U.S. DEPARTMENT OF ENERGY

SRS™

Citizens Advisory Board
Common Infrastructure and Utilities

Savannah River Site
SRNS-RP-2023-00963

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CAB

Common Infrastructure and Utilities Agenda

- **Overview – Big Picture**
- **Common Infrastructure and Utilities 'Road to Green' Plan/Status**
- **Planning Cycle**
- **'Road to Green' Current Key Projects**
  - Road Paving (Road E & Road B)
  - River Water Pump House Electric Power
  - PAR Pond Emergency Spillway Restoration
    - *Ensures Safety And Integrity of the Dam*
    - *Ensures continued shielding of any potentially contaminated sediment*
- **Conclusion and Shift to Updating Mission Focused, Sustainable Infrastructure**

SRS Common Infrastructure and Utilities – Big Picture

Electric Power
(64 Miles High Voltage Lines)
(9 Large Substations)
(180 Miles Distribution Lines)

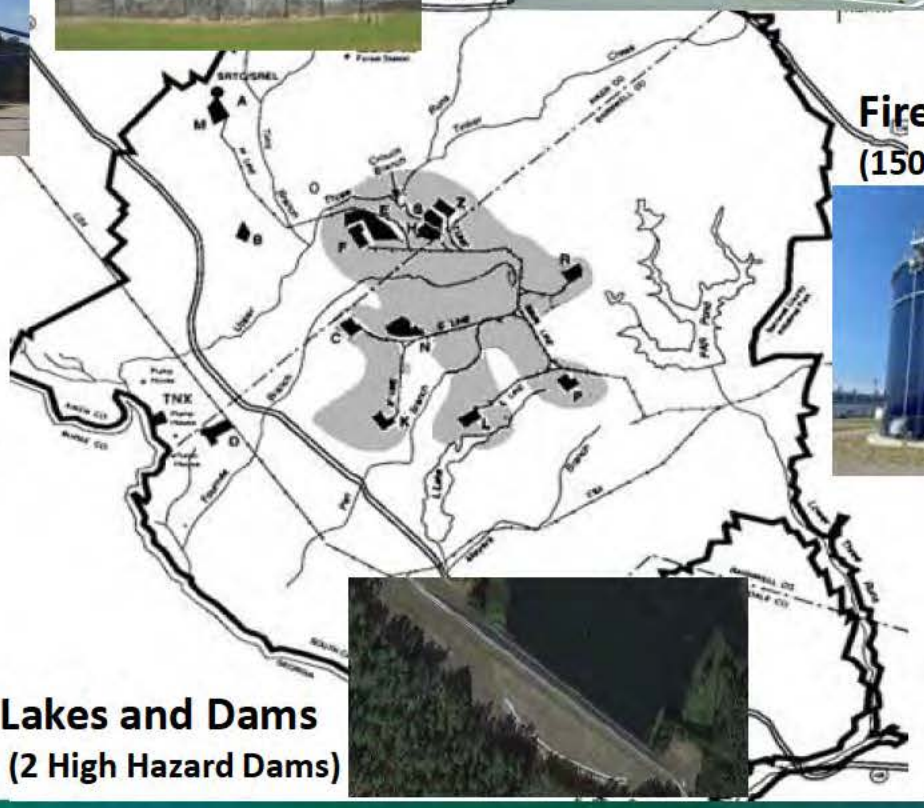
Facilities
(42 - Admin, Shops, Emer, Security)

Primary Roads
(119 Miles Paved)

Steam Energy
(4 Biomass Plants)

River Water (7500 GPM)

Sanitary Waste Water
(Central Sanitary Plant)



Lakes and Dams
(2 High Hazard Dams)

Domestic Water
(2M Gals/day)

Fire Water
(1500 Hydrants)

Rail Roads (33 Miles Track)

Recapitalize Site Common Infrastructure and Utilities through "Road to Green" Plan

