

## 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

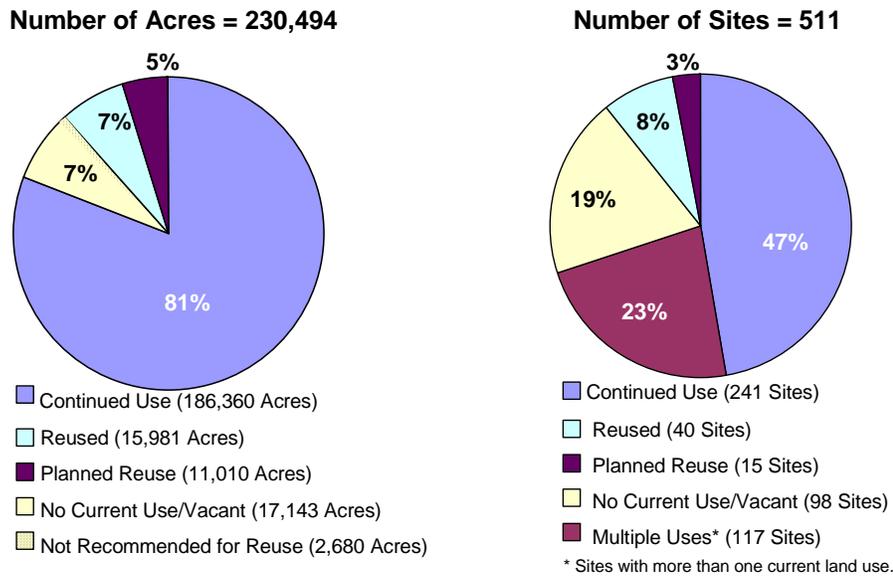
\*Sites on this table include entire sites and portions of a site. Because some sites have more than one land use, the number of sites will add up to more than the total number of sites evaluated.

