



From

War

to

Peace

Joliet Army Ammunition Plant





The cleanup and redevelopment of the Joliet Army Ammunition Plant (JOAAP) is a remarkable story. It is a national model for how federal, state and local governments can work effectively over time with communities, non-governmental organizations and the private sector to develop win-win solutions to the largest and most difficult problems facing our country.

Built at the start of World War II and maintained through the end of the cold war, the JOAAP was one of the largest and most productive ordnance complexes ever built. However, by the 1990s, it was a rusting array of mostly vacant manufacturing facilities sprawled across 36-square miles of land, located 40 miles southwest of Chicago, IL.

Over fifty areas were suspected of having soils and groundwater heavily contaminated with chemical wastes generated from the manufacturing of explosives and the assembly of over 4 billion pounds of military munitions. Large scale testing, demolition and burial of munitions products also left unknown mixtures and quantities of unexploded ordnance and munitions debris at or beneath the ground surface, often collocated with areas of chemical contamination.

In 2008, we celebrate completion of the cleanup of the JOAAP three years ahead of schedule. Nearly all of the land has been transferred and is being redeveloped in ways that are already accruing large-scale economic and ecosystem restoration benefits for the community and the region.

Elwood Ordnance Plant and Kankakee Ordnance Works established.

Joliet Arsenal re-activated during the Korean war.



Elwood Ordnance Plant and Kankakee Ordnance Works combined and renamed the Joliet Arsenal. Site operations status placed on standby.

The JOAAP was built to be among the largest and most sophisticated munitions manufacturing facilities ever built. As many as 21,921 people reportedly worked at the facility during peak production during World War II.



8-inch howitzer shells being palletized for shipment.



The Manufacturing (MFG) Area produced highly explosive compounds such as TNT and DNT from raw materials that went into over 4 billion pounds of military munitions at the Load, Assemble and Package (LAP) Area.



1973 view of Acid Area 4 within the Manufacturing Area.



One of 392 igloos used to store munitions at the JOAAP.

JOAAP decommissioned and placed in caretaker status, but defense contractors continue to utilize areas of the plant.

1960s-early 1970s

Joliet Arsenal re-activated during the Vietnam war and renamed the Joliet Army Ammunition Plant (JOAAP). Former Kankakee Ordnance Works became known as Manufacturing (MFG) Area and former Elwood Ordnance Plant became known as Load-Assemble-Package (LAP) Area.

1976

1993

U.S. Army declares the entire 23,543-acre JOAAP excess property.

The cleanup process at the JOAAP began back in the 1970s, when the U.S. Army Environmental Command conducted a series of investigations to characterize how operations may have caused contamination of the property. The studies identified trinitrotoluene (TNT), dinitrotoluene (DNT), heavy metals, polychlorinated biphenyls (PCBs), hydrocarbons, and sulfates at potentially harmful levels in soils and groundwater.

After placing the Manufacturing (MFG) Area and the Load-Assemble-Package (LAP) Area on the National Priority List (NPL) of the most contaminated sites in the country, the U.S. Environmental Protection Agency (USEPA) and the Illinois Environmental Protection Agency entered into a Federal Facilities Agreement (FFA) with the U.S. Army in 1989. The FFA ensured that all work at the JOAAP was conducted pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The FFA was the start of many strong partnerships built during the course of remediation, and it helped jump-start and sustain momentum through the rigorous CERCLA Remedial Investigation/Feasibility Study (RI/FS) process at the MFG and LAP areas. Each RI/FS was conducted in several phases to adequately define the nature and extent of chemical contamination, assess the potential risks to human health and the environment, and screen and evaluate alternatives to achieve the clean up goals.

During the RI/FS, the Army declared the JOAAP excess in 1993. In turn, Rep. George Sangmeister (D-IL) assembled a 24-person Joliet Arsenal Citizens Planning Commission to formulate a reuse plan for the property. This group, formed from an array of federal, state, local governmental and non-governmental organizations, was designed to assure the reuse plan would be thoroughly evaluated.

U.S. Army Environmental Command publishes Installation Assessment identifying 53 areas of concern.

USEPA conducts Preliminary Assessments. (1978- 1986)

Congress passes Superfund Amendments and Reauthorization Act (SARA).

