

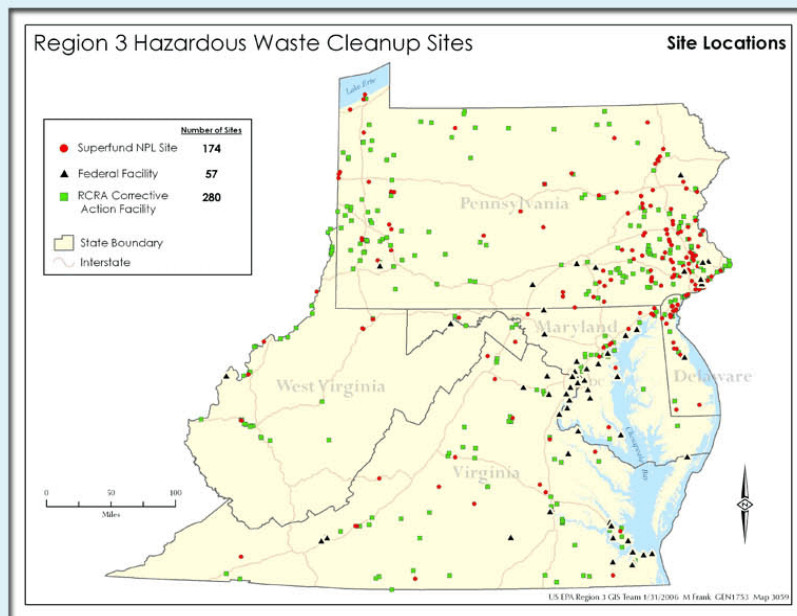


## EPA REGION 3

# HAZARDOUS WASTE CLEANUP SITES LAND USE & REUSE ASSESSMENT

***A comprehensive review of land use occurring on hazardous  
waste cleanup sites in the Mid-Atlantic Region***

**May 2006  
Final Report**



## ACKNOWLEDGMENTS

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## DISCLAIMER

This report is a product of EPA Region 3 Mid-Atlantic Region, with financial and technical support provided by OSWER's Land Revitalization Office. This report is intended to provide information to EPA management, program staff, and states for consideration in developing and implementing revitalization measures. The statements in this document do not constitute official Agency policy, do not represent an Agency-wide position, and are not binding on EPA or any other party.

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## EXECUTIVE SUMMARY

### Purpose

Usable land is a valuable resource. However, where contamination presents a real or perceived threat to human health or the environment, options for future land use at a site may be limited. EPA's cleanup programs have set a national goal of returning formerly contaminated sites to long-term, sustainable, and productive use. To support this goal, Region 3 undertook a cross-program effort to collect quantifiable data on land uses occurring on cleanup sites to establish baseline information. Although anecdotal success stories exist to show that revitalization of cleanup sites is occurring, Region 3 sought measurable information on land use.

In conjunction with EPA's Office of Solid Waste and Emergency Response (OSWER) and our state agency partners, Region 3 collected land use information for all Resource Conservation and Recovery Act (RCRA) Corrective Action high priority, Superfund National Priority List (NPL), and Federal Facility cleanup sites to determine the following:

- Number of sites and acres of land being addressed by these cleanup programs
- Extent of reuse, as well as vacant property, at cleanup sites
- Types of uses and reuses occurring
- Relationship between the cleanup status of sites and reuse
- Agency efforts to support reuse, and the types and frequency of tools the agencies are using to facilitate use and reuse
- Local economic, social, or ecological benefits from reuse on cleanup sites
- Challenges in collecting this kind of information prior to developing and promoting broader national measures for land revitalization goals

*Land revitalization is the sustainable, productive and protective continued use and reuse of contaminated sites which promotes economic and social benefits to communities, results in cleanups protective for reuse, and helps preserve greenspace.*

### Approach

A cross-program workgroup planned the land use assessment. The workgroup included representatives from Region 3 and OSWER's Land Revitalization, Superfund, RCRA Corrective Action, and Federal Facilities programs as well as state representation from the Virginia Department of Environmental Quality (VDEQ). The workgroup developed data elements and definitions, formatted the desired information into a Use/Reuse Assessment Form, and distributed the form to EPA and state project managers.

## **EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

Project managers filled out the Land Use/Reuse Assessment Form for 511 cleanup sites using available data. For RCRA, the Region collected reuse information on the 289 high priority facilities that comprise Region 3's 2008 Government Performance Results Act (GPRA) baseline<sup>1</sup>. Nine of these RCRA sites are Federal Facility sites. For Superfund, reuse information was collected on Region 3's 174 Superfund NPL sites and 48 Federal Facilities being addressed under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), many of which are also on the NPL.

The information was reported in terms of both the number of sites and the number of acres. All the information from the assessment forms was transferred to a spreadsheet. OSWER provided contractor support to develop the spreadsheet and generate this report.

The data collected summarizes the current status of actual land use at cleanup sites in Region 3. However, this assessment did not account for external factors such as local market forces. Since external influences were not considered, the results may both under represent EPA and state efforts to facilitate reuse where insurmountable barriers exist and unduly credit the agencies where market forces had enough impetus to stimulate revitalization on its own.

### **Key Findings**

#### ***Most Land at Cleanup Sites is Being Used***

The results show that in Region 3 the overwhelming majority of land (93% of all acres) in the programs assessed is being used or has a plan for reuse. However, individual program results varied significantly. (See Chapter 3 for program specific results). Of the land being used today, 81 percent continues to operate in the same general manner as when the site was contaminated (e.g., industrial facilities, military sites). However, a growing number of cleanup sites have new uses. Across the programs, 15,981 acres (7% of the total land) at cleanup sites have been reused and an additional 11,010 acres (5% of the total land) have a plan for reuse.

*All site acres were first classified into four land use categories: (1) continued use, (2) reused, (3) planned reuse, or (4) no current use/vacant. Areas in use at a site were further classified into type of use such as industrial, commercial, recreational, residential, etc.*

In a general sense, it can be assumed that the reuse of contaminated sites may help to reduce development pressure on nearby undeveloped areas. In 1997, through a grant provided by EPA, The George Washington University conducted a study to look at whether the redevelopment of brownfields reduces developmental pressures on surrounding greenfields (i.e., undeveloped areas). The study showed that on average for every acre of brownfield property redeveloped, a minimum of 4.5 acres would have been required had the same project been located in a greenfield area.

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<sup>1</sup>The Government Performance and Results Act required all government agencies to develop program measures to track progress. EPA and the states developed a RCRA baseline to focus efforts on those facilities that likely pose the greatest threat. Based on a screen of facility specific environmental factors, EPA ranked facilities as High, Medium, or Low priority. For those sites which ranked High priority, EPA established cleanup goals to meet by 2008 and is tracking progress to achieve those goals.



## **EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

Considering that close to 16,000 acres of land has been reused at hazardous waste cleanup sites in Region 3, it can be inferred that about 72,000 acres (about 112 square miles) of greenfield areas have been prevented from being developed. This estimate does not take into consideration the amount of new greenspace actually created or preserved on Region 3's cleanup sites as part of their reuse or continued use.

### ***Cleanup Sites Provide an Opportunity for Reuse***

This assessment identified 166 sites or portions of sites which are vacant, with 17,143 acres—an area approximately the size of Manhattan—of underutilized properties that may be available for reuse. However, not all of the property may be suitable for reuse. Some of the property is not recommended for use (2,680 acres or 16%), some of the property may have limitations on the kind of use which would be safe because it is being used to manage waste (e.g., landfills) and most importantly, land use and reuse is a local government and property owner decision, not an EPA or state decision.

### ***Agency Efforts are Facilitating Reuse***

In all programs, the level of effort to support reuse is consistent. Of the sites where reuse has occurred or is planned, Region 3 has been an active participant (81% of the time) in the process using a variety of tools to support reuse.

*The different tools (e.g., comfort letters, meetings, review of reuse plans) used to facilitate reuse on each site were reported. This information can be used to demonstrate the level of effort that Agency staff are engaged in to support reuse.*

### ***Reuse Happens Concurrently with Site-wide Investigations and Cleanups***

The data shows that reuse during at all stages of the investigation and cleanup and that property reuse is occurring while sites are under RCRA or Superfund authority. Although there may be challenges associated with reusing these sites, the data demonstrates that reuse often occurs at the same time as a site-wide investigation and cleanup and that reuse does not need to wait until completion of the RCRA or Superfund process.

### ***Significant Benefits Result from Reuse on Cleanup Sites***

Economic or environmental benefits associated with the use or reuse of the site were reported, but quantifiable data was not readily available to project managers. Although the Region was not able to gather extensive information, the benefits reported were significant. For example:

- 38 sites reported a total of 24,986 local jobs created or retained
- 13 sites reported reuse investments totaling nearly \$4 billion in projected redevelopment investment
- 23 sites reported open space or sustainable reuse on the site
- 7 sites reported new housing construction resulting in a total of 189 new homes

*Information was collected on the positive local economic, social, and ecological benefits associated with the use or reuse on the site, such as: jobs created; changes in property value; reuse investment; number of houses built; and green design.*

## Program Specific Results

One of the goals of the assessment was to establish a Regional baseline of current land use in acres for all sites to enable the Agency to track changes over time. The table below shows the baseline information for each program.

<b>Region 3 Hazardous Waste Cleanup Sites Sites and Acres for each Program</b>								
	All Cleanup Sites		Superfund NPL		Federal Facilities		RCRA Corrective Action	
	Sites*	Acres	Sites*	Acres	Sites*	Acres	Sites*	Acres
<b>Total</b>	511	23,0494	174	16,706	57	145,965	280	67,823
Continued Use	320	18,6360	66	7,395	45	126,704	209	52,261
Reused	109	15,981	42	941	23	10,154	44	4,886
Planned Reuse	70	11,010	27	2,484	19	2,622	24	5,904
No Use/Vacant	166	17,143	101	5,886	10	6,485	55	4,772

\*Sites on this table include entire sites and portions of a site. Because some sites have more than one land use, the number of sites will add up to more than the total number of sites evaluated.

### ***Superfund NPL***

About two-thirds of Superfund acres are currently in some kind of use or have a plan for reuse. The majority of these acres are in mixed use, industrial use, or recreational use. More than half (54%) of all reuse and planned reuse occurring on Superfund sites is for greenspace (i.e., combination of acres reported as either recreational or enhanced ecological). A third of all Superfund acres in Region 3 are currently vacant (5,886 acres), and a third of these vacant acres (2,119) are not recommended for reuse because of contamination remaining on the site. This leaves close to 3,800 acres on 101 Superfund sites that may have some potential for future reuse.

### ***RCRA Corrective Action***

Only two-thirds of RCRA sites were reported to be operating in the same general manner as when the facility became part of the RCRA program in the 1980s. Nineteen percent of the sites have a new use or a plan for reuse in place on the entire site or a parcel; and a majority of the reuse is happening at parcels of former facilities, rather than site-wide. When redeveloped, this land is used for industrial operations only about half the time, indicating that the RCRA Corrective Action program will manage a broader range of uses over time. With 14 percent of sites vacant and additional vacant portions of sites, a total of 4,772 acres is potentially available for reuse at RCRA Corrective Action facilities.

***Federal Facilities***

The vast majority of land is currently in use as operating military bases with many of the types of uses including industrial, residential, recreational, and greenspace. However, there are close to 6,000 acres of vacant land on 10 Federal Facility sites that may have the potential for future reuse.

**Conclusions and Recommendations**

While many challenges were encountered collecting and analyzing this information, the goal of reporting quantifiable cross-program information on land use at cleanup sites was met and significant benefits associated with land reuse were identified. Region 3 established a quantifiable baseline to measure progress in returning cleanup sites to use, developed a list of vacant sites to target reuse efforts, and collected information for communicating revitalization results. The following recommendations are under consideration as a follow-up to this assessment effort:

- Fully explore opportunities to facilitate reuse on vacant sites
- Expand the land use assessment to other categories of cleanup sites
- Establish an electronic system or database to manage the information

EPA Regional management will decide whether Region 3 will collect and refine this information in future years and develop an approach for implementation. The decision on how to proceed with future data collection and the long term maintenance of land use information will be highly dependent upon decisions made at the national level with respect to national land revitalization measures.

# 1. PURPOSE AND APPROACH

*"...EPA's cleanup programs have set a national goal for returning formerly contaminated sites to long-term, sustainable and productive use."*

*2003-2008 EPA Strategic Plan - Direction for the Future*

## 1.1 Goals of Assessment

To gauge progress on EPA's goal to return formerly contaminated sites to productive use, Region 3 conducted a comprehensive land use assessment on the surficial use and reuse of land at hazardous waste cleanup sites during the Spring of 2005. This assessment included CERCLA (Superfund) NPL sites, RCRA Corrective Action high priority facilities, and Federal Facilities, which include both Superfund and RCRA sites. Although anecdotal success stories exist to show that revitalization of cleanup sites is occurring, Region 3 undertook a cross-program effort to collect quantifiable data to enable the region to measure progress toward this goal. In conjunction with EPA OSWER, which is seeking to identify and establish cross-program land revitalization measures, Region 3's RCRA, Superfund, and Federal Facility programs collected land use information with the following objectives:

- Establish a Regional baseline on total acres of land being addressed by these cleanup programs and the current land use occurring on these sites. This baseline will enable the Agency to track over time the number of sites and acres that are: in continued use, reused, have a plan for reuse, or have no current use;
- Identify the sites, or portions of sites, which have no current use and evaluate options to facilitate use of these properties;
- Determine the extent of reuse occurring in the cleanup programs;
- Determine the types of reuse occurring at cleanup sites to help communicate more tangible information regarding accomplishments;
- Track and subsequently enhance the EPA and state tools used to facilitate reuse;
- Collect information to demonstrate the positive local impacts (economic as well as ecological) resulting from use and reuse;
- Provide a better understanding of the relationship between the status of cleanup and reuse; and
- Identify challenges in collecting this kind of information prior to developing and promoting broader national measures for land revitalization.

This report includes background information, the assessment approach, data analysis and findings, lessons learned, recommendations, and potential next steps.

## 1.2 Background

Usable land is a valuable resource. However, where contamination presents a real or perceived threat to human health or the environment, options for future land use at a site may be limited. Reusing contaminated sites creates greater impetus for selecting and implementing remedies that, in addition to providing clear human health and environmental benefits, will support reasonably anticipated future land use options and provide greater economic and social benefits.

As a demonstration of its commitment to support the continued use and reuse of contaminated property, EPA summarized the current status of measuring land revitalization in several cleanup programs and outlined a conceptual framework for cross-program measures in OSWER's draft report, *Measuring Revitalization of Contaminated Properties in America's Communities: Past Accomplishments and Future Opportunities* (July 27, 2005). Region 3's land use assessment provided EPA's Land Revitalization Office an opportunity to evaluate the feasibility of collecting some of the information proposed in their conceptual cross-program framework.

EPA Region 3's Superfund, Federal Facility, and RCRA Corrective Action programs are committed to facilitating beneficial use and reuse of contaminated sites. These programs joined forces with the support of OSWER's Land Revitalization Office to pilot a data collection effort to develop program baselines and evaluate the applicability of cross-program land reuse measures.

The assessment offers a snapshot of the current status of land use at cleanup sites in Region 3 and an indication of the influence Agency efforts are having on facilitating reuse. This assessment, however, did not account for local market forces and other external factors. External factors relevant to site reuse include location, surrounding land use, local economic conditions, crime rates, proximity to amenities, and local government involvement and commitment to redevelopment. Since these factors were not considered, the results may both under represent EPA and state efforts to facilitate reuse where insurmountable barriers exist and unduly credit the agencies where market forces had enough impetus to stimulate revitalization on its own.

### Why is Land Revitalization Important?

***Land is a finite resource that plays an important role in the health and vitality of America's communities. EPA is committed to supporting land revitalization as an outcome of the assessment and cleanup of contaminated sites because:***

- ***A significant amount of land may unnecessarily remain unused or underutilized***
- ***Revitalization can result in higher levels of protection***
- ***Revitalization can increase the pace of the assessment and cleanup process***
- ***Revitalization can bring economic, social, and ecological benefits to communities***
- ***Revitalization can support land use planning trends***

Source: "Measuring Revitalization of Contaminated Properties in America's Communities: Past Accomplishments and Future Opportunities", OSWER draft report, July 27, 2005

### ***Superfund***

The Superfund program was created to investigate and clean up abandoned or uncontrolled hazardous waste sites. Sites with known or potential health or environmental risks that are placed on the National Priorities List (NPL) qualify for Superfund cleanup and are eligible for long-term remedial action financed under the federal Superfund program. The goal of the Superfund Redevelopment program is to provide tools and information needed to help communities return Superfund sites to productive use. In fiscal year 2004, the Superfund program announced new Government Performance Results Act (GPRA) measures to document land revitalization accomplishments. The revitalization performance measures being reported are the number of Superfund sites and acres of land that are ready for residential or non-residential reuse. Region 3's land use assessment collected more detailed information relating to revitalization occurring on Superfund sites.

### ***RCRA Corrective Action***

The RCRA Corrective Action program was designed to oversee the cleanup of operating industrial facilities which manage hazardous waste. However, due to a variety of economic factors, the RCRA Corrective Action program is also currently investigating and cleaning up property with a variety of non-industrial uses. Although the majority of sites continue to be used for industrial purposes, some are being reused for commercial, residential, and recreational purposes. Also, a growing number of sites are becoming vacant. While EPA is cognizant of changes in property use at RCRA sites, to date the program has not collected meaningful data to assess the situation which may have implications on achieving program cleanup goals.

### ***Federal Facilities***

Region 3's Federal Facility program addresses primarily military sites which are owned by the Federal government. The authority to require cleanup at a Federal Facility may fall under the jurisdiction of either RCRA Corrective Action, Superfund, or both as many Federal Facilities requiring cleanup are also listed on the NPL. In Region 3, the Federal Facility program resides with Superfund in the Hazardous Site Cleanup Division (HSCD). As a result, most of the Federal Facility cleanups are carried out by HSCD's Federal Facility program which relies on CERCLA authority, but some are implemented under the RCRA Corrective Action program. The Region assessed current land use at all of the NPL Federal Facilities and Base Realignment and Closure (BRAC) sites, and some non-NPL Federal Facilities.

## **1.3 Implementation**

A cross-program workgroup planned the land use assessment project with representatives from:

- Region 3 Land Revitalization Program
- Region 3 Superfund Program
- Region 3 Federal Facility Program
- Region 3 RCRA Corrective Action Program
- Virginia Department of Environmental Quality RCRA Corrective Action Program
- OSWER Office of Land Revitalization
- OSWER Office of Solid Waste
- OSWER Office of Superfund Remediation Technology Innovation

The workgroup developed data elements and definitions which were formatted into a Land Use/Reuse Assessment Form (Appendix A), and distributed the form to EPA and state project managers. The project managers were instructed on how to fill out the forms, and Region 3 management provided project managers with one month to collect the information. The programs collected information for 511 cleanup sites. For RCRA, the Region collected use/reuse information on the 289 high priority facilities that comprise Region 3's 2008 GPRAs baseline. Nine of these RCRA sites are Federal Facility sites. For Superfund, the pilot collected use/reuse information on the Region's 174 NPL sites and 48 Federal Facilities being addressed by the Superfund program, many of which are also on the NPL.

Project managers reported information for each site in acres. For a RCRA site, acres were based on the land located within the facility's property boundaries. For a Superfund site, property acres included all acres of land on which investigation and/or cleanup occurred. At all sites, areas where ground water contamination has migrated off the property were not counted as part of the site. For sites with contaminated surface water, sediments, or ground water, use or reuse of the site applied only to the land portion of the site under investigation or cleanup.