### 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.

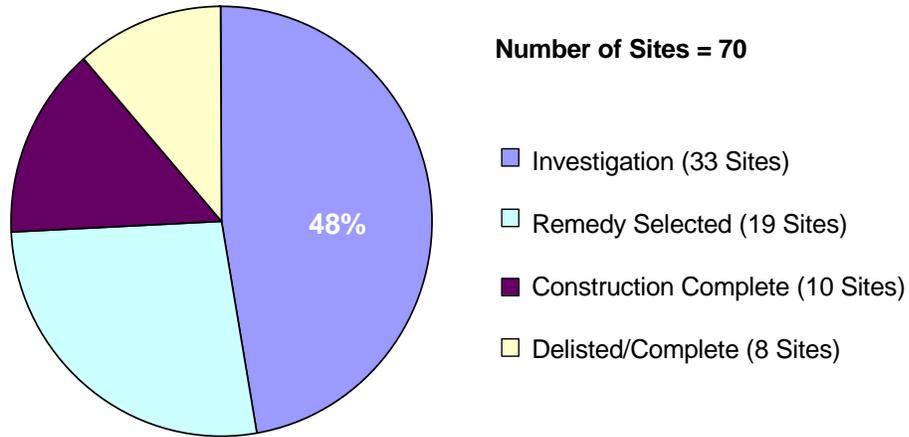
### ***Cleanup and Reuse Connection***

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

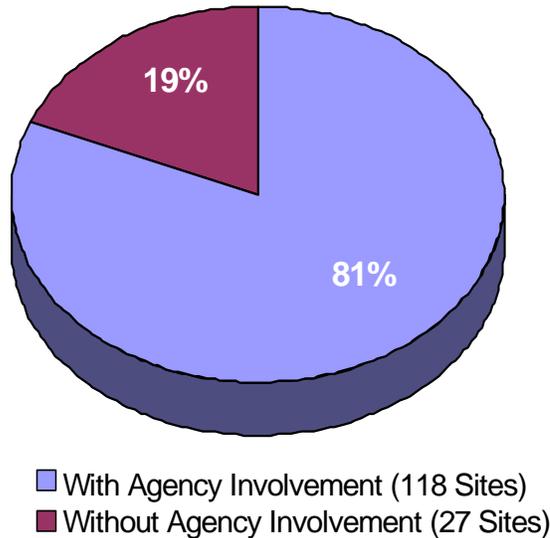
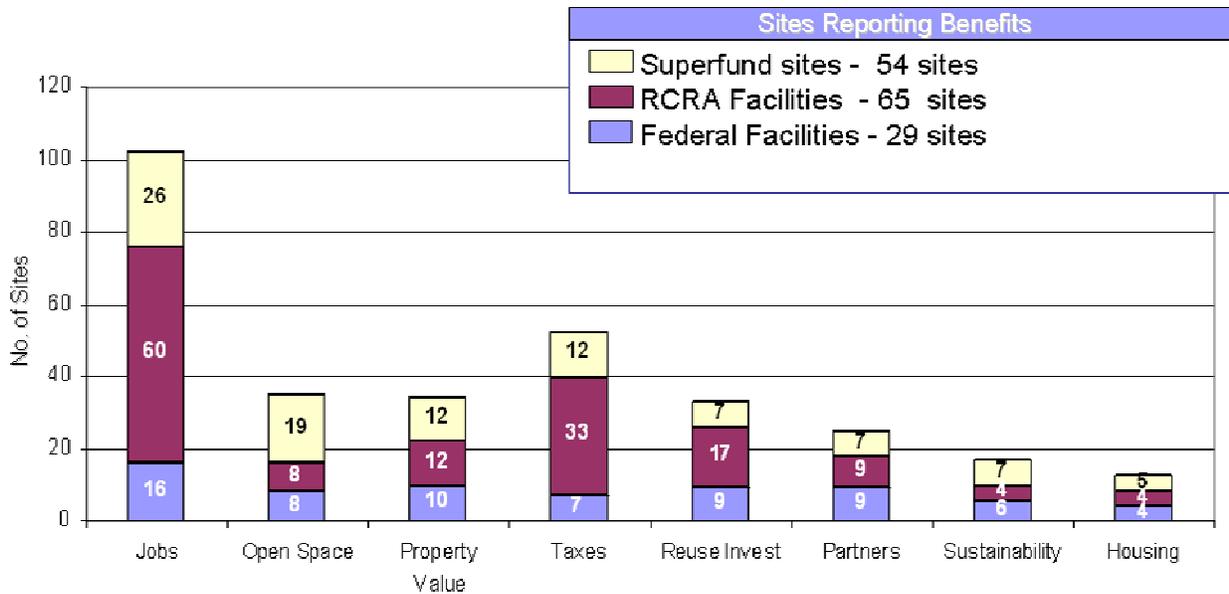


Figure 3-5: Region 3 Hazardous Waste Cleanup Sites Frequency of Benefits Reported



