>Safeguards, Security and Environment - Fire</b>				
CHPRC	Overall	Anticipate services to remain level in 2014.	Steady state service condition based on 2013 and 2014 services levels.	Steady state service condition based on 2013 and 2014 services levels.
WCH	Overall (100/300)	Steady state.		Not applicable
WRPS	Overall	Steady state through 2016		
	Waste Feed Delivery (200E)	The Fire Marshal's Office will need to work closely with the contractor fire protection engineering staff on the upcoming projects to ensure requirement compliance in the area of fire protection.	Steady state	
	WTP & supporting facilities (200E)	Service forecast estimated directly by BNI for 2014 (no change from FY2013).	BNI will directly provide FY2015 service forecast.	Service forecast to be provided directly by BNI and/or the operations contractor.
PNNL	Overall	"Steady State based on 2013 Levels. PNSO/PNNL are working with RL/MSA on a possible City option for the 300 Area"	PNNL, with concurrence of PNSO, has formally engaged the City in PNNL's assessment/planning of the possibility of City providing 300 Area fire/emergency services. Recommendation/decision expected by end of FY2014. If decision is to proceed with City, then expect City services available in FY2015-FY2016 timeframe. Note that MSA planning assumption is 300 Area fire station closure by end of FY2017 and transfer of services to the City.	

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
<b>Service Area</b>				
<b>Safeguards, Security and Environment - Emergency Management</b>				
CHPRC	Overall	Anticipate 2014 to remain steady state based on 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Steady state service condition in 2016 based on 2013 and 2014 service levels. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady State. WCH will self-perform Site Emergency Preparedness. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Facility and Property Management/Tank Retrievals (200E)	"2014- Completion of C Farm retrieval and entry in A/AX farm in 2014 will provide some shift in population center. During the 2015/2016 time-frame, a facility to store products from WTP is planned. This will cause some increase in hazards assessment activities, readiness activities, procedure review, training and drills"	Steady state through 2016	
	Tank Farm Projects & Base Operations (200E)	Steady state	Completion of C Farm retrieval and entry in A/AZ Farm in 2014 will provide some shift in population center	Steady state through 2016
	Security and Emergency Services, Environmental Protection Waste Feed Delivery (200E)	Steady state		
	WTP & supporting facilities (200E)	WTP service forecast estimated for the FY2014 directly by BNI	BNI will provide forecast for 2015 (not expected to change from 2013)	WTP service forecast to be provided directly by BNI and/or operations contractor.
PNNL	Overall	Steady State based on 2013 Levels, PNNL self-performs Radiological Assistance Program	Steady state	Steady state. However, to extent Fire & Emergency Response service area (J3-19 & J3-20) changes in the future, then this service area and capability continuation should be reviewed at that time.

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015					2016-2020		
<b>Service Area</b>		<b>Safeguards, Security and Environment - HAMMER/Hanford Training</b>								
CHPRC	Overall	<b>CHPRC Hammer/Hanford Training Activity</b>								
			<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	
		<b>CHPRC Population</b>	<b>1686</b>	<b>1647</b>	<b>1499</b>	<b>1193</b>	<b>1062</b>	<b>1062</b>	<b>1062</b>	
		<b>Training Class</b>								
		HazWOPER	1303	1273	1159	922	821	821	821	
		Lockout/Tagout	1064	1039	946	753	670	670	670	
		Confined Space	78	76	69	55	49	49	49	
		Beryllium	986	963	877	698	621	621	621	
		Resp. Protection Program	7023	6860	6244	4969	4424	4424	4424	
		Hoisting and Rigging	26	25	23	18	16	16	16	
		Fall Protection	937	915	833	663	590	590	590	
		Electrical Safety (NFPA 70 E)	579	566	515	410	365	365	365	
		Radiation Safety	627	613	558	444	395	395	395	
		Transportation Training	65	64	58	46	41	41	41	
		Asbestos	49	48	43	35	31	31	31	
		Lead (Pb)	595	582	529	421	375	375	375	
FY2014-FY2018 data was based on a percent of the 2012 Fixed Unit Rate (FUR) units to the actual CHPRC population. This percentage was then extrapolated utilizing the population forecast. Data provided in FY2018-FY2020 presents an unknown budget area, however; for this product the units are assumed steady from 2016.										
WCH	Overall (100/300)	Steady state.						Not Applicable		
WRPS	Overall	<b>Class</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
		HazWOPER	1249	1219	1362	1452	1514	1596	2578	2451
		Lockout/Tagout	1211	1183	1321	1409	1468	1548	2501	2378
		Confined Space	175	171	191	203	212	223	361	343
		Beryllium	182	178	199	212	221	233	376	358
		Resp. Protection Program	999	976	1090	1162	1211	1277	2062	1961
		Hoisting and Rigging*	425	415	463	494	515	543	650	650
		Fall Protection	27	27	30	32	33	35	57	54
		Electrical Safety (NFPA 70 E)	57	56	63	67	70	73	119	113
		Radiation Safety	544	532	594	633	660	696	1124	1069
		General Employee Training	1707	1667	1862	1985	2069	2182	3524	3351
		OSHA (power tool)	60	59	65	70	73	77	124	118
		Operations Fundamentals	62	61	68	73	76	80	129	123
		Environmental Training	15	15	16	17	18	19	31	29
		Transportation Training	5	5	5	6	6	6	10	10
Instructor Training	2	2	3	3	3	3	5	5		

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
PNNL	Overall	Steady State based on 2013 Levels. No significant change, service acquired on a "purchase by the drink" basis.		
<b>Service Area Safety, Security and Environment - Environmental Regulatory Management</b>				
CHPRC	Overall	Anticipate 2014 to remain steady state with 2013 levels.	Steady state service condition based on 2014 services levels.	Anticipate slight increase in services in 2016 above 2015 level to support Nuclear Facility D&D Remainder of Hanford. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Self-Perform with work orders to MSA when needed for Instrument Calibration. Will provide input to MSA for Site reporting		Not applicable
WRPS	Facility and Property Management/ Tank Retrievals (200E) Tank Farm Projects & Base Operations (200E) Waste Feed Delivery (200E)	Steady State through 2016		
	Environmental Protection	Tri-Party Agreement – moderate increase Permits & Reports – moderate increase P2 Waste Min – moderate increase Cultural – minor increase Ecological – major increase Green House Gas – minor increase Moderate increase in analytical services expected from WSCF	Tri-Party Agreement – moderate increase Permits & Reports – moderate increase P2 Waste Min – moderate increase Cultural – minor increase Ecological – major Increase Greenhouse Gas – moderate increase Moderate increase in analytical services expected from WSCF	Tri-Party Agreement – major increase Permits & Reports – moderate increase P2 Waste Min – minor increase Cultural – major increase Ecological – major increase Greenhouse Gas – moderate increase Major increase in analytical services expected from WSCF
	WTP & supporting facilities (200E)	No Environmental Regulatory Management services identified at this time. No Analytical Services are forecasted for WTP construction. BNI will establish future needs for WTP commissioning and the needs for WTP operations will need to be forecasted by the operations contractor. RPP-RPT-50014, <i>Qualitative Analysis of the Analytical Laboratory Capabilities Required to Support Hanford Tank Farm Closure</i> , identifies a potential role for WSCF processing low-level radioactive samples arising from WTP during its commissioning and operations. WTP commissioning expected no earlier than FY2019.		
PNNL	Overall	Service acquired at no charge per Operational Agreement.		
<b>Service Area Site Infrastructure and Utilities - Biological Controls</b>				
CHPRC	Overall	Anticipate 2014 to remain steady with 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Steady state service condition based on 2013 and 2014 services levels.
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady state		
	WTP & supporting facilities (200E)	None forecasted for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Steady State based on 2013 Levels. No significant change, service acquired on a ""purchase by the drink"" basis.		