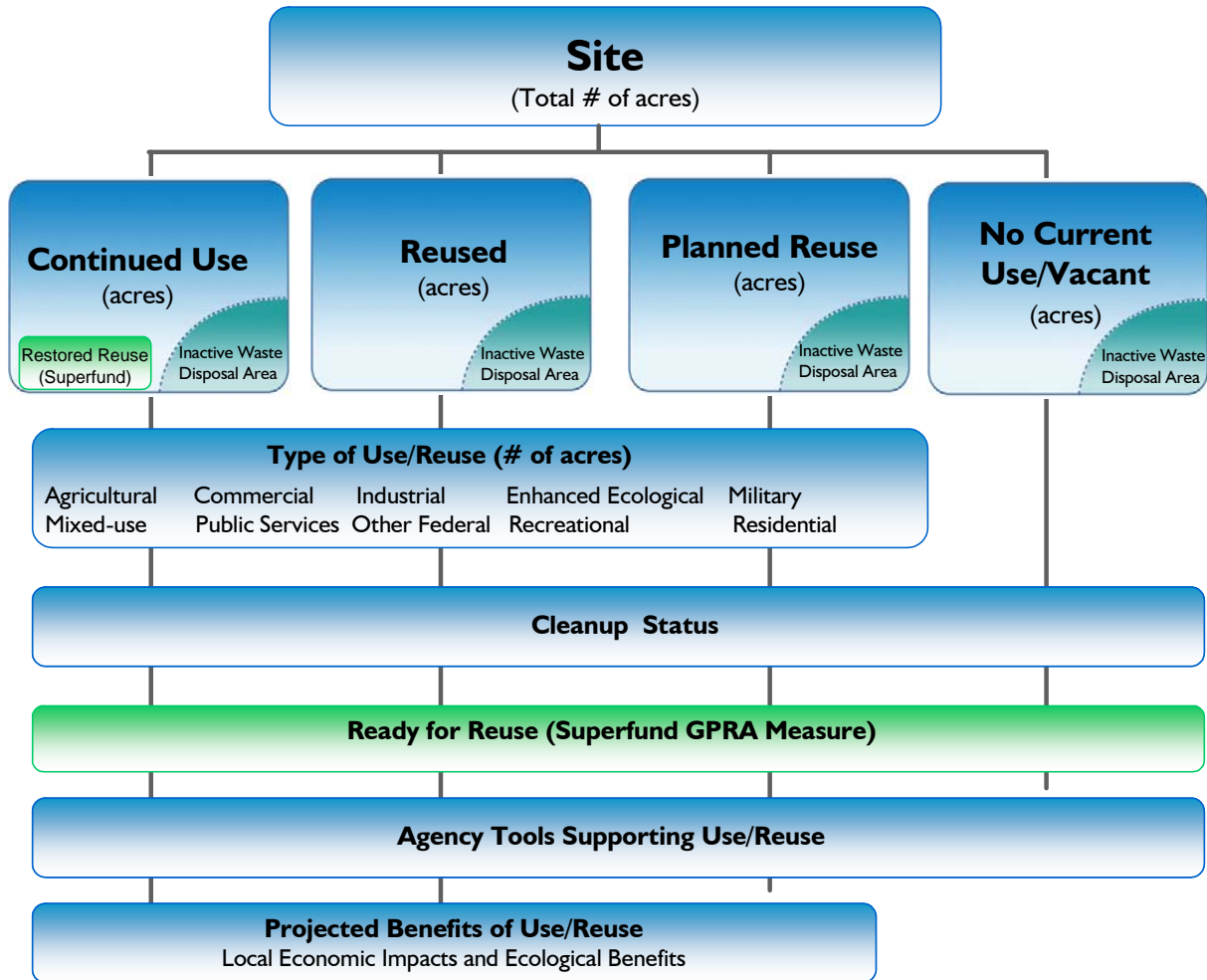
To comply with the requirements under the Paperwork Reduction Act, EPA project managers and Region 3 states were directed to provide information based on their knowledge, the knowledge of individuals in their agency, information made available to their agency in the course of implementing the site cleanup, or publicly available information (e.g., Web sites). In addition, EPA project managers and state agencies were instructed to not seek specific information from private entities in response to this land use assessment.

All the information from the assessment forms was transferred to a spreadsheet. OSWER provided contractor support to develop the spreadsheet, generate the report and manage the data elements discussed in the following sections.

## 1.4 Overview of Data Collected

This land use assessment involved collecting information in key areas explained below and graphically presented in Figure 1-1.

Figure 1-1: Overview of Region 3 Hazardous Waste Cleanup Sites Land Use/Reuse Assessment





### **1.4.1 Current Land Use**

Region 3 collected Current Land Use data to establish a baseline to track into the future the number of sites and acres that are reused over time, become vacant, and that remain in continued use. This information quantifies the extent of reuse occurring and identifies the sites or portions of sites, which have no current use/vacant. Region 3 used the following four categories of Current Land Use for all sites: 1) Continued Use, 2) Reused, 3) Planned Reuse, and 4) No Current Use/Vacant.

- **Continued Use** – A site or portion of a site which is currently being used in the same general manner as it was when the site became contaminated. For example, continued use would be an appropriate description for a property where industrial operations resulted in the contamination and the property is still used as an operating industrial facility.

The RCRA program counted all acres of an active RCRA industrial facility as Continued Use, except for parcels specifically designated as Reused or Planned Reuse. In the Superfund program project managers recorded the situation where the use of a property was temporarily halted during cleanup and the same use was resumed after the site was cleaned up. This is a special kind of Continued Use referred to in the Superfund Reuse (SURE)<sup>2</sup> Database as *Restored Reuse*.

- **Reused** – A site or a portion of a site where a new use or uses is occurring such that there has been a change in the type of use (e.g., industrial to commercial) or the property was vacant and now supports a specific use. This means that the developed site, or portion of the site, is “open” or actually being used by customers, visitors, employees, or residents, etc. OSWER’s draft report, *Measuring Revitalization of Contaminated Sites in America’s Communities: Past Accomplishments and Future Opportunities (July 27, 2005)*, refers to this scenario as *New Use*.
- **Planned Reuse** – A site or portion of a site where a plan for a new use or uses is in place. This could include conceptual plans, a contract with a developer, secured financing, approval by the local government, or the initiation of site redevelopment.
- **No Current Use/Vacant** – A site or portion of a site which is currently vacant or not being used in any identifiable manner. This could be because site investigation and cleanup are ongoing, operations ceased, the owner is in bankruptcy, or cleanup is complete but the site remains vacant. At vacant properties, project managers also reported on whether there was any interest in site reuse and whether vacant areas were not recommended for reuse.

For sites where current land uses fit into more than one category, project managers estimated the number of acres that fell within each category. For example, a 100-acre site may have 50 acres in reuse and 50 acres with no current use.

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<sup>2</sup>EPA's Superfund program in headquarters created the SURE database to track reuse characteristics at Superfund sites.

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## **EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

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In addition to determining the surficial use of land, information was also collected on acres of subsurface land which was historically used for the disposal of solid or hazardous waste. Inactive waste disposal areas no longer receive waste and may have a cover to protect direct exposures. However, remedies selected for these areas will typically result in long term management of waste in-place, resulting in added challenges to their reuse. While EPA supports the reuse of inactive waste disposal areas, where appropriate (e.g., parking lots, wildlife habitat areas, golf courses), these areas may have limited reuse options; and, in certain situations, a remedy may specifically prohibit the land's reuse to protect the integrity of the remedy. As discussed in Chapter 3, Data Results, many project managers recorded inactive waste disposal areas as "not recommended for reuse." Collecting information on inactive waste disposal areas may explain why a certain percentage of land is not being used/reused.

### **1.4.2 Type of Use**

Region 3 collected information, in acres, for each Type of Use occurring or planned to occur to identify the most common types of uses occurring at cleanup sites. For property designated as No Current Use, project managers did not need to record a Type of Use.

Type of Use provides information to help EPA and states identify and communicate what kinds of economic, social, or environmental benefits may be occurring at a site. For example, if the site is being used for commercial or industrial purposes, we can assume that jobs were either created or retained as an economic benefit associated with the site. For sites reporting recreational use, on the other hand, we can assume that significant social or environmental benefits were provided to the community. The assessment used the following Type of Use categories. (See Appendix A for the Type of Use definitions.)

- Agricultural Use
- Commercial Use
- Enhanced Ecological Use
- Industrial Use
- Mixed Use
- Military Use
- Other Federal Use
- Public Service Use
- Recreational Use
- Residential Use

After selecting a Type of Use category, project managers reported on the specific use occurring at each portion of the site. For example, if a portion of the site was identified as "public service," the project manager described the specific use or uses, such as government office building, or public transit depot, etc.

To address difficulties in distinguishing between the Type of Use and multiple uses over time, project managers were instructed to follow the SURE database approach to categorizing reuse types. That is, the predominant activity, function, and likely exposures scenario determines how a site is categorized. For example, a project manager would categorize a privately-owned golf course, which in this case can be categorized as either recreational or commercial, as recreational. The categorization of recreational reflects the likely exposures scenario, rather than commercial, which considers the financial aspect of the business. Second, to address the situation where a site had multiple types of uses over a period of time, project managers were directed to record the most recent type of use.

### **1.4.3 Cleanup and Reuse Connection**

For each Type of Use designated at a site, project managers reported the current cleanup status for that parcel, which provides EPA with an indication of the relationship between cleanup and reuse of sites. Project managers used the following broad cross-programmatic milestones to record the status of investigation and cleanup: investigation; remedy selected and/or implemented; construction complete; and RCRA complete/Superfund delisted or partial delisting. It was envisioned that if reuse could be correlated with certain cleanup goals, the national program could use this information to highlight the benefit of achieving certain cleanup targets which support use and reuse. For vacant land areas, Region 3 intends to use cleanup status to assist in developing strategies for facilitating reuse.

### **1.4.4 Agency Effort to Facilitate Use/Reuse**

For all sites, project managers reported on the tools used to facilitate the continued use and reuse of the property such as: comfort letters; coordination with a state Voluntary Cleanup Program (VCP); Ready for Reuse Determinations; prospective purchaser agreements (PPAs); meetings; and conference calls, etc. Project managers also reported if there was no Agency effort beyond cleanup. This data element gives the programs information on the type and frequency of tools which project managers use to facilitate use/reuse. The expectation was that this information would enable the Region to qualitatively assess the level of involvement associated with facilitating the reuse of cleanup sites.

### **1.4.5 Economic and Environmental Benefits**

For sites in use, project managers reported, to the extent practical, information on the local economic impact and ecological benefits associated with land in use or reuse. Project managers reported any information about benefits known at the time. Information was not solicited. Project managers also had the option of indicating on the form that “no information is available at this time.” The form was designed so that project managers could indicate whether benefits existed (“Yes/No” format) and the actual quantifiable (numerical) data about those benefits. For example, project managers were asked whether jobs were created at the site and to report the exact number of those jobs leveraged, if known.

Region 3 based the data elements on those already being used by EPA’s Brownfields program to measure the benefits of brownfields redevelopment. The type of information collected included: permanent jobs added locally, changes in property value from before and after the development, number of houses built, etc. In addition, the Region attempted to track any sustainable reuse elements occurring at sites (e.g., green building design or native landscaping). To ensure that the data provided was a reasonable estimate, project managers were instructed to only record benefits that accrued when the design phase of the use/reuse project was complete, to note on the form if the information was preliminarily based on the planned reuse of the site, and to provide the source of the information. Refer to the Hazardous Waste Cleanup Sites Land Use/Reuse Assessment Form in Appendix A for a description of each benefits category.

**1.4.6 Ready for Reuse**

Consistent with the EPA guidance memorandum, *Guidance for Documenting and Reporting the Superfund Revitalization Performance Measures*, (OSWER 9202.1-26, November 5, 2004), Superfund project managers also recorded acres of land at the site that are Ready for Reuse and whether the areas are suitable for either residential or non-residential reuse. Acres considered Ready for Reuse include land areas currently being used; where investigation occurred and response actions were deemed unnecessary; or where cleanup goals for the land have been attained. Ready for Reuse information is already available in CERCLIS. At the time of publication, this reporting requirement did not apply to RCRA sites.

## 2. DATA ANALYSIS

### 2.1 Data Analysis Approach

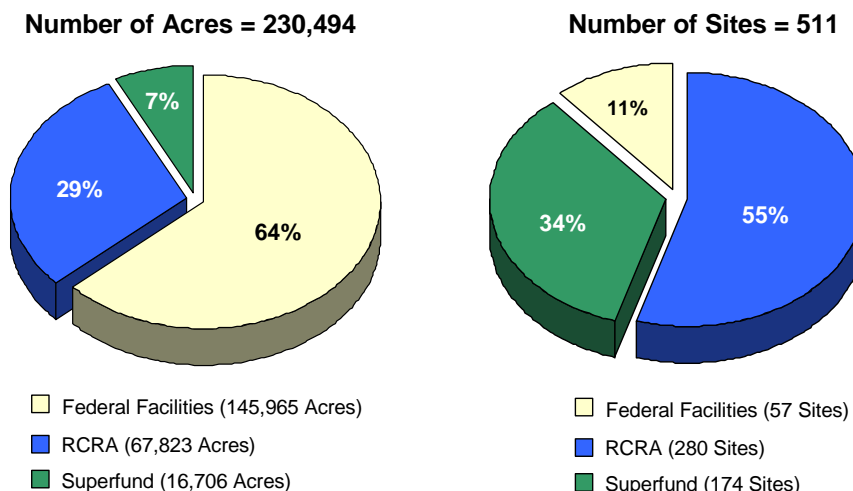
Prior to starting the data analysis, the data entered on the assessment forms was proofed to confirm its accuracy. Data input and quality assurance took approximately two months to finalize. Contractor support, provided by OSWER, was used to compile the results of the information collected. A graduate student intern working in Region 3's Land Revitalization program conducted additional analysis. Results of the data analysis are provided in Chapter 3 of this report. More detailed discussion of how certain parts of the analysis were performed can be found in Appendix C.

Land use information was collected on a total of 511 properties. The full data set was broken into three groups for analysis:

- Superfund NPL sites (non-Federal Facilities) – 174 sites
- RCRA Corrective Action facilities (non-Federal Facilities) – 280 sites
- Federal Facilities – 57 sites

Of the 57 Federal Facilities, nine are being addressed by the RCRA Corrective Action program and the rest through the Superfund program. Federal Facilities were analyzed separately because they have unique use/reuse aspects and are larger in size which tends to bias the results of data analysis. For example, most are active military installations which are thousands of acres in size. Therefore, the acreage of a single large Federal Facility could exceed the total acreage of all the non-military facilities in the RCRA Corrective Action or Superfund programs. The Federal Facility category includes Federally-owned installations, including those on the NPL and non-NPL which are being addressed under Superfund or RCRA authority. For this analysis, the Superfund NPL data set specifically excludes any Federally-owned facility, even though some Federal Facilities may also be on the NPL. The RCRA Corrective Action data set also excludes any Federal Facilities, even though some of these sites are part of the Region's 2008 GPRA baseline. See Figure 2-1 representing the three data sets analyzed and Appendix B for site location maps.

Figure 2-1: Region 3 Hazardous Waste Cleanup Sites Site Distribution by Program



## 2.2 Data Factors Analyzed

Region 3 focused on the following key aspects of the data collected for analysis.

### 2.2.1 Current Land Use

The data for Current Land Use was analyzed both by number of sites occurring in each Current Land Use category and by total acres occurring in each category. For analysis purposes, sites with more than one land use occurring on the property (e.g., some acres reused and some acres vacant) were listed as “multiple uses” to avoid double counting when reporting information by number of sites. This multiple use category captures 117 sites that reported more than one Current Land Use occurring at the site.

One objective for this comprehensive land use assessment was to identify the sites or portions of sites which have no current use/vacant. The vacant land data was analyzed to provide information on how much land is potentially available for reuse—either now or in the future—and where these areas are located. In addition, project managers identified any vacant areas that are not recommended for reuse because the remedy does not support reuse or reuse may damage the remedy. From this assessment, Region 3 compiled information of all hazardous waste sites that are vacant or have vacant parcels. For these parcels, the Region has information on: the size of the vacant areas; the acres of the property which managed waste (e.g., former landfills); whether the vacant areas are not recommended for reuse and why; and the site cleanup status. Appendix B contains maps showing the geographic location and relative size of the vacant areas.

### **2.2.2 Type of Use**

Because many sites had more than one Type of Use, this data was only analyzed by total number of acres, not by site. Type of Use was analyzed for two groups of sites. One group included sites in Continued Use, Reused, and Planned Reuse. The other group included just the Reused and Planned Reuse sites. By comparing the two groups, the Region gained information on trends in how sites are being converted to new uses.

Region 3 also reviewed those sites reporting acres of enhanced ecological use (i.e., property where proactive measures were implemented to create, restore, protect, or enhance a habitat). Region 3 is interested in identifying the extent to which environmental enhancements are occurring on cleanup sites. In addition, Region 3's Superfund program is exploring the development of environmental indicators, such as wetlands or habitat created at Superfund sites.

### **2.2.3 Cleanup and Reuse Connection**

Cleanup status was recorded to evaluate the relationship between the cleanup process and property reuse. More specifically, the workgroup wanted to answer two questions. First, whether there were phases in the cleanup process where a plan for reuse was more likely to be initiated. Second, whether site reuse is typically integrated into the investigation and cleanup as opposed to being initiated after site-wide final cleanup goals are met. To achieve this objective, the Region analyzed the current cleanup status for the Planned Reuse sites, because this category of sites provides the best estimate of the cleanup status at the time when reuse was initiated. Although this subset of sites is not expected to represent the entire population of sites undergoing reuse, adequate information was available to draw some preliminary conclusions on the relationship between site-wide cleanup activities and reuse.

### **2.2.4 Agency Effort Beyond Cleanup to Facilitate Use/Reuse**

Agency effort was only analyzed by site, not by acres, because this information was not collected for parcels. Region 3 analyzed the number of sites in which project managers were involved in facilitating reuse. The Region also summarized the types of tools being used to facilitate reuse and the frequency in which particular tools were used within each cleanup program.

### **2.2.5 Economic and Environmental Benefits**

Benefits information was analyzed by site, not by acres. Region 3 analyzed both the total number of sites reporting benefits information and summed up any quantifiable data provided.

## 3. DATA RESULTS

The following sections contain the results and findings for the data factors discussed above for both the combined program data set and for each of the three program specific data sets. One of the goals of the hazardous waste cleanup sites assessment was to establish a regional baseline of current land use, by number of sites and acres, enabling the Agency to track changes over time. Table 3-1 below shows the baseline information for each program.

**Table 3-1: Region 3 Hazardous Waste Cleanup Sites  
Sites and Acres for each Program**

Region 3 Hazardous Waste Cleanup Sites								
	All Cleanup Sites		Superfund NPL		Federal Facilities		RCRA	
	Sites*	Acres	Sites*	Acres	Sites*	Acres	Sites*	Acres
Total	511	230,494	174	16,706	57	145,965	280	67,823
Continued Use	320	186,360	66	7,395	45	126,704	209	52,261
Reused	109	15,981	42	941	23	10,154	44	4,886
Planned Reuse	70	11,010	27	2,484	19	2,622	24	5,904
No Use/Vacant	166	17,143	101	5,886	10	6,485	55	4,772

\*Sites on this table include entire sites and portions of a site. Because some sites have more than one land use, the number of sites will add up to more than the total number of sites evaluated.

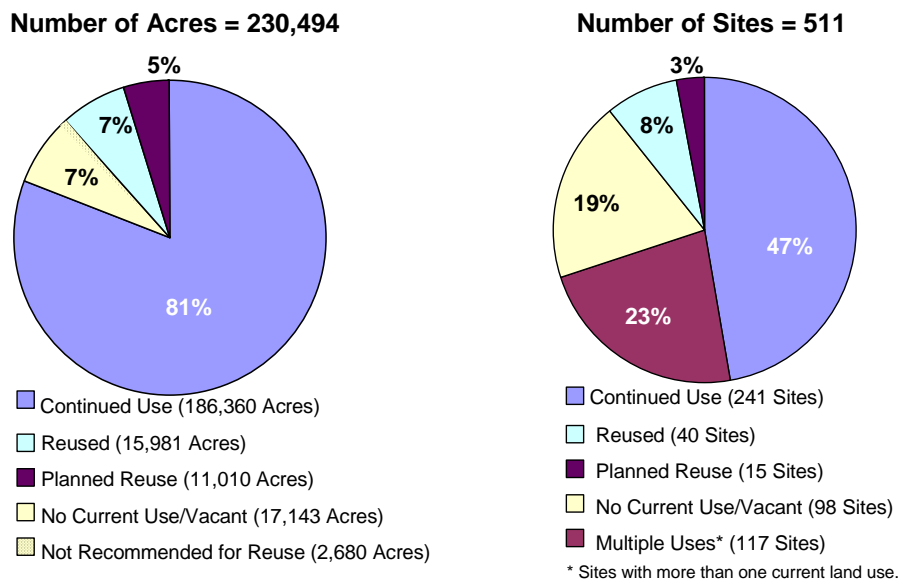
### 3.1 Combined Program Results

#### *Current Land Use*

Figure 3-1 shows the distribution of Current Land Use for the three cleanup programs combined. The assessment results show that in Region 3 the overwhelming majority of land (93% of all acres) in these programs is being used or has a plan for use. This large percentage is due to the fact that the majority of land area is associated with Federal Facilities, which are primarily active military bases. Of the land being used, 81 percent continues to operate in the same general manner as when the site was contaminated (e.g., industrial facilities, military sites). However, a growing number of cleanup sites have new uses. Across the programs 15,981 acres (7% of the total land) at cleanup sites have been reused and an additional 11,010 acres (5% of the total land) have a plan for use.



Figure 3-1: Region 3 Hazardous Waste Cleanup Sites Current Land Use



In a general sense, we can also assume that the reuse of contaminated sites may help to reduce development pressure on nearby undeveloped areas. In 1997 through a grant provided by EPA, The George Washington University conducted a study to look at whether the redevelopment of brownfields reduces developmental pressures on surrounding greenfields (undeveloped areas). This study showed that, on average, for every acre of brownfield property redeveloped a minimum of 4.5 acres would have been required had the same project been located in a greenfield area. Considering that close to 16,000 acres of land has been reused at hazardous waste cleanup sites in Region 3, we can estimate that 72,000 acres (about 112 square miles) of greenfield areas have been preserved in the Region. This estimate does not take into consideration the amount of new greenspace actually created or preserved on Region 3's cleanup sites as part of their reuse or continued use.