### 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

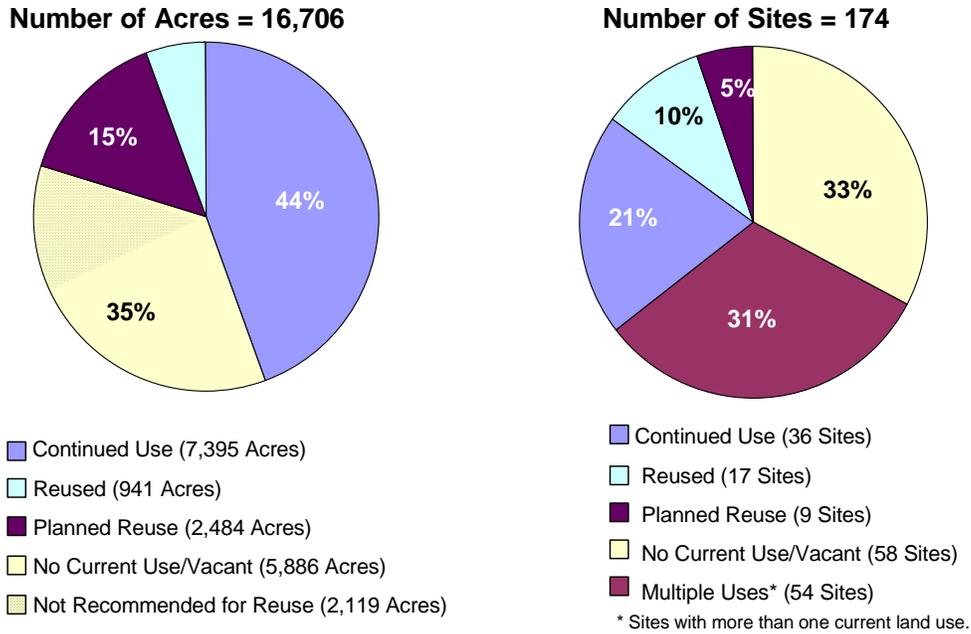
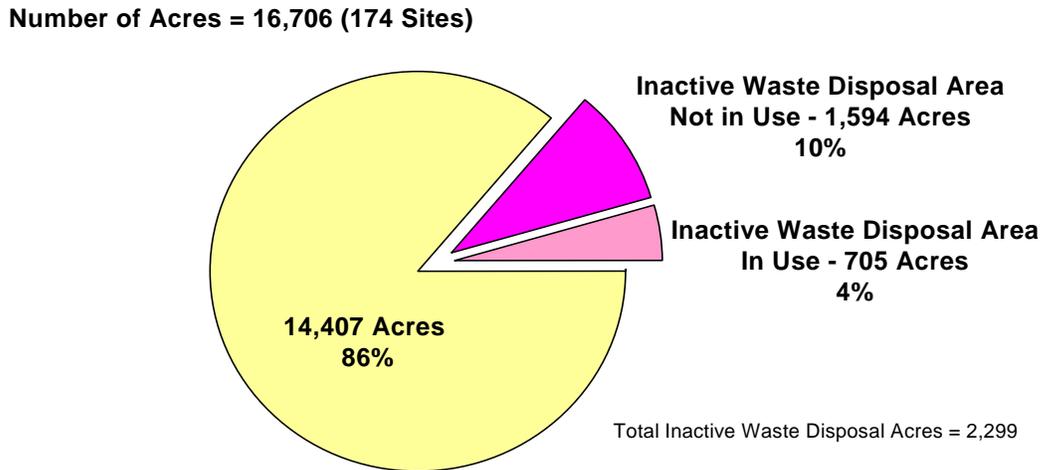


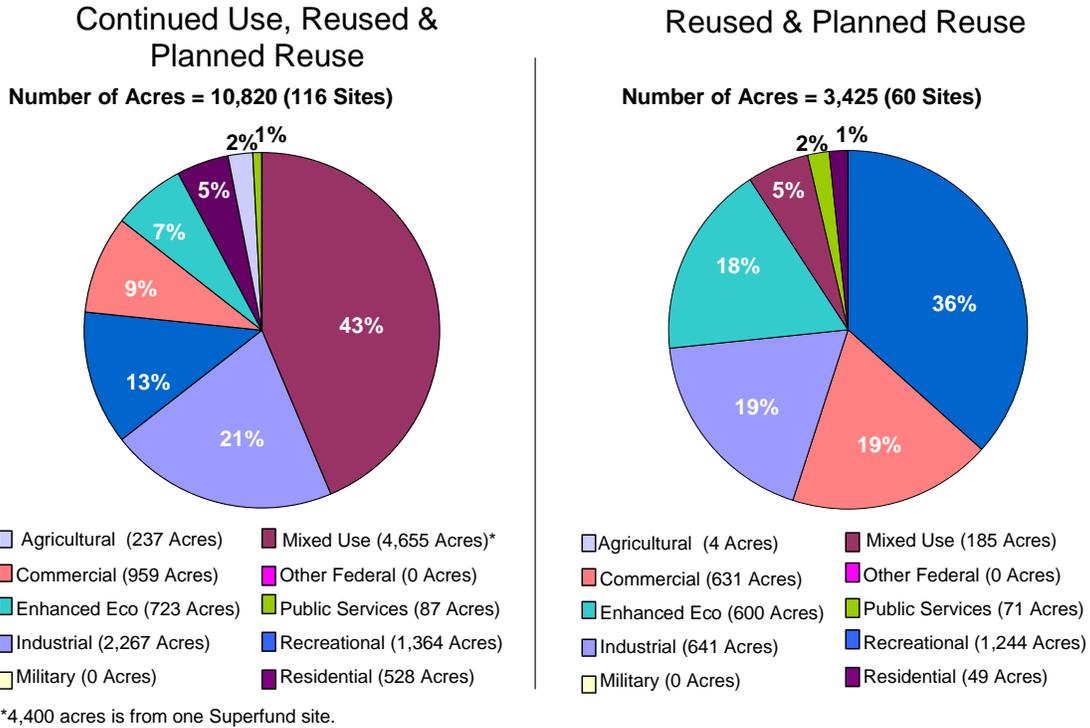
Figure 3-7: Region 3 Superfund Sites Inactive Waste Disposal Areas



