# Local Government Planning Tool to Calculate Institutional and Engineering Control Costs for Brownfield Properties

***Developed by EPA's Office of Brownfields and Land Revitalization***

Overview:

This cost calculator is designed as a voluntary guide for municipal or local governments to assist in calculating their expected costs of implementing and conducting long-term stewardship (LTS) of institutional controls (ICs) and engineering controls (ECs) at brownfield properties. ICs are administrative and legal controls designed to minimize exposure to remaining on-site contamination and to protect constructed remedies. ECs are constructed remedies at contaminated properties and typically include caps, sub-surface venting systems, barriers, and fences. LTS refers to the activities necessary to ensure that ECs are maintained and that ICs continue in force. In general, primary responsibility for maintaining ICs/ECs rest with the property owner and others responsible for cleanup. The state response program often plays a large role in selecting, implementing, and monitoring ICs/ECs; however, local governments, as controllers of local land use and zoning, often have responsibilities associated with ICs/ECs and LTS at brownfield properties. Each of these separate entities may have different roles, responsibilities and costs. It is important to calculate the full cost of LTS for ICs and ECs, both short- and long-term to ensure adequate resources are available for their management over time.

This cost calculator assumes that the local government's role at a brownfield is as a governmental entity with jurisdiction over the property and not as a responsible party. This cost calculator may not identify all of the activities that a local government that is also a responsible party might be required to undertake. In most instances a state's response program will set the rules for ICs, ECs and LTS. The state program may specify roles, responsibilities, or activities for the local government. Best practice is for the state response program, local government, and other parties with IC/EC/LTS responsibilities to communicate clearly about the property. Many states have enacted the Uniform Environmental Covenants Act (UECA) or similar laws, which set rules for environmental covenants imposed on the property. This law and related legislation can address issues such as allowing the IC to "run with the land", IC language, notification to lessees of the IC, enforcement, and the elimination of common law impediments. In addition, some states use operation and maintenance agreements to define the roles, responsibilities, and specifications for LTS. Local governments should communicate with their state response program about the specific activities they plan to undertake with respect to ICs and LTS of ECs. This cost calculator was developed to include as large a range of the typical activities that a local government might engage in at a brownfield property, but may include activities or tasks that are not applicable to a specific program or property.

The content of this calculator is intended to be applicable to any scenario and as a result may be over-inclusive for any particular property or program. **Identified tasks may already have been completed or may not apply to your program and properties, so fill in only those lines that are relevant.**

Directions:

The file includes a “Programmatic Costs” tab and multiple “Property Costs” tabs. The programmatic tab will guide you through estimating the costs of running the IC program generally. The property-specific tabs are for calculating the IC costs of each individual property run by the program. The programmatic costs do not include the property-specific costs. There are activities that must be done for programmatic and property-specific purposes. Best practices include periodically revisiting the programmatic costs, particularly with the addition of a large property or a new type of property.

For the sake of clarity, the task lines in each tab are divided into seven categories: Preliminary, Planning, Public Information, Record Keeping Systems, Administration and Funding, Monitoring and Inspection, and Enforcement.

For each line, estimate the amount of whatever is prompted, whether hours (staff or consultants), miles, or dollars, to complete the task. For hours and miles, the estimated amount must then be multiplied by the expense rate. Wage tables from the U.S. Office of Personnel Management (http://www.opm.gov/oca/) or wage rates from http://www.wdol.gov/ may help with estimating wage rates when those figures are unknown.

The resulting amount will appear in the appropriate column: Initial Cost, Annual Cost, or Periodic Cost.

For annual costs, the resulting amount is then automatically multiplied by the expected length of the project. For simplicity, the length of the project may be selected from the drop-down box at the top of the page, marked “Period.” Adjusting this figure will automatically fill in the appropriate number of years throughout the cost calculator. The number of years from which one may select ranges from 1 to 50.

For periodic costs, the user must input the expected number of times that the task will be required within the time frame of the project (50 years or fewer). That number will then automatically be multiplied by the cost of the task.

The final figure for each task will appear in the “Total Cost” column on the far right of the calculator. Once cost estimates for each task relevant to the program or property at issue are completed and put into the calculator, a total initial cost and total overall cost (including the initial cost) will appear at the bottom of the last page. An estimated net present value of the total cost also will appear there.

Further explanations of some items may be found by placing the cursor over the red triangle as at the end of a line.

