**FLEET SERVICES SYSTEM**

The Fleet Services System supports the Hanford cleanup mission. The foundation for Fleet Services System overall strategy to support the Hanford cleanup activities currently encompasses three main aspects of fleet mission support:

- Vehicles for Department of Energy staff;
- Vehicles and specialized equipment for Mission Support Contract scope; and
- Vehicles and specialized equipment for Other Hanford Contractors.

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<th>Table 1. Fleet Services System Attributes</th>
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<td><strong>Operate, Safe &amp; Regulatory Compliant System</strong></td>
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|  - Comply with the Washington Administrative Code (WAC)* and applicable Revised Code of Washington (RCW)* and Department of Licensing*, where technically feasible and reasonably cost effective.  
  - Comply with Executive Order 13693 for emissions, if budgeted.  
  - Provide enhanced Predictive, Preventive, and Corrective Maintenance.  
  - Provide engineered solutions to address and prevent failures due to aging facilities and major facility systems.  
  - Comply with the Occupational Safety and Health Administration standards.  
  - Comply with the Washington State Industrial Safety and Health Act.  
  - Comply with the Clean Water Act. |
| **Availability, Right-Size & Reduce Active Site Footprint** |
|  - Provide adequate fleet to access Tank Farms, Waste Treatment Plant, PFP, K Reactor Basin, ground water remediation, and waste shipments and to achieve Hanford Site Clean-up Goals.  
  - Provide needed maintenance on fleet to support clean-up goals.  
  - Prioritize fleet requirements based on mission needs; downsize the fleet system when appropriate.  
  - Dispose of fleet no longer required for Hanford Site cleanup activities through coordination with RL.  
  - Incorporate flexibility into designs and modifications of the facility to adapt to changing fuel platforms, regulatory requirements and vehicle demand.  
  - Reduce fleet system requirements and footprint.  
  - Engineer, modify, and tune the fleet facility to reduce resource consumption and lower the life-cycle costs. |
| **Sustainability & Minimize Impacts to Environment** |
|  - Reduce power and water consumption for fleet systems, where feasible.  
  - Complete planning for 200E Complex reconfiguration to serve DFLAW and WTP Operations.  
  - Ensure the availability and use of properly qualified and skilled human resources to operate the fleet system. |
| **Reliability** |
|  - Implement design practices defined in the Maintenance Management Plan (MMP).  
  - Execute MMP for the fleet facility.  
  - Reduce risk to site personnel, equipment, and mission by employing physical and cyber system security principles during design when adding new or modifying existing parts of the system; apply security principles to existing components as opportunities allow. |
| **Maintainability** |
|  - Maintain fleet to maximize the flexibility to support the short-term and long-term Hanford Site cleanup mission goals.  
  - Maintain fleet using a graded step improvement.  
  - Maintain fleet system for personnel and movement of materials and waste.  
  - Implement strategies for a Fleet Management Program, including performing Predictive, Preventive and Corrective Maintenance.  
  - Include maintainability concepts and principles in maintenance and project activities and designs to minimize costs and required effort for future maintenance. |

EMS = emergency management system.
*see list of Vehicle and Fuel regulations in the text including WAC and RCW.
The fleet utilization rates at the existing facilities are based on the demand from MSA, RL, ORP and OHC customers. The fleet services system capacity was created by building the 200 East complex as a satellite facility, plus two additions. The result is an over utilized inefficient complex of 51,938 SF occupied facilities compared to current demand and fleet size. All facilities are rated as “over utilized” based on FIMS information. The fleet system’s average utilization rates for FY2017 show the approximate overall system usage in number of vehicles per staff and number of vehicles per work bay. Comparing the utilization with the total capacity of the available facilities as configured, there is no extra capacity and every existing work bay in the shop facility is overcrowded. This eliminates any service capacity for responding to unusual events like an acceleration of major cleanup tasks or disaster response impacting response readiness for numerous vehicles at one time (Example: May 9, 2017 PUREX tunnel cave-in response for access path building and fill-in, or a wildfire). The cleanup mission and workplace safety are both at risk due to overcrowded work bay conditions documented during FY2016 and FY2017, from several factors – throughput volume compared to facility size, number of workers compared to facility size, work bay spacing and lack of storage. Since all incoming service requests are being filled onsite, the fleet service demand equals the fleet service utilization rate. During the past 10 years, vehicles and equipment purchases and leases, including replacements, ranged from 20 to 150 vehicles per year, based on applicable guidelines for replacements and requests.