**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.

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

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**

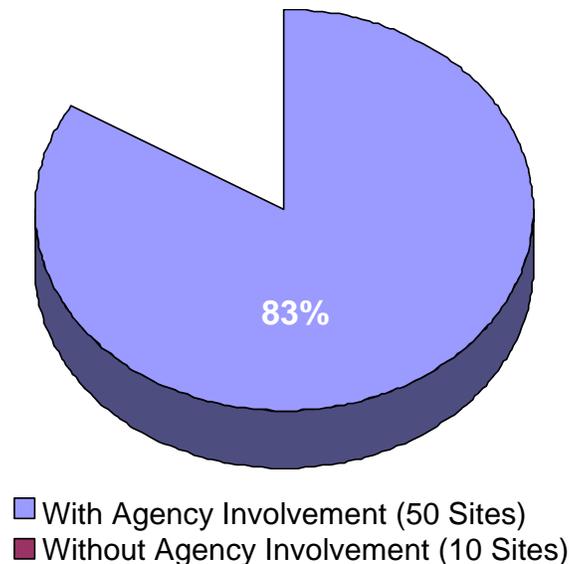
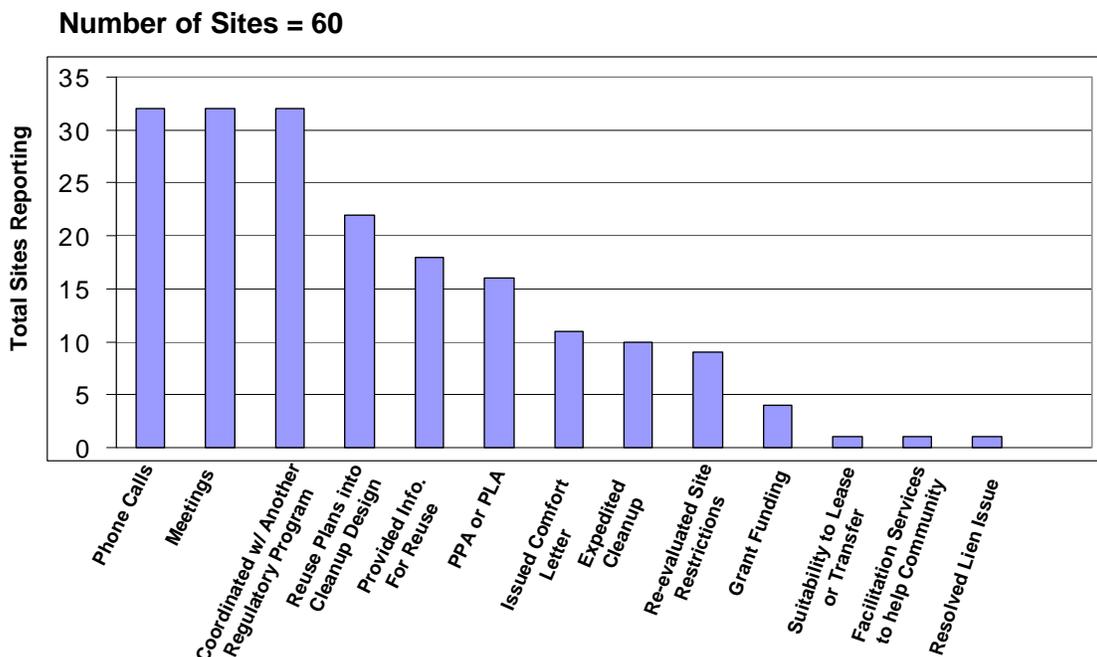


Figure 3-10: Region 3 Superfund Sites  
Tools Used to Support Reuse & Planned Reuse



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.

