



**SC Workshop on Facilities & Infrastructure  
Fermi National Accelerator Laboratory  
June 8, 2005**

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# Non-Scientific Facility, Infrastructure Trends



High ↑ Risk To Mission ↑ Low	5			
	4		High Voltage Electric \$17.4M	Industrial Cooling Water \$7.0M
	3	Wilson Hall & Buildings \$12.5M		Domestic Water \$1.0 M
	2		Ponds & Ditches \$0M Roads & Parking \$2.7M	Sanitary Sewer \$2.3M
	1	Natural Gas		



- 6800 acres, 344 buildings meeting mission
- Electrical – 15 miles overhead, 90 miles underground lines
- Electrical – 2 primary & 240 secondary substations
- Paved Roads – 35 miles
- Industrial Cooling Water – 17 miles
- Domestic Water – 12 miles
- Sanitary – 10 miles
- Ponds – 139 acres & Ditches – 13 miles

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→  
Reliability  
Trend

High                      Medium                      Low

**Reliability**

GPP\$ Fy05-10



# Batavia Electrical Initiative

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- The City of Batavia, adjacent municipality, has requested approval to construct electrical transmission lines across laboratory property
- Alternative routing study near completion; Optimal scope:
  - Use of unused capacity on existing DOE structures
  - Construction of City owned lines and substation
  - Replacement of some critical DOE infrastructure
  - City Maintenance of DOE transmission lines
- Scope of opportunity can be accomplished in a Public Utility Easement
- Improves laboratory electrical infrastructure
- Eliminates \$4M in deferred maintenance
- Possible future electrical supply opportunities

# 345kV Transmission Pi-poles





# Warrenville Domestic Water Initiative

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- Current Fermilab Domestic Water Supply
  - 85% pumped from DOE well system (main site)
  - 15% purchased from the City of Warrenville (village area)
- Well system no longer producing at needed capacity
- Water Options study completed that looked at deepening wells, new wells, increased storage, purchase (3 possible sources)
- Decision made to increase supply from the City of Warrenville
- Project underway to extend DOE Pipeline and shutdown well system
  - More reliable long term supply
  - Lower system pressures to reduce pipeline breaks on older lines
  - Elimination of \$381k in deferred maintenance