The 5 Fleet Services System Attributes are shown in Table 1. Significant facility upgrades to support mission requirements through FY2025 are defined in HNF-60164, Revision 0, Fleet Services Facilities Master Plan report and in HNF-60800, Revision 0 Consolidated Fleet Services Complex Functional Design Criteria, L-845/L-810 report. The strategy is to move out of the 400 Area in order to consolidate all fleet facilities in the 200 East Area. According to HNF-60800 report, if 7 projects are funded to implement the consolidated fleet service complex, then 10 other defined projects can be eliminated.

The fleet system is enabled and constrained by several federal and state regulations:


**Current Condition FY2017:**

**200 East Area Fleet Facilities:** The material condition of the roof, HVAC, major utilities, major equipment, controllers, and any other critical infrastructure are reflected in the number of major deficiencies documented in FIMS for each existing facility, ranging from 1 to 5 items for each facility. Although the structures have anticipated disposition dates beyond FY2028, major systems (HVAC, pits, insulation) plus major use areas (drainage in yard areas, storage, lunch room, library, parts area) each require major investments prior to FY2028. The various deficiencies have generated a list of 17 defined reliability projects and work activities. However, completing all 17 proposals would exceed $9 million, yet there would still be remaining deficiencies compared to current guidance for real property assets, safety (fall protection for workers at heights 4 feet and above) plus facility sustainability (21 metrics).
There are 10 existing fleet facilities currently totals 36,962 SF in use providing 22 work bays, plus office space in MO-414 for 6 administrative offices (1,416 SF) on 15.42 acres of site. The shop in 273E is part of 36,962 SF and could combine shared use to eliminate one other paint spray booth in 2715EC at the size of 1,021 SF by creating one consolidated shared use body and paint spray paint booth facility in 273E under L-810 project. Project L-845 and L-XXX would add approximately 52,500 SF (1 new Auto/Truck shop, 1 new heavy Equipment shop) new complex) on a new 11-acre site to be selected within 200 East.

Total complex would provide 24 work bays requiring 11 acres for the new complex plus 5 acres for 271E. The consolidated fleet complex plan including relocation of the body shop from 400 Area to 200 East Area requires 7 projects to meet all defined gaps listed in Appendix D:

- **L-XXX: Heavy Equipment Shop** – a new 21,600 SF structure in 200 East
- **L-845, Auto/Truck Shop** - a new 30,900 SF structure in 200 East Area. The project L-845 was rescoped during FY17, to replace the entire 2711E complex along with adding additional space. Suitability of the location for the new facility will be based on existing and proposed water, sanitary sewer, electrical and IT infrastructure needed to support the new shop facility with existing paved core routes that will remain long term serving the Central Plateau area.
- **L-810: Remodel 273E** - to install new paint spray units and move the existing Body Shop (currently in 4722C) into 273E. The HNF-60800 report, Attachment G reflects the reconfiguration plan for 273E.
- **L-XXX, NPDES storm water compliance for 273E site**
- **L-772 & L-773, electrical vehicle charging stations at 2750E and 2266E**
- **L-XXX, two permanent storage structures at3,380 SF each**
- **L-XXX, 11-acre consolidated complex site development**

**400 Area Fleet Facilities:** The condition of body shop in 4722C for the metal roof is fair, HVAC is fair, major utilities are fair, major equipment (paint booth) is in poor condition, and critical infrastructure is in fair condition. The body shop must move out of the 4722C structure due to the 400 Area closure plan, a long range plan to clear the path for 400 Area D&D, cleanup and closure.

Fleet operations and management scored high in several areas of the Maintenance Management Program (MMP) initial baseline screening using a standardized multi-point assessment set of criteria. An improvement plan list includes a number of maintenance items already addressed during FY2016 – garage doors, HVAC ventilation in restrooms, HVAC unit replacement primarily in the 2711 shop. Meeting sustainability goals for alternative fuel vehicles requires an ongoing effort toward the marketplace gap between commercially available models and federal fuel performance targets, particularly for specialized and heavy vehicles. Additional needs identified during FY2017 include OHSA fall protection (workers over 4 feet above floor), too many service technicians per work bay plus unmet facility energy and water conservation targets (lighting, heat and cooling, wash bay water, energy intensity).