12 Systems

Current State and Plan to become and stay GREEN*

12 Systems	Jan-21	Jan-22	Jan-23	Jan-24	Jan-25	Jan-26	Jan-27	Jan-28
PECMC+ and Transportation	PECMC & Transportation	PECMC & Transportation	PECMC & Transportation	PECMC & Transportation	PECMC & Transportation	PECMC & Transportation	PECMC & Transportation	PECMC & Transportation
Domestic Water	Domestic Water	Domestic Water	Domestic Water	Domestic Water	Domestic Water	Domestic Water	Domestic Water	Domestic Water
Steam Gen and Dist.	Steam Gen. & Distribution	Steam Gen. & Distribution	Steam Gen. & Distribution	Steam Gen. & Distribution	Steam Gen. & Distribution	Steam Gen. & Distribution	Steam Gen. & Distribution	Steam Gen. & Distribution
Electrical Distribution	Electrical Distribution	Electrical Distribution	Electrical Distribution	Electrical Distribution	Electrical Distribution	Electrical Distribution	Electrical Distribution	Electrical Distribution
Sanitary Waste	Sanitary Wastewater	Sanitary Wastewater	Sanitary Wastewater	Sanitary Wastewater	Sanitary Wastewater	Sanitary Wastewater	Sanitary Wastewater	Sanitary Wastewater
Fire Water	Fire Water	Fire Water	Fire Water	Fire Water	Fire Water	Fire Water	Fire Water	Fire Water
Chilled Water	Chilled Water	Chilled Water	Chilled Water	Chilled Water	Chilled Water	Chilled Water	Chilled Water	Chilled Water
Facilities	SS Facilities & Support	Facilities	Facilities	Facilities	Facilities	Facilities	Facilities	Facilities
River Water	River Water	River Water	River Water	River Water	River Water	River Water	River Water	River Water
Process/Service Water	Process / Service water	Service Water	Service Water	Service Water	Service Water	Service Water	Service Water	Service Water
		Process Water	Process Water	Process Water	Process Water	Process Water	Process Water	Process Water
Dams, Outfalls, Basins, Lakes	Outfalls, Dams, Basins, Lakes	Outfalls, Basins & Landfills	Outfalls, Basins & Landfills	Outfalls, Basins & Landfills	Outfalls, Basins & Landfills	Outfalls, Basins & Landfills	Outfalls, Basins & Landfills	Outfalls, Basins & Landfills
		Dams, Lakes & Ponds	Dams, Lakes & Ponds	Dams, Lakes & Ponds	Dams, Lakes & Ponds	Dams, Lakes & Ponds	Dams, Lakes & Ponds	Dams, Lakes & Ponds
Roads, Bridges, Railroads	Roads, Bridges, & Railroads	Railroad	Railroad	Railroad	Railroad	Railroad	Railroad	Railroad
		Roads & Bridges	Roads & Bridges	Roads & Bridges	Roads & Bridges	Roads & Bridges	Roads & Bridges	Roads & Bridges

System

System functioning properly and fully available with minor deficiencies

System

System functioning and fully available with deficiencies or at risk for future failure

System

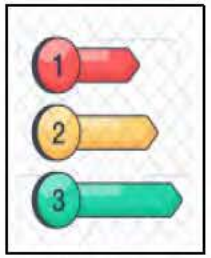
Unsatisfactory – Sub-systems have degradation such that failure will have significant impact on system availability and/or customer needs

Road to Green Plan is executed through the annually updated 5-Year and Fiscal Year Improvement Plans