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
<b>Service Area</b>				
<b>Site Infrastructure and Utilities - Crane and Rigging</b>				
CHPRC	Overall	Anticipate decrease in services (20%) during 2014-2015 from 2013 level. Main area of declining service is Nuclear Material Stabilization & Disposition PFP.		Overall decrease in services during 2016-2018 from 2015 level. Decrease in services reflective of 60% decrease in service level funding. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided, however at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Security and Emergency Services, Environmental Protection Waste Feed Delivery (200E)	Steady state		Steady state through 2016
	Tank Farm Projects and Base Operations (200E)	Crane rental needs will increase as waste feed delivery infrastructure upgrades increase and R&C is still retrieving from C Tank Farm.	Crane rental needs will increase as waste feed delivery infrastructure upgrades increase and R&C activities continue	
	WTP & supporting facilities (200E)	Not applicable for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Steady State based on 2013 Levels. No significant change, service acquired on a "purchase by the drink" basis.		
<b>Service Area</b>				
<b>Site Infrastructure and Utilities - Facility Services</b>				
CHPRC	Overall	Anticipate increasing needs in 2014 as funding begins to increase. Service increases will be for serving a constant general facility footprint size, driven by fluctuation in headcounts.	Anticipate increasing needs in 2015 as funding continues to increase. Service increases will be for serving a constant general facility footprint size, driven by fluctuation in headcounts.	Anticipate increasing needs in 2016 as funding continues to increase. Service increases will be for serving a constant general facility footprint size, driven by fluctuation in headcounts.  Services will decline in 2017-2018 as funding levels decline. Service decreases will be for serving a combination of declining facilities and declining headcounts.
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady state		Steady state through 2016
	WTP & supporting facilities (200E)	Not applicable for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Not applicable		

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
<b>Service Area Site Infrastructure and Utilities - Motor Carrier</b>				
CHPRC	Overall	Anticipate increasing needs in 2014 as funding begins to increase	Anticipate increasing needs to continue through 2016. Shifting priorities may also drive needs.	
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady state throughout 2020		
	WTP & supporting facilities (200E)	Not applicable for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Steady State based on 2013 Levels. No significant change, service acquired on a ""purchase by the drink"" basis.		
<b>Service Area Site Infrastructure and Utilities - Fleet Services</b>				
CHPRC	Overall	Anticipate increasing needs in 2014 as funding begins to increase	Anticipate increasing needs to continue through 2016. Shifting priorities may also drive needs.	
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady state through 2016		
	WTP & supporting facilities (200E)	Not applicable for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Not applicable, PNNL self-performs		
<b>Service Area Site Infrastructure and Utilities - Rail Road</b>				
CHPRC	Overall	No need for service anticipated		
WCH	Overall (100/300)	No need for service anticipated		
WRPS	Overall	Steady state through 2016		
PNNL	Overall	Not applicable		

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
<b>Service Area Site Infrastructure and Utilities - Roads and Grounds</b>				
CHPRC	Overall	2014 anticipates service to remain steady state with 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Anticipate slight increase in services in 2016 above 2015 level to support Nuclear Facility D&D Remainder of Hanford. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Facility and Property Management/ Tank Retrievals (200E)	"MSA should focus on Akron Ave which needs to be Rebuilt in FY2014 to support critical TPA and Consent Decree Milestones in 200E Tanks Farms. Also areas bounded by 4th, Buffalo, Canton, 7th. Poor parking conditions, congestion, aging/temporary sewer systems. Systems can barely accommodate existing personnel; more traffic/personnel expected with start of A/AX Farm retrieval efforts. Personnel will increase to up to 200 in 2704HV area. Potential new multi-craft shop on 4th St is under review, if approved it will be several years out • Concern about gravel parking and lot condition"		
	Environmental Protection Waste Feed Delivery (200E)	Steady state		
	WTP & supporting facilities (200E)	WTP needs are addressed in 24590-WTP-ICD-MG-OI-012, Rev. 5 'ICD 12 - Interface Control Document for Roads'. Specifically need to maintain route 4S to/from Wye barricade to the WTP's South Access Gate 23; routes 2S/11A to/from the Wye and Yakima barricades to the WTP North Access Gate 31; local 200E Area roads to/from WTP. The requirements for these roads are to be maintained post WTP construction will be determined and included in a future revision of the ISAP.	As 2013 & 2014-2015 but also upgrade and maintain routes between WTP and Integrated Disposal Facility (IDF) along Canton Avenue and 1st Street and between WTP and the site of the IHS along Canton Avenue and around the north and east sides of Effluent Treatment Facility (ETF).	
PNNL	Overall	Steady State based on 2013 Levels. PNNL maintains parking lots, grounds of PNNL managed facilities. Balance of 300 Area roads and grounds is currently MSA responsibility so no change at this time; however, as the utilities and services responsibilities change in the future, the 300 Area D&D effort is completed and the facility operations changes, then the responsibility needs to be reviewed.		
<b>Service Area Site Infrastructure and Utilities - Electrical Transmission/Distribution</b>				
CHPRC	Overall	Anticipate 2014 to reflect steady state from 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Anticipate that electrical loads will not increase compared to 2016 levels. Worker population and funding levels have projected decreases during the 2016 to 2020 period.  Decrease in services during 2017-2018 from 2016 is reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall 100	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not Applicable
	Overall 300	The current plan is for City electrical services to be available and utilized from FY2014 and forward years for various WCH facilities in the 300 Area including the 324 Building, trailer village, 385 pump station, and south trailer yard.		

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
	Facility and Property Management/Tank Retrievals (200E)	Steady state		
	Tank Farm Projects & Base Operations (200E)Environmental Protection	Steady state		Steady state. Concerns in FY2017 – 5 campaigns for bulk retrieval are scheduled, which exceeds prior historical activity. Must work together to plan and minimize any impacts caused by water, electricity, steam and other contractors’ needs will all work being done concurrently.
	Waste Feed Delivery (200E)	<u>Waste feed electrical</u> power needs are steady state for FY2012. Forecasted power needs have been provided to MSA and capacities of the 230kV transmission and 13.8kV distribution systems are being evaluated for impact. Subsequent upgrades to Transmission and Distribution (T&D) systems are not in WRPS baseline at this time.	Waste feed - Power delivery capacity at 251W Substation must support tie-in of new forecasted loads within provided schedules. Upgrades and modifications to the T&D system may be needed.  Upgrades to Central Plateau 13.8kv distribution systems and potential upgrades to 251W Substation equipment.  Supplemental treatment program - Electrical needs have not been determined at this time. Better information will be available at the completion of the preliminary design phase in 2014. No new substations are included in costs today.	<u>Waste feed</u> – Steady State (based on any required upgrades in place by 2015)  <u>Supplemental treatment</u> power needs TBD
	WTP & supporting facilities (200E)	24590-WTP-ICD-MG-OI-011, Rev 5 - ICD 11 - Interface Control Document for Electricity describes a requirement for 7MW of electrical power during WTP's construction and 55MW (PF 0.89, 13.8kV, 60Hz, 3-phase) during startup, commissioning and operations. 24590-WTP-ICD-MG-OI-011, Rev 5 - ICD 11 - Interface Control Document for Electricity also described a requirement to deliver up to 2MW of power at the defined parameters (13.8kV, 60Hz, 3 phase) to support contractor's Aggregate Pit 30 power demand in accordance with the contractor's approved baseline schedules.		
PNNL	Overall	City electrical services approved for all 300 Area long-term electrical loads (see 11-20-12 RL to PNSO letter). Expect full city electricity service switchover by start of FY2014, hence, N/A in FY2014 and out years as services provided by City of Richland.		
<b>Service Area</b>		<b>Site Infrastructure and Utilities - Water Systems</b>		
CHPRC	Overall	Anticipate 2014 to reflect steady state from 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Anticipate slight increase in services in 2016 above 2015 level to support Nuclear Facility D&D Remainder of Hanford. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not Applicable
WRPS	Facility and Property Management/Tank Retrievals (200E) Tank Farm Projects & Base Operations (200E)	Steady state - tank cleanout and grouting water supplies will be serviced via existing hydrants.	A raw water source will need to be established in preparation for FY2016 A Farm and AX Farm retrieval.	Raw water will be required to support A Farm, AX Farm, B Farm, BY Farm, SX Farm, and T Farm operations. A raw water supply will need to be established in preparation for FY2018 B Farm retrieval operations. Concerns in FY2017: Nine campaigns for bulk retrieval are scheduled, which exceeds prior historical activity. Must work together to plan and minimize any impacts caused by water, electricity, steam, and other contractors’ needs with all work being done

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
				concurrently.
		Bulk retrievals assumed to require 100K of raw water (Total) >Hard heal retrievals assumed to require 100K of raw water; unless specified (300K entries) (Total) >If retrieval operations crossed into the next fiscal year, the water volume was split between the years evenly (50K and 150K volumes) (Total)		
	Waste Feed Delivery (200E)	Water from demarcation point in scope. Any water feed upgrades to demarcation point out of scope.	Need uninterrupted water lines for batch processes (however not 24/7 days operation). WRPS does not have budget for infrastructure upgrades.	Steady state
	WTP & supporting facilities (200E)	For WTP, 24590-WTP-ICD-MG-OI-001 Rev. 3 'ICD 01 - Interface Control Document for Raw Water' and 24590-WTP-ICD-MG-OI-002 Rev. 3 'ICD 02 - Interface Control Document for Potable Water' are applicable. WTP requires raw water at 24-hour average flow rates up to 2,600 gpm, 3,650 gpm and 1,200 gpm during construction, startup and operations, respectively, and potable water at 200 gpm and 950 gpm during construction and operations, respectively.		
PNNL	Overall	Steady State based on 2013 levels. Steady State. PNNL plans to discuss the potential of City water and sewer utility services involvement for the 300 Area for the future. However at this time, there are no definite plans for this change. PNSO is supportive of this approach but has not yet requested a definite change. PNNL level of service is expected to continue at steady state for its long-term facilities.		
<b>Service Area Site Infrastructure and Utilities - Sewer Systems</b>				
CHPRC	Overall	Anticipate 2014 to reflect steady state from 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Anticipate slight increase in services in 2016 above 2015 level to support Nuclear Facility D&D Remainder of Hanford. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Facility and Property Management/Tank Retrievals (200E)	MSA should focus on aging/temporary sewer systems. Systems can barely accommodate existing personnel; more traffic/personnel expected with start of A/AX Tank Farm retrieval efforts. Septic tank and drain field need evaluation. Questions about available tie in points for septic or what to do with future septic related on Buffalo Street.		
	Tank Farm Projects & Base Operations (200E) Environmental Protection Waste Feed Delivery (200E)	Steady state		
	WTP & supporting facilities (200E)	None forecasted for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall.	Steady State based on 2013 levels. Steady State. PNNL plans to discuss the potential of City water and sewer utility services involvement for the 300 Area for the future. However at this time, there are no definite plans for this change. PNSO is supportive of this approach but has not yet requested a definite change. PNNL level of service is expected to continue at steady state for its long-term facilities.		