The assessment identified 98 sites that are completely vacant and another 68 sites where portions of the site are vacant. This equates to 17,143 acres of underutilized property that may be available for reuse. However, not all of the property may be suitable for reuse. Some of the property is not recommended for use (2,680 acres or 16% of all vacant land) and some of the property may have limitations in the kinds of use which would be safe because it is being used to manage waste (e.g., landfills). For example, of the 230,494 acres being addressed by the cleanup programs, 8,673 acres (about 13 square miles) were reported as inactive waste disposal areas. This land will have reuse limitations and will likely need additional engineered and/or institutional controls to ensure long-term protection consistent with reuse. For a more detailed analysis of sites with No Current Use/Vacant, see Appendix C.

## **EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

There are many other factors unrelated to contamination issues that influence whether a site remains vacant or is reused, such as property ownership, local zoning, location, third party liability concerns, etc. However, a fundamental consideration in the use of cleanup sites is the fact that land use and reuse is not an EPA or state decision, but rather a local government and property owner decision.

### ***Types of Uses Occurring***

Evaluating the combined results for Type of Use was not very informative because some specific types of land uses are more directly associated with certain cleanup programs. For example, most operating industrial facilities are addressed by the RCRA Corrective Action program and most military facilities by the Federal Facility program. Consequently, it is not appropriate to evaluate the Types of Use results collectively. Therefore, they are discussed in the program specific results.

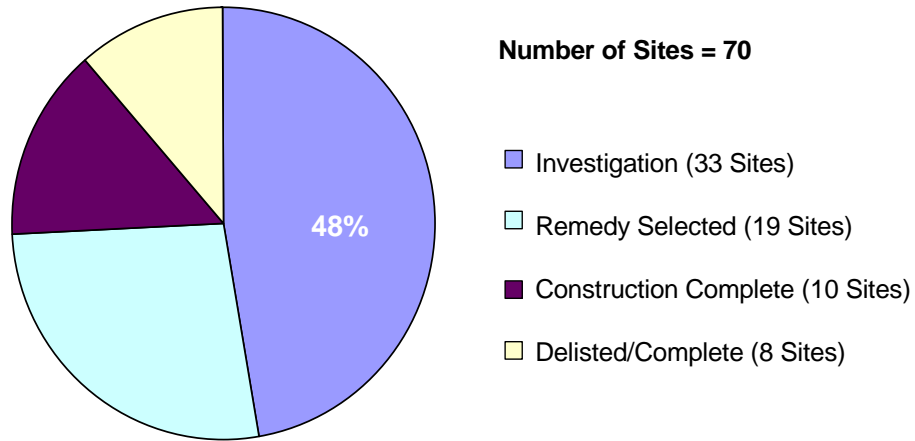
### ***Cleanup and Reuse Connection***

Figure 3-2 below shows the current cleanup status for sites that were identified as Planned Reuse. The analysis was limited to the Planned Reuse sites because they can best indicate the time frame when reuse was initiated. The data for Planned Reuse sites suggest that reuse occurs during all phases of the investigation and cleanup, and that property transactions are occurring while sites are under RCRA or Superfund authority. Only 11 percent of the Planned Reuse sites show completion/delisting of their cleanup obligations. This indicates that a site-wide environmental investigation and cleanup may occur concurrently with site reuse. Cleanup status was difficult to evaluate because of the broad cleanup status categories used by the programs and because of the way cleanup is tracked in certain programs. For example, all of RCRA's cleanup goals are site-wide measures. Therefore, a parcel of land at a facility may be cleaned up and have a plan for reuse, but the cleanup status reported would be investigation if there is still an ongoing investigation at other portions of the site. Table 3-2 shows the program specific results for cleanup status for the Planned Reuse sites.

**Table 3-2: Cleanup Status for Planned Reuse Sites by Program**

<b>Program</b>	<b>Superfund</b>	<b>Federal Facility</b>	<b>RCRA</b>	<b>Total</b>
Investigation	7	9	17	33
Remedy Selection	9	9	1	19
Construction Complete	7	0	3	10
Complete/Delisted	4	1	3	8
<b>Total</b>	<b>27</b>	<b>19</b>	<b>24</b>	<b>70</b>

Figure 3-2: Region 3 Hazardous Waste Cleanup Sites Cleanup Status for Planned Reuse Sites

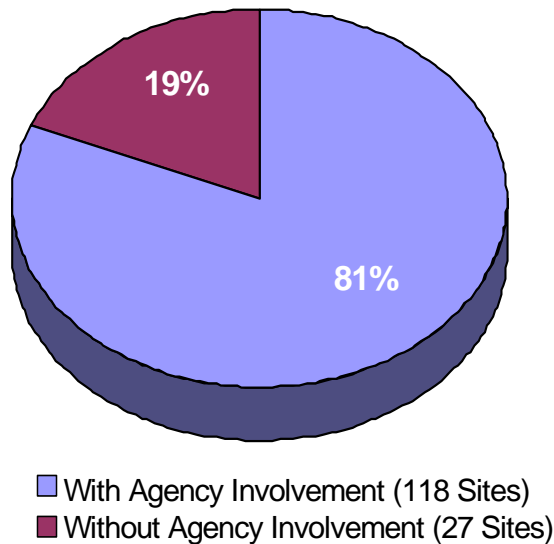


**Agency Effort to Facilitate Use/Reuse**

Figure 3-3 shows the number of sites in all programs where EPA staff reported activities in support of reuse. At 81 percent of the cleanup sites where reuse has occurred or is planned to occur, EPA or the state has been an active participant; and in all programs, the Region seems to be making a similar level of effort to support reuse.

Figure 3-3: Region 3 Hazardous Waste Cleanup Sites Agency Involvement - Reused & Planned Reuse Sites

Number of Sites = 145



## EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment

The most frequently reported tools used to facilitate reuse were: coordinating with another regulatory agency; meetings; phone calls; and expedited cleanups. This indicates that a one cleanup approach and clear communication are important to site reuse. In addition, this data supports the notion that site reuse can lead to faster cleanups. The program specific sections contain figures showing how frequently specific tools are used within each program.

### ***Economic and Environmental Benefits***

Figures 3-4 and 3-5 show the frequency and types of benefits associated with land use reported for all three programs. Economic or environmental benefits associated with the use or reuse of the site was reported, but quantifiable data was not readily available to project managers. Although the Region was not able to gather extensive information, the benefits reported were significant. For example:

- 38 sites reported jobs created or retained totaling 24,986 local jobs
- 13 sites reported reuse investment totaling close to \$4 billion in projected redevelopment investment
- 23 sites reported open space or sustainable reuse on the site
- 7 sites reported houses built totaling 189 new homes

For more detailed results on the economic benefits resulting from reuse, see Appendix C.

**Figure 3-4: Region 3 Hazardous Waste Cleanup Sites Benefits Associated with Use/Reuse – Sites Reporting Benefits**

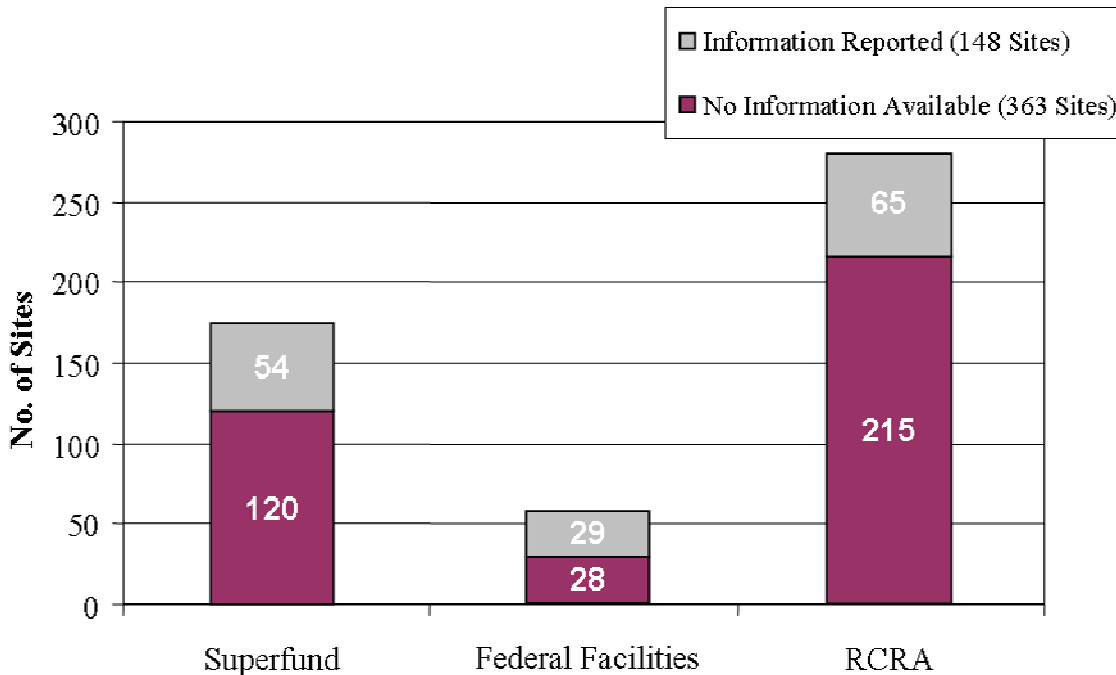
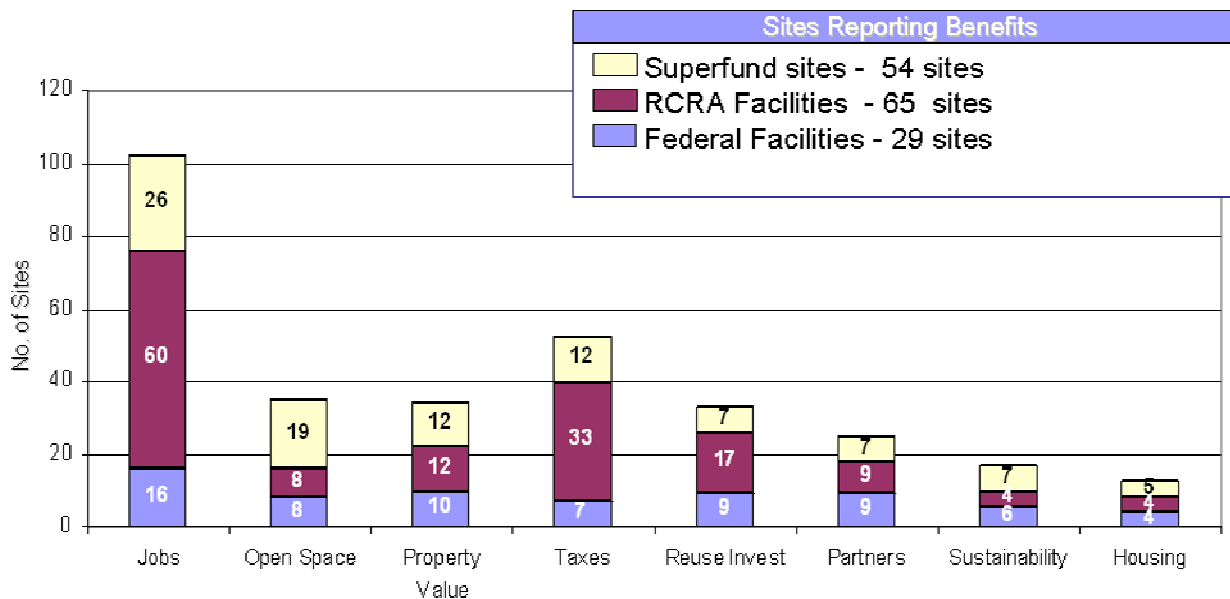


Figure 3-5: Region 3 Hazardous Waste Cleanup Sites Frequency of Benefits Reported



### 3.2 Superfund NPL (non-Federal Facility) Results

#### Current Land Use

Figure 3-6 shows the reported Current Land Use for Superfund sites. There are 174 sites in the Superfund NPL data set. Two-thirds (65%) of Superfund NPL site acres are in some kind of use or have a planned use. From this information, it is clear that in Region 3, Superfund sites are being reused, but there is opportunity for more reuse.

One hundred and one sites (101) or 58 percent of Superfund sites indicate that some or all of the site is not being used (58 sites are totally vacant and 43 sites are partially vacant). On these 101 sites there are 5,886 vacant acres, which is 35 percent of the total Superfund land area. Of the 5,886 vacant acres, 2,119 acres or roughly one-third are not recommended for reuse. This leaves close to 3,800 acres on Superfund NPL sites that may have potential for reuse. See Appendix B for a map of Superfund vacant land in Region 3.

Figure 3-7 shows the amount of acres reported as inactive waste disposal areas both in reuse and not in reuse on Superfund sites. About 14 percent (2,300 acres) of land at Superfund sites was reported as inactive waste disposal areas. Approximately 30 percent of the inactive waste disposal areas are in reuse which helps support the premise that sometimes former waste dumps can be safely reused for other purposes.

Figure 3-6: Region 3 Superfund Sites  
Current Land Use

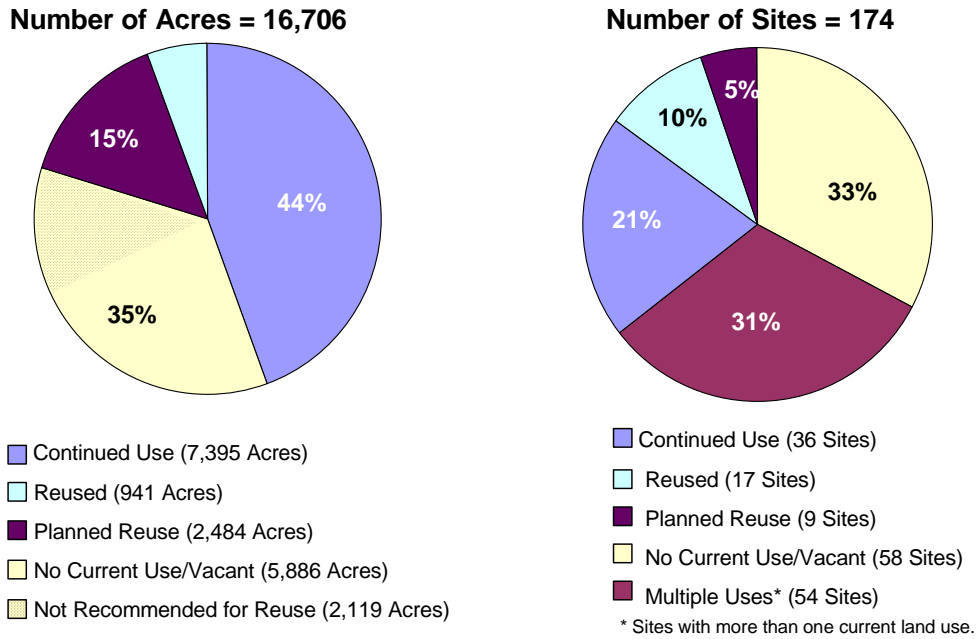
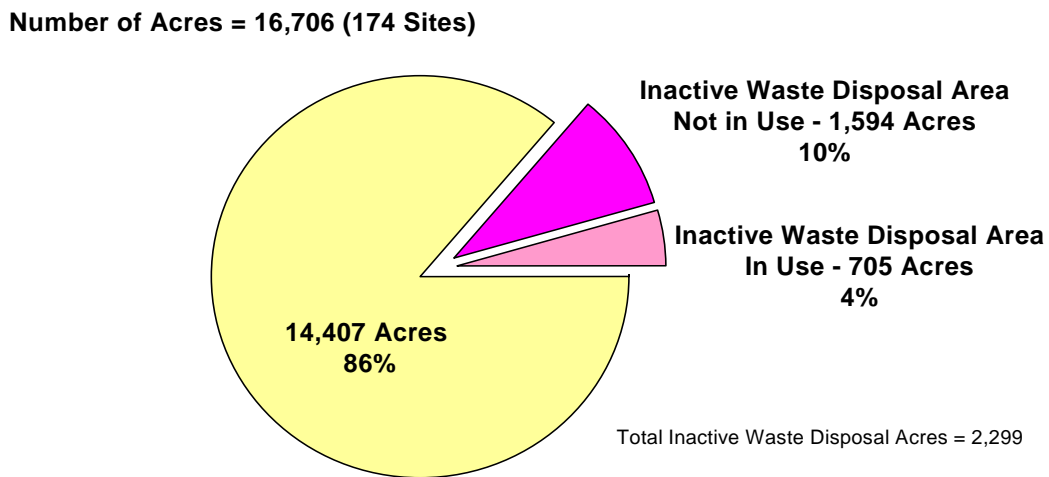


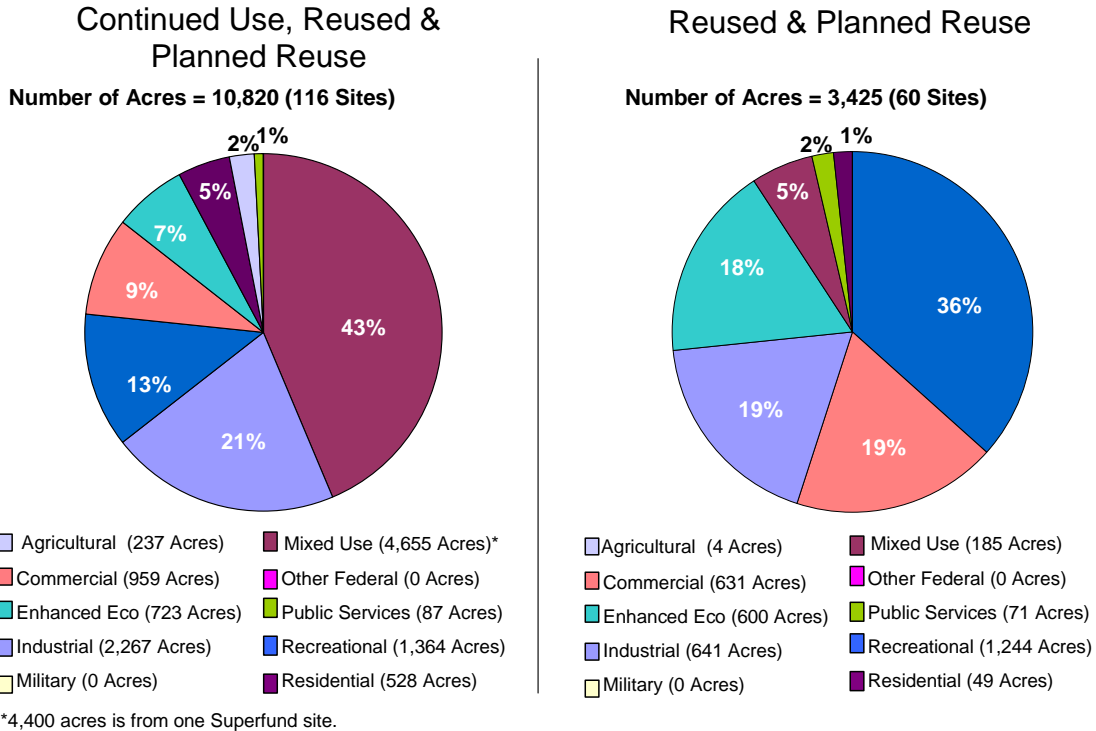
Figure 3-7: Region 3 Superfund Sites  
Inactive Waste Disposal Areas



**Types of Uses Occurring**

Figure 3-8 shows the Types of Uses reported on Superfund sites. One chart shows the Type of Uses occurring on Continued Use, Reused and Planned Reuse sites, while the second chart shows just the Types of Uses reported for Reused and Planned Reuse sites, indicating trends in how sites are being converted to new uses.

**Figure 3-8: Region 3 Superfund Sites  
Type of Use**



The most frequently reported type of land use occurring on Superfund sites is mixed use. Project managers selected this category when they did not have sufficient information to report the specific types of uses occurring in acres or when different types of uses occur in a vertical fashion, such as a high rise building with commercial use on the first floor and residential use on the upper floors. In the Superfund data set, one large site dominates the mixed use category, contributing more than 4,400 acres. If we factor out this site from the data set, the most prominent uses occurring at Superfund sites are industrial, recreational, and commercial use, respectively.

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There are 60 Superfund sites with either reuse or planned reuse occurring on them. More than half of the acres (54%) of all reuse and planned reuse occurring on Region 3 Superfund sites is for greenspace (reported as either recreational or enhanced ecological uses). Sixteen sites reported enhanced ecological use with a total of 723 acres or 4 percent of the total Superfund data set land area. In addition, 12 other Superfund sites reported open space or sustainable reuse was occurring on the site. See Appendix C for more detailed information on Superfund sites with enhanced ecological use.