+Portable Equipment Commodity Management Center

SRNS - Site Services Common Infrastructure Improvements Planning Cycle

Infrastructure Planning & Prioritization
(IP3) Project List Update



October

Site Services'
5 Year Plan

December

Risk Review/Update

Spring

Site Infrastructure Engineering Dashboard

Monthly

Yearly

Site Services
Execution Plan

September

Work Execution

Oct-Sept

Risk Review/Update

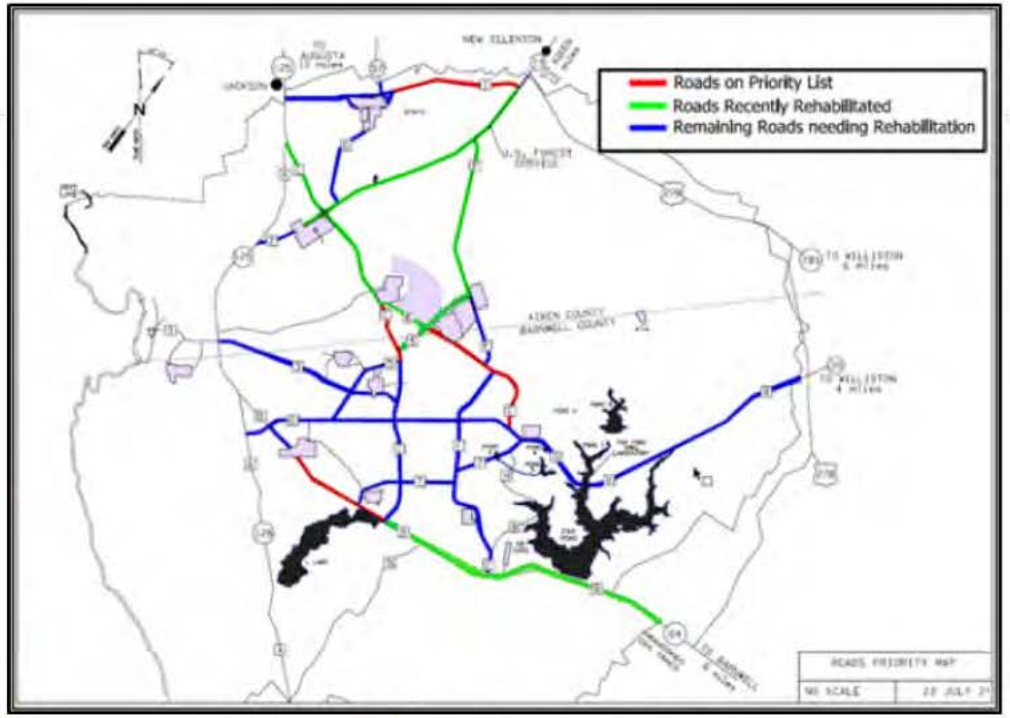
Fall

SRS Road Repaving

- Average daily traffic on-site is 35,000 trips per day and growing
- Much of the site road system remains in very poor condition
- Priority Site Access Roads (2, F, C, 1, B)
- Priority Facility Access Roads (4, E)
- Strategy to prioritize high-volume roads
- Repurposing millings from Roads E and B to maintain secondary roads or provide to the Community Reuse Organization

Roads Resurfacing Top Priority List

Route Name	From	To	Length (Mi)	FY23 Status Updates
Road C	Road E	Road 5	2	No change
Road 4	Road F	Road C	2.5	Paving completed (FY22)
Road E	Road 6	Road C	5.5	Paving completed from Road C to Road 4 (~1.5 mi)
Road 1	Road 2	Road A	7	Design in-process
Road B	Barricade 4	Road 6	13	Paving in-progress from Road C to Barricade 4 (~8.5 mi)
Total Top Priority Length			30	17.5 mi of Top Priority Paving Remains after FY23