According to HNF-60164, Fleet Services Facilities Master plan report, facility condition assessment and proposed projects are now defined in response to validated needs for facilities, sustainability targets toward the goal of a workplace configured for safety and efficiency. No other DOE EM site maintains a comparable scale fleet services operation, based on the site size and scale of the Hanford cleanup mission. To meet all known needs, DOE-RL should fund all major fleet facilities and site projects over the next 2 to 8 years, to reduce mission risk, upgrade workplace safety and capture operational efficiency. The 2 electrical vehicle charging stations can be installed at any time. The existing 36,962 SF of 10 aging and
substandard facilities can be vacated according to the FY2017 study report aimed at rescoping projects L-845 and L-810 into a single consolidated complex to meet projected facility needs looking 40 years ahead for the planning horizon target year FY2057.

**End State FY2022:**

By FY2022, the Fleet Services system will be located in the west central part of 200 East Area, configured in a consolidated complex. The 2711E Shop complex north of 4th Street at Atlanta Avenue will be vacated, the design and construction one consolidated new shop complex (on one of 6 alternative sites), and keep or move out of 273E Shop complex south of 4th Street at Atlanta Avenue. The overall facilities will have adequate permanent storage, adequate number and type of work bays configured for efficient service in the range of 3,200 to 3,450 vehicles and equipment items for staffing of approximately 60 FTEs. The improvement plan items include:

- Enterprise asset management items,
- Elimination of overcrowding,
- Parts and supply suggestions,
- Existing substandard drainage conditions in 2711 and 273E gravel surface site yards,
- Facility sustainability metrics focused on water and energy intensity.

The overall fleet will maintain alternate fuel vehicles (AFV) rate at approximately 46% AFV for the entire fleet as encouraged by current sustainability goals to meet air quality goals.

At DOE RL direction, 6 options for one consolidated fleet services complex were studied during March to May, 2017. The 6 options are summarized below and shown in Figure 1 below, for the target year FY2057:

- **A-1**: 51,200 SF at 4th & Baltimore in linear configuration on 13 acres.
- **A-2**: 51,200 SF at 4th & Baltimore in L-Shaped configuration on 13 acres.
- **B-1**: 45,000 SF at 3rd & Atlanta (restricted route) in linear configuration on 11 acres, using repurposed 273E until Year 2043.
- **B-2**: 45,000 SF at 3rd & Atlanta (restricted route) in modified L-Shaped configuration on 11 acres, using repurposed 273E until Year 2043.
- **C-1**: 51,200 SF at 4th & Baltimore in multi-building compound configuration on 13 acres.
- **C-2**: 45,000 SF at 3rd & Atlanta in multi-building compound configuration on 11 acres, using repurposed 273E.

The top 3 preferred alternatives are Options A-2, C-1 and A-1 were all closely ranked during the Functional Design Criteria (FDC) effort held in March and April, 2017. As a clarification, the preferred site would be likely be at Akron and First in 200 East if finally selected. Site B has 2 existing water lines that would be expensive to relocate so Site B has been rejected at the pre-design study phase. Options A-2 and A-1 combined with Option C-1 resulted in a new consolidated complex with two main shop structures on 11-acres in HNF-60800, Revision 1 report. The FY15 and FY16 existing condition documentation and master planning led to defining the ISAP program strategy during FY17 for cost avoidance of $1 million annual expense, plus footprint reduction of approximately 3 acres of site. The 11 existing fleet buildings at 51,399 SF can be replaced by two main shop buildings at a total size of 52,500 SF, while increasing from 22 to 24 service bays, plus 2 body, 2 paint and 2 detailing work bays in 273E to create an efficient, safe, compliant and sustainable operation.
The 5 weighted criteria for site selection and configuration selection are:

- Build cost,
- Operate & maintain cost,
- User efficiency,
- Phasing, and;
- Infrastructure access.

The outcome from the FDC effort included DOE RL review held on May 25, 2017. The results are reflected in the final version of Figure 2 –FY17 Fleet Services Roadmap.