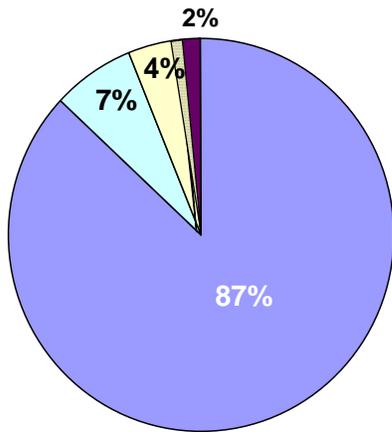
Figure 3-11 shows the Current Land Use as reported for the Federal Facilities data set. As expected, the vast majority of land at Federal Facilities is in continued use, as most are operating military bases. For Federal Facilities, 96 percent of all land is in use or has a plan for reuse.

**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.

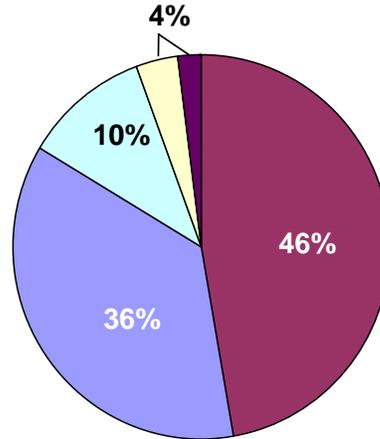
**Figure 3-11: Region 3 Federal Facilities Sites Current Land Use**

Number of Acres = 145,965



- Continued Use (126,704 Acres)
- Reused (10,154 Acres)
- Planned Reuse (2,622 Acres)
- No Current Use/Vacant (6,485 Acres)
- Not Recommended for Reuse (490 Acres)

Number of Sites = 57



- Continued Use (21 Sites)
- Reused (6 Sites)
- Planned Reuse (2 Sites)
- No Current Use/Vacant (2 Sites)
- Multiple Uses\* (26 Sites)

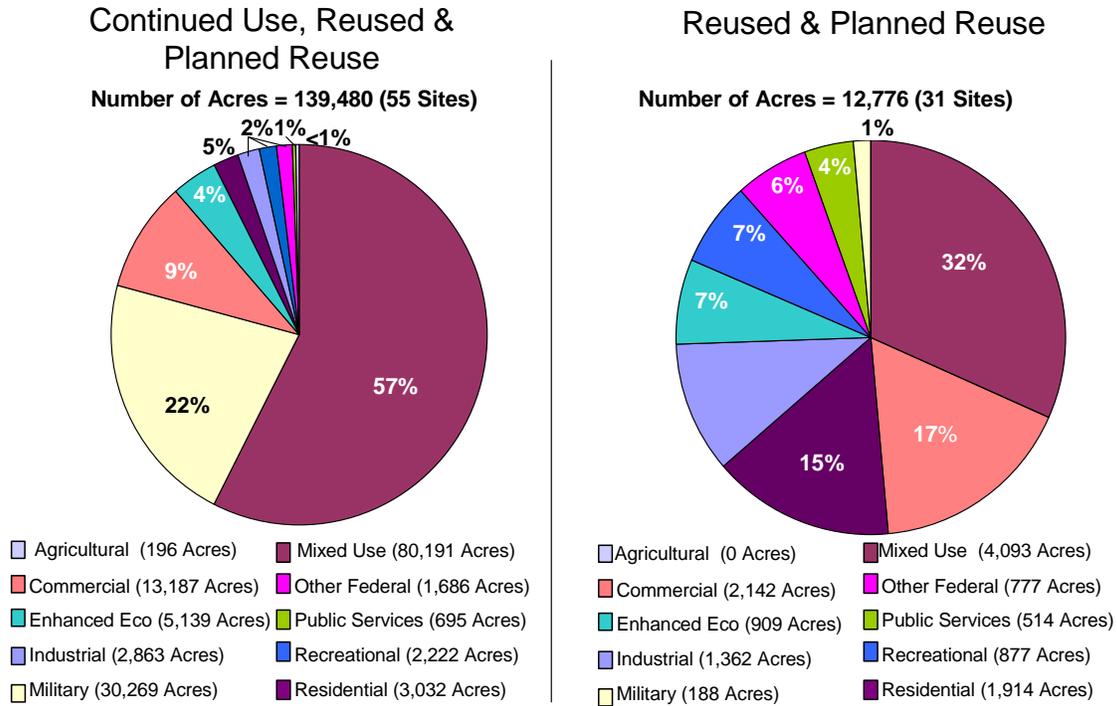
\* Sites with more than one current land use.