1978

1980

1986

1987

Congress passes Comprehensive Environmental Response, Compensation and Liability Act (CERCLA - Superfund).

U.S. EPA places the MFG Area on the National Priorities List (NPL) on July 21.

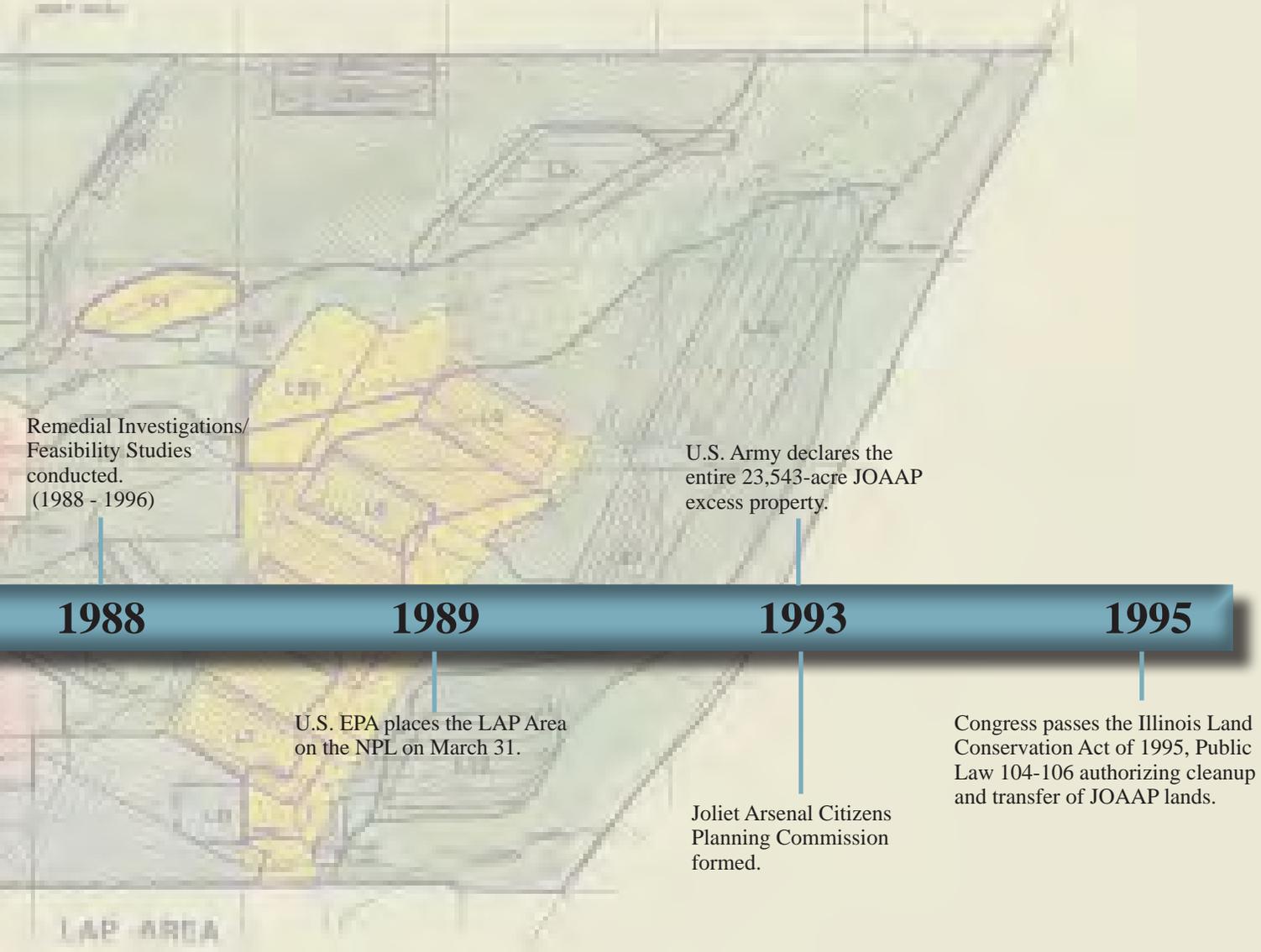
MANUFACTURING AREA

The resulting plan combined large-scale ecosystem restoration and economic development with a mechanism to control cleanup costs and to provide a permanent legacy of the site's role in defense of the Nation. The reuse plan was the basis for the bill Rep. Sangmeister introduced in August 1994, to establish the Midewin National Tallgrass Prairie in the State of Illinois and for other purposes.