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
<b>Service Area Site Infrastructure and Utilities - Sanitary Waste Mgmt. and Disposal</b>				
CHPRC	Overall	Anticipate 2014 to reflect steady state from 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Anticipate slight increase in services in 2016 above 2015 level to support Nuclear Facility D&D Remainder of Hanford. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady state, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady state / similar volumes to FY2013 through FY2020		
	WTP & supporting facilities (200E)	None forecast for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Steady State based on 2013 levels		
<b>Service Area Site Business Management - Land</b>				
CHPRC	Overall	Anticipate 2014 to reflect steady state from 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Steady state service condition based on 2015 services levels. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Steady State, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Facility and Property Management/Tank Retrievals (200E)	WTP needs space for 1,400 more people. Cap or barrier placement over C/A/AX Tank Farms		
	Environmental Protection	Steady state.		
	Waste Feed Delivery (200E)	No new requirements anticipated	High-Level Waste (HLW) Canister Storage Facility needs land 1 mile north and a little east of WTP. 250 ft x 350 ft x 2 stories tall x 4-ft concrete walls. May need concrete batch plant (haul in aggregate cement, etc.) Needed before WTP can operate. Could be first of four modules. Will eventually need a load-out facility with rail access. 100 to 200 Craft-included in population forecasts.	Supplemental treatment of Low-Activity Waste (LAW). Could have significant land need and infrastructure impacts. Technology not selected yet. Major infrastructure (new substation) costs not in project baseline (gap). Staffing requirements are not in population forecasts. HLW Canister Storage Facility needs land 1 mile north and a little east of WTP. 250 ft x 350 ft x 2 stories tall x 4-ft concrete walls. May need concrete batch plant (haul in aggregate cement, etc.) Needed before WTP can operate. Could be first of four modules. Will eventually need a load-out facility with rail access. 100 to 200 Craft-included in population forecasts. Secondary Waste Treatment Project (part 1) ETF upgrades; could include an evaporator and/or steam reforming. Staffing is included in population forecasts.

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
	WTP & supporting facilities (200E)	No additional needs identified beyond those described in 24590-WTP-ICD-MG-OI-009, Rev. 5 ICD 09 Interface Control Document for Land for Siting.		
PNNL	Overall	Not applicable		
<b>Service Area</b>		<b>Site Business Management – Land Management Borrow Areas</b>		
CHPRC	Nuclear Facility D&D Remainder of Hanford (200 & 600)	Not applicable	Not applicable	75,000 yd <sup>3</sup> raw aggregate sand and gravel material for backfill of D&D sites and re-grading general areas. Borrow Pit 34.
	Nuclear Facility D&D River Corridor (100k)	Not applicable	37,500 yd <sup>3</sup> raw aggregate sand and gravel material for backfill of D&D sites and re-grading general areas. Borrow Pit 23 or 36 (if available).	225,000 yd <sup>3</sup> raw aggregate sand and gravel for backfill of D&D sites and re-grading general areas. Borrow Pit 23 or 36 (if available).
WCH	Overall (100/300)	Estimated quantity needed is 10,644,000 BCM for next 5 years after FY2013.	Estimated quantity needed is 10,644,000 BCM for next 5 years after FY2013.	Estimated quantity needed is 10,644,000 BCM for next 5 years after FY2013.
WRPS	Overall	(No information provided for this category)	(No information provided for this category)	(No information provided for this category)
	WTP & supporting facilities (200E)	Borrow area needs for WTP are described in 24590-WTP-ICD-MG-OI-028, ICD-28 - Interface Control Document for Pit 30 Aggregate Supply for Construction. Aggregate material is needed for road construction and producing concrete at the WTP site. There is insufficient information available to forecast quantities.  However, subject to changing schedules due to fiscal budget restrictions, changing contract scope and uncertainties in final landscaping design, the ICD provides forecasts of 3 to 4 months of mining operations at Pit 30 in 2014 and 3 to 4 months in 2015 and 2016.	Borrow area needs for WTP are described in 24590-WTP-ICD-MG-OI-028, ICD-28 - Interface Control Document for Pit 30 Aggregate Supply for Construction. Aggregate material is needed for road construction and producing concrete at the WTP site. There is insufficient information available to forecast quantities.  Subject to changing schedules due to fiscal budget restrictions, changing contract scope and uncertainties in final landscaping design, the ICD provides forecasts of 3 to 4 months of mining operations at Pit 30 in 2014 and 3 to 4 months in 2015 and 2016.	Borrow area needs for WTP are described in 24590-WTP-ICD-MG-OI-028, ICD-28 - Interface Control Document for Pit 30 Aggregate Supply for Construction. Aggregate material is needed for road construction and producing concrete at the WTP site. There is insufficient information available to forecast quantities.  There may be mining operations at Pit 30 beyond 2016 but there is insufficient information available to support a forecast.
PNNL	Overall	Not applicable		
<b>Service Area</b>		<b>Site Infrastructure and Utilities - Property Systems/Acquisitions and Material Management</b>		
CHPRC	Overall	Procurement Volume FY2014 (\$148.3M) P-card Volume \$5M; 15,000 Actions PO Volume \$3.5M; 2,000 Actions Contract Volume \$139.8M; 3,500 Actions	Procurement Volume FY2015 (\$134.9M) P-card Volume \$4.8M; 12,000 Actions PO Volume \$3M; 6,500; 1,800 Actions Contract Volume 127.1M; 3,200 Actions	Procurement Volume (FY2016-FY2018): FY2016 - \$146M FY2017 - \$112.8M FY2018 - \$118.8M
WCH	Overall (100/300)	Steady State, work as services needed. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not Applicable
WRPS	Overall	Procurement Volume FY2014 (\$205M) P-card Purchases \$6.7M; 9,300 transaction Purchase Orders \$11.5M; 2,400 line items Contracts \$188.1M; 1,800 awards	Procurement Volume FY2015 (\$210M) P-card Purchases \$6.8M; 9,500 transaction Purchase Orders \$11.0M; 2,500 line items Contracts \$192.7M; 1,850 awards	FY2016 - \$215M
	WTP & supporting facilities (200E)	None forecasted for WTP construction or commissioning. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020							
PNNL	Overall	Not applicable									
<b>Service Area Information and Content Management - Information Technology (Telephone, Pager, Radio, Network Svc)</b>											
CHPRC	Overall	<b>CHPRC Information Management Capacity Planning</b>									
			<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	
		Users Services	1631	1686	1647	1499	1193	1062	1062	1062	
		Network Services	2057	2124	2075	1889	1503	1338	1338	1338	
		Voice Services	2548	2630	2569	2338	1861	1657	1657	1657	
		Remote Access	366	371	362	330	262	234	234	234	
		Wireless Email	187	202	198	180	143	127	127	127	
		Radio Services	477	489	478	435	346	308	308	308	
		Cellular Services	111	101	99	90	72	64	64	64	
		Source: Fixed Unit Rate (FUR) 2013 actual quantities based on December 2012 billing data. FY14-FY18 data based on a percent of 2013 FUR units to the baseline population forecast. Data provided in FY18-FY20 represents an unknown budget area, however, for this product the units are assumed steady from 2018 data.									
WCH	Overall (100/300)	Self-perform, except telephone and special circuits. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path. In conversations with the WCH Chief Information Officer (CIO), WCH is interested in moving information into the Hanford data centers; however, do not have funding to pay for the data transfer.			Not applicable						
WRPS	Overall	<b>WRPS IM Capacity Planning (With WRPS #s and WTP Ops #s Starting in FY19)</b>									
			<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
		WRPS Direct/Staff Aug/Subs	1872	2007	1967	2162	2285	2369	2482	3824	3651
		Voice Services	2,248	2,410	2,362	2,596	2,744	2,845	2,981	4,592	4,384
		Cellular Services	240	257	252	277	293	304	318	490	468
		Network Services	2,019	2,165	2,121	2,332	2,464	2,555	2,677	4,124	3,938
		User Services	1,662	1,782	1,746	1,919	2,029	2,103	2,204	3,395	3,241
		Wireless Email	262	281	275	303	320	332	347	535	511
		Remote Access	459	492	482	530	560	581	609	938	895
		Radio Services	425	456	447	491	519	538	563	868	829
Source: Fixed Unit Rate (FUR) 2012 Actual quantities based on February 2012 Billing Data, includes WRPS subcontractors. FY2013 Through FY2020 based on a percent of 2012 FUR units to the baseline population forecast for directs employees and subcontractors. This forecast does not include WTP Operations personnel.											