# Local Government Planning Tool to
# Calculate Institutional Control and Engineering Control Costs for Properties

## Programmatic Costs

**Program Name**

**Last Document Preparer**

**Date of Last Preparation/Review**

**Period (# of Years ICs Required)** 10

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Preliminary* | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | | # yrs | | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
| Time for identifying and reviewing federal, state, and/or tribal regulatory authorities and programs for institutional and engineering controls | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Attorney time for review of documents | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time for developing local ordinances and laws | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time for developing adaptive policies and procedures for ICs and ECs | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time for reviewing federal, state, and/or tribal mechanisms for managing LTS (e.g., operation and maintenance) of ICs/ECs, inventory, etc | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time to delineate roles/responsibilities for ICs and ECs among public and private parties | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time for developing plans for natural disasters | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| *Planning* | | | | | | | | | | | | | | | |
| Time for creating checklist of concerns | Hours | | x | | = | $ - | | | | | | | | = | $ - |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time to negotiate an MOU or other agreement with federal, state, and/or tribal authorities including mechanisms for inter-agency communications | Hours | | | | | $ - | | | | | | | | = | $ - |
| Time for developing a plan for ICs, ECs, and LTS activities, including funding for activities | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time for coordinating IC/EC with master plan, zoning, and building permit programs | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time to establish fees to off-set cost of operation of program and fee collection process | Hours | | x | | = | $ - | | | | | | | | = | $ - |
| Time for annual review and update of plan (regular review for effectiveness) | Hours | | x | | = | | $ - | x | 10 | | | | | = | $ - |
| Time for revising the plan as needed given the circumstances (law change, etc) | Hours | | x | | = | | | | | $ - | x | | | = | $ - |

| *Public Information* | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for designing and testing public communication program | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time to provide community education and outreach | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Travel cost for public outreach | Miles | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for coordinating agency communications | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time to update and post info on the web and develop new outreach materials | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for assessing/revising programs as needed | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| *Record Keeping Systems* | | | | | | | | | | | | | | |
| Time for identifying and reviewing state, tribal and/or local record keeping/tracking systems and develop new ones | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time to coordinate system with master plan, zoning, and building permit programs | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Cost of hardware for record keeping system | Cost | | | | = | $ - | | | | | | | = | $ - |
| Cost of software for record keeping system | Cost | | | | = | $ - | | | | | | | = | $ - |
| Cost of primary and redundant record storage | Cost | | | | = | $ - | | | | | | | = | $ - |
| Cost of purchasing geographic data and maps | Cost | | | | = | $ - | | | | | | | = | $ - |
| Time for managing/maintaining record keeping system | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for coordinating data sharing | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for ensuring software and data compatibility across agencies | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for maintaining QA/QC for data | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for responding to requests for information | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost of updating/replacing hardware as needed | Cost | | | | = | | | | | $ - | x | | = | $ - |

| *Record Keeping Systems (cont.)* | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost of updating/replacing software as needed | Cost | | | | = | | | | $ - | x | | = | $ - |
| Time for training new staff | Hours | | x | | = | | | | $ - | x | | = | $ - |
| *Monitoring and Inspection* | | | | | | | | | | | | | |
| Time for determining what monitoring data will be collected and how to record it | Hours | | x | | = | $ - | | | | | | = | $ - |
| Time for creating monitoring and inspection schedules | Hours | | x | | = | $ - | | | | | | = | $ - |
| Time for planning inspection activities | Hours | | x | | = | $ - | | | | | | = | $ - |
| Time for assigning responsibility for monitoring and inspection | Hours | | x | | = | $ - | | | | | | = | $ - |
| Time for training inspectors | Hours | | x | | = | $ - | | | | | | = | $ - |
| Cost of hardware/software or similar IT | Cost | | | | = | $ - | | | | | | = | $ - |
| Time for monitoring-related training and outreach | Hours | | x | | = | | | | $ - | x | | = | $ - |
| Cost of training and outreach materials | Cost | | | | = | | | | $ - | x | | = | $ - |
| *Enforcement* | | | | | | | | | | | | | |
| Time for planning of enforcement activities | Hours | | x | | = | $ - | | | | | | = | $ - |
| Time for determining enforcement authority and assigning responsibility | Hours | | x | | = | $ - | | | | | | = | $ - |
| Time for coordinating enforcement | Hours | | x | | = | | $ - | x 10 | | | | = | $ - |

| | | | | | |
|---|---|---|---|---|---|
| Total Initial Cost | = | $ - | | Total Cost | = $ - |
| | | | Estimated Net Present Value of Total Cost* | | = $ - |

* Estimated NPV of total cost is the sum of annual and periodic costs divided by the period and multiplied by the EPA-designated multi-year discount factor for the period, all added to the initial cost. The EPA-designated multi-year discount factors can be found at http://epa.gov/superfund/policy/remedy/pdfs/finaldoc.pdf.