After Rep. Sangmeister retired, he was replaced by Rep. Jerry Weller (R-IL). Rep. Weller submitted the bill that led to passage of the Illinois Land Conservation Act of 1995, Public Law 104-106. This Federal law authorized the cleanup and transfer of Joliet Army Ammunition Plant land as follows:

- Approximately 19,100 acres to the United States Department of Agriculture (USDA) – Forest Service for establishing the Midewin National Tallgrass Prairie;
- 982 acres to the U.S. Department of Veteran's Affairs for the Abraham Lincoln National Cemetery;
- 455 acres to Will County for a landfill;
- 3,000 acres to the State of Illinois for two industrial parks.

Finalization of the reuse plan and enactment into law provided a clear framework for remedy selection, and it led to the development of one integrated plan to cleanup both NPL sites. The volume and level of explosives in soil posed the greatest risk, and the focal point of the Proposed Plan was the choice to treat the soils from both NPL sites at an on-site bio-treatment facility. A key provision in Public Law 104-106 allowed the Army to dispose of non-hazardous wastes generated with the cleanup in the Will County landfill at no cost. As such, soils contaminated by metals, hydrocarbons, low levels of PCBs, sulfates (from two large ash piles) and other non-hazardous wastes associated with the cleanup were slated for excavation and disposal in the Will County landfill.



After the proposed plan was presented to the public and comments were received, the first of two Records of Decision (ROD) was signed in 1998. The first ROD addressed response actions for all groundwater, all industrial land soils and a portion of land bound for the USDA. A Human Health, Ecological Risk and Management Group established remedial goals for the remaining land bound for USDA, which established the basis for the second ROD in 2004.



The JOAAP Restoration Advisory Board (RAB) was established in December 1995 to assure the diverse interests within the local community were considered. The JOAAP RAB facilitated public participation during the Proposed Plan and RODs for the cleanup, and they played a critical oversight role and link to the community throughout the cleanup process, holding regular meetings from January 1996 through September 2007.



First meeting of the JOAAP Restoration Advisory Board.



Remediation commences.

JOAAP cleanup completed.

1996 1998 1999 2004 2008

Record of Decision (ROD) executed for the cleanup of all industrial lands and a portion of the lands designated for the USDA-Forest Service.

ROD executed for the cleanup of remaining portion of the lands designated to the USDA-Forest Service.



The U.S. Army Corps of Engineers, Louisville District, helped complete the RI/FS, Proposed Plan and Records of Decision at JOAAP. The Corps then managed the remedial design and construction efforts and prepared the land transfer documents. The scope of the remedial design and construction included:

- Excavation and Bioremediation of explosives contaminated soil
- Excavation and disposal of metals, PCBs, and petroleum contaminated soil
- Capping three landfills
- Excavation and disposal of two ash piles
- Removal and disposal of sulfur
- Military munitions clearance and munitions debris excavation and disposal.
- Monitor Natural Attenuation of the groundwater

The firm Montgomery Watson Harza (MWH) won a nationwide competition for a cost reimbursable Total Environmental Response Contract (TERC), the primary vehicle used to implement the JOAAP cleanup. The TERC provided great opportunity to maximize the talents of the total team of Army, regulator and contractor personnel and the flexibility to efficiently work through many challenging issues.

As the remedial design and cleanup progressed, the risks and uncertainties with the remaining work diminished. This led to a decision to lock in an early completion date and total amount of remaining costs through award of a firm-fixed price Performance Based Contract on a portion of the remaining work. The firm MKM Engineers (MKM) submitted the winning proposal and began work in 2004.

Both firms, MWH and MKM, worked very diligently and in a coordinated manner to accomplish the ahead of schedule and within budget completion of the cleanup of the JOAAP.



Soil sifting operation conducted by MKM to separate munitions debris and other metals from soil.



MWH built a bioremediation facility in the former MFG Area, and treated explosives contaminated soil excavated from both the LAP and MFG areas. The bioremediation process consisted of the use of windrow compost heaps, in which explosives contaminated soil was mixed with wood chips, stable bedding and corn processing waste to promote bacterial growth. Treatment took an average of 32 days to achieve cleanup goals. The facility treated more than 30,000 tons of soil in its first year of operation and a total of more than 280,000 tons before the cleanup was complete.