### ***Agency Effort to Facilitate Use/Reuse***

Figure 3-9 shows the percentage of Superfund sites where EPA staff reported taking action to facilitate reuse of the site. Figure 3-10 shows the types of tools staff reported using to facilitate reuse. Of the 60 Superfund sites in either reuse or with a plan for reuse, EPA took actions to support that reuse 83 percent of the time. The data demonstrates that Region 3 is actively involved with supporting reuse on Superfund sites. The most common tools reported being used by site managers were participating in phone calls and meetings and coordinating with other agencies.

**Figure 3-9: Region 3 Superfund Sites  
Agency Involvement-Reused & Planned Reuse**

**Number of Sites = 60**

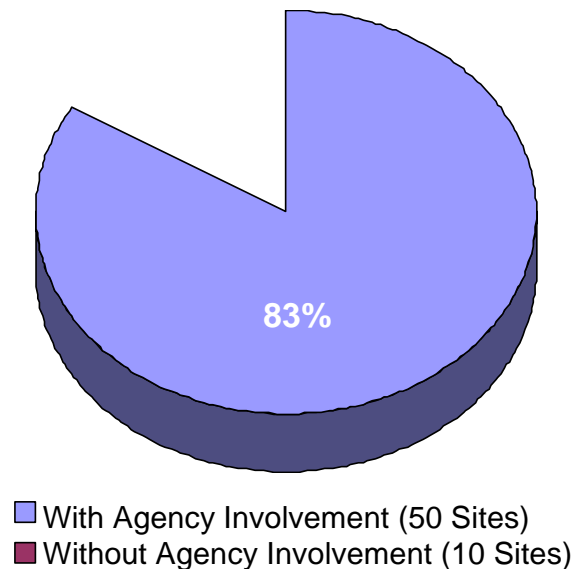
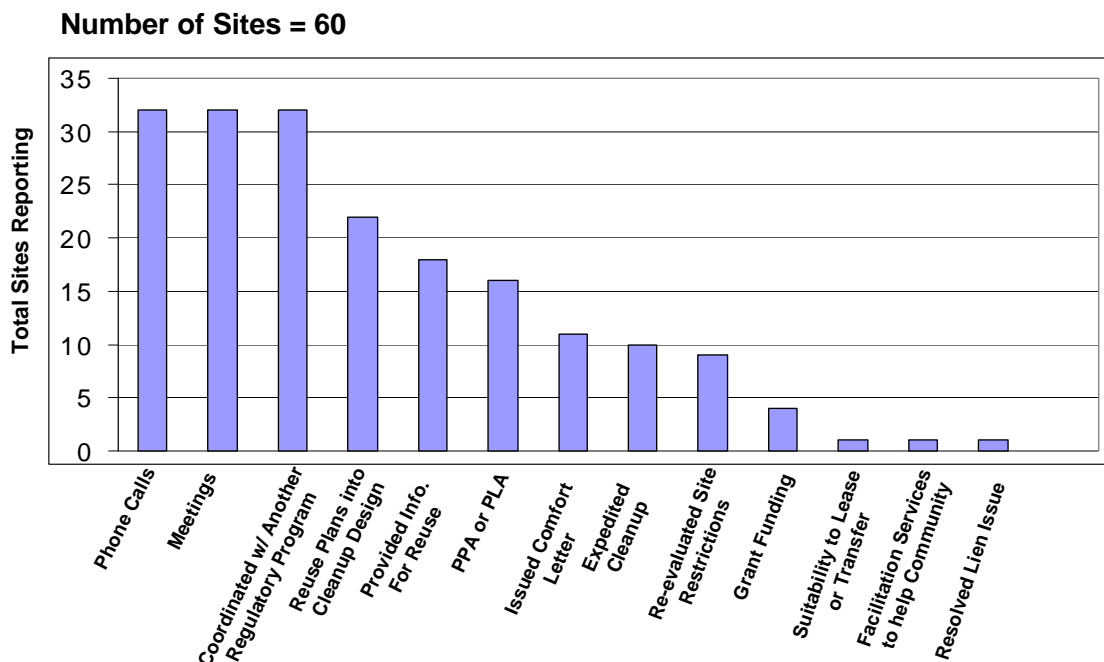




Figure 3-10: Region 3 Superfund Sites  
Tools Used to Support Reuse & Planned Reuse



PPA-Prospective Purchaser Agreement, PLA-Prospective Lessee Agreement

### Economic and Environmental Benefits

Roughly one-third (54 sites) of Region 3 Superfund sites reported benefits associated with that land use. The most reported benefit was jobs created (26 sites). But only 12 of these sites reported an actual number of jobs. Total jobs reported for the 12 sites are 618. The second most reported benefit was open space created. Site managers also reported a total of \$141.5 million in reuse investment across four sites.

## 3.3 Federal Facility Results

### Current Land Use

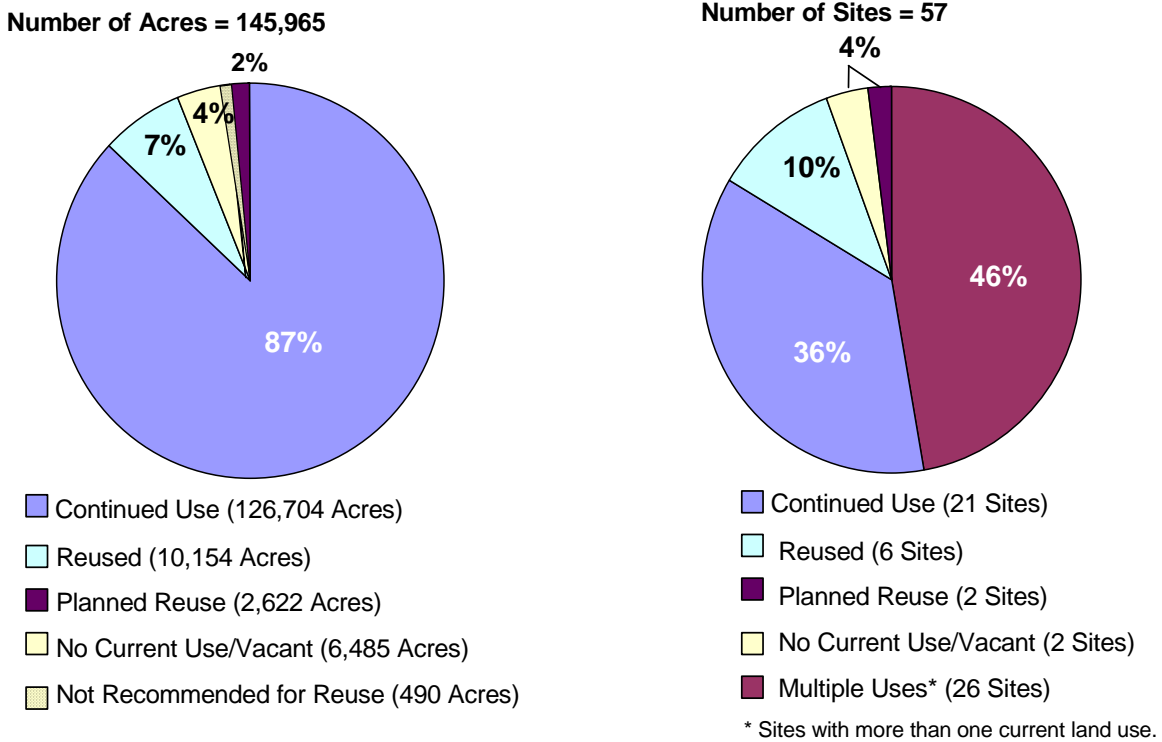
There are 57 sites in the Federal Facilities data set, 48 being cleaned up under the Superfund program and nine being cleaned up under the RCRA program. For those sites being cleaned up under CERCLA authority, reported acres only reflect those acres that EPA addressed through its authority under the NPL and may not represent the whole Federal Facility.

Figure 3-11 shows the Current Land Use as reported for the Federal Facilities data set. As expected, the vast majority of land at Federal Facilities is in continued use, as most are operating military bases. For Federal Facilities, 96 percent of all land is in use or has a plan for reuse.

**EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

It is interesting to note that there are close to 6,500 acres of vacant land on 10 Federal Facility sites (two fully vacant and eight partially vacant) that may have the potential for future reuse. These vacant acres represent about 4 percent of the total Federal Facility land area. Of the 6,485 vacant acres, 490 or 8 percent are not recommended for reuse. This leaves close to 6,000 acres on Federal Facilities that may have potential for reuse. See Appendix B for a map of vacant land at Federal Facilities.

**Figure 3-11: Region 3 Federal Facilities Sites Current Land Use**

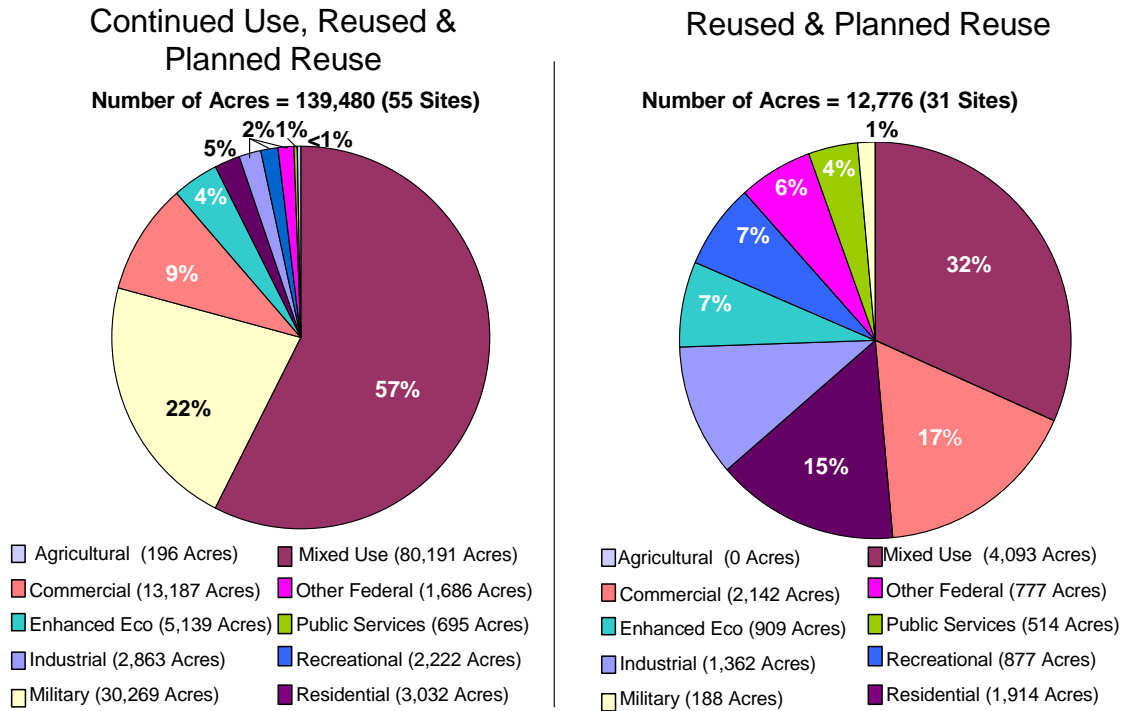


**Types of Uses Occurring**

Figure 3-12 shows the Types of Uses reported on Federal Facility sites. One chart shows the Type of Uses occurring on Continued Use, Reused and Planned Reuse sites, while the second chart shows just the Types of Uses reported for Reused and Planned Reuse sites, indicating trends in how sites are being converted to new uses.

Not surprisingly, the predominant reported types of land use occurring on Federal Facilities are mixed use and military use. Some project managers reported land at military bases as mixed use where commercial, residential or other uses also reside on the base because they had insufficient information to provide acreage for each category. Other project managers were able to report the various uses in acres.

Figure 3-12: Region 3 Federal Facility Sites Type of Use



Thirty-one Federal Facilities have been reused or have a plan for reuse. The types of reuses occurring are primarily a combination of commercial, residential, and mixed uses. Thirteen Federal Facilities reported enhanced ecological use with a total of 5,139 acres or 4 percent of the total Federal Facility data set land area. In addition, six other Federal Facilities reported open space or sustainable reuse was occurring on the site. See Appendix C for more detailed information on Federal Facilities with enhanced ecological use.

**Agency Effort to Facilitate Use/Reuse**

Figure 3-13 shows the percentage of Federal Facilities where EPA staff reported taking action to support reuse of the site. Figure 3-14 shows the types of tools staff reported using to facilitate reuse. The data show that Region 3 is extensively involved in supporting reuse at Federal Facilities. Of the 31 Federal Facilities either reused or with a plan for reuse, EPA took actions to support that reuse 97 percent of the time. The most common tools reported being used by Federal Facility project managers were coordinating with other agencies, expediting cleanup to meet reuse needs and participating in phone calls and meetings.

Figure 3-13: Region 3 Federal Facility Sites Agency Involvement-Reused & Planned Reuse

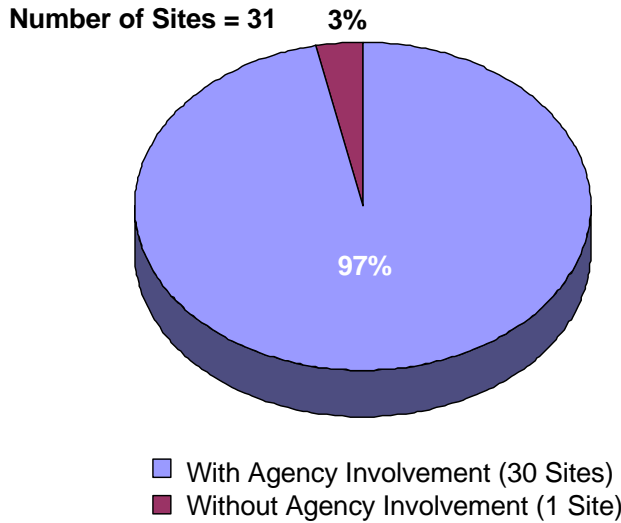
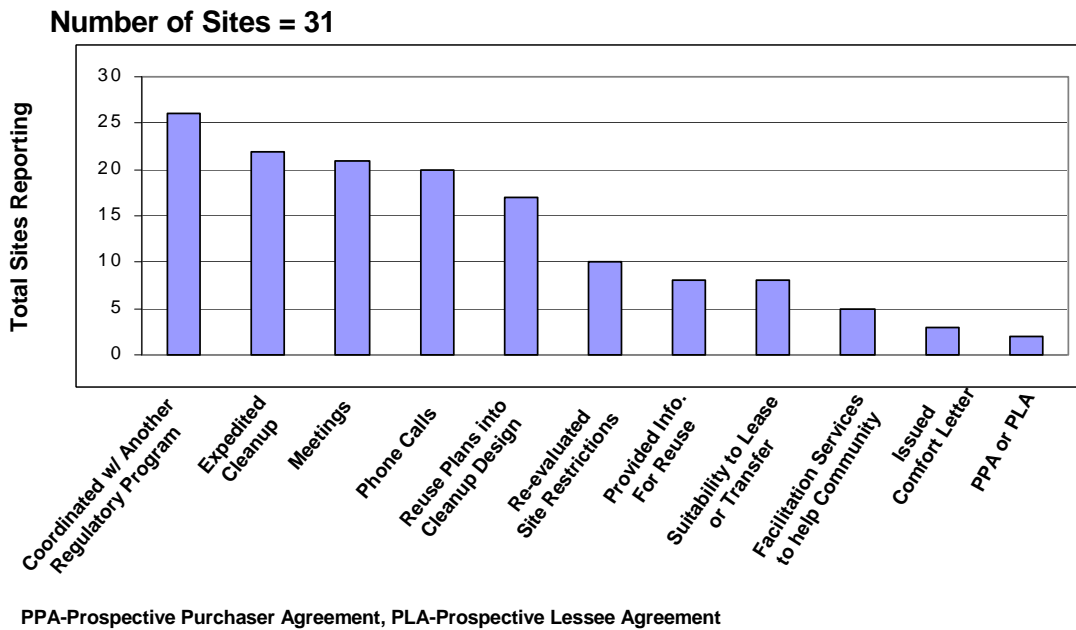


Figure 3-14: Region 3 Federal Facility Sites Tools Used To Support Reuse & Planned Reuse



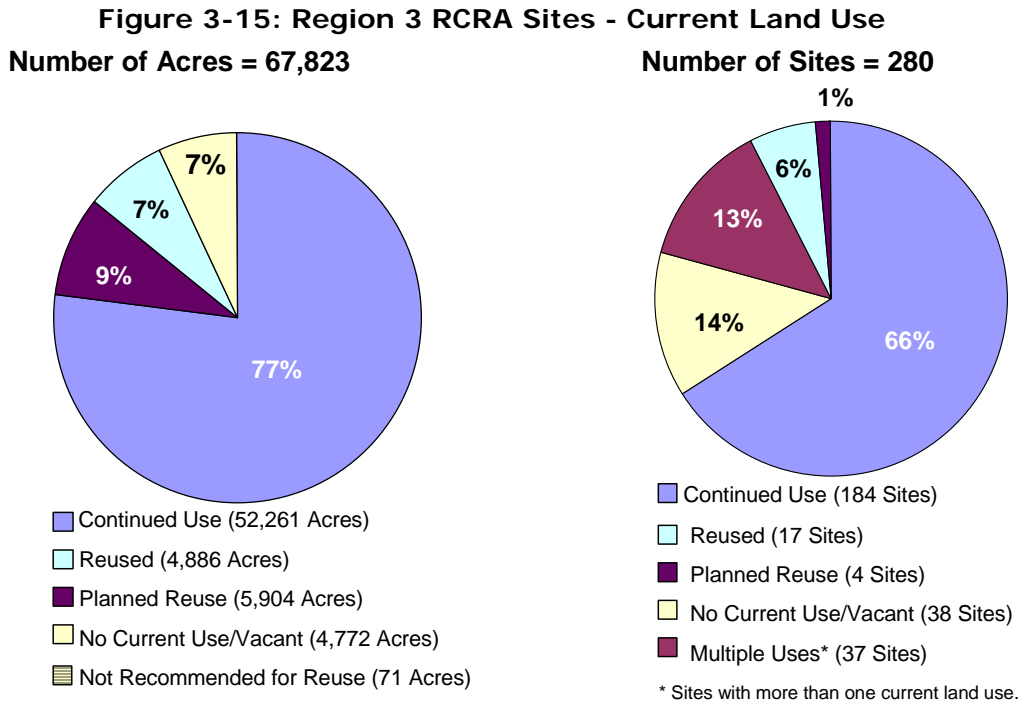
**Economic and Environmental Benefits**

About half (29 sites) of all Federal Facilities reported benefits associated with land use. The most frequently reported benefit was jobs created or retained (16 sites). However, only four of these sites reported an actual number of jobs. The total jobs reported for the four sites was 1,888. The second most reported benefit was increases in property value associated with reuse, but no quantifiable information was provided. Site managers also reported a total of \$328 million in reuse investment across three sites.

**3.4 RCRA Corrective Action(non-Federal Facility) Results**

**Current Land Use**

There are 280 sites in the RCRA Corrective Action data set. Figure 3-15 shows the Current Land Use reported in the RCRA data set. Sixty-six percent (184 sites) of RCRA facilities are in continued use, with the land being used in the same general manner as when the facility became part of the RCRA program in the 1980s, as most are operating facilities. The majority of the remaining land is either reused or has a plan for reuse. Nineteen percent (53 sites) of RCRA facilities consisting of 21 sites and 32 portions of sites, have been reused or have a plan for reuse. This demonstrates that a significant amount of reuse at RCRA facilities is occurring in Region 3 and that a majority of the reuse takes place on parcels, rather than site-wide.