**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

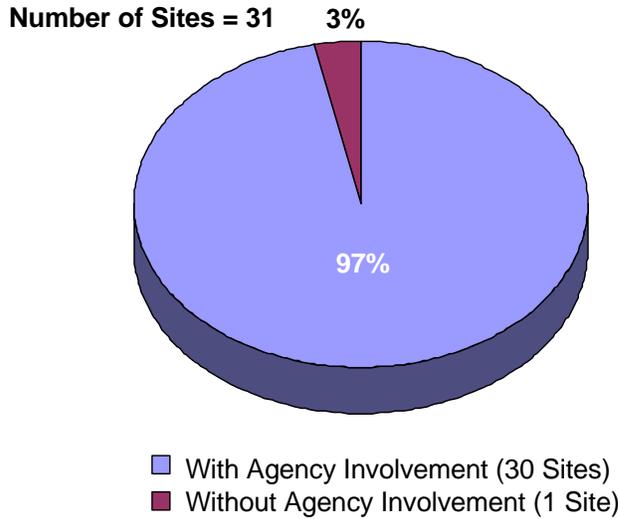
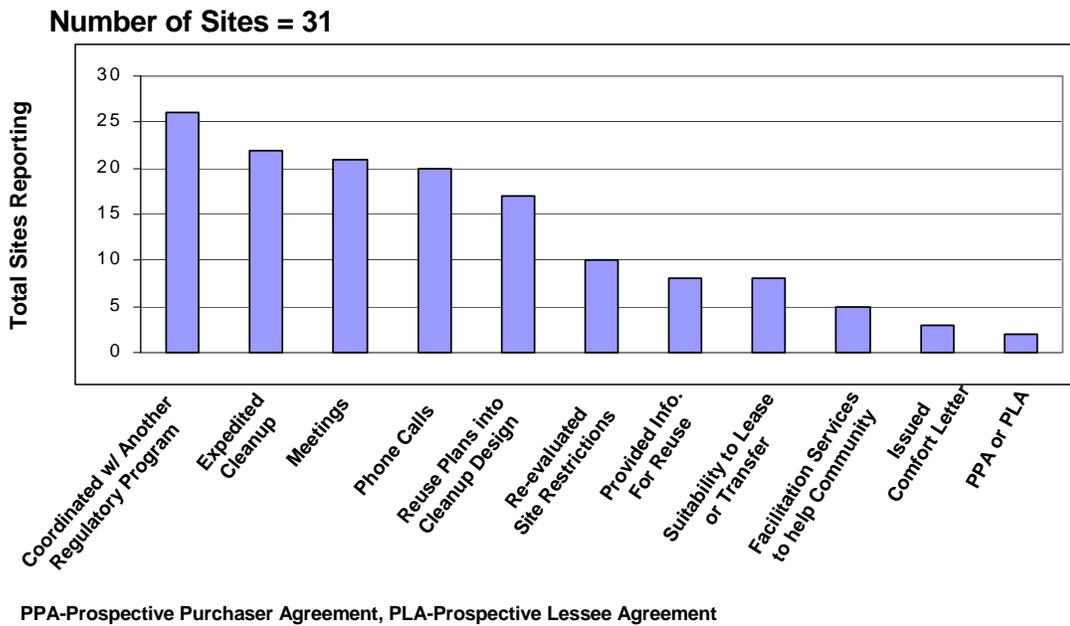