Beneficial reuse of 500,000 cubic yards of biologically treated soil from the MWH operations was used by both MKM and MWH to restore grade and drainage at numerous areas where excavations of ordnance, munitions debris and contaminated soil occurred.



In addition to the 280,000 tons of explosive contaminated soil, MWH removed and disposed of approximately 44,000 tons of soil contaminated with PCBs and other related compounds and approximately 73,000 tons of soil with metal contamination.



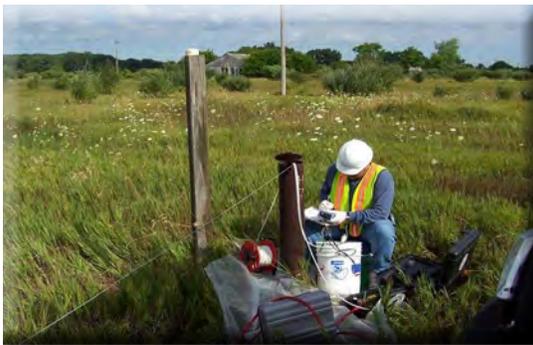
MWH also consolidated, constructed and capped a 3.5 acre landfill near the former explosives burning grounds and demolition areas within the LAP area. Several sites required unexploded ordnance investigation, removal and disposal. MKM, MWH, and EOD Technology, Inc. removed and disposed of more than 8,100 munitions and explosives-related items during their investigations.



MKM conducted surface and subsurface clearance of Munitions of Explosive Concern (MEC) at various sites. This includes MEC clearance in and along Prairie Creek and at sites L2 and L3.



MKM conducted removal actions of two large ash piles, disposing of 487,500 tons of ash at the Will County Landfill. They also performed design and installation of covers at one hazardous waste landfill and one solid waste landfill in the former MFG area.



MKM is currently performing long-term monitoring of site groundwater.

Prairie View Landfill

Waste Management, Inc. won the bid to build and operate the landfill on the 455 acres deeded to Will County in 2002, per Public Law 104-106. The Illinois EPA granted authorization for the Prairie View Landfill to begin operating Jan. 16, 2004.

In addition to the non-hazardous wastes disposed during the cleanup, the Prairie View Landfill accepts general non-hazardous municipal solid waste, demolition and construction waste, and non-hazardous permitted special waste. To protect the environment, Prairie View Landfill uses the latest landfill technology; including a leachate collection system, composite liner, groundwater monitoring system, and surface water and gas management systems. Waste Management, Inc. plans to install and begin

operation of a system to collect and use methane gas generated from the decomposition of municipal wastes to generate electricity at the facility by 2012, and the landfill is expected to serve the needs of the local community into the year 2027.





Midewin National Tallgrass Prairie

The Illinois Land Conservation Act established the Midewin National Tallgrass Prairie on 19,165 acres of the former Joliet Army Ammunition Plant. Midewin was designated as a part of the National Forest System under the jurisdiction of the U.S. Forest Service. Many grassroots supporters in the Chicago area lobbied for the creation of this special area as the first national tallgrass prairie in the country.



Habitat destruction of the native Illinois prairie has been extensive since the late 1830s, and it is estimated that less than 1 percent of the natural Illinois prairie remains today. The ecological value of the former Joliet Arsenal lands was established during surveys contracted by the U.S. Department of Defense and conducted by The Nature Conservancy and the Illinois Department of Natural Resources in 1993, as well as grassland bird surveys over the prior 11 years. The surveys documented 68 animal species of special concern, including five federal candidates and 16 state endangered and threatened species. In addition, the lands were identified as having a rich flora and fauna in general, particularly 401 plant species and 108 breeding bird species.

The name Midewin (mih-DAY-win) is the Potawatomi name for their “Grand Medicine Society,” an inter-band group that used their power and influence to not only heal individuals, but also keep the greater Potawatomi society in balance. It was thought appropriate to give the first national tallgrass prairie a Potawatomi name, because of their long occupation of this general area from the late 1600s through early 1800s, and because the Midewin society’s purpose in healing and balance represented the future vision for this new prairie.