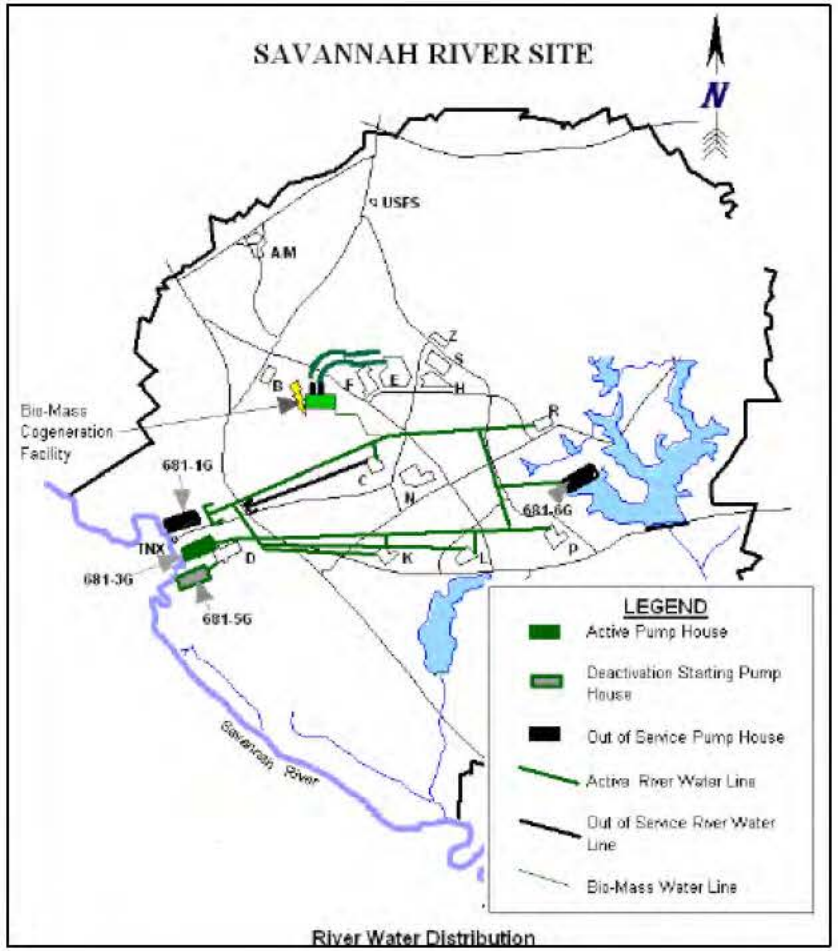
Map of Road Improvements & Priorities

Road B Reconstruction In-process

SRS River Water System

- **Originally supplied cooling water to each of the Site's 5 reactors**
  - Two identical pumpstations on the Savannah River
    - *Ten 32,000 gpm pumps each*
  - Mission changes/completion reduced demand for water
    - *681-1G pumphouse was deactivated*
    - *681-3G pumps right-sized two large pumps with smaller pumps*
- **Current Mission**
  - Source of Boiler Feed Water and Fire Water for BCF and L-Area
  - Supplies environmental needs in K and L-Areas, L-Lake and PAR Pond

Laying River Water Lines – April 3, 1952



River Water Distribution

SRS River Water System

Original 681-3G Switchgear

681-3G River Water Pump House

New 681-3G Switchgear

River Water 681-3G Switchgear Project

- **Replacing original equipment Electrical Power system**
- **Replacing two large substation transformers, operated by Dominion Energy (DESC), that supply 4160V power to the pumphouse from the 115kV grid.**
  - Right-sizing to support site mission demand
- **Replacing cables feeding building and internal switchgear**
- **Project Scope and Description:**
  - DESC design, procure, and replace 70 year-old transformers and switchgear
  - SRNS design, procure, and replace cabling and 4160V to 480V transformers and switchgear
  - Budget $6M Indirect Funded (Utility Pool) over 5 years
  - Integration of DESC and SRNS effort/contracts

New Substation Transformer

PAR Pond Emergency Spillway Restoration

Spillway Restoration Project

- Potential Failure Mode Analysis (PFMA) for High-Hazard dams resulted in recommendation to restore emergency spillway to original configuration to reduce risk
- >$1M investment over several years to include tree/vegetation removal and heavy civil construction activities
- Partnering with U.S. Forest Service for this work

PAR Pond Dam Specifications

- Length: 4,470 ft
- Top of Dam Elev.: 210.0 ft
- Structural Height: 66 ft
- Normal Pool Elev.: 201.0 ft
- Normal Storage: 60,000 ac-ft
- Max. Surface Area: 2,820 ac
- Watershed: 36 sq. miles

PAR Pond Emergency Spillway Restoration

Spillway Restoration Work in Progress

Conclusion

- SRS Common Infrastructure and Utilities are vast and critical to Site operations
- Years-long 'Road to Green' efforts yielding satisfactory system conditions in the near-term
- Continued execution of projects in the 5-Year and FY Improvement Plans will shift from a recapitalization effort to developing sustainable enabling infrastructure for SRS program missions