# Local Government Planning Tool to Calculate Institutional Control Costs for Properties

## Property-Specific Costs

**Property Name**

**Document Preparer**

**Property Location (APN, tax acct #, or lot #)**

**Lat/Long or Polygon**

**Description of Institutional Control(s)**

**Period (# of Years ICs Required)** 10

☐ **State/Tribal Response Program**

**Date of Preparation**

| *Preliminary* | | | | Rate | | Initial Cost | Annual Cost | # yrs | Periodic Cost | # of Times in Period | | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for review of plans/descriptions of proposed institutional controls or modifications to existing institutional controls | Hours | | x | | = | $ - | | | | | = | $ - |
| Staff and attorney time for establishing the ICs, reviewing title, curing title defects, etc | Hours | | | | = | $ - | | | | | = | $ - |
| Time for obtaining financial assurances tc regulators/responsible parties | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for developing property specific guidance documents | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for developing plans for natural disasters | Hours | | x | | = | $ - | | | | | = | $ - |
| *Planning* | | | | | | | | | | | | |
| Time for site visit | Hours | | x | | = | $ - | | | | | = | $ - |
| Travel costs for site visit | Miles | | x | | = | $ - | | | | | = | $ - |
| *Public Information* | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost of publication of materials, PSAs, etc | Cost | | | | | | | | | | | | | | = | $ - |
| Cost of signs and permanent structures | Cost | | | | = | $ - | | | | | | | | | = | $ - |
| Time for delivering ongoing information programs | Hours | | x | | = | | $ - | x | 10 | | | | | | = | $ - |
| Travel cost for public outreach | Miles | | x | | = | | $ - | x | 10 | | | | | | = | $ - |
| Cost of updating published materials, signs etc | Cost | | | | = | | | | | $ - | x | | | | = | $ - |

*Record Keeping Systems*

| | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for maintaining QA/QC for data | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for reporting | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for responding to requests for information | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time for tracking property transactions and divisions | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time for surveying and re-parceling property if change in land use | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Travel cost for surveying related properties if change in land use | Miles | | x | | = | | | | | $ - | x | | = | $ - |
| Time for updating IC information used by all agencies if change in land use/owner | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost of permitting, oversight, and fees of other agencies | Cost | | | | = | | | | | $ - | x | | = | $ - |

*Administration and Funding*

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for planning long-term funding | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for establishing long-term funding mechanism | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for budgeting, obtaining funds, and reporting | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for obtaining funds for periodic activities | Hours | | x | | = | | | | | $ - | x | | = | $ - |

*Monitoring and Inspection*

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for determining what monitoring data will be collected and how to record it | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time to set up monitoring/inspection & integrate it with other government functions | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for assigning responsibility for monitoring and inspection | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for planning inspection activities and training inspectors | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for installing on-site monitoring equipment | Hours | | x | | = | $ - | | | | | | | = | $ - |

| *Monitoring and Inspection (cont.)* | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Travel cost for installing/inspecting on-site equipment | Miles | | x | | = | $ - | | | | | | | = | $ - |
| Cost of on-site equipment | Cost | | | | = | $ - | | | | | | | = | $ - |
| Time for coordinating monitoring of properties covered by multiple jurisdictions | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for collecting monitoring and inspection data, check for land use change | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Travel cost for annual on-site monitoring and inspection | Miles | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for inputting data and reporting results | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for visiting properties for possible changes in land use or other issues | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Travel cost for periodic site visits | Miles | | x | | = | | | | | $ - | x | | = | $ - |
| Time for monitoring-related training and outreach | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost of training and outreach materials | Cost | | | | = | | | | | $ - | x | | = | $ - |

| *Enforcement* | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for determining enforcement authority and assigning responsibility | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for coordinating enforcement | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for reviewing inspection and monitoring data to ensure property compliance | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for issuing orders | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time or mediator fees for negotiation | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Legal fees to address a violation | Cost | | | | = | | | | | $ - | x | | = | $ - |
| Time for updating records and the hazardous property registry as needed | Hours | | x | | = | | | | | $ - | x | | = | $ - |