JOAAP lands began transferring to the Forest Service in 1997 with 15,080 acres of buffer lands that did not require cleanup. Subsequent land transfers occurred as the remediation process was completed.

Much of the land transferred to Midewin had been used to support munitions manufacturing or had been leased for farming. Less than 3 percent of the land contained native vegetation. Many of the wetlands had been drained and some of the streambeds had been dredged into straight channels. Many miles of roads and railbeds and many hundreds of buildings and other structures came with the acreage.

The mission established for Midewin in the Illinois Land Conservation Act consists of four directions to:

- Conserve and enhance wildlife and plant populations and habitats;
- Provide opportunities for education and research;
- Allow cattle grazing and row crops to continue where it benefits the prairie;
- Provide a variety of recreation opportunities.

The Midewin Land and Resource Management Plan, or the Prairie Plan, was completed in 2002 to set a blueprint for how and where these activities would occur.

Implementation of the Prairie Plan is proceeding but the task of healing and restoring these lands to their former beauty will take many years. Many partners are participating in all aspects of achieving the mandate of the Illinois Land Conservation Act and in restoring the prairie to the Prairie State.

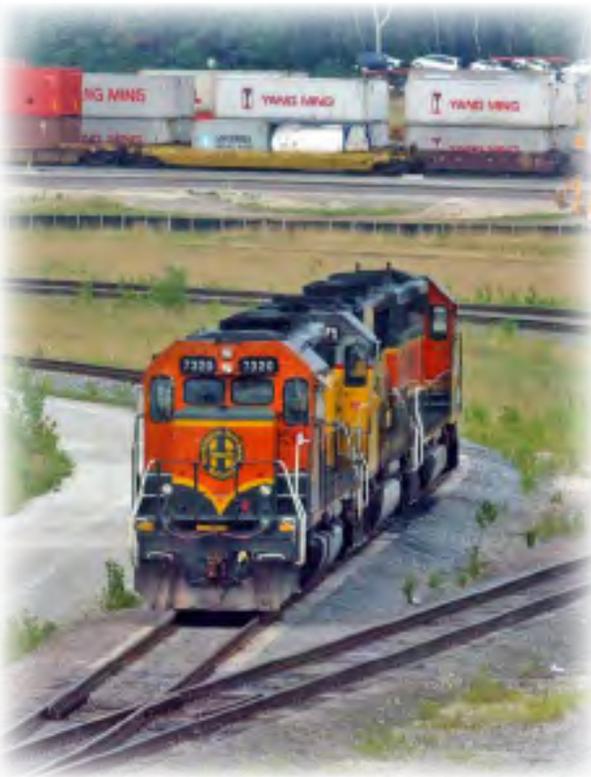
About a third of Midewin is currently open for the public to observe habitat restoration; to hike, bike, or horseback ride on interim trails; to volunteer their time and talents to building the first national tallgrass prairie; and for a wide variety of other activities.

“...a gift to future generations...”



Joliet Arsenal Development Authority

The Joliet Arsenal Development Authority (JADA) was established through the state of Illinois to help create quality job opportunities and foster economic development in the Will County area as a result of the cleanup of the JOAAP. The role of JADA is the adaptive reuse and transformation of 3,000 acres of former JOAAP land, with the primary objective to create quality job opportunities and foster economic development in the Will County area. During the planning stages, the project brought together virtually all levels of government, more than a dozen public agencies and private industry under a common plan.



By 2005, JADA was successfully transforming the former Joliet Arsenal into manufacturing and distribution business parks. The factors that make a great location great are as compelling today as they were years ago. In addition, overall economic growth of the region continues to increase the value of three of JADA's major accomplishments—CenterPoint Intermodal Center, ProLogis Park Arsenal, and the International Union of Operating Engineers Apprenticeship & Skill Improvement Training Center.

As of 2008, more than 2,000 permanent jobs have been created as a result of the transfer and redevelopment of the 3,000 acres of land transferred to JADA. Over 1,800 construction jobs, totaling an approximate \$150 million in wages, have also been beneficial to the local economy.



In 2000, JADA received the first transfer of land from the U.S. Army. Soon after, construction began on what is now known as the CenterPoint Intermodal Center (CIC).