Table C-1. Contractor Requirements Per J-3 Matrix.

Customer	Projects by Area	2014	2015	2016-2020
PNNL	Overall	Not applicable		
<b>Service Area Information and Content Management - Information Systems</b>				
CHPRC	Overall	Continued steady state support of site wide, multi-contractor applications including: Business Management System (BMS) functions including but not limited to Finance, Procurement and Contracts, Timekeeping, Human Resources, and BMS Reporting, Work Control including applications such as Job Control System (JCS), Automated Job Hazard Analysis (AJHA), etc., Safety applications such as Material Safety Data Sheet (MSDS), Chemical Inventory Tracking System, etc.		
WCH	Overall (100/300)	Self-perform. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Administration of the Human Resources Integrated System (HRIS), which uses PeopleSoft Human Resources Management System (HRMS) components to manage Human Resources, Payroll, Pension, and Training information. Subsystems include Time Information System (TIS) and Integrated Training Electronic Maintenance (ITEM) and are also considered elements of the HRIS suite.		
	WTP & supporting facilities (200E)			
PNNL	Overall	Not applicable		
<b>Service Area Information and Content Management - Federal Records Inventory and Scheduled Mgmt.</b>				
CHPRC	Overall	Anticipate 2014 to reflect steady state from 2013 levels.	Steady state service condition based on 2013 and 2014 services levels.	Anticipate increased services in 2016 above 2015 level to support Nuclear Facility D&D Remainder of Hanford. Decrease in services during 2017-2018 from 2016 reflective of 20% decrease in contract level funding and 29% decrease in personnel. Main areas of declining service needs are projected to be in Nuclear Material Stabilization & Disposition PFP and Spent Nuclear Stabilization & Disposition.
WCH	Overall (100/300)	Self-perform. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady state		
	WTP & supporting facilities (200E)	Not applicable for WTP construction or commissioning. Will need to address the transfer of files/records from WTP construction & commissioning in preparation of Operations. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Not applicable		
<b>Service Area Information and Content Management - Long-Term Storage Records</b>				
CHPRC	Global impacts resulting from changing funding and priorities	Anticipate 2014 to reflect steady state from 2013 levels.	Steady state	Needs will likely increase in the last 2 years of the contract.
WCH	Overall (100/300)	Self-perform. WCH has and will continue to have discussions with MSA about services that can be provided; however, at this time WCH will continue to self-perform functions that are more cost effective to do so and support the critical path.		Not applicable
WRPS	Overall	Steady state through 2016		
	WTP & supporting facilities (200E)	Not applicable for WTP construction or commissioning. Will need to address the transfer of files/records from WTP construction & commissioning in preparation of Operations. Services required by the WTP operations contractor will need to address. However, WTP is not expected to be turned over to the operations contractor before 2019.		
PNNL	Overall	Not applicable		

**APPENDIX D**  
**SYSTEM GAP SUMMARY**

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Table D-1. System Gap Summary.

Service Area	Mission Need Statement including Options Considered, Actions, Activities and Projects	Gap Identification (Mission Needs)	Anticipated Resolution	Risk
<b>Safety Security and Environment</b>				
<b>Safeguards &amp; Security</b>	No Gaps Identified.			
<b>Fire &amp; Emergency Response</b>	No Gaps Identified.			
<b>Emergency Management</b>	No Gaps Identified.			
<b>Energy and Environmental Services</b>	No Gaps Identified.			
<b>Site Infrastructure and Utilities</b>				
<b>Biological Controls</b>	No Gaps Identified.			
<b>Crane and Rigging</b>	No Gaps Identified.			
<b>Facility Services</b>	No Gaps Identified.			
<b>Motor Carrier</b>	No Gaps identified			
<b>Fleet Services</b>	No Gaps identified			
<b>Roads &amp; Grounds</b>	No Gaps identified			
<b>Electrical Transmission</b>	No Gaps identified			
<b>Water Systems</b>	Due to usage projections, WU needs to confirm that current projected demand can be met with WTP online.	Study potable water system with a tracer to verify chlorine contact time at 1,800 gal/min volume level vs. operating flow lower levels previously tested.		This integrates Water Systems projects supporting the resolution of these gaps and supporting the Site, ORP, WRPS, and RL milestones and objectives.

Table D-1. System Gap Summary.

Service Area	Mission Need Statement including Options Considered, Actions, Activities and Projects	Gap Identification (Mission Needs)	Anticipated Resolution	Risk
	<p>Perform Critical Decision (CD)-0 to evaluate options for three tank farm locations:                      1.) Extensions from ends of existing raw water (RW) lines in A, AX, and SX Tank Farms if and where needed to point of water consumption within Tank Farm work area.</p>	<p>By FY2016 WRPS needs a RW source for retrieval at A and AX Tank Farms (200E, 4th St. and Canton Ave.)                       Need Date - TBD - WRPS needs a RW source for retrieval at SX Tank Farm (200W, 13th St. and Camden Ave.)</p>		<p>Mission support need not met for WRPS Contract scope items at three tank farms.</p>
	<p>Perform CD-0 to evaluate options for three tank farm locations:                      1.) Truck RW to B, BY, &amp; T Tank Farms, or;                      2.) Pipe RW to B, BY, &amp; T Tank Farms                          a.) Reutilized cut &amp; capped RW line (only if feasible B, BY, &amp; T Tank Farms)                          b.) Install new RW line to B, BY, &amp; T Tank Farms</p>	<p>By FY2018 WRPS needs a RW source for retrieval at B and BY Tank Farms (200E, 12th St. and Baltimore Ave.).                       Need Date - TBD - WRPS needs a RW source for retrieval at T Tank Farm (200W, 23rd St. and Camden Ave.).</p>		<p>Concerns in FY2017: Nine campaigns for bulk retrieval are scheduled, which exceeds prior historical activity. MSA and WRPS need to work together to plan and minimize any impacts caused by water, electricity, steam, and other contractors' needs will all work being done concurrently to avoid unplanned outages or suboptimal tank farm work levels.</p>
<b>Sewer</b>	No Gaps identified			
<b>Land &amp; Facilities Management</b>	No Gaps identified			
<b>Site Business Management</b>				
<b>Land</b>	No Gaps Identified.			
<b>Information and Content Management</b>				

Table D-1. System Gap Summary.

Service Area	Mission Need Statement including Options Considered, Actions, Activities and Projects	Gap Identification (Mission Needs)	Anticipated Resolution	Risk
<b>Information Technology</b>	Establish funding to start a process of modernizing applications to current standards over the next 5 years. Focus will be on applications that are required for current and future business processes, with emphasis on applications that modernization would allow improved or provide mobile access, Web interfaces and reduce impacts associated with desktop operating system changes.	Applications – Modernize user interfaces to be web based and browser agnostic with ability to support mobile devices	FY2014 to FY2019	Delays in migrating to current industry supported desktop software because of legacy application will increase and add additional cyber risks. Failure to modernize applications will result in inability to deliver mobile applications to users.
<b>Federal Records/Long-Term Record Storage</b>	Campaign an intensive / aggressive move to electronic records across the complex and contractors is needed. Electronic records are more cost effective for DOE over the record lifecycle by significantly reducing retrieval time, labor and retrieval cost. Programs, however, may not be able to justify upfront investment because their contract period of performance is on a shorter the record lifecycle; therefore, from a program perspective it is cheaper to generate paper records.	Additional record box storage space is needed in Building 3212.	FY2015 to FY2020	A loss of efficiencies in searching and retrieving records. Increase cost to DOE for paper storage after programs have ended. Increased cost and delays for retrieving paper record from Federal Record Center in Seattle.



**APPENDIX E**  
**DECISIONS NEEDED SUMMARY**

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## Appendix E – Decisions Needed Summary

The Decisions Needed Summary includes the following three categories:

**Decisions Needed / Not Yet Funded** - This category includes proposals that have been screened and discussed by the U.S. Department of Energy (DOE), Richland Operations Office (RL), but are not fully validated and/or not completely vetted for mission support alignment by all subject matter experts. These proposals may or may not have scope, schedule, estimates and budget. There have been no decisions made for funding authorization of the proposal. Once a decision has been made, the proposal is either transferred to the Partial Decision Made / Not Yet Funded category or dropped from further consideration.