| *Enforcement (cont.)* | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for sharing updated information with other agencies as needed | Hours | | x | | = | | | | $ - | x | | = | $ - |
| Time for addressing failed ICs and implementing new ICs | Hours | | x | | = | | | | $ - | x | | = | $ - |
| Travel cost for site visit to inspect and repair damage | Miles | | x | | = | | | | $ - | x | | = | $ - |
| Time for altering ICs if cleanup standards change | Hours | | x | | = | | | | $ - | x | | = | $ - |
| Attorney time for review of documents, new ICs, etc if circumstances change | Hours | | x | | = | | | | $ - | x | | = | $ - |

| | | | | |
|---|---|---|---|---|
| Total Initial Cost | = | $ - | Total Cost | = $ - |
| | | | Estimated Net Present Value of Total Cost* | = $ - |

* Estimated NPV of total cost is the sum of annual and periodic costs divided by the period and multiplied by the EPA-designated multi-year discount factor for the period, all added to the initial cost. The EPA-designated multi-year discount factors can be found at http://epa.gov/superfund/policy/remedy/pdfs/finaldoc.pdf.

# Local Government Planning Tool to Calculate Institutional Control Costs for Properties

## Property-Specific Costs

**Property Name**

**Document Preparer**

**Property Location (APN, tax acct #, or lot #)**

**Lat/Long or Polygon**

**Description of Institutional Control(s)**

**Period (# of Years ICs Required)** 10

☐ **State/Tribal Response Program**

**Date of Preparation**

| | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | # yrs | Periodic Cost ($) | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Preliminary* | | | | | | | | | | | | |
| Time for review of plans/descriptions of proposed institutional controls or modifications to existing institutional controls | Hours | | x | | = | $ - | | | | | = | $ - |
| Staff and attorney time for establishing the ICs, reviewing title, curing title defects, etc | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for obtaining financial assurances tc regulators/responsible parties | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for developing property specific guidance documents | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for developing plans for natural disasters | Hours | | x | | = | $ - | | | | | = | $ - |
| *Planning* | | | | | | | | | | | | |
| Time for site visit | Hours | | x | | = | $ - | | | | | = | $ - |
| Travel costs for site visit | Miles | | x | | = | $ - | | | | | = | $ - |
| *Public Information* | | | | | | | | | | | | |
| Cost of publication of materials, PSAs, etc | Cost | | | | = | $ - | | | | | = | $ - |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost of signs and permanent structures | Cost | | | | | | | | | | | | | = | $ - |
| Time for delivering ongoing information programs | Hours | | x | $ | =- = | | $ - | x | 10 | | | | | = | $ - |
| Travel cost for public outreach | Miles | | x | | = | | $ - | x | 10 | | | | | = | $ - |
| Cost of updating published materials, signs etc | Cost | | | | = | | | | | $ - | x | | | = | $ - |

*Record Keeping Systems*

| | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for maintaining QA/QC for data | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for reporting | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for responding to requests for information | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time for tracking property transactions and divisions | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time for surveying and re-parceling property if change in land use | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Travel cost for surveying related properties if change in land use | Miles | | x | | = | | | | | $ - | x | | = | $ - |
| Time for updating IC information used by all agencies if change in land use/owner | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost of permitting, oversight, and fees of other agencies | Cost | | | | = | | | | | $ - | x | | = | $ - |

*Administration and Funding*

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for planning long-term funding | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for establishing long-term funding mechanism | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for budgeting, obtaining funds, and reporting | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for obtaining funds for periodic activities | Hours | | x | | = | | | | | $ - | x | | = | $ - |

*Monitoring and Inspection*

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for determining what monitoring data will be collected and how to record it | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time to set up monitoring/inspection & integrate it with other government functions | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for assigning responsibility for monitoring and inspection | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for planning inspection activities and training inspectors | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for installing on-site monitoring equipment | Hours | | x | | = | $ - | | | | | | | = | $ - |

| *Monitoring and Inspection (cont.)* | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Travel cost for installing/inspecting on-site equipment | Miles | | x | | = | $ - | | | | | | | = | $ - |
| Cost of on-site equipment | Cost | | | | = | $ - | | | | | | | = | $ - |
| Time for coordinating monitoring of properties covered by multiple jurisdictions | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for collecting monitoring and inspection data, check for land use change | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Travel cost for annual on-site monitoring and inspection | Miles | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for inputting data and reporting results | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for visiting properties for possible changes in land use or other issues | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Travel cost for periodic site visits | Miles | | x | | = | | | | | $ - | x | | = | $ - |
| Time for monitoring-related training and outreach | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost of training and outreach materials | Cost | | | | = | | | | | $ - | x | | = | $ - |