CenterPoint Intermodal Center - Elwood features an ultra-modern 1,500-acre industrial park adjacent to BNSF Logistics Park – Chicago, a 770-acre intermodal facility. At full build-out, the industrial park will encompass up to 12 million square feet of industrial buildings suitable for a wide range of distribution, warehouse and light-manufacturing uses.

In 2002, the BNSF Logistics Park opened. This facility integrated several modes of transportation—direct rail, truck, transload and intermodal. This state-of-the-art logistics center serves as a central location for the gathering and distribution of goods in the Midwestern United States.



Due to the increased need for skilled men and women in the operating engineering trade, there came a need for a larger training facility. So in 2003, the International Union of Operating Engineers — Local 150 purchased 300 acres to build a state-of-the-art training center.

Groundbreaking for the training facility took place in 2005, and by 2007 the IUOE-Local 150 Apprenticeship & Skill Improvement Training Facility was opened.

Property at the former Joliet Arsenal was the ideal location--centrally located and closer to the development sites, and sites that are to come. This 324,000 sq. ft. facility hosts a combination of 2,000 workers and trainees a year, and helps working men and women upgrade current skills and learn new ones while providing much-needed economic development in the region.

In 2005, JADA entered into an agreement with ProLogis to develop the ProLogis Park Arsenal, a warehouse and distribution park. Groundbreaking for this park was held in 2007.

This 776-acre project is designed to accommodate regional and super regional distribution centers. At full build out, the park will accommodate approximately 10 million square feet of distribution space. It will be targeted to the largest global users of distribution space who will be attracted by the transportation infrastructure.