**Partial Decision Made / Not Yet Funded** – This category includes proposals that have been validated and vetted for mission support need. The proposals meet Other Hanford Contractor (OHC) needs and are pending development of full scope, schedule, estimates and budget. The proposals do not have a funding authorization decision. Once a final decision is made, the proposal is either transferred to the Infrastructure Reliability Project Prioritization List (Appendix B) or are dropped from further consideration.

**Not Yet Reviewed** - This category includes emerging proposals that may not have been fully presented to RL and/or DOE, Office of River Protection (ORP). These proposals, based on gaps listed in the Gap Summary Table (Appendix D), may be suggestions, costs savings proposals, or emerging issues that have not been validated for mission support need by all subject matter experts. DOE has not made a decision about the proposal, which is necessary to develop a scope, schedule, cost estimate or budget. The funding source may or may not be known. These proposals are either transferred to the Decisions Needed / Not Yet Funded category or are dropped from further consideration.

Table E-1. Decisions Needed Summary.

Issues	Current Capability	Capability Needed	Impact of Decision/Resolution Needed	Decision Maker	Date Decision Needed	Year Funding Needed
<b>DECISIONS NEEDED / NOT YET FUNDED</b>						
Central Plateau electrical distribution system does not meet IEEE 765 requirements for redundancy and physical separation of independent sources feeding the WTP.	The A6 substation that supplies the WTP, including its Safety Class 1E electrical busses, has two redundant 63MVA transformers and switchgear that are not physically separated to meet criteria for independence and they share common support systems.	The offsite source of power to WTP Class 1E electrical system needs to be available through two independent and fully redundant sources such that a failure in one source will not affect the ability of the redundant source to continue to provide power.	An integrated project team needs to be established to evaluate options to address the needed capability. These options should also incorporate the evaluation completed by WRPS in 2010 to meet the long-term electrical capacity needs of the WTP. Without this decision, a project execution plan cannot be developed to meet the IEEE Standard which will threaten WTP's readiness for plant operations.	RL, ORP	FY2014	FY2014
Bulk sodium removal requires a decision on 1 of 2 options: Store sodium onsite and treat, or ship sodium offsite and treat, to convert to a caustic for product reuse by the ORP at WTP.  The decision impacts 400 Area transition and closure timing are facilities services confirmation.	Approximately 300,000 gal of metallic sodium, stored in 200W Area Central Waste Complex and in 400 Area within the Reactor Containment Building or adjacent.	Confirmation of existing electrical and sanitary sewer services in 400 Area.	The decision impacts 400 Area transition and closure timing are facilities services confirmation.  The 2 options are: <u>Hanford Reuse Option:</u> Ship sodium to an onsite facility for processing into a caustic (sodium hydroxide), treated caustic would be transferred to the 200E Area for product reuse by WTP. This option for minimizes the risks associated with offsite transport. <u>Idaho Reuse Option:</u> Store sodium onsite then ship offsite to Idaho National Laboratory's Materials and Fuels Complex for processing. Following offsite processing, the caustic would be returned to Hanford Site for use in the WTP. This option minimizes impacts to 400 Area closure timing.	RL, ORP	Several months to several years in advance of the 400 Area Closure, to allow for shipping offsite or processing onsite.	Several months to several years in advance of the 400 Area Closure.

**Table E-1. Decisions Needed Summary.**

<b>Issues</b>	<b>Current Capability</b>	<b>Capability Needed</b>	<b>Impact of Decision/Resolution Needed</b>	<b>Decision Maker</b>	<b>Date Decision Needed</b>	<b>Year Funding Needed</b>
Confirm location and office size of support staff for WTP/Tank Farm operations.	1,500 staff onsite including modular units.	Up to 2,500 staff if all support is located on Site (to be confirmed) based on shifts and the operation plan for WTP.	Potential risks are changes in supply or capacity to four systems (roads, electrical, water and sewer) based on the lack of office capacity in FY2020 and beyond through FY2045 for an added facility to support WTP. The resolution needed are all the decisions and funding steps to be completed including a facility sitting study, office sizing confirmation (500 to 2,500 staff), office location and identification of utility needs. Review existing buildings in 200E Area can be compared with remaining needs for office space with new construction after site-wide videoconferencing, work shifts and other new business practices listed in Chapter 4.0 have been considered for setting the final new facility size.	ORP, WRPS	FY2015	FY2015 - Design; FY2017 – Construction, for service when WTP becomes operational.
How will excess low-level waste streams from the Tank Farms be treated (LAW #2 capacity is insufficient).	Current LAW design may process approximately one third of the forecasted LAW activity waste.	Implement supplemental treatment project as described in TOC.	The risk to site systems is lack of adequate infrastructure capacity needed to support the final solution facility configuration. The resolution needed is alternative analysis, followed by decision and project identification, then design and construction funding for the supplemental treatment facility, as well as support infrastructure systems (water, sewer, electrical, IT, etc.) owned by RL and managed by MSA.	ORP, WRPS	Timing controlled by ORP budget	Timing controlled by ORP budget
Realign 1.5 mi of existing track through Columbia Generating Station (CGS) to west, if there is a future rail need north of CGS and arrange contracts accordingly, budget M&O for interim.  Determine or confirm any future use(s) of the existing rail system trunk line.	80 mi remaining of the 106 mi original system.	40 mi from 200 Area to 300 Area vicinity (trunk line), 40 mi from 200 Areas to 100 Areas remaining feeder track	The risk of no decision is very low to realign 1.5 mi of existing track through CGS to west, identify future uses and timeframes needed, arrange contracts accordingly, budget M&O for interim.  The risk of no decision is very low to address best policy for the existing 40 mi of track because there is no identified long-term need currently known for rail located north of Route 11A.	RL, ORP	Timing controlled by RL budget.	Timing controlled by RL budget.
Convey 600 Area to TRIDEC & City	Up to 1,641 acres.	Up to 1,641 acres	The risk if not decided is continued land, roads, electrical system management costs to RL annual budgets until unneeded land is conveyed to others' ownership. The resolution needed is NEPA environmental review completion, action on pending federal legislation, followed by several implementation steps prescribed by federal, state, and local regulations for land conveyance.	Congress, RL, Boundary, Review Board, Benton County	Timing of the decision controlled by RL and Congress.	Timing controlled by RL budget and proposal sponsors.

Table E-1. Decisions Needed Summary.

Issues	Current Capability	Capability Needed	Impact of Decision/Resolution Needed	Decision Maker	Date Decision Needed	Year Funding Needed
The decision needed is to determine if an alternative electrical solution can be made among options being studied in FY2012 to enable removing the 451-B Substation by FY2019. (Includes sustaining ongoing operations at LIGO beyond FY2019.)	One existing substation.	One existing substation or an alternative electrical supply source until the 400 Area is fully closed.	The risk if not decided is continued electrical system management costs to RL annual budgets until 400 Area is closed.	RL	Timing controlled by RL budget.	Timing controlled by RL budget.
Remote Area Roads Program.	10 mi.	10 mi	The proposal is described in Chapters 3.0 and 4.0. The risk to RL of no decision is long term higher annual road costs for the site. The resolution would enable: A) remote are road designation of 'restricted' roads and reduced maintenance cost if there is no large future road use, or B) transfer of existing roads to oversight by another funding sources for other uses for continued maintenance and use. (See 100 Area Roads proposal below.)	Congress, RL	Timing of decision controlled by RL budget plus pending federal legislation in June 2013.	Possibly as early as FY2015 or FY2016 target date, or later year.
242-A Evaporator Cooling Tower Closed Loop system upgrade proposal.	2,700 gal/min when 242-A is operational during a campaign.	Less than 100 gal/min when 242-A is operational. Water demand site wide will increase to a combined 5,300 gpm by FY2020 for new planned and existing uses.	The proposal is mentioned in Chapter 4.0. The risk to RL of no decision to add the project is the lack of compliance with the water conservation goal in the HSSP that meets an Executive Order. The resolution will enable the project sponsored by others, not RL.	ORP	Timing of decision controlled by ORP budget.	Timing of funding controlled by ORP budget.
<b>PARTIAL DECISION MADE / NOT YET FUNDED</b>						
Conversion of remaining existing vehicle fleet to alternative fuel (E85, electric, natural gas). <b>Decision Made:</b> Add E85 fuel vehicles; consider adding more E85 fuel pumps. Continue to reduce fleet size.	See Hanford Site Sustainability Plan (HSSP) annual report for number of vehicles, owned vs. leased, fuel type, etc.	See HSSP annual report for number of vehicles by category (owned vs. leased, etc.) or by fuel type.	The risk is that the site will not fully meet 1 or more 4 fleet related sustainability goals consistent with executive orders shown in the HSSP annual report. The resolution needed is to continue to fund fuel conversion and fleet reduction, activities in order to meet the fossil fuel reduction goal not fully met during past 2 years.	RL, ORP	Timing is controlled by RL & ORP budgets	Timing controlled by RL & ORP budgets

Table E-1. Decisions Needed Summary.