**Figure -1. Options Studied for Fleet System in Year FY2057** (Source: FY17 2017 HNF-60800, Fleet FDC Report)

The summary for FY2022 is:

- **Condition:** Poor and Fair (for 10 existing facilities in FY2017 unless 17 planned upgrades are made) or Excellent (if one new consolidated shop facility is funded, completed and operational by FY2022). Fuel station (Building 6691) upgraded or replaced.
- **Capacity:** Facility complex is sized and configured to safely support and service 3,000 to 3,450 vehicles and equipment items.
- **Reliability:** 99% for fleet service shops and administrative support, except during extreme weather or site shut-down periods (electrical or water utilities outage, etc.).
- **Population Served:** 9,201. Serves entire site program with 3,197 vehicles and equipment items. Does not serve PNNL, ENW, US Ecology and LIGO.
- **Areas Served:** Entire 580 square mile site.
Existing Gaps:  See Appendix D for gaps defined above in addition to 17 defined projects and activities listed in HNF-60800 report, including adding fall protection to meet January 17, 2017 OHSA requirements and also addressing 21 metrics in 2016 DOE sustainability guidance.

Cost Avoidance Proposals:  The costs and benefits of a consolidated fleet services complex was reviewed during June to September, 2017.  The full facility replacement value for 52,500 SF new structures plus 273E remodel would equal existing annual expenses in less than 8 years, excluding costs for 6291 fuel station emerging needs.  The basic decision requires selection from 2 scenarios:

- Completion of 17 projects and activities for $9 million by FY2024 while remaining in 10 existing facilities, plus several remaining compliance gaps requiring $818,000 to $1.7 million annually, or;
- Completion of 7 reliability projects for a consolidated fleet shop complex optimized for the rest of the mission at a cost of $18.84 million within 5 years while saving approximately $1 million a year to operate at $515,000 annually, avoiding $9 million in one-time upgrade costs (17 projects and activities).

Major Actions/Decisions Needed: Two major decisions described above are shown on Figure 2 and included in Appendix E.  The existing fuel station (Building 6291) is being studied during June, 2017 to October, 2017 for upgrade or replacement, including a lifecycle cost analysis.  A lifecycle cost benefit analysis report (HNF-61233) was prepared June through September, 2017 to compare the costs to upgrade and repair (17 projects and activities) with cost of a consolidated fleet complex (7 projects) based on HNF-60800 report.

Updated: September 11, 2017
Figure 2. Fleet Services System Roadmap

2017 CURRENT CONDITION
- 3,197 vehicle and equipment items with 66% Alternative Fuel Vehicles (AFV - CNG, Hybrid & Electric)
- 1,500 licensed truck and light duty vehicles; 62% AFV
- 3 buses
- 15.42 acre fleet complex in 200E, and 1 building in 400 Area
- 3 major facilities in overcrowded fair to poor condition, with 22 work bays for fleet service, parts, administration and operations, supported by 50% temporary and 50% permanent storage structures
- 6291 fuel station upgrade or replacement needed based on fueling equipment failure, facility age and obsolete components causing refueling outages in second half FY2017
- 55 FTE staff

Proposed Fleet Facilities
- Parking & Outdoor Storage Yard
- Facilities
- Trainers
- Structures

Highlighted labels indicate existing fleet facilities

2022 END STATES CURRENT CONDITION
- 3,200 vehicles and equipment items with 40% AFV, primarily truck, light duty and non-road equipment items
- 1,500 licensed vehicles; 62% AFV
- Number of buses required to support the DOE mission
- 16 acres consolidated fleet complex in 200E
- Completed consolidated new fleet shop complex
- Relocated body and paint shop from 4722C to 273E
- No facilities in 400 Area to meet footprint reduction goal
- 3 major facilities in fair to excellent condition with 30 work bays for fleet service, parts, administration and configured for WTR, DRAW, Tank Operations, Contrast and River Corridor Cleanup operations
- Consolidated complex is supported by two permanent storage structures to replace 27 cones units
- 60 FTE staff target size

Project Descriptions

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Major Actions/Decisions

- Design Consolidated Fleet Complex to Replace 2116A, 2115D, 2116D, 2717E, 2717B, 2716A & 2717E
- Upgrade or Replace 6291 Fuel Station
- Permanent Storage Building #1 - Replace 13 units
- Permanent Storage Building #2 - Replace 14 units

Note: * - Not Required, ** - Construction, *** - Project Supports F&I