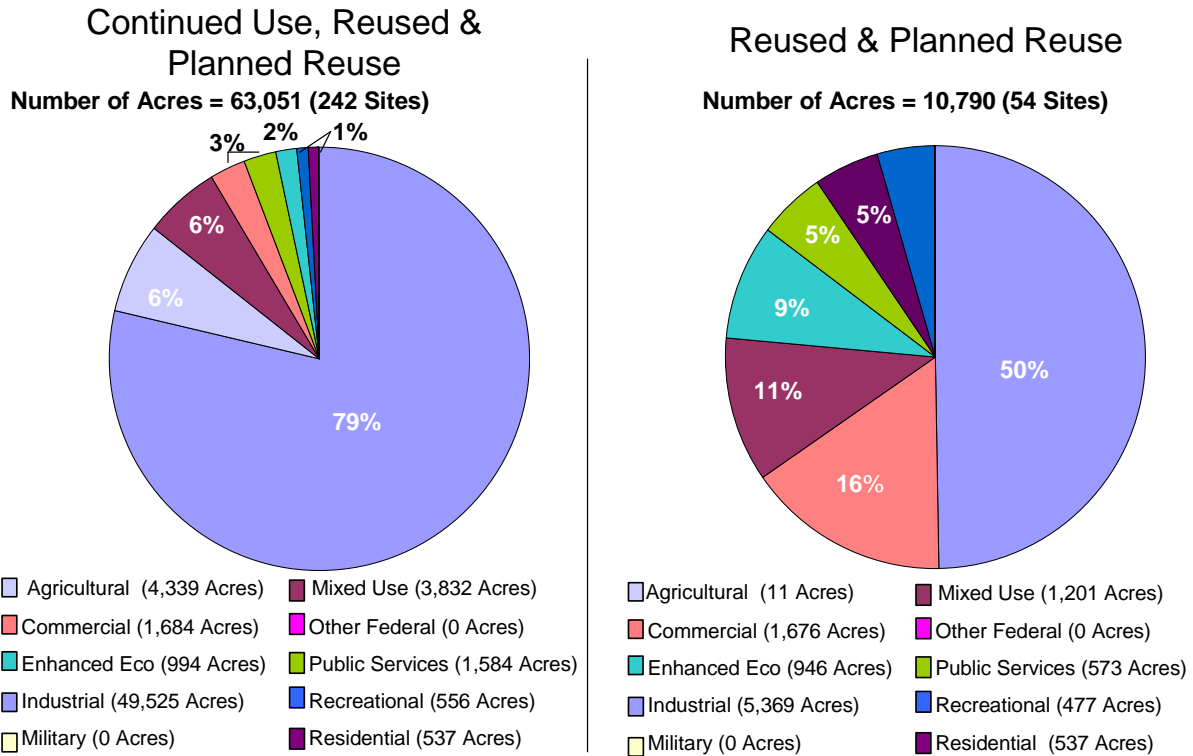
**EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

In addition, the results show that 4,772 acres (7% of the RCRA land) remains vacant. This equates to 38 vacant facilities and an additional 17 facilities with vacant parcels which may have reuse potential. Of the 4,772 vacant acres, 71 acres (1%) are not recommended for reuse, leaving close to 4,700 acres on RCRA facilities that may have potential for reuse. See Appendix B for a map of vacant acres on RCRA sites.

**Types of Uses Occurring**

Figure 3-16 shows the Types of Uses reported on RCRA sites. One chart shows the Type of Uses occurring on Continued Use, Reused and Planned Reuse sites, while the second chart shows just the Types of Uses reported for Reused and Planned Reuse sites, indicating trends in how sites are being converted to new uses.

**Figure 3-16: Region 3 RCRA Sites  
Type of Use**



The predominant type of land use occurring on RCRA facilities is industrial use (79%) of the acres. However when the Type of Use for Reused and Planned Reuse sites is examined, it shows that only (50%) of the land is being reused for industrial purposes. The next most frequently reported Types of Uses for this data set are commercial and mixed use. These results show that as more RCRA sites are reused, the program will see a broader range of uses occurring on RCRA sites.

## EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment

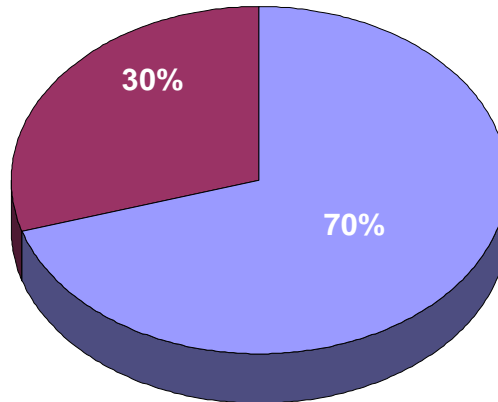
Given the industrial nature of most RCRA sites, only 11 sites reported enhanced ecological use with a total of 994 acres or one percent of the total RCRA data set land area. In addition, five other RCRA facilities reported open space or sustainable reuse occurring on the site. See Appendix C for more detailed information on RCRA Corrective Action sites with enhanced ecological use.

### ***Agency Effort to Facilitate Use/Reuse***

Figure 3-17 shows the percentage of RCRA sites where staff reported taking action to facilitate reuse of the site. Figure 3-18 shows the types of tools staff reported using to facilitate reuse. Of the 54 RCRA facilities either reused or with a plan for reuse, EPA took actions to support that reuse 70 percent of the time. The most commonly used tool—coordination with another regulatory program—was reported at 29 sites. At 10 of those sites, the coordination was between Pennsylvania’s Voluntary Cleanup Program (Act 2) and EPA’s RCRA Corrective Action program. Act 2 has a Memorandum of Agreement with EPA which establishes, among other things, the relationship between the Act 2 program and EPA’s RCRA Corrective Action program. The next three most frequently reported tools to facilitate reuse at RCRA sites were meetings, phone calls, and expedited cleanups.

**Figure 3-17: Region 3 RCRA Sites Agency Involvement-Reused & Planned Reuse**

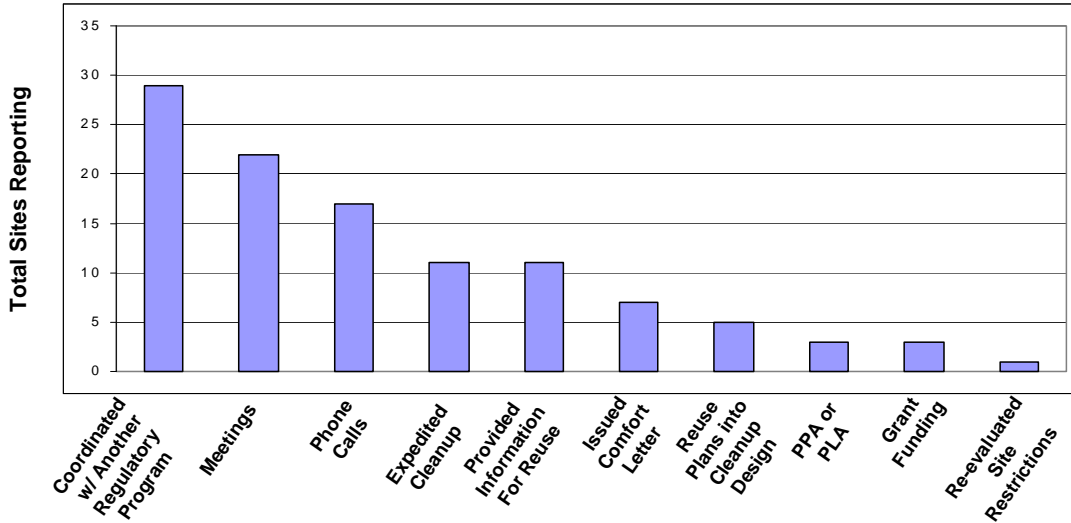
Number of Sites = 54



■ With Agency Involvement (38 Sites)  
■ Without Agency Involvement (16 Sites)

Figure 3-18: Region 3 RCRA Sites  
Tools Used To Support Reuse & Planned Reuse

Number of Sites = 54



**Economic and Environmental Benefits**

About one fourth (65 sites) of the RCRA facilities reported benefits associated with that land use. The most frequently reported benefit was the jobs created or retained (60 sites), with 22 sites reporting actual numbers. Jobs reported for the 22 sites totaled 21,980. The second most reported benefit was increased tax revenue associated with reuse and change in property value. For increased tax revenue, 33 sites reported this benefit, but only one site provided quantifiable information on tax dollars. Site managers also reported more than \$3.5 billion in total reuse investment across five sites.



## 4. LESSONS LEARNED

As a pilot project, Region 3's land use/reuse assessment incurred several challenges and lessons learned as the process evolved and data was collected and analyzed. Below are some of the lessons learned from both the data collection process and implementation of the land use assessment, as well as those associated with the results of the data collected. Considering all the challenges encountered during the project development, data collection, and data analysis, Region 3 met the overall goals initially outlined for this land use assessment. The Region was successful in collecting quantifiable cross-program information to establish a baseline for measuring progress in returning cleanup sites to use and to communicate revitalization accomplishments for its cleanup programs.

### 4.1 Data Collection Lessons

#### *A One Cleanup approach to collecting site information on reuse is possible*

Designing a common assessment form under the One Cleanup Program<sup>3</sup> approach was a challenge. The Superfund, RCRA Corrective Action and Federal Facility's programs have different languages, types of sites and regulatory constraints. However, generally the same process and goals apply and differences between the programs can be resolved, if individuals focus on the big picture. For example, Superfund wanted to track the SURE database's "Restored Reuse" land use category. This is the situation where the use of the property is temporarily halted during cleanup and the same use is resumed after the site is cleaned up. However, the RCRA and Federal Facilities programs did not want to include this use category as an option, since it has no applicability to their sites. To overcome this issue, Superfund tracked Restored Reuse as a subset of the Continued Use category.

The most notable program difference was the way in which total property acres was collected for the Federal Facility's data set. The assessment form included instructions on how to establish total site acres for both RCRA sites and Superfund sites, but not specifically for Federal Facilities. This led to varying interpretations by Federal Facilities project managers on how to calculate total acres for the site. Generally speaking, project managers in RCRA Corrective Action overseeing a Federal Facility determined total property acres based on the facility boundary, since the entire facility is subject to corrective action and evaluated, while many Superfund project managers counted only the acres at the Federal Facility that were investigated or cleaned up. As a result, there is some uncertainty in the accuracy of the acres in the Federal Facility data set. However, the information is still valuable in providing an estimate of the quantity of land being addressed and the types of uses occurring at these sites.

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<sup>3</sup>The One Cleanup Program (<http://www.epa.gov/oswer/onecleanupprogram/>) Promotes coordination among EPA programs, states, tribal, local and other federal agency programs, and stakeholders. These efforts are designed to lead to more consistent and efficient cleanups, clearer and more accessible information about cleanups, and better cross-program performance measures.

***An accurate inventory of sites needs to be identified prior to data collection***

All sites included in the data collection effort should be identified by program and EPA identification number prior to initiation of data collection. Significant time was spent resolving site names, identification numbers, and program lead for filling out the form. Also, data analysis should not begin until all data are collected and verified through a comprehensive quality assurance process.

***Data collection form requires minimal time commitment by project managers***

Most project managers felt the form was fairly easy to use and self-explanatory. On average, staff reported that the form took 10-45 minutes to fill out per site. Generally, the first form took the longest, because project managers had to review the definitions, and subsequent forms went more quickly. Those sites with more than one land use took more time to complete than sites with only one use. In addition some forms took more time because project managers were recently assigned due to routine staff turnover. However, in general, the vast majority of project managers met the deadline for completing the forms.

***Training is necessary to collect uniform results across programs***

Although training sessions were held for project managers, some either missed the training sessions or interpreted the instructions differently due to the subjective nature of the form, creating difficulties in interpreting the information for data analysis. As a result of the different interpretations, significant time was spent verifying information with project managers and correcting data as needed. Most questions related to different potential use scenarios. For example, issues arose regarding how to classify research and development operations and areas dedicated to long term remedy implementation, such as pump houses. Some staff felt landfills should be considered a specific type of use in that they serve a valuable function for the long term management of waste. Consequently, potential uncertainties exist in the data because the process introduced concepts that were unfamiliar to many of the project managers filling out the forms.

***Electronic reporting would be faster and reduce errors***

It would have been preferable to enter the information electronically directly into a database. However, at the start of the project, Region 3 did not have the resources to develop an electronic format for reporting the information. Therefore, Region 3 opted to use handwritten assessment forms and a Microsoft Excel spreadsheet to compile the data so that it would be housed in one location for cross-program analysis. Once the project managers filled out the forms, the information was then transferred to a spreadsheet increasing the risk of transcription error (typos). The spreadsheet is large and cumbersome to use, making data analyses time-consuming, and reports are difficult to generate. Given the complexity of the spreadsheet, project managers cannot confirm or update their site specific information in the spreadsheet. If this information continues to be collected on a long term basis, it will be easier to manage the information in a database format. This would allow project managers to enter the data directly into the database and make analysis faster and easier. For the Superfund program, it may be possible and more expedient to use CERCLIS which already contains some information on site reuse, but then the ability to analyze results on a cross-program basis would be lost.

***Improvements to the Reuse Assessment Form***

The following suggestions have been made to improve the Land Use/Reuse Assessment Form:

**Section A General Information**

- Add RCRA Federal Facility as a Type of Site option to better define the data sets.

**Section B Contact Information**

- No suggestions.

**Section C Current Land Use and Type of Use**

- Provide instructions on how to determine total site acres for Federal Facilities.
- Add a box under No Current Use/Vacant to account for acres unavailable due to remedy implementation.
- Develop a way to classify wetlands because there was no clear way to report their status as a Type of Use.
- Add Open Space or Green Space as a Type of Use and provide a definition.
- Clarify research and development as Industrial Use in the definition.
- Eliminate Cleanup Status except for No Current Use/Vacant parcels because the cleanup status of property in use is not critical information and because it is difficult to correlate the programmatic cleanup measures to reuse.
- Resolve relationship between Current Land Use and the Superfund Ready for Reuse GPRA measure.

**Section D Tools Used to Support Use/Reuse**

- Connect “Tools Used to Facilitate Use” (Section D) to each “Current Land Use” (Section C) row. Tools were reported as a site-wide measure. Therefore, when a site had more than one Current Land Use, we could not distinguish which tools applied to a specific parcel. For example, if a 100-acre site reported 50 acres Reused and 50 acres Vacant, and the Tools Section reported the use of a comfort letter, it was not possible to discern whether the comfort letter applied to the reused portion, the vacant portion, or both.

**Section E Benefits of Use/Reuse**

- Only collect benefits information for sites in reuse and not continued use.

## 4.2 Data Results Lessons

### ***Reuse benefits are not easily reported under current program structures***

The assessment approach was designed to comply with the requirements of the Paperwork Reduction Act. While it may seem obvious that site owners would be the best source of information on the reuse of their property, project managers were advised not to seek information directly from the property owners in response to the form. Project managers were instructed to complete the form based on existing knowledge, any readily available information in Agency files, and publicly available information. As a result, only a limited amount of quantifiable information on the benefits of reuse (e.g., jobs created or retained, tax dollars generated) was reported. For example, several project managers knew there were jobs leveraged at sites and checked that benefit on the form, but many did not know how many jobs were leveraged. Project managers do not routinely collect this type of information because it is not relevant to the cleanup. Other methods or independent research are necessary to obtain comprehensive economic and environmental benefits associated with site reuse.

The assessment form requested project managers to report benefits information for sites in use/reuse, which included sites that are in continued use. Once the data was collected and analyzed, we realized that benefits reported for continued use sites were very sporadic and not very informative. In the future, we recommend collecting benefits information only for sites that are in reuse.

### ***Information on Superfund Ready for Reuse GPRA Reporting Measures was not successfully integrated into Region 3's assessment***

Another challenge was integrating the land use assessment with the Superfund Ready for Reuse Government Performance and Results Act measure. A separate section of the form was dedicated to reporting Ready for Reuse, based on EPA's *Guidance for Documenting and Reporting the Superfund Revitalization Performance Measures*, (OSWER 9202.1-26, November 5, 2004). This section was included to verify the information already in the CERCLIS database. After reviewing the data reported on the forms, it was apparent that the information did not correlate with the CERCLIS information. Several reasons that might explain the differences include: 1) Superfund's Ready for Reuse measure is intended to evaluate a level of protectiveness for the land use and requires the issuance of certain decision documents before a project manager can deem land "Ready." In contrast, Region 3's land use/reuse assessment only dealt with the actual use or planned use at the site. The Region chose to focus the assessment on actual land use, because the cleanup programs already have measures to track cleanup progress and Agency oversight at cleanup sites ensures that any uses, and reuses, are protective; 2) On Region 3's Land Use/Reuse Assessment Form, the instructions for the Ready for Reuse section were contained on another page of the form and were not sufficiently detailed to accurately capture the intent of Superfund's GPRA measure; 3) Training for the Superfund project managers did not focus on fully explaining the documentation requirements for the Superfund Ready for Reuse GPRA measure.

***The data collected is not perfect***

After completion of the data collection, program managers briefly reviewed the site specific information contained in the spreadsheets. Minor errors and inaccuracies in some of the data were noted, primarily for total site acres. However, the Region determined that the errors were minimal compared to the broader information collected. It was decided not to update or correct the site specific errors at this time. These errors will be corrected during subsequent assessments. The information contained in this report is indicative of the current status of land use at Region 3 cleanup sites, but is not necessarily 100 percent accurate for every site.

## 5. RECOMMENDATIONS AND POTENTIAL FUTURE DIRECTIONS

### 5.1 Recommended Uses for the Information

#### 5.1.1 Developing Cross-Program Revitalization Measures

One objective of this land use/reuse assessment was to determine whether Regions can collect information to assist in the development of national cross-program revitalization measures. Region 3's land use assessment contributed to and enhanced the national dialogue on cross-program revitalization measures. The information collected is consistent with OSWER's proposed framework for possible cross-program revitalization measures described in the draft report, *Measuring Revitalization of Contaminated Sites in America's Communities: Past Accomplishments and Future Opportunities* (July 27, 2005).

That document proposes the following framework for consideration:

- Number and acres of properties addressed by OSWER cleanup programs
- Status of use (e.g., vacant, continued use, new use, or planned new use)
- Type of use (e.g., industrial, commercial, green space, residential, or municipal)
- Number and acres of properties confirmed protective for current and future uses

Region 3 established a cross-program baseline for: number of acres and sites addressed by cleanup program; Current Land Use; and Type of Use. With this baseline, the Region has the ability to develop an outcome measure to track changes in use and revitalization accomplishments into the future. Region 3's approach to collecting revitalization information provides a means to quantitatively demonstrate its success in reusing contaminated property; provides data to support the Agency's revitalization objectives; provides information that is feasible to collect across a range of programs; and provides information to integrate into strategic planning.

#### 5.1.2 Facilitating Reuse of Underutilized Sites

A principle result of Region 3's land use/reuse assessment was the identification of vacant sites with potential for reuse. This information will enhance the Region's efforts to support reuse where appropriate. Additionally, Region 3 can plot vacant sites to identify clusters of sites within communities or specific geographic areas (watersheds, environmental justice areas, etc.) Potential options for facilitating reuse at vacant sites include:

- Outreach to affected communities regarding redevelopment resources
- Working with property owners to facilitate reuse
- Providing site specific information to facilitate reuse, such as Site Reuse Profiles or Ready for Reuse Determinations, as requested

### **5.1.3 Tracking the Benefits of Reuse**

Region 3 hoped to be able to use the information collected about benefits associated with land uses to report on the collective impact of the revitalization of contaminated sites. The Region believes it is important to have such information for the creation of success stories, fact sheets, news articles, etc. The assessment discovered that this kind of information is not typically collected by project managers. However, the benefits information reported was significant even though the Region was not able to gather information from all available sources. Nevertheless, the limited amount of information available does not provide a representative sample to allow programmatic impacts of the revitalization of contaminated sites to be analyzed.

## **5.2 Expand the Assessment to Other Types of Cleanup Sites**

To achieve a more comprehensive cross-program measure, Region 3 is exploring the possibilities of expanding the collection of reuse information to other types of contaminated sites, including: Leaking Underground Storage Tank (LUST) sites; Superfund removal response actions; and RCRA Corrective Action medium and low priority sites. There are different complications with collecting reuse information for these kinds of sites. In general, much less site specific information is available. Consequently, any information collected will be more limited in scope than that collected using the existing Land Use/Reuse Assessment Form.

### ***LUST sites***

Because the LUST program is state-delegated, EPA generally does not receive site specific information about LUST sites. In a pilot effort to collect reuse information about LUST sites, EPA Region 3 has partnered with the State of Delaware Department of Natural Resources and Environmental Control to collect reuse information about LUST sites in the Wilmington, Delaware area. This project is currently underway and will test the feasibility and accuracy of using publicly available information from county and local tax records to determine current land use status and site size along with GIS mapping to establish an inventory of LUST brownfield properties. The initial focus of the reuse data collection effort is on LUST sites that have been cleaned up and are no longer registered as operating dispensing systems. If successful, this project could serve as a model for other states to facilitate reuse at LUST properties by establishing an inventory of cleaned up LUST sites.

### ***RCRA Medium and Low Priority facilities***

The RCRA Corrective Action program is currently tracking cleanup measures on the universe of sites which are deemed high priority as a result of screening using the National Corrective Action Prioritization System (NCAPs). While the program continues to move forward with cleanup goals for the high priority facilities, it is also developing a plan to address the low and medium ranked sites. It is estimated that there are about 300 low and medium priority sites to address in Region 3. The Region has tasked the regional library to perform a desk top analysis of these sites to determine the acres, current land use, type of use, and population density. The program will use this information to help prioritize which of the 300 low and medium sites should be addressed first through investigation and cleanup.

### ***Superfund Removal Response Actions***

Although EPA is closely involved with activities at removal sites during the assessment and cleanup phase, EPA staff generally are not involved with activities at a site once the removal action is complete. As a result, information on land use is generally not readily available for completed removal actions. Occasionally, EPA does get involved with prospective purchasers to resolve liability and financial issues on sites where removal actions have already occurred. Under these circumstances, EPA may have access to information about property use and reuse. The Region is currently developing a plan to attempt to collect land use information at removal response action sites.