Issues	Current Capability	Capability Needed	Impact of Decision/Resolution Needed	Decision Maker	Date Decision Needed	Year Funding Needed
<p>Study the concept of full annexation of the entire 300 Area to the City of Richland, to address several existing transition conditions.</p> <p>Part of the DOE-Pacific Northwest Site Office (PNSO) funded PNNL operations on the PNNL Site are located within City limits.</p> <p>Parts of DOE-PNSO and PNNL operations on the PNNL Site are outside City limits but within Benton County (inside Richland Urban Growth Boundary [UGB]).</p> <p>City now provides electrical services, yet MSA and PNNL maintain roads and parking.</p> <p><b>Decisions Made:</b> Electrical service is transferring from the RL-owned electrical system to City owned electrical service under a signed agreement during FY2013/14. PNNL and MSA maintain roads and parking. City, County and MSA provide security and law enforcement services with support from PNNL. Fire protection, biocontrols, environmental monitoring and other designated services are currently provided by MSA. All other City services and any jurisdictional overlap topics typically are part of a full annexation study.</p>	<p>300 Area is outside the City of Richland but entirely within the City of Richland UGB in unincorporated Benton County, and served by several providers.</p>	<p>Future changes could help to clarify 300 Area jurisdictional limits during the transition years and the relationship to the PNNL site to the south.</p>	<p>The risk if not decided is to continued costs of land, roads and utilities system management costs within RL annual budgets. There is a current risk to RL, PNSO and City for maintenance, enforcement or public safety response failures. A general lack of clarity results from a patchwork of jurisdictional authority limits in the central and southern portions of the 300 Area, generally south of Cypress Street. A full annexation study might help analyze for the benefit of all parties how to best control overall risk during transition years, how RL can reduce land footprint after 300 Area cleanup completion and how to best maintain long-term cost efficiency for infrastructure services among all affected existing providers (City, County, PNNL, MSA, others) during transition years within the 300 Area and south on the PNNL Site.</p>	<p>PNSO, PNNL, RL, Boundary Review Board, Benton County and City of Richland</p>	<p>Timing of decisions are controlled primarily by PNNL, PNSO, City &amp; RL.</p>	<p>Timing of funding is controlled primarily by RL &amp; PNSO budgets</p>

Table E-1. Decisions Needed Summary.

Issues	Current Capability	Capability Needed	Impact of Decision/Resolution Needed	Decision Maker	Date Decision Needed	Year Funding Needed
<p>Convey most of 25 mi<sup>2</sup> in accordance with adopted Comprehensive Land-Use Plan for lands designated Industrial and Research &amp; Development.</p> <p><b>Decision Made:</b> Retain HAMMER (120 acres), EVOC (25 acres) and PTA land (10,000 acres), plus an expansion area west of HAMMER approximately 5,000 acres.</p>	25 mi <sup>2</sup>	25 mi <sup>2</sup> less the lands for HAMMER facility (120 acres), EVOC facility (25 acres), and PTA land (10,000 acres), plus an expansion area west of HAMMER approximately 5,000 acres.	<p>The impact to RL will be to calculate and then allocate ongoing RL and ORP road use compared with other non-DOE land road use for total road maintenance costs of Route 4S &amp; Route 10 currently 100% funded by RL.</p> <p>RL will retain HAMMER, EVOC, PTA facilities, plus expansion area west of HAMMER along with ORP and RL ongoing access to Central Plateau through the 25 mi<sup>2</sup> area.</p>	RL	For meeting the RL goal to convey the unneeded lands to meet the DOE footprint reduction goal, land conveyance decisions are controlled by RL.	Timing of funding land conveyance decisions are controlled by RL budget.
<p>Natural gas line to 200 Area for WTP Steam (Note: the pipeline is not RL Project, yet affects RL Systems - Road, Land).</p> <p><b>Decision Made:</b> Pipeline project is moving forward with permitting clearances.</p>	None	30 mi of transmission pipeline delivering the BTU equivalent of 40,000 gal of diesel fuel oil a day. Natural gas is currently 5 to 6 times less expensive compared to diesel fuel oil for the same BTU equivalent.	The proposal is mentioned in Chapter 4.0, Natural Gas. The risk to RL of no decision to add the pipeline is the wear and tear costs to Route 4S in the form of long-term higher road costs plus greenhouse gas (GHG) emissions compliance for the Site. The resolution is to enable the pipeline project sponsored by others, including collocating a fiber optic cable in same basic alignment as the natural gas pipeline.	RL, ORP, Cascade Natural Gas	Timing of permitting decision is controlled by RL. Timing of project implementation is controlled by ORP (customer) Cascade Natural Gas (utility provider).	Timing of funding for project implementation is controlled by ORP (customer) Cascade Natural Gas (utility provider).
<p>Determine if a compost operation onsite is required and desirable to meet IVM FONSI requirements for revegetation and tumbleweed disposal.</p> <p><b>Decision Made:</b> RL 1009 proposal was submitted in FY2012. The proposal is under RL and MSA consideration for implementation phasing and scale of operation.</p>	None	10,000 yd <sup>3</sup> /year	See Table 4-2 for the proposal description. The risk to RL if not decided is minimal for cost. The resolution provides a component program to help implement long term and ongoing integrated vegetation management goals.	RL	Timing of decision is controlled by RL budget	Timing of funding controlled by RL budget for implementation.
<b>NOT YET REVIEWED</b>						

**Table E-1. Decisions Needed Summary.**

<b>Issues</b>	<b>Current Capability</b>	<b>Capability Needed</b>	<b>Impact of Decision/Resolution Needed</b>	<b>Decision Maker</b>	<b>Date Decision Needed</b>	<b>Year Funding Needed</b>
Convey 100 Area roads serving B Reactor and Hanford town site attraction locations to National Parks Service (NPS) for ongoing road maintenance funding.	Approximately 40 mi of existing roads including Route 2S.	Approximately 40 mi of existing roads including Route 2S.	The risk if not done is lost opportunity for annual costs savings to RL operational budget for roads. The resolution needed is federal legislative action currently under review in 2013, plus a transition plan from RL to NPS (Federal Highways budget is used for funding all NPS roads) for roads maintenance funding. See also Remote Area Roads program above for 10 mi. portion of the 40 mi. total roads under this larger proposal.	RL and Dept. of Interior National Parks Service	Timing of decision controlled by Congressional action.	Timing of funding controlled by Congressional action.
Electrical energy savings proposals under Utility Energy Services Contract (UESC) program.	Current electrical demand for site wide system.	Reduced electrical use in order to save electrical costs.	Late in FY2013, MSA began the process of evaluating projects for the application of a UESC. The UESC would provide RL funding for energy savings projects through a contract with BPA. Approximately \$5M in energy savings project scope has been identified for evaluation. Upon screening of projects to meet UESC energy savings requirements, implementation, if approved, would begin in FY2014.  Grant applications were prepared by MSA for BPA review.	RL, MSA, BPA	Timing of decision is controlled by RL budget & BPA approval of grants – FY2014 planned.	Timing controlled by RL budget & BPA approval of grants – FY2014 planned.
Natural gas line to 242-A Evaporator from transmission pipeline.	None	2 mi of distribution pipeline.	Chapter 3.0 describes the proposal. The risk if not decided is higher GHG emissions. The resolution is a decision to convert to natural gas when supply to the Central Plateau becomes available.	RL	Timing controlled by RL budget.	Timing controlled by RL budget.
Sanitary Sewer conveyance pipe to connect 200E with 200W Lagoon.	None.	2 mi	The risk to RL if not decided are continued trucking costs from annual RL operating budgets. The resolution needed is to replace trucking waste with piped conveyance including pumping via force main.	RL	Timing controlled by RL budget.	Timing controlled by RL budget.
Facility upgrades for energy and water savings. Facility upgrades for extending life spans of structures with long-term facility needs.	1,047 buildings, approximately 4.44 million gross ft <sup>2</sup>	796 buildings, including approximately 387 buildings are general purpose, warehouse and shops.	The risk to RL if not decided are unplanned failures of HVAC and roofs plus energy inefficiency for the 387 general purpose facilities within annual RL operating budgets. The resolution need for deciding to upgrade up to 86,000 gross ft <sup>2</sup> /yr for only 387 RL general-purposes buildings that remain needed by FY2020 and beyond. HVAC upgrade and roof upgrade programs are the only two defined multi-building program type projects plus three new facilities that replace eight existing buildings.	RL	Timing of decisions are controlled by RL budget.  Progress to Date: HVAC & roof programs are a defined project. Three new facilities are projects to replace eight existing buildings.	Timing of funding are controlled by RL budget.