Figure 3-14: Region 3 Federal Facility Sites Tools Used To Support Reuse & Planned Reuse



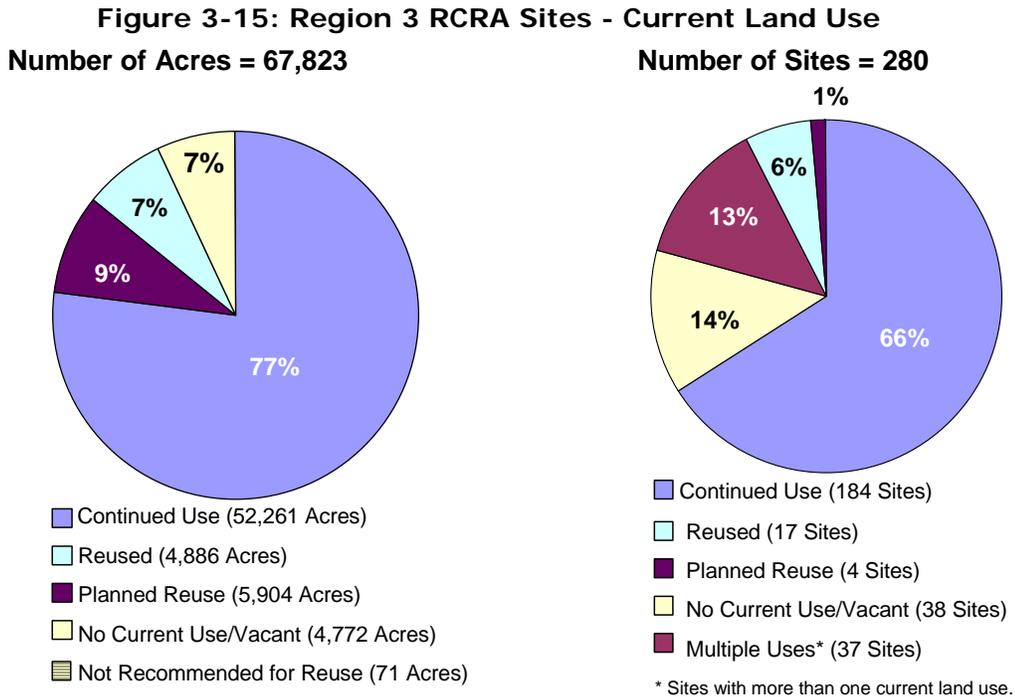
***Economic and Environmental Benefits***

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.



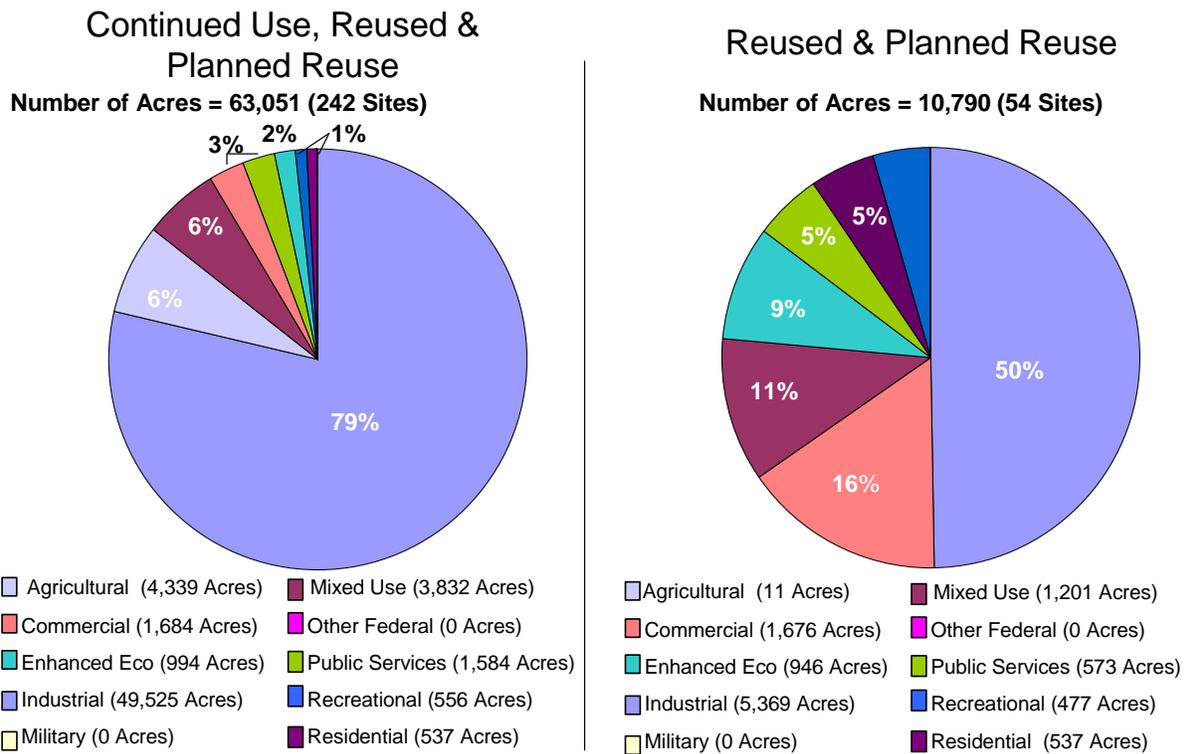
**EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment**