### ***Brownfield sites***

While it may be possible to collect limited information about the current use at brownfield sites funded with EPA Brownfields program grant dollars, such an effort would require surveying former grantees which would necessitate approval of an information collection request through OMB. Region 3 is not considering any options to survey brownfield sites at this time. For all current and new brownfield grantees, reuse information is captured as it occurs during the period of performance under the grant on the Property Profile Form which is then entered into the Assessment, Cleanup, and Redevelopment Exchange System (ACRES).

## **5.3 Develop a Database for Long Term Maintenance of the Information**

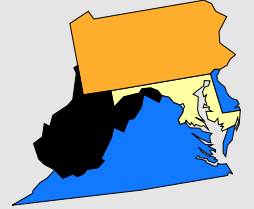
For the Region to continue to collect this level of land use information, a streamlined electronic format is necessary. Ideally, site managers will input the information directly into the system. For RCRA any database developed needs to be designed to allow states to directly input information into the database. The Region could then pull either cross-program or single program reports from the database. Alternatively, it may be possible to adapt existing national databases, such as CERCLIS, to house the information. However there are several challenges to using existing national databases: modifying these databases will probably take much longer to implement; the Region would lose some of its ability to customize the data collected; these systems are designed for reporting rather than strategic planning; and it would not allow for cross-program analysis, since there is no one national data system for both Superfund and RCRA sites. The decision on how to proceed with future data collection and the long term maintenance of land use information will be highly dependent upon decisions made at the national level with respect to national measures and information management.



**APPENDIX A - ASSESSMENT FORM AND EXAMPLES  
OF HOW TO COMPLETE THE FORM**



## EPA Region 3 Hazardous Waste Cleanup Sites Land Use/Reuse Assessment Form



**Instructions:** EPA project managers or state agencies overseeing hazardous site cleanups should complete this form at least annually, or whenever a new use occurs or is anticipated to occur at the site using information readily available<sup>4</sup>.

### A. General Information

1. Site name: \_\_\_\_\_

2. Type of Site:

- RCRA Corrective Action       Superfund NPL       Superfund Removal       Non NPL Federal Facility
- Superfund Alternative Site       BRAC       Superfund NPL/Federal Facility

3. EPA Site ID #: \_\_\_\_\_

4. Site location (city, state): \_\_\_\_\_

5. Types of Historical Uses at the site: \_\_\_\_\_

(e.g., chemical manufacturing, landfill, steel mill, military training base, shipyard, metal plating facility, illegal dumping, etc.)

6. Has contaminated groundwater migrated off the property? Yes No If yes, those areas off the property should not be included in total property acres.

### B. Contact Information

1. Remedial Project Manager Name: \_\_\_\_\_

2. Phone Number: \_\_\_\_\_

3. Today's Date: \_\_\_\_\_

<sup>4</sup> To ensure that the requirements for OMB approval under the Paperwork Reduction Act do not apply to this form, please provide your responses to this form based on your knowledge, the knowledge of individuals in your agency, information made available to your agency in the course of implementing site cleanup, or publically available information (e.g. websites). To prevent potential problems with the Paperwork Reduction Act, EPA project managers and state agencies should not seek specific information from private entities in direct response to this form.

### C. Current Land Use and Types of Use

On the following table, please indicate all types of surficial land use occurring on the property, in acres, if known. If exact acres are not available, use best professional judgement in estimating acres. For RCRA sites, *Total Property Acres* is based on the land portion of the facility subject to corrective action. For Superfund sites, *Total Property Acres* should include acres of all parcels on which investigation or cleanup occurred, but not areas where contaminated groundwater has migrated off those property parcel(s). The sum of acres provided in the *Current Land Use* column should equal the *Total Property Acres*. In the *Inactive Waste Disposal* column, the acres are a subset of the acres recorded under *Current Land Use*. Please refer to additional instructions and definitions provided at the end of this form. When determining the *Type of Use*, the predominant activity, function or likely exposures scenario should apply. For example, a privately-owned golf course should be listed as recreational, not commercial, because the predominant activity is recreational.

Total Property Acres (            )				
Current Land Use  (acres)	Type of Use  (acres)	Cleanup Status <sup>5</sup>  (Check one box only for each Type of Use)	Inactive Waste Disposal Area <sup>6</sup>  (acres)	Describe the  Current Use
<b>Continued Use</b>  (            )  <input type="checkbox"/> Restored Reuse (Superfund sites only)	(    )    Agricultural	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D	(            )	
	(    )    Commercial	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Enhanced Ecological	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Industrial	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Military	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Other Federal	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Public Services	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Recreational	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Residential	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Mixed Use (Check uses that apply) <input type="checkbox"/> Agr <input type="checkbox"/> Com <input type="checkbox"/> Eco <input type="checkbox"/> Ind <input type="checkbox"/> Pub <input type="checkbox"/> Rec <input type="checkbox"/> Res	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
<b>Reused</b>  (            )	(    )    Agricultural	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D	(            )	
	(    )    Commercial	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Enhanced Ecological	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Industrial	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Military	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Other Federal	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Public Services	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Recreational	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Residential	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	(    )    Mixed Use (Check uses that apply) <input type="checkbox"/> Agr <input type="checkbox"/> Com <input type="checkbox"/> Eco <input type="checkbox"/> Ind <input type="checkbox"/> Pub <input type="checkbox"/> Rec <input type="checkbox"/> Res	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		

<sup>5</sup>Cleanup status: Investigation (IN); Remedy Selected and/or Remedy Implemented (RS); Construction Complete (CC); RCRA Complete or Superfund delisted or partial delisting (C/D).

<sup>6</sup>Portion of the site which was historically used for the disposal of solid or hazardous waste.

<b>Planned Reuse</b>  ( )	( )	Agricultural	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D	( )	
	( )	Commercial	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Enhanced Ecological	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Industrial	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Military	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Other Federal	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Public Services	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Recreational	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Residential	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
	( )	Mixed Use (Check uses that apply) <input type="checkbox"/> Agr <input type="checkbox"/> Com <input type="checkbox"/> Eco <input type="checkbox"/> Ind <input type="checkbox"/> Pub <input type="checkbox"/> Rec <input type="checkbox"/> Res	<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D		
<b>No Current Use/ Vacant</b>  ( )			<input type="checkbox"/> IN <input type="checkbox"/> RS <input type="checkbox"/> CC <input type="checkbox"/> C/D  <input type="checkbox"/> Reuse not recommended <sup>7</sup> Provide acres ( ) & reason	( )	Interest in site reuse? <input type="checkbox"/> Yes <input type="checkbox"/> No Comments:

**Unit Conversions:**

1 square foot = 0.000023 acre; 1 square meter = 0.0002471 acre; Or to convert to acres go to: [www.digitaldutch.com/unitconverter/](http://www.digitaldutch.com/unitconverter/)

**D. Superfund Ready for Reuse**

Data will be entered in CERCLIS for tracking Superfund Revitalization performance measures.

( )	acres at site with land ready for residential use
( )	acres at site with land ready for non-residential use

**E. Tools Used to Support Use/Reuse**

Check all that apply

	EPA/State Activity	Comments
<input type="checkbox"/>	No Agency Involvement	
<input type="checkbox"/>	Expedited cleanup on all or a portion of the site	
<input type="checkbox"/>	Provided site information for reuse (e.g. FOIA, e-mails)	To whom?
<input type="checkbox"/>	Participated in telephone calls to discuss reuse	How many? With whom?
<input type="checkbox"/>	Participated in meetings to discuss reuse	How many? With whom?
<input type="checkbox"/>	Coordinated with another regulatory program (e.g. State)	Identify the program(s).
<input type="checkbox"/>	Integrated reuse plans into cleanup design	
<input type="checkbox"/>	Issued Comfort Letter to facilitate reuse	
<input type="checkbox"/>	Issued a Finding of Suitability to Lease or Transfer	

<sup>7</sup> Indicate if reuse is not recommended or prohibited by the remedy. For example, reuse of a former landfill may not be recommended to ensure long-term protectiveness, or a remedy involving containment of low level radioactive contamination may specifically exclude reuse.

<input type="checkbox"/>	Issued Prospective Purchaser Agreement (PPA) or (PLA)	
<input type="checkbox"/>	Issued Ready for Reuse (RfR) determination	
<input type="checkbox"/>	Provided facilitation services to help community plan	
<input type="checkbox"/>	Resolved a lien issue	
<input type="checkbox"/>	Provided grant funding (e.g. TAG, Brownfields)	
<input type="checkbox"/>	Re-evaluated site restrictions or institutional controls	
<input type="checkbox"/>	Other: (e.g modified order)	

## **F. Benefits of Use/Reuse**

Check any known benefits associated with the use/reuse of the property and provide the source of that information.

	<b>Benefit of Use/Reuse</b>	<b>Description/Source of Information</b>
<input type="checkbox"/>	No information available at this time	
<input type="checkbox"/>	Permanent (new or retained) jobs on the site	# jobs, if known (            )
<input type="checkbox"/>	Housing or residential units built	# housing units, if known (            )
<input type="checkbox"/>	Reuse investment (redevelopment costs)	\$
<input type="checkbox"/>	Change in property value due to reuse	\$
<input type="checkbox"/>	Tax dollars generated from use or reuse	\$
<input type="checkbox"/>	Partnership(s) formed (federal, state, local, private,	
<input type="checkbox"/>	Creation or preservation of open space	
<input type="checkbox"/>	Sustainable reuse component: <input type="checkbox"/> Green building design <input type="checkbox"/> Energy efficient systems or alternative energy sources <input type="checkbox"/> Native landscaping	
<input type="checkbox"/>	Other (e.g construction jobs)	

## **Definitions for Section C - Current Land Use and Types of Use**

**Continued Use** - A site or portion of a site which is currently being used in the same general manner as it was when the site became contaminated. For example, continued use would be an appropriate description for a property where industrial operations resulted in the contamination and the property is still used as an operating industrial facility. The RCRA Program will count all acres of an active RCRA industrial facility as Continued Use, except for parcels specifically designated as Reused or Planned Reuse.

**Restored Reuse** (*Superfund sites only*) - Please indicate if the use of a property was temporarily halted during cleanup and the same use was resumed after the site was cleaned up. Check the **Restored Reuse** box.

**Reused** - A site or portion of a site where a new use, or uses, is occurring such that there has been a change in the type of use (e.g. industrial to commercial) or the property was vacant and now supports a specific use. This means that the developed site, or portion of the site, is "open" or actually being used by customers, visitors, employees, residents, etc.

**Planned Reuse** - A site or portion of a site where a plan for new use is in place. This could include conceptual plans, a contract with a developer, secured financing, approval by the local government, or the initiation of site redevelopment.

**No Current Use** - A site or portion of a site that is currently vacant or not being used in any identifiable manner. This could

be because site investigation and cleanup are on-going, operations ceased or owner is in bankruptcy, or cleanup is complete but the site remains vacant.

**Agricultural Use** - Property used for agricultural purposes such as farmland for growing crops and pasture for livestock. Agricultural use can also encompass other activities such as orchards, agricultural research and development, and irrigating existing farmland.

**Commercial Use** - Property used for retail shops, grocery stores, offices, restaurants, and other businesses.

**Enhanced Ecological Use** - Property where **proactive** measures, including a conservation easement, have been implemented to create, restore, protect or enhance a habitat for terrestrial and/or aquatic plants and animals, such as wildlife sanctuaries, nature preserves, meadows, and wetlands.

**Industrial Use** - Property used for traditional light and heavy industrial uses such as processing and manufacturing products from raw materials, as well as fabrication, assembly, treatment, and packaging of finished products. Examples of industrial reuse sites include factories, power plants, warehouses, waste disposal sites, landfill operations, and salvage yards.

**Military Use** - Property used for training, operations, research & development, weapons testing, range activities, logistical support, and/or provision of services to support military or national security purposes.

**Mixed Use** - Property where the multiple uses cannot be differentiated on the basis of acres. For example a condominium with retail shops on the ground floor and residential use on the upper floors would fall into this category. When selecting Mixed Use, indicate the different types of uses in the mixed use.

**Other Federal Use** - Property used to support the federal government in federal agency operations, training, research, and/or provision of services for purposes other than national security or military.

**Public Service Use** - Property which is being utilized by a local or state government agency or a non-profit group to serve citizens' needs. This can include transportation services such as rail lines and bus depots, libraries and schools, government offices, public infrastructure such as roads, bridges, utilities, or other services for the general public.

**Recreational Use** - Property which is being used for recreational activities such as sports facilities, golf courses, ballfields, open space for hiking and picnicking, and other opportunities for indoor and outdoor leisure activities.

**Residential Use** - Property which is being used for residential purposes including single-family homes, apartment complexes, and condominiums.

### **Instructions for Section D - Ready for Reuse (Superfund sites only)**

Indicate, in acres, any land portion of the site that is *Ready for Reuse* and whether the area is suitable for either residential or non-residential reuse. Acres considered *Ready for Reuse* include land areas currently being used (i.e., Continued Use or Reused); where investigation occurred and response actions were deemed unnecessary; or where cleanup goals for the land have been attained. Refer to “*Guidance for Documenting and Reporting the Superfund Revitalization Performance Measures*” [OSWER 9202.1-26] for additional information on reporting *Ready for Reuse*.

### **Examples for Section F - Documenting The Benefits of Use/Reuse**

To the extent practical, please provide any information that you are aware of on the local economic impact and/or ecological benefits associated with the use/reuse of the site. Below are additional clarifications and examples of how benefits information should be recorded on the Reuse Assessment Form. To assure that the data provided is accurate, please record benefits that accrue when the design phase of the use/reuse project is complete. If the information is preliminary based on the Planned Reuse of the site, please note that on the form.

**No information available at this time:** Select if the site has No Current Use, or if you have no reliable information to provide on the benefits of reuse.

**Permanent (new or retained) jobs on the site:** Count only actual permanent on-site jobs associated with continued use or reuse of the site. Jobs of a temporary nature, for example construction jobs during the redevelopment of the site, or job projections should not be counted. However, you may choose to put information about temporary or projected jobs in the Other category in this section. When recording job numbers, please provide the source of the number; we aren't looking for guesses or estimates. If possible, in the comments section, please provide the types of jobs created or retained: industrial, commercial, office, government, etc.

**Housing or residential units built:** Provide the total count for all individual housing units built on the site.

**Reuse investment (redevelopment costs):** If known, please provide the construction costs associated with redeveloping the site. For example, costs to install infrastructure (water, sewer, electric, roads), demolition and/or construction of buildings, parking lots, trails, ball fields, etc. Also, if known, indicate if any federal or state grants were used in the redevelopment of the site (e.g., brownfield grants, funds from other federal agencies, such as Housing & Urban Development or Economic Development Agency, congressional earmarks etc.) In the comments field, please indicate if the reuse investment was publically or privately funded, or both.

**Change in property value due to reuse:** The purpose of this information is to estimate whether site cleanup and reuse can be associated with increases in property value. Did an identifiable increase in property value occur in conjunction with cleanup and reuse of the site? If known, please estimate the change in the value of the property (tax assessed or sales price) that occurred after the site was cleaned-up and put back to reuse. This category is for sites that are Reused only and does not apply to the Continued Use or Planned Reuse categories.

**Tax dollars generated from use or reuse:** In this section, we are looking for data that may demonstrate how a previously contaminated site was put back on the local tax rolls. If known, provide the increase in local property taxes paid on the site from prior to reuse to after reuse.

**Partnership(s) formed (federal, state, local, private, etc.):** Please note whether partnerships were critical to the reuse or planned reuse of the site. Please name the partners.

**Creation or preservation of open space:** Is open space part of the use/reuse? Open space may be parks, greenways, recreational areas, wetlands, or areas specifically preserved for the purpose of open space or wildlife, for example, perhaps through a conservation easement. If possible, please tell us how many acres?

**Sustainable reuse component:** Is the reuse or planned reuse designed to minimize pollution and/or reduce resource consumption through the use of low-impact, green or sustainable design? Please select any applicable sustainable reuse categories that are being implemented as part of the reuse.

**Other:** Please explain any other economic or ecological benefits that occur because of reuse or planned reuse of the site.

## Examples for How to Complete the EPA Region 3 Hazardous Waste Cleanup Sites Land Use/Reuse Assessment Form

**1. Industrial site in an Urban Area becomes Public Service and future Residential** - Two acres of this three acre site are now being used by the municipality for offices, recreation and transportation. The other acre has approval by the municipality for residential development. In filling out the Reuse Form, the Total Site Acres would be 3, Reused are 2 acres and those same 2 acres also recorded in Public Services since that is the predominant use. After checking off CC for Construction Complete the RPM would write in municipal building, recreation and transportation in the last column. Then 1 acre would be put under Planned Reuse and also in the Residential Type of Use category. The RPM would again check off CC under Cleanup Status.

**2. Landfill in an Urban/Suburban Area becomes Recreational** - After the cleanup this 32 acre site was developed into a large sports complex including a restaurant. The 32 acres would be put in for the Total Site Acres, under Reused, next to Recreational since that is the primary use of the site and in the Inactive waste Disposal column. Then the RPM would check off CC for Construction Complete and write in large sports complex in the last column.

**3. Industrial site in a Rural Area continues operating** - This seven acre site continued operating their commercial lumber yard business during the cleanup on three acres. The groundwater contamination had migrated off site but those acres were not included in the total site acres (the RPM would have checked the Yes box for question 6 on the first page of the form). In completing the Reuse form the Total Site Acres would be 7 and 3 acres would be put under Continued Use and in the Commercial use type. Construction Complete (CC) would be checked next and then lumber yard written in the last column. The other 4 acres would be put under No Current Use and Inactive Waste Disposal for the old surface impoundments. CC would be checked again along with the Reuse not recommended box.

**4. Industrial site in a Rural Area becomes Agricultural and Federal Use** - This eleven acre site was a pesticide plant that now supports dairy farming and federal government offices. After entering 11 for the Total Site Acres and in the Reused category, the RPM would put 9 in the Agricultural slot and 2 in Other Federal slot under the Type of Use column. Cleanup Status is CC - construction complete and then the RPM would write dairy farm and federal government offices in the last column.

**5. Landfill in a Rural Area becomes an Ecological Area** - This 47 acre site was intentionally transformed into a wildlife and wetland area. The RPM would enter 47 for the Total Site Acres, in the Reused category, next to Enhanced Ecological in the Type of Use Column and again put 47 in the Inactive Waste Disposal Area column. Then CC would be checked for Cleanup Status. In the last column the RPM would write in wildlife and wetlands area.

**6. Industrial site in a Rural Area becomes Restored Reuse** - This 8 acre chemical plant stopped operations during the cleanup and reopened its same operations after the cleanup of the site. The RPM would put 8 in the Total Site Acres, under Continued Use and next to Industrial under Type of Use. The RPM would also check off the Restored Reuse box under the Continued Use section and CC for the Cleanup Status. In the last column the RPM would write chemical plant.

**7. Industrial site in an Urban Area is Ready for Reuse** - This 25 acre site was cleaned up to be compatible with its potential future use but remains vacant. The RPM would put 25 under Total Site Acres and under No Current Use. Then the CC box would be checked under Cleanup Status and 25 put in for acres ready for non-residential use. The RPM knows that there is a lot of interest in this site and checks the Yes box in the last column.



**8. Federal Facility in an Industrial Area continues Industrial and reuses area for Enhanced Ecological** - EPA only investigated 85 acres of this 800 acre NPL/Federal Facility, so the RPM would enter 85 for the Total Property Acres. Portions of those 85 acres remain in military and industrial uses and 5 acres were restored wetlands. The 85 acres would be put under continued use with 5 in Enhanced Ecological, 10 in the Industrial slot and 70 in the Military slot. The investigation box (IN) would be checked for the Industrial and Military acres and CC(construction complete) for the 5 acres in Enhanced Ecological. Seventy(70) would also be put under Inactive Waste Disposal Area since those acres were a former landfill. The RPM would then describe the industrial operations in the last column. Then the RPM would record the 5 acres as restored wetlands in the last column.