| *Enforcement* | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for determining enforcement authority and assigning responsibility | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for coordinating enforcement | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for reviewing inspection and monitoring data to ensure property compliance | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for issuing orders | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time or mediator fees for negotiation | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Legal fees to address a violation | Cost | | | | = | | | | | $ - | x | | = | $ - |
| Time for updating records and the hazardous property registry as needed | Hours | | x | | = | | | | | $ - | x | | = | $ - |

| *Enforcement (cont.)* | | | | Rate ($) | | Initial Cost ($) | Annual Cost ($) | # yrs | Periodic Cost ($) | | # of Times in Period | | Total Cost ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for sharing updated information with other agencies as needed | Hours | | x | | = | | | | $ - | x | | = | $ - |
| Time for addressing failed ICs and implementing new ICs | Hours | | x | | = | | | | $ - | x | | = | $ - |
| Travel cost for site visit to inspect and repair damage | Miles | | x | | = | | | | $ - | x | | = | $ - |
| Time for altering ICs if cleanup standards change | Hours | | x | | = | | | | $ - | x | | = | $ - |
| Attorney time for review of documents, new ICs, etc if circumstances change | Hours | | x | | = | | | | $ - | x | | = | $ - |

| | | | | |
|---|---|---|---|---|
| Total Initial Cost | = | $ - | Total Cost | = $ - |
| | | | Estimated Net Present Value of Total Cost* | = $ - |

* Estimated NPV of total cost is the sum of annual and periodic costs divided by the period and multiplied by the EPA-designated multi-year discount factor for the period, all added to the initial cost. The EPA-designated multi-year discount factors can be found at http://epa.gov/superfund/policy/remedy/pdfs/finaldoc.pdf.

# Local Government Planning Tool to Calculate Engineering Control Costs for Properties

## Property-Specific Costs

**Property Name**

**Document Preparer**

**Property Location (APN, tax acct #, or lot #)**

**Lat/Long or Polygon**

**Description of Engineering Control(s)**

**Period (# of Years ECs Required)** 10

**State/Tribal Response Program**

**Date of Preparation**

*Preliminary*

| | | | | Rate | | Initial Cost | Annual Cost | # yrs | Periodic Cost | # of Times in Period | | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for review of plans/descriptions of proposed engineering controls or modifications to existing engineering controls | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for review of LTS documents (e.g., environmental covenants, operation & maintenance plans, remedial action plans) | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for obtaining financial assurances (e.g., bonds, insurance, escrow) to regulators/responsible parties | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for processing notifications/permits/approvals for engineering controls | Hours | | x | | = | $ - | | | | | = | $ - |
| Time for developing plans for natural disasters | Hours | | x | | = | $ - | | | | | = | $ - |

*Planning*

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time to develop LTS plan for engineering controls | Hours | | x | | = | $ - | | | | | | | | | = | $ - |
| Time for review of documents, new ECs, etc if circumstances change | Hours | | x | | = | | | | | | $ - | x | | = | $ - | | |
| Time to schedule and conduct initial site visit | Hours | | x | | = | $ - | | | | | | | | = | $ - | | |
| Travel costs for initial site visit | Miles | | x | | = | $ - | | | | | | | | = | $ - | | |

*Installation*

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost to install or establish engineering control | Cost | | x | | | $ - | | | | | | | | = | $ - | | |
| Cost of permitting, oversight, and fees of other agencies for installing or establishing Ecs | Cost | | x | | | $ - | | | | | | | | = | $ - | | |
| Time to inspect installation of engineering controls | Hours | | x | | | $ - | | | | | | | | = | $ - | | |
| Travel cost to inspect installation of engineering controls | Miles | | x | | | $ - | | | | | | | | = | $ - | | |

*Public Information*

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost of publication and distribution of materials (e.g., legal notices, mailings to neighbors) | Cost | | | | = | $ - | | | | | | | | = | $ - | | |
| Time for delivering ongoing information programs (e.g., participating in or conducting public meetings) | Hours | | x | | = | | $ - | x | 10 | | | | | = | $ - | | |
| Travel cost for information programs (e.g., outreach) | Miles | | x | | = | | $ - | x | 10 | | | | | = | $ - | | |
| Cost of updating published materials, notices, etc | Cost | | | | = | | | | | | $ - | x | | = | $ - | | |