**Table E-1. Decisions Needed Summary.**

<b>Issues</b>	<b>Current Capability</b>	<b>Capability Needed</b>	<b>Impact of Decision/Resolution Needed</b>	<b>Decision Maker</b>	<b>Date Decision Needed</b>	<b>Year Funding Needed</b>
400 Area long-term sanitary sewer service after FY2014 for MASF. A proposal by CHPRC is under consideration.	Currently wastewater is discharged through a pipeline to Energy Northwest.	None (wastewater would be the responsibility for each non-RL Site user)	The risk to RL is zero for remaining facilities in 400 Area for sewer service after FY2014. The resolution needed is to inform non-RL facility owners to make their own arrangements in the 400 Area after FY2014, after closure of the 400 Area for RL uses and purposes.	CHPRC, RL, 400 Area other non-RL facility owners.	Timing controlled by RL & Project sponsors and CHPRC for implementation.	Timing controlled by RL and Project sponsors and CHPRC for implementation.

## General Notes:

- 1 Conceptual proposals on this list are generally not budgeted and not included in IRPPL, except for projects noted above.
- 2 Proposals may or may not have developed scope, schedule and budgets, depending on how much study has been performed to date.
- 3 The purpose of the table is to highlight major Site issues requiring decisions by RL senior management.
- 4 The summary was requested in comments by RL, ORP, WRPS and One System ISAP participants during June 29 to July 17, 2012.
- 5 Proposals listed in this section are mentioned in the ISAP report text (draft & final) - not yet defined gaps, not yet validated projects.
- 6 Proposals shown without a specific decision timeframe can be eligible for funding yet typically require studies, designs, etc.
- 7 Table was revised July 29, 2013.

BPA = Bonneville Power Administration.

BTU = British thermal unit.

CGS = Columbia Generating Station.

CHPRC = CH2M HILL Plateau Remediation Company.

EVOG = Emergency Vehicle Operation Course.

FONSI = finding of no significant impact.

FY = fiscal year.

GHG = greenhouse gas.

HAMMER = Volpentest Hazardous Materials Management and Emergency Response Education and Training Center.

HVAC = heating, ventilation, and air conditioning.

IT = information technology.

IRPPL = Infrastructure Reliability Project Priority List.

IVM = integrated vegetation management.

LAW = low-activity waste.

LIGO = Laser Interferometer Gravitational Wave Observatory.

M&amp;O = maintenance and operations.

MASF = Maintenance and Storage Facility.

MSA = Mission Support Alliance, LLC.

NEPA = National Environmental Policy Act.

NPS = National Park Service.

OHC = Other Hanford contractors.

ORP = U.S. Department of Energy, Office of River Protection.

PNNL = Pacific Northwest National Laboratory.

PNSO = DOE Pacific Northwest Site Office.

PTA = Patrol Training Academy.

RL = U.S. Department of Energy, Richland Operations Office.

TOC = Tank Operations Contract.

TRIDEC = Tri-City Economic Development Council.

UESC = Utility Energy Services Contract.

WTP = Waste Treatment and Immobilization Plant.

**APPENDIX F**  
**COST SAVINGS / COST AVOIDANCE PROPOSALS**

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## **Appendix F – Cost Savings / Cost Avoidance Proposals**

Cost savings and cost avoidance proposals are provided as one list in Table F-1 for quick reference of proposals for ISAP systems described in Chapter 3.0. More detail is typically provided within ISAP annual reports about a new proposal in the first year each proposal is introduced. A database is maintained by MSA Portfolio Management (PfM) staff for tracking proposals through each of the nine status phases, as follows:

1. Concept review (currently the largest number of proposals is in this category at approximately 128 proposals)
2. Initial review
3. Selection
4. Technical review
5. Input review (for comments)
6. Review decision
7. Implementation decision (the second largest number of proposals is in this category currently at approximately 103 proposals)
8. Implement
9. Archive.

The process of adding a new proposal to Table F-1 follows several steps. First, new cost savings/avoidance proposals generated during the ISAP process are included in the table. Eventually, proposal line items will migrate onto the PfM database after full documentation of each proposal is developed. A few selected cost savings that require a major decision (due to size of the scope, site-wide impact or amount of funding needed) are provided in Appendix E, Decisions Needed Summary. The proposals listed in Table F-1 serve to generally expand the overall RL list of cost savings/avoidance summarized in the Lifecycle Annual Report after each new proposal is reviewed and validated. To maintain and revise Table F-1 in future years, proposals will either be revalidated to remain on the list or rejected for any further consideration and removed. Periodic reviews are held throughout the year and the entire list is updated during the ISAP annual planning cycle.

Proposals that are fully implemented can be removed from Table F-1 after they are transferred to the Infrastructure Reliability Project Priority List (Appendix B) as a project, the annual budget as a new line item, or are captured as another action, such as an operational budget item, procurement, or new policy.

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
<b>ISAP System</b>	<b>MSA Tracking Reference Number</b>	<b>Title</b>	<b>Description</b>	<b>Benefit / Savings</b>	<b>Status</b>
IT	1390	Hosted desktop initiative	Replace legacy workstations with hosted desktop services. (See also proposals ISAP-18 & 19 below.)	Reduced electrical loads, lower hardware & software license costs.	Ongoing
IT plus All ISAP systems	1330	Efficiency in Database Mgmt.	Reduce the number of databases supported. Business owners of each ISAP system would have to make this determination with support of DOE.	Cost Savings expected is primarily staff time to maintain updates. Depends on number of systems reduced and if licensing model is reduced.	Ongoing
Maintenance Management Program	1329	Efficiency in Inventory & Schedule Mgmt. Services	Change MSC contract to state that MSA will stop reporting to the Capital Planning Investment Control (CPIC) system for the Records program. CRD O 243.1A currently reads. Review capital planning and investment control (CPIC) proposals and information architecture plans for electronic records management provisions. Change MSC contract regarding	\$60K annually \$25K annually	

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
			performance of management assessments to match CRD O 243.1A, which designates management assessments every 3 years. The CRD currently reads "Conduct internal evaluations of records management practices and programs, including the economy of the operation, at least every 3 years."		
EM / IT	1328	Efficiency in Radios	Leverage emergency radio services from a commercial provider in conjunction with cell phones and texting as a redundancy for radio services.	~\$300k annually	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Facilities, Energy Mgmt.	1323	Efficiency in Energy Mgmt. Program	<p>Update Site Sustainability Plan (CD0189) every two years instead of annually.</p> <p>Report energy conservation (CD0180) only on an annual basis rather than quarterly.</p> <p>Relax need for facility energy manager to be a "Trained" Energy Manager or Certified Energy Manager.</p> <p>Eliminate FY13 task to develop Energy/Sustainability Requirements Matrix and Evaluate.</p> <p>Eliminate need for quarterly sustainability metrics reporting.</p> <p>Complete a feasibility Study on Implementation of a 4/10's site-wide schedule.</p>	<p>\$20K annually</p> <p>\$2K annually</p> <p>\$4K ( first year only training &amp; travel costs)</p> <p>\$75.4K (subcontract)- first year only</p> <p>\$1K annually</p> <p>\$19K (subcontract) first year only</p>	Implement

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Fire	1314	Efficiency in HFD Mgmt. & Admin	Challenge the need for the triennial assessment (Baseline Needs Assessment [BNA]) of the site's emergency response needs and resource requirements as prescribed in the contract statement of work and CRD Order 420.1B Change 1 (Supplemented Rev. 0). This assumes that the Hanford Fire Department (HFD) would continue with normal operational compliance with NFPA standards as interpreted locally without outside validation.	\$250K per assessment (FY13/FY14 & FY16/FY17)	Implement
SAS	1312	Reduce K9 Explosive Detection	Don't back fill the K-9 positions as the dogs retire down, reducing to a minimum of 2-3 dogs. The current DOE-HQ assessment being performed may not permit this from being possible to implement. The current outlook for his activity is a ramp down through FY15.	~\$150k per K9/guard	Implement