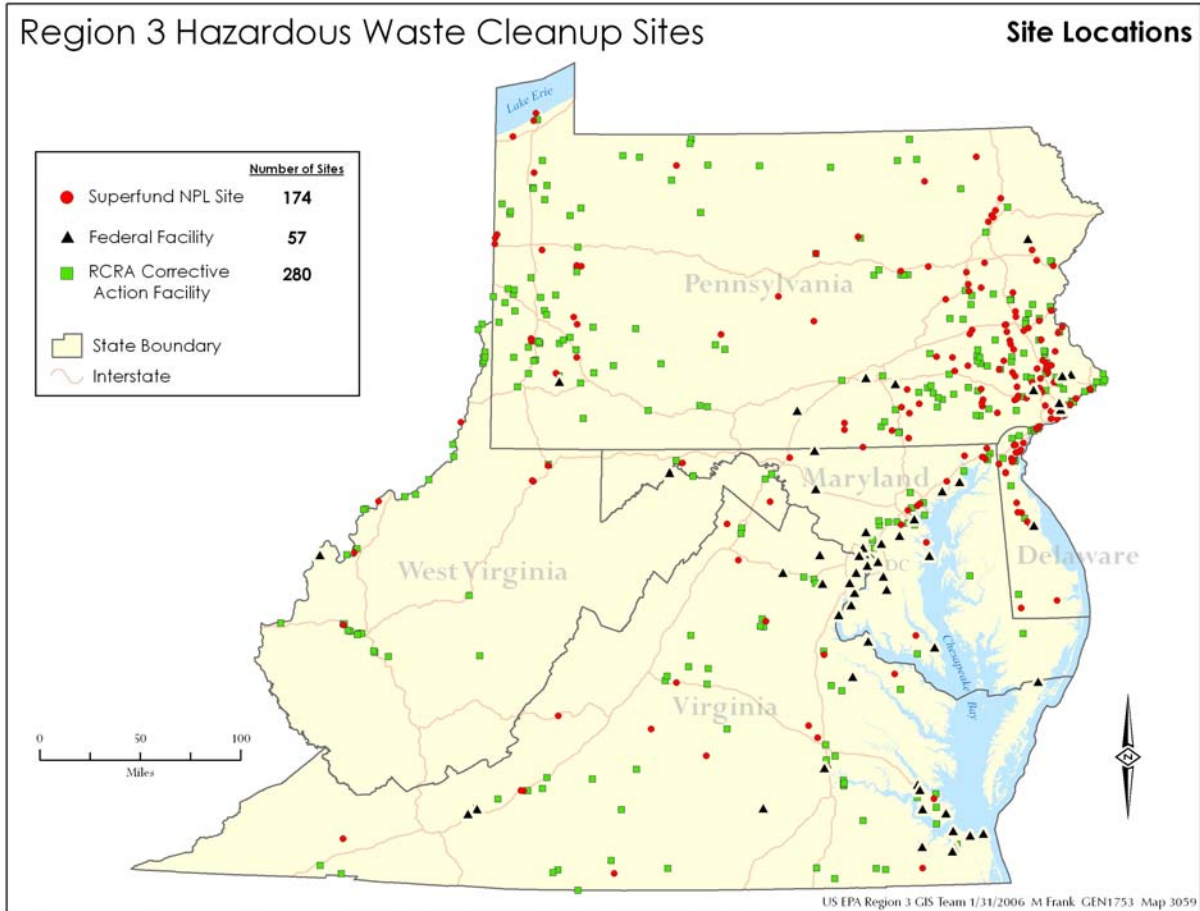
**9. Federal Facility in a Urban/Suburban Area is completely Reused** - This 800 acre BRAC/NPL/Federal Facility site in a Urban/Suburban area where land is valuable is being reused as a combination of commercial, residential and open space. The Total Property Acres in this case would be the same as the total facility acres - 800. This same 800 figure would go in the Reused box with 12 acres next to Commercial, 538 for Recreational and 250 for Residential. The Cleanup Status for all these uses is CC (construction complete). In the last column the RPM would write Funeral Home, Retirement homes and open space.

**10. Federal Facility in a Residential Area is completely Reused** - This 164 acre BRAC/Non NPL Federal Facility site continues to have it's ground water treated while the land is being reused(the RPM would have checked the Yes box for question 6 on the first page of the form) for housing and a park. The Total Property Acres would be 164 and that would also be put in the Reused box. Then 64 would be put next to Recreational and 100 next to Residential. The Construction Complete(CC) box would be checked for both in the cleanup Status column. The RPM would then write park and residential development in the last column.

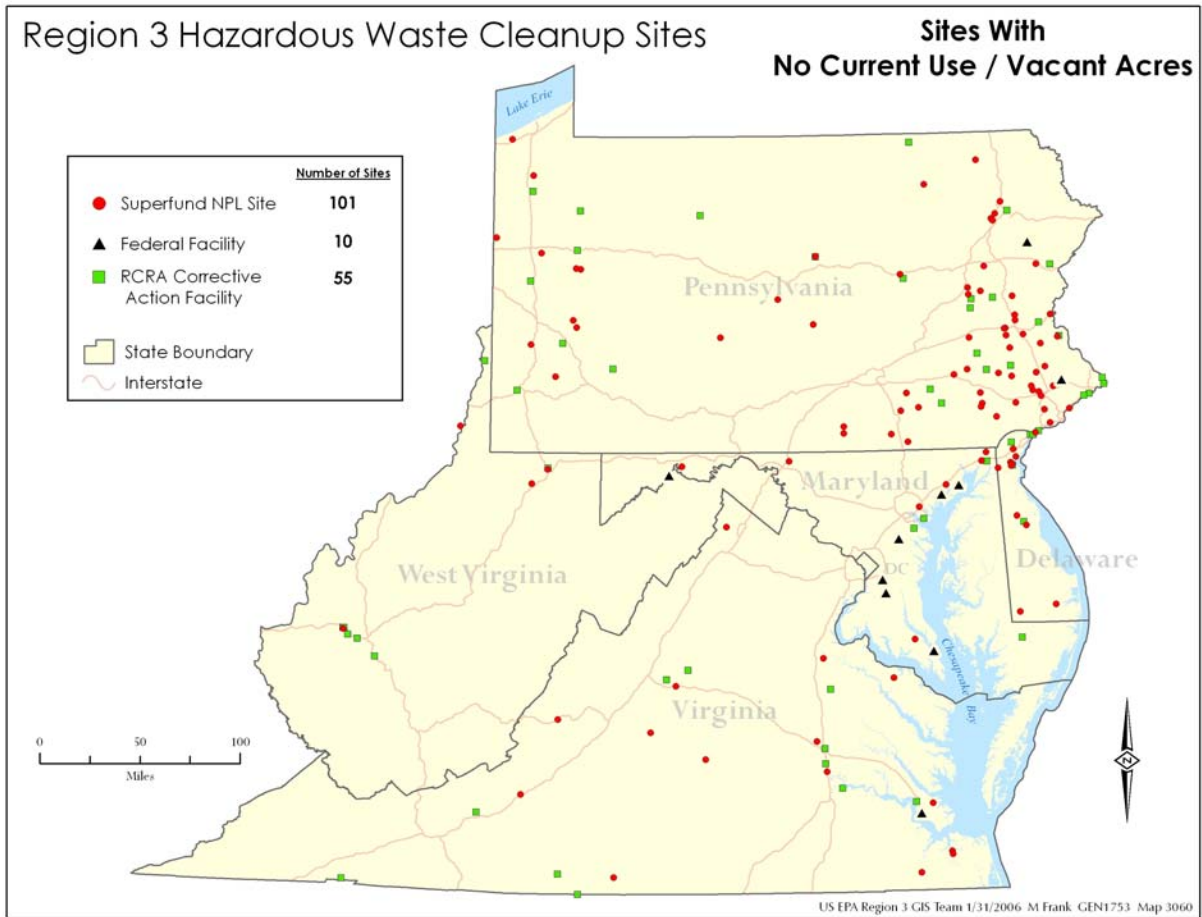
**11. Industrial site in an Urban Area becomes Mixed Use** - This 3.5 acre site was a small paint manufacturer where the building was condemned and demolished after EPA's cleanup. A new building was constructed that has shops and business on the lower floors and apartments on the higher floors. The Total Property Acres would be 3.5 and that same number would be put in the Reused column and next to Mixed Use in the Type of Use Column. The Com(for Commercial) and Res(for Residential) boxes would be checked under Mixed Use. Construction Complete(CC) would also be checked and then the RPM would write high rise building with multiple uses in the last column.

# APPENDIX B - MAPS OF SITE LOCATIONS

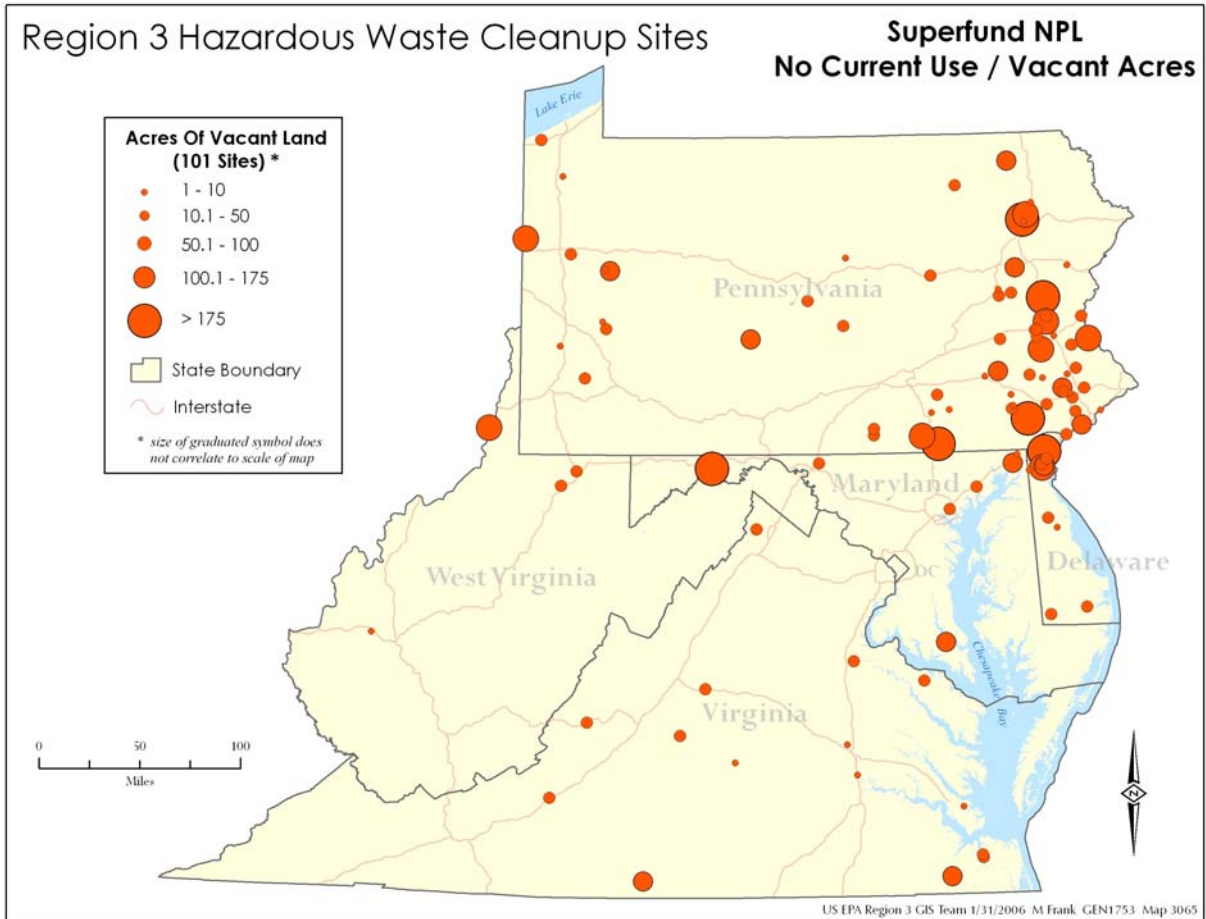
## Hazardous Waste Cleanup Sites- Site Locations



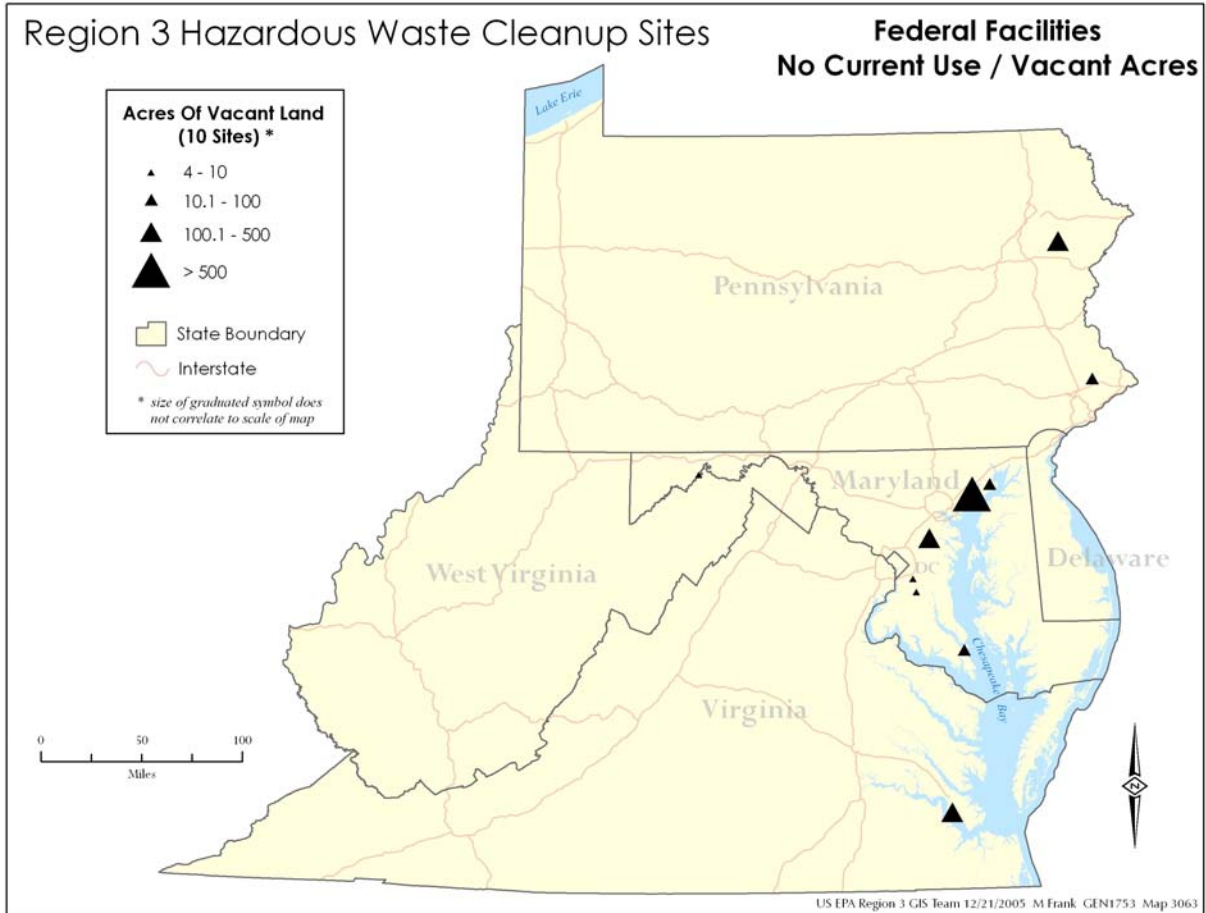
## Hazardous Waste Cleanup Sites- Sites with No Current Use/Vacant



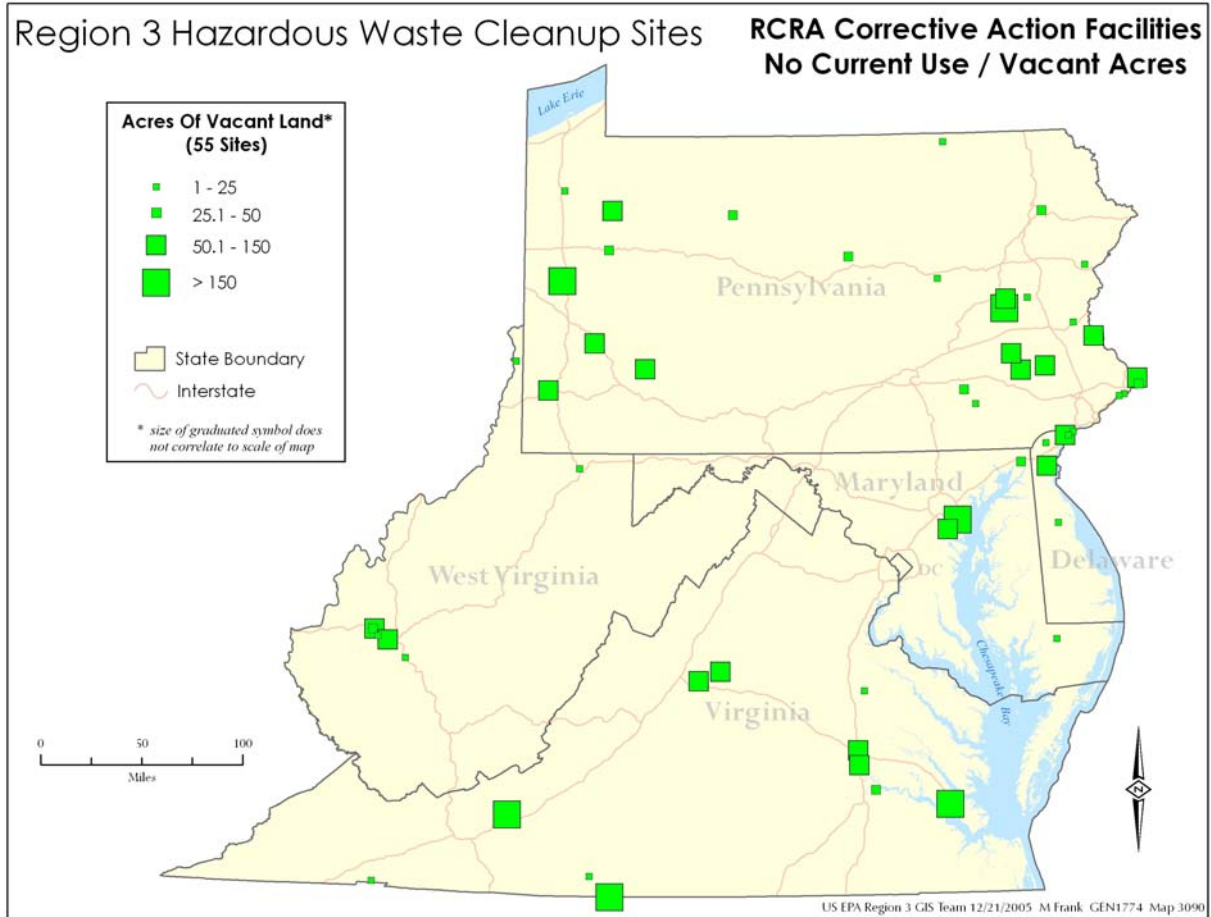
## Superfund NPL No Current Use/Vacant



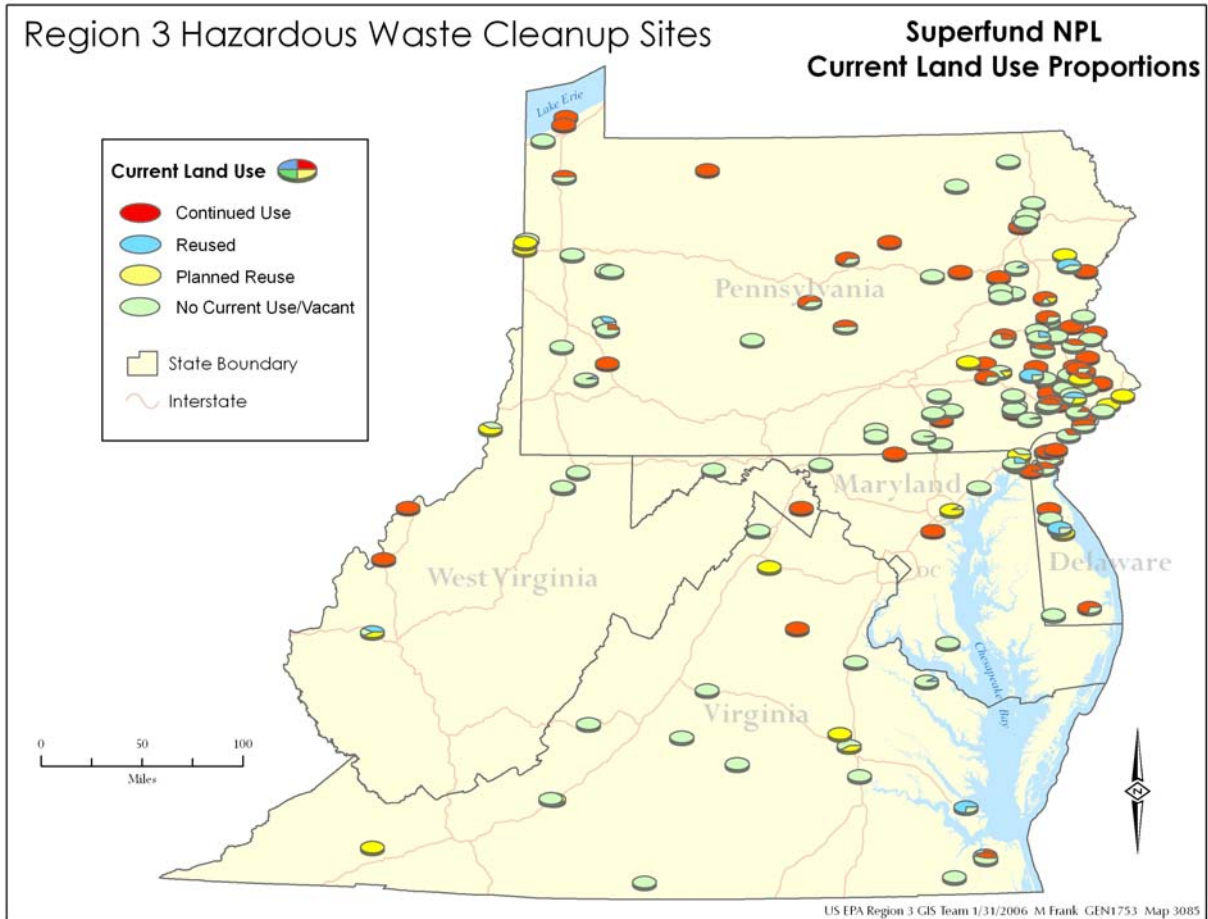
## Federal Facilities No Current Use/Vacant