*Record Keeping Systems*

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for maintaining QA/QC for data | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for reporting | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for responding to requests for information | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time for tracking property transactions and divisions | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Time for surveying and re-parceling property if change in land use | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Travel cost for surveying related properties if change in land use | Miles | | x | | = | | | | | $ - | x | | = | $ - |
| Time for updating EC information used by all agencies if change in land use/owner | Hours | | x | | = | | | | | $ - | x | | = | $ - |

*Administration and Funding*

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for planning long-term funding | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for establishing long-term funding mechanism | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for budgeting, obtaining funds, and reporting | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for tracking source of funding for the ECs and expenditures against funds | | | | | | | $ - | x | 10 | | | | = | $ - |
| Time for obtaining funds for periodic activities | Hours | | x | | = | | | | | $ - | x | | = | $ - |

*Monitoring and Inspection*

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for determining what monitoring/inspection data will be collected and how to record it | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time to set up monitoring/inspection program & integrate it with other government functions | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for assigning responsibility for monitoring/inspection | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for planning monitoring/inspection activities and training inspectors | Hours | | x | | = | $ - | | | | | | | = | $ - |
| Time for inspector review of operation, maintenance, or other requirements for engineering controls prior to site visit (e.g., property-specific guidance documents) | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for site visit for monitoring/inspection | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for collecting and organizing monitoring/inspection data, check for land use change | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for updating tracking system with monitoring/inspection data and reporting results | Hours | | x | | = | | $ - | x | 10 | | | | = | $ - |
| Time for inspection/monitoring-related training and outreach | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost of on-going training and related materials | Cost | | | | = | | | | | $ - | x | | = | $ - |

*Operation and Maintenance*

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost for operation and maintenance of engineering controls (Contracted) | Cost | | x | | = | | | | | $ - | x | | = | $ - |
| Time for operation and maintenance of engineering controls (In-house) | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost for materials for operation and maintenance (In-house) | Cost | | x | | = | | | | | $ - | x | | = | $ - |
| Travel cost for periodic site visits for operation and maintenance (In-house) | Miles | | x | | = | | | | | $ - | x | | = | $ - |
| Time inspect and repair damage of engineering controls (In-house) | Hours | | x | | = | | | | | $ - | x | | = | $ - |
| Cost for materials to repair damage of engineering controls (In-house) | Cost | | x | | = | | | | | $ - | x | | = | $ - |
| Travel cost for site visit to repair damage of engineering controls (In-house) | Miles | | x | | = | | | | | $ - | x | | = | $ - |

*Enforcement*

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time for determining enforcement authority and assigning responsibility | Hours | | x | | = | $ - | | | | | | | | | = | $ - |
| Time for coordinating enforcement | Hours | | x | | = | | $ - | x | 10 | | | | | | = | $ - |
| Time for reviewing inspection and monitoring data to ensure property compliance | Hours | | x | | = | | $ - | x | 10 | | | | | | = | $ - |
| Time for issuing orders | Hours | | x | | = | | | | | $ - | x | | = | $ - | | | | |
| Time or mediator fees for negotiation | Hours | | x | | = | | | | | $ - | x | | = | $ - | | | | |
| Legal fees to address a violation | Cost | | | | = | | | | | $ - | x | | = | $ - | | | | |
| Time for updating records and tracking system as needed | Hours | | x | | = | | | | | $ - | x | | = | $ - | | | | |
| Time for sharing updated information with other agencies as needed | Hours | | x | | = | | | | | $ - | x | | = | $ - | | | | |
| Time for addressing failed ECs and implementing new ECs | Hours | | x | | = | | | | | $ - | x | | = | $ - | | | | |

| Total Initial Cost | = | $ - |
|---|---|---|

| Total Cost | = | $ - |
|---|---|---|

| Estimated Net Present Value of Total Cost* | = | $ - |
|---|---|---|

* Estimated NPV of total cost is the sum of annual and periodic costs divided by the period and multiplied by the EPA-designated multi-year discount factor for the period, all added to the initial cost. The EPA-designated multi-year discount factors can be found at http://epa.gov/superfund/policy/remedy/pdfs/finaldoc.pdf.