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Land	1151	Backfill Remedial Excavations	Evaluate not creating/expanding a borrow pit/area and importing clean backfill for remedial excavations. Can waste site excavations not be backfilled and fenced in a similar manner to borrow sources? DOE/EPA/WDOE Efficiency title: Backfill Remedial Excavations evaluate not creating/expanding a borrow pit/area and importing clean backfill for remedial excavations.	No yet fully studied for cost savings estimate.	Concept
<b>PROPOSALS IN ISAP ANNUAL REPORTS (FY 2012 &amp; FY2013)</b>					
Facilities, Fire	ISAP-01	Consolidate Fire Stations	Facility consolidation from four to three to two fire stations to meet RL's footprint reduction strategy over next 7 years.	Reduced operation expenses, primarily in the period FY2020 thru FY2045, after the full transition is completed.	Implement
Land	ISAP-02	Borrow Pit Management	Add a revenue source for cost recovery of ongoing tasks associated with maintaining control of the total aggregate removal process at borrow pit sites.	Recover costs in the form of service charge fees to include some or all of the following costs to: permit, track, design, plan and permit borrow pit sites for ongoing	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
				mission support needs.	
Land	ISAP-03	Compost Operation / RL 1009	As described in RL proposal #1009, explore a composting/planting soil processing yard operation to produce an onsite re-vegetation soil mix and/or a compost mix from primarily tumbleweed collection in quantities the Site will demand for annual projects. Apply the windrow composting methods already well researched and locally used by City of Richland Public Works. Combine composting collected tumbleweeds, sand from site plus 200W sanitary sewer treatment plant biosolids and/or water treatment plant residuals. The goal is to produce a blended, screened, tested, stabilized planting soil mix with the right physical properties (sand, loam, and organic mix) for planting soil. Self-operate or possibly hire a contractor. Annual Target Volume: 10,000 CY of finished compost.	\$245,000 set-up costs \$85,000 annual costs and \$200,000 annual revenues	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Facilities	ISAP-04	Facilities Upgrade program for energy & water savings	Where possible and feasible, by consolidation, move out of existing facilities by closing facility or transferring the entire facility to another local public agency. Two recently completed examples: Moved central badging operation out of 3790 Building (structure is designated for D&D, so there is cost savings from no ongoing operation but not estimated). Moved operations out of 712 Building and transferred to City of Richland.	Annual costs savings from reduced energy and water consumption	Concept
Trans	ISAP-05	Remote Areas Roads	Convert 10 miles from existing asphalt roads to a stabilized-soil-surface road, for authorized access only (tour bus, monitoring, Safeguards and Security, wildfire break). Scope: Convert paved roads north of 200 Areas serving 100 Areas to stabilized soil-surface roads suitable for limited access typical for federal lands for recreational resource access.	Costs savings from lower level of maintenance costs by converting road surface from asphalt to stabilized soil base pavement type.	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
LTS	ISAP-06	Long Term Stewardship Resequencing	Resequencing the 5-year entries into cocooned reactors placed into interim safe storage (ISS) status in 1 year allows a more efficient and safe execution with savings generated in planning, work packages, scope execution (sequential visits with the same team) and reporting efficiency (one inspection report for DOE review vs. six reports to review and process) as well as fewer long-term records.	Approximately \$100,000 savings per monitoring cycle	Implement
Electrical, Water	ISAP-07	242-A Evaporator Closed Loop Water & Energy Savings Proposal	Add a closed-loop system on the 242-A Evaporator Facility. This facility is one of the Site's largest raw water and energy consumers when in operation for a campaign. If implemented, a closed-loop system at the 242-A Evaporator would help meet the entire Hanford Site's sustainability goal of a 20-percent decrease in raw water consumption by FY2020.	Cost savings for less electrical energy required to pump less water by reducing from 2,700 GPM to 100 GPM for water flows.	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Electrical	ISAP-08	UESC Energy Savings Proposals	Projects were defined for the Utility Energy Services Contract (UESC) are part of a proposed \$5 million program that includes including making existing electrical system upgrades. The UESC would provide RL funding for energy savings projects through a contract with Bonneville Power Administration. Upon BPA screening of projects to meet UESC energy savings requirements, implementation, if approved, would begin in FY2014.	Undetermined expense requirement for electrical, 10 to 15 year payback expected. Annual cost savings start after costs to implement are fully repaid.	Design decision / Funding decision
Trans	ISAP-09	Smooth Roads Program	Fund a combination of chip seal and overlay projects to improve 48 mi of existing asphalt roads to bring all poor and fair ratings to good over 5 years to a target road rating to 85+ on all existing asphalt roads. Scope: Route 4S, Route 10 serving 400 Area.	Fuel saved: 2% to 5% over existing roads, based on improved road surface.	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Water	ISAP-10	Single vs. Dual Water System	The concept is not yet budgeted or scoped to provide either a 100% potable or a 100% raw water system that uses small decentralized water treatment plants to deliver water from the Columbia River to the Central Plateau. The decentralized water treatment plants would use one of the best two of the four water treatment processes previously studied.	Savings results from: reduced long runs of pipe for dual water type demands. Costs include point of use treatment systems.	Concept
Water	ISAP-11	Water Treatment Method Change	The largest areas of potential cost savings include reducing the number of miles of pipe being maintained, reducing energy costs for pumping water, and eliminating gas chlorination and the current chlorine gas alarm and safety requirements. Elimination of and implementation of an alternative disinfection method is identified and planned by Project L-679 for FY2016.	Savings results from elimination of current chlorine treatment warnings or alarms, reduced HGET training, etc. Costs include conversion to another type of treatment	Implement /Implement (FY2016)

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Water	ISAP-12	Remote Area Water Strategy to Consolidate Demand	Isolated water connections at the end of a long run of pipe are good candidates for facility demolition by FY2015. The primary cost savings would result from reducing costs to maintain water pipes for small loads to entire areas that can be fully closed for water demand at distances far from the main system serving the core of the Central Plateau Area.	Savings result from: reduced long runs of pipe for small demands.	Concept
Water	ISAP-13	BPA Grant Funding	Existing pumps are candidates for pump motor conversion to variable speed motors with greater energy efficiency. A portion of the USEC upgrade project is eligible for grant funding from BPA. The USEC grant is not initially a cost saving (the grant is really a loan from another federal agency paid back with annual cost savings) yet the grant enables earlier implementation of a DOE operational budget annual cost savings measure that might not otherwise happen without the BPA grant.	Undetermined expense requirement for water, 10 to 15 year payback expected. Annual cost savings start after costs to implement are fully repaid.	Funding decision / Implement (FY2014)

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Water	ISAP-14	Remote Small Area Buildings	In conjunction with the findings of the 2012 Facility Master Plan (FMP) report for general-purpose buildings, start a program to remove small buildings and disconnect and abandon water piping distribution systems where feasible.	Savings results from reduced long runs of pipe for small demands.	Concept
Sanitary Sewer	ISAP-15	Remote Area Sewer Strategy	Isolated sanitary sewer loads at the end of a long run of pipe are good candidates for demolition, consolidating General Purpose Facilities and eliminating low-level occupancy facilities by FY2015. The first type of long-term cost savings would result from reducing costs to maintain sanitary sewer pipes for small loads at remote distances from the main system trunk sewer line that eventually will serve the core area of the Central Plateau. The second type of immediate cost savings proposal for sanitary sewer for existing buildings with tanks or failing drain fields is to reduce and consolidate the number of pump-outs to a daily volume that can be serviced by one truck with a two-	Savings results from reduced long runs of pipe for small demands, or less trucked disposal.	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
			<p>member crew instead of the five staff members currently required. MSA will accomplish both by a combination of conversions at facilities from existing pumped tanks to piped conveyance to the 200W lagoon and eliminating existing buildings as part of the planned demolition process. The overall goal for the sanitary sewer system footprint is to help create the net long-term cost benefit, not by transferring the work scope (pumping out existing tanks) to another contractor.</p>		
Sanitary Sewer	ISAP-16	Remote Small Buildings	<p>In conjunction with the sustainability strategy for metering and analyzing general-purpose buildings energy and water performance and making selective upgrades, start a program to identify and remove small buildings where long runs of sanitary sewer pipes can be removed (pipes from an existing building to a drain field or a tank now being pumped).</p>	<p>Savings results from reduced long runs of pipe for small demands, or less trucked disposal.</p>	Concept

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
Sanitary Sewer	ISAP-17	New Building Strategy	LEED new construction proposals are required to consider alternative water sources for each major new building (over \$5M in value), rather than assume the existing sanitary sewer system will provide 100% of the new sanitary sewer load for all new buildings. Examples of high-performance wastewater-saving measures at federal facilities in arid locations for LEED New Construction Gold or Platinum levels include storm water capture, storage tanks, rainwater capture and storage, gray-water processing and treatment by filtration and use of reduced-flow water fixtures by design to avoid up to 100% reliance on piped-water and sanitary sewer utilities systems.	Savings results from reduced long runs of pipe for sanitary collection, reduced piped conveyance to treatment facilities, or less trucked disposal.	Concept
IT	ISAP-18	List business practices	List business practices (use spare licenses first, transfer licenses where possible) for hosted and legacy workstation computers. (See also Proposal #1390 above)	Reduces cost of software license fees, as an interim measure	Implement

**Table F-1. Cost Savings Proposals**

<b>Proposals Tracked by Portfolio Management</b>					
IT	ISAP-19	Use Hanford Cloud to Share Licenses	List business practices (use spare licenses first, transfer licenses where possible) when most or all users are served by Thin Client & HLAN. (See also Proposal #1390 above).	Reduces cost of software license fees, as long term measure.	Implement
IT	ISAP-20	Expand MSA services catalogue	Expand MSA services catalogue.	Increases revenue for current annual or fixed costs	Implement
IT, Facilities	ISAP-21	Develop videoconferencing strategy for new buildings	Develop videoconferencing strategy for new buildings, including new buildings in 200E Area.	Reduces travel costs, reduces costs of construction in 200E Area.	Concept