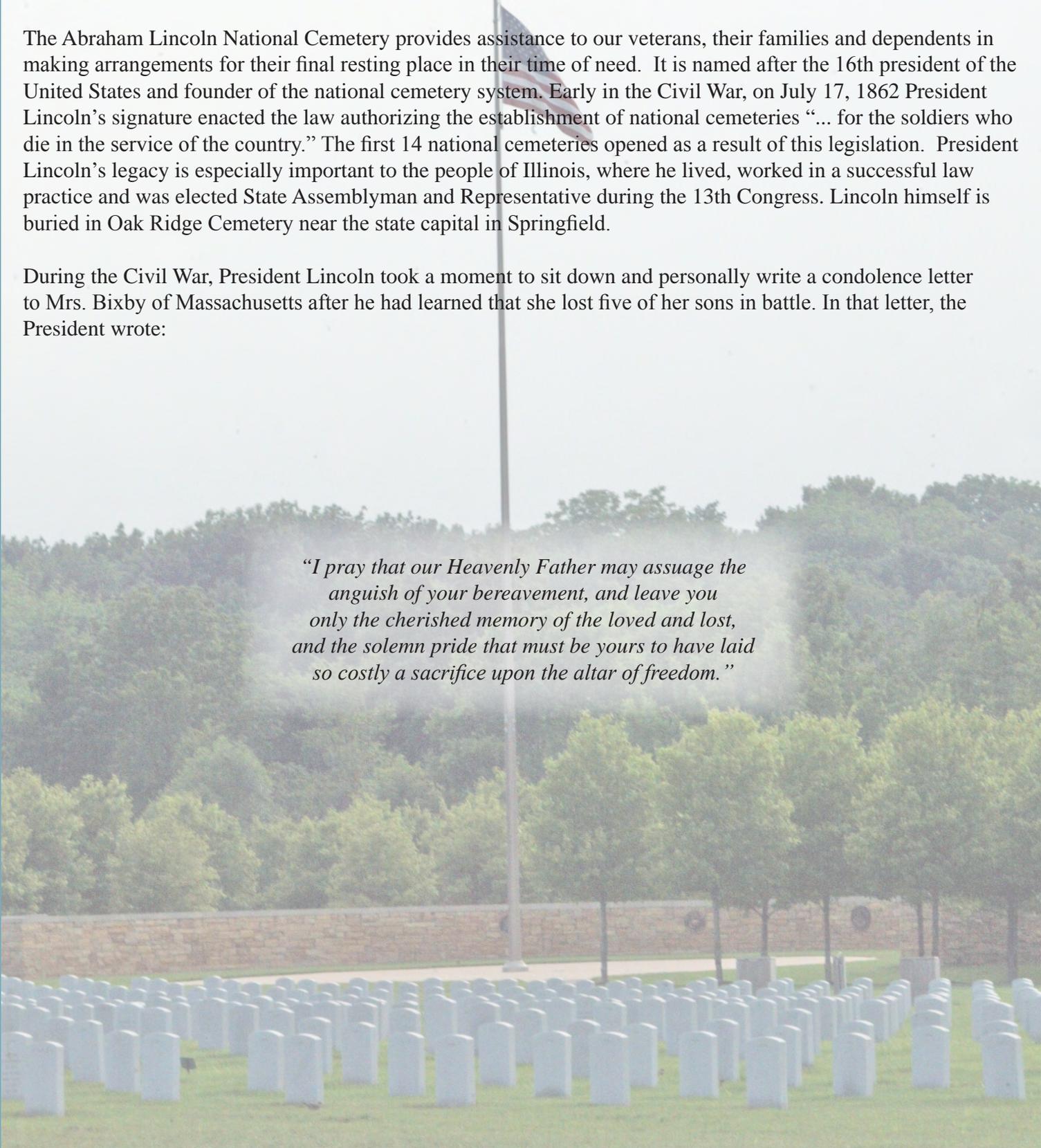


Abraham Lincoln National Cemetery

The Abraham Lincoln National Cemetery lies in the northwestern area of the former Joliet Army Ammunition Plant. On Oct. 3, 1999, Abraham Lincoln National Cemetery was dedicated as the 117th national cemetery within the Department of Veterans Affairs National Cemetery Administration. When fully developed, this 982-acre cemetery will provide 400,000 burial spaces. Currently, more than 13,000 Americans lay at the Abraham Lincoln National Cemetery in Elwood, IL. Initial construction developed approximately 150 acres including 25,000 gravesites and 2,000 lawn crypts for casketed remains, 3,000 columbaria niches and 2,300 garden niches for cremated remains; a public information center; three committal service shelters; a memorial walkway; a carillon; and Kiosk grave locator.

The Abraham Lincoln National Cemetery provides assistance to our veterans, their families and dependents in making arrangements for their final resting place in their time of need. It is named after the 16th president of the United States and founder of the national cemetery system. Early in the Civil War, on July 17, 1862 President Lincoln's signature enacted the law authorizing the establishment of national cemeteries "... for the soldiers who die in the service of the country." The first 14 national cemeteries opened as a result of this legislation. President Lincoln's legacy is especially important to the people of Illinois, where he lived, worked in a successful law practice and was elected State Assemblyman and Representative during the 13th Congress. Lincoln himself is buried in Oak Ridge Cemetery near the state capital in Springfield.

During the Civil War, President Lincoln took a moment to sit down and personally write a condolence letter to Mrs. Bixby of Massachusetts after he had learned that she lost five of her sons in battle. In that letter, the President wrote:



"I pray that our Heavenly Father may assuage the anguish of your bereavement, and leave you only the cherished memory of the loved and lost, and the solemn pride that must be yours to have laid so costly a sacrifice upon the altar of freedom."

The combination of large scale economic and ecosystem restoration benefits springing from the cleanup and transfer of the Joliet Army Ammunition Plant is a unique accomplishment. The talent and dedication of the representatives of many organizations have combined to successfully transform the land of the Joliet Army Ammunition Plant from war to peace.

Teamwork is the ability to work together toward a common vision. The ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results.

-Andrew Carnegie



**US Army Corps
of Engineers**
Louisville District



For information, visit these JOAPP Project Delivery Team websites:

AEC

<http://aec.army.mil/usaec/cleanup/index.html>

USACE

<http://www.lrl.usace.army.mil>

US EPA

<http://www.epa.gov/>

IL EPA

<http://www.epa.state.il.us>

Midwin National Tallgrass Prairie

<http://www.fs.fed.us/mntp/>

Prairie View Landfill

<http://www.willcountylanduse.com/WasteServ/PrairieViewLandfill.html>

Abraham Lincoln National Cemetery

<http://www.cem.va.gov/CEMs/nchp/abrahamlincoln.asp>

Joliet Arsenal Development Authority

<http://www.jada.org/>

Montgomery Watson Harza

<http://www.mwhglobal.com/>

MKM Engineers, Inc

<http://www.mkmeengineers.com>