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.

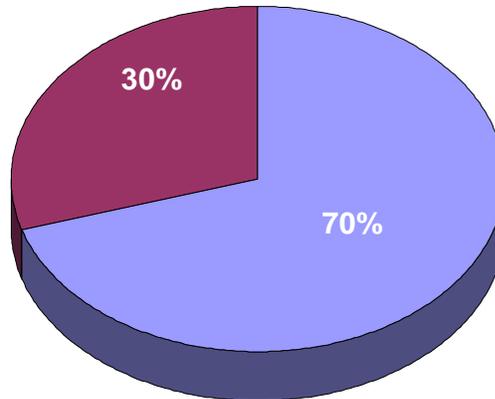
## EPA Region 3 - Hazardous Waste Cleanup Sites Land Use & Reuse Assessment

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.

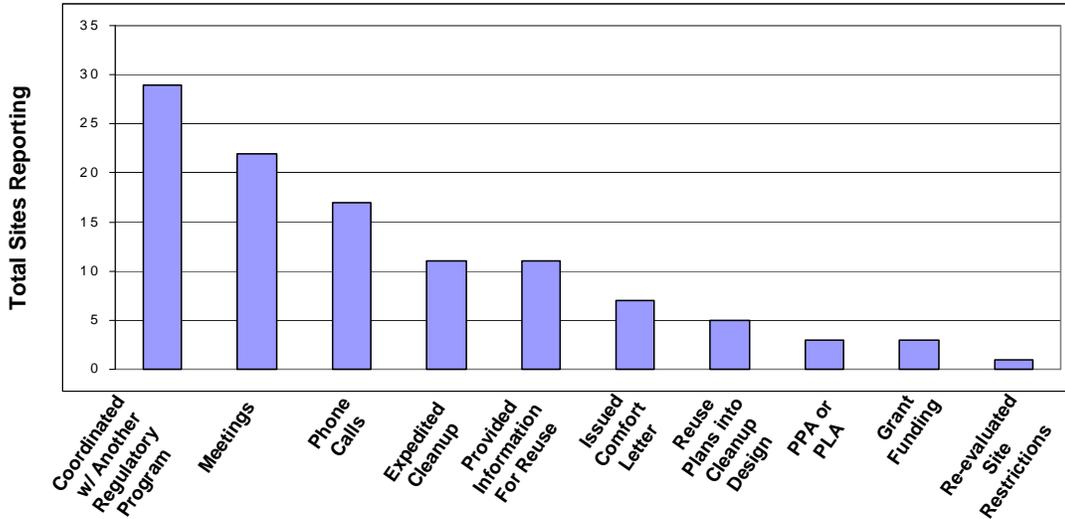
**Figure 3-17: Region 3 RCRA Sites Agency Involvement-Reused & Planned Reuse**  
Number of Sites = 54



■ 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.