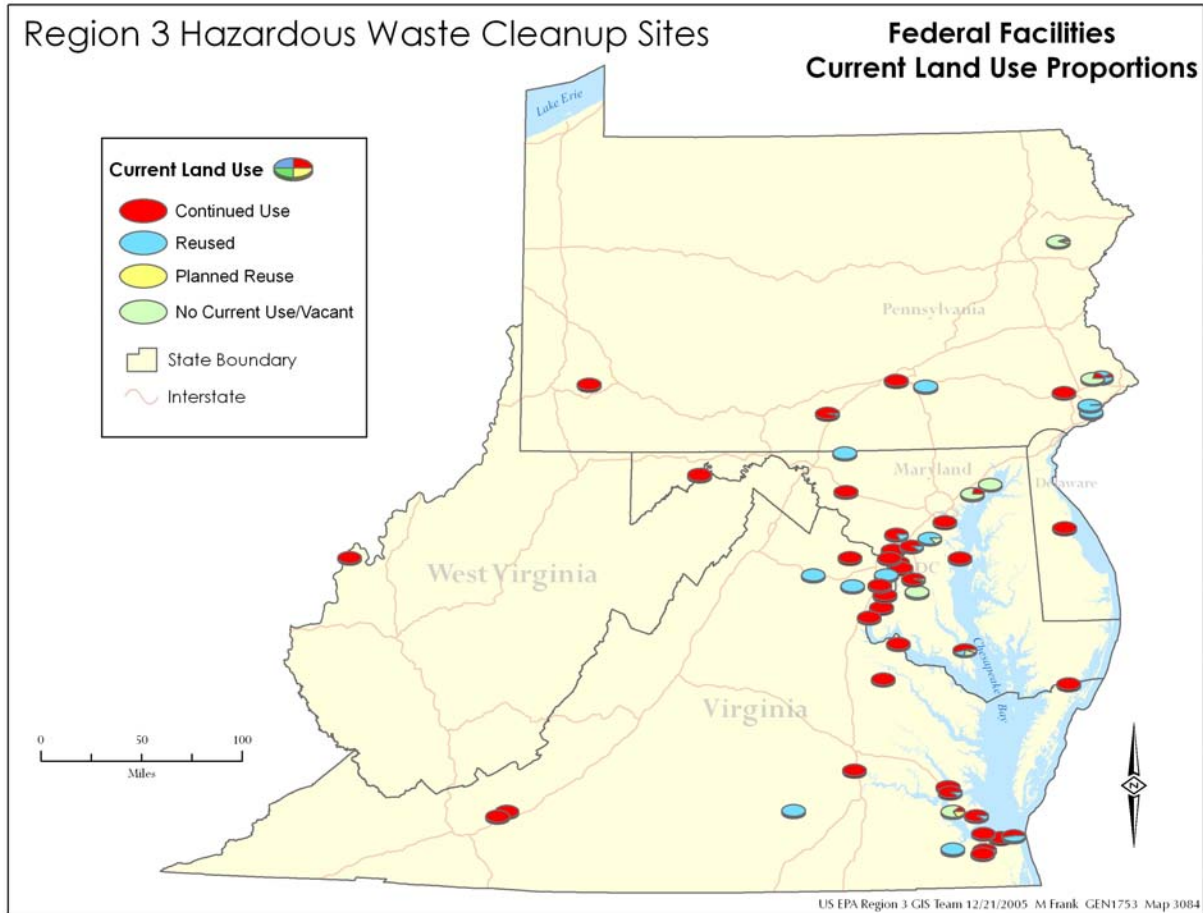
RCRA Corrective Action Facilities No Current Use/Vacant



## Superfund NPL Current Land Use Proportions

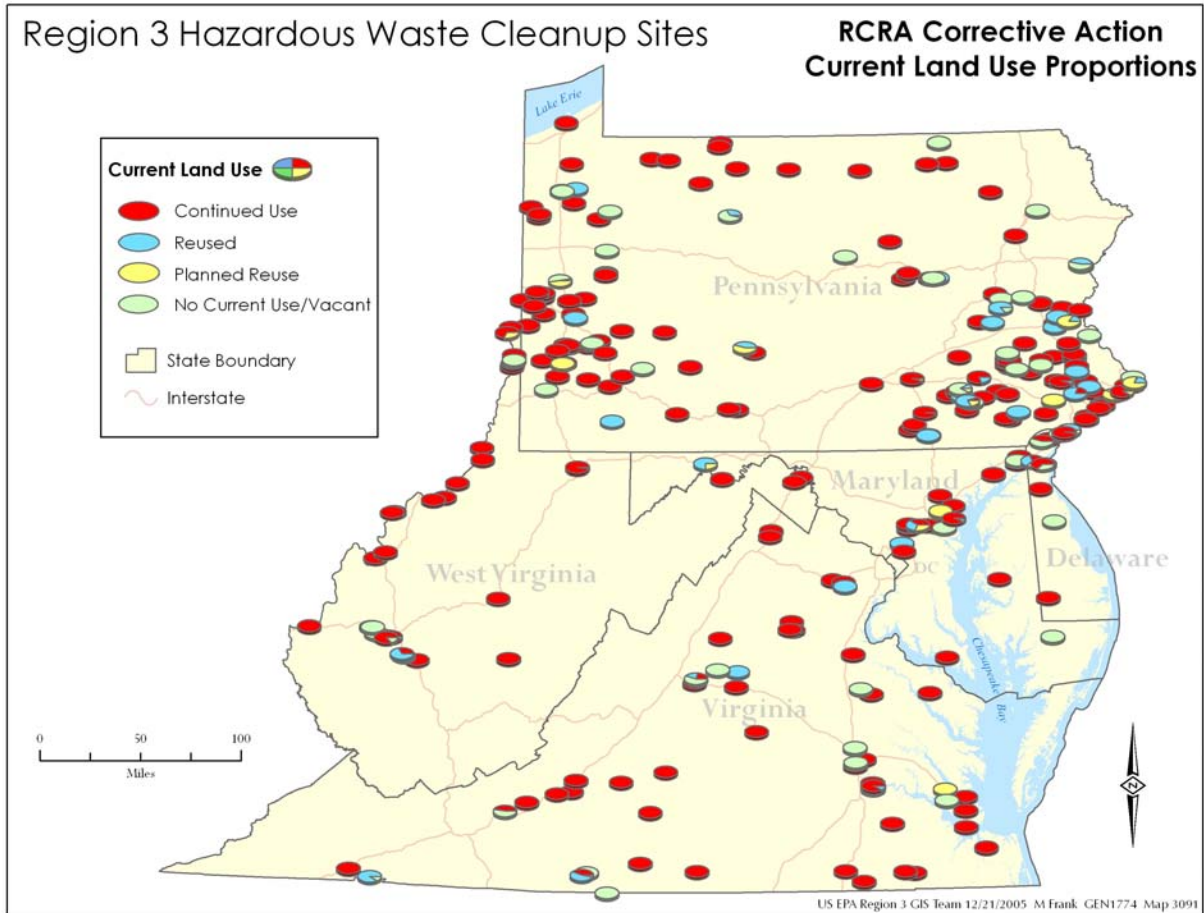


## Federal Facilities Current Land Use Proportions





## RCRA Corrective Action Current Land Use Proportions



## APPENDIX C - DETAILED DATA ANALYSES

### No Current Use/Vacant Land Detailed Results

As part of Region 3's Hazardous Waste Cleanup Sites Land Use & Reuse Assessment, site managers reported acres at sites with no current land use or vacant land. Additionally, site managers reported any acres of the no current use/vacant areas where reuse was not recommended. Results are as follows.

#### **General Results**

Of the 511 total sites surveyed, 166 sites (32%) of the sites surveyed indicated that some or the all of the site is currently not being used. Ninety-eight sites are totally vacant and 68 sites are partially vacant.

On these 166 sites, 17,143 acres (17%) of the total possible land area is vacant.

Of the 17,143 vacant acres, 2,680 (16%) are not recommended for reuse. Sixty percent of the vacant land not recommended for reuse is inactive waste disposal areas (landfills). This leaves 14,463 vacant acres (84%) that have some potential for future reuse.

Vacant land is evenly divided among the programs with each program having approximately 1/3 of the total vacant acres. However, since Superfund NPL accounts for only 7% of the total land considered, its portion accounts for a larger percentage of vacant acres as compared to the other programs. In addition, 36% of vacant land at Superfund NPL sites is not recommended for reuse.

#### **Program Specific Results**

Superfund NPL (Non-Federal Facilities): 61% of the number of sites reporting vacant lands and 34% of the total vacant acres are at Superfund NPL sites.

- Of the 174 Superfund NPL sites surveyed, 101 (58%) indicate that all or a portion of the site is currently not being used. Fifty eight sites are totally vacant and 43 sites are partially vacant.
- On these 101 sites, 5,886 acres (35%) of Superfund NPL land (2% of the total land surveyed) is vacant.
- Of the 5,886 vacant acres, 2,119 (36%) are not recommended for reuse. This leaves 3,767 vacant acres (64%) that have some potential for future reuse.

Federal Facilities: 6% of the number of sites reporting vacant land and 38% of the total vacant acres are at Federal Facilities.

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- Of the 57 Federal Facilities surveyed, 10 (18%) indicate that all or a portion of the site is currently not being used. Two sites are fully vacant and 8 are partially vacant.
- On these 10 sites, 6,485 acres (4%) of all federal land (3% of the total land surveyed) is vacant.
- Of the 6,485 vacant acres, 490 (8%) was not recommended for reuse. This leaves 5,995 vacant acres (92%) that have some potential for future reuse.

*RCRA Corrective Action (Non-Federal Facilities):* 33% of the number of sites reporting vacant lands and 28% of the total vacant acres are at RCRA sites.

- Of the 280 RCRA sites surveyed, 55 (20%) indicate that all or a portion of the site is currently not being used. Thirty eight sites are completely vacant and 17 are partially vacant.
- On these 55 sites, 4,772 acres (7%) of RCRA acres (2% of the total land surveyed) is vacant.
- Of the 4,772 vacant acres, 71 (1%) are not recommended for reuse. This leaves 4,701 vacant acres (99%) that have some potential for future reuse.

**Vacant Land Data**

**Table 1: Vacant Land by Sites**

Program	Sites Surveyed	Sites w/ Vacant Land	% of Sites w/ Vacant Land
Federal Facilities	57	10	18%
RCRA	280	55	20%
Superfund NPL	174	101	58%
<b>Total</b>	<b>511</b>	<b>166</b>	<b>32%</b>

**Table 2: Vacant Land by Acres**

Program	Total Acres Surveyed	Vacant Land (Acres)	Acres Not Recommended for Reuse	Acres w/ Potential for Reuse	% of Vacant acres with Potential Future Reuse
Federal Facilities	145,965	6,485	490	5,995	92%
RCRA	67,823	4,772	71	4,701	99%
Superfund NPL	16,706	5,886	2,119	3,767	64%
<b>Total</b>	<b>230,494</b>	<b>17,143</b>	<b>2,680</b>	<b>14,463</b>	<b>84%</b>

Region 3 also considered the amount of vacant land that was associated with inactive waste disposal areas and whether those areas were actively being reused or whether these areas were recorded as “not recommended for reuse” because of complications with waste left in place on the site.

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The results vary significantly by program. In RCRA, all the vacant acres listed as not recommended for reuse were inactive waste disposal areas. In the Superfund program, 65% of vacant acres not recommended for reuse were associated with inactive waste disposal areas.

**Table 3: Inactive Waste Disposal Areas on No Current Use/Vacant Land**

<b>Program</b>	<b>Total no current use/vacant acres</b>	<b>Vacant inactive waste disposal acres</b>	<b>% of inactive waste disposal areas on vacant land</b>
Federal Facilities	6,485	340	5%
RCRA	4,772	1,156	24%
Superfund NPL	5,886	1,594	27%
<b>Total</b>	<b>17,143</b>	<b>3,090</b>	<b>18%</b>

**Table 4: Acres of Land with Inactive Waste Disposal Areas that are Not Recommended for Reuse**

<b>Program</b>	<b>Total vacant acres not recommended for reuse</b>	<b>Vacant acres w/ inactive waste disposal not recommended for reuse</b>	<b>% of land w/ inactive waste disposal that is not recommended for reuse</b>
Federal Facilities	490	133	27%
RCRA	71	71	100%
Superfund NPL	2,110	1,393	65%
<b>Total</b>	<b>2,680</b>	<b>1,597</b>	<b>60%</b>

## Economic Benefits Information

The tables below outline both the general (yes/no) results and those reporting detailed data in the Benefits of Use/Reuse, Section E on Region 3's Land Use/Reuse Assessment Form.

<b>Jobs</b>	<b>Total Sites Surveyed</b>	<b>Sites Reported (Yes)</b>	<b>% of Survey Sites</b>	<b>Reported Details</b>	<b>% of Survey Sites</b>	<b>No. of Jobs</b>
Federal Facilities	57	16	28%	4	7%	1,888
RCRA	280	60	21%	22	8%	21,980
Superfund NPL	174	26	15%	12	7%	642
<b>Total</b>	<b>511</b>	<b>102</b>	<b>20%</b>	<b>38</b>	<b>7%</b>	<b>24,986</b>

<b>Houses</b>	<b>Total Sites Surveyed</b>	<b>Sites Reported (Yes)</b>	<b>% of Survey Sites</b>	<b>Reported Details</b>	<b>% of Survey Sites</b>	<b>No. of Houses</b>
Federal Facilities	57	4	7%	0	0%	N/R
RCRA	280	4	1%	2	0.7%	150
Superfund NPL	174	5	3%	5	3%	19
<b>Total</b>	<b>511</b>	<b>13</b>	<b>3%</b>	<b>7</b>	<b>1%</b>	<b>189</b>

<b>Reuse Investment</b>	<b>Total Sites Surveyed</b>	<b>Sites Reported (Yes)</b>	<b>% of Survey Sites</b>	<b>Reported Details</b>	<b>% of Survey Sites</b>	<b>Investment</b>
Federal Facilities	57	9	16%	3	5%	\$328 M
RCRA	280	17	6%	5	2%	\$3.5B
Superfund NPL	174	7	4%	4	2%	\$155M
<b>Total</b>	<b>511</b>	<b>33</b>	<b>6%</b>	<b>12</b>	<b>3%</b>	<b>0</b>

<b>Change in Property Value</b>	<b>Total Sites Surveyed</b>	<b>Sites Reported (Yes)</b>	<b>% of Survey Sites</b>	<b>Reported Details</b>	<b>% of Survey Sites</b>	<b>Property Value</b>
Federal Facilities	57	10	18%	0	0.0%	N/R*
RCRA	280	12	4%	1	0.4%	
Superfund NPL	174	12	7%	4	2.3%	
<b>Total</b>	<b>511</b>	<b>34</b>	<b>7%</b>	<b>5</b>	<b>1%</b>	

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<b>Tax Revenue</b>	<b>Total Sites Surveyed</b>	<b>Sites Reported (Yes)</b>	<b>% of Survey Sites</b>	<b>Reported Details</b>	<b>% of Survey Sites</b>	<b>Tax Dollars</b>
Federal Facilities	57	7	13%	0	0%	N/R
RCRA	280	33	12%	1	0%	\$2.2 M
Superfund NPL	174	12	7%	0	0%	N/R
<b>Total</b>	<b>511</b>	<b>52</b>	<b>10%</b>	<b>1</b>	<b>0%</b>	<b>N/R</b>

<b>Partnerships</b>	<b>Total Sites Surveyed</b>	<b>Sites Reported (Yes)</b>	<b>% of Survey Sites</b>	<b>Reported Details</b>	<b>% of Survey Sites</b>	
Federal Facilities	57	9	16%	2	4%	
RCRA	280	9	3%	9	3%	
Superfund NPL	174	7	4%	4	2%	
<b>Total</b>	<b>511</b>	<b>25</b>	<b>5%</b>	<b>15</b>	<b>3%</b>	

\*N/R = Not Reported

## **Enhanced Ecological Use Information**

Region 3 collected information on areas where enhanced ecological use was occurring on hazardous waste cleanup sites. For the purposes of this study, the definition of enhanced ecological use is “property where *proactive* measures, including conservation easement, have been implemented to create, restore, protect or enhance a habitat for terrestrial and /or aquatic plants and animals, such as wildlife sanctuaries, nature preserves, meadows and wetlands.”

### **General Results**

Of the 511 total sites surveyed, 40 sites (8%) indicated that some or all of the site is currently or is planned to be put into enhanced ecological use.

On these 40 sites, 6,856 acres (3%) of the total land area surveyed is enhanced ecological use.

Of the 40 sites reporting enhanced ecological areas, on average, approximately 20-40% of the land area at each site is enhanced ecological, with four sites being completely reused as enhanced eco areas.

In addition, 23 other sites have indicated that open space and/or sustainable reuse were a site benefit.

### **Program Specific Results**

Superfund NPL (non Federal Facilities): 11% of land in the enhanced ecological category occurs on Superfund NPL sites

- Of the 174 Superfund NPL sites surveyed, 16 sites (9%) indicated that some or all of the site is currently or is planned to be put into enhanced ecological use.
- On these 16 sites, 723 acres (4%) of the Superfund NPL land surveyed (<1% of the total land surveyed) reported enhanced ecological use.
- Of those Superfund NPL sites with ecological enhancements, on average, approximately 42% of the land area at each site has been ecologically enhanced.
- In addition, 12 other Superfund NPL sites indicated that open space and/or sustainable reuse were a site benefit.

Federal Facilities: 75% of land in the enhanced ecological category occurs on Federal Facilities

- Of the 57 Federal Facilities surveyed, 13 sites (23%) indicated that some or all of the site is currently or is planned to be put into enhanced ecological use.
- On these 13 sites, 5,139 acres (4%) of all Federal Facilities land surveyed (2% of the total land surveyed) is enhanced ecological use.
- Of those Federal Facilities with ecological enhancements, on average, approximately 33% of the land area at each site has been ecologically enhanced.
- In addition, 6 other Federal Facilities indicated that open space and/or sustainable reuse were a site benefit.

RCRA Corrective Action (non Federal Facilities): 14% of land in the enhanced ecological category occurs on RCRA sites.

**EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

- Of the 280 RCRA sites surveyed, 11 sites (4%) indicated that some or all of the site is currently or is planned to be put into enhanced ecological use.
- On these 11 sites, 994 acres (1%) of RCRA land surveyed (< 1% of the total land surveyed) is enhanced ecological use.
- Of those RCRA sites with ecological enhancements, approximately 22% of the land area at each site has been ecologically enhanced.
- In addition, 5 other RCRA sites indicated that open space and/or sustainable reuse were a site benefit.

**Table 1: Enhanced Ecological Use - Results by Site**

Program	Total Sites Surveyed	Sites w/ Enhanced Ecological Acres		Sites also Reporting Open Space or Sustainable Use	
		Count	Percentage	Count	Percentage
Federal Facilities	57	13	23%	6	11%
RCRA	280	11	4%	5	2%
Superfund NPL	174	16	9%	12	7%
<b>All Sites</b>	<b>511</b>	<b>40</b>	<b>8%</b>	<b>23</b>	<b>5%</b>

**Table 2: Enhanced Ecological Use - Results by Acres**

	Total Acres Surveyed	Total Ecologically Enhanced Acres	Percentage	Total Continued Use	Total Reused	Total Planned Reuse
Federal Facilities	145,965	5,139	4%	4,230	802	107
RCRA	67,823	994	1%	48	600	346
Superfund NPL	16,706	723	4%	123	247	353
<b>All Sites</b>	<b>230,494</b>	<b>6,856</b>	<b>3%</b>	<b>4,401</b>	<b>1,649</b>	<b>806</b>

**Table 3: Average Portion of Land Area in Enhanced Ecological (EE) Use**

	Average Acres/Site	Average % of Enhanced Eco Use For Sites w/ Enhanced Eco Use
Federal Facilities	93	31%
RCRA	4	22%
Superfund NPL	4	42%
<b>All Sites</b>	<b>13</b>	